



- Pulse Counters and Preset Counters
- Hour Meters and Timers
- Frequency Meters and Tachometers
- Combination Time and Energy Meters
- Position Displays
- Process Displays and Controllers for Temperature, Analogue Signals and Strain-Gauge
- Setpoint Adjuster

Kübler Service for planning dependability



Service Center / Technical Hotline

Thanks to its Service Center, Kübler is available directly on site all over the world for advice, analysis or installation support. Our Hotline will answer your technical questions Mon-Fri within normal working hours:

Kübler Germany	+49 7720 3903 35
Kübler France	+33 3 89 53 45 45
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With our 10 by 10 Service we will manufacture and deliver 10 encoders within 10 working days (365 days a year - with the exception of 24th Dec. until 2nd Jan.)

The benefits to you:

- Easier to order
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- Flexibility for small production batches



48 h Express Service

Short delivery times, a high level of on-time delivery, guaranteed quality and enthusiastic, service-oriented employees – these are what our customers can depend on.

We can process your order within 48 hours; we can ship stock items the same day.



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The Kübler Service Centre can quickly manufacture special, customised versions within a short space of time. We are happy to help you with the practicalities of using our products – at your location if desired.

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Tailor-made solutions – Kübler Design System (KDS)

With the KDS method our customers receive a lasting solution to lowering costs, reducing the number of models available or eliminating quality deficiencies.

With KDS we develop product and engineering solutions together. The method stands out because of its structured process; this delivers innovation through experience and cooperation with the customer.



Kübler online – www.kuebler.com

- Up-to-date product and company information
- Product finder – the selection tool that helps you finding quickly the suitable product
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Our Product Portfolio



Position and Motion Sensors

- Incremental Encoders
- Absolute Encoders
- Linear Measuring Technology
- Inclometers
- Safety Technology
- Connection Technology
- Accessories

Counters and Process Devices

- Pulse Counters and Preset Counters
- Hour Meters and Timers
- Frequency Meters and Tachometers
- Combination Time and Energy Meters
- Position Displays
- Process Displays and Controllers for Temperature, Analogue Signals and Strain-Gauge
- Setpoint Adjuster

Connector and Signal Transmission Technology

- Slip Rings
- Optical Fibre Signal Transmission Modules
- Cables, Connectors and Cordsets

OEM Products and Systems (OPS)

- Customised Displays, Measurement and Control Components
- Complete System Solutions: Sensor Technology, Electronics, Mechanics

We provide pulses for innovations



The Kübler Group belongs today to the leading specialists worldwide in the fields of position and motion sensors, counting and process technology as well as transmission technology.

Founded in the year 1960 by Fritz Kübler, the family business is now led by the next generation of Gebhard and Lothar Kübler.

Nine international group members and distributors in more than 50 countries offer local product know-how, service and advice throughout the world. Kübler has grown particularly strongly over the past 10 years and now boasts a turnover in excess of 45 million euro, with many major international customers.

Innovative product and sector solutions, as well as solutions for Functional Safety and a high level of service, are the reasons behind our global success.

The strict focus on quality ensures the highest levels of reliability and a long service life for our products in the field. Over 380 dedicated people worldwide, including 290 in Germany, make this success possible and ensure that customers can continue to place their trust in our company.

Counters and process devices 2013

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Product overview / Basics



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Product overview

Pulse counters electronic

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions Front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD pulse counters																					
	Codix 130 adding or subtracting, AC/DC	•	–	–	–	–	–	•	•	–	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•		48
	Codix 131 count direction or difference counter, AC/DC	•	–	–	–	–	–	•	•	–	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•		51
	Codix 132 count direction, AC	•	–	–	–	–	–	•	•	–	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•		54
	Codix 140 adding 0...9999999	•	–	–	–	–	–	•	•	–	LCD	7	48x24	45x22,2	47,7	-20...+65	IP65	DC	•	–	57
LCD service counters																					
	Codix 142 service counter 0...9999999	•	–	–	–	–	1o	•	•	•	LCD	7	48x24	45x22,2	47,7	-20...+65	IP65	DC	•	–	57
LED pulse counters																					
	Codix 520 adding	•	–	–	–	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		60
	Codix 521 6 count modes	•	–	–	•	–	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		63
	Codix 524 Multifunction	•	•	•	•	–	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		240
	Codix 52U with dual functions in 4 combinations	•	•	•	•	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		248
	Codix 52P + Frequency 6 count modes	•	–	•	•	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		251
	Codix 52T / 52C 2 totalisers with separate scaling; 52C with separate inputs	•	–	–	–	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		66 / 69
	Codix 540 adding	•	–	–	–	–	–	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		72
	Codix 541 6 count modes	•	–	–	•	–	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		75
	Codix 544 Multifunction	•	•	•	•	–	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		243
	Codix 54U with dual functions in 4 combinations	•	•	•	•	–	–	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		254
	Codix 54P + Frequency 6 count modes	•	–	•	•	–	–	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		257
	571 multifunctional (also reciprocal) analogue output, serial interface	•	•	•	•	SI	2o	•	•	•	LED	6	96x48	92x45	141	0...+45	IP65	AC/DC	•	–	246
LCD module																					
	190 PCB mounting	•	–	–	–	–	–	•	–	–	LCD	7	32x18	–	5	-40...+80	–	DC	•	–	78
	192 PCB mounting	•	–	–	–	–	–	•	–	–	LCD	6	32x18	–	5	-40...+85	–	DC	•	–	80

Product overview


Pulse counters electromechanical

		Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Approvals	Page	
Micro counters																			
	K 46 / K 47 high shock resistance	•	-	-	•	•	-	-	-	6 / 7	30x20 panel mount	27x14	-10...+60	IP65	DC	•	-	82	
	K 66 / K 67 high shock resistance, magnetic field resistant	•	-	-	•	•	-	-	-	6 / 7	30x20 panel mount	27x14	-10...+60	IP65	DC	•	-	85	
	K 04 / K 05 high shock resistance	•	-	-	•	•	-	-	-	4 / 5	26x15 panel mount	24x13	-10...+60	IP65	AC/DC	•	cULus	88	
	K 06 / K 07 / AK 07 high shock resistance	•	-	-	•	•	•	-	-	6 / 7	32x15 panel mount	30x13	-10...+60	IP65	AC/DC	•	cULus	88	
	SK 07 high shock resistance, for DIN rail	•	-	-	-	-	•	•	-	7	30x65	-	-10...+60	IP50	AC/DC	•	cULus	94	
Mini counters																			
	W 15 Also in DIN format 48x24mm	•	-	-	•	-	-	-	manual	5	from 34x23	from 31x20	-10...+60	IP40	AC/DC	•	-	96	
	W 16 / W 17 Also in DIN format 48x24mm	•	-	-	•	•	-	-	-	6 / 7	from 4x23	from 31x20	-10...+60	IP41	AC/DC	•	-	99	
Standard counters																			
	Bk 14 Very long service life	•	-	-	•	-	-	-	manual	4	from 37x28	from 33,3x25	-10...+60	IP40 IP41	AC/DC	•	-	102	
	B 16 / B 18 Very long service life	•	-	-	•	-	-	• ¹⁾	manual (only B16)	6 / 8	from 50x25	50x25	-10...+60	IP40 IP41	AC/DC	•	-	104	
	Mk 14 / Mk 16 Very long service life	•	-	-	•	-	-	-	manual electrical	4 / 6	from 37x26	from 33,3x22	-10...+45	IP40 IP41	AC/DC	•	-	110	
Counting mechanism with stepper motor																			
	KWh 17	•	-	-	-	-	•	-	-	7	57 x 30	-	-20...+70	-	DC stepper	•	-	113	
Dual function counters																			
	HC 77 combination hour meter and totaliser	•	•	-	•	-	-	-	-	2x7	from 48x48	45x45 ø50,5	-15...+50	IP65	AC/DC	•	cULus	207	
	SHC 77 combination hour meter and totaliser	•	•	-	-	-	•	-	-	2x7	48,5x61,5	-	-15...+50	IP52	AC/DC	•	cULus	210	
	HW 66 / HW 66 M combination hour meter and energy meter	-	•	•	•	-	-	-	-	2x6	from 48x48	45x45 ø50	-20...+55	IP65	AC	•	-	262	

1) With mounting frame








Product overview

Pulse counters pneumatic




		Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Panel cut-out in mm (for front panel version)	Signal	Protection max.	Count frequency max. in Hz	RoHS compliant	Page
	PMk 14 / PMk 16 / PMk 18 Totaliser	•	-	-	-	manual (PMk 14, PMk 16)	4/6/8	33,3x22 48x24	L signal = 1,5...8 bar O signal ≤ 0,15 bar	IP41	17 / 50	•	115

Product overview

Preset counters electronic

		Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD preset counters																						
	901 adding or subtracting	•	-	-	-	-	-	1r	•	•	•	LCD	2x6	48x48	45x45	63,2	-10...+50	IP65	Batt.	•	cULUS	120
	Codix 907 / 908 decade keyboard count frequency 5 kHz	•	•	-	-	•	-	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48	45x45	91	-10...+50	IP65	AC/DC	•	-	123
	Codix 923 / 924 multicolour display decade keyboard count frequency 60 kHz	•	•	•	•	•	-	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48	45x45	91	-20...+65	IP65	AC/DC	•	cULUS	126
LED preset counters																						
	Codix 716 / 717 (ATEX) opt. serial interface ATEX version available	•	•	•	•	•	SI	1r,o 2r,o	•	•	•	LED	6	48x48	45x45	80	-10...+50	IP65	AC/DC	•	cULUS	133
	Codix 560 LED multifunction preset counters, 14 segment LED, automatic help texts, opt. serial interface	•	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48	92x45	91	-20...+65	IP65	AC/DC	•	1) cULUS	138
	571 multifunctional (also reciprocal) analogue output, serial interface	•	•	•	•	•	SI	2o	•	•	•	LED	6	96x48	92x45	141	0...+45	IP65	AC/DC	•	-	246
	572 dual preset counters with 4 outputs and analogue output, serial interface	•	-	-	-	•	SI	4o	•	•	•	LED	6/8	96x48	92x45	141	0...+45	IP65	AC/DC	•	-	143

Preset counters electromechanical














		Pulse	Time	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Presets	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Page
Standard counters																	
	BVa 15 adding with preset constantly visible	•	-	•	-	-	• ²⁾	1	manual	2 x 5	from 50 x 50	50 x 50	-10...+60	IP40	AC/DC	•	146
	MVs 13 subtracting	•	-	•	-	-	-	1	manual electrical	2 / 3	from 39 x 55	33,3 x 50	-10...+45	IP40	AC/DC	•	150
	MVs 16 subtracting	•	-	•	-	-	• ²⁾	1	manual electrical	6	from 50 x 50	50 x 50	-10...+45	IP40	AC/DC	•	153

1) In process

2) With mounting frame G300002/G300003

Product overview

Hout meter Timer electronic

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (S)	Presents: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD hour meter																					
	Codix 134 99999h59m or 99999.99h	-	•	-	-	-	-	•	•	-	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•		158
	Codix 135 9999h59m59s or 99999999.9h	-	•	-	-	-	-	•	•	-	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•		161
	Codix 141 99999.99h	-	•	-	-	-	-	•	•	-	LCD	7	48x24	45x22,2	47,7	-20...+65	IP65	DC	•	-	164
LCD service timers																					
	Codix 143 service timer 99999.99h	-	•	-	-	-	1o	•	•	•	LCD	7	48x24	45x22,2	47,7	-20...+65	IP65	DC	•	-	164
LED timers																					
	Codix 523 h, min, sec or hh.mm.ss	-	•	-	-	-	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		167
	Codix 524 multifunction	•	•	•	•	•	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		240
	Codix 52U with dual functions in 4 combinations	•	•	•	•	-	-	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•		248
	Codix 543 h, min, sec or hh.mm.ss	-	•	-	-	-	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		170
	Codix 544 multifunction	•	•	•	•	•	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		243
	Codix 54U with dual functions in 4 combinations	•	•	•	•	-	-	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•		254
LCD time modules																					
	194 PCB mounting	-	•	-	-	-	-	•	-	-	LCD	6	32x18	-	5	-40...+80	-	DC	•	-	173
	198 PCB mounting	-	•	-	-	-	-	•	-	-	LCD	6	32x18	-	5	-40...+85	-	DC	•	-	175

Product overview

Hour meter Timer electromechanical

		Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Approvals	Page
Micro timers																		
	HK 47 high shock resistance	-	•	-	•	•	-	-	-	7	30x20 panel mount	27x14	-10...+60	IP66	DC	•	-	177
	HK 07 / AHK 07 high shock and impact resistance	-	•	-	•	•	•	-	-	7	32x15 panel mount	30x13	-10...+60	IP65	DC	•	-	179
Timers with DIN dimensions																		
	HK 17 small dimensions	-	•	-	•	-	-	-	-	7/8	from 37x26	33x22	-15...+50	IP65	AC/DC	•	cULUS	182
	H 37 also in DIN format 48x24mm	-	•	-	•	-	-	• ¹⁾	-	7/8	from 48x24	from 45x22	-15...+50	IP65	AC/DC	•	cULUS	185
	H 57 / AH 57 DIN format 48x48mm	-	•	-	•	-	-	•	-	7/8	from 48x48	45x45 ø50	-15...+50	IP65	AC/DC	•	cULUS	189
Timers for DIN rail mounting																		
	H 57 / AH 57 DIN format 48x48mm	-	•	-	•	-	-	•	-	7/8	from 48x48	45x45 ø50	-15...+50	IP65	AC/DC	•	cULUS	189
	SHK 07 high shock resistance	-	•	-	-	-	-	•	-	7	30x65	-	-10...+60	IP52	AC/DC	•	-	192
	SH 17 36 mm wide	-	•	-	-	-	-	•	-	7	36x90	-	-10...+70	IP65	AC/DC	•	-	194
Timers, round design																		
	HR 47 opt. run indicator	-	•	-	•	-	-	-	-	7	ø58	ø50	-25...+80	IP65	AC/DC	•	-	196
	HR 76 high shock resistance	-	•	-	•	-	-	-	-	6	from ø58,7	ø50,8	-30...+65	IP65	AC/DC	•	cULUS	198
Standard timers																		
	HB 26 plug-in version, long service life	-	•	-	•	-	-	• ¹⁾	manual	6	from 50x25	50x25	-15...+50	IP41	AC/DC	•	-	200
	HB 27 long service life	-	•	-	•	-	-	• ¹⁾	-	7	from 50x25	50x25	-15...+50	IP51	AC/DC	•	-	204
Dual function counters																		
	HC 77 combination hour meter and totaliser	•	•	-	•	-	-	-	-	2x7	from 48x48	45x45 ø50,5	-15...+50	IP65	AC/DC	•	cULUS	207
	SHC 77 combination hour meter and totaliser	•	•	-	-	-	-	•	-	2x7	48,5x61,5	-	-15...+50	IP52	AC/DC	•	cULUS	210
	HW 66 / HW 66 M combination hour meter and energy meter	-	•	•	•	-	-	• ¹⁾	-	2x6	from 48x48	45x45 ø50	-20...+55	IP65	AC	•	-	262



1) With mounting frame

Product overview




Time preset counters electronic

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
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LCD time preset counters

	Codix 907 / 908 decade keyboard, count frequency 5 kHz	•	•	–	–	•	–	1r 2r	•	•	•	LCD/ LED Look	2x6 48x48	45x45	91	-10...+50	IP65	AC/DC	•	–	123
	Codix 923 / 924 multicolor display, decade keyboard, count frequency 60 kHz	•	•	•	•	•	–	up to 4r 6o	•	•	•	LCD/ LED Look	2x6 48x48	45x45	91	-20...+65	IP65	AC/DC	•	CE, UL, US	126


LED time preset counters

	Codix 716 / 717 (ATEX) opt. serial interface ATEX version available	•	•	•	•	•	SI	1r;o 2r;o	•	•	•	LED	6 48x48	45x45	80	-10...+50	IP65	AC/DC	•	CE, UL, US	133
	Codix 560 LED multifunction preset counters, 14 segment LED, automatic help texts, opt. serial interface	•	•	•	•	•	SI FB	2r	•	•	•	LED	6 96x48	92x45	91	-20...+65	IP65	AC/DC	•	CE, UL, US	138
	571 multifunctional (also reciprocal) analogue output, serial interface	•	•	•	•	•	SI	2o	•	•	•	LED	6 96x48	92x45	141	0...+45	IP65	AC/DC	•	–	246

Time preset counters electromechanical

	Pulse	Time	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Presets	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Page
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Standard time preset counters

	HVa 15 adding 999.99 h	–	•	•	–	• ²⁾	1	manual	2 x 5	from 50 x 50	50 x 50	-15...+50	IP42	AC/DC	•	212
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1) In process

2) With mounting frame G300002/G300003

Product overview

Frequency display Tachometer

		Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD frequency display																						
	Codix 136 in Hz	-	-	•	•	-	-	-	-	-	-	LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•	c _{UL} US	218
LED frequency display																						
	Codix 522 1/sec or 1/min	-	-	•	•	-	-	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	c _{UL} US	220
	Codix 524 multifunction	•	•	•	•	•	-	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	c _{UL} US	240
	Codix 52U with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	c _{UL} US	248
	Codix 52P + Frequency 6 count modes	•	-	•	•	•	-	-	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	c _{UL} US	251
	Codix 542 1/sec or 1/min	-	-	•	•	-	-	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	c _{UL} US	223
	Codix 544 multifunction	•	•	•	•	•	-	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	c _{UL} US	243
	Codix 54U with dual functions in 4 combinations	•	•	•	•	-	-	-	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	c _{UL} US	254
	Codix 54P + Frequency 6 count modes	•	-	•	•	•	-	-	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	c _{UL} US	257




Frequency displays Tachometers with limits

		Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD tachometers (with multicolour, LED look)																						
	Codix 923 / 924 multicolor display, decade keyboard, count frequency 60 kHz	•	•	•	•	•	-	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48	45x45	91	-20...+65	IP65	AC/DC	•	c _{UL} US	126
LED preset counters																						
	Codix 716 / 717 (ATEX) opt. serial interface ATEX version available	•	•	•	•	•	SI	1r,o 2r,o	•	•	•	LED	6	48x48	45x45	80	-10...+50	IP65	AC/DC	•	c _{UL} US	133
	Codix 560 LED multifunction preset counters, 14 segment LED, automatic help texts, opt. serial interface	•	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48	92x45	91	-20...+65	IP65	AC/DC	•	c _{UL} US	138
	571 multifunctional (also reciprocal) analogue output, serial interface	•	•	•	•	•	SI	2o	•	•	•	LED	6	96x48	92x45	141	0...+45	IP65	AC/DC	•	-	246
	574 dual frequency display analogue output, serial interface	-	-	•	•	-	SI	4o	•	•	•	LED	6	96x48	92x45	141	0...+45	IP65	AC/DC	•	-	226

1) In process







Product overview

Position displays

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD position displays																					
					•			•	•		LCD	8	48x24	45x22,2	47,7	-10...+60	IP65	Batt.	•	UL US	232
LED position displays																					
	•				•		1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	UL US	63
	•				•		1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	UL US	75

Product overview














Position displays with limits

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presets: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LCD position preset counters (with multicolour, LED look)																					
							1r 2r				LCD/ LED Look	2x6	48x48	45x45	91	-10...+50	IP65	AC/DC		-	123
							up to 4r 6o				LCD/ LED Look	2x6	48x48	45x45	91	-20...+65	IP65	AC/DC		c ^{UL} US	126
LED position preset counters																					
						SI	2r,o				LED	6	96x48	92x45	141	0...+45	IP65	AC/DC		-	235
						SI FB	2r				LED	6	96x48	92x45	91	-20...+65	IP65	AC/DC		1) c ^{UL} US	138
						SI	2o				LED	6	96x48	92x45	141	0...+45	IP65	AC/DC		-	246
						SI	4o				LED	6/8	96x48	92x45	141	0...+45	IP65	AC/DC		-	143

1) In process

Product overview




Multifunction devices electronic

	Pulse	Time	Frequency	Tachometer	Position	Fieldbus (FB) / Serial interface (SI)	Presents: o = optocoupler; r = relay	Reset manual	Reset electrical	Programmable	Display	Number of digits	Dimensions front in mm	Panel cut-out in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
LED multifunction display																					
	•	•	•	•	•	–	1o	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	cUL US	240
	•	•	•	•	•	–	1o	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	cUL US	243
LCD multifunction preset counters																					
	•	•	–	–	•	–	1r 2r	•	•	•	LCD/ LED Look	2x6	48x48	45x45	91	-10...+50	IP65	AC/DC	•	–	123
	•	•	•	•	•	–	up to 4r 6o	•	•	•	LCD/ LED Look	2x6	48x48	45x45	91	-20...+65	IP65	AC/DC	•	cUL US	126
LED multifunction preset counters																					
	•	•	•	•	•	SI	1r;o 2r;o	•	•	•	LED	6	48x48	45x45	80	-10...+50	IP65	AC/DC	•	cUL US	133
	•	•	•	•	•	SI FB	2r	•	•	•	LED	6	96x48	92x45	91	-20...+65	IP65	AC/DC	•	1) cUL US	138
	•	•	•	•	•	SI	2o	•	•	•	LED	6	96x48	92x45	141	0...+45	IP65	AC/DC	•	–	246
LED dual function displays																					
	•	•	•	•	–	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	cUL US	248
	•	–	•	•	•	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	cUL US	251
	•	–	–	–	–	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	cUL US	66
	•	–	–	–	–	–	–	•	•	•	LED	6	48x24	45x22,2	59	-20...+65	IP65	DC	•	cUL US	69
	•	•	•	•	–	–	–	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	cUL US	254
	•	–	•	•	•	–	–	•	•	•	LED	6	96x48	92x45	83	-20...+65	IP65	AC/DC	•	cUL US	257

1) In process

Product overview


Multifunction devices Dual function counters electromechanical

	Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Approvals	Page
 <p>HC 77 combination hour meter and totaliser</p>	•	•	–	•	–	–	–	–	2x7	from 48x48	45x45 ø50,5	-15...+50	IP65	AC/DC	•	CE US	207
 <p>SHC 77 combination hour meter and totaliser</p>	•	•	–	–	–	•	–	–	2x7	48,5x61,5	–	-15...+50	IP52	AC/DC	•	CE US	210
 <p>HW 66 / HW 66 M combination hour meter and energy meter</p>	–	•	•	•	–	–	• 1)	–	2x6	from 48x48	45x45 ø50	-20...+55	IP65	AC	•	–	262

1) With mounting frame

Product overview







Energy meters

	Pulse	Time	kWh	Panel mounting	PCB mounting	Base mounting	DIN rail mounting	Reset	Number of digits	Dimensions in mm	Panel cut-out in mm (for front panel version)	Temperature range in °C	Protection max.	Supply type	RoHS compliant	Approvals	Page
 HW 66 / HW 66 M combination hour meter and energy meter	-	•	•	•	-	-	• ²⁾	-	2x6	ab 48x48	45x45 Ø50	-20...+55	IP65	AC	•	-	262




Process displays Process controllers Setpoint adjusters

	Analogue input 0...20; 4...20 mA	Analogue input 0...10; 2...10V	Analogue input ± 10V	Temperature Thermocouples	Temperature Resistance thermometers (RTDs)	mV/V sensors / strain gauge input	Input characteristic curve S = control points	Presets/Limit values o = optocoupler; r = relay	Analogue output	Display	Number of digits	Dimensions front in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
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LED process displays

 Codix 529 Min / Max value detection	•	•	-	-	-	-	linear	-	-	LED	5	48x24	59	-10...+50	IP65	DC	•	c ¹⁾ 	266
 Codix 530 Min / Max value detection with totaliser	•	•	-	-	-	-	linear	-	-	LED	5	48x24	59	-10...+50	IP65	DC	•	c ¹⁾ 	268
 Codix 565 analogue input signal Min / Max value detection 2 limit values with totaliser, tare, analogue output	•	•	•	-	-	-	12 S	2r	•	LED	6	96x48	90,5	-20...+65	IP65	AC/ DC	•	c ¹⁾ 	270

LED process controllers

 Codix 565 analogue input signal Min / Max value detection 2 limit values with totaliser, tare, analogue output	•	•	•	-	-	-	12 S	2r	•	LED	6	96x48	90,5	-20...+65	IP65	AC/ DC	•	c ¹⁾ 	270
 573 2 inputs, 2 limit values or analogue output mA u. V	•	•	•	-	-	-	16 S	2o	•	LED	6	96x48	129	0...+45	IP65	AC/ DC	•	-	273

LED setpoint adjuster

 Codix 533 setpoint adjuster 0...12 V output 0...24 mA output manual or time-based operation	-	-	-	-	-	-	-	-	-	LED	4	48x24	59	-20...+65	IP65	DC	•	c ¹⁾ 	276
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1) In process

2) Mit Aufbaurahmen

Product overview

Temperature displays Temperature controllers

Analogue input	0...20; 4...20 mA	Analogue input	0...10; 2...10V	Analogue input	± 10V	Temperature Thermocouples	Temperature Resistance thermometers (RTDs)	mV/V sensors / strain gauge input	Input characteristic curve	S = control points	Presets/Limit values	o = optocoupler; r = relay	Analogue output	Display	Number of digits	Dimensions front in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
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LED temperature displays

	Codix 531 Min / Max value detection	-	-	-	-	-	Pt100 Ni100	-	-	-	-	-	-	LED	5	48x24	59	-20...+65	IP65	DC	• c	282
	Codix 532 Min / Max value detection	-	-	-	-	J; K; N	-	-	-	-	-	-	-	LED	5	48x24	59	-20...+65	IP65	DC	• c	285
	Codix 564 Min / Max value detection, 2 limit values, analogue output	-	-	-	-	B; E; J; K; N; R; S; T	Pt100 0...500 Ω	±100 mV	12 S	2r	•	•	LED	6	96x48	90,5	-20...+65	IP65	AC/ DC	• c	1) 288	

LED temperature controllers

	Codix 564 Min / Max value detection, 2 limit values, analogue output	-	-	-	-	B; E; J; K; N; R; S; T	Pt100 0...500 Ω	±100 mV	12 S	2r	•	•	LED	6	96x48	90,5	-20...+65	IP65	AC/ DC	• c	1) 288
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Strain-gauge controllers

Analogue input	0...20; 4...20 mA	Analogue input	0...10; 2...10V	Analogue input	± 10V	Temperature Thermocouples	Temperature Resistance thermometers (RTDs)	mV/V sensors / strain gauge input	Input characteristic curve	S = control points	Presets/Limit values	o = optocoupler; r = relay	Analogue output	Display	Number of digits	Dimensions front in mm	Depth in mm	Temperature range in °C	Protection max.	Power supply	RoHS compliant	Approvals	Page
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LED strain-gauge controllers

	Codix 566 Min / Max value detection, 2 limit values with totaliser, tare	-	-	-	-	-	-	1,0 1,5 2,0 3,0 3,3 mV/V	12 S	2r	•	•	LED	6	96x48	90,5	-20...+65	IP65	AC/ DC	• c	1) 294
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1) In process

Counters / Process devices

Counting technology

Electromechanical counters in many versions, as well as miniature counters for PCB-mounting (our special area of competence), are ideal time and pulse counters for pumps, lifts, dryers, UV lamps, KWh meters and much more.

The Codix series offers functional, low-cost electronic display counters, position displays, timers and tachometers. Our electronic multifunction preset counters enable decentralised control and so reduce cycle times.

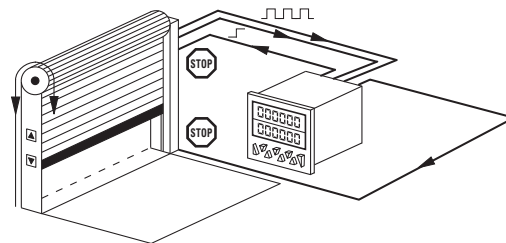
Process technology

The user-friendly, compact and functionally well thought through Codix process displays and controllers are ideal for all linear and non-linear analogue signals.

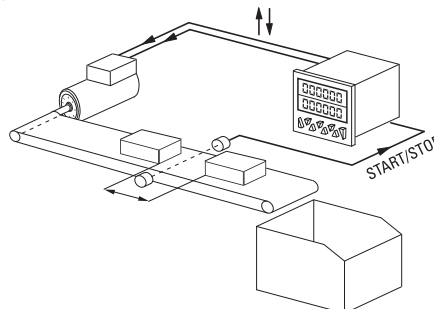
Together with our temperature displays and controllers, as well as our strain-gauge controllers and setpoint adjuster, they are used in a wide variety of applications.

Application examples

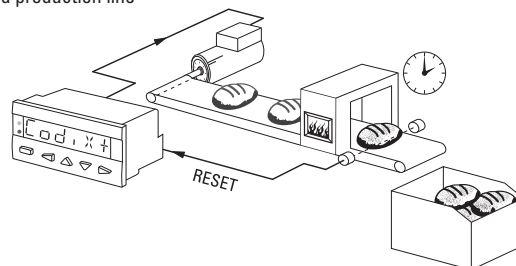
Roller shutter door with automatic shut-off



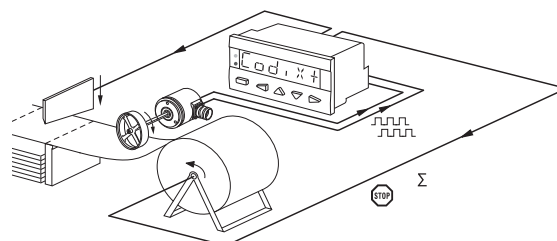
Interval measurement



Time-controlled production line






Cut-to-length with overall total count and control of the machine



Counters / Process devices	Selection criteria
----------------------------	--------------------

Conformity	All counters and process devices carry the CE mark and are tested for electromagnetic compatibility and immunity to interference.	The counters and process devices meet the requirements according to EN 61000-6-2, EN 61000-6-4, EN 61000-6-3 and EN 55011 (For details see the data sheets).
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Safety	Designed to EN 61010 part 1 Protection class 2 Application area pollution level 2
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Approvals	<p>Many of our products are UL (Underwriters Laboratories Inc.) approved.</p> <p>Codix 717 multifunction counter in Ex proof version acc. to explosion-proof class EEX D IIC T6.</p> <p>Kübler is active worldwide and has made a company commitment to protecting the environment. Our product range is RoHS compliant.</p>	   
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Special versions / Options	These are modifications of standard versions.	The most common versions available are listed under the various type series (further options on request).
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Temperature	<p><i>Working temperature:</i></p> <p>Temperature range of the environment, in which the device complies with the specifications shown in the data sheet.</p>	<p><i>Operating temperature:</i></p> <p>Temperature range of the environment, in which the device can be operated, without suffering damage.</p>
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Soiling and humidity	<p>The IP classification according to EN 60529 describes how the encoder is protected against particles and water. It is described as an abbreviation "IP" followed by two numbers.</p> <p>Protection against particles (first digit)</p> <p>The higher the number, the smaller the particles.</p>	<p>The tables show an overview of the common types of IP protection.</p> <p>Protection against water (second digit)</p> <p>The higher the number, the higher the water pressure can be.</p>
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0	Not protected
1	Protected against particles \varnothing 50 mm and larger
2	Protected against particles \varnothing 12.5 mm and larger
3	Protected against particles \varnothing 2.5 mm and larger
4	Protected against particles \varnothing 1.0 mm and larger
5	Protected against dust
6	Dust proof

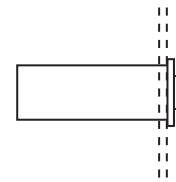
0	Not protected
1	Protected against vertically falling drops of water
2	Protected against vertically falling drops of water when enclosure is tilted up to 15°
3	Protected against spraying water
4	Protected against splashing water
5	Protected against water jets
6	Protected against powerful water jets
7	Protected against the effects of temporary immersion in water
8	Protected against the effects of continuous immersion in water

Kübler devices are available with a protection level up to IP66.

Counters / Process devices	Mounting options
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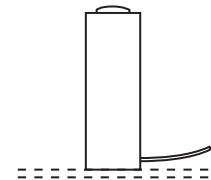
Panel mount

- Mounting in front panel cut-outs, control cabinet doors, housings etc.
- Display on the front side
- Various mounting options by means of a variety of front bezel adapters
- Gaskets for increased protection levels available as accessories
- Panel mounting offers protection of the connections



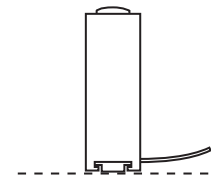
Base mount

- Fixing onto the mounting plate
- Display on the front side
- High mechanical strength
- Connections above the mounting plate



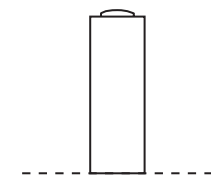
DIN-rail mounting

- Snap-on mounting on DIN-rail for counters with integrated DIN-rail fixing
- Panel mount counters can be mounted via DIN-rail adapter, plug-in counters via DIN-rail socket
- Display on the front side



PCB mounting

- Fixing via solder pins direct onto the PCB board, upright or lying
- Flexible location of the display
- Washable versions with high protection level
- High temperature ranges – also suitable for machine soldering



Electromechanical counters Versions

Overview

Electromechanical counters are divided into:

- **Pulse counters**
- **Preset counters**
- **Hour meters / Timers**
- **Time preset counters**

The counter construction consists of an electromagnetic drive and a mechanical number wheel system. Electrical impulses cause a step-by-step advance of the number wheels.

Totalising counters add the incoming pulses. They are manufactured without reset, with reset key (button) or with electrical reset. Smaller design counters are also available for battery operation with a low power consumption of 30 or 50 mW, and offer high shock and vibration resistance.

Pulse counters

These counters have no outputs activated at a specific count value. They are used purely to monitor the count value.

The function of the counters lies primarily in simple totalising of the incoming pulses.

Example:



K 47

W 15

Preset counters

The purpose of preset counters is to trigger a signal at a particular count value. In the simplest instance this can mean just shutting down a machine, however it could also be the initialisation of control functions (e.g. cutting material to length, transporting parts etc.).

The outputs are suitable for switching large loads. The actual switching capacity depends on the model (counter) and can be seen in the data sheet. With most contacts a changeover function is available.

Example:



BVa 15

Adding

The counter starts from zero and counts up to the programmed preset value, at which an output signal is triggered. The counter is then reset to zero - this can be programmed to happen automatically. The current count value is always displayed.

Subtracting

The counter starts from the preset value or from a separate setpoint and counts down to zero, at which an output signal is triggered. The counter is then reset to the preset value. The value displayed corresponds to the difference between the preset value and the count value.

Hour meters / Timers

Timers measure the time in the unit of time, for which the device is laid out. With the electromechanical counters this time is displayed in hours with one or two decimal places.

Timing starts when the supply voltage is applied to the timer.

The time base is hours with either 1/10 or 1/100 h resolution (1/100 hours = 36 seconds)

Example:



H 57

H 37

Time preset counters

Preset timers measure the time in the unit of time, for which the device is laid out. With the electromechanical counters this time is displayed in hours with one or two decimal places.

Timing starts when the supply voltage is applied to the timer.

The respective output is activated, as soon as the preset value is reached.

Example:



HVa 15

Electromechanical counters	Basic technical information	
Current type	Our counters are all constructed for DC voltage. On AC voltages a rectifier is always required.	The maximum permissible voltage fluctuation for DC and AC is generally $\pm 10\%$ of the nominal voltage at maximum count frequencies.
Residual ripple	Is the AC voltage superposed on the DC voltage in % $\frac{U_w}{U_g} \times 100\%$	U_w = Effective value of superposed AC voltage U_g = Arithmetical mean value of DC voltage
Power consumption	Is the power in W or VA that a pulse counter consumes at continuous pulse and rated voltage with unheated coil (20°C).	
Maximum pulse frequency	Is the maximum possible count frequency which the counter in question can consume in permanent operation.	It differs according to counter type and power consumption and is limited by the required pickup- and release times of the counting solenoid.
Minimum pulse on time	Is the period of time which is sufficient for accurate counting, even at permissible \pm variation of operating voltage; the pulse interval can be optionally as long as required.	
Minimum pulse interval	Is the period of time which is sufficient for accurate counting.	Optimal spark quenching is imperative if high count frequency is required.
Pulse ratio	Is the ratio of $\frac{\text{pulse on time}}{\text{pulse interval}}$ at maximum count frequency	
On time ED	States how long a coil may be energized without overheating. For the on time the following formula applies: $\text{ED \%} = \frac{\text{pulse on time}}{\text{pulse on time} + \text{pulse interval}} \times 100$ From this can be derived: $\text{pulse on time} = \frac{\text{ED \%}}{100 - \text{ED \%}} \times \text{pulse interval}$ $\text{pulse interval} = \frac{100 - \text{ED \%}}{\text{ED \%}} \times \text{pulse on time}$ <i>Example:</i> A count coil has the listed value ED = 15 %, max. 55 sec. This coil may therefore remain under constant current for max. 55 sec. After this a cooling interval of $\text{pulse interval} = \frac{100 - 15}{15} \times 55 \text{ sec} = 283 \text{ sec}$ <i>Result:</i> Since the on time does not exceed 15 % these pulse-on times are permissible.	In addition to the ED % figure the listed values include an addition concerning the maximum permanent on time. Therefore a coil may only be energized by a constant current during this period and then has to be cooled off again. At ED = 100% a limitation is not necessary as the coil will never become inadmissibly hot, even if continuously energized. The same coil is constantly receiving pulses of 40 sec. duration with a count interval of 6 min. Is this still permissible? $\text{ED \%} = \frac{40}{40 + 360} \times 100 = 10\%$
Operating temperature	Is the permissible temperature within the direct vicinity of the pulse counter.	When using the counters in groups, the reciprocal heating must be taken into consideration as this results in an operating temperature rise. The upper or lower value is only applicable to the rated voltage.

Electromechanical counters Basic technical information

Instructions for electromechanical pulse counters

DC voltage pulses without or with very small residual ripple are, for example, taken from a battery, DC generator, electronically stabilised power supply, according to the circuit above. These pulses are most suitable for the maximum possible frequencies due to their ideal square shape. If only AC voltage is available it must be rectified. Therefore, according to count speed, a more or less greater degree of residual ripple has to be put up with. A simple bridge-rectifier will give a residual ripple of approx. 48%, and the following relationship is applicable:

Pulse voltage

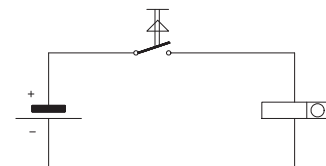
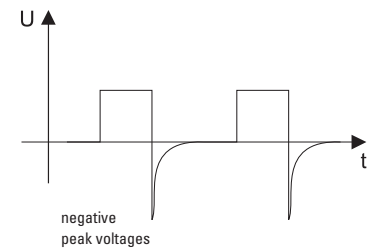
AC voltage (effective value)

12 24 48 60 110 220 V

DC voltage (arithm. mean value)

8,5 19,5 40 49 91 185 V

Pulse voltages (at count coil)

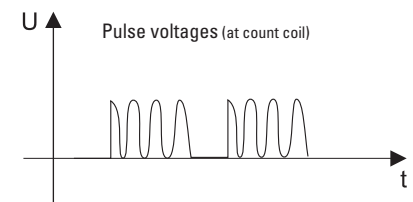
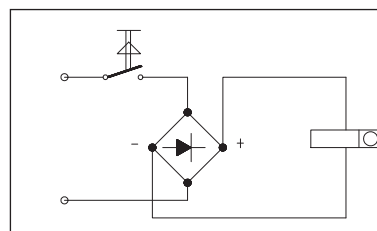


Product overview
Basics

Two types of switching circuits can be used to drive the counters

a) Pulse contact in AC circuit model a0 or a

This circuit is mostly used when the count speed is ≤ 18 Hz



Advantage:

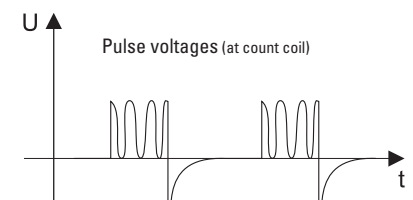
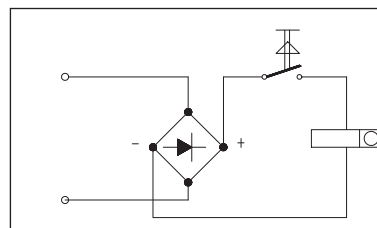
No spark required; contact bounces have no negative effect because the rectifier acts as spark quenching and provides inductive drop-out time lag.

Disadvantages:

Count speed only possible up to max. 18 Hz

b) Pulse contact in DC circuit model 05, 0, 1

With high pulse speeds smoothed DC must be used. The residual ripple (smoothing degree) is determined by the count speed and is stated in the technical specification.



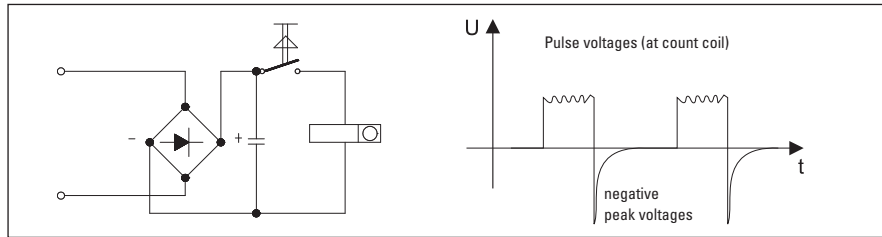
Advantages:

High count speed up to max. 25 Hz.
Only one rectifier is necessary when driving several counters.

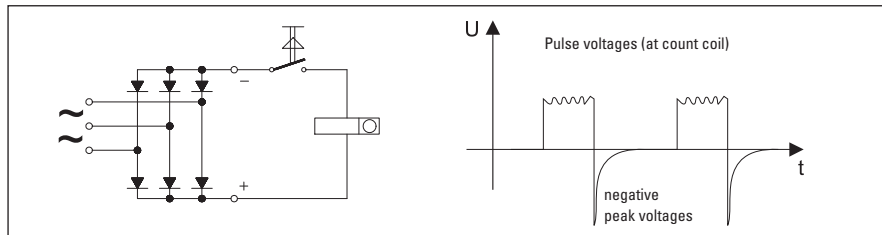
Disadvantages:

More sensitive to contact bounce, spark quenching is required. 4 connection points required if rectifier is built into counter.

Simple bridge circuit smoothing by capacitor:



3 phase AC bridge circuit, capacitor not required, residual ripple 4.2 %:



If the rectifiers are connected directly to AC mains, they can often become damaged due to 'contamination' from voltage spikes. These peak voltages are caused by the switching of transformers, spot welding machines, switching motors on and off etc; they often exceed the mains voltage by many times. Therefore it is essential to use a heavy duty rectifier or one with suppressor circuit, so that these peak voltages will not have any destructive effects in the long run.

This is particularly important in the case of silicon rectifiers which are very sensitive to short period excess voltages. It is advisable to use controlled avalanche silicon rectifiers for this purpose.

Rectifiers which we build in or attach to our pulse counters have to a large extent, a high dielectric strength, and an over voltage protection is provided, if required.

Pulse generators

Appropriate pulse generators are required in order to achieve accurate count results. In this connection, it should be ensured that these operate as far as possible without bounce; this is particularly important for counters with high pulse rate. Cam operated spring contacts, limit switches and micro switches are suitable for count speeds up to

10 or 25 Hz, small relay contacts up to approx. 40 Hz, higher count speed up to 60 Hz can be achieved with reed switches, exact matching of spark quenching being necessary to avoid premature sticking of contact reeds. Even higher speeds can be obtained by using photoelectric or inductive sensors.

Electrical reset

Counters with electrical reset have an electromagnet which is operated by a reset pulse, and resets the number wheels back to the starting number. With remote reset via a pulse, the pulse duration must be long enough for the reset operation to be completed and for the minimum pulse duration to be maintained in accordance with the technical data of the counters. It is essential that during resetting no pulses may pass into the count mechanism, as otherwise intermediate positions of the number wheel or slippage of the drive mechanism can occur.

There is no danger of mechanical damage of the counter, however.

In order to avoid mistakes, the count pulses should only be allowed to enter, when the number wheels have been accurately adjusted and the drive mechanism is fully engaged. With remote reset a count interval of at least 50 msec after pulse end is required and thus the total count interval = reset pulse time + 50 msec.

Spark quenching

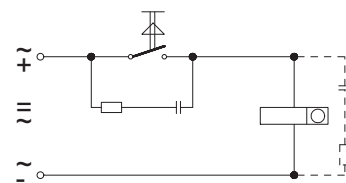
If the pulse contact is within the DC circuit of the counter, spark quenching is necessary in order to avoid any contact disturbance from the inductive breaking voltage.

Unfortunately, however, a more or less strong dropout delay is produced by the spark quenching and it should be checked in any case whether this will cause disturbance.

Spark quenching with RC element

This spark quenching produces practically no disturbing dropout delay and is, therefore most suitable for all count speeds. It should preferably be used at very high count speeds.

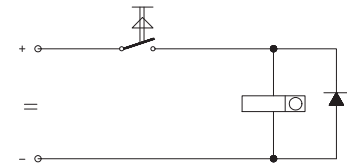
In general the RC element is located in parallel with the contact in order to produce high frequency interference suppression at the same time. However, it can also be connected in parallel with the coil.



Electromechanical counters Basic technical information

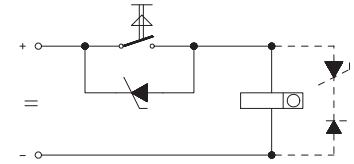
Spark quenching with diodes

Considerable dropout delay, therefore only suitable for low count speeds up to 10 Hz. Particular attention should be paid to the correct polarity on connecting.
The small fitting size is an advantage: e.g. this type of spark quenching can be used for resetting coils.



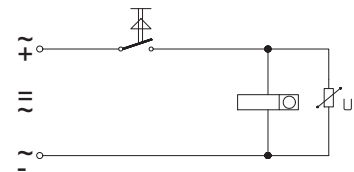
Spark quenching with zener diodes

Low dropout delay, therefore suitable for higher count speeds because the diode only passes the inductive breaking current when the zener voltage is achieved. It is also suitable for the protection of transistor circuits, where correct polarity must be observed.



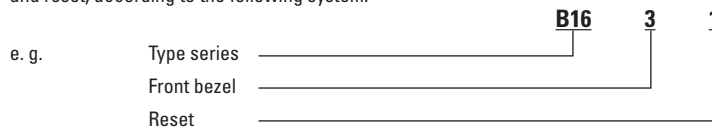
Spark quenching with varistors

Varistors are voltage dependent resistors whose resistance decreases inertialessly and exponentially with rising voltage. They are therefore, suitable for spark quenching, the varistor ideally being connected in parallel with the coil. It is rated for the current to be approx. 1/10 of the coil current at nominal voltage.



Identification of counter models

The design of the pulse counters is identified according to type series, version of front panel, and reset, according to the following system:



Electromechanical standard ranges

Please refer to the technical data for the various counters

Front bezel

- 0** = no front bezel
- 1** = front bezel for panel with 2 mounting holes
- 2** = front bezel with mounting clip
- 3** = large front bezel for panel with 2 mounting holes

Reset

- 0** = without reset
- 1** = manual
- 2** = electrical
- 3** = manual and electrical

For further codes, please refer to the respective counters.

Versions with coil

Max. possible frequency depends on the type of coil used:

Coil type	max. frequency
05	8 Hz at DC
0	10 Hz at DC
1	25 Hz at DC
a0	10 Hz at AC
a	18 Hz at AC

General instructions

Selecting the right count frequency is important in order to achieve optimal service life.
If a counter is only required to operate at a maximum of 10 Hz, then one for 25 Hz should not be used. This is primarily because of the higher service life of the 10 Hz version compared to the 25 Hz model. In addition the 10 Hz counter has a higher duty cycle and a lower power consumption than the one for 25 Hz.

The choice of spark quenching is also very important, particularly at high count speeds (refer to section on spark quenching).
RC element, silicon diodes and some varistors can be obtained from us.

Certain counter types are supplied with a built in spark quenching. The explanations given in the above paragraphs and the technical specifications of each counter should be noted carefully.

Electronic counters	Versions
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Overview

Electronic counters can be divided into:

- **Pulse counters**
- **Preset counters**
- **Hour meters / Timers**
- **Time preset counters**
- **Tachometers**
- **Position displays**

Pulse counters

These counters have no outputs activated at a specific count value. They are used purely to monitor the count value.

The functions range from simple totalizing up to position display (with phase discriminator/quadrature). Depending on the speed of the events being counted, the count speed can go up to 100 kHz. More recent counters have a scale factor, which for example could be used to convert a length measured in inches into meters.

Example:



Codix 130



Codix 520

Preset counters

The purpose of preset counters is to trigger a signal at a particular count value. In the simplest instance this can mean just shutting down a machine, however it could also be the initialisation of control functions (e.g. cutting material to length, transporting parts etc.).

Relays, transistors or optocouplers are used as outputs. Relays are suitable for switching heavy loads (up to 2000 VA).

The actual switching capacity depends on the model (counter) and can be seen in the data sheet. Most relays are available with a changeover function.

Example:



Codix 560



572



Codix 717 (also Ex)



Codix 923 / 924

Adding

The counter starts from zero and counts up to the programmed preset value, at which an output signal is triggered. The counter is then reset to zero - this can be programmed to happen automatically. The current count value is always displayed.

Subtracting

The counter starts from the preset value or from a separate setpoint and counts down to zero, at which an output signal is triggered. The counter is then reset to the preset value. The value displayed corresponds to the difference between the preset value and the count value.

Hour meters / Timers

Timers measure the time in the unit of time, for which the device is laid out. With the electronic meters, the time base is programmable in hours, minutes or seconds or is displayed with two decimal places.

The resolution is determined by the decimal point. Here the smallest possible resolution is milliseconds when operating in the short time meter mode (stop watch function). A time base of hours, minutes and seconds can also be programmed. The time counting starts when the supply voltage is applied to the meter, or is controlled by means of pulses using either the time-interval measuring principle or the pulse width (gate time) principle, with one or two separate inputs.

Example:



Codix 13x



Codix 52U

Electronic counters Versions

Time preset counters

Preset timers measure the time in the unit of time, for which the device is laid out (see also timers).
 With preset timers one, two, four or six outputs, as relay or optocoupler outputs, are additionally available.
 A particular output is activated, as soon as a pre-selected value is reached. This can occur both in adding or subtracting mode. The signal duration is programmable either as a momentary (timed) pulse or as a maintained (latched) pulse.

Example:



Codix 923 / 924

Tachometers

Tachometers measure pulses per unit of time, typically pulses per second with frequency measurements or pulses per minute with rotary speed measurement or production quantities and volumes.
 Two different measurement principles are used:
 - time-interval measurement, where the time between 2 pulses is measured
 - gate time (time base), where the number of pulses within a certain time window is measured
 The latest models use a mix of both principles, which offers a fast reaction time coupled with the greatest possible accuracy (HRA – High Rate Accuracy System).
 Devices with limit values can be used for monitoring rotary speed or rate of production.

Example:



Codix 560



Codix 923 / 924



574

Position displays

Position displays are devices, which measure pulses from rotary encoders or linear measurement systems, with incremental pulses or absolute position data.
 These displayed position values can be scaled using pulse weighting, which means that the display can be converted to any desired magnitude. Quadrature x1, x2 or x4 input pulse evaluation is available on displays that have incremental inputs.
 Type 572 has 2 separate incremental inputs for HTL or TTL signals up to max. 1 MHz. The two values can be mathematically calculated with respect to each other.
 Absolute systems are evaluated using the SSI protocol; singleturn as well as multiturn systems can be displayed and evaluated.
 The Kübler SSI display has a fast clock frequency up to 1 MHz, suitable for our absolute encoders. It has numerous programmable measurement functions, a freely scalable display and a scalable analogue output; there is also a version with serial interface and a version with 2 limit values.

Example:



571



572



Codix 52x



Codix 54x



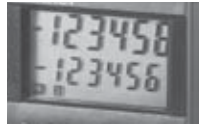
Codix 92x



Codix 560

Display types

Electronic counters are differentiated according to their display type. The most common types of displays used today are liquid-crystal displays (LCD) and light-emitting diodes (LEDs).



LCD displays

LCD displays have the advantage of being very economical. They are available in both standard versions and in customised versions.

The advantage of the customised version is that as well as the count value, it is possible to display the preset value and also additional symbols such as, for example, the status of the outputs. With customised models, the height of the digits and the size of the display can be optimally laid out for the corresponding counter.

LCD displays also have the advantage that they are not affected by ambient light and for poorly lit environments they are available with built-in backlighting. Note however that backlit displays do have higher power consumption.



LED displays

LED displays are always employed, if units are to be used in environments with diffuse lighting.

Due to their self-luminous display, these models are also easy to read even from a long distance. For each segment, LED displays require a current of between 2 and 10 mA. For a 6-digit counter that could mean from 90 to 450 mA.

As a rule 7-segment displays are the norm, although 14-segment displays or alphanumeric displays can be used to display message texts – as with the Codix 56x multifunction counters and process devices.

Outputs

We offer our preset counters with various output options:

Relays, transistors and optocouplers

Relays should not be used when switching very small loads. Transistor or optocoupler outputs are better suited to operate the input of a controller. The design of both outputs is basically almost the same. However with the optocoupler, galvanic isolation is achieved between the unit (counter) and the peripheral (controller) because of an LED and a phototransistor (in one housing).

As a rule, with the optocoupler output the emitter and the collector are brought out and may have to be switched externally. Using the appropriate circuit it is possible to achieve either negative polarity (normally closed function) or positive polarity (normally open function).

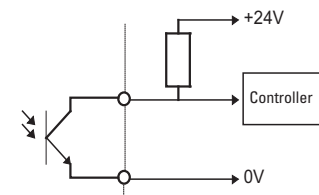
Analogue outputs

An analogue output is available with the 57x multifunction devices, dual preset counters as well as with SSI displays.

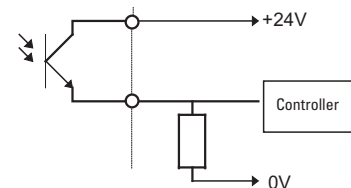
Your benefits:

- Signal transducer and display with scaling and linearisation in one device
- Additional control of the measured value via 2 relay outputs
- Simple programming
- Transmission of the selected measured value, also over long distances with 4 ... 20 mA signal, to a higher-level controller, PC or a curve tracer
- Output of the current value, totaliser value, MIN or MAX value, programmable as 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V analogue signal value

Optocoupler output with negative polarity



Optocoupler output with positive polarity

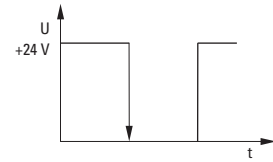
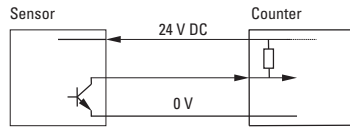


Electronic counters **Basic technical information**

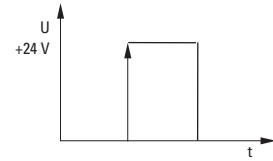
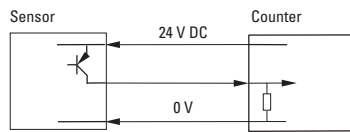
Inputs

The inputs of our counters are designed as transistor inputs. Either NPN or PNP type.

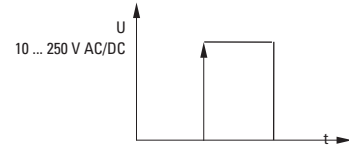
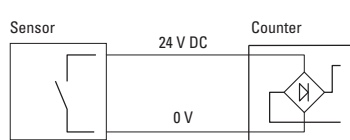
Negative input polarity (NPN)



Positive input polarity (PNP)



High voltage version 10 ... 250 V AC/DC



Electronic counters Input and output modes

Input modes: pulse counting

Function	Diagram	Note: P:	No counting when GATE input is active Preset	PNP: NPN:	Count on rising edge Count on falling edge
CNT.DIR Count Direction Mode				PNP: NPN:	Count on rising edge Count on falling edge
UP.DN Difference Mode					Count input add Count input sub Display 0 → preset Display preset → 0
UP.UP Totaliser Mode					Count input 1 add Count input 2 add Display 0 → preset
QUAD Phase Discriminator / with Quadrature				A 90° B	Count input – count on rising edge Reverse direction Display 0 → preset Display preset → 0
QUAD2 Phase Discriminator with Quadrature and pulse doubling				A 90° B	Count input – count on rising and on falling edges Reverse direction Display 0 → preset Display preset → 0
QUAD4 Phase Discriminator with Quadrature and pulse quadrupling				A 90° B	Count input – count on rising and on falling edges Count input – count on rising and on falling edges, reverse direction Display 0 → preset Display preset → 0
A / B Ratio					Count input 1 Count input 2 Formula: A / B
A % B Ratio in percentage					Count input 1 Count input 2 Formula: (A – B)/A x100

Electronic counters Input and output modes

Input modes: timing

Function	Diagram	Note: P: Preset	PNP: NPN:																								
INA.INB Start – Input A Stop – Input B		No counting when GATE input is active	Count on rising edge Count on falling edge																								
	<table border="1"> <tr> <td>ADD</td> <td>0</td> <td>.....</td> <td>T2</td> </tr> <tr> <td>SUB</td> <td>P</td> <td>.....</td> <td>P-T2</td> </tr> </table>	ADD	0	T2	SUB	P	P-T2		Inp A: Start Inp B: Stop Add: Display 0 → preset Sub: Display preset → 0																
ADD	0	T2																								
SUB	P	P-T2																								
INB.INB Start – Input B Stop – Input B			Inp A: No function Inp B: Start/Stop Add: Display 0 → preset Sub: Display preset → 0																								
	<table border="1"> <tr> <td>ADD</td> <td>0</td> <td>.....</td> <td>T1</td> <td>.....</td> <td>T1+T2</td> </tr> <tr> <td>SUB</td> <td>P</td> <td>.....</td> <td>P-T1</td> <td>.....</td> <td>P-T1-T2</td> </tr> </table>	ADD	0	T1	T1+T2	SUB	P	P-T1	P-T1-T2														
ADD	0	T1	T1+T2																						
SUB	P	P-T1	P-T1-T2																						
FREE.RN Free Run			Inp A: No function Inp B: No function Control of the timing only via the GATE input																								
	<table border="1"> <tr> <td>ADD</td> <td>0</td> <td>.....</td> <td>T1</td> <td>.....</td> <td>T1+T2</td> </tr> <tr> <td>SUB</td> <td>P</td> <td>.....</td> <td>P-T1</td> <td>.....</td> <td>P-T1-T2</td> </tr> </table>	ADD	0	T1	T1+T2	SUB	P	P-T1	P-T1-T2		Add: Display 0 → preset Sub: Display preset → 0												
ADD	0	T1	T1+T2																						
SUB	P	P-T1	P-T1-T2																						
AUTO Automatic reset mode			Inp A: No function Inp B: No function Control of the timing only via reset (manual or electrical)																								
	<table border="1"> <tr> <td>ADD</td> <td>0</td> <td>0</td> <td>....</td> <td>T1</td> <td>0</td> <td>....</td> <td>T2</td> <td>....</td> <td>T2+T3</td> <td>0</td> <td>....</td> </tr> <tr> <td>SUB</td> <td>P</td> <td>P</td> <td>....</td> <td>P-T1</td> <td>P</td> <td>....</td> <td>P-T2</td> <td>....</td> <td>P-T2-T3</td> <td>P</td> <td>....</td> </tr> </table>	ADD	0	0	T1	0	T2	T2+T3	0	SUB	P	P	P-T1	P	P-T2	P-T2-T3	P		Add: Display 0 → preset Sub: Display preset → 0
ADD	0	0	T1	0	T2	T2+T3	0																
SUB	P	P	P-T1	P	P-T2	P-T2-T3	P																

Product overview
Basics

Electronic counters Input and output modes

Input modes: frequency meters

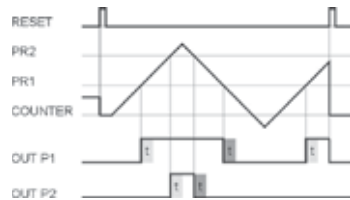
Function	Diagram	Note: P:	No counting when GATE input is active Preset	PNP: NPN:	Count on rising edge Count on falling edge																					
A Single Mode	<table border="1"> <tr> <td>INP A</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>F_{A2}</td> <td>0</td> <td>x</td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>F_{A2}</td> <td>0</td> </tr> </table>	INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x	Display	0	0	F _{A0}	F _{A1}	F _{A2}	0			Inp A: Inp B:	Frequency input No function							
INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x																				
Display	0	0	F _{A0}	F _{A1}	F _{A2}	0																				
A - B Difference Mode	<table border="1"> <tr> <td>INP A</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>F_{A2}</td> <td>0</td> <td>x</td> </tr> <tr> <td>INP B</td> <td>0</td> <td>0</td> <td>F_{B0}</td> <td>F_{B1}</td> <td>F_{B2}</td> <td>x</td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>F_{A0}</td> <td>F_{A0} - F_{B0}</td> <td>F_{A1} - F_{B1}</td> <td>- F_{B2}</td> </tr> </table>	INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x	INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x	Display	0	0	F _{A0}	F _{A0} - F _{B0}	F _{A1} - F _{B1}	- F _{B2}			Inp A: Inp B: Formula:	Frequency input 1 Frequency input 2 A - B
INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x																				
INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x																				
Display	0	0	F _{A0}	F _{A0} - F _{B0}	F _{A1} - F _{B1}	- F _{B2}																				
A + B Totalising	<table border="1"> <tr> <td>INP A</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>F_{A2}</td> <td>0</td> <td>x</td> </tr> <tr> <td>INP B</td> <td>0</td> <td>0</td> <td>F_{B0}</td> <td>F_{B1}</td> <td>F_{B2}</td> <td>x</td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>F_{A0}</td> <td>F_{A0} + F_{B0}</td> <td>F_{A1} + F_{B1}</td> <td>F_{B2}</td> </tr> </table>	INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x	INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x	Display	0	0	F _{A0}	F _{A0} + F _{B0}	F _{A1} + F _{B1}	F _{B2}			Inp A: Inp B: Formula:	Frequency input 1 Frequency input 2 A + B
INP A	0	F _{A0}	F _{A1}	F _{A2}	0	x																				
INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x																				
Display	0	0	F _{A0}	F _{A0} + F _{B0}	F _{A1} + F _{B1}	F _{B2}																				
QUAD Frequency with direction	<table border="1"> <tr> <td>INP A</td> <td colspan="6"></td> </tr> <tr> <td>INP B</td> <td colspan="6"></td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>F_{A2}</td> <td>- F_{A3} - F_{A4}</td> </tr> </table>	INP A							INP B							Display	0	0	F _{A0}	F _{A1}	F _{A2}	- F _{A3} - F _{A4}			A 90° B Inp A: Inp B:	Frequency input 1 Reverse direction
INP A																										
INP B																										
Display	0	0	F _{A0}	F _{A1}	F _{A2}	- F _{A3} - F _{A4}																				
A / B Ratio	<table border="1"> <tr> <td>INP A</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>0</td> <td>0</td> <td>x</td> </tr> <tr> <td>INP B</td> <td>0</td> <td>0</td> <td>F_{B0}</td> <td>F_{B1}</td> <td>F_{B2}</td> <td>x</td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>0</td> <td>F_{A0}/F_{B0}</td> <td>F_{A1}/F_{B1}</td> <td>0</td> </tr> </table>	INP A	0	F _{A0}	F _{A1}	0	0	x	INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x	Display	0	0	0	F _{A0} /F _{B0}	F _{A1} /F _{B1}	0			Inp A: Inp B: Formula:	Frequency input 1 Frequency input 2 A / B
INP A	0	F _{A0}	F _{A1}	0	0	x																				
INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x																				
Display	0	0	0	F _{A0} /F _{B0}	F _{A1} /F _{B1}	0																				
A % B Ratio in percentage	<table border="1"> <tr> <td>INP A</td> <td>0</td> <td>F_{A0}</td> <td>F_{A1}</td> <td>0</td> <td>0</td> <td>x</td> </tr> <tr> <td>INP B</td> <td>0</td> <td>0</td> <td>F_{B0}</td> <td>F_{B1}</td> <td>F_{B2}</td> <td>x</td> </tr> <tr> <td>Display</td> <td>0</td> <td>0</td> <td>100%</td> <td>F_{A0}%F_{B0}</td> <td>F_{A1}%F_{B1}</td> <td>0</td> </tr> </table>	INP A	0	F _{A0}	F _{A1}	0	0	x	INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x	Display	0	0	100%	F _{A0} %F _{B0}	F _{A1} %F _{B1}	0			Inp A: Inp B: Formula:	Frequency input 1 Frequency input 2 (A - B)/A x100
INP A	0	F _{A0}	F _{A1}	0	0	x																				
INP B	0	0	F _{B0}	F _{B1}	F _{B2}	x																				
Display	0	0	100%	F _{A0} %F _{B0}	F _{A1} %F _{B1}	0																				

Electronic counters Input and output modes

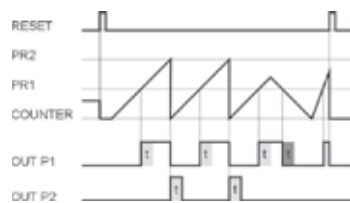
Output modes

Function **Diagram** Only in mode and

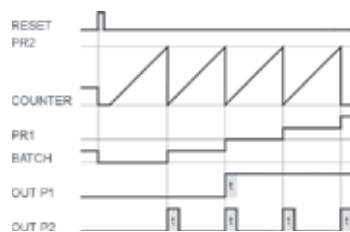
ADD
Adding



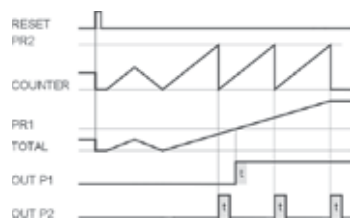
ADD.AR
Adding
+ Automatic Reset



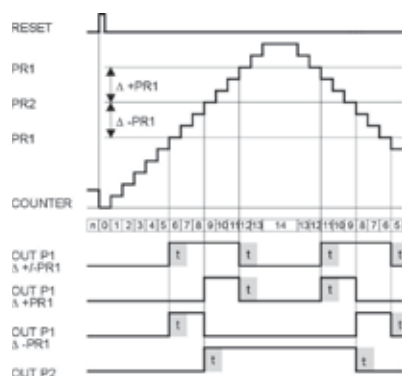
ADD.BAT
Adding
+ Batch Counter



ADD.TOT
Adding
+ Total Counter

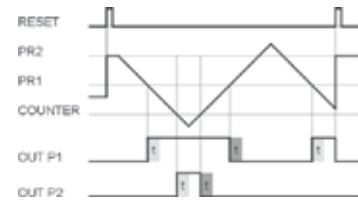


TRAIL
Adding
Output 1 is Tracking
Preset of Output 2

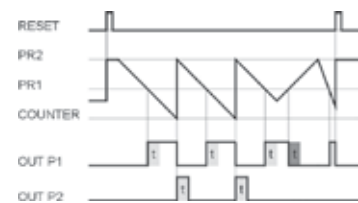


Function **Diagram** Additionally in mode and

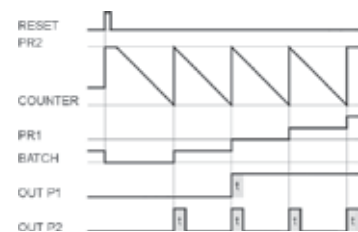
SUB
Subtracting



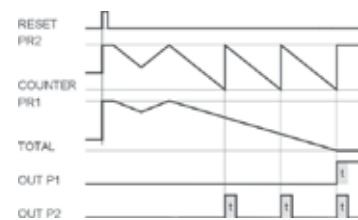
SUB.AR
Subtracting
+ Automatic Reset



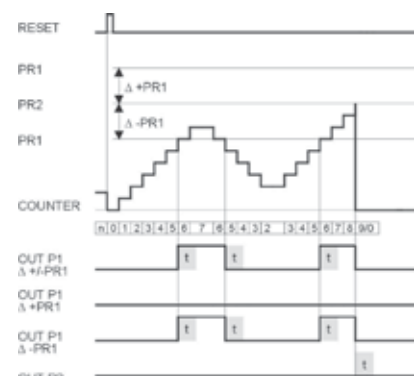
SUB.BAT
Subtracting
+ Batch Counter



SUB.TOT
Subtracting
+ Total Counter



TR.AR
Adding
+ Automatic Reset
Output 1 is Tracking
Preset of Output 2



Process devices	Versions
-----------------	----------

Overview

Process devices are used for

- **Temperature**
 - **Analogue signals**
 - **Strain-gauge**
- or as a
- **Setpoint adjuster**

Temperature display, Temperature controller

The temperature displays measure temperatures very accurately (by means of inputs from a variety of temperature sensors) and display these in °C or °F using permanently stored characteristic curves.

Furthermore, some devices have an additional freely scalable mV or resistance input, in order to store custom curves and to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. A variety of thermocouples as well as resistance thermometers (RTDs) in 2, 3 or 4-wire technology can be connected. With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The temperature controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band.

Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analogue output or serial interface enable the retransmission of the measured values to higher-level systems or monitoring devices.

Example:



Codix 531



Codix 564

Analogue signal displays, Analogue signal controllers

The analogue signal displays measure values very accurately (by means of inputs from a variety of sensors that can be connected) and display these values, freely scalable, in the 5 or 6 digit display.

Furthermore, some devices offer the option to store custom characteristic curves, in order to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. Sensors with a 0/2 ... 10 V, ±10 V or 0/4 ... 20 mA output can be connected to give precise measuring results. With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The analogue signal controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band.

Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analogue output or serial interface enable the retransmission of the measured values to higher-level systems or monitoring devices. A totaliser function sums the measured value with respect to time, in order to measure quantities or volume over a fixed time period.

Example:



Codix 529



Codix 565

Process devices	Versions
-----------------	----------

Strain-gauge controller

The strain-gauge controllers measure values very accurately (by means of inputs from a selection of sensors that can be connected) and display these values, freely scalable, in the 6-digit 14-segment display.

These devices offer the option to store custom characteristic curves, in order to compensate for sensor inaccuracies. With a resettable MIN/MAX value function, peak values can be precisely measured and retransmitted if required. A variety of suitable sensors can be connected to the measuring bridge input to give precise measuring results.

With running help texts and a quick-start guide, programming is very simple and user-friendly, despite the wide functionality.

The strain-gauge controllers additionally boast 2 limit value alarms, which operate when the measured value exceeds or drops below the limit setpoint, or alternatively within a fixed band. Thanks to features such as start delay, hysteresis function and averaging, they can be employed in the most diverse applications. They can also be used as simple ON/OFF controllers. The optional analogue output enables the retransmission of the measured values to higher-level systems or monitoring devices. A totaliser function sums the measured value with respect to time, in order to measure quantities or volume over a fixed time period.

Example:



Codix 566

Setpoint adjuster

The setpoint adjuster is a digital output device for 0 ... 12 V or 0 ... 24 mA analogue signals suitable for plant commissioning or the simulation of sensors.

The current or voltage can be output in 3 modes, either directly, stepped or in a stored time curve (characteristic curve) and is thus ideal also for automatic sequences or approach operations in processes.

Furthermore the display is freely scalable, so that this can be shown in the desired engineering units. Thanks to its small design size and its flexibility, this device will prove indispensable in every workshop.

Example:



Codix 533

Basics

Process devices	Characteristics
-----------------	-----------------

Versatile and easy-to-read

The Codix range of devices from Kübler is the right solution whenever you wish to display and control process values (e.g. standard analogue signals, temperature, pressure) or other analogue measured values, or wish to convert and adapt measured variables.

Small and compact

When mounting space is tight, then the Codix 529 to 532 models in their DIN 48 x 24 housing are the ideal solution. When used to display analogue or temperature input signals, the display can be scaled as desired. Furthermore Min/Max values or an overall total value can also be measured.



Versatile and simple

If the device is to be operated with gloves, or if it must be legible from a great distance, then the Codix-Series 56X in its DIN 96 x 48 housing is the right choice.

These powerful and very fast displays set new standards when it comes to user friendliness. Thanks to their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide, the need to wade through time-consuming full instruction manuals can be eliminated. The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.

With 2 relay outputs and optional analogue output, analogue input signals as well as temperature, pressure or weight can be optimally controlled and monitored.



Multifunctional

Multifunction process controller type 573 with analogue output or two limit values.

The process controller with 2 analogue inputs can be used in both single channel mode as well as in dual channel. In dual channel mode, all arithmetic operations are available for displaying the sum total, difference, ratio or the product. Inputs and outputs can be scaled separately.



Setpoint adjuster

Setpoint adjuster / time dependent process generator Codix 533.

The setpoint adjuster triggers a standard signal or a freely programmable signal sequence from 0 ... 12 V or from 0 ... 24 mA. The setpoint adjuster is a real innovation, opening up new application possibilities in process technology and automation.



Process devices	Characteristics
-----------------	-----------------

 Product overview
Basics

Application areas for process devices

- | | |
|---|--|
| <ul style="list-style-type: none"> • Level measurement • Flow measurement • Silos • Speed display for processing machines • Control cabinet cooling • Woodworking machines • Bakery plants • Drying plants / ovens • Packaging machines • Machine tools and plastic processing machines | <ul style="list-style-type: none"> • Chemical and pharmaceutical plants • Food and drink machines • Semiconductor industry • Energy supply and climate • Paper machines • Glass production machines • Speed monitoring • Stretch- and compression process monitoring • Monitoring of synchronous operations • Weighing and pressure technology |
|---|--|

Application areas for setpoint adjusters

- | | |
|--|---|
| <ul style="list-style-type: none"> • Food, chemical and pharmaceutical plants • Irrigation plants, pump control • Mechanical engineering: for simulating sensors and speed control of motors and pumps, as well as for automatic lubricating of equipment | <ul style="list-style-type: none"> • Medical technology: for dosing, mixing or simulation • Petrochemicals: for filling, mixing, simulation and for pump control • Laboratory equipment, laboratory working places |
|--|---|

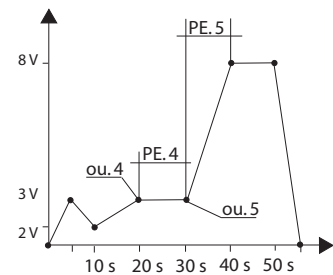
Advantages of all process devices

- | | |
|---|---|
| <ul style="list-style-type: none"> • Galvanic isolation • Linearisation function with up to 16 control points • The Codix family concept means simple, unified operation | <ul style="list-style-type: none"> • Modern industrial design • Short delivery times from stock • Cost-effective price/performance ratio |
|---|---|

Advantages of the Codix 533 setpoint adjuster / time-dependent process generator

- The setpoint adjuster offers three different operating modes:
 - Manual operation
 - Manual ramping operation
 - Automatic ramping operation
- With the automatic ramping operation, the times and setpoint values are programmed and then output automatically.
- With the manual operating modes, the value can either be preset directly or in stepped increments.

Example for automatic ramping operation:


Analogue output

Analogue output with Codix 564 temperature controller, Codix 565 process controller for analogue signals, Codix 566 process controller for strain-gauge inputs and type 573 process controller with 2 analogue input signals

Your benefits:

- Signal converter and display with scaling and linearisation in one device
- Additional ON/OFF control of the measured value via 2 relay outputs
- Simple programming via running help texts
- Transmission of the temperature values, pressure values, mV values or resistance values even over long distances, with a 4 ... 20 mA signal to a higher-level controller, PC or curve tracer.
- Output of the current value, totaliser value, MIN or MAX value, programmable as 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, 2 ... 10 V value

Why process devices with an analogue input?

For many measuring operations a digital signal acquisition is too inaccurate or involves too much time and effort. This is why analogue signal acquisition is often used in industrial environments. This includes for example temperature, weight (mass), pressure, filling level, volume (flow), speed, acceleration, position and many others.

The sensor signals are mostly very small (in the mV or μ V range). The KÜBLER process controllers amplify these signals, correcting possible errors, and send them to the display.

The signal conditioners Codix 564, 565, 566 convert these signals into analogue signals (e.g. 0 ... 10 V or 4 ... 20 mA). These signals can then be further processed and/or displayed.

The option also exists to transmit the analogue output signals over large distances. Many sensors do not provide a linear output signal. The KÜBLER process displays linearise these signals with up to 16 control points, depending on the model.

Input signals and output signals

For the input signals, depending on the model, KÜBLER offers the following ranges:

- 0 ... 20 mA
- 4 ... 20 mA
- \pm 100 mV, \pm 10 V
- 0 ... 10 V DC
- 2 ... 10 V DC
- 0 ... 500 Ω
- Pt100, Ni100 for 2, 3 and 4-wire technology
- Thermocouples B, E, J, K, N, R, S, T

The 2 ... 10 V and 4 ... 20 mA signals have the advantage that they also offer sensor monitoring at the same time. A 0 V or 0 mA signal may for instance mean that the sensor line is broken.

Example:

A digital display with analogue input, e.g. Codix 565, can be used to replace or complement a pressure gauge on a compressor. The current signal of the pressure sensor is displayed as pressure on the display.

Programming of the characteristic curve:

Point 1: 4 mA, 2.5 Pa

Point 2: 20 mA, 30 Pa

Minimum and maximum values are saved and can be called up at any time. The display value can easily be scaled, to show for example atmospheres or bar instead of Pa, by modifying the points of the characteristic curve.

With the Codix 564, 565, 566 and with type 573 KÜBLER offers the following output signal ranges for further processing:

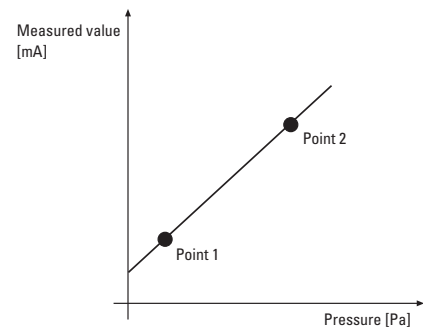
- 0 ... 20 mA, 4 ... 20 mA, 20 ... 4 mA, 20 ... 0 mA
- 0 ... 10 V, 2 ... 10 V, 10 ... 0 V, 10 ... 2 V, \pm 10 V

Optocoupler or relay outputs in conjunction with adjustable limit values.

The 2 ... 10 V, 4 ... 20 mA and und 10 ... 2 V, 20 ... 4 mA signals have the advantage that they also offer sensor monitoring at the same time.

A 0 V or 0 mA signal may for instance mean that the sensor line is broken.

This value can be programmed separately for cases where a fault occurs.



The function of the totaliser

The devices equipped with the totaliser function (Codix 530, 565, 566) can calculate the integral, that is to say "totalise" the analogue signal, using any period of time (with the Codix 566 this is done by manual totalising).

A typical field of application is flow measurement.

In this case, an analogue sensor measures the flow quantity per time unit in a pipe and displays the momentary flow value (e.g. litres per minute).

From this constantly fluctuating quantity the totaliser calculates a "total", that is to say it defines the absolute quantity that has flowed through the pipe (e.g. in litres).

Process devices

Characteristics

Which temperature display / controller is the right one for you?

The device must be chosen according to the temperature sensor used.

Pt and Ni resistance sensors:

Temperature measurement with resistance sensors uses the temperature sensitivity of metal resistances. A constant current is applied to the measuring resistance. The voltage drop at the resistance is measured. This drop represents the temperature measurement.

KÜBLER offers the following devices for resistance sensors:

Codix 531, Codix 564

Thermocouple sensors:

Temperature measurement with thermocouple sensors uses the thermoelectric effect. Thermocouples consist of two wires, soldered together.

The wires are made of different metals. The thermoelectric voltage appearing at the soldering point is measured, amplified and displayed by the KÜBLER display.

KÜBLER offers the following devices for thermocouple sensors:

Codix 532, Codix 564

The Codix 564 display is suitable for resistance sensors as well as for thermocouples.

Information about 2, 3 or 4 wire circuits

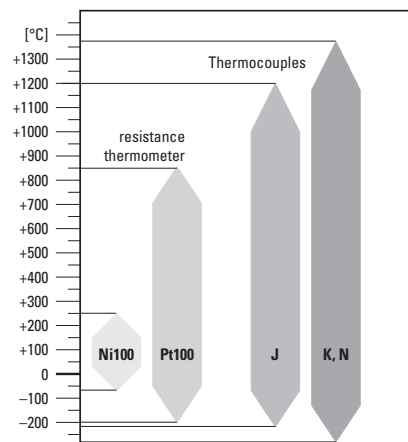
Unlike thermocouples, which deliver a voltage, a resistance does not deliver any signal by itself. This means that it requires external energy from an electrical measuring circuit. This power source is generally a constant current source.

With the 2 wire circuit, the measuring resistance is connected to the measuring device by means of two wires. The conductors are connected serially with the measuring resistance and lead to a higher total resistance, and thus to a measuring error.

With the 3 wire circuit, an additional wire is connected to the resistance, resulting in two measuring circuits. The resistance of the conductors is compensated for by means of internal circuits, provided all three conductors are identical.

With the 4 wire circuit, the resistance of all conductors is compensated for, even if they have different lengths.

Overview of the temperature measuring range



The diagram opposite shows an overview of the temperature range of the various sensors.

Advice:

- for Pt100 resistance sensors adhere to DIN IEC 751
- for Ni100 resistance sensors adhere to DIN 43760
- for thermocouple sensors adhere to DIN IEC 584.
- J: (Fe-CuNi)
- K: (Ni-CrNi)
- N: (NiCrSi-NiSi)

J: (Fe-CuNi)

These thermocouples are very common, economic and deliver a high thermoelectric voltage. Disadvantage: danger of corrosion. Iron becomes brittle with sulphurous gases.

K: (Ni-CrNi)

These thermocouples are very common, demonstrate excellent long-term stability but only have a low thermoelectric voltage.

N: (NiCrSi-NiSi)

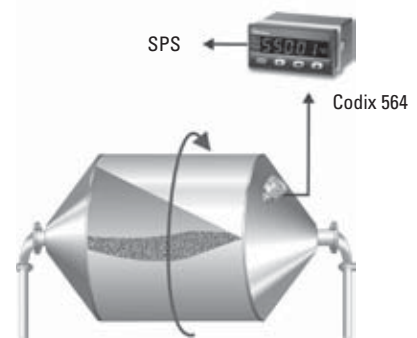
These thermocouples are not common, since they appeared only recently on the market. They can be used for very high temperatures and can replace elements out of noble metal.

Process devices	Applications
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Temperature monitoring in a tubular furnace

When the process temperature is higher or lower than the set value, the heating of the oven is directly controlled by means of the relay outputs of the Codix 564 temperature controller.

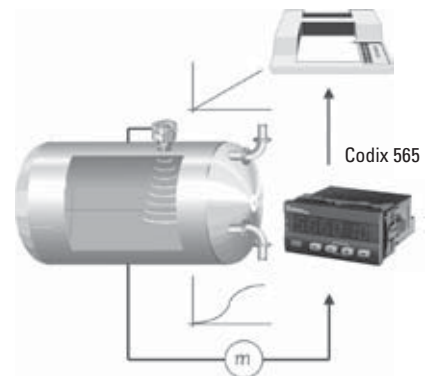
In case of very high power, the process controller can also drive a power contactor.



Linearisation of the characteristic curve of a container

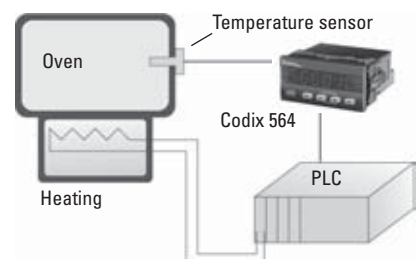
Our process controllers linearise the relationship between the fill-up level h and the volume V of the container. This can be set exactly thanks to 12 or 16 control points.

The devices of the Codix 565 or type 573 can output the linearised values as current or as voltage values (e.g. 4 ... 20 mA) and thus offer in addition the function of a voltage transformer.



Control of the heating of a furnace

The furnace temperature is monitored thanks to a temperature sensor. When the temperature becomes higher or lower than a defined temperature, the Codix 564 sends an output signal to the PLC, which controls, among others, the heating of the furnace. The operator can read the temperature on the large LED display.



Measurement of the total throughput [m³] and of the flow [l/min]

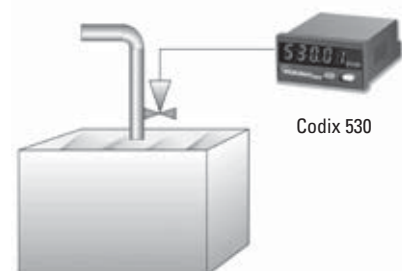
Thanks to its double function, the Codix 530 or 565 measures the total throughput in [m³] and the momentary flow in [l/min]. The sensor delivers a current signal proportional to the flow:

0 mA => 0 l/min

20 mA => 1000 l/min.

The total volume is calculated by the integration function (totaliser). Switching of the display is carried out by the front key.

The Codix 565 has two additional limits and an optional analogue output.

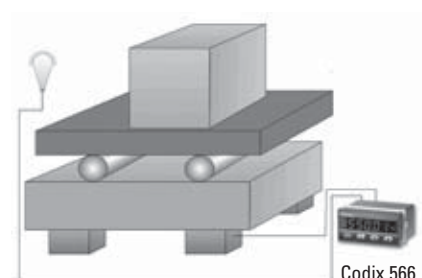


Weight determination

A strain gauge tape or a strain gauge bridge measures the pressure of the item to be weighed.

The differential signal voltage lies in the mV range and this is converted to the desired weight and displayed by a Codix 566.

Strain gauges with 3.3 – 3.0 – 2.0 – 1.5 and 1.0 mV/N sensitivity can be connected directly to the input of the Codix 566.



Interfaces

Kübler counters use the following serial interfaces:

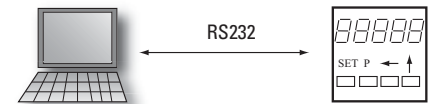
- RS232
- RS422
- RS485

Serial interface RS232

The serial interface RS232 is a full-duplex point-to-point connection.

Full-duplex means that data can be both transmitted and received simultaneously via the interface and that only two devices can be connected with each other. If two devices are to be connected to a computer, then a second interface port is required on the computer. The two connections are totally independent from each other.

This method has a disadvantage, because interface cards for PLCs are expensive and with PCs a maximum of 4 ports are available for use. For this reason, more recent Kübler counters are equipped with either the RS422 or the RS485 interface.



At least a 3-wire cable is needed when connecting RS232. The connection then works without handshaking. For connections with handshaking a 5-wire cable is needed.

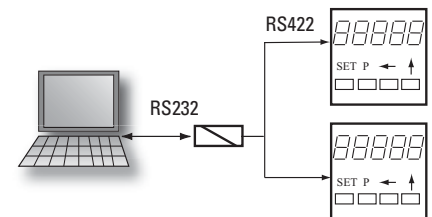
Serial interface RS422

This interface is a full-duplex multi-point connection.

This means that several receivers can be connected to one transmitter cable. In counting technology the PC or the PLC are used as the master station, which then controls all activity on the serial line.

All devices 'listen' to what the master is transmitting, but only that device, which is being addressed, answers. A message can only be sent from one device to another via the master.

Connecting the PC standard RS232 port to the RS422 counter interface is done by means of a simple interface converter. By using this solution, up to 10 devices can be connected to the serial port of a PLC or PC.



The wiring is done using a 4-wire cable with all the devices being connected in parallel. Each device has to be assigned a unique address, so that it can distinguish between messages being sent to its own address and those for another address.

Serial interface RS485

This interface is a half-duplex multi-point connection.

Half-duplex means that the data exchange works in both directions, but only in one direction at a time. It also means that one can transmit and receive over the same line. Converting the common RS232 interface to RS485 is not so easily done. However several devices can act as masters as well as also being receivers (slaves).

In total up to 32 devices can be connected to one interface. When connecting the stations together, only a two-wire cable is necessary. Most fieldbuses operate on this interface basis. The hardware is thus always the same, it is only the protocol that differs - this says which device is being addressed, which information is for that device and what control information is required to check that the transmission has been done correctly.

Interface comparison

Interface	RS232	RS422	RS485
Mode of transmission	asymmetrical with respect to GND	symmetrical without earth connection	
No. of senders	1	1	32
No. of receivers	1	10	32
Transmission distance	15 m	1200 m	1200 m
Transfer rate	20 kBit/s	10 Mbit/s	10 Mbit/s
Sender output signal without load	+/- 15 Volt	+5 Volt	+5 Volt
Driver load	3,7 kOhm	120 Ohm	60 Ohm

Software

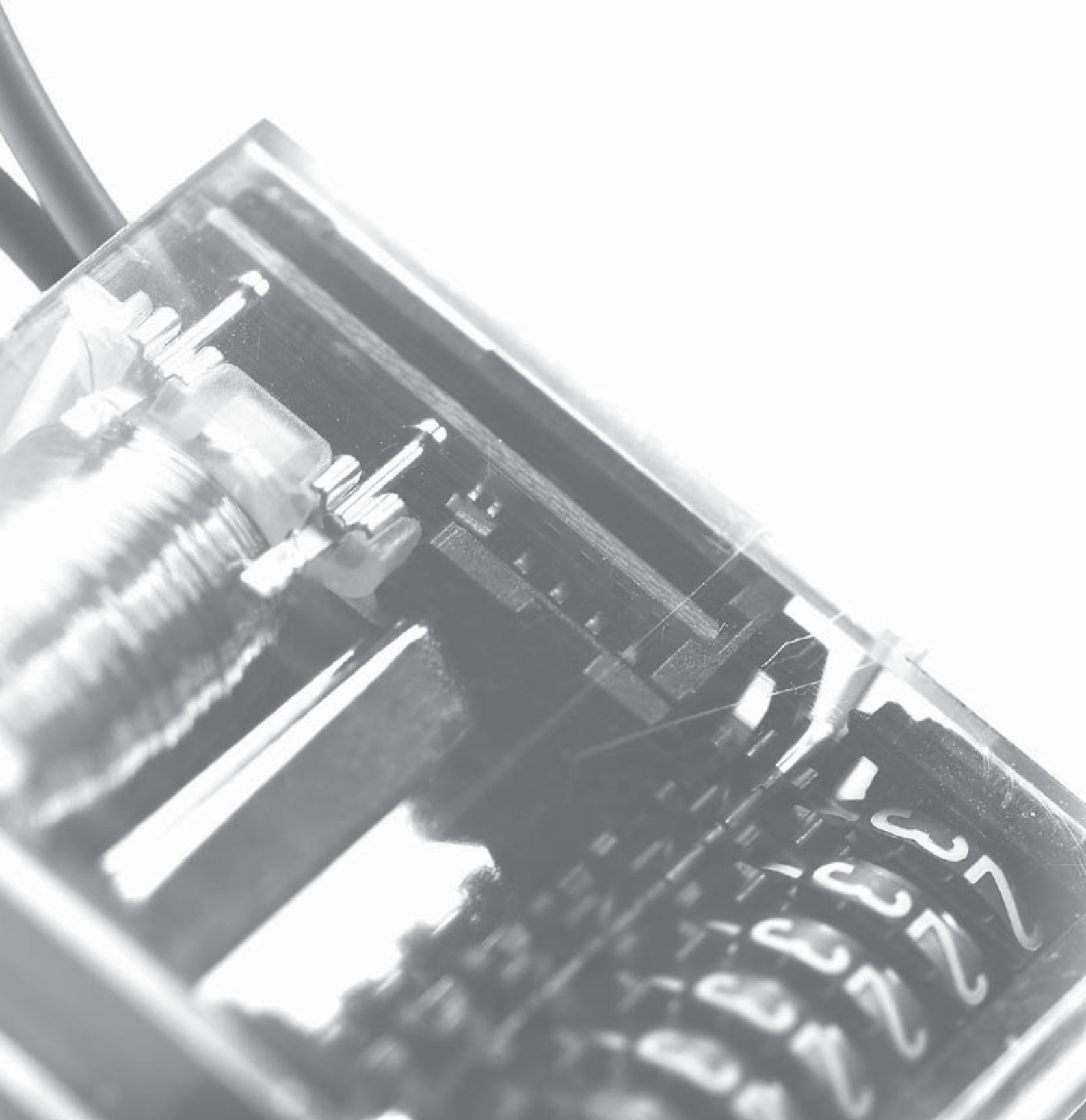
Software OS2

- User-friendly programming software for displays 570, 571 and 572 with serial interface
- Upload and download functions
- Monitor and terminal program for simple diagnostics
- Online display of measured values in the monitor program
- Free download from our website



Basics

Pulse counters



Pulse counters

Pulse counters, electronic		Type	Page
LCD pulse counters	Adding or subtracting (battery)	Codix 130	48
	With count direction DC or difference counter AC+DC (battery)	Codix 131	51
	With count direction AC (battery)	Codix 132	54
	Adding counter (DC)	Codix 140	57
LCD service counters	Adding service counter (DC)	Codix 142	57
LED pulse counters	Adding (DC)	Codix 520	60
	6 count modes (DC)	Codix 521	63
	Multifunction – pulse, frequency, time (DC)	Codix 524	240
	Universal with dual functions 4 combinations (DC)	Codix 52U	248
	6 count modes with tachometer (DC)	Codix 52P	251
	2 counters with separate scaling (DC)	Codix 52T	66
	2 counters with separate inputs and separate scaling (DC)	Codix 52C	69
	Adding (AC+DC)	Codix 540	72
	6 count modes (AC+DC)	Codix 541	75
	Multifunction – pulse, frequency, time (AC+DC)	Codix 544	243
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	254
	6 count modes with tachometer (AC+DC)	Codix 54P	257
	Pulse, frequency, time (also reciprocal), with analogue output (AC+DC)	571	246
LCD modules	Adding, 7 digits (DC)	190	78
	Adding, 6 digits (DC)	192	80
Pulse counters, electromechanical		Type	Page
Micro counters	High shock resistance (DC)	K 46 / K 47	82
	Magnetic field resistant and high shock resistance (DC)	K 66 / K 67	85
	High shock resistance (AC+DC)	K 04 ... K07 / AK 07	88
	High shock resistance, for DIN-rail (AC+DC)	SK 07	94
Mini counters	5 digits with reset (AC+DC)	W 15	96
	6 or 7 digits without reset (AC+DC)	W 16 / W 17	99
Standard counters	4 digits with reset (AC+DC)	Bk 14	102
	6 or 8 digits with/without reset (AC+DC)	B 16 / B 18	104
	4 or 6 stellig digits with/without reset, electrical reset (AC+DC)	Mk 14 / Mk 16	110
Counting mechanism with stepper motor	For energy meters (DC)	KWh 17	113
Dual function counters	Pulse + time (AC+DC)	HC 77	207
	Pulse + time for DIN rail (AC+DC)	SHC 77	210
	Energy and time (AC)	HW 66 / HW 66 M	262
Pulse counters, pneumatic		Type	Page
Pneumatic counters	4 digits with, 6 digits with/without, 8 digits without reset	PMk 14 / PMk 16 / PMk 18	115

Pulse counters, electronic

LCD pulse counters **Adding or subtracting (battery)** **Codix 130**



The Codix 130 is a simple battery powered pulse counter for fast and slow count pulses with 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.



Battery powered	Pulse counter/ Totaliser	4 ... 30 V	10 ... 260 V	max. 12 kHz	- 10° + 60°	IP65	DIN 48 x 24	8 LCDs	Lockable reset

Powerful

- High quality LCD display with 8 mm high figures
- Count direction adding and subtracting via control input
- Battery life approx. 8 years
- Optional display backlighting
- Filter function for bounce-free counting with mechanical contacts
- Count frequency max. 12 kHz
- High protection level IP65

Simple

- Screw terminals, RM 5 mm
- Reset key lockable via the input 'Reset Enable'
- For positive and negative counting edges, depending on version
- High voltage version for 10 ... 260 V AC/DC voltage pulses
- Large 8-digit LCD display with 8 mm high figures

Order code

6.130 . 012 . 8XX
a b

a Backlighting

5 = without¹⁾
 6 = with¹⁾

b Count input (input type: count) – single-channel, adding or subtracting counting

	Input type	INP A			INP B				
0 ¹⁾ =	Count ²⁾	0 ... 0.7 V DC	count	NPN	7 kHz	0 ... 0.7 V DC	count	NPN	30 Hz
2 ¹⁾ =		4 ... 30 V DC	count	PNP	12 kHz	0 ... 0.7 V DC	count	NPN	30 Hz
3 ¹⁾ =		10 ... 260 V AC/DC	count	AC/DC	30 Hz	10 ... 260 V AC/DC	reset	AC/DC	–

Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types

2) Single-channel, adding or subtracting counting

Pulse counters, electronic

LCD pulse counters Adding or subtracting (battery) Codix 130

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 8 digits, 8 mm high
Backlighting	external electrical source 24 V DC \pm 20 %, 50 mA
Modes	adding or subtracting (selectable)
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

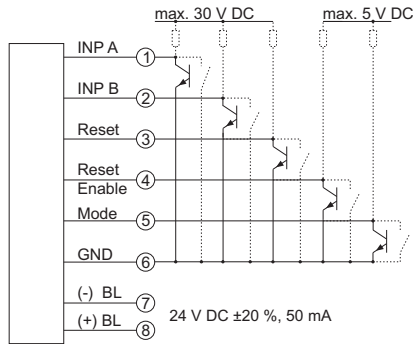
Counting inputs	
Counting input of the DC-versions (max. 30 V DC)	
slow counting input	max. 30 Hz NPN
fast counting input	max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
switching level PNP	LOW 0 ... 0.7 V DC HIGH 4 ... 30 V DC
Counting input of the high voltage versions (10 ... 260 V DC/V AC)	
optocoupler input,	max. 30 Hz
min. pulse time	16 ms
switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC
Counting direction switching (only DC-version)	
mode	see order table
contact input	Open Collector NPN (switching at 0 V)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Reset input (only DC and high voltage)	
minimum pulse time	DC 50 ms high voltage 16 ms
contact input DC – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
high voltage input	10 ... 260 V AC/DC
Electrical reset key locking (for DC and high voltage)	
contact input	Open Collector NPN (switching at 0 V)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

Pulse counters, electronic

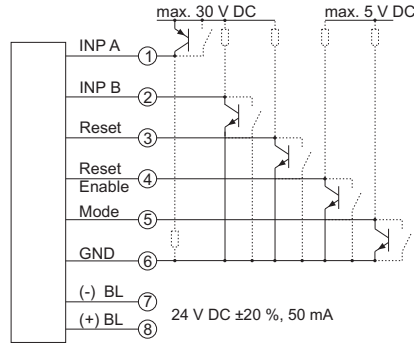
LCD pulse counters Adding or subtracting (battery) Codix 130

Terminal assignment

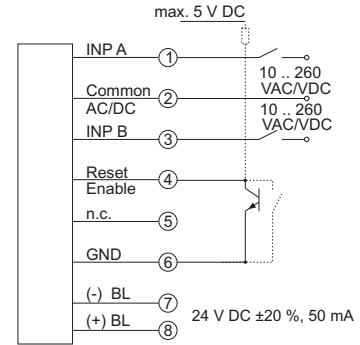
DC type: 6.130.012.8x0



DC type: 6.130.012.8x2

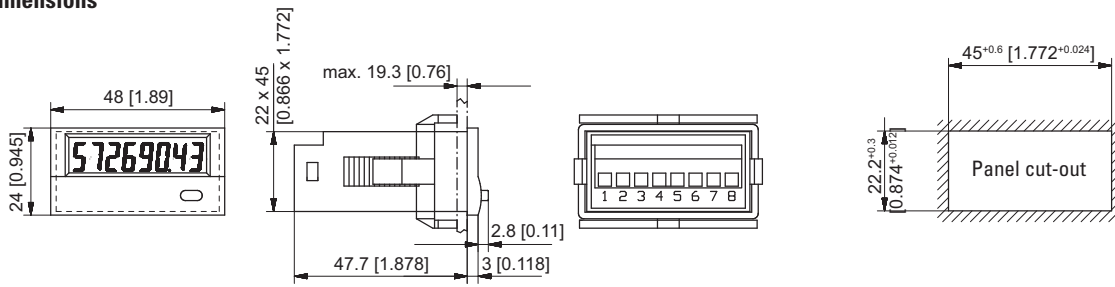


AC type: 6.130.012.8x3

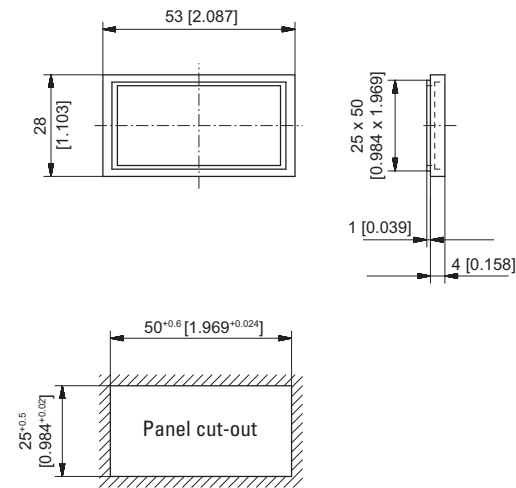


BL = backlighting

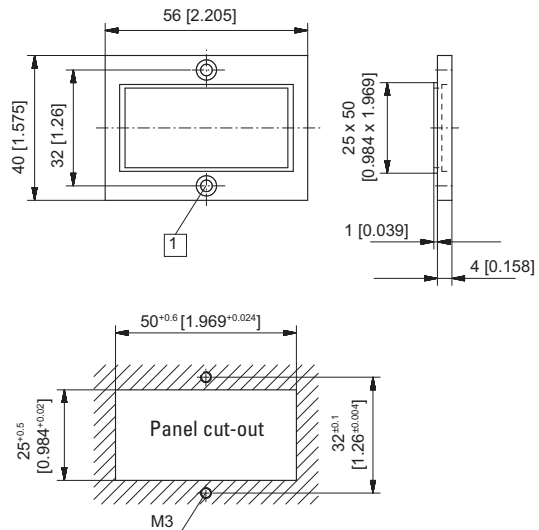
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Pulse counters, electronic

LCD pulse counters **With count direction DC or difference counter AC+DC (battery)** **Codix 131**



The Codix 131 is a simple battery powered pulse counter with difference or count direction input, 8-digit LCD display, optional backlighting, for NPN, PNP and high voltage applications.



Pulse counters

Battery powered	Pulse counter/totaliser	Pulse voltage 4 ... 30 V	Pulse voltage 10 ... 260 V	Count with direction (DIR)	Differential count (up, dn)	Max. count frequency 12 kHz	Temperature range - 10° + 60°	High protection level IP65	LCD display 8 LCDs

Powerful

- High quality LCD display with 8 mm high figures
- Count direction, adding and subtracting via count direction or difference input
- Battery life approx. 8 years
- Optional display backlighting
- Count frequency max. 12 kHz
- High protection level IP65

Simple

- Screw terminals, RM 5 mm
- Reset key lockable via the input 'Reset Enable'
- For positive and negative counting edges, depending on version
- High voltage version for 10 ... 260 V AC/DC voltage pulses
- Large 8-digit LCD display with 8 mm high figures

Order code

6.131 . 012 . 8XX
a b

a Backlighting

- 5 = without ¹⁾
- 6 = with

b Count input (input type: count) – single-channel, adding or subtracting counting

	Input type	INP A			INP B				
0 ¹⁾	Cnt.Dir ²⁾ / UP.DN ³⁾	0 ... 0.7 V DC	count	NPN	7 kHz	0 ... 0.7 V DC	count/direction	NPN	7 Hz
1 ¹⁾		4 ... 30 V DC	count	PNP	12 kHz	4 ... 30 V DC	count/direction	PNP	12 Hz
3 ¹⁾	UP.DN ³⁾	10 ... 260 V AC/DC	count	AC/DC	30 Hz	10 ... 260 V AC/DC	count	AC/DC	30 Hz

Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types
 2) Counting input with counting direction input
 3) One adding and one subtracting counting input (differential mode)

Pulse counters, electronic

LCD pulse counters		With count direction DC or difference counter AC+DC (battery)	Codix 131
Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 8 digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Modes	adding or subtracting (selectable) counting direction differential counting
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

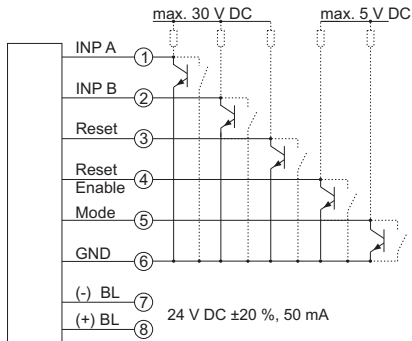
Counting inputs	
Counting input of the DC-versions (max. 30 V DC)	
Fast counting input	max. 12 kHz (PNP), 7 kHz (NPN)
Switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
Switching level PNP	LOW 0 ... 0.7 V DC HIGH 4 ... 30 V DC
Counting input of the high voltage versions (10 ... 260 V DC/AC)	
A subtracting	optocoupler input max. 30 Hz
B adding	min. pulse time 16 ms
Switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC
Counting direction switching (only DC-version)	
Mode	see order table
Contact input	open collector NPN (switching at 0 V DC)
Switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Reset input (only DC and high voltage)	
Minimum pulse time	DC 50 ms High voltage 16 ms
Contact input DC – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
Electrical reset key locking (only DC and high voltage)	
Contact input	open collector NPN (switching at 0 V DC)
Switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

Pulse counters, electronic

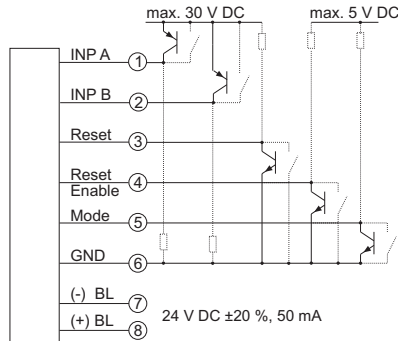
LCD pulse counters **With count direction DC or difference counter AC+DC (battery)** **Codix 131**

Terminal assignment

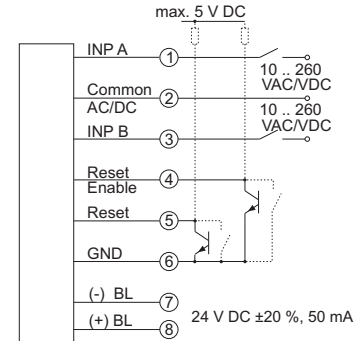
DC type: 6.131.012.8x0



DC type: 6.131.012.8x1

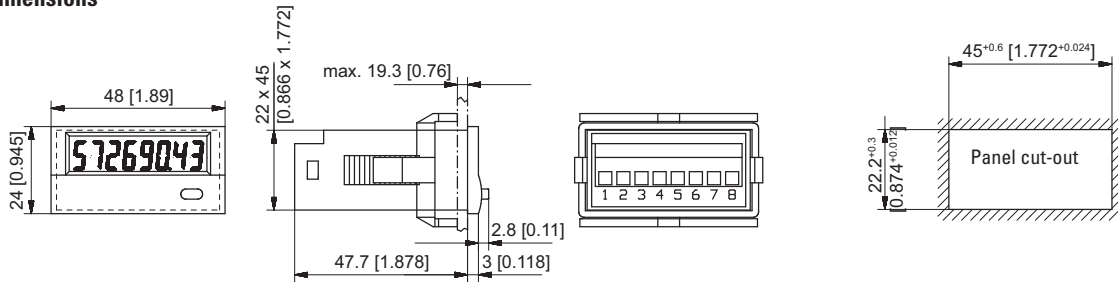


AC type: 6.131.012.8x3

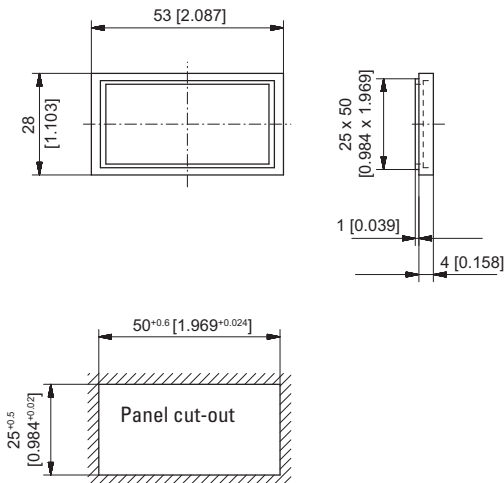


BL = backlighting

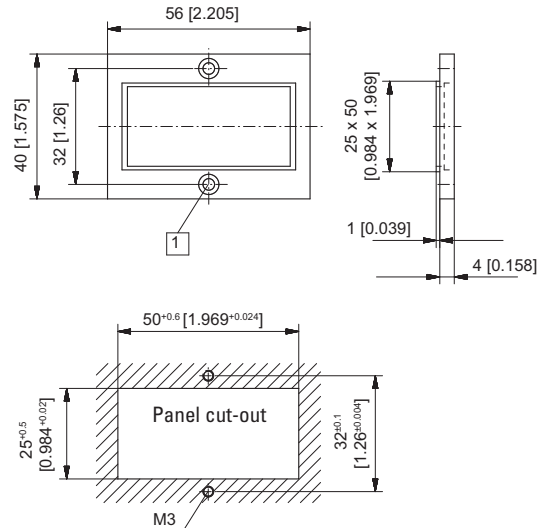
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Pulse counters

Pulse counters, electronic

LCD pulse counters **With count direction AC (battery)** **Codix 132**



The Codix 132 is a simple battery powered pulse counter with count and count direction input, 8-digit LCD display, optional backlighting, for high voltage applications 10 ... 260 V AC/DC.



Battery powered	Pulse counter/ Totaliser	Pulse voltage 10 ... 260 V	Count with direction (DIR)	Max. count frequency 30 Hz	Temperature range - 10° + 60°	High protection level IP65	DIN front bezel DIN 48 x 24	LCD display 8 LCDs	Lockable reset

Powerful

- High quality LCD display with 8 mm high figures
- Count direction adding and subtracting via direction input
- Battery life approx. 8 years
- Optional display backlighting
- Filter function for bounce-free counting with mechanical contacts
- Count frequency max. 30 Hz
- High protection level IP65

Simple

- Screw terminals, RM 5 mm
- Reset key lockable via the input 'Reset Enable'
- High voltage version for 10 ... 260 V AC/DC voltage pulses
- Large 8-digit LCD display with 8 mm high figures

Order code

6.132 . 012 . 8X3
a b

a Backlighting
 5 = without ¹⁾
 6 = with ¹⁾

b Count input (input type: count) – single-channel, adding or subtracting counting

	Input type	INP A			INP B				
3 ¹⁾ =	Cnt.Dir ²⁾	10...260 V AC/DC	Direction	AC/DC	30 Hz	10...260 V AC/DC	count	AC/DC	30 Hz

Delivery specification

- Pulse counter
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types

2) Counting input with counting direction input

Pulse counters, electronic

LCD pulse counters With count direction AC (battery) Codix 132

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 8 digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Modes	counting direction (count and direction input)
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Altitude	up to 2000 m

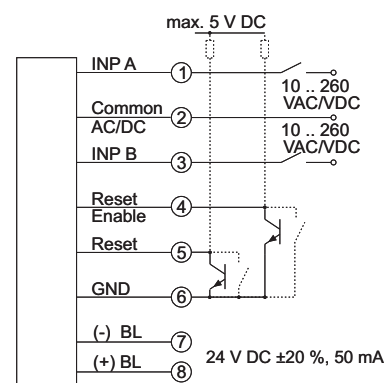
Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

Counting inputs	
Counting input of the high voltage versions (10 ... 260 V DC/AC)	
Counting and direction input	
Optocoupler input	max. 30 Hz
Minimum pulse time	16 ms
Switching level	LOW 0 ... 2 V AC/DC HIGH 10 ... 260 V AC/DC
Reset input	
Minimum pulse time	DC 50 ms High voltage 16 ms
Contact input DC – NPN	LOW 0 ... 0.7 VDC HIGH 3 ... 30 V DC
Electrical reset key locking	
Contact input	open collector NPN (switching at 0 V)
Switching level – NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

Terminal assignment

AC type: 6.132.012.8x3

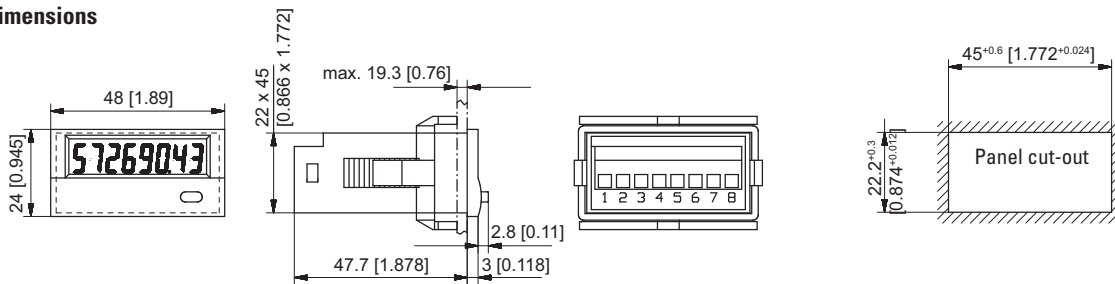


BL = backlighting

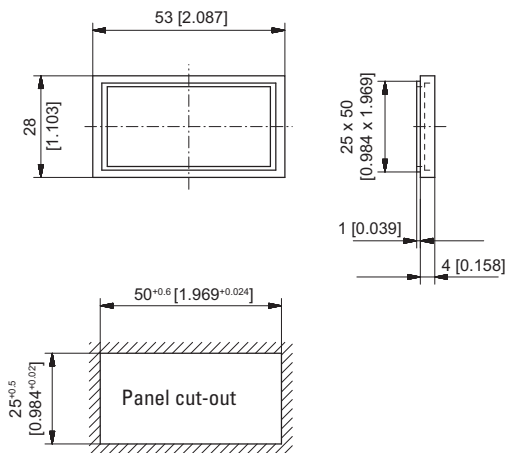
Pulse counters, electronic

LCD pulse counters **With count direction AC (battery)** **Codix 132**

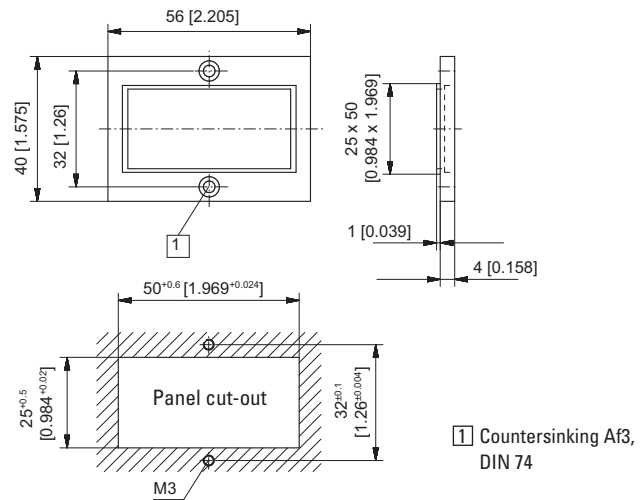
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Pulse counters, electronic

LCD pulse counters **Adding counter / service counter (DC)** **Codix 140 / 142**



The Codix 140 / 142 is a simple voltage powered pulse counter for fast and slow count pulses, with 7-digit LCD display for NPN / PNP input signals.
Optional: can be factory pre-programmed.

Codix 140: Standard counter
Codix 142: Service counter



Pulse counters

DC 10 ... 30V	PNP/NPN	max. 8 kHz	-20° + 65°	IP65	000000 DIN 48 x 24	123... 7 LCDs	12345 00000 Lockable reset	1 Transistor output (142)
Power supply	Pulse counter/ Totaliser	Max. count frequency	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset	Transistor output (142)

Functional

- Direct display of the total number of pulses
- Key press displays preset service value and its pre-signal
- Preset value output as display text and transistor output
- Pre-signal for the service intervals as display text
- Manual or electrical reset of the display or of the service intervals
- Fast PNP or damped NPN control via separate inputs

User friendly

- Power supply 10 ... 30 V DC
- Values stored in EEPROM
- Fixed pre-programmed service intervals e.g.
Service at 5000 imp (service)
Pre-signal at 4900 imp (pre-service)
Blinking text message on the display (service or pre-service)
- Multifunction reset key, lockable via separate input
- Reset to delivery condition possible
- Can be factory pre-programmed

Order code **Standard counter** **6.140 . 012 . 300 . XXXX**

a Option 1 ¹⁾ , divisor (If divisor is 1 then omit last 4 digits from code) 0002 ... 4095	Stock types 6.140.012.300	Delivery specification – Counter – Mounting clip – Gaskets – Instruction manual, multilingual
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Order code **Service counter** **6.142 . 011 . 300 . XXXX . XX . XXXX**

a Option 3 ¹⁾ , service preset 005K = 5000	c Option 1 ¹⁾ , divisor (If divisor is 1 then omit last 4 digits from code) 0002 ... 4095	Delivery specification – Counter – Mounting clip – Gaskets – Instruction manual, multilingual
b Option 2 ¹⁾ , pre-warning 00 = Pre-warning at 100 before the preset service value, PRESErV and SErVICE	Stock types 6.142.011.300.005K.00	

1) The option 1 - 3 can be programmed according to customer needs.
Please note: The min. order quantity for custom versions is 10 pcs with an extra charge, or 200+ pcs with no extra charge.

Pulse counters, electronic

LCD pulse counters	Adding counter / service counter (DC)		Codix 140 / 142
Accessories			Order-No.
Adapter front bezel, 53 x 28 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	anthracite	T008180
Adapter front bezel, 56 x 40 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with screw mounting for counters 48 x 24 mm	anthracite	T008181
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 7 digits, 8 mm high
Counting range	0 ... 9999999, no decimal point
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C

Electrical characteristics	
Power supply	10 ... 30 V DC, max. 25 mA
Start delay	500 ms
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount DIN 43700, 48 x 24 mm dark grey Ral 7021
Weight	40 g
Protection	IP65 (front side) IP20 (rear side)
Connections	8-pole screw terminals, pitch 5.08 mm
Vibration resistance	acc. to EN 60068-2-6 10 - 55 Hz / 1 mm / 30 min
Shock resistance	acc. to EN 60068-2-27 100 G acc. to EN 60068-2-29 10 G

Inputs	
Counting input A	fast input, PNP switching (max. 8 kHz)
Counting input B	slow input, NPN switching (mechanical contact, max. 48 Hz)
Reset key enable input	static NPN input
Reset	edge-triggered NPN input (min. 20 ms)
Input resistance	10 kOhm
Switching level	LOW 0 ... 2 V DC HIGH 3.5 ... 30 V DC
Switching threshold	approx. 2.7 V DC
Scaling	1 ... 4095 (factory-set)

Additional data for Codix 142 (service counter)	
Output	NPN transistor output, open collector
Output voltage	max. 30 V DC
Output current	max. 50 mA

Pulse counters, electronic

LCD pulse counters Adding counter / service counter (DC) Codix 140 / 142

Display and inquiry mode - service counter

If the reset key is not released by means of the activation input of pin 6, pressing the key makes the following functions available to the user.

Press 1 x: The text "SErVICE" is displayed

Press 2 x: The following Service value is displayed

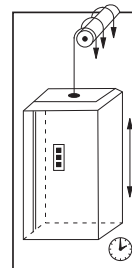
Press 3 x: The text "PrESErV" is displayed

Press 4 x: The following pre-service value is displayed

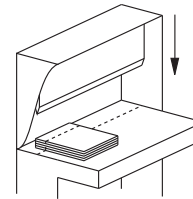
Press 5 x: The current value is displayed

For the service counters, the values counted remain stored, the service values are incremented by the stored preset value when resetting. E.g. service value 5000 pulses, counter count when resetting 5100 pulses, new service value 10100.

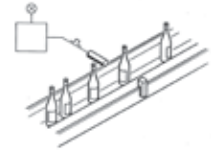
Applications



Ride counting and service intervals



Number of cuts and knife replacement

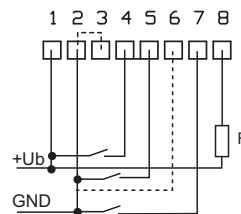


Total quantity and service interval

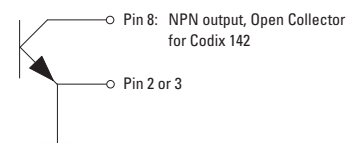
Pulse counters

Terminal assignment

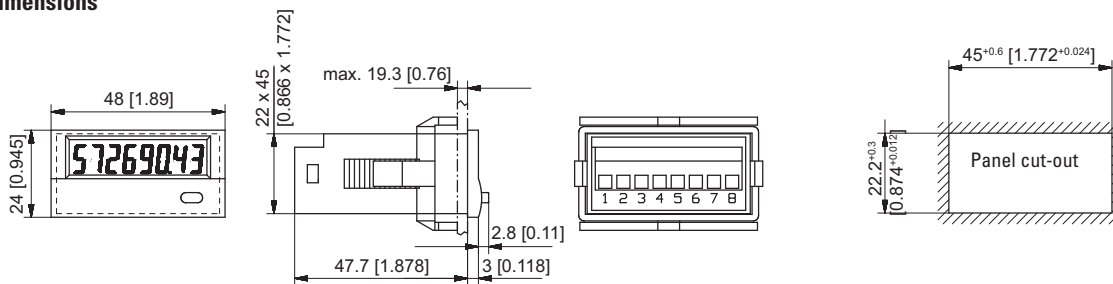
PIN	Description	Standard counter	Service counter
Power supply			
1	+U _B	10 ... 30 V DC	10 ... 30 V DC
2	0 V DC, GND	GND	GND
Inputs			
3	0 V DC, GND	GND	GND
4	Fast counting input	INP PNP	INP PNP
5	Slow counting input	INP NPN	INP NPN
6	Reset enable input	RESET MANUAL ENABLE	RESET MANUAL ENABLE
7	Reset input	RESET	RESET
Output			
8	NPN output	n.c.	OUT



Output 8 is used only with Codix 142 as a NPN output



Dimensions



Pulse counters, electronic

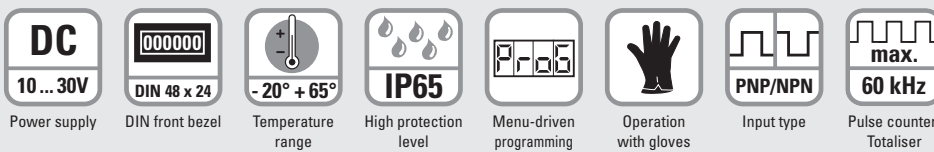
LED pulse counters

Adding (DC)

Codix 520



The Codix 520 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display, for NPN / PNP input signals.



Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high
- Simple totalising and quantity counter
 - single channel count input and reset input
 - programmable for positive (PNP) or OV (NPN) switching input pulses
 - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Programmable decimal point, can be set from 0.0 to 0.000
- Manual or electrical reset – tamper-proof due to lockable reset function
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs

Order code

6.520 . 012 . 3X0
a

a Input switching level
 0 = Standard (HTL) ¹⁾
 A = 4 ... 30 V DC

Delivery specification

- Counter
- Mounting clip
- Gasket
- Instruction manual, multilingual

- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm

1) Stock types

Pulse counters, electronic

LED pulse counters	Adding (DC)	Codix 520
Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

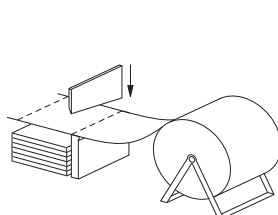
Electrical characteristics	
Power supply	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 45 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

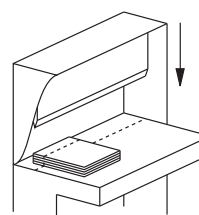
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency	max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Applications for pulse counters / totalisers

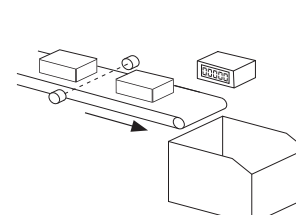
- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Piece-counting



Number of cuts

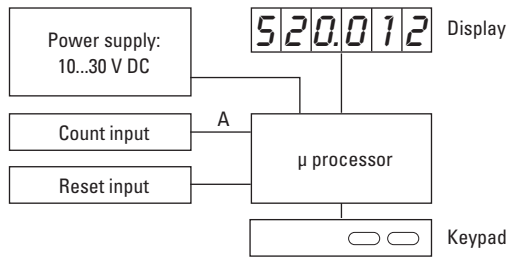


Piece-counting on conveyor

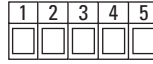
Pulse counters, electronic

LED pulse counters Adding (DC) Codix 520

Block diagram

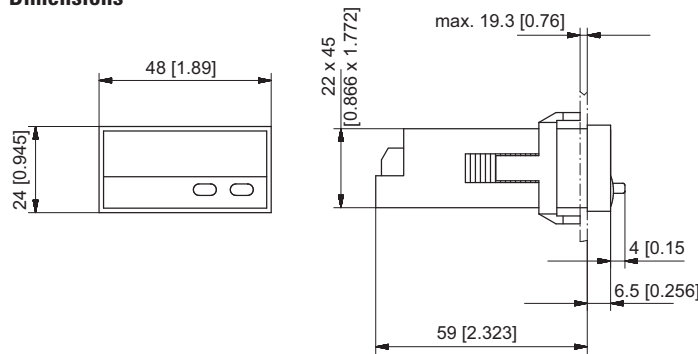


Terminal assignment

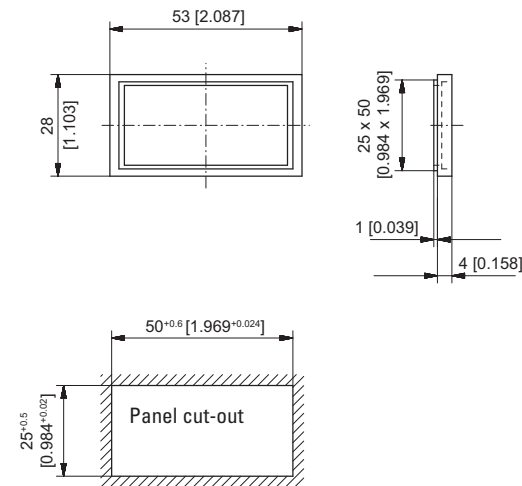


PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP
4	–
5	Reset

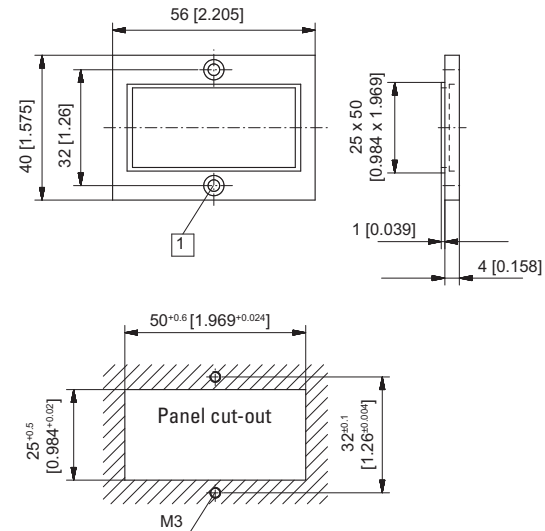
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

LED pulse counters **6 count modes (DC)** **Codix 521**



The Codix 521 is a voltage powered pulse counter / position display for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.

Equipped with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4.



Pulse counters

DC 10 ... 30V	 DIN 48 x 24	 - 20° + 65°	 IP65	 Menu-driven programming	 max. 60 kHz	 POSITION	 1 2 1	 1 2 1	 1 3 4	 1 1 2 2 3 4
Power supply	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totaliser	Position display	Count with direction (DIR)	Differential count (up.dn)	Add/Add count (up.up)	Phase discriminator

Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high
- Position, difference, adding or count direction detection
 - programmable for positive (PNP) or OV (NPN) switching input pulses
 - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation
- Freely programmable setpoint
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs
- Optional output - as zero signal

Order code 6.521 . 01 X . 3 X 0

a Output	b Input switching level	Delivery specification	
1 = optocoupler output	0 = Standard (HTL) ¹⁾	- Counter	- Front bezel for screw mounting (T008181)
2 = no output ¹⁾	A = 4 ... 30 V DC	- Mounting clip	- Front bezel for clip mounting (T008180)
		- Gasket	53 x 28 mm, panel cut-out 50 x 25 mm
		- Instruction manual, multilingual	

1) Stock types

Pulse counters, electronic

LED pulse counters	6 count modes (DC)	Codix 521
Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

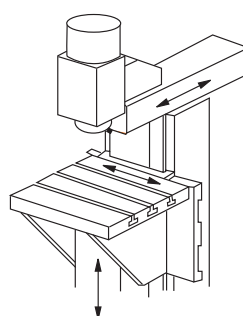
General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C
Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP6 (front side)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency	max. 60 kHz, can be damped to 30 Hz; for position display max. 25 kHz
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

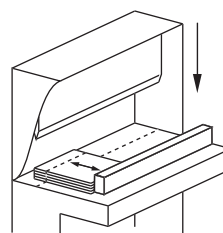
Outputs (optional)	
Optocoupler output	max. 30 V DC, 10 mA

Applications for position displays / totalisers

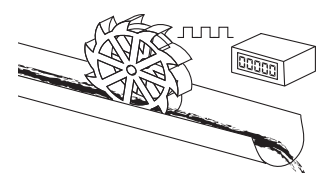
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Position on milling machine



Position or quantity

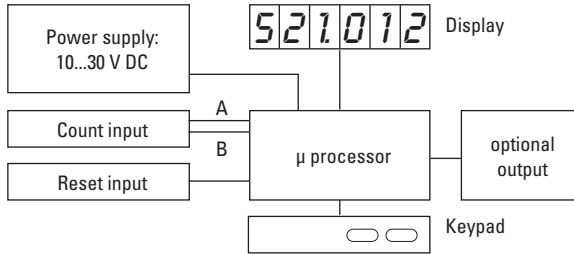


Flow rate

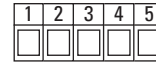
Pulse counters, electronic

LED pulse counters 6 count modes (DC) Codix 521

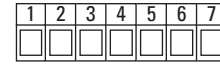
Block diagram



Terminal assignment

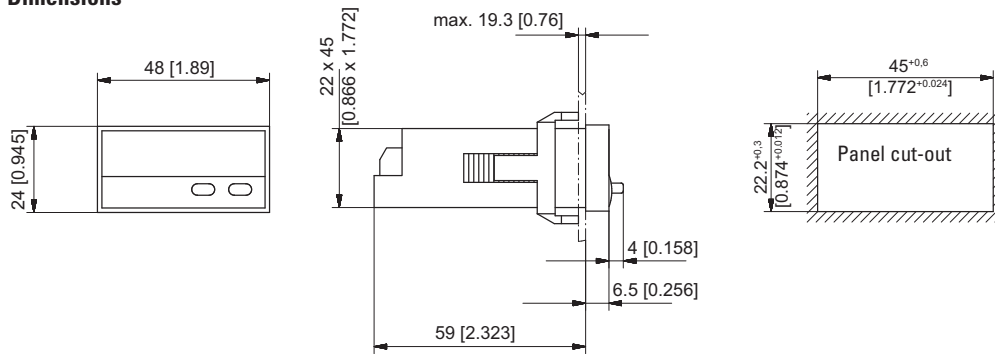


PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

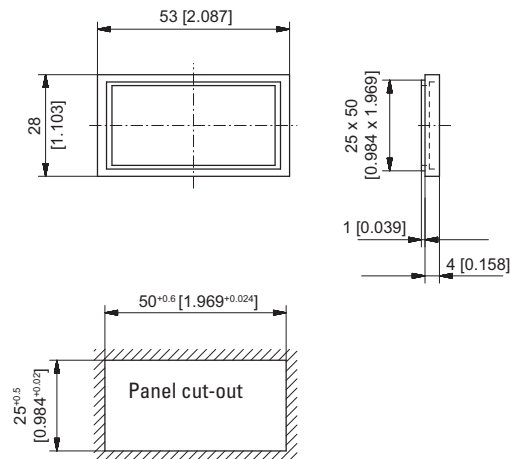


PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset
6	Emitter
7	Collector

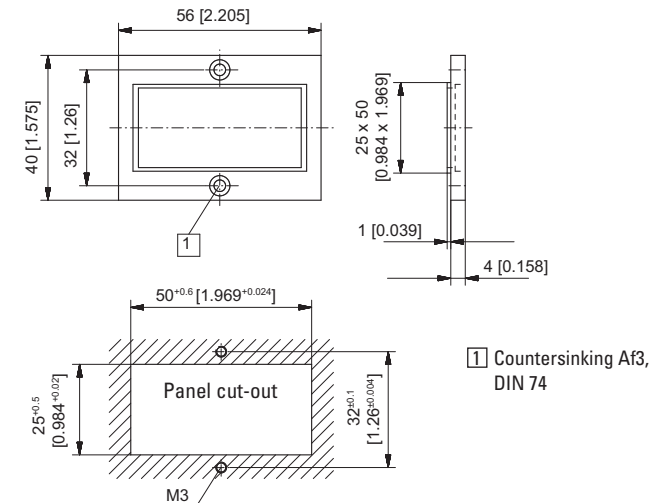
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Pulse counters, electronic

LED pulse counters	2 counters with separate scaling (DC)	Codix 52T
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The Codix 52T is a voltage powered dual pulse counter with a common input and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A and B.



DC 10 ... 30V Power supply	000000 DIN 48 x 24 DIN front bezel	-20° + 65° Temperature range	IP65 High protection level	Prog Menu-driven programming	Hand Operation with gloves	max. 60 kHz Pulse counter/Totaliser	PNP/NPN Input type
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Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high
- Single channel dual totaliser
 - programmable for positive (PNP) or 0V (NPN) switching input pulses
 - fast count inputs with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling for both counters multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size
- Simple display switching between counters 1 and 2
- DC power supply
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 V DC for use with TTL signals
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out)

Order code

6.52T . 012 . 3X0^a

- a** Input switching level
- 0 = Standard (HTL)
 - A = Fixed level
 - LOW 0 ... 2 V DC
 - HIGH 4 ... 30 V DC

- Delivery specification
- Counter
 - Mounting clip
 - Gasket
 - Instruction manual, multilingual

- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm

Pulse counters, electronic

LED pulse counters 2 counters with separate scaling (DC) Codix 52T

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

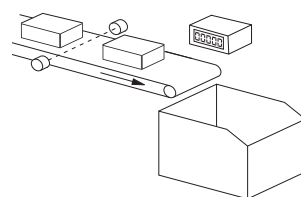
Electrical characteristics	
Power supply	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

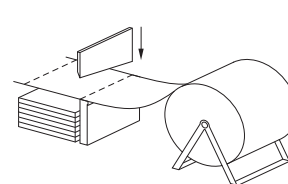
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency	max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Application examples for the dual totaliser

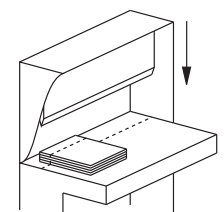
- Logging of piece count and overall total
- Totalising of flow volumes, quantities and other scalable media
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts



Total piece count as well as packing units



Individual and total quantities



Individual and total quantity from 2 work-shifts

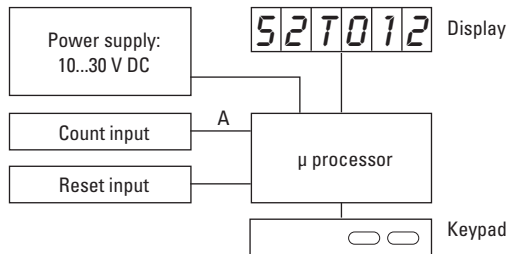
Pulse counters, electronic

LED pulse counters

2 counters with separate scaling (DC)

Codix 52T

Block diagram

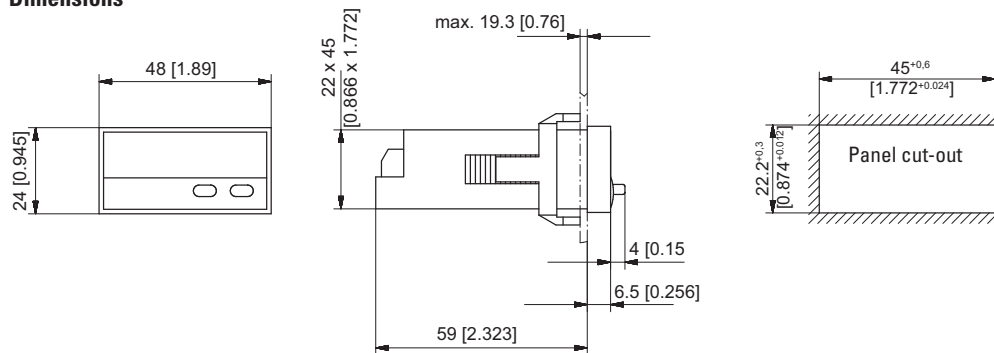


Terminal assignment

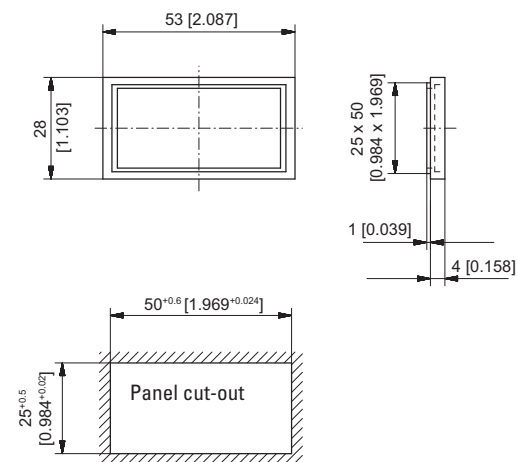


PIN	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	-
5	Reset

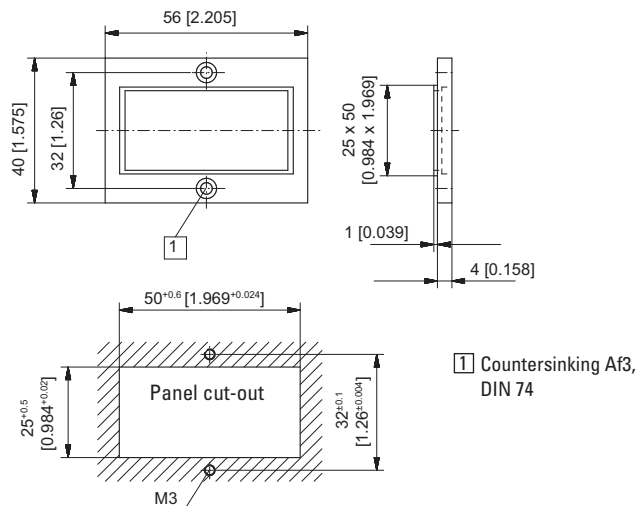
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Pulse counters, electronic

LED pulse counters **2 counters with separate inputs and separate scaling (DC)** **Codix 52C**



The Codix 52C is a voltage powered dual pulse counter with separate inputs and separate scaling, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals and display switching between A, B, A-B, A+B, A/B, (A-B)/A [%].



Pulse counters

DC 10 ... 30V	000000 DIN 48 x 24	-20° + 65° Temperature range	IP65 High protection level	Prog Menu-driven programming	Operation with gloves	max. 25 kHz Pulse counter/ Totaliser	PNP/NPN Input type
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Powerful

- Single channel dual totaliser with 2 separate inputs
 - programmable for positive (PNP) or OV (NPN) switching input pulses
 - fast count inputs with an input frequency of max. 25 kHz. Can be damped to 30 Hz for mechanical contacts.
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling for inputs A and B multiplication and division factor (0.0001...99.9999), to display corresponding units in, for example, litres, length or packaging size
- Simple display switching from A to B or A+B, A-B, A/B, (A-B)/A [%]
- DC power supply
- As an alternative to the HTL units, models are also available with a fixed signal level threshold >4 ... 30 V DC for use with TTL signals
- Reset manual or electrical, programmable separately for both counters (the reset can also be locked out)

Order code

6.52C . 012 . 3 X 0 ^a

^a *Input switching level*
 0 = Standard (HTL)
 A = 4 ... 30 V DC
 LOW 0 ... 2 V DC
 HIGH 4 ... 30 V DC

Delivery specification
 – Counter
 – Mounting clip
 – Gasket
 – Instruction manual, multilingual

– Front bezel for screw mounting (T008181)
 56 x 40 mm, panel cut-out 50 x 25 mm
 – Front bezel for clip mounting (T008180)
 53 x 28 mm, panel cut-out 50 x 25 mm

Pulse counters, electronic

LED pulse counters	2 counters with separate inputs and separate scaling (DC)	Codix 52C
Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C >26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

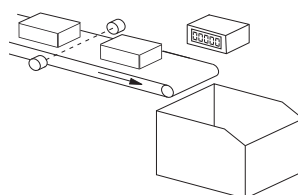
Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

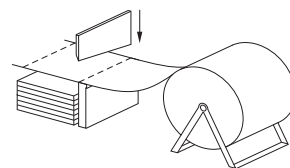
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency	max. 25 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Application examples for the dual totaliser with separate inputs

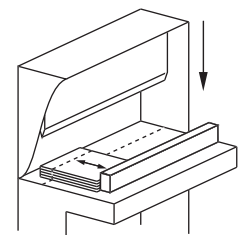
- Logging of piece count and overall total
- Totalising of flow volumes, quantities and other scalable
- Counting tasks, such as quantities and piece counting
- Accessories, OEM or retrofit equipment for production machinery
- Piece counting on die-cutters, presses, extruders, wood-processing machines, drilling machines, pick-and-place machines, guillotines, special vehicles
- Measurement of two different values in just one device: e.g. with 2 inputs both the piece count and the number of packages can be counted
- Recording of the total results from 2 work-shifts



Total piece count as well as packing units



Individual and total quantities

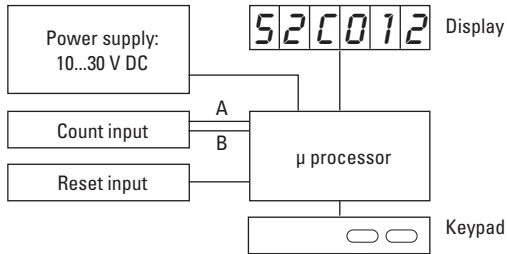


Individual and total quantity from 2 work-shifts

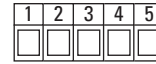
Pulse counters, electronic

LED pulse counters 2 counters with separate inputs and separate scaling (DC) Codix 52C

Block diagram

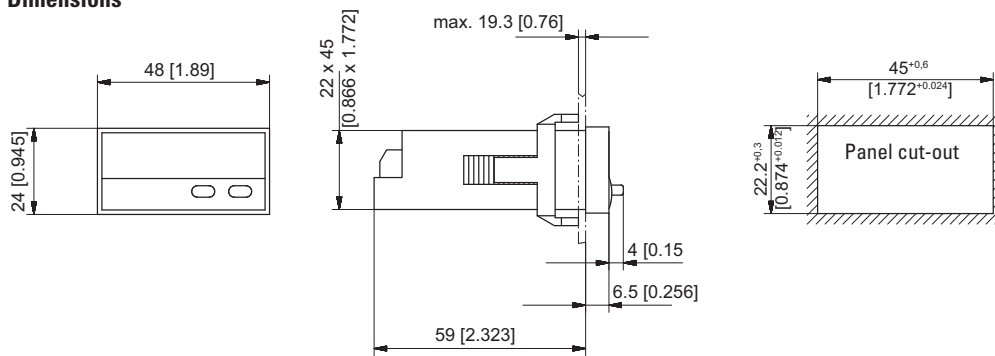


Terminal assignment

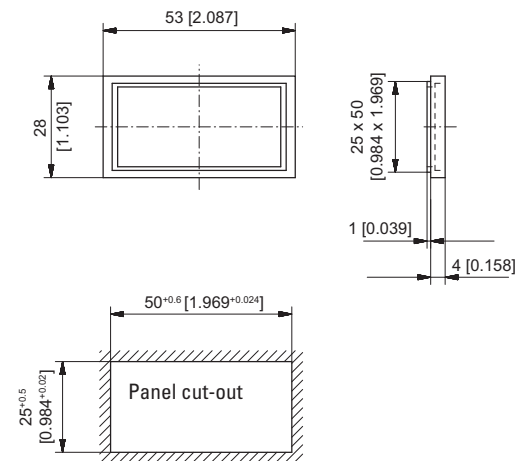


PIN	
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

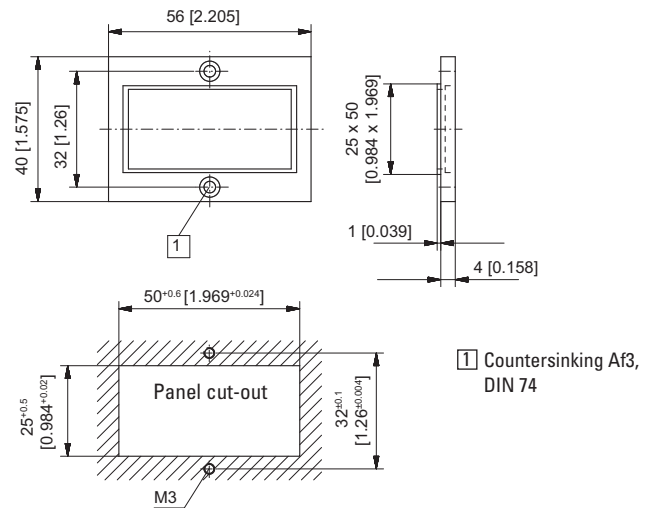
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Pulse counters, electronic

LED pulse counters **Adding (AC+DC)** **Codix 540**



The Codix 540 is a simple voltage powered pulse counter for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



AC/DC 10 ... 260V	000000 DIN 48 x 96	-20° + 65°	IP65	Plug-in screw terminal	Menu-driven programming	Operation with gloves	max. 60 kHz	PNP/NPN
Power supply	DIN front bezel	Temperature range	High protection level	Plug-in screw terminal	Menu-driven programming	Operation with gloves	Pulse counter/ Totaliser	Input type

Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high
- Simple totalising and quantity counter
 - single channel count input and reset input
 - programmable for positive (PNP) or OV (NPN) switching input pulses
 - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Programmable decimal point, can be set from 0.0 to 0.000
- Manual or electrical reset – tamper-proof due to lockable reset function
- AC or DC power supply with sensor power supply
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs

Order code

6.540 . 012 . XX0
a b

a Power supply 0 = 90 ... 260 V AC ¹⁾ 3 = 10 ... 30 V DC ¹⁾	b Input switching level 0 = Standard (HTL) ¹⁾ A = 4 ... 30 V DC	Delivery specification – Digital display – Mounting clip – Gasket – Instruction manual, multilingual – 2 screw terminals	Replacement parts 7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133
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Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Pulse counters, electronic

LED pulse counters Adding (AC+DC) Codix 540

General technical data	
Display	6 digit, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

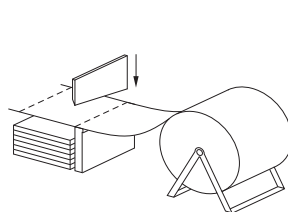
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 60 kHz, can be damped to 30 Hz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Outputs	
Voltage output for sensors (AC version)	24 V DC ±15 %/100 mA

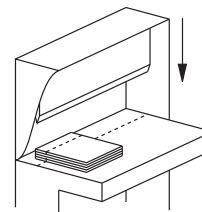
Pulse counters

Applications for pulse counters / totalisers

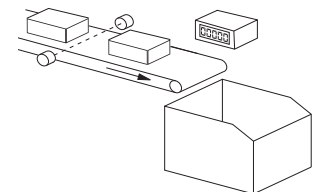
- Simple count tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Piece-counting

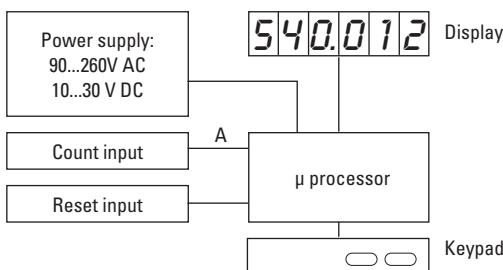


Number of cuts

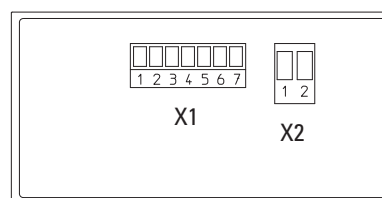


Piece-counting on conveyor

Block diagram



Terminal assignment



Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	Reset	
4	n.c.	
5	INP	
6	GND out	n.c.
7	+24 V DC out	n.c.

Connection X2

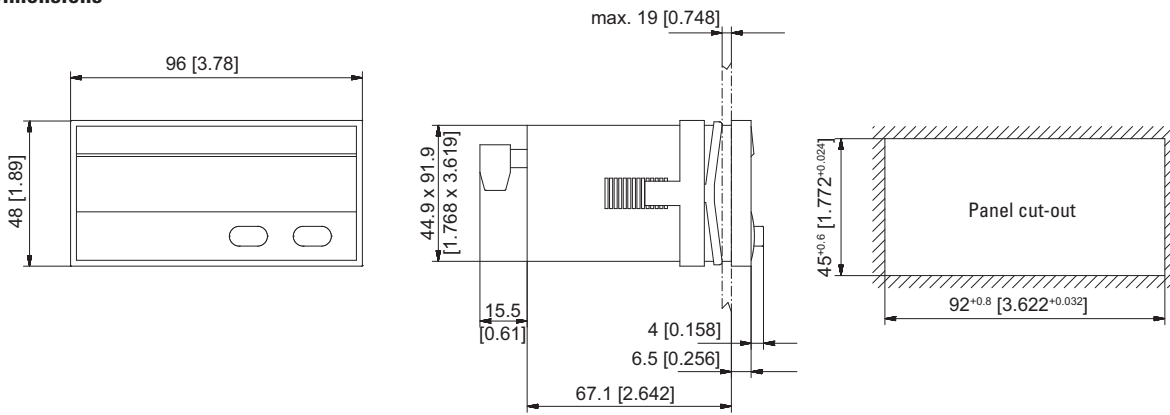
PIN	AC version	DC version
1	90 ... 260 V AC	0VDC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

1) for further specifications please refer to the manual

Pulse counters, electronic

LED pulse counters	Adding (AC+DC)	Codix 540
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Dimensions



LED pulse counters **6 count modes (AC+DC)** **Codix 541**



The Codix 541 is a voltage powered pulse counter / position display with 4 count input modes: count direction, difference, addition, quadrature (phase discriminator) x1, x2 and x4, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



Pulse counters

AC/DC 10 ... 260V	DIN 96 x 48	-20° +65°	IP65	max. 60 kHz	POSITION	1 2 1	1 2 1	1 3 4	1 1 2 3 4	Plug-in screw terminal
Power supply	DIN front bezel	Temperature range	High protection level	Pulse counter/ Totaliser	Position display	Count with direction (DIR)	Differential count (up.dn)	Add/Add count (up.up)	Phase discriminator	Plug-in screw terminal

Powerful

- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high
- Position, difference, adding or count direction detection
 - programmable for positive (PNP) or OV (NPN) switching input pulses
 - fast count input with an input frequency of max. 60 kHz, can be damped to 30 Hz for mechanical contacts
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation – possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation
- Freely programmable setpoint
- AC or DC power supply with sensor power supply
- As an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs
- Optional output - as zero signal

Order code **6.541 . 01 X . X X 0**

a Output 1 = Optocoupler output 2 = No output ¹⁾	c Input switching level 0 = Standard level (HTL) ¹⁾ A = 4 ... 30 V DC	Delivery specification – Digital display – Mounting clip – Gasket – 2 screw terminals – Instruction manual, multilingual	Replacement parts 7 pin screw terminal RM 3.81 1 ... 7: N100387 2 pin screw terminal RM 5.08 1 ... 2: N100133
b Power supply 0 = 90 ... 260 V AC ¹⁾ 3 = 10 ... 30 V DC ¹⁾			

Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Pulse counters, electronic

LED pulse counters 6 count modes (AC+DC) Codix 541

General technical data	
Display	6 digits; red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

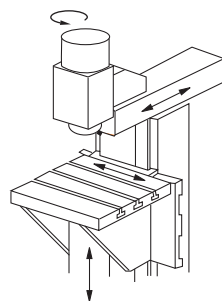
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP6 (front side)
Weight	approx. 150 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 60 kHz, can be damped to 30 Hz at position display max. 25 kHz
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

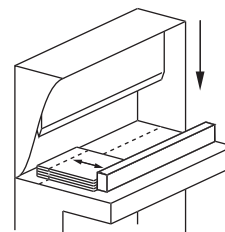
Outputs	
Power supply for sensors (AC version)	24 V DC ±15 %/100 mA
Output power optocouplers	max. 30 V DC, 10 mA

Applications for position displays and totalisers

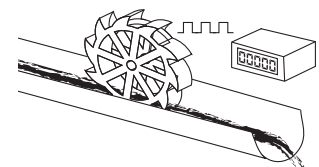
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding)
- Totalizing flow, quantity and other scalable media
- Counting tasks such as quantity and piece counting
- Accessories, OEM equipment or retrofitting to production machines
- Piece counting on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.



Position on milling machine

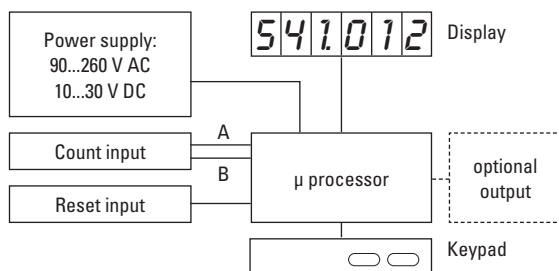


Position or quantity

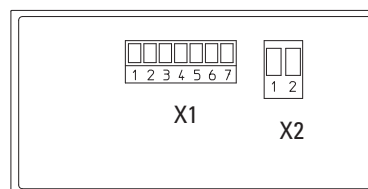


Flow rate

Block diagram



Terminal assignment



Connection X1

PIN	AC version	DC version
1	Optocoupler-output Emitter	
2	Optocoupler-output Collector	
3	Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V DC out	n.c.

Connection X2

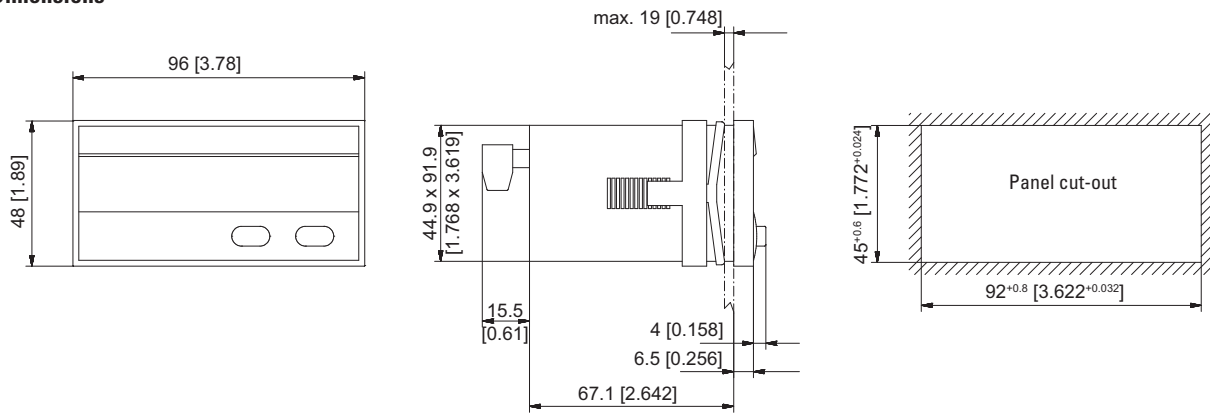
PIN	AC version	DC version
1	90 ... 260 V AC	0V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

¹⁾ please refer to the manual

Pulse counters, electronic

LED pulse counters	6 count modes (AC+DC)	Codix 541
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Dimensions



Pulse counters

Pulse counters, electronic

LCD modules	Adding, 7 digits (DC)	190
--------------------	------------------------------	------------



The single-channel count module type 190 for PCB mounting, with 2 voltage ranges (4.75 ... 15 and 9 ... 60 V DC) and large 7-digit LCD display, boasts a very wide temperature range.

This ensures the device is extremely robust and suitable for many application areas, even under the harshest operating conditions.



DC 4,75...60 V Power supply	max. 10 kHz Max. count frequency	PNP Input type	High shock resistance	- 40° + 80° Temperature range	PCB mount	7 LCDs LCD display	Electrical reset
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Powerful

- Count frequency up to 10 kHz
- 7-digit LCD display, 6 mm high
- Low operating current
- Wide operating voltage and temperature range
- Very high shock and vibration resistance

Simple

- Non-volatile memory (no battery)
- Single channel count input
- Electrical reset
- Very high reliability
- Small size and very competitive price

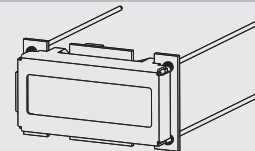
Order-No.

Power supply
4.75 ... 15 V DC
9 ... 60 V DC

Order-No.
6.190.012.F00 ¹⁾
6.190.012.G00

Art-No.
162 135
162 136

Delivery specification
- LCD counter module type 190
- Operating instructions



1) Stock types

Pulse counters, electronic

LCD modules	Adding, 7 digits (DC)	190
--------------------	------------------------------	------------

General technical data	
Display	7 digits, LCD display, figure height 6 mm
Data backup	EEPROM
Memory	CMOS EEPROM non-volatile memory up to 10 years
Operating temperature	-40°C ... +80°C (non-condensing)
Working temperature	-20°C ... +80°C (non-condensing)
Storage temperature	-50°C ... +90°C

Electrical characteristics	
Power supply	4.75 ... 15 V DC with reverse polarity protection 9 ... 60 V DC
Current consumption	8 mA at 4.75 ... 15 V DC 6 mA at 9 ... 60 V DC
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

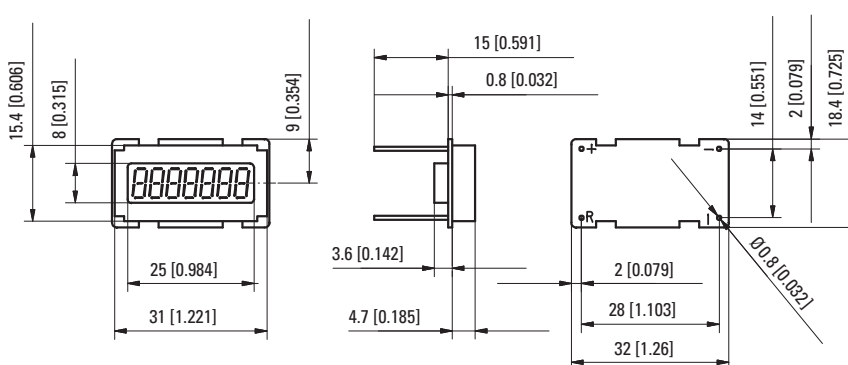
The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics	
Housing	dimensions 18.4 x 32.4 mm colour black
Weight	approx. 8 g
Shock resistance acc. to DIN-IEC 68-2-27	550 m/s ² , 11 ms
Vibration resistance acc. to DIN-IEC 68-2-6	50 ... 200 m/s ² , 10 ... 80 Hz

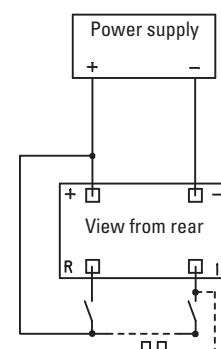
Inputs	
Count input	HIGH 4 ... 60 V DC LOW 0 ... 0.7 V DC
Max. counting frequency	10 kHz, edge triggered (negative edge)
Reset input	HIGH 4 ... 60 V DC LOW 0 ... 0.7 V DC
Pulse length	1 ms edge triggered (positive edge)

Pulse counters

Dimensions



Terminal assignment



Pulse counters, electronic

LCD modules	Adding, 6 digits (DC)	192
--------------------	------------------------------	------------



Type 192 is a single channel counter module for PCB mounting, with a large voltage range of 4.5 up to 28 V DC and a 6-digit LCD display.

Extremely robust as a result of its wide temperature range, the module is ideally suited for use in many application areas.



DC 4,5... 28 V Power supply	max. 100 Hz Max. count frequency	PNP Input type	High shock resistance	- 40° + 85° Temperature range	PCB mount	6 LCDs LCD display	Electrical reset
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Powerful

- Count frequency up to 100 Hz
- 6-digits LCD display, 5 mm high
- Low operating current
- Wide operating voltage and temperature range
- High shock and vibration resistance

Simple

- Non-volatile memory (no battery)
- Single channel count input
- Electrical reset
- Very high reliability
- Small size and very competitive price

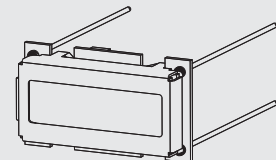
Order-No.

Power supply
4.5 ... 28 V DC

Order-No.
6.192.012.300 ¹⁾

Art-No.
162 135

Delivery specification
- LCD counter module type 192
- Operating instructions



1) Stock types

Pulse counters, electronic

LCD modules	Adding, 6 digits (DC)	192
--------------------	------------------------------	------------

General technical data	
Display	6 digits, LCD display, figure height 5 mm
Data backup	EEPROM
Memory	CMOS EEPROM. non-volatile memory Data backup up to 10 years (without battery)
Operating temperature	-40°C ... +85°C (non-condensing)
Humidity	95 % rel +32°C for 2 hours

Inputs	
Count input	4.5 ... 28 V DC
Max. counting frequency	100 Hz
Reset input	4.5 ... 28 V DC
Pulse length	min. 500 msec

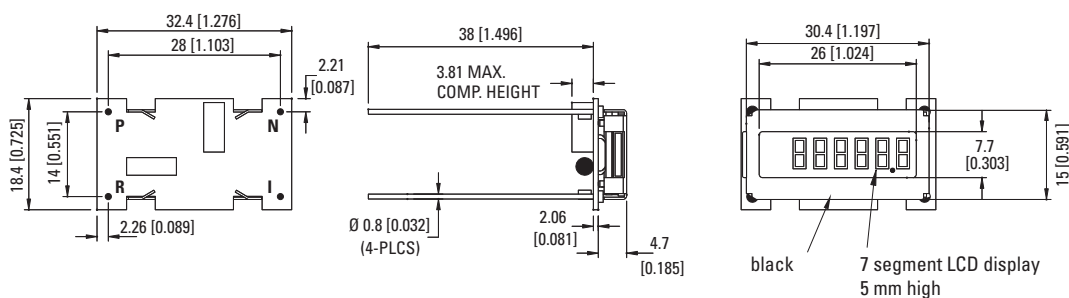
Pulse counters

Electrical characteristics	
Power supply	4.5 ... 28 V DC
Current consumption	max. 3 mA at 4.5 V DC 10 mA at 28 V DC
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

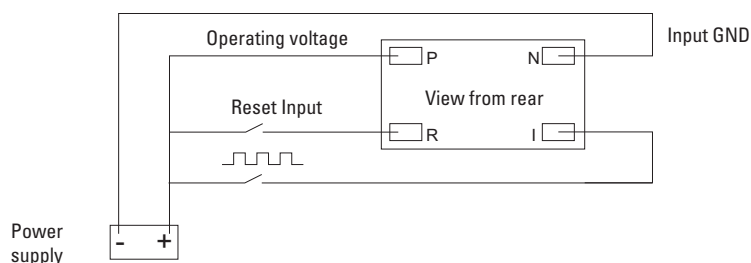
The module must be protected against inductive voltage spikes and high energy noise interference.

Mechanical characteristics	
Housing	Dimensions 18.4 x 32.4 mm Colour black
Weight	approx. 8 g
Vibration resistance acc. to DIN-IEC 68-2-6	10 ... 80 m/s ² , 10 ... 75 Hz

Dimensions



Terminal assignment

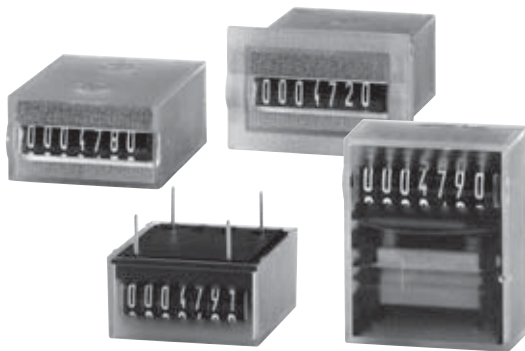


Pulse counters, electromechanical

Micro counters

High shock resistance (DC)

K 46 / K 47



The micro adding counters K 46 and K 47 boast a very high level of shock resistance. As panel mount and PCB mount counters they can be used in a wide variety of applications.

The counters are non-resettable and are highly tamper-proof thanks to their sealed (potted) housings.



Characteristics

- 6-digit (K 46) or 7-digit (K 47) micro adding counters
- Economical
- Low power consumption; suitable for battery operation
- Small dimensions, large optical figures
- Different viewing possibilities
- Panel mount with spring clips or PCB mount versions

Benefits

- Machine solderable and washable
- High shock resistance
- Long service life
- IP65 protection
- Stores values if power fails

Applications

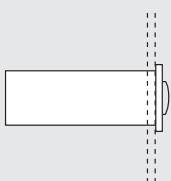
General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes

Type series

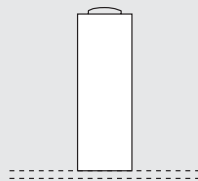
Fig.	Mounting options	Display	El. connection	IP protection	6 digits	7 digits	Order information - Art.-No. 1.7X0.XX0.0XX - For options please give exact counter type, voltage and options e.g.: K 46.20 12 V DC/0 temperature range -20°C ... +70°C
1)	Panel mount with latch	front side	flying leads	front side	K 46.20	K 47.20	
2)	PCB mount, upright	front side	solder pins	front side/on rear	K 46.80	K 47.80	
3)	PCB mount, lying	on the top	solder pins	front side/on rear	K 46.90	K 47.90	
4)	PCB mount, hanging	front side	solder pins	front side/on rear	—	K 47.91	
5)	PCB mount, lying	front side	solder pins	front side/on rear	K 46.95	—	

Mounting options and position of the display

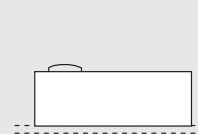
1) Panel mount / display front side



2) PCB mount, upright / display front side



3) PCB mount, lying / display on the top



4) PCB mount, hanging / display front side



5) PCB mount, lying / display front side



Optional: PCB mount, lying / display at the bottom



Pulse counters, electromechanical

Micro counters	High shock resistance (DC)	K 46 / K 47
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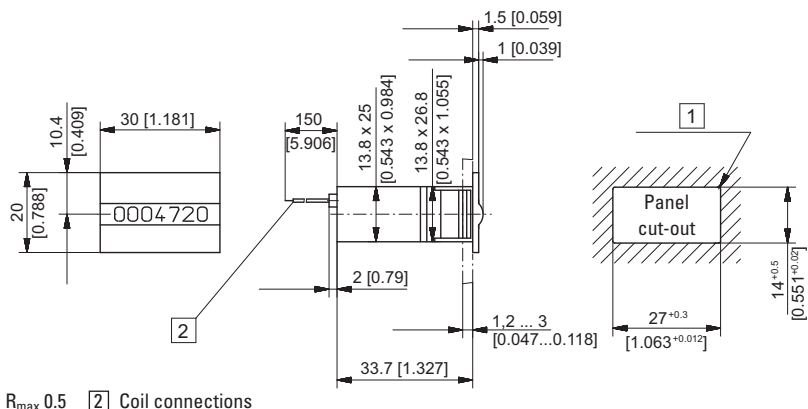
Technical data		
Electrical connection	panel mount	flying leads, AWG 22 approx. 150 mm, 6 mm stripped wire ends, tinned
	PCB mount	solder pins \varnothing 0.64 mm
Power consumption	up to 12 V DC	approx. 70 mW
	at 24 V DC	approx. 150 mW
Rated voltage	1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10% / +20%	
Counting frequency	max. 10 Hz (type 0)	
Pulse duration / pulse interval	min. 50 ms / min. 50 ms	
Cycle duration factor	100 %	
Number of digits	6 (K 46), 7 (K 47)	
Counting system	adding	
Height of figures (optical)	K 46	4 x 1.7 mm
	K 47	4 x 1.25 mm
Colour of figures	white on black	
Reset	no reset	
Operating temperature	-10°C ... +60°C (non-condensing)	

Mounting position	horizontal, other on request
Operating life	> 50 x 10 ⁶ pulses
Soldering temperature	max. 265°C, 3 s
Protection	IP65 (K 46.20, K 47.20: only front side)
Housing	PC (Polycarbonate)
Weight	12 ... 14 g

Options	
K 46.20, K 46.80, K 47.20, K 47.80	flat pin 0.8 x 2.8 mm and push on connectors
K 46.20, K 47.20	solder pins \varnothing 0.64 mm
Further options	<ul style="list-style-type: none"> - different voltages - counting frequency > 10 Hz - different colour of figures - extended temperature range: <ul style="list-style-type: none"> -30°C ... +85°C or -20°C ... +70°C

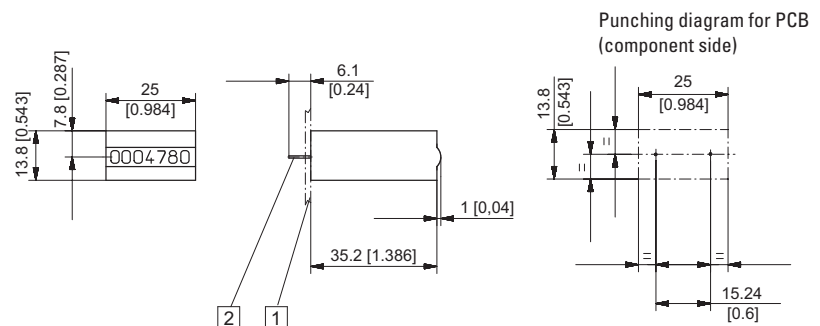
Pulse counters

Panel mount / display front side Type K 46.20 / K 47.20



Type	Voltage	Display	Art.-No.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 46.20	DC (10 Hz) / 0	6 digits	on request	on request	on request	on request	1.700.200.012 ¹⁾	1.700.200.013 ¹⁾	
K 47.20	DC (10 Hz) / 0	7 digits	1.710.200.006	1.710.200.008	1.710.200.009 ¹⁾	1.710.200.010	1.710.200.012 ¹⁾	1.710.200.013 ¹⁾	

PCB mount, upright / display front side Type K 46.80 / K 47.80



1) PCB 2) Coil connections \varnothing 0.64

Type	Voltage	Display	Art.-No.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 46.80	DC (10 Hz) / 0	6 digits	on request	on request	1.700.800.009	on request	1.700.800.012	1.700.800.013 ¹⁾	
K 47.80	DC (10 Hz) / 0	7 digits	1.710.800.006	1.710.800.008	1.710.800.009	1.710.800.010	1.710.800.012	1.710.800.013	

Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

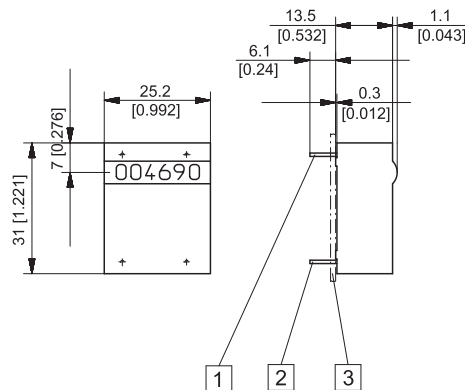
Micro counters

High shock resistance (DC)

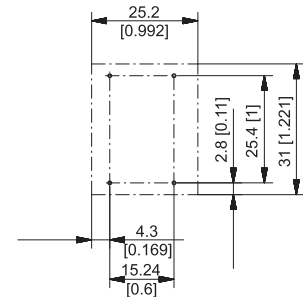
K 46 / K 47

PCB mount, lying / display front side

Type K 46.90 / K 47.90



Punching diagram for PCB (component side)

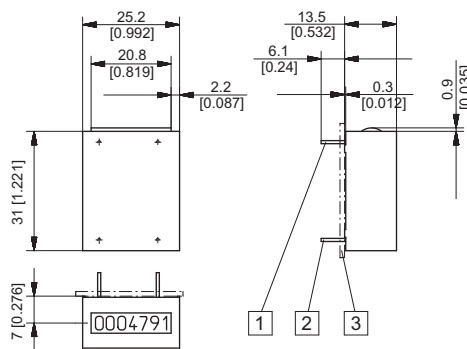


1] Mounting pin without el. function \varnothing 0.64 2] Coil connections \varnothing 0.64 3] PCB

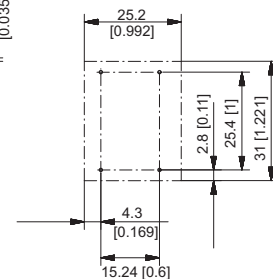
Type	Voltage	Display	Art.-No.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 46.90	DC (10 Hz) / 0	6 digits	on request	on request	1.700.900.009 ¹⁾	on request	1.700.900.012	1.700.900.013 ¹⁾	
K 47.90	DC (10 Hz) / 0	7 digits	1.710.900.006	1.710.900.008	1.710.900.009	1.710.900.010	1.710.900.012	1.710.900.013	

PCB mount, hanging / display front side

Type K 47.91



Punching diagram for PCB (component side)

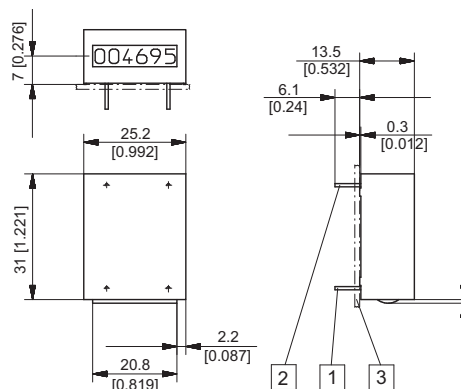
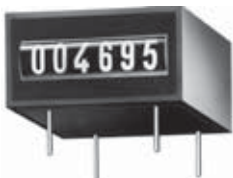


1] Mounting pin without el. function \varnothing 0.64 2] Coil connections \varnothing 0.64 3] PCB

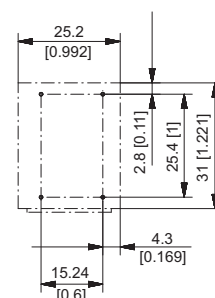
Type	Voltage	Display	Art.-No.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 47.91	DC (10 Hz) / 0	7 digits	1.710.910.006	1.710.910.008	1.710.910.009	1.710.910.010	1.710.910.012	1.710.910.013	

PCB mount, lying / display front side

Type K 46.95



Punching diagram for PCB (component side)

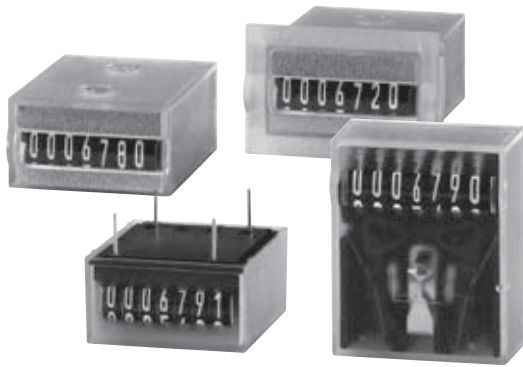


1] Mounting pin without el. function \varnothing 0.64 2] Coil connections \varnothing 0.64 3] PCB

Type	Voltage	Display	Art.-No.						
			3 V	4.5 V	5 V	6 V	12 V	24 V	
K 46.95	DC (10 Hz) / 0	6 digits	on request	on request	1.700.950.009	on request	1.700.950.012	1.700.950.013	

Pulse counters, electromechanical

Micro counters **Magnetic field resistant and high shock resistance (DC)** **K 66 / K 67**



The micro adding counters K 66 (6-digit) and K 67 (7-digit) boast a very high level of shock resistance and, as a result of the patented ACR counting system, are not affected by magnetic fields.

They can be used as either panel mount or as PCB mount devices in a wide variety of application areas, where a high level of resistance against tampering is required.

Pulse counters

Characteristics

- Not affected by magnetic fields, as moving parts are made of plastic or non-ferrous metal (patented system)
- Maximum shock resistance, as a counter-rotating movement is required for counting, ACR system (Air Coil Reverse, patented)
- Low power consumption; suitable for battery operation
- Very compact size, large figures
- Different viewing possibilities

Benefits

- Machine solderable and washable
- IP65 protection
- Long service life
- Stores values if power fails

Applications

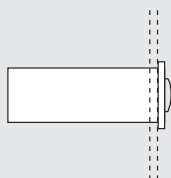
General quantity counting, photocopiers, electricity meters, vending and slot machines, coin-operated machines, car washes, alarm systems, medical equipment, heat quantity measurement

Type series

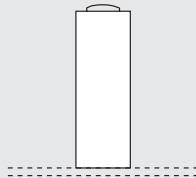
Fig.	Mounting options	Display	El. connection	IP protection	6 digits	7 digits	Order information - Art.-No. 1.680.9X0.0XX - For options please give exact counter type, voltage and options e.g.: K 67.20 9 V DC/0 temperature range -20°C ... +70°C
1)	Panel mount with latch	front side	flying leads	front side	–	K 67.20	
2)	PCB mount, upright	front side	solder pins	front side/on rear	–	K 67.80	
3)	PCB mount, lying	on the top	solder pins	front side/on rear	–	K 67.90	
4)	PCB mount, hanging	front side	solder pins	front side/on rear	K 66.91	K 67.91	
5)	PCB mount, lying	front side	solder pins	front side/on rear	K 66.95	K 67.95	

Mounting options and position of the display

1) Panel mount / display front side



2) PCB mount, upright / display front side



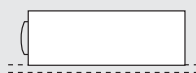
3) PCB mount, lying / display on the top



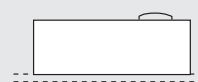
4) PCB mount, hanging / display front side



5) PCB mount, lying / display front side



Optional: PCB mount, lying / display at the bottom



Pulse counters, electromechanical

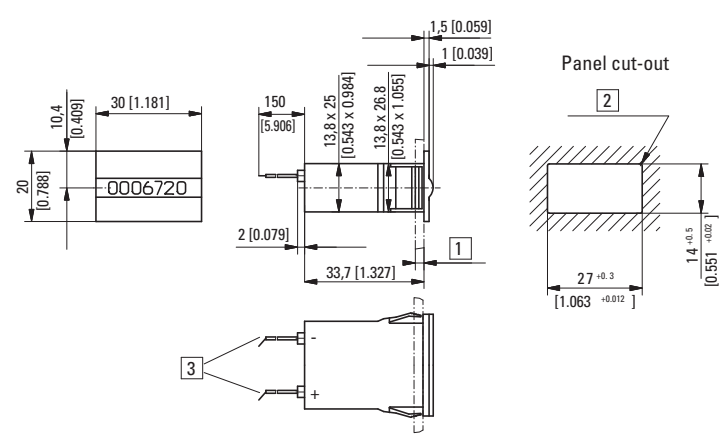
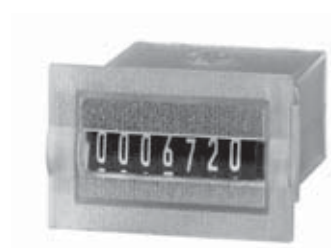
Micro counters	Magnetic field resistant and high shock resistance (DC)	K 66 / K 67
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Technical data		
Electrical connection	panel mount	flying leads AWG 22, approx. 150 mm, 6 mm stripped wire ends, tinned
	PCB mount	solder pins \varnothing 0.64 mm
Power consumption: (at 20°C)	up to 6 V DC	approx. 70 mW
	up to 12 V DC	approx. 120 mW
	at 24 V DC	approx. 500 mW
Rated voltage	1.5 / 3 / 4.5 / 5 / 6 / 12 / 24 V DC, -10% / +20%	
Counting frequency	max. 10 Hz (type 0)	
Pulse duration / pulse interval	min. 50 ms / min. 50 ms	
Cycle duration factor	100 %	
Counting system	adding	
Height of figures (optical)	4 x 1.7 mm (K 66), 4 x 1.25 mm (K 67)	
Colour of figures	white on black	
Reset	no reset	
Operating temperature	-10°C ... +60°C (non-condensing)	
Mounting position	horizontal, other on request	
Operating life	> 50 x 10 ⁶ pulses	

Soldering temperature	max. 265°C, 3 s
Protection	IP65 (K 66.20, K 67.20: only front side)
Housing	PC (Polycarbonate), transparent types with protection IP65 are sealed
Weight	9 ... 11 g

Options	
K 66.20, K 66.80, K 67.20, K 67.80	flat pin 0.8 x 2.8 mm and push on connectors X.XX7.XXX.XXX
K 66.20, K 67.20	solder pins \varnothing 0.64 mm X.XX1.XXX.XXX
K 66.80, K 67.80	flying leads AWG 22, approx. 150 mm
Further options	<ul style="list-style-type: none"> - different voltages - counting frequency > 10 Hz - different colour of figures - extended temperature range -30°C ... +85°C or -20°C ... +70°C - solderable and washable version

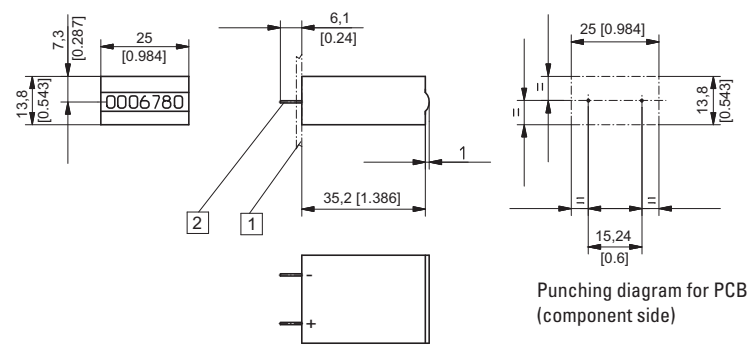
Panel mount with latch / display front side Type K 67.20



1) 1.2 ... 3 mm 2) R_{max} 0.5 3) Coil connections

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 67.20	DC (10 Hz) / 0	7 digits	1.660.200.006	1.660.200.008	1.660.200.009 ¹⁾	1.660.200.010	1.660.200.012 ¹⁾	1.660.200.013 ¹⁾

PCB mount upright / display front side Type K 67.80



1) PCB 2) Coil connections \varnothing 0.64

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 67.80	DC (10 Hz) / 0	7 digits	1.660.800.006	1.660.800.008	1.660.800.009	1.660.800.010	1.660.800.012	1.660.800.013

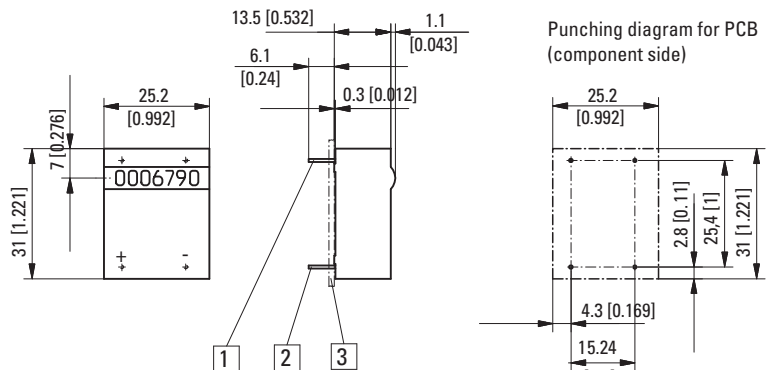
Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Micro counters **Magnetic field resistant and high shock resistance (DC)** **K 66 / K 67**

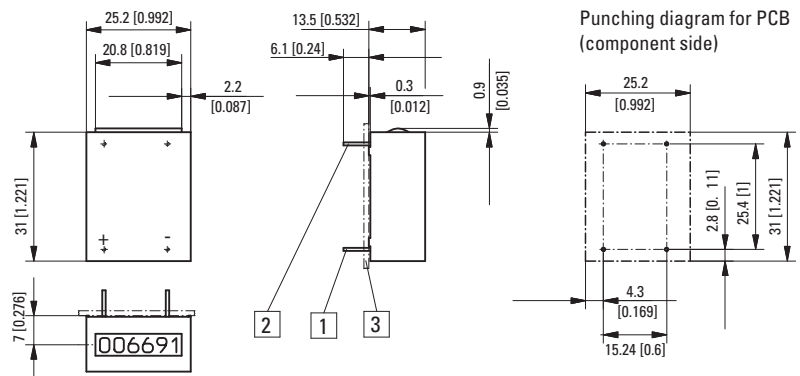
PCB mount, lying / display on the top
Type K 67.90



1 Mounting pin without el. function \varnothing 0.64 2 Coil connections \varnothing 0.64 3 PCB

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 67.90	DC (10 Hz) / 0	7 digits	1.660.900.006	1.660.900.008	1.660.900.009	1.660.900.010	1.660.900.012	1.660.900.013

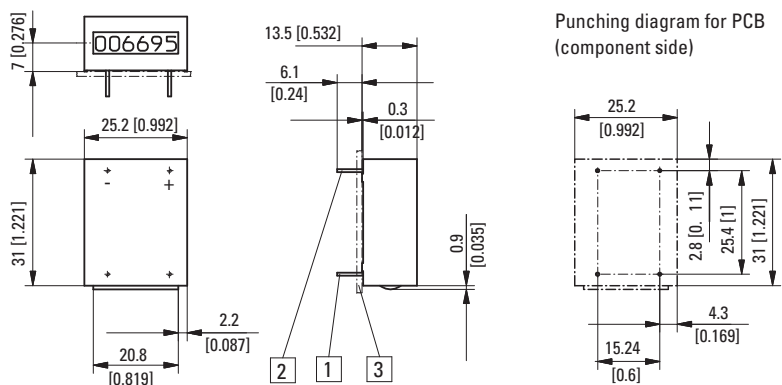
PCB mount, hanging / display front side
Type K 66.91 / K 67.91



1 Mounting pin without el. function \varnothing 0.64 2 Coil connections \varnothing 0.64 3 PCB

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 66.91	DC (10 Hz) / 0	6 digits	on request	on request	1.650.910.009	on request	1.650.910.012	1.650.910.013
K 67.91	DC (10 Hz) / 0	7 digits	1.660.910.006	1.660.910.008	1.660.910.009	1.660.910.010	1.660.910.012	1.660.910.013

PCB mount lying / display front side
Type K 66.95 / K 67.95



1 Mounting pin without el. function \varnothing 0.64 2 Coil connections \varnothing 0.64 3 PCB

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	5 V	6 V	12 V	24 V
K 66.95	DC (10 Hz) / 0	6 digits	on request	on request	1.650.950.009	on request	1.650.950.012	1.650.950.013
K 67.95	DC (10 Hz) / 0	7 digits	1.660.950.006	1.660.950.008	1.660.950.009	1.660.950.010	1.660.950.012	1.660.950.013

Dimensions in mm [inch]

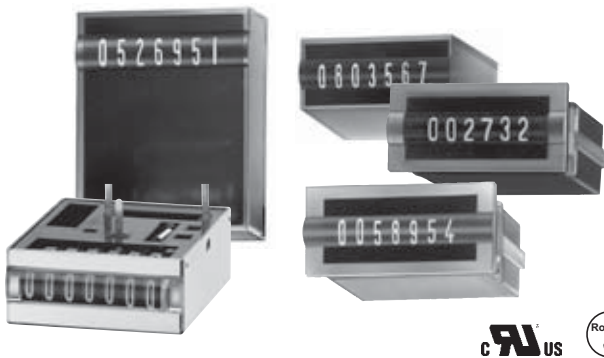
Pulse counters

Pulse counters, electromechanical

Micro counters

High shock resistance (AC+DC)

K 04 ... K 07 / AK 07



The micro adding counter families K 04 to K 07 and AK 07 are available in a very wide variety of models and can be used in both DC as well as in AC applications.

As panel mount, base mount and PCB mount counters with a very high level of shock resistance they can be used for numerous diverse application areas.

Characteristics

- Low power consumption; suitable for battery operation
- Very compact size, large optical figures
- Different viewing possibilities
- Panel mount counter with moulded spring clips, base mount counter with screw fixing or PCB mount versions
- Version with additional magnetic shielding thanks to sheet-steel enclosure (K 0X.40 and K 0X.50)

Benefits

- Machine solderable and washable
- Stores values if power fails
- High shock resistance, long service life, IP65 protection

Applications

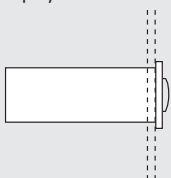
General quantity counting, alarm systems, coin-operated machines, electricity meters, vending and slot machines, photocopiers, medical equipment, car washes

Type series

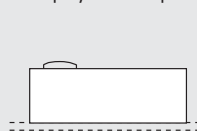
Fig.	Mounting options	Display	Housing	IP protection	4 digits	5 digits	6 digits	7 digits	Order information
1)	Panel mount with latch	front side	plastic	front side	K 04.20	K 05.20	K 06.20	K 07.20	- Art.-No.
2)	PCB mount, lying	on the top	sheet steel	-	K 04.40	-	-	K 07.40	- For options please give exact counter type, voltage and options e.g.:
3)	PCB mount, hanging	front side	sheet steel	-	-	-	-	K 07.50	K 06.20
4)	PCB mount, upright	front side	plastic	front side	-	-	K 06.80	K 07.80	9 V DC/0
5)	PCB mount, lying	on the top	plastic	front side/on rear	-	-	-	K 07.90	temperature range
6)	Base mount, upright	front side	plastic	front side	-	-	-	AK 07.00	-20°C ... +70°C

Mounting options and position of the display

1) Panel mount / display front side



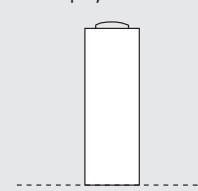
2) PCB mount, lying / display on the top



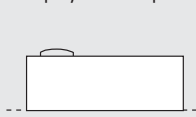
3) PCB mount, hanging / display front side



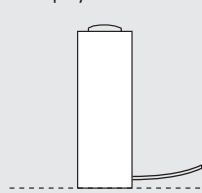
4) PCB mount, upright / display front side



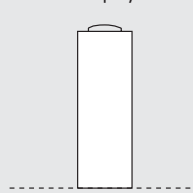
5) PCB mount, lying / display on the top



6) Base mount upright / display front side



Optional: PCB mount, upright / display front side



Pulse counters, electromechanical

Micro counters	High shock resistance (AC+DC)	K 04 ... K 07 / AK 07
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Technical data		
Electrical connection		
Panel mount, base mount	flying leads, AWG 22 approx. 150 mm, 6 mm stripped wire ends, tinned	
PCB mount	solder pins \varnothing 0.4 x 1.2 mm	
Power consumption (at 20°C and normal voltage)		
at 10 Hz (type 0)	approx. 50 mW	
at 25 Hz (type 1)	approx. 250 mW	
at 10 Hz (type a0)	approx. 800 mVA	
Rated voltage		
type 0	1,5/3/4,5/5/6/12/24 V DC, -10%, +20%	
type 1	3/4.5/5/6/12/24 V DC, \pm 10%	
type a0	12/24/115/230 V AC, \pm 10%	
Counting frequency		
max. 10 and 25 Hz		
Pulse duration		
at 10 Hz (type 0 and a0)	min. 50 ms	
at 25 Hz (type 1)	min. 20 ms	
Pulse interval		
at 10 Hz (type 0 a0)	min. 50 ms	
at 25 Hz (type 1)	min. 20 ms	
Cycle duration factor		
100%		
Number of digits		
4, 5, 6 and 7		
Counting system		
adding		
Height of figures		
K 04, K 06, AK 06	1.7 x 4 mm optical	
K 05, K 07, AK 07	1.2 x 4 mm optical	
Colour of figures		
white on black		
Reset		
no reset		

Operating temperature	-10°C ... +60°C (non-condensing)
Mounting position	horizontal, other on request
Soldering temperature	265°C, 3 s
Operating life	> 50 x 10 ⁶ pulses
Solderable and wash proof types	K 0X.92, K 06.90, K 07.90
Protection	
K 0X.92, K 0X.90	IP65
AK 0X.00, K 0X.80, K 0X.20	IP65 (only front side)
other types	depending on kind of mounting
UL approval	
File E43429	
Housing	
PC (Polycarbonate), transparent or sheet steel types (see table) with IP65 protection, fully sealed (potted)	
Weight	
15 ... 18 g	

Options	
K 0x.20	
flat pin 0.5 x 2.8 mm Art.-No.: 1.1X7.XX0.XXX	
flat pin 0.4 x 1.2 mm Art.-No.: 1.1X9.XX0.XXX	
– different voltages	
– version not potted	
– different figure colours	
– different lengths of flying leads	
– different connections	
– different temperature range, depends on version	
–30°C... +85°C, -20°C ... +70°C	

Pulse counters

Pulse counters, electromechanical

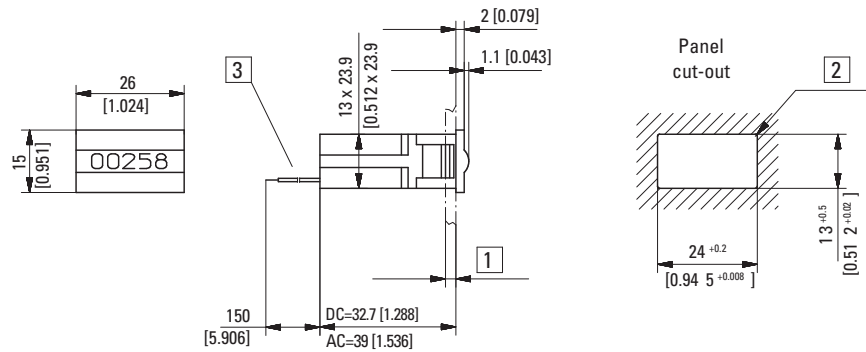
Micro counters

High shock resistance (AC+DC)

K 04 ... K 07 / AK 07

**Panel mount counter
4- and 5-digit display front side**

Type K 04.20 / K 05.20

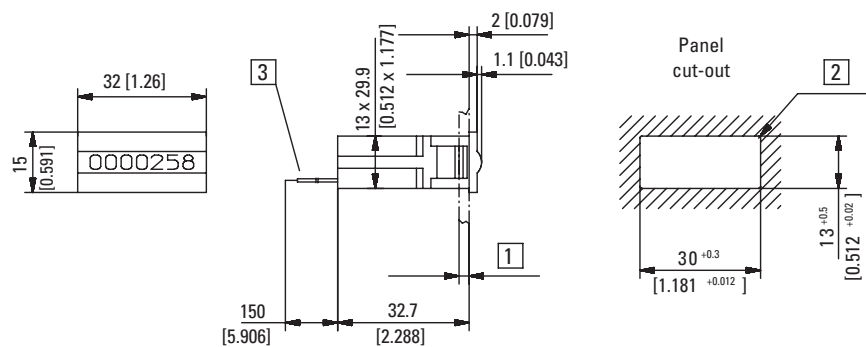


1) 1.2 ... 3 mm 2) R_{max} 0.5 3) Coil connections

Type	Voltage	Display	Art.-No.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 04.20	DC (10 Hz) / 0	4 digits	1.100.200.006	1.100.200.008	on request	on request	1.100.200.054	1.100.200.056		
	DC (25 Hz) / 1				1.100.200.032	1.100.200.033				
	AC (10 Hz) / a0				1.100.200.051					
K 05.20	DC (10 Hz) / 0	5 digits	1.110.200.006	1.110.200.008	on request	1.110.200.418 ¹⁾	1.110.200.054	1.110.200.056 ¹⁾		
	DC (25 Hz) / 1				1.110.200.032	1.110.200.033				
	AC (10 Hz) / a0				1.110.200.051					

**Panel mount counter
6- and 7-digit display front side**

Type K 06.20 / K 07.20



1) 1.2 ... 3 mm 2) R_{max} 0.5 3) Coil connections

Type	Voltage	Display	Art.-No.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 06.20	DC (10 Hz) / 0	6 digits	1.120.200.006	1.120.200.008	on request	1.120.200.418	1.120.200.054	1.120.200.056		
	DC (25 Hz) / 1				1.120.200.032	1.120.200.033				
	AC (10 Hz) / a0				1.120.200.051					
K 07.20	DC (10 Hz) / 0	7 digits	1.130.200.006	1.130.200.008	1.130.200.012 ¹⁾	1.130.200.418	1.130.200.054 ¹⁾	1.130.200.056 ¹⁾		
	DC (25 Hz) / 1				1.130.200.032 ¹⁾	1.130.200.033 ¹⁾				
	AC (10 Hz) / a0				1.130.200.051					

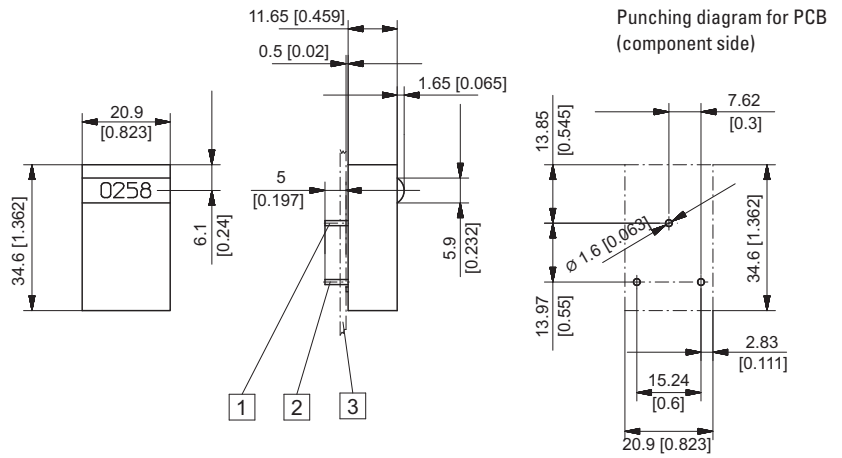
Pulse counters, electromechanical

Micro counters **High shock resistance (AC+DC)** **K 04 ... K 07 / AK 07**

PCB mount, lying
4- digit display on the top

Type K 04.40

Colour of housing blue (zinc-plated)



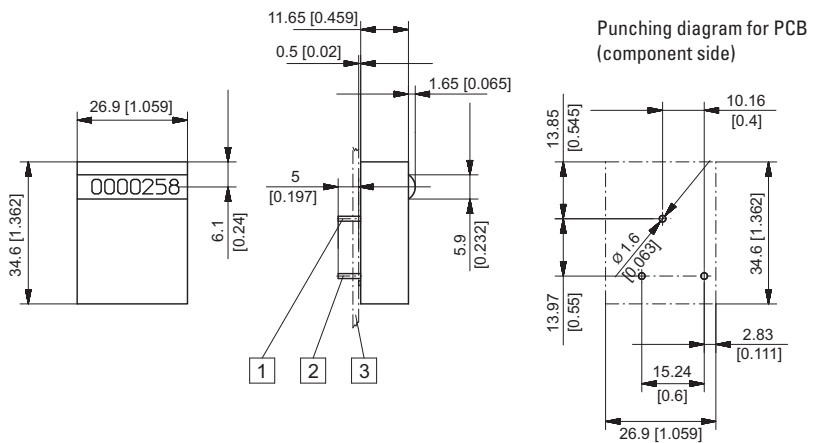
1) Mounting pin without el. function 0.4 x 1.2 2) Coil connections 0.4 x 1.2 3) PCB

Type	Voltage	Display	Art.-No.			
			3 V	4.5 V	12 V	24 V
K 04.40	DC (10 Hz) / 0	4 digits	1.100.401.006	1.100.401.008	on request	on request
	DC (25 Hz) / 1				1.100.401.032	1.100.401.033

PCB mount, lying
7-digit display on the top

Type K 07.40

Colour of housing blue (zinc-plated)



1) Mounting pin without el. function 0.4 x 1.2 2) Coil connections 0.4 x 1.2 3) PCB

Type	Voltage	Display	Art.-No.			
			3 V	4.5 V	12 V	24 V
K 07.40	DC (10 Hz) / 0	7 digits	1.130.401.006	1.130.401.008 ¹⁾	on request	on request
	DC (25 Hz) / 1				1.130.401.032	1.130.401.033

Pulse counters, electromechanical

Micro counters

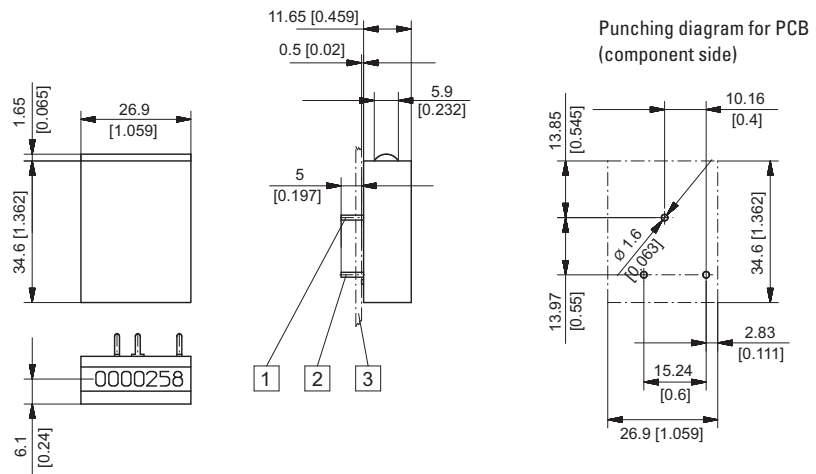
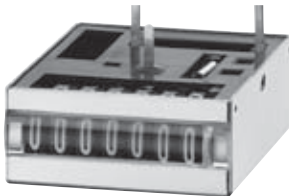
High shock resistance (AC+DC)

K 04 ... K 07 / AK 07

PCB mount, hanging
7-digit display front side

Type K 07.50

Colour of housing blue (zinc-plated)

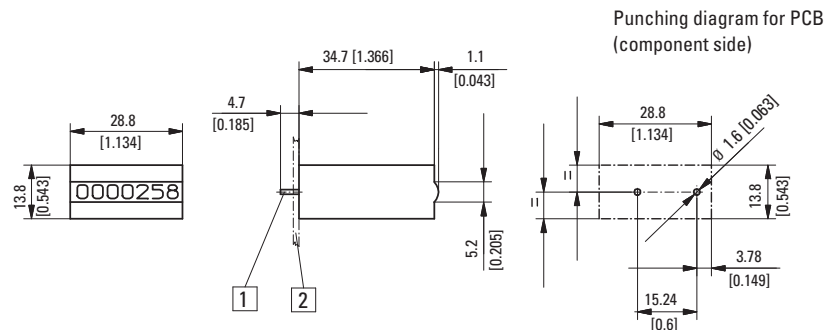


1) Mounting pin without el. function 0.4 x 1.2 2) Coil connections 0.4 x 1.2 3) PCB

Type	Voltage	Display	Art.-No.			
			3 V	4.5 V	12 V	24 V
K 07.50	DC (10 Hz) / 0	7 digits	1.130.501.006	1.130.501.008	on request	on request
	DC (25 Hz) / 1				1.130.501.032	1.130.501.033

PCB mount, upright
6- and 7-digit display front side

Type K 06.80 / K 07.80



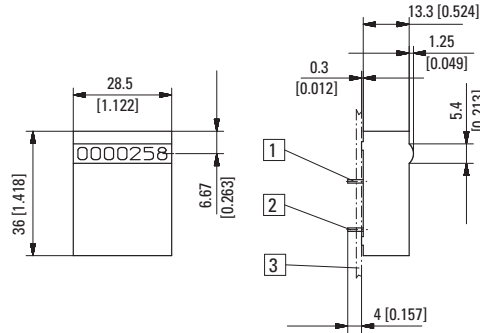
1) Coil connections 0.4 x 1.2 2) PCB

Type	Voltage	Display	Art.-No.							
			3 V	4.5 V	12 V	24 V	115 V	230 V		
K 06.80	DC (10 Hz) / 0	6 digits	1.120.800.006	1.120.800.008	on request	on request				
	DC (25 Hz) / 1				1.120.800.032	1.120.800.033				
	AC (10 Hz) / a0					1.120.800.051	1.120.800.054	1.120.800.056		
K 07.80	DC (10 Hz) / 0	7 digits	1.130.800.006	1.130.800.008	on request	on request				
	DC (25 Hz) / 1				1.130.800.032 ¹⁾	1.130.800.033				
	AC (10 Hz) / a0					1.130.800.051	1.130.800.054	1.130.800.056		

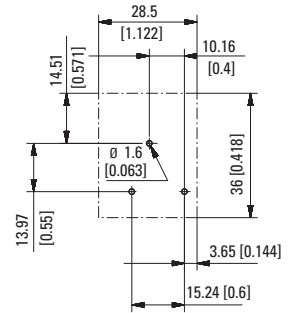
Pulse counters, electromechanical

Micro counters **High shock resistance (AC+DC)** **K 04 ... K 07 / AK 07**

PCB mount, lying
7-digit display on the top
Type K 07.90



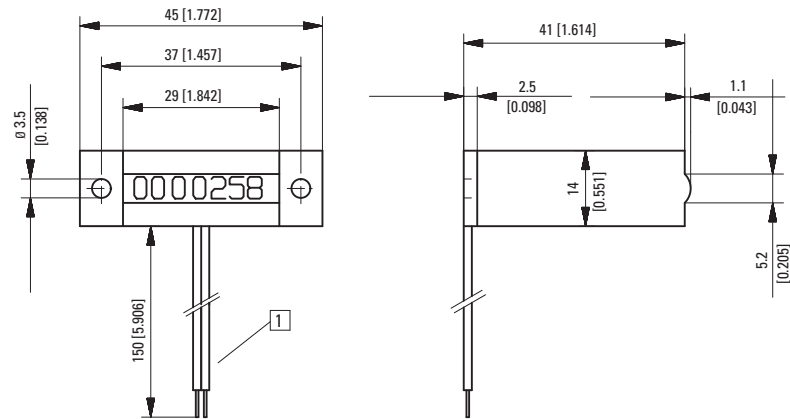
Punching diagram for PCB (component side)



1) Mounting pin without el. function 0.4 x 1.2 2) Coil connections 0.4 x 1.2 3) PCB

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	12 V	24 V	115 V	230 V
K 07.90	DC (10 Hz) / 0	7 digits	1.130.900.006	1.130.900.008	1.130.900.012 ¹⁾	on request	1.130.900.054	1.130.900.056
	DC (25 Hz) / 1					1.130.900.033		
	AC (10 Hz) / a0					1.130.900.051		

Base mount, upright
7-digit display front side
Type AK 07.00



1) Coil connections

Type	Voltage	Display	Art.-No.					
			3 V	4.5 V	12 V	24 V	115 V	230 V
AK 07.00	DC (10 Hz) / 0	7 digits	1.130.000.006	1.130.000.008	1.130.000.012	1.130.000.418	1.130.000.054	1.130.000.056 ¹⁾
	DC (25 Hz) / 1					1.130.000.033		
	AC (10 Hz) / a0					1.130.000.051		

Pulse counters



The micro-totalisers SK 07 boast a very high level of shock resistance.

Their DIN-rail mounting allows them to be installed quickly and easily in a wide range of application areas.

Characteristics

- 7-digit micro-totalisers
- Rail mounting to EN 50022
- Base mount counters
- Large optical figures
- Low power consumption
- Small dimensions

Benefits

- High shock resistance
- Stores values if power fails
- Long service life

Applications

General quantity counting, installation in control cabinets and distribution boxes

Type series

Description

Base mounting and rail mounting

Order-No.

SK 07.1

Order information

- Art.-No.
- For options please give exact counter type, voltage and options e.g.: SK 07.1 – 9 V DC/0 – temperature range -20°C ... +70°C

Technical data

Electrical connection	clamp terminal for cable diameter up to 2.5 mm ² , tightening torque max. 0.8 Nm
Power consumption (at 20°C)	at 10 Hz (type 0) approx. 50 mW at 25 Hz (type 1) approx. 250 mW at 10 Hz (type a0) approx. 800 mVA
Rated voltage	type 0 1.5/3/4.5/5/6/12 V DC, -10%, +20 % type 1 3/4.5/5/6/12/24 V DC, ±10 % type a0 12/24/115/230 V AC, ±10 %
Counting frequency	max. 10 and 25 Hz
Pulse duration	bei 10 Hz min. 50 ms (type 0 and a0) bei 25 Hz min. 20 ms (type 1)
Cycle duration factor	100 %
Number of digits	7
Counting system	adding
Height of figures	1.2 x 4 mm optical
Colour of figures	white on black
Reset	no reset
Operating temperature	-10°C ... +60°C (non-condensing)
Mounting position	horizontal, other on request
Operating life	> 50 x 10 ⁶ pulses
Protection	IP50 (front side)
UL approval	File E43429
Housing	plastic black PC (Polycarbonate)
Weight	55 g

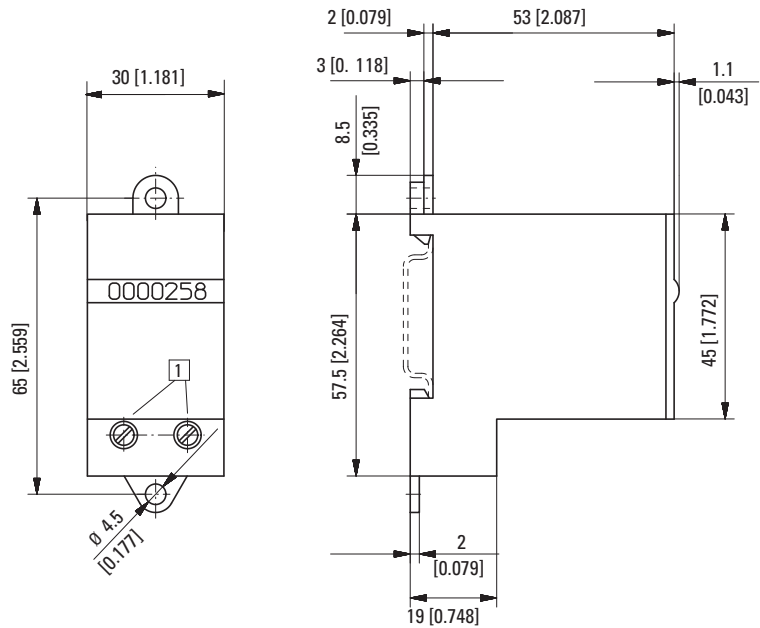
Options

- Electrical connection: flat pin 0.8 x 6.3 mm, Art.-No.: 1.1X2.X01.XXX.011
- different voltages
- different digit colours
- different temperature range depends on type -30°C ... +85°C, -20°C ... +70°C

Pulse counters, electromechanical

Micro counters	High shock resistance, for DIN-rail (AC+DC)	SK 07
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Base- and rail mounting
Type SK 07.1



1) Coil connections

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
SK 07.1	DC (10 Hz) / 0	7 digits	1.132.101.012 ¹⁾	1.132.101.013 ¹⁾		
	DC (25 Hz) / 1		1.132.101.032	1.132.101.033 ¹⁾		
	AC (10 Hz) / a0			1.132.101.051 ¹⁾	1.132.101.054 ¹⁾	1.132.101.056 ¹⁾

Pulse counters

Pulse counters, electromechanical

Mini counters

5 digits with reset (AC+DC)

W 15



The mini totalisers W 15 are manually resettable and have been designed for various front panel sizes in a wide variety of applications.

They offer an excellent price / performance ratio and are easy to operate.

Characteristics

- 5-digit miniature pulse counter, adding with manual reset
- Low power consumption
- Available for all common DC and AC voltages
- DIN housing 48 x 24 mm available

Benefits

- Long service life (50 million pulses)
- Ideal for battery operation and electronic switching operations

Applications

Machines and appliances, battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting

Type series

Description	Panel mount dimensions	Housing	Display	Type	Order information
Panel mount with mounting clip, 34 x 23 mm	31 x 20 mm	plastic	front side	W 15.21	- Art.-No. - For special voltages, please give type, voltage, kind of voltage and series e.g.: W 15.21, 4.5 V DC/0 black
Panel mount with mounting clip, 48 x 24 mm	45 x 22 mm	plastic	front side	W 15.51	

Accessories

Accessories	Order-No.
Adapter front bezel, 53 x 28 mm For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	anthracite T008180
Adapter front bezel, 56 x 40 mm For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with screw mounting for counters 48 x 24 mm	anthracite T008181
Adapter front bezel, 72 x 36 mm For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65 For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65 Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Pulse counters, electromechanical

Mini counters	5 digits with reset (AC+DC)	W 15
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Technical data		
Electrical connection	Standard	flying leads AWG 22, approx. 150 mm ø 0.34 mm ² , 6 mm stripped wire ends, tinned
Rated voltage	type 05 (8 Hz) type 0 (10 Hz) type a0 (10 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15%, -5%) 12 / 24 / 48 / 115 / 185 V DC ±10% 12 / 24 / 48 / 115 / 230 V AC, ±10%
Cycle duration factor		100 %
Height of figures		approx. 1.7 x 4 mm
Colour of figures		white on black
Counting mechanism shaft		stainless steel
Operating temperature		-10°C ... +50°C (non-condensing)
Mounting position		any
Operating life		> 50 x 10 ⁶ pulses
Protection		IP40 (front side)
Weight	AC DC	52 g 62 g

Options		
Electrical connection		<ul style="list-style-type: none"> - pin ø 1.5 mm with push on connectors (Art.-No.: 1.151.X1X.XXX) - with flat pin 0.8 x 2.8 mm and flat push on connectors (Art.-No.: 1.159.X1X.XXX) - with flat pin 0.8 x 6.3 and flat push on connectors (Art.-No.: 1.155.XXX.XXX) - with screw terminal (Art.-No.: 1.154.XXX.XXX)
Colour of housing (availability see table)	grey black	Art.-No.: X.XXX.XX0.XXX Art.-No.: X.XXX.XX1.XXX
Extended temperature range		on request

Pulse counters

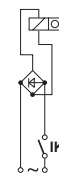
Connection diagram

type
0 a.1, DC



IK = Pulse contact

type
a, AC



Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
V DC	05	8 Hz	50 ms	75 ms	130 mW	5 %
V DC	0	10 Hz	50 ms	50 ms	0.5 W (≤115 V) 1 W (185 V)	48 %
V AC	a0	10 Hz	50 ms	50 ms	0.75 VA (≤ 115 V) 1.5 VA (230 V)	–

Pulse counters, electromechanical

Mini counters

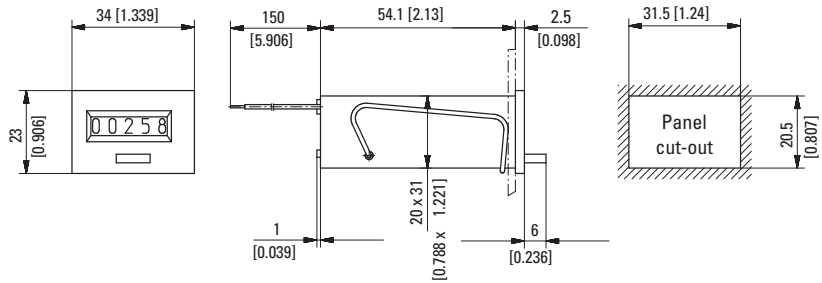
5 digits with reset (AC+DC)

W 15

Panel mount with mounting clip

Panel mount dimensions 31 x 20 mm

Type W 15.21



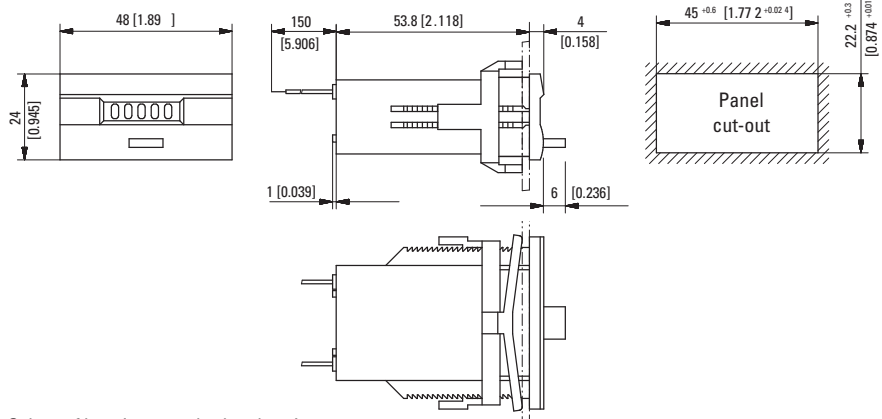
Colour of housing black: Art.-No. 1.150.211.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
W 15.21	DC (8 Hz) / 05	5 digits	1.150.210.049	1.150.210.050			1.150.211.012 12 V DC/0 sw 1.150.211.013 24 V DC/0 sw 1.150.211.050 24 V DC/05 sw 1.150.211.056 230 V AC/a0 sw
	DC (10 Hz) / 0		1.150.210.012	1.150.210.013 ¹⁾			
	AC (10 Hz) / a0			1.150.210.051	1.150.210.054	1.150.210.056 ¹⁾	

Panel mount with mounting clip

Panel mount dimensions 45 x 22 mm

Type W 15.51



Colour of housing: standard anthracite

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
W 15.51	DC (8 Hz) / 05	5 digits	1.150.510.049.550	1.150.510.050.550		
	DC (10 Hz) / 0		1.150.510.012.550 ¹⁾	1.150.510.013.550 ¹⁾		
	AC (10 Hz) / a0			1.150.510.051.550	1.150.510.054.550 ¹⁾	1.150.510.056.550 ¹⁾

Pulse counters, electromechanical

Mini counters	6 or 7 digits without reset (AC+DC)	W 16 / W 17
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The mini totalisers W 16 and W 17 are not resettable, and have been designed for various front panel sizes in a wide variety of applications.

They offer an excellent price / performance ratio and are easy to operate.

Pulse counters

Characteristics <ul style="list-style-type: none"> 6- or 7-digit miniature pulse counters, adding without reset Low power consumption Available for all common DC and AC voltages Versions available for DIN 48 x 24 mm and many other panel mount dimensions as well as for other types, e.g. PCB mount 	Benefits <ul style="list-style-type: none"> Long service life / Protection IP41 (front side)
	Applications <p>Battery-powered devices, heat and water consumption measurement, establishing tolls and charges, general quantity counting</p>

Type series						
Description / mounting	Panel mount dim.	Housing	Display	6 digits	7 digits	Order information
Panel mount with mounting clip, 34 x 23 mm	31 x 20 mm	plastic	front side	W 16.20	-	- Art.-No. - For special voltages, please give type, voltage, kind of voltage and series e.g.: W 16.20, 9 V DC, 05, black
Panel mount with mounting clip, 48 x 24 mm	45 x 22.2 mm	plastic	front side	-	W 17.50	
PCB mount, lying		sheet steel	on the top	W 16.60	-	
Panel mount with mounting clip, 42 x 28 mm	37,5 x 23,5 mm	plastic	front side	-	W 17.90	

Accessories			Order-No.
Adapter front bezel, 53 x 28 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	anthracite	T008180
Adapter front bezel, 56 x 40 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with screw mounting for counters 48 x 24 mm	anthracite	T008181
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm for screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) On request

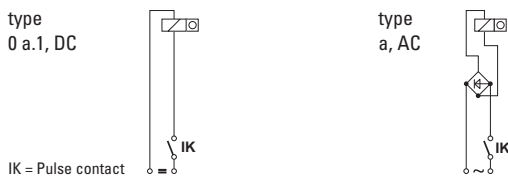
Pulse counters, electromechanical

Mini counters	6 or 7 digits without reset (AC+DC)	W 16 / W 17
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Technical data	
Electrical connection	
panel mount, base mount	flying leads AWG 22, approx. 150 mm, \varnothing 0.34 mm ² , 6 mm stripped wire ends, tinned
PCB mount	round pin \varnothing 1.6 mm
Rated voltage	
type 05 (8 Hz)	1.5 / 3 / 4.5 / 5 / 6 / 12 V DC (+15%, -5%)
type 0 (10 Hz)	12 / 24 / 48 / 115 / 185 V DC \pm 10%
type a0 (10 Hz)	24 / 48 / 115 / 230 V AC, \pm 10%
Cycle duration factor	
100 %	
Height of figures	
1.7 x 4 mm	
Colour of figures	
white on black	
Counting mechanism shaft	
stainless steel	
Operating temperature	
-10°C ... +50°C (non-condensing)	
Mounting position	
any	
Operating life	
> 50 x 10 ⁶ pulses	
Protection	
IP41 (front side)	
Weight	
approx. 50 g	

Options	
Electrical connection	
-	round pins \varnothing 1.6 mm and push on connectors (Art.-No.: 1.161.XXX.XXX)
-	with flat pin 0.8 x 2.8 mm (Art.-No.: 1.169.XXX.XXX)
-	with flat pin 0.8 x 6.3 and push on connectors (Art.-No.: 1.165.XXX.XXX)
-	with open screw terminals (Art.-No.: 1.164.XXX.XXX.023)
Colour of housing	
(availability see table)	grey Art.-No.: X.XXX.XX0.XXX black Art.-No.: X.XXX.XX1.XXX
Extended temperature range	
on request	
With lens for digit height 5 or 6.3 mm	
on request	

Connection diagram

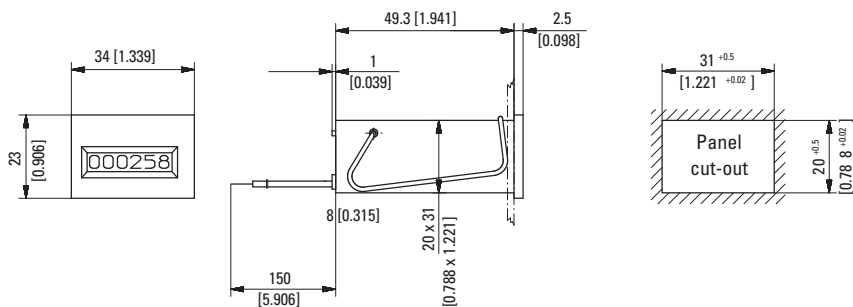


Type / Counting mechanism						
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Power consumption approx.	Permi. residual ripple max.
V DC	05	8 Hz	50 ms	75 ms	50 mW	5 %
V DC	0	10 Hz	50 ms	50 ms	0.5 W (\leq 115 V) 1 W (185 V)	48 %
V AC	a0	10 Hz	50 ms	50 ms	0.75 VA (\leq 115 V) 1.5 VA (230 V)	–

Panel mount with mounting clip

Panel mount dimensions 31 x 20 mm

Type W 16.20



Colour of housing black: Art.-No. 1.160.201.XXX

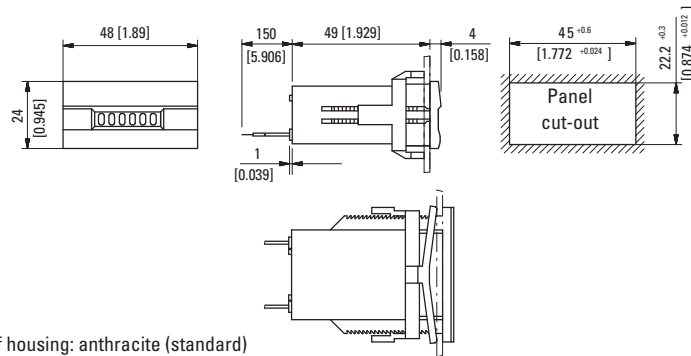
Type	Voltage	Display	Art.-No.				Further stock types: 1.160.201.013 24 V DC/0sw 1.160.201.056 230 V AC/a0sw
			12 V	24 V	115 V	230 V	
W 16.20	DC (8 Hz) / 05	6 digits	1.160.200.049	1.160.200.050			
	DC (10 Hz) / 0		1.160.200.012	1.160.200.013 ¹⁾			
	AC (10 Hz) / a0			1.160.200.051	1.160.200.054	1.160.200.056 ¹⁾	

Pulse counters, electromechanical

Mini counters **6 or 7 digits without reset (AC+DC)** **W 16 / W 17**

Panel mount with mounting clip 48 x 24 mm
Panel mount dimensions 45 x 22.2 mm

Type W 17.50



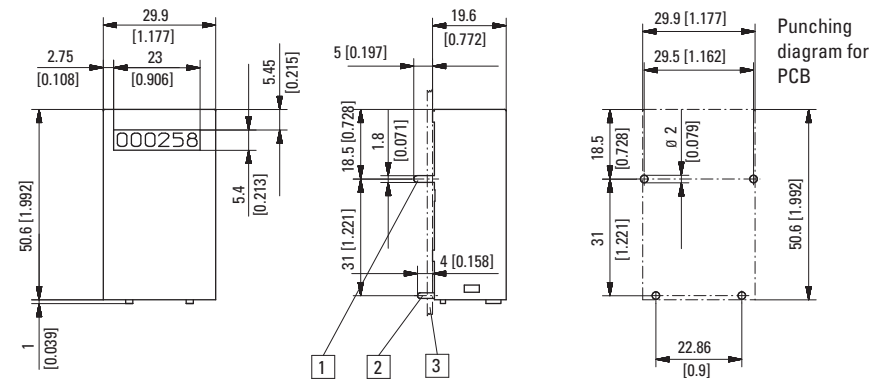
Colour of housing: anthracite (standard)

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
W 17.50	DC (8 Hz) / 05	7 digits	1.740.500.049.550	1.740.500.050.550		
	DC (10 Hz) / 0		1.740.500.012.550¹⁾	1.740.500.013.550¹⁾		
	AC (10 Hz) / a0			1.740.500.051.550	1.740.500.054.550	1.740.500.056.550¹⁾

PCB mount, sheet steel

Display wide side

Type W 16.60



1) Mounting pins 1.8 x 0.4 mm 2) Coil connections ø 0.16 3) PCB

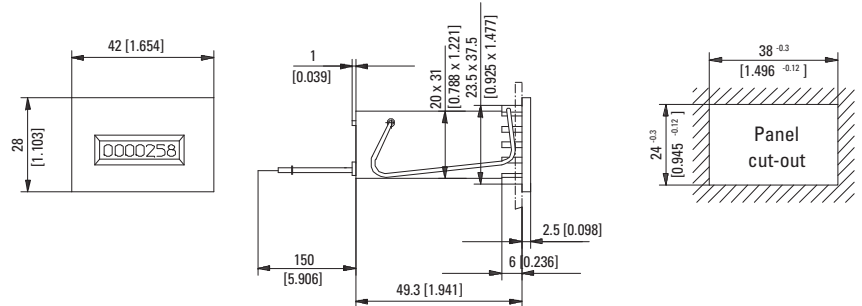
Colour of housing blue (zinc-plated)

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
W 16.60	DC (10 Hz) / 0	6 digits	1.160.601.012	1.160.601.013		

Panel mount with mounting clip

Panel mount dimensions 37.5 x 23.5 mm

Type W 17.90



Colour of housing black: Art.-No. 1.XXX.901.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
W 17.90	DC (8 Hz) / 05	7 digits	1.740.900.049	1.740.900.050		
	DC (10 Hz) / 0		1.740.900.012	1.740.900.013		
	AC (10 Hz) / a0				1.740.900.054	1.740.900.056

Dimensions in mm [inch]

1) Stock types

Pulse counters

Pulse counters, electromechanical

Standard counters

4 digits with reset (AC+DC)

Bk 14



The standard totalisers Bk 14 (with manual reset) boast a robust construction despite their small size.

They are ideal for use in harsh industrial environments.



Characteristics

- 4-digit totaliser with manual reset

Benefits

- Very long service life (200 million pulses)

Applications

General quantity counting, time, charge and performance metering

Type series

Description	Type	Order information
Panel mount with 2 mounting holes	Bk 14.11	- Art.-No.
Panel mount for clip mounting	Bk 14.21	- At different voltages, please give type, voltage, kind of voltage and series e.g.: Bk 14.21, 12 V AC, type a

Technical data

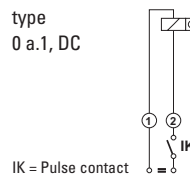
Electrical connection	tinned round pins \varnothing 1.6 mm with push on connectors
Rated voltage	type 0/l/a 12 / 24 / 48 / 115 / 230 V DC \pm 10 % 24 / 48 / 115 / 230 V AC \pm 10 %
Colour of counter	grey
Height of figures	approx. 2 x 4 mm
Colour of figures	white on black
Counting mechanism shaft	stainless steel
Mounting position	any
Operating life	approx. 200 x 10 ⁶ pulses
Protection	IP40 (front side)
Weight	70 g
Test voltage	2000 V ~ effective, acc. to VDE 0435
Vibration resistance	3 g up to 10 Hz 6 g up to 15 Hz independent of position 10 g 20 - 300 Hz

Options

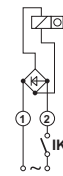
- Key locking reset special key (order code "vs", e.g. Bk 14.11 vs)
- Housing colour black
- Higher counting speed
- Also with flying leads

Connection diagram

type
0 a.1, DC



type
a, AC



IK = Pulse contact

Type / Counting mechanism

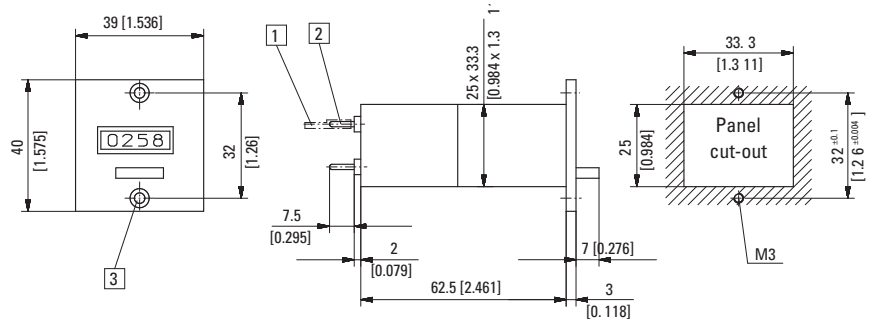
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +60°C
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +60°C
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	-	-10°C ... +55°C

Pulse counters, electromechanical

Standard counters **4 digits with reset (AC+DC)** **Bk 14**

Panel mount with 2 mounting holes
4 digits, with reset

Type Bk 14.11

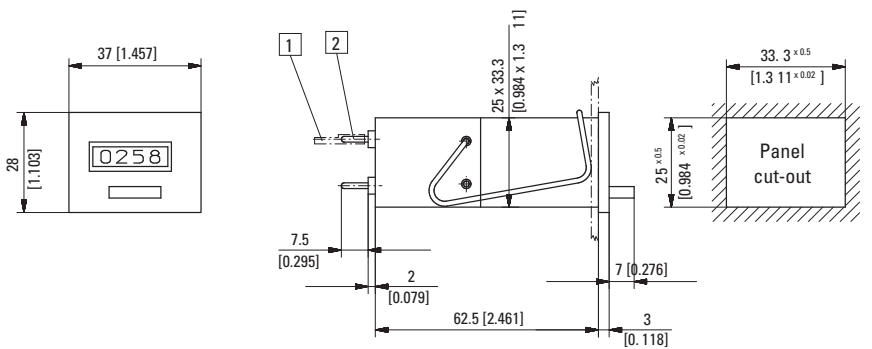


- 1 Push on connector \varnothing 1.5, tinned 2 Round pin \varnothing 1.6, tinned 3 Countersinking Af3 DIN 74

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Bk 14.11	DC (10 Hz) / 0	4 digits	1.180.110.012	1.180.110.013 ¹⁾		
	DC (25 Hz) / 1		1.180.110.032	1.180.110.033		
	AC (18 Hz) / a		1.180.110.061	1.180.110.064	1.180.110.066	

Panel mount for clip mounting
4 digits, with reset

Type Bk 14.21



- 1 Push on connector \varnothing 1.5, tinned 2 Round pin \varnothing 1.6, tinned

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Bk 14.21	DC (10 Hz) / 0	4 digits	1.180.210.012	1.180.210.013 ¹⁾		
	DC (25 Hz) / 1		1.180.210.032	1.180.210.033		
	AC (18 Hz) / a		1.180.210.061	1.180.210.064	1.180.210.066 ¹⁾	

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B 16 / B 18
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The standard totalisers **B 16** (with manual reset) and **B 16, B 18** (without reset) offer a robust construction.

They are ideal for use in harsh industrial environments as individual counters or as plug-in types in combination with additional **B, BVa, HB** or **HVa** counters.



Characteristics

- B 16.x1: 6-digit totaliser with manual reset
- B 16.x0 and B 18.x0: 6- and 8-digit totalisers without reset
- Counters without front bezel fit into bezels F1B and F2B and can be combined in RM 50 x 25 mm with socket 945.2
- Very long service life (200 million pulses)

Benefits

- Can be combined with preset counters BVa and HVa, as well as with timer HB
- Can be upgraded using various front covers to protect against dust, dirt and humidity – reset can be locked out

Applications

General quantity counting, piece counting, event counting, timing

Type series

Description	6 digits without reset	8 digits without reset	6 digits with reset	Order information
Counter without front bezel, rear mounting, plugs into socket box 945.2 and frontbezel F1	–	B 18.00	B 16.01	- Art.-No. - For special voltages, please give type, voltage, kind of voltage and series e.g.: B 16.31, 4.5 V DC, 0 or B 18.00, 48 V AC, a
Panel mount, front bezel size no. 1 with 2 mounting holes	B 16.10	B 18.10	B 16.11	
Panel mount, for clip mounting	B 16.20	B 18.20	B 16.21	
Panel mount, front bezel size no. 3 with 2 mounting holes	B 16.30	B 18.30	B 16.31	

Accessories		Order-No.
Front bezel, type F1B plastic	For cut-out 54 x 49 mm, for screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige black G007501 G007502
Socket box, type 945.2	For counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black G008434
Sealing cover, type K1, IP65	For front bezel 60 x 50 mm, with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 mm	transparent / grey transparent / black G008300 G008301
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	transparent / black N003002
Blind enclosure, 53 x 28 mm	For cut-out 50 x 25 mm, for counters 53 x 28 mm	black T005753
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004
Mounting rail frame SR	For B and HB counters for snap-on mounting on 35 mm top-hat DIN rail	SR 1 for 1x3 B counters SR 2 for 2x3 B counters G300000 G300001
Transparent cover, replacement part, IP65	Screw-on, IP65 with gaskets and screws suitable for Dv(s)B1x and Dv(s)HB2x	type Dv, lockable type Dvs, key lockable G008121 G008131

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Pulse counters, electromechanical

Standard counters	6 or 8 digits with/without reset (AC+DC)	B 16 / B 18
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Technical data		
Electrical connection	count mechanism	pin \varnothing 1.6 mm with push on connector for flying leads 0.5 ... 1.0 mm ²
	socket box	flat pin 0.8 x 2.8 mm
Rated voltage	type 0 / 1 / a	12 / 24 / 48 / 115 / 230 V DC \pm 10 % 24 / 48 / 115 / 230 V AC \pm 10 %
Colour of counter		grey
Height of figures		2 x 4.5 mm (B 16); 2 x 4 mm (B 18)
Colour of figures		white on black
Count mechanism shaft		stainless steel
Mounting position		any
Operating life		approx. 200 x 10 ⁶ pulses
Protection	with reset	IP40 (front side)
	without reset	IP41 (front side)
Weight	without reset	81 g
	with reset	83 g
	socket box	14 g
Test voltage		2000 V ~ effective, acc. to VDE 0435

Options	
Colour of housing black	Art.-No. ref. to type 1.XXX.XX1.XXX
Electr. connection at counter	flat pins 0.8 x 2.8 mm with push on connectors Art.-No. 1.XX7.XXX.XXX
Counter with flat pin 6.3 x 0.8 mm	on request 1.XXX.XXX.XXX.011
Screw terminal	Art.-No. 1.XXX.XXX.XXX.023
Connection with flying leads	on request 1.XX3.XXX.XXX
Extended temperature range	on request
Key locking reset	grey 1.XXX.XX6.XXX
	black 1.XXX.XX7.XXX
	key for reset G050265 (replacement part)

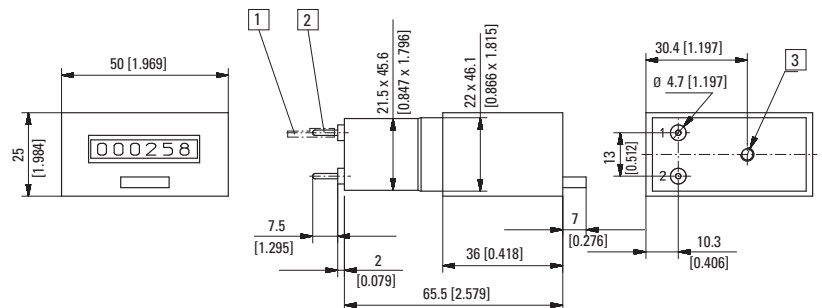


Connection diagram



Type / Counting mechanism										
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)	
V DC	0	10 Hz	60 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +60°C	
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +60°C	
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	—	-10°C ... +55°C	

Without front bezel, rear mounting 6 digits, with reset Type B 16.01



1) Push on connector \varnothing 1.5 mm, tinned 2) Round pin \varnothing 1.6 mm, tinned 3) M4, 5 mm deep
Colour of housing: beige (standard) – black, Art.-No. 1.230.XX1.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 16.01	DC (10 Hz) / 0	6 digits,	1.230.012.012	1.230.012.013 ¹⁾			1.230.011.013 24 V DC/0 sw
	DC (25 Hz) / 1	with reset		1.230.012.032	1.230.012.033 ¹⁾		
	AC (18 Hz) / a			1.230.012.061	1.230.012.064	1.230.012.066 ¹⁾	

Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Standard counters

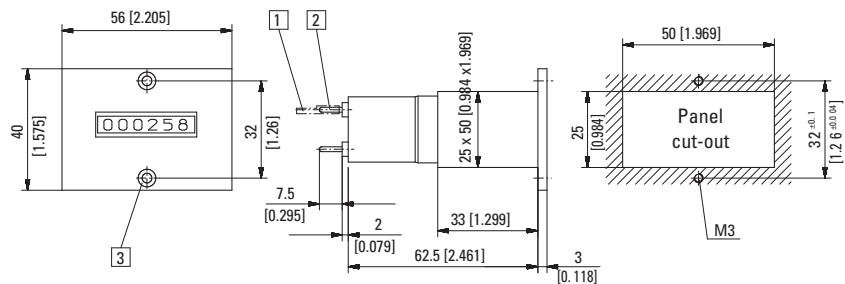
6 or 8 digits with/without reset (AC+DC)

B 16 / B 18

Panel mount with front bezel size no. 1 and 2 mounting holes

6 digits, without reset

Type B 16.10



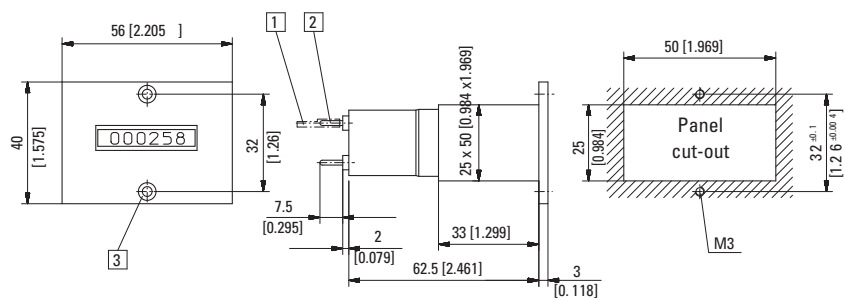
1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned 3 Countersinking Af3 DIN 74
Colour of housing: grey (standard) – black, Art.-No. 1.230.101.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
B 16.10	DC (10 Hz) / 0	6 digits, without reset	1.230.100.012	1.230.100.013		
	DC (25 Hz) / 1		1.230.100.032	1.230.100.033		
	AC (18 Hz) / a			1.230.100.061	1.230.100.064	1.230.100.066

Panel mount front bezel size no. 1 with 2 mounting holes

6 digits, with reset

Type B 16.11



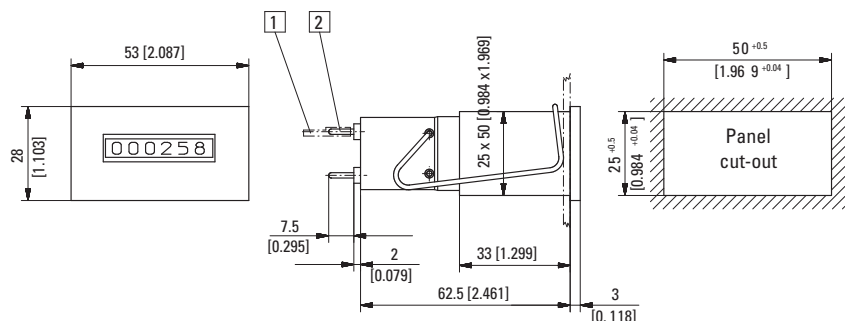
1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned 3 Countersinking Af3 DIN 74
Colour of housing: grey (standard) – black, Art.-No. 1.230.111.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 16.11	DC (10 Hz) / 0	6 digits, with reset	1.230.110.012	1.230.110.013			1.230.111.033 24 V DC/1 sw
	DC (25 Hz) / 1		1.230.110.032	1.230.110.033 ¹⁾			
	AC (18 Hz) / a			1.230.110.061 ¹⁾	1.230.110.064 ¹⁾	1.230.110.066 ¹⁾	

Panel mount for clip mounting

6 digits, without reset

Type B 16.20



1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned
Colour of housing: grey (standard) – black, Art.-No. 1.230.201.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 16.20	DC (10 Hz) / 0	6 digits, without reset	1.230.200.012	1.230.200.013			1.237.201.066 230 V AC/a with flat pins
	DC (25 Hz) / 1		1.230.200.032	1.230.200.033 ¹⁾			
	AC (18 Hz) / a			1.230.200.061	1.230.200.064	1.230.200.066	

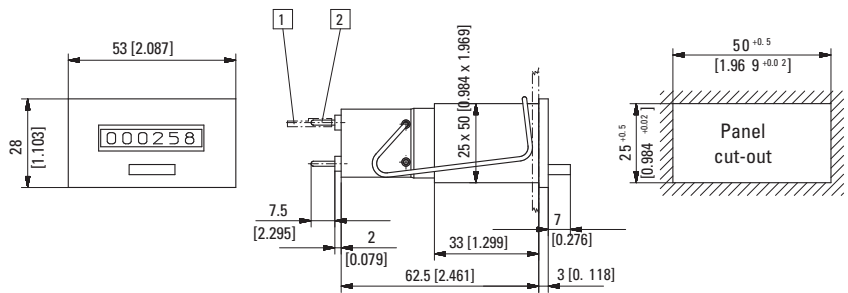
Dimensions in mm [inch]

1) Stock types

Pulse counters, electromechanical

Standard counters **6 or 8 digits with/without reset (AC+DC)** **B 16 / B 18**

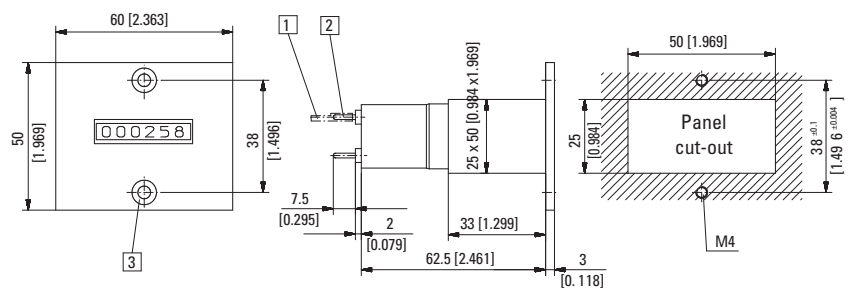
Panel mount for clip mounting
6 digits, with reset
Type B 16.21



1) Push on connector \varnothing 1.5 mm, tinned 2) Round pin \varnothing 1.6 mm, tinned
Colour of housing: grey (standard) – black, Art.-No. 1.230.211.XXX

Type	Voltage	Display	Art.-No.				Further stock types: (flat pins)
			12 V	24 V	115 V	230 V	
B 16.21	DC (10 Hz) / 0	6 digits, with reset	1.230.210.012	1.230.210.013 ¹⁾	1.230.210.064	1.210.210.066 ¹⁾	1.230.211.013 24 V DC/0 sw 1.230.211.033 24 V DC/1 sw 1.230.211.066 230 V AC/a sw 1.230.217.013 24 V DC/0 sw vs 1.237.211.066 230 V AC/a sw
	DC (25 Hz) / 1		1.230.210.032	1.230.210.033			
	AC (18 Hz) / a		1.230.210.061				

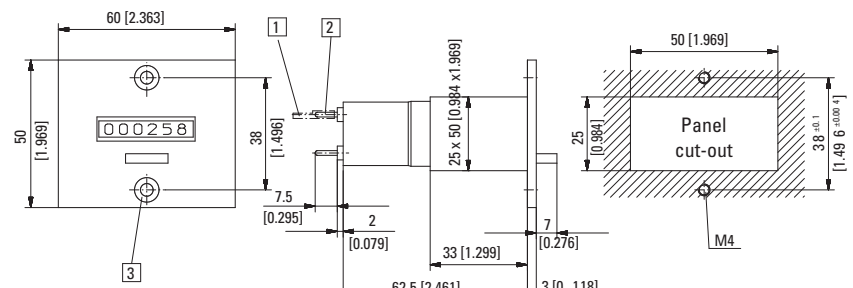
Panel mount with front bezel size no. 3 and 2 mounting holes
6 digits, without reset
Type B 16.30



1) Push on connector \varnothing 1.5 mm, tinned 2) Round pin \varnothing 1.6 mm, tinned 3) Countersinking Am 4 DIN 74
Colour of housing: grey (standard) – black, Art.-No. 1.230.301.XXX

Type	Voltage	Display	Art.-No.				
			12 V	24 V	115 V	230 V	
B 16.30	DC (10 Hz) / 0	6 digits, without reset	1.230.300.012	1.230.300.013	1.230.300.064	1.230.300.066	
	DC (25 Hz) / 1		1.230.300.032	1.230.300.033			
	AC (18 Hz) / a		1.230.300.061				

Panel mount with front bezel size no. 3 and 2 mounting holes
6 digits, with reset
Type B 16.31



1) Push on connector \varnothing 1.5 mm, tinned 2) Round pin \varnothing 1.6 mm, tinned 3) Countersinking Bf 4 DIN 74
Colour of housing: grey (standard) – black, Art.-No. 1.230.111.XXX

Type	Voltage	Display	Art.-No.				Further stock types: (flat pins)
			12 V	24 V	115 V	230 V	
B 16.31	DC (10 Hz) / 0	6 digits, with reset	1.230.310.012	1.230.310.013 ¹⁾	1.230.310.064	1.230.310.066	1.270.310.066 230 V AC/a
	DC (25 Hz) / 1		1.230.310.032	1.230.310.033			
	AC (18 Hz) / a		1.230.310.061				

Dimensions in mm [inch]

1) Stock types

Pulse counters

Pulse counters, electromechanical

Standard counters

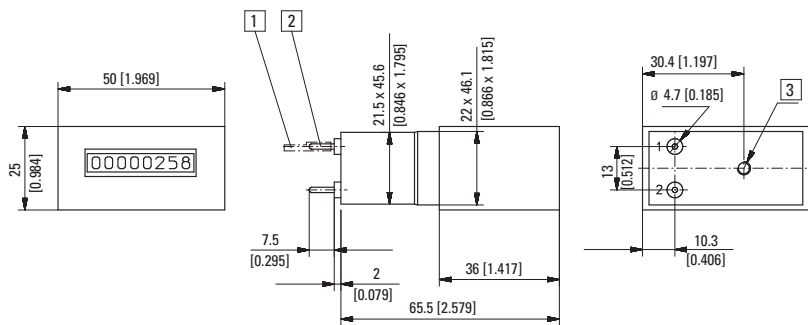
6 or 8 digits with/without reset (AC+DC)

B 16 / B 18

Without front bezel, rear mounting

8 digits, without reset

Type B 18.00



- 1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned 3 M4, 5 mm deep

Colour of housing: beige (standard) – black, Art.-No. 1.260.XX1.XXX

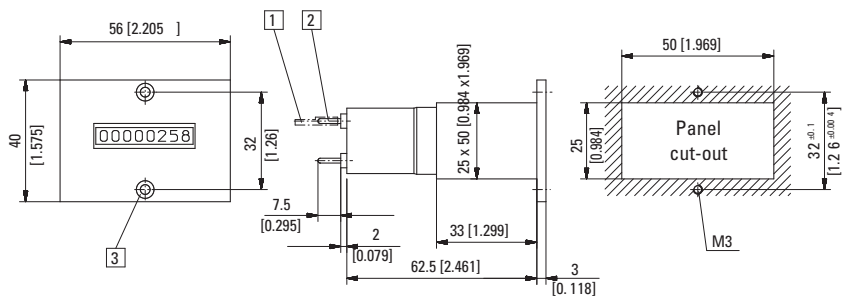
Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 18.00	DC (10 Hz) / 0	8 digits, without reset	1.260.002.012	1.260.002.013			1.260.001.013
	DC (25 Hz) / 1		1.260.002.032	1.260.002.033 ¹⁾			
	AC (18 Hz) / a			1.260.002.061	1.260.002.064	1.260.002.066	

Panel mount with front bezel size no. 1

and 2 mounting holes

8 digits, without reset

Type B 18.10



- 1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned 3 Countersinking Af3 DIN 74

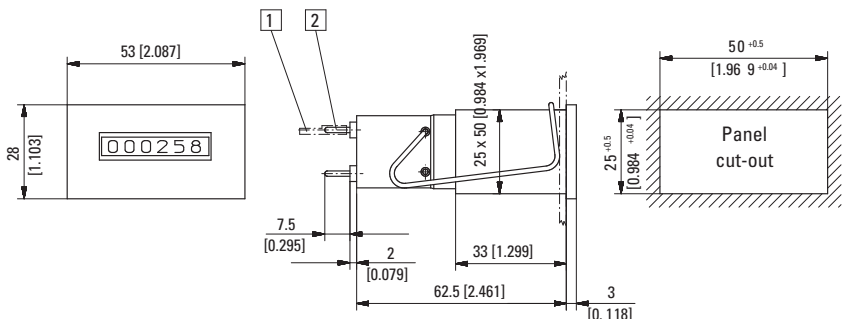
Colour of housing: grey (standard) – black, Art.-No. 1.260.101.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 18.10	DC (10 Hz) / 0	8 digits, without reset	1.260.100.012	1.260.100.013 ¹⁾			
	DC (25 Hz) / 1		1.260.100.032	1.260.100.033 ¹⁾			
	AC (18 Hz) / a			1.260.100.061	1.260.100.064	1.260.100.066	

Panel mount for clip mounting

8 digits, without reset

Type B 18.20



- 1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned

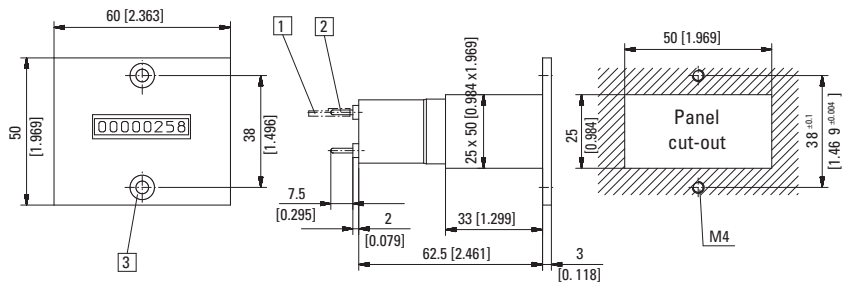
Colour of housing: grey (standard) – black, Art.-No. 1.260.201.XXX

Type	Voltage	Display	Art.-No.				Further stock types:
			12 V	24 V	115 V	230 V	
B 18.20	DC (10 Hz) / 0	8 digits, without reset	1.260.200.012	1.260.200.013 ¹⁾			1.260.201.033 1.260.201.066
	DC (25 Hz) / 1		1.260.200.032	1.260.200.033 ¹⁾			
	AC (18 Hz) / a			1.260.200.061	1.260.200.064	1.260.200.066 ¹⁾	

Pulse counters, electromechanical

Standard counters **6 or 8 digits with/without reset (AC+DC)** **B 16 / B 18**

**Panel mount with front bezel size no. 3
and 2 mounting holes**
8 digits, without reset
Type B 18.30



1 Push on connector \varnothing 1.5 mm, tinned 2 Round pin \varnothing 1.6 mm, tinned 3 Countersinking Am 4 DIN 74
Colour of housing: grey (standard) – black, Art.-No. 1.260.301.XXX

Type	Voltage	Display	Art.-No.				
			12 V	24 V	115 V	230 V	
B 18.30	DC (10 Hz) / 0	8 digits, without reset	1.260.300.012	1.260.300.013			
	DC (25 Hz) / 1		1.260.300.032	1.260.300.033			
	AC (18 Hz) / a			1.260.300.061	1.260.300.064	1.260.300.066	

Pulse counters, electromechanical

Standard counters

4 or 6 stellig digits with/without reset, electrical reset (AC+DC)

Mk 14 / Mk 16



The standard totalisers Mk 14, Mk 16 with manual or manual and electrical reset, and Mk 16 without reset, boast a robust construction.

They are ideal for use in harsh industrial environments.



Characteristics

- 6-digit totaliser without reset
- 4- or 6-digit totaliser with manual, manual and electrical reset
- Mk 16 has integrated electrical reset

Benefits

- Very long service life (200 million pulses)

Applications

Piece counting, event counting, time and charge metering

Type series

Description	reset	4 digits	6 digits	Order information
Panel mount with front bezel and 2 mounting holes	manual	Mk 14.11	Mk 16.11	- Art.-No.
Panel mount for clip mounting	without	–	Mk 16.20	- For special voltages, please give type, voltage and series e.g.: Mk 16.21, 48 V AC, type a
	manual	Mk 14.21	Mk 16.21	
	manual and electrical	–	Mk 16.23	

Technical data

Electrical connection	flat pin 0.8 x 2.8 mm with flat push on connector	
Rated voltage	type 0 / 1 / a	12 / 24 / 48 / 60 / 115 / 230 V DC ±10 % 24 / 48 / 60 / 115 / 230 V AC ±10 %
Housing	Makrolon, similar to RAL 7001	
Height of figures	4 mm	
Colour of figures	white on black	
Counting mechanism shaft	stainless steel	
Mounting position	any	
Operating life	approx. 200 x 10 ⁶ pulses	
Protection	with reset	IP40 (front side)
	without reset	IP41 (front side)
Weight	reset manual	85 g (Mk 14) 100 g (Mk 16)
	reset electrical	145 g (Mk 14) 140 g (Mk 16)
Test voltage	2000 V ~ effective	
Vibration resistance	3 g	up to 10 Hz
	6 g	up to 15 Hz independent of position
	10 g	20 - 300 Hz

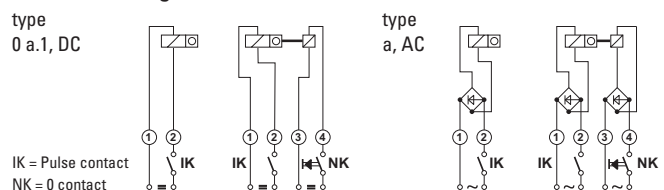
Options

Extended temperature range

Reset magnet

Power consumption	DC	approx. 9 W
	AC	approx. 12 VA
Rated voltage	12 / 24 / 48 / 60 / 115 / 230 V DC ±10 % 24 / 48 / 60 / 115 / 230 V AC ±10 %	
Permissible residual ripple	max. 48 %	
Minimum pulse time	0.25 sec, during 0.3 sec no count pulse is allowed	
Cycle duration factor	Mk 16	15 %, max. 1.0 min
	Mk 14	10 %, max. 40 sec

Connection diagram



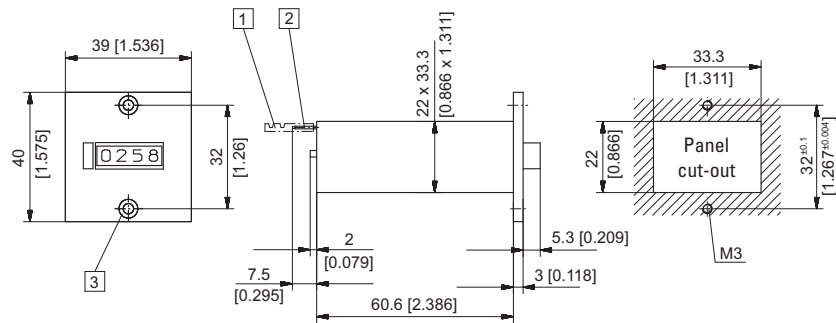
Type / Counting mechanism

Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	0	10 Hz	64 ms	40 ms	3 : 2	100 %	1 W	48 %	-10°C ... +45°C
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	2 W	48 %	-10°C ... +45°C
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	2.9 VA	–	-10°C ... +45°C

Pulse counters, electromechanical

Standard counters **4 or 6 stellig digits with/without reset, electrical reset (AC+DC)** **Mk 14 / Mk 18**

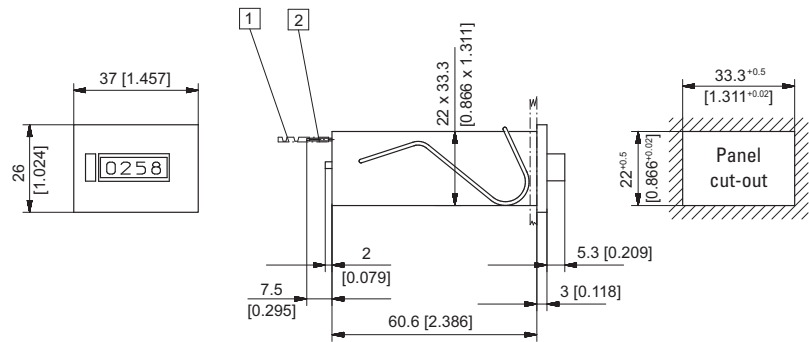
Panel mount, front bezel with 2 mounting holes
4 digits, manual reset
Type Mk 14.11



1 Flat push on connector 0.8 x 2.8 mm, tinned 2 Flat pin 0.8 x 2.8, tinned 3 Countersinking Af3 DIN 74
Colour of housing black, Art.-No. 1.310.111.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 14.11	DC (10 Hz) / 0	4 digits,	1.310.110.012	1.310.110.013	1.310.110.064	1.310.110.066
	DC (25 Hz) / 1	manual reset				
	AC (18 Hz) / a					

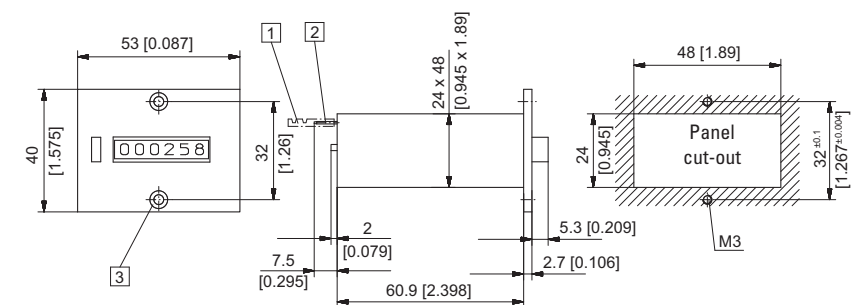
Panel mount, for clip mounting
4 digits, manual reset
Type Mk 14.21



1 Flat push on connector 0.8 x 2.8 mm, tinned 2 Flat pin 0.8 x 2.8, tinned
Colour of housing black, Art.-No. 1.310.211.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 14.21	DC (10 Hz) / 0	4 digits,	1.310.210.012	1.310.210.013	1.310.210.064	1.310.210.066
	DC (25 Hz) / 1	manual reset				
	AC (18 Hz) / a					

Panel mount, front bezel with 2 mounting holes
6 digits, manual reset
Type Mk 16.11



1 Flat push on connector 0.8 x 2.8 mm, tinned 2 Flat pin 0.8 x 2.8, tinned 3 Countersinking Af3 DIN 74
Colour of housing black, Art.-No. 1.340.111.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 16.11	DC (10 Hz) / 0	6 digits,	1.340.110.012	1.340.110.013	1.340.110.064	1.340.110.066
	DC (25 Hz) / 1	manual reset				
	AC (18 Hz) / a					

Dimensions in mm [inch]

Pulse counters

Pulse counters, electromechanical

Standard counters

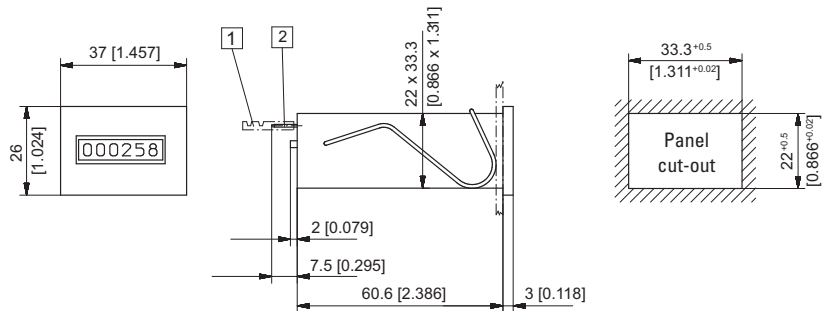
4 or 6 stellig digits with/without reset, electrical reset (AC+DC)

Mk 14 / Mk 16

Panel mount for clip mounting

6 digits, without reset

Type Mk 16.20



- 1 Flat push on connector 0.8 x 2.8 mm, tinned
- 2 Flat pin 0.8 x 2.8, tinned

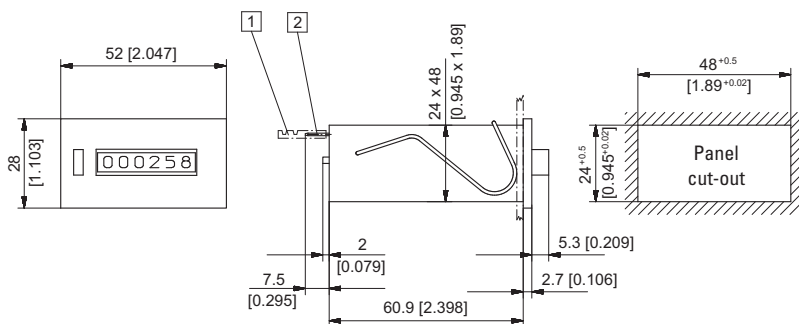
Colour of housing black, Art.-No. 1.330.201.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 16.20	DC (10 Hz) / 0	6 digits, without reset	1.330.200.012	1.330.200.013		
	DC (25 Hz) / 1		1.330.200.032	1.330.200.033		
	AC (18 Hz) / a			1.330.200.061	1.330.200.064	1.330.200.066

Panel mount for clip mounting

6 digits, manual reset

Type Mk 16.21



- 1 Flat push on connector 0.8 x 2.8 mm, tinned
- 2 Flat pin 0.8 x 2.8, tinned

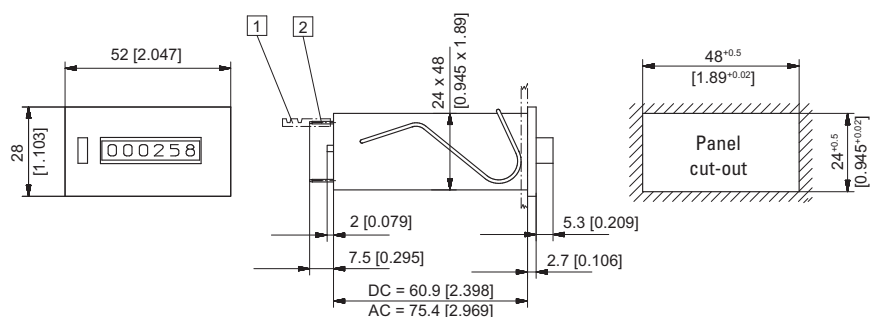
Colour of housing black, Art.-No. 1.340.211.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 16.21	DC (10 Hz) / 0	6 digits, manual reset	1.340.210.012	1.340.210.013		
	DC (25 Hz) / 1		1.340.210.032	1.340.210.033		
	AC (18 Hz) / a			1.340.210.061	1.340.210.064	1.340.210.066

Panel mount, for clip mounting

6 digits, manual and electrical reset

Type Mk 16.23



- 1 Flat push on connector 0.8 x 2.8 mm, tinned
- 2 Flat pin 0.8 x 2.8, tinned

Colour of housing black, Art.-No. 1.340.231.XXX

Type	Voltage	Display	Art.-No.			
			12 V	24 V	115 V	230 V
Mk 16.23	DC (10 Hz) / 0	6 digits, manual and electr. reset	1.340.230.012	1.340.230.013		
	DC (25 Hz) / 1		1.340.230.032	1.340.230.033		
	AC (18 Hz) / a			1.340.230.061	1.340.230.064	1.340.230.066

Dimensions in mm [inch]

Counting mechanism with stepper motor **For energy meters (DC)** **KWh 17**



The drum counter KWh 17 has been designed for installation in KWh meters.

The robust construction and optional shielding ensure a very high level of operating safety against shock and magnetic interference.

Pulse counters

Characteristics

- 7-digit drum counting mechanism with pulse control for stepper motors, for use in KWh meters
- Stepper motor drive
- Each incoming pulse advances the decimal place of the counting mechanism by 1/100 of a revolution
- Optional protective housing to shield against magnetic interference

Benefits

- 5 year warranty ¹⁾
- High reliability and shock resistance
- Only 25 mW power consumption, allows for problem-free PCB mounting
- Data retention if power fails
- Large digits as with conventional Ferraris meters

Applications

Module for installation in electromechanical KWh meters

Order code 1.94 X . XXXX . XXX . XXX

a b c d e f

a *Electrical connection*
 3 = pin 0.64 x 0.64 mm, L = 19 mm
 4 = pin 0.64 x 0.64 mm, L = 5 mm
 5 = pin 0.64 x 0.64 mm, L = 7.5 mm

b *Mounting*
 0 = Latch at the side
 1 = Latch on top and bottom

c *Colour of figures*
 0 = white on black,
 1. Decimal position red on black
 2 = white on black,
 for all digits
 3 = white on black,
 1. Decimal position with symbols white on black
 4 = white on black,
 1. Decimal position with symbols red on black

d *Shield against magnetic fields*
 0 = without shield
 1 = with shielding housing

e *Nominal voltage*
 090 = 5 V DC
 091 = 10 V DC

f *Options*
 346 = extended temperature range -40°C ... +90°C

Technical data	
Driving mechanism	stepper motor
Rated voltages	5 V DC ±10% or 10 V DC ±10%
Activation	rectangular- or needle-shaped pulses
Electrical connection	solder pins
Display	7-digit display, decimal place with additional 1/100 division
Counter reading on delivery	000 0001 ±3 digits
Counting drum	figures white on black, decimal place red on black
Coil resistance	5 V DC 1 kΩ 10 V DC 3.6 kΩ
Power consumption	5 V DC 25 mW 10 V DC 28 mW
Height of figures	5 x 3 mm
Operating temperature	-20°C ... +70°C (non-condensing)
Relative humidity	< 95% (non-condensing)

Options	
Different mounting possibilities	on request
Alternative operating voltage	on request
Alternative coil resistance	on request
Extended temperature range	-40°C ... +90°C

1) For fixed installations and use in accordance with the technical data

Pulse counters, electromechanical

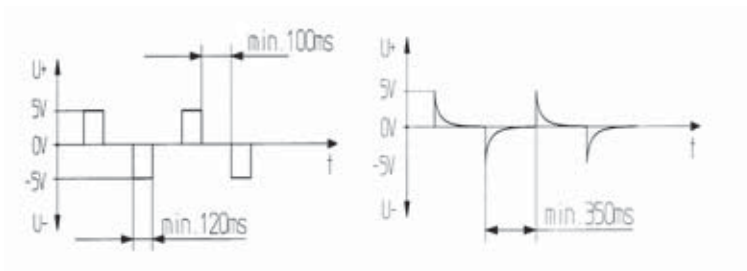
Counting mechanism with stepper motor For energy meters (DC) KWh 17

Pulse diagrams

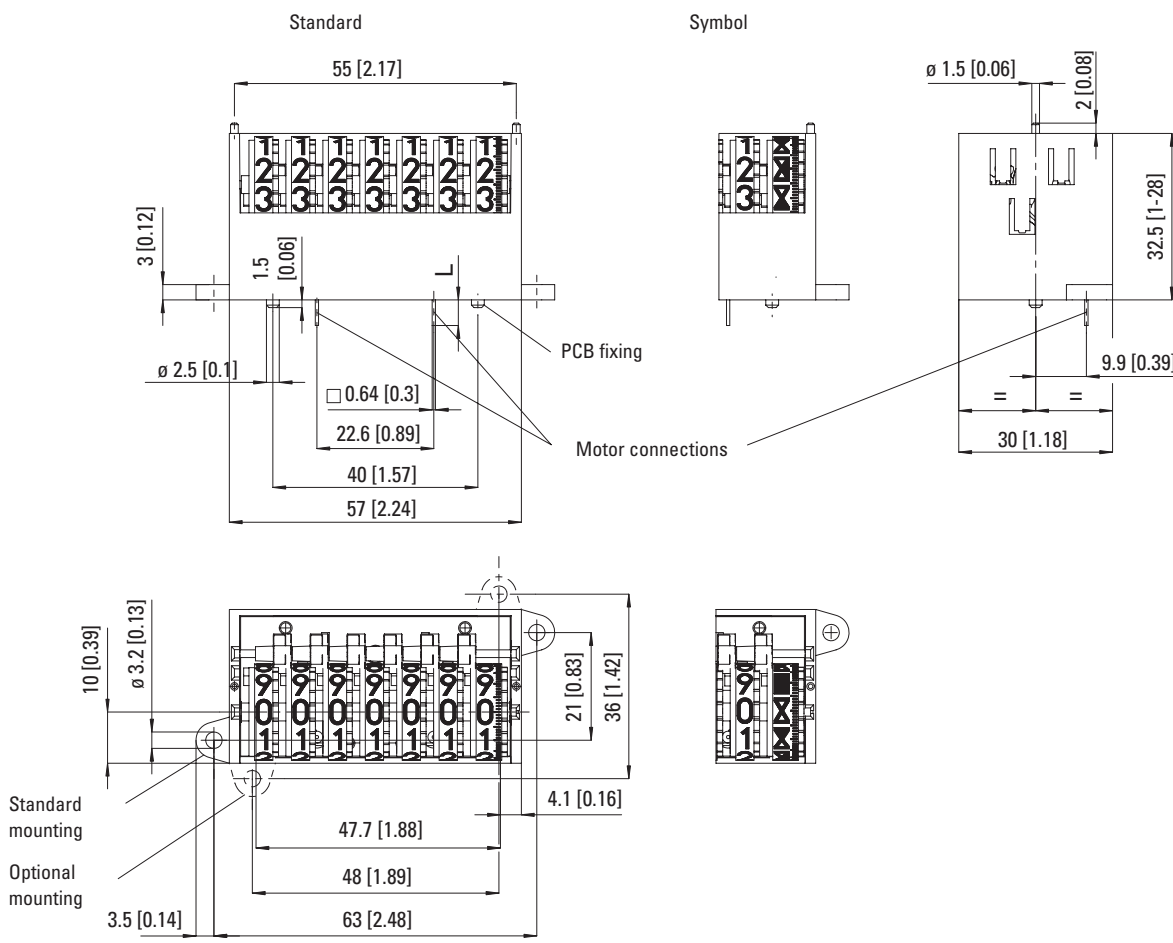
Rectangular shaped pulses

Pulses by capacitor charge or discharge

Recommended capacitor:
 5 V DC version 100 μ F
 10 V DC version 33 μ F



Dimensions



Pulse counters, pneumatic

Pneumatic counters **4 digits with, 6 digits with/without, 8 digits without reset** **PMk 14 / PMk 16 / PMk 18**



The pneumatic totalisers PMk 14, PMk 16 (with manual reset) and PMk 18 (without reset) boast a robust construction.

They are ideal for use in harsh industrial environments, where the counters are directly driven by compressed air.

Pulse counters

<p>Characteristics</p> <ul style="list-style-type: none"> • Economical pneumatical totalisers • PMk 14 and PMk 16 with manual reset • PMk 18 without reset • Counting via armature system with membrane 	<p>Benefits</p> <ul style="list-style-type: none"> • No leakage • Also available with quick connection system <p>Applications</p> <p>Pneumatically operated devices and equipment</p>
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Type series				
Description	reset	4 digits	6 digits	8 digits
Panel mount with front bezel and 2 mounting holes	without	–	–	PMk 18.10
	manual	PMk 14.11	PMk 16.11	–
Panel mount for clip mounting	without	–	–	PMk 18.20
	manual	PMk 14.21	PMk 16.21	–

Technical data	
Pneumatic connections	M5 inner thread, 4 mm deep
Air purity	oil free or oil containing, the filter required must eliminate impurities > 40 µm
Mounting position	any
L-signal	1.5 ... 8 bar ±15 %
O-signal	≤ 0.15 bar
Max. safe pressure	9 bar (static)
Max. pulse frequency	at 1.5 bar 50 Hz at 2.5 bar 25 Hz at 6 bar 10 Hz at 8 bar 5 Hz depends on hose length
Pulse ratio	1:1 at max. pulse frequency, depending on the control
Max. Hose length (transmitter - counter, 1.5 bar)	at 50 Hz 0.3 m at 25 Hz 0.4 m at 10 Hz 0.5 m
Height of figures	4 mm
Colour of figures	white on black
Connection volume	0.19 m ³
Operating temperature	-10°C ... +60°C (non-condensing)
Protection	with reset IP40 (front side) without reset IP41 (front side)

Options	
Connector for polyamide hose	ø 4 x ø 6 mm Art.-No.: 3.XXX.XXX.063
Quick connection for tube outside diameter 4 mm	QSM-M5-4 N140620 Art.-No.: 3.XXX.XXX.064

Pulse counters, pneumatic

Pneumatic counters

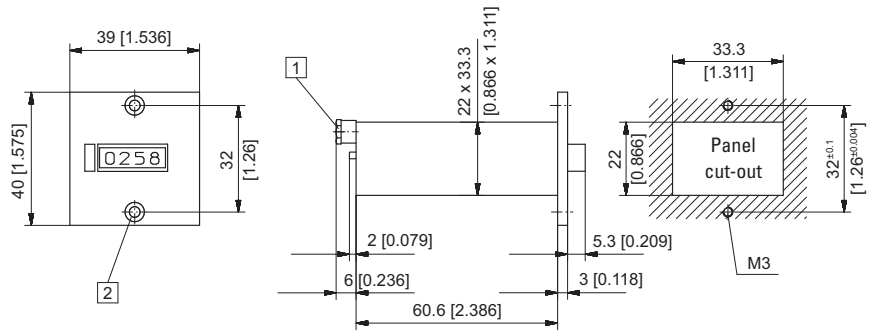
4 digits with, 6 digits with/without, 8 digits without reset

PMk 14 / PMk 16 / PMk 18

Panel mount with front bezel and 2 mounting holes

4 digits, manual reset

Type PMk 14.11



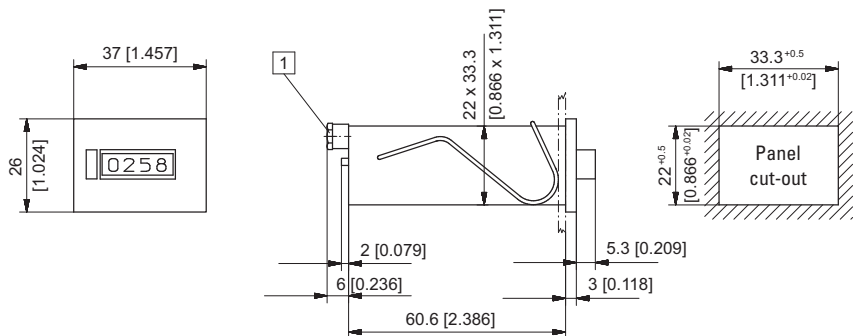
1 Inner thread M5, 4 mm deep 2 Countersinking Af3 DIN 74

Type	Display	Colour of housing / Art.-No.	
		grey	black
PMk 14.11	4 digits, manual reset	3.802.110 ¹⁾	3.802.111

Panel mount for clip mounting

4 digits, manual reset

Type PMk 14.21



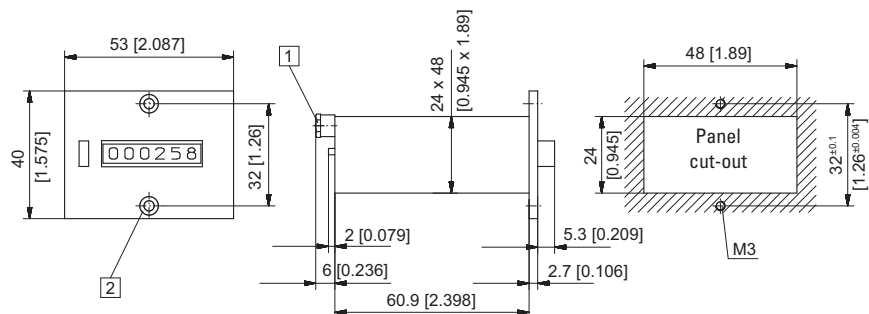
1 Inner thread M5, 4 mm deep

Type	Display	Colour of housing / Art.-No.	
		grey	black
PMk 14.21	4 digits, manual reset	3.802.210	3.802.211

Panel mount with front bezel and 2 mounting holes

6 digits, manual reset

Type PMk 16.11



1 Inner thread M5, 4 mm deep 2 Countersinking Af3 DIN 74

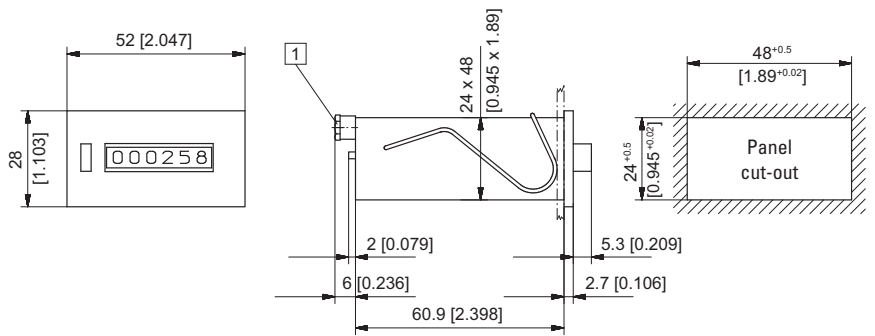
Type	Display	Colour of housing / Art.-No.	
		grey	black
PMk 16.11	6 digits, manual reset	3.804.110 ¹⁾	3.804.111

Pulse counters, pneumatic

Pneumatic counters **4 digits with, 6 digits with/without, 8 digits without reset** **PMk 14 / PMk 16 / PMk 18**

Panel mount for clip mounting
6 digits, manual reset

Type PMk 16.21

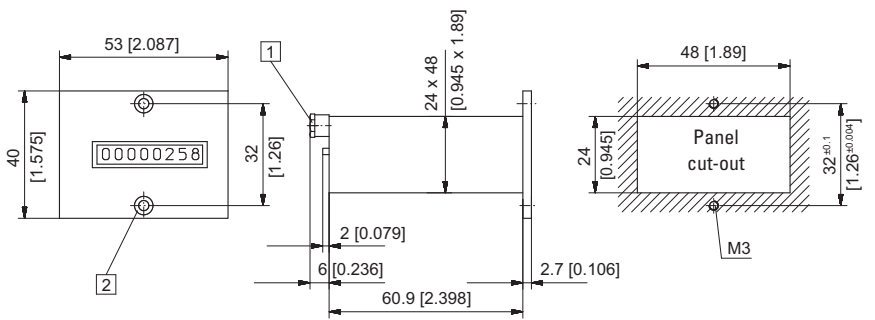


1 Inner thread M5, 4 mm deep

Type	Display	Colour of housing / Art-No.	
		grey	black
PMk 16.21	6 digits, manual reset	3.804.210	3.804.211

Panel mount with front bezel and 2 mounting holes
8 digits, without reset

Type PMk 18.10

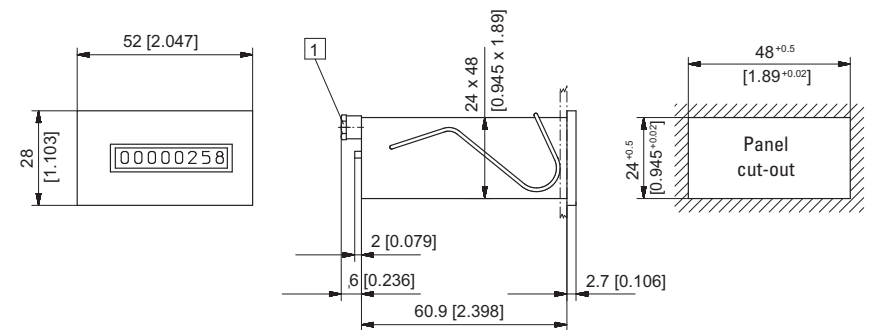


1 Inner thread M5, 4 mm deep 2 Countersinking Af3 DIN 74

Type	Display	Colour of housing / Art-No.	
		grey	black
PMk 18.10	8 digits, without reset	3.805.100	3.805.101

Panel mount for clip mounting
8 digits, without reset

Type PMk 18.20



1 Inner thread M5, 4 mm deep

Type	Display	Colour of housing / Art-No.	
		grey	black
PMk 18.20	8 digits, without reset	3.805.200 ¹⁾	3.805.201

Dimensions in mm [inch]

1) Stock types

Pulse counters

Preset counters



Preset counters

Preset counters, electronic		Type	Page
LCD preset counters	Adding or subtracting (battery)	901	120
	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	123
	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Time preset counters with multicolour or LED look	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED preset counters	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)	133
	Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)	Codix 560	138
	Pulse, frequency, time (also reciprocal), with analogue output (AC+DC)	571	246
	Dual preset counters with 4 outputs and analogue output (AC+DC)	572	143
Preset counters, electromechanical		Type	Page
Standard counters	Adding, 5 digits (AC+DC)	BVa 15	146
	Subtracting, 2 or 3 digits (AC+DC)	MVs 13	150
	Subtracting, 6 digits (AC+DC)	MVs 16	153

Preset counters, electronic

LCD preset counters Adding or subtracting (battery) 901



Type 901 is a simple battery powered preset pulse counter with 12 ... 250 V AC/DC count and reset input.

The 6-digit, 2-line LCD display shows the current count value and the preset value.



Battery powered	AC/DC 12...250 V	max. 30 Hz	Temperature range -10° + 50°	IP65	DIN front bezel DIN 48 x 48	6 LCDs	Lockable reset	Menu-driven programming	Decade key entry	Relay output 1

Powerful

- Count and reset input electrically separated from the counter: input switching levels 12 ... 250 V AC/DC
- 2-line LCD display for count, preset and switching status of the output
- Data retention thanks to exchangeable lithium batteries, battery life 8 years
- Output: relay, programmable as normally open or normally closed

Simple

- Easy to programme
- Simple preset entry; one key per decade
- Plug-in screw terminals
- Replacement for electromechanical preset counters
- No external power supply necessary

Order specifications

	Order-No.	Delivery specification
LCD preset counter	6.901.010.800 ¹⁾	<ul style="list-style-type: none"> - Counter 901 - 2 lithium batteries - 1 screw terminal - 1 spring clip - 1 operating instructions
		<ul style="list-style-type: none"> - 1 front bezel for screw mounting, panel cut-out 50 x 50 mm (T008860) - 1 front bezel for spring clip mount, panel cut-out 50 x 50 mm (T008853) - 1 template for panel cut-out

Accessories

		Order-No.
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm (Mating clip T009420 must be ordered separately)	
	black	T008177
	mating clip	T009420
Adapter front bezel, ø 72 mm	For cut-out ø 60 mm to cut-out 45 x 45 mm with clip mounting for counters 48 x 48 mm	N510226
Transparent cover, IP65	For cut-out 50 x 50 mm, with screw mounting for counters with cut-out 45 x 45 mm and front bezel 48 x 48 mm	G008143 G008153
Sealing cover type K2, IP65	Suitable for front bezel 75 x 60 mm with screw mounting	G008303
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	G300003

Replacement parts

7-pin connector	1 ... 7, pitch 5.08	N100548
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Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Preset counters, electronic

LCD preset counters Adding or subtracting (battery) 901

General technical data	
Display	2 line LCD display, 6 digits 999999; 7 or 4.5 mm high
Operating temperature	-10°C ... +50°C, (non-condensing)
Storage temperature	-25°C ... +60°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	2 pcs user exchangeable lithium-batteries type 1/2 AA lithium 3.6 V
Data retention	8 years at 5 x 10 ⁶ power operations of the output relay and an operating temperature of 25°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Protection	IP65 (front side)
Weight	approx. 80 g

Inputs	
Inputs	reset, count and key lock inputs
Polarity of the inputs	bidirectional optocoupler input for the reset and count inputs, keyboard lock is connected to +3 V DC
Min. pulse duration of the inputs	reset input 50 ms keyboard lock input 15 ms
Switching levels of the inputs	LOW < 3 V AC/DC HIGH 12 ... 250 V AC/DC
Input frequency	max. 25 Hz
Input resistance	110 kΩ

Outputs	
Output	bistable relay with potential free contact (programmable as normally closed or normally opened contact)
Max. switching voltage	250 V AC / 220 V DC
Max. switching current	2 A
Max. switching capacity	60 VA / 30 W
Output response time	< 20 ms, max. 4 Hz

Programming

The counter is programmed using the keys on the front. The menu is shown on the display. The following modes are programmable:

1. Count mode (adding or subtracting)
2. Latch or automatic cycle
3. Output (normally open or normally closed)
4. Display hold during automatic cycles in steps of 100 ms between 100 and 500 ms
5. Decimal point up to max. 3 decimal places

Function of the output

- Adding:
Relay is active, when actual value ≥ preset
- Subtracting:
Relay is active, when actual value ≤ 0

With automatic repeat cycle the output signal is a timed pulse, programmable in 100 ms steps.

When the relay is active a colon will appear at the bottom left of the display.

Operating the counter

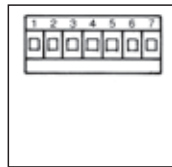
- Setting or resetting:
Press the red SET button or apply a pulse to the reset input to set the counter to zero in the adding mode or to the preset in the subtracting mode.
- Presetting:
The preset value is indicated on the lower row of digits. To set it, use the 6 presetting buttons assigned to each decade. The set value will be accepted with the next set or reset operation.
- Overflow and underflow:
In the adding mode the overflow is 999 999 to 0; in the subtracting mode it is 0 to 999 999. The output signal remains unaffected.
- Lo-bat-indicator:
When the battery charge is too low, Lo-bat appears in the lower display. This flashes on a two second cycle. When lo-bat is indicated, the battery should be changed as soon as possible.
- Changing the battery:
The unit retains the programmed values if the batteries are replaced within 2 minutes.

Preset counters, electronic

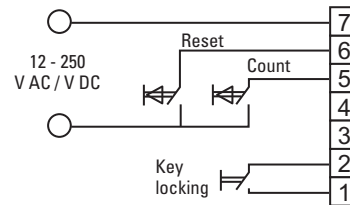
LCD preset counters **Adding or subtracting (battery)** **901**

Terminal assignment

Pin	Inputs / outputs
1	+3 V DC for terminal 2
2	Keyboard lock-input
3	Relay contact
4	Relay contact
5	AC/DC optocoupler count input
6	AC/DC optocoupler reset input
7	Common AC/DC input for terminal 6 and 5

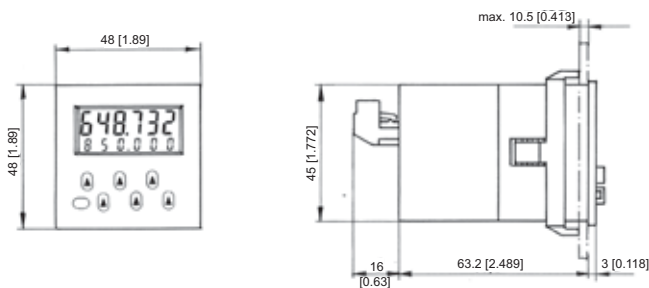


Example of connection

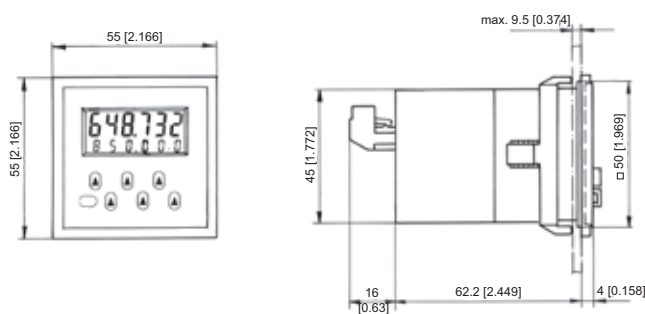


Dimensions

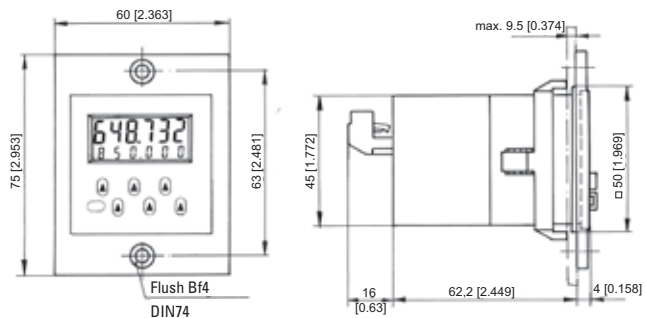
Panel cut-out 45 x 45 mm



With front bezel 55 x 55 mm, panel cut-out 50 x 50 mm



With front bezel 60 x 75 mm, panel cut-out 50 x 50 mm



Preset counters, electronic

LCD preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908
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The pulse and time preset counters Codix 907 and 908 offer all important counter functions with an unbeatable price/performance ratio.

The counters offer easy, user-friendly installation thanks to their minimal installation depth and plug-in screw terminals; the 2-line LCD display is available with optional backlighting, making it even easier to read with just a quick glance.



Preset counters

DC 11 ... 30 V Power supply	AC 115/230 V Power supply	Temperature range -10° + 50°	DIN 48 x 48 DIN front bezel	Menu-driven programming	IP65 High protection level	max. 5 kHz Count frequency	Plug-in screw terminal	1 or 2 Presets 907: 1 / 908: 2	Multifunction
2x6 LCD LCD display	Multicolour display								

Powerful

- For pulse, time and position
- Adding or subtracting
- Automatic reset when preset is reached, or by key-press or electrically
- Codix 907: 1 preset / Codix 908: 2 presets
- 2 x 6-digit display and preset annunciators from -999999 to +999999
- Display with or without backlighting, 2-colour

Simple

- Plug-in screw terminal
- Simple menu-driven programming
- Decade keypad, for each digit one key
- DC or AC powered
- Minimum installation depth
- High protection level (IP65) with integrated front bezel gasket
- With preset annunciators

Order Code 6.90 X . 0 1 0 X . X A 0

a
b
c
d
e

a Number of presets

- 7 = 1 preset
- 8 = 2 presets

b Outputs

- 0 = relays

c LCD version

- 0 = no backlighting
- 1 = green backlighting
- 4 = 2-colour, negative red/green backlighting

d Power supply

- 0 = 230 V AC
- 1 = 115 V AC
- 3 = 10 ... 30 V DC

e Input trigger level

- A = 4 ... 30 V DC level

Delivery specification

- Preset counter
- Mounting clip
- 8 pin screw terminal
- 7 pin screw terminal
- Operating instructions

Stock types

- 6.907.0100.3A0
- 6.908.0100.3A0
- 6.907.0100.0A0
- 6.908.0100.0A0
- 6.908.0101.0A0

Preset counters, electronic

LCD preset counters		1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908
Accessories			Order-No.
Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm with clip mounting for counters 48 x 48 mm Gasket 58 x 58 mm, for cut-out 50.2 x 50.2 mm	black	T008853 N511004
Adapter front bezel, 60 x 75 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm with screw mounting for counters 48 x 48 mm Gasket 60 x 75 mm for cut-out 50 x 50 mm	black	T008860 N511020
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm (Mating clip T009420 must be ordered separately)	black mating clip	T008177 T009420
Sealing cover type K2, IP65	Suitable for front bezel 75 x 60 mm for screw mounting	transparent/black	G008303
Transparent cover, IP65	For cut-out 50 x 50 mm, with screw mounting for counters with cut-out 45 x 45 mm and front bezel 48 x 48 mm	lockable key lockable	G008143 G008153
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003
Replacement parts			
8-pin connector	1 ... 8, pitch 3.81		N100498
7-pin connector	9 ... 15 (for 923 / 924), pitch 5.08		N100548u002

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	2 line 2 x 6 digits LCD display (upper line 9 mm, lower line 7 mm, special sign 2 mm high) - positive green with optional backlighting - 2-colour upper line: negative, red backlighting lower line: negative, green backlighting
Operating temperature	-10°C ... +50°C (non-condensing)
Storage temperature	-25°C ... +75°C
Humidity	at +40°C RH 93% (non-condensing)
Altitude	up to 2000 m
Mechanical Data	
Protection	IP65 (front side)
Weight	AC version approx. 250 g DC version approx. 150 g

Electrical characteristics	
Sensor power supply	AC 115/230 V, ±10%, 50/60 Hz, max. 6.5 VA DC 11 ... 30 V, max. 4 W
External fuse protection	230 V AC T 0.1 A 115 V AC T 0.125 A 11 ... 30 V DC T 0.2 A
Data retention	> 10 years, EEPROM
Input modes	pulse counter cnt.dir, up.dn, quad FrErun, InpA.InpB., InpB.InpB. timer
Sensor power supply	AC supply 24 V DC -40/+15%, 50 mA at 230 V AC, 40 mA at 115 V AC DC supply max. 50 mA external power supply is connected through
EMC	Emitted interference EN55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN61010 part 1 Protection class 2 Application area Pollution level 2

Preset counters, electronic

LCD preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908
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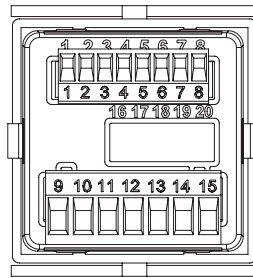
Inputs	
Count inputs	A and B
Polarity of the inputs	programmable for all inputs in common, NPN/PNP
Input resistance	10 kΩ
Count frequency	max. 5 kHz (details see manual) can be damped to 30 Hz (mechanical contacts)
Control / Reset input	Lock, Reset
Min pulse duration of signal and control inputs	statical / 1 ms
Switching levels with AC/DC supply	4 ... 30 V DC: low 0 ... 2 V DC high 3.5 ... 30 V DC
Pulse shape	variable, Schmitt-Trigger characteristics

Outputs	
Switching voltage	max. 250 V AC / 110 V DC
Switching current	max. 3 A AC/DC min. 30 mA DC
Switching capacity	max. 750 VA / 90 W
Output 1	Mech. service life (switching cycles) 2×10^7 N° of switching cycles at 3 A / 250 V AC 1×10^5 N° of switching cycles at 3 A / 30 V DC 1×10^5 Relay with closing contact, progr. normal closed or normal open.
Output 2	Mech. service life (switching cycles) 20×10^6 N° of switching cycles at 3 A / 250 V AC 5×10^4 N° of switching cycles at 3 A / 30 V DC 5×10^4 Relay with changeover contact
Reaction time of the outputs	pulse counter < 15 ms timer < 10 ms

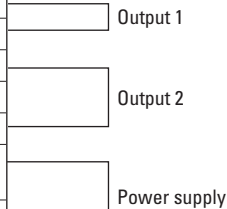
Preset counters

Terminal assignment

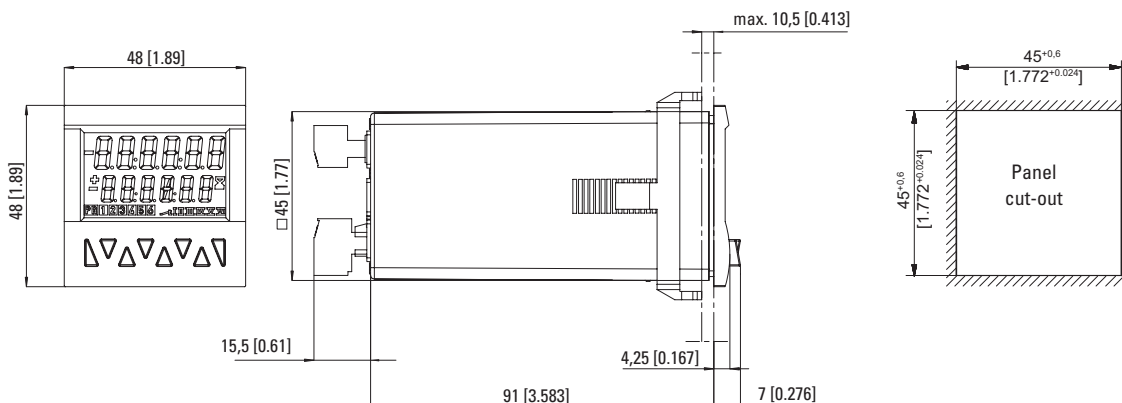
Pin	Signal and control inputs
1	Sennsor power supply
2	GND (0 V DC)
3	INP A (Signal input A)
4	INP B (Signal input B)
5	RESET (Reset input)
6	LOCK (Key locking input)
7	n. c.
8	n. c.



Pin	Version with relays
9	Relay contact C.
10	Relay contact N.O.
11	Relay contact C.
12	Relay contact N.O.
13	Relay contact N.C.
14	AC: 115/230 V AC N~ DC: 11 ... 30 V DC
15	AC: 115/230 V AC L~ DC: GND (0 V DC)



Dimensions



Preset counters, electronic

LCD preset counters

Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)

Codix 923 / 924



The multifunction preset counters Codix 923 / 924 can be used universally. These preset pulse counters, tachometers or preset timers with up to 6 presets can solve a wide variety of control and monitoring tasks in every application.

With their two-line display in 4 different versions the counters are very easy to read and simple to programme using the clearly laid-out decade keys. Complex control tasks can be carried out using a batch count or total count function.



DC 10 ... 30 V Power supply	AC 24...260 V Temperature range	-20° + 65° Temperature range	000000 DIN 48 x 48 Frequency meter HRA	t/Hz HRA Menu-driven programming	IP65 High protection level	max. 60 kHz Count frequency	Plug-in screw terminal	1 ... 6 Presets	Multifunction
2x6 LCD LCD display	Multicolour display	POSITION Position display	Batch Batch counter	Σ Totaliser					

Multifunction

- Counter, tachometer and timer in one device
- Can be used as a preset counter, batch counter or totaliser (overall cumulative count)
- Presets: 923: 1, 924: 2, 924-4: 4, 924-6: 6
- Relay or optocoupler outputs
- Many different count modes for pulse inputs, time and frequency
- Scalable input using multiplication and division factor
- Set value
- Averaging, start delay (tachometer)
- Step or tracking presets (eliminate the need for reprogramming of the pre-signal)
- Multi-range power supply

Fast and user-friendly

- Direct input of the presets via the front keys or via the Teach-In input
- Fast installation thanks to plug-in screw terminals
- Max. count frequency 60 kHz
- Simultaneous display of the actual value and the presets, batch count or total count
- Annunciators for the displayed preset and for the output status
- 3 predefined parameter settings
- Direct entry into the programming
- Minimal installation depth
- 4-stage RESET modes
- 3-stage key lockout
- Multicolour display for improved differentiation

Order Code

6.92 X . 0 1 X X . X X X
a b c d e f

a Number of presets

- 3 = 1 preset
- 4 = 2, 4 or 6 presets

b Output

- 0 = relays
- 1 = optocouplers (only a = 4)¹⁾

c LCD options

- 0 = no backlighting
- 1 = green backlighting¹⁾
- 2 = LED look, negative, red backlighting¹⁾
- 3 = multicolour, negative red/green backlighting

d Power supply

- 0 = 90 ... 260 V AC
- 2 = 24 V AC ±10%
- 3 = 10 ... 30 V DC

e Input trigger level

- 0 = standard level (HTL)
- A = 4 ... 30 V DC level¹⁾

f Version

- 0 = standard 923/924
- B = 6 optocoupler outputs¹⁾
- 924-6 (only b = 1)
- C = 4 relay outputs¹⁾
- 924-4 (only b = 0)

Delivery specification

- Preset counter
- Mounting clip
- 8 pin screw terminal
- 7 pin screw terminal
- Operating instructions

Stock types

6.923.0100.000	6.924.0100.000
6.923.0100.300	6.924.0100.300
6.923.0101.000	6.924.0101.000
6.923.0101.300	6.924.0101.300
6.923.0102.000	6.924.0102.000
6.923.0102.300	6.924.0102.300
6.923.0103.000	6.924.0103.000
6.923.0103.300	6.924.0103.300
	6.924.0100.00C
	6.924.0100.30C
	6.924.0113.00B
	6.924.0113.30B

Additional inputs, outputs or interface types on request

1) 24 V AC on request

Preset counters, electronic

LCD preset counters Multifunction – pulse, frequency, time – 1...6 presets (AC+DC) Codix 923 / 924

Accessories			Order-No.
Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm with clip mounting for counters 48 x 48 mm	black	T008853
	Gasket 58 x 58 mm, for cut-out 50.2 x 50.2 mm		N511004
Adapter front bezel, 60 x 75 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm with screw mounting for counters 48 x 48 mm	black	T008860
	Gasket 60 x 75 mm for cut-out 50 x 50 mm		N511020
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm (Mating clip T009420 must be ordered separately)	black mating clip	T008177 T009420
Sealing cover type K2, IP65	Suitable for front bezel 75 x 60 mm with screw mounting	transparent/black	G008303
Transparent cover, IP65	For cut-out 50 x 50 mm, with screw mounting for counters with cut-out 45 x 45 mm and front bezel 48 x 48 mm	lockable	G008143
		key lockable	G008153
Mounting frame with cut-out 50 x 50 mm (via supplied Wisch adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003
Replacement parts			
8-pin connector	1 ... 8, pitch 3.81		N100498
7-pin connector	9 ... 15 (for 923 / 924), pitch 5.08		N100548u002
	9 ... 15 (for 924-4 / 924-6), pitch 5.08		N100400u002
5-pin connector	16 ... 20, pitch 3.81		N100399u002

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	2 line 2 x 6 digits LCD display
	Standard positive green with optional backlighting
	LED Look negative red backlighting
	Multicolour upper line negative, red backlighting lower line negative, red or green backlighting (programmable)
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C
Humidity	at +40°C RH 93% (non-condensing)
Altitude	up to 2000 m

Mechanical data	
Protection	IP65 (front side)
Weight	approx. 125 g

Electrical data		
Sensor power supply	AC (50/60 Hz)	90 ... 260 V AC, max. 9 VA 24 V AC ±10%, max. 6 VA
	DC	10 ... 30 V, max. 4.5 W
External fuse protection	90 ... 260 V AC	T 0.1 A
	24 V AC	T 0.315 A
	10 ... 30 V DC	T 0.2 A
Data retention		> 10 years, EEPROM
Input modes	Pulse counters:	Count direction (cnt.dir), Difference (up.dn), Addition A+B (up.up), phase discriminator x1, x2, x4 (quad, quad x2, quad x4), Ratio (A/B), Ratio in % ((A-B)/A x 100%)
		Frequency meter: A, A-B, A+B quad, A/B, (A-B)/A x 100%
	Timer:	4 Start modes: FrErun, Auto, InpA.InpB., InpB.InpB.
Sensor power supply	AC supply	24 V DC ±15%, 80 mA
	DC supply	max. 80 mA, external power supply is connected through
EMC	Emitted interference	EN55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN61010 part 1
	Protection class	2
	Application area	Pollution level 2
UL approval		File-No.: E128604

Preset counters, electronic

LCD preset counters Multifunction – pulse, frequency, time – 1...6 presets (AC+DC) Codix 923 / 924

Inputs			
Count inputs	A and B		
Polarity of the inputs	programmable for all inputs in common NPN/PNP		
Input resistance	5 kΩ		
Count frequency	max. 55 kHz (details see manual) can be damped to 30 Hz (mechanical contacts)		
Control / Reset input	MPI, Lock, Gate, Reset		
Min pulse duration of signal and control inputs	10 ms / 1 ms		
Switching levels with AC supply	HTL level:	LOW	0 ... 4 V DC
		HIGH	12 ... 30 V DC
	4 ... 30 V DC:	LOW	0 ... 2 V DC
		HIGH	3.5 ... 30 V DC
Switching levels with DC supply	HTL level:	LOW	0 ... 0.2 x U _B
		HIGH	0.6 x U _B ... 30 V DC
	4 ... 30 V DC:	LOW	0 ... 2 V DC
		HIGH	3.5 ... 30 V DC
Pulse shape	variable, Schmitt-Trigger characteristics		

Outputs	
Outputs relay version (output 1 not with 923)	
Switching voltage	max. 250 V AC / 110 V DC
Switching current	max. 3 A AC/DC min. 30 mA DC
Switching capacity	max. 750 VA / 90 W
Output 1 (Relay closing contact, programmable as normally open (NO) or normally closed (NC))	
Mech. service life (switching cycles)	2 x 10 ⁷
N° of switching cycles at 3 A / 250 V AC	1 x 10 ⁵
N° of switching cycles at 3 A / 30 V DC	1 x 10 ⁵
Output 2 (Relay with changeover contact)	
Mech. service life (switching cycles)	2 x 10 ⁷
N° of switching cycles at 3 A / 250 V AC	5 x 10 ⁴
N° of switching cycles at 3 A / 30 V DC	5 x 10 ⁴
Outputs optocoupler version	
Output 1 and 2 (npn optocoupler) switching power	
U _{CESAT} at IC = 10 mA	30 V DC / 10 mA
U _{CESAT} at IC = 5 mA	max. 2.0 V max. 0.4 V
Reaction time of the outputs (pulse / time)	relay approx. 13 ms optocoupler approx. 1 ms Details see instruction manual
Response time of the frequency meter	100/600 ms Details see instruction manual

Codix 924-4 and 924-6

The preset counters 924-4 and 924-6 vary from the standard counters 923 and 924 as follows:

- Relay version: 924-4, 4 presets, 2 additional relays
- Optocoupler version: 924-6: 6 presets, 4 additional optocoupler outputs
- No tracking presets
- Presets 1 and 4 affect the batch or total counter
- Presets 2, 3, 5 and 6 (Type: 924-6) or presets 2 and 3 (Type 924-4) affect the main counter
- Preset 2 is the main preset; it triggers the automatic reset
- Preset 2 is likewise the main preset for all further counting modes (the other presets are pre-signals)

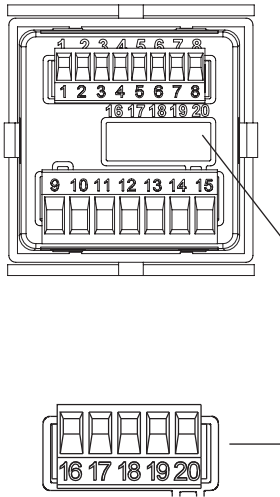
Additional technical data Codix 924-4	
Output 3	
Relay with closing contact (programmable as normally closed NC or normally open NO)	
Switching voltage	max. 125 V AC / 110 V DC
Switching current	max. 1 A AC / 1 A DC min. 1 mA AC/DC
Switching capacity	max. 62.5 VA / 30 W
Mech. service life (switching cycles)	5 x 10 ⁷
N° of switching cycles at 0.5 A / 125 V AC	1 x 10 ⁵
N° of switching cycles at 1 A / 30 V DC	1 x 10 ⁵
Output 4	
Relay with changeover contact	
Switching voltage	max. 125 V AC / 110 V DC
Switching current	max. 1 A AC / 1 A DC min. 1 mA AC/DC
Switching capacity	max. 62.5 VA / 30 W
Mech. service life (switching cycles)	5 x 10 ⁷
N° of switching cycles at 1 A / 110 V AC	1x10 ⁵
N° of switching cycles at 1 A / 30 V DC	1x10 ⁵
Reaction time of the outputs, Relay	< 7 ms (only impulse and time counter)
Max. count frequency	50 kHz

Additional technical data Codix 924-6	
Output 1 ... 6	
NPN optocouplers	
Switching capacity	30 V DC / 10 mA
U _{CESAT} at IC = 10 mA	max. 2.0 V
U _{CESAT} at IC = 5 mA	max. 0.4 V
output 3, 4, 5 and 6 with common emitter	
Reaction time of the outputs, optocouplers (only impulse and time counter)	
Add/Sub/	< 1 ms
with auto repeat	< 1 ms
A/B; (A-B)/A	< 23 ms
Max. count frequency	50 kHz

Preset counters, electronic

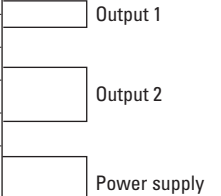
LCD preset counters **Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)** **Codix 923 / 924**

Terminal assignment



Pin	Signal and control inputs
1	Sensor power supply AC: 24 V DC / 80 mA DC: U _B interconnected
2	GND (0 V DC)
3	INP A (Signal input A)
4	INP B (Signal input B)
5	RESET (Reset input)
6	LOCK (Key locking input)
7	GATE (Gate input)
8	MPI (User input)

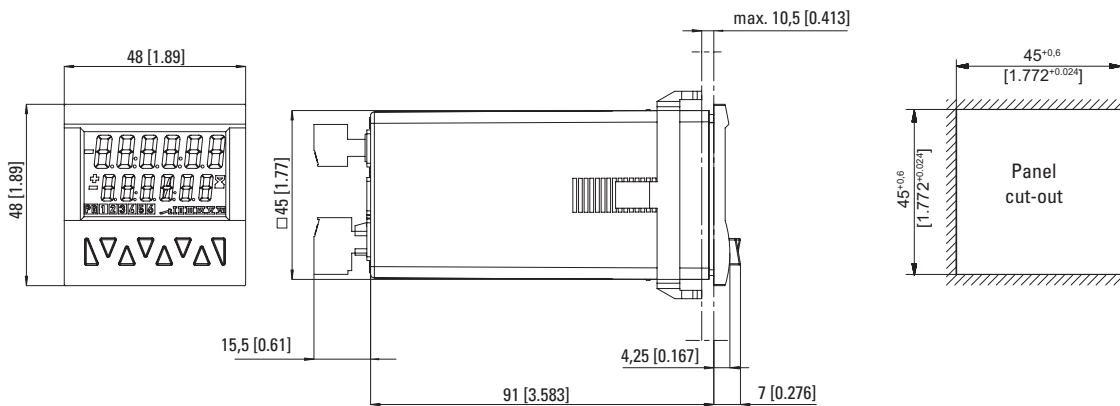
Pin	Version with relays/optocouplers
9	Relay contact C. / Kollektor
10	Relay contact N.O. / Emitter
11	Relay contact C. / Emitter
12	Relay contact N.O. / not assigned
13	Relay contact N.C. / Collector
14	AC: 24 V AC, 90 ... 260 V AC N~ DC: 10 ... 30 V DC
15	AC: 24 V AC, 90 ... 260 V AC L~ DC: GND (0 VDC)



Pin	Additional connections 924-4
16	Relay contact N.C.4 output 4
17	Relay contact C.4 output 4
18	Relay contact N.O.4 output 4
19	Relay contact N.O.3 output 3
20	Relay contact C.3 output 3

Pin	Additional connections 924-6
16	Common-Emitter output 3 to 6
17	Collector 6 output 6
18	Collector 5 output 5
19	Collector 4 output 4
20	Collector 3 output 3

Dimensions



Preset counters, electronic

LCD preset counters

Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)

Codix 923 / 924

Pulse counter

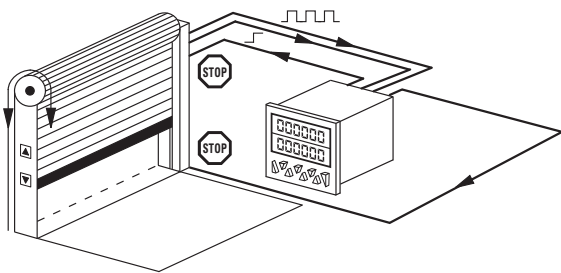
Functions / count modes:

- Count with direction mode
- Difference mode
- Quadrature mode quad/quad2/quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Percentage difference measurement $(A-B)/A \times 100\%$
- Batch counting
- Totaliser (overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

Application examples

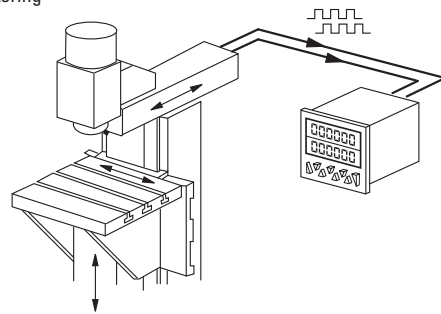
CountDir + Add

Roller shutter door with automatic shut-off



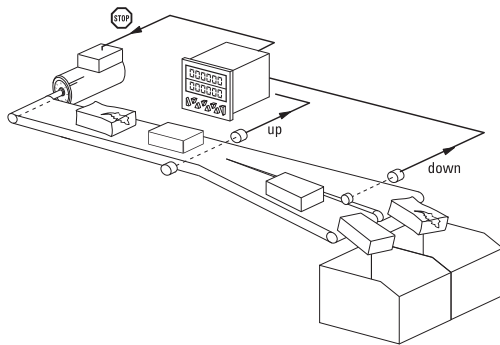
Quad + Add

Running direction and position on milling machines, Limit switch monitoring



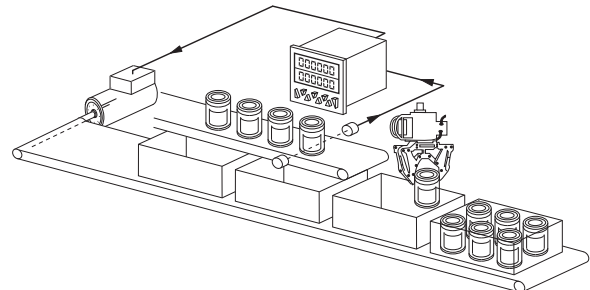
UpDown + Add

Automatic subtraction of faulty or reject parts from the total piece count



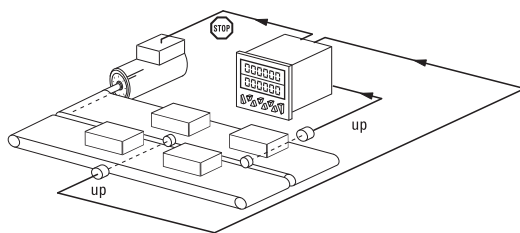
CountDir + Batch

Logging of piece numbers and packing units plus control of replenishment of packing cartons



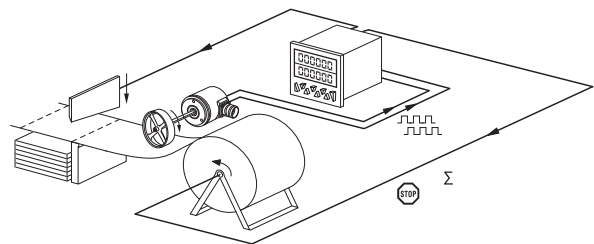
UpUp + Add

Adding up of two parallel or staggered production lines



Quad + Add tot

Cut-to-length with overall total count and control of the machine



Preset counters, electronic

LCD preset counters **Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)** **Codix 923 / 924**

Frequency meter (tachometer)

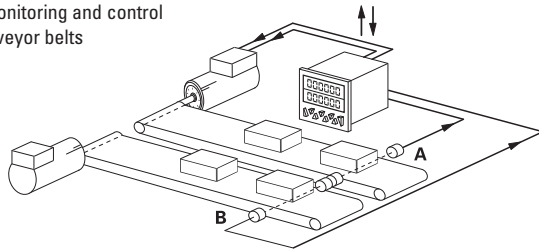
Functions / count modes:

- A
- A – B
- A + B
- A / B
- (A – B) / A x 100 % (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tacho input
- Gate input
- Multiplication and division factor (up to 99.9999)

Application examples

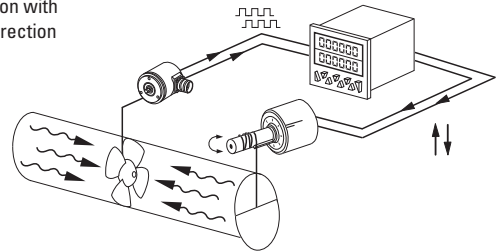
A – B

Synchro monitoring and control of two conveyor belts



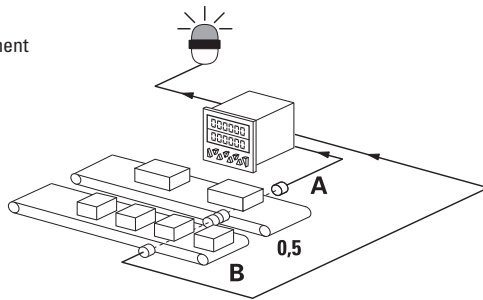
Quad

Speed regulation with indication of direction



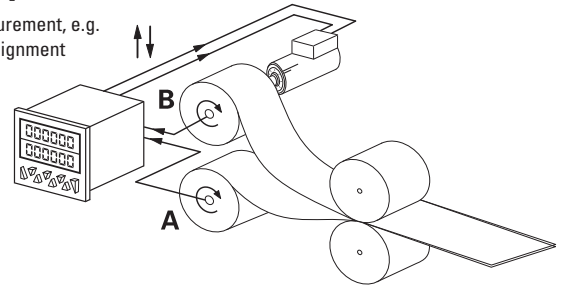
A/B

Ratio measurement



(A-B)/A [%]

Ratio measurement, e.g. for speed alignment



Time and Hours-run meter (timer)

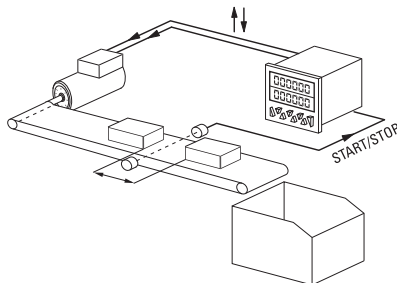
Functions / Count modes:

- FrErUn (control via gate input)
- Auto (start via reset, stop at preset)
- InpB.InpB (start with first edge at InpB., stop with second edge InpB.)
- InpA. InpB (start with InpA., stop with InpB.)
- Totaliser (overall total)
- Batch counting
- Set value
- Step or tracking preset

Application examples

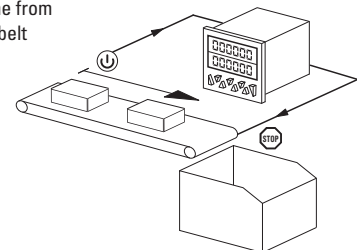
InpB. InpB

Interval measurement



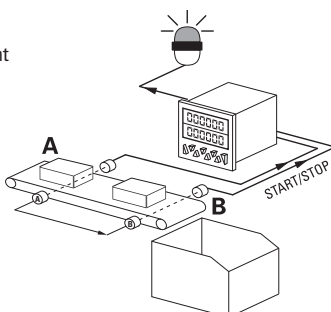
FrErUn

Measurement of overall time from switching on the conveyor belt till switching off



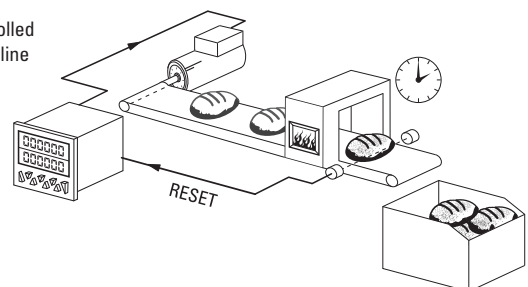
InpA. InpB

Run-time measurement



Auto

Time-controlled production line



Preset counters, electronic

LCD preset counters	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924
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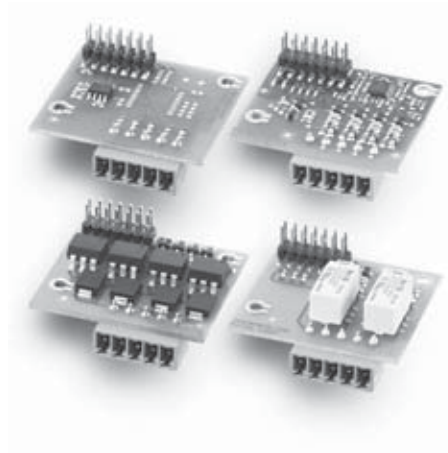
Expandable hardware

Expandable on request via modules:

- 4 additional inputs
- Or 4 additional optocoupler outputs
- Or 2 additional relay outputs
- Or RS232/485 communications interfaces

Application examples

- Limit switch monitoring
- Special functions/PLC function
- Initiation of fixed program sequences
- Control of several processes
- Special protocols
- Print commands for logging



Customisable software

Individual customisation of software to your application.

For example:

- Separate inputs for total counter and preset counter
- Separate scaling of input A and B
- Programmable measuring period for the tachometer
- Measurement of rotary speeds based on time
- Processing time, measurement of time based on frequency
- With the Multicolour version, the display colour changes when reaching the preset, or blinking display with all versions



Preset counters, electronic

LED preset counters	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)
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The Codix 716 / 717 can be used universally. These preset pulse counters, tachometers or preset timers with up to 2 presets can solve a wide variety of control and monitoring tasks in every application.

With their LED display the counters are very easy to read and simple to programme by means of cursor keys.

Available with optional interfaces or as Ex-proof version.



Preset counters

DC 10 ... 30 V Power supply	AC 90 ... 260 V Power supply	Multifunction Frequency/Hz	IP65 High protection level	max. 20 kHz High count frequency	1 or 2 Presets	PNP/NPN Type of input	-10° + 50° Temperature range	DIN 48 x 48 DIN front bezel	Plug-in screw terminal	6 LED LED display
RS 232 485 422 Interface	Ex Ex protection									

Multifunction

- Counter, tachometer and timer in one device
- 716: 1 preset, 717: 2 presets
- Relay or optocoupler outputs
- Many different count modes for pulse inputs, time and frequency
- Scalable display using multiplication factor 0.0001-99.9999
- Multi-range power supply 90 ... 260 V AC, 10 ... 30 V DC
- Ex-proof version available
- Option: with serial interface RS232, RS422, RS485

Fast and user-friendly

- Direct input of the presets via 4 large front keys
- Fast installation thanks to plug-in screw terminals
- Max. count frequency 20 kHz
- LED annunciators for the displayed preset and for the output status
- Minimal installation depth
- Adding or subtracting counting, also with automatic reset
- Key lockout

Order code 6.71X.01X.XXX.Ex

a b c d e

a Numbers of presets

- 6 = 1 preset ¹⁾
- 7 = 2 presets ¹⁾

b Outputs

- 0 = relays ¹⁾
- 1 = optocoupler

c Power supply

- 0 = 90 ... 260 V AC ¹⁾
- 3 = 10 ... 30 V DC ¹⁾
- 5 V input level: order code: 7.XXX.01X.XXX.9382

d Interface

- 00 = none ¹⁾
- 05 = RS232
- 06 = RS422
- 07 = RS485

e Optional

(only for **a** = 7, **b** = 0, **d** = 00)
Ex-proof housing acc. to explosion-proof class EEx D IIC T6 with encapsulated cable 2 x 3 m, various mounting parts, PTB approval certificate

Delivery specification

- Counter 716 / 717
- 1 screw terminal 7 pin, RM 5.08
- 1 screw terminal 7 pin, RM 3.81
- 1 front bezel for screw mounting, panel cut-out 50 x 50 mm (T008860)
- 1 front bezel for clip mounting, panel cut-out 50 x 50 mm (T008853)
- 1 mounting clip
- 1 template for cut-out
- 1 operating instruction

1) Stock types

Preset counters, electronic

LED preset counters		Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)
Accessories			Order-No.
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm (Mating clip T009420 must be ordered separately)	black mating clip	T008177 T009420
Adapter front bezel, ø 72 mm	For cut-out ø 60 mm to cut-out 45 x 45 mm with clip mounting for counters 48 x 48 mm	black	N510226
Sealing cover type K2, IP65	Suitable for front bezel 75 x 60 mm with screw mounting	transparent/black	G008303
Transparent cover, IP65	For cut-out 50 x 50 mm, with screw mounting for counters with cut-out 45 x 45 mm and front bezel 48 x 48 mm	lockable key lockable	G008143 G008153
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003
Replacement parts			
7-pin connector	1 ... 7, pitch 5.08		N100548
7-pin connector	1 ... 7, pitch 3.81		N100387
5-pin connector	1 ... 5, pitch 3.81		N100399

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Operating temperature	-10°C ... +50°C (non-condensing)
Storage temperature	-25°C ... +75°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, max. 1.2 W with reverse polarity protection and galvanic isolation 90 ... 260 V AC, max. 9 VA
Data retention	min. 10 years or 10 ⁶ memory cycles
Sensor power supply	24 V DC -40%/+15 %, 100 mA for AC version
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Protection	IP65 (front side) Ex version IP54
Weight	ca. 200 g Ex version 2 kg
Only for Ex-proof	
<ul style="list-style-type: none"> - Counter in Ex-proof version acc. to explosion-proof class EEx D IIC T6 - Encapsulated cable 2 x 3 m - PTB approval no. Ex-96.D. 1024 - Hardcoated AL-housing - Function mode as type 717 - Additional fuse / 0.1 A 	

Inputs	
Counting inputs	2 counting inputs, 4 types of programmable inputs
Polarity of the inputs	programmable, common for all inputs
Input resistance	approx. 10 kΩ
Counting frequency	20 kHz, can be reduced during set-up to to 30 Hz
Minimum pulse duration for control inputs	5 ms
Switching level DC	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Switching level AC	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
Pulse shape	any shape (Schmitt-Trigger)

Outputs	
Output 1	Relay with potential-free contacts, programmable as normally-closed (NC) or normally-open (NO) switching voltage max. 250 V AC/125 V DC switching current max. 3 A switching current at DC min. 30 mA switching power at DC 90 W switching power at AC max. 750 VA or npn-optocoupler with open collector and emitter switching power 30 V DC/15 mA
Output 2	Relay with potential free switching contact, programmable opening or closing switching voltage max. 250 V AC/300 V DC switching current max. 3 A switching current at DC min. 30 mA switching power at DC 50 W switching power at AC max. 2000 VA or npn-optocoupler with open collector and emitter switching power 30 V DC/15 mA
Accuracy	with frequency meter mode <0.1 % with timer / hour meter counter mode ±50 ppm
Output response time	relay approx. 7 ms optocoupler approx. 2 ms

Inputs

2 counting inputs

The maximum frequency is 20 kHz (20 kHz in the phase discriminator mode); it can be reduced to 30 Hz.

Gate

Static gate input
 Pulse count mode: no counting, when the input is active
 Timer mode: counting when active gate.lo or not activated gate.hi programmable

Reset

Dynamic reset input with the same function as the reset key. Resets the counter to zero, when counting up and sets it to the preset value when counting down

Key

Static key lock input. The keys are locked as long as this input is on. The preselection display key "P" remains active.

Interfaces

The devices can be fitted with the optional RS232, RS422 or with the RS485 interfaces. These interfaces can be used to program the devices as well as for remote reading. They are simply controlled by ESC sequences, max. 4800 Baud

Programming

The programming of the counter is carried out via 4 keys. The user interface is menu-driven and is shown on the display. The devices can be used as:

- Preset pulse counters
- Tachometers
- Preset timers

The following functions can be programmed:

Input polarity

Positive (PNP) or negative (NPN). The selection is valid for all inputs.

Pulse or time counting modes

- adding with counting; start at 0
- subtracting with counting start at the preset (716) and at preselection 2 (717)
- adding with automatic reset when the preset (716) or the preset 2 (717) is reached
- subtracting with automatic positioning at the preset (716) or preset 2 (717) when 0 is reached

Input types in pulse counter mode:

Cnt.Dir 1	1 counting input 1 counting direction input
uP.dn	Differential counting - 1 adding input - 1 subtracting input
quad	Phase discriminator to connect encoders with 2 signals shifted by 90°
quad2	Phase discriminator with double pulse processing, to connect pulse sources with 2 signals shifted by 90°

Decimal places

Data can be displayed without, with one, two or three decimal places.

Factor

For an optimum matching of the measuring signal, the displayed values can be weighted by a scale factor between 0.0001 and 99.9999.

Output signal

The function of the output signal can be preselected (independently for both outputs of model 717) as a normally closed, normally open or a negative pulse signal.

Maximum counting frequency

The maximum counting frequency can be set to 30 Hz or 20 kHz.

Timer

Counting can be carried out in h, min, s or in h:min:s. The number of decimal places determines the resolution. A resolution up to the ms-range can be achieved.

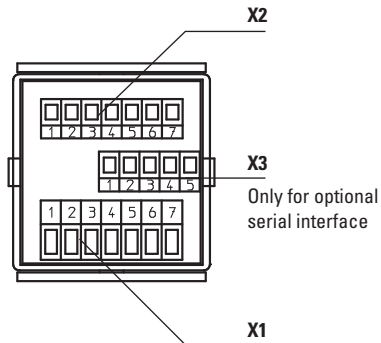
Preset counters, electronic

LED preset counters

Multifunction – pulse, frequency, time (AC+DC)

Codix 716 / 717 (Ex)

Terminal assignment



Pin	Connection X1		
1	Output 1	Relay	Collector for optocoupler output
2	Output 1	Relay	Emitter for optocoupler output
3	Output 2	Relay common contact (C)	Emitter for optocoupler output
4	Output 2	Relay closing contact (NO)	n.c.
5	Output 2	Relay opening contact (NC)	Collector for optocoupler output
6	Power supply	<i>AC version</i> 90 ... 260 V AC	<i>DC version</i> 10 ... 30 V DC
7	Power supply	90 ... 260 V AC	0 V DC (GND)

Pin	Connection X2		
1	Sensor power supply	<i>AC version</i> +24 V DC	<i>DC version</i> n.c.
2	0 V DC (GND)	0 V DC (GND)	n.c.
3	INP A count input A		
4	INP B count input B		
5	Reset input		
6	Gate input		
7	Input for key lock		

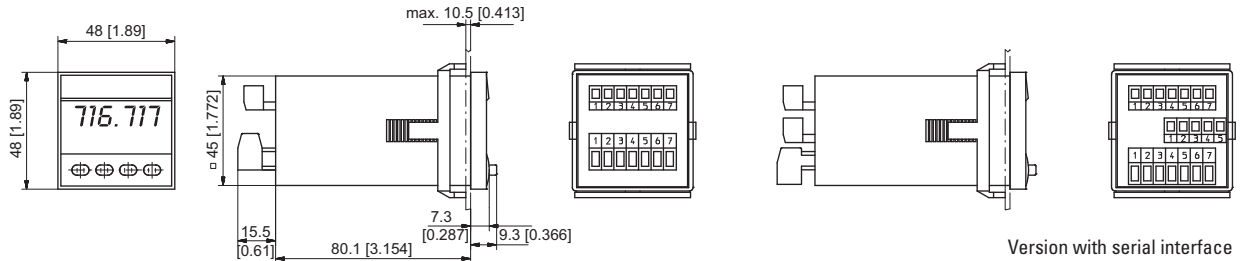
Pin	Connection X3		
	<i>RS232</i>	<i>RS422</i>	<i>RS485</i>
1	GND	–	–
2	RxD	RI+	DO/RI+
3	TxD	RI-	DO/RI-
4	RTS	DO+	–
5	CTS	DO-	–

Preset counters, electronic

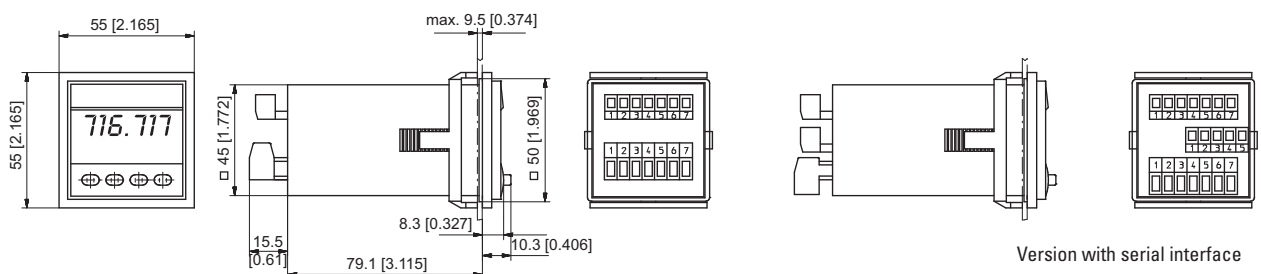
LED preset counters	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)
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Dimensions

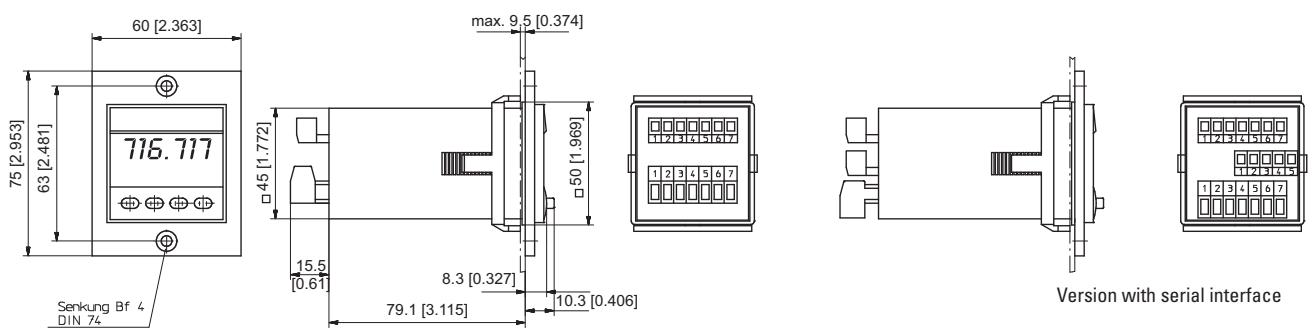
Panel cut-out 45 x 45 mm



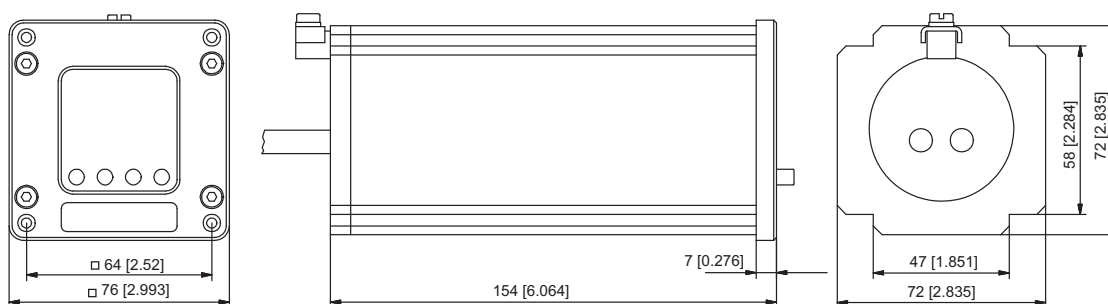
With front bezel 50 x 50 mm, panel cut-out 50 x 50 mm



With front bezel 60 x 75 mm, panel cut-out 50 x 50 mm



Ex version



Dimensions in mm [inch]

Preset counters

Preset counters, electronic

LED preset counters **Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)** **Codix 560**



With its automatic help texts, clearly and legibly displayed on 14 LED segments, the Codix 560 preset counter takes the user effortlessly through the programming. The large user-friendly front keys can be operated even when wearing gloves.

The 14 mm high LED display ensures easy reading even from a long distance and in poor lighting conditions.

New: now available also with RS232/485 interface and MODBUS and CR/LF protocol

DC 10 ... 30V Power supply	AC 90 ... 260V Power supply	-20° + 65° Temperature range	000000 DIN 96 x 48	PROG Menu-driven programming	IP65 High protection level	max. 60 kHz High count frequency	Hz Multifunction	t/Hz Frequency display with HRA	POSITION Position display	A..Z* 14 segment LEDs
Batch Batch counter	Σ Total counter	RS Optional interface								

Multifunction

- Counter, tachometer, timer and position display in one device
- Can be used as preset counter, batch counter or total counter
- 2 relays (change-over)
- Many different count modes
- Scalable display
- Set value, step or tracking preset
- Multi-range power supply for AC or DC
- Readable or configurable via RS232/485 interface via MODBUS or CR/LF protocol
- Allows direct connection of a large display or printer

User-friendly

- Automatic help texts, displayed in German and English
- 14-segment LED for improved text representation
- Status display of the presets
- 3 predefined parameters
- Tracking presets eliminate the need for reprogramming of the pre-signal
- Minimum installation depth
- 4-stage RESET modes
- 3-stage keypad locking
- Suitable for installation in mosaic systems

Order Code **6.560 . 010 . XXX**

a Power supply 0 = 90 ... 260 V AC ¹⁾ 3 = 10 ... 30 V DC ¹⁾	b Input trigger levels 0 = Standard level (HTL) ¹⁾ A = 4...30 V DC level	c Interface (optional) 0 = None 5 = RS232 (MODBUS or CR/LF) 7 = RS485 (MODBUS or CR/LF)	Delivery specification - Preset counter - Mounting clip - Instruction manual
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Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Preset counters, electronic

LED preset counters Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC) Codix 560

General technical data	
Display	6-digit red 14 segment LED display, 14 mm high
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C
Relative humidity	at +40°C RH 93% (non-condensing)
Altitude	up to 2000 m

Electrical characteristics	
Power supply	AC 90 ... 260 V AC max. 11 VA, 50/60 Hz DC 10 ... 30 V, max. 5.5 W
External fuse protection	230 V AC T 0.1 A 10 ... 30 V DC T 0.25 A
Data retention	> 10 years, EEPROM
Response time of the frequency meter	100 / 600 ms (details s. instruction manual)
Input modes	Pulse counters: Count direction (cnt.dir), Difference (up.dn), Addition A+B (up.up), phase discriminator x1, x2, x4 (quad, quad x2, quad x4), Ratio (A/B), Ratio in % ((A-B)/A x100%) Frequency meter: A, A-B, A+B quad, A/B, (A-B)/A x 100% Timer: 4 start modes: FrErun, Auto, InpA.InpB., InpB.InpB.
Sensor power supply	AC supply 24 V DC ± 15%, 80 mA DC supply max. 80 mA, external power supply is connected through
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

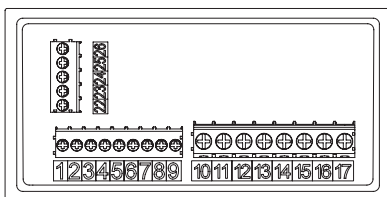
Mechanical data	
Protection	IP65 (from the front)
Weight	approx. 180 g

Inputs	
Count inputs	A and B
Polarity of the inputs	programmable for all inputs in common, NPN/PNP
Input resistance	5 kΩ
Count frequency	max. 55 kHz can be damped to 30 Hz (mechanical contacts) (details s. instruction manual)
Control / Reset input	MPI 1 and MPI 2, Lock, Gate, Reset
Min pulse duration of the inputs	10 ms / 1 ms
Switching levels with AC supply	HTL-level: LOW: 0 ... 4 V DC HIGH: 12 ... 30 V DC 4 ... 30 V DC: LOW: 0 ... 2 V DC HIGH: 3.5 ... 30 V DC
Switching levels with DC supply	HTL-level: LOW: 0 ... 0.2 x UB HIGH: 0.6 x UB ... 30 V DC 4 ... 30 V DC: LOW: 0 ... 2 V DC HIGH: 3.5 ... 30 V DC
Pulse shape	variable, Schmitt-Trigger characteristics

Outputs	
Switching voltage	max. 250 V AC / 150 V DC
Switching current	max. 3 A AC / DC min. 30 mA DC
Switching capacity	max. 750 VA / 90 W
Output 1 + 2	Mech. service life (switching cycles) 2 x 10 ⁷ N° of switching cycles at 3 A / 250 V AC 5 x 10 ⁴ N° of switching cycles at 3 A / 30 V DC 5 x 10 ⁴ Relay with changeover contact
Reaction time of the outputs (pulse / time)	13 ms (details s. instruction manual)

Optional interface MODBUS and CR/LF	
Count frequency	max. 45 kHz (details s. instruction manual)
Interface	RS232, RS485
Baud rate	9600
Device address	1 ... 99, programmable

Terminal assignment



Pin	RS232 (optional)	Pin	RS485 (optional)
22	GND	22	–
23	RXD	23	DO
24	TXD	24	DI
25	–	25	–
26	–	26	–

Pin	Signal and control inputs
1	INP A (Signal input A)
2	INP B (Signal input B)
3	RESET (Reset input)
4	LOCK (Keypad lock)
5	GATE (Gate input)
6	MPI 1 (User input 1)
7	MPI 2 (User input 2)
8	Sensor power supply AC: 24 V DC/80 mA DC: U _B connected through
9	Shared connection for signal and control inputs GND (0 VDC)

Pin	Version with relay/optocoupler	
10	Relay contact C.2	Output 2
11	Relay contact N.O.2	
12	Relay contact N.C.2	Output 1
13	Relay contact C.1	
14	Relay contact N.O.1	Power supply
15	Relay contact N.C.1	
16	AC: 90..260 V AC N~ DC: 10 ... 30 V DC	
17	AC: 90..260 V AC L~ DC: GND (0 V DC)	

Preset counters, electronic

LED preset counters

Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)

Codix 560

Pulse counter

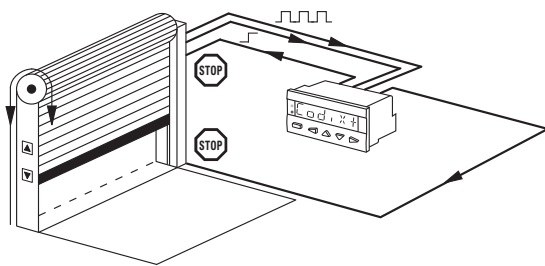
Functions / count modes

- Count with direction mode
- Difference mode
- Quadrature mode quad / quad2 / quad4
- Add, Sub, automatic reset
- 2-input adding mode A+B
- Ratio measurement A/B
- Multi-range power supply for AC or DC
- Percentage difference measurement $(A-B)/A \times 100\%$
- Batch counting
- Totaliser (Overall total)
- Multiplication and division factor (up to 99.9999)
- Set value
- Step or tracking preset

Application examples

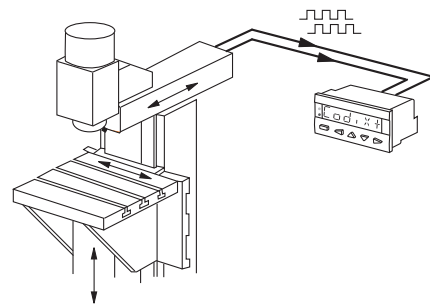
CountDir + Add

Roller shutter door with automatic shut-off



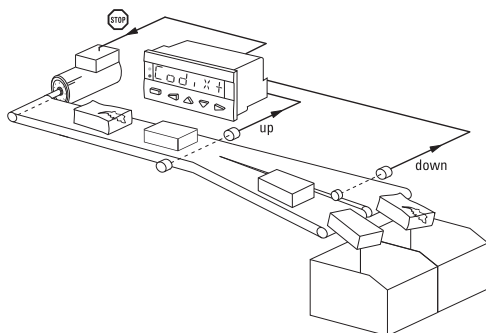
Quad + Add

Running direction and position on milling machines, Limit switch monitoring



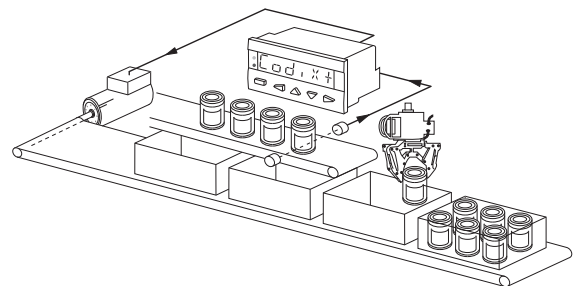
UpDown + Add

Automatic subtraction of faulty or reject parts from the total piece count



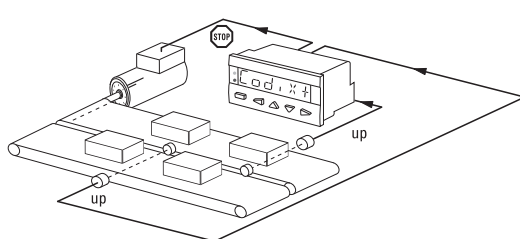
CountDir + Batch

Logging of piece numbers and packing units plus control of replenishment of packing cartons



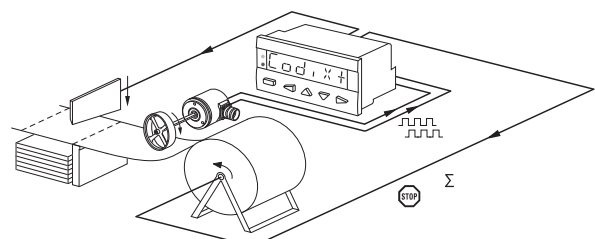
UpUp + Add

Adding up of two parallel or staggered production lines



Quad + Add tot

Cut-to-length with overall total count and control of the machine



Preset counters, electronic

LED preset counters **Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)** **Codix 560**

Frequency meter (tachometer)

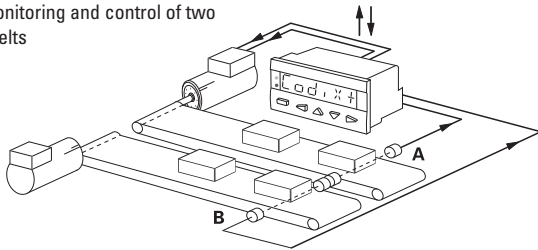
Functions / count modes

- A
- A – B
- A + B
- A / B
- $(A - B) / A \times 100\%$ (percentage display)
- Quad (phase discriminator with recognition of direction)
- Averaging
- Start delay
- 2nd tachometer input
- Gate input
- Multiplication and division factor (up to 99.9999)

Application examples

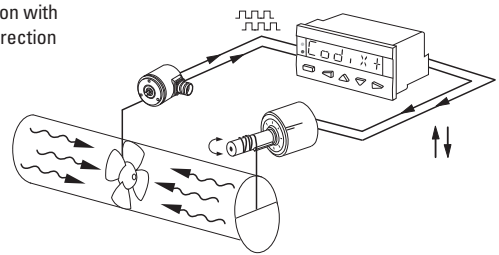
A – B

Synchro monitoring and control of two conveyor belts



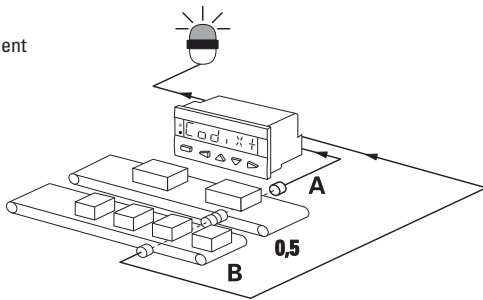
Quad

Speed regulation with indication of direction



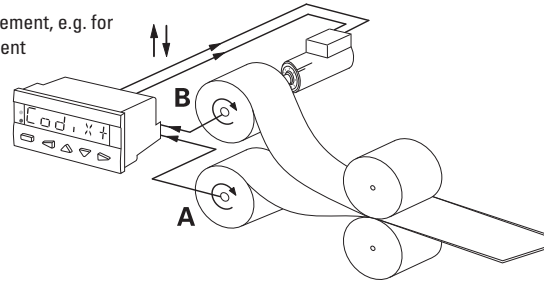
A/B

Ratio measurement



$(A-B)/A$ [%]

Ratio measurement, e.g. for speed alignment



Time and hours-run meter (timer)

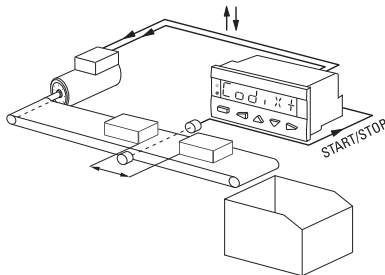
Functions / count modes

- FrErUn (control via gate input)
- Auto (start via reset, stop at preset)
- InpB.InpB (start with first edge at InpB., stop with second edge InpB.)
- InpA. InpB (start with InpA., stop with InpB.)
- Totaliser (overall total)
- Batch counting
- Set value
- Step or tracking preset

Application examples

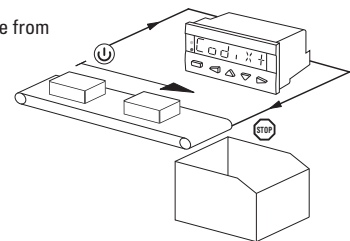
InpB. InpB

Interval measurement



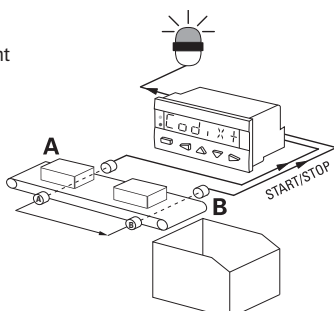
FrErUn

Measurement of overall time from switching on the conveyor belt till switching off



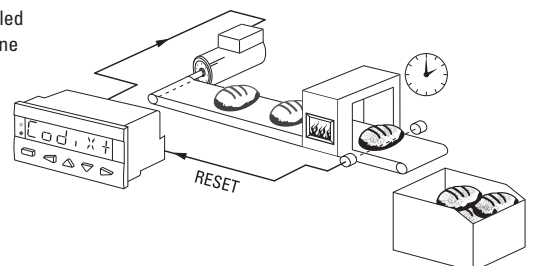
InpA. InpB

Run-time measurement



Auto

Time-controlled production line



Preset counters, electronic

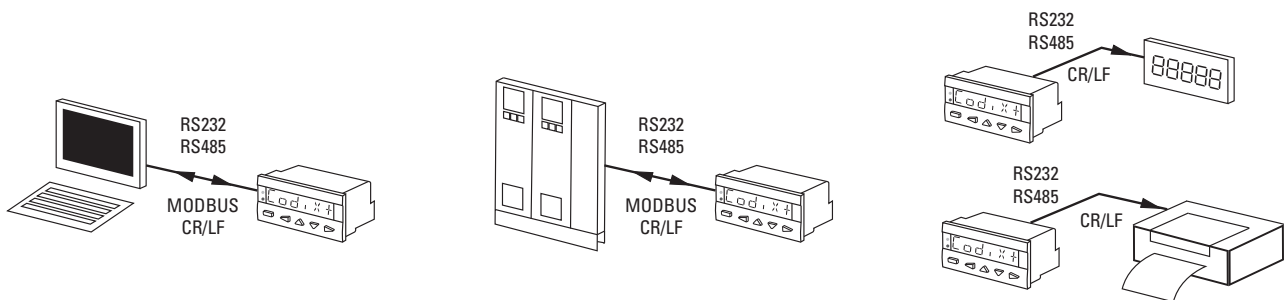
LED preset counters

Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)

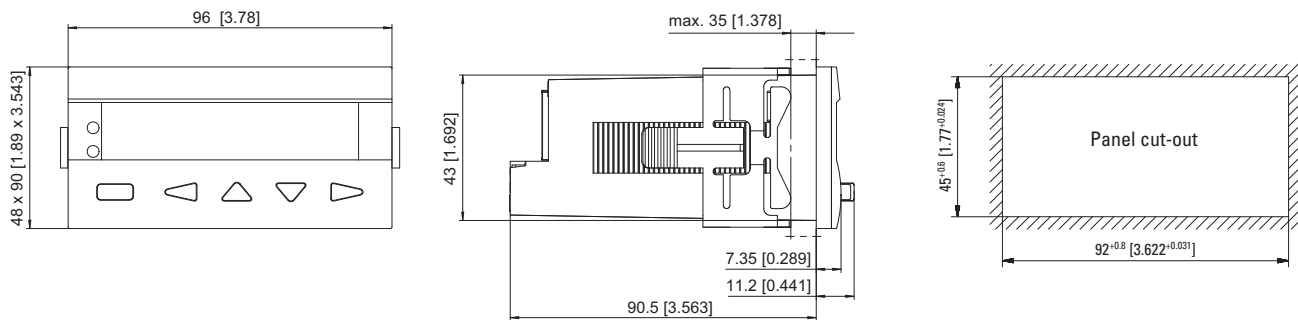
Codix 560

RS232 / RS485 interface (optional)

For connecting the counter to a PC, a PLC, a large display or a printer – for reading-out data or configuring the device.



Dimensions



Preset counters, electronic

LED preset counters Dual preset counters with 4 outputs and analogue output (AC+DC) **572**



Counter series for demanding applications with two individually scalable encoder inputs, each A, /A, B, /B, for count frequencies up to 1 MHz per channel.

Programmable operating modes include position or event counter, totaliser, difference counter, cut-to-length display, diameter calculation and many more.



Preset counters

AC/DC 24/17...30V	000000 DIN 96 x 48	IP65	max. 1 MHz			6/8 LED	DC OUT 5 / 24 V		4	RS232
Power supply	DIN front bezel	High protection level	2 inputs	Operation with gloves	TTL, HTL and RS422 input	LED display	2 x sensor power supply	Analogue output optional	Transistor output	Interface

Innovative

- 3 display values: counter 1, 2 as well as calculation-based display
- 2 separate freely scalable count inputs: HTL or TTL (also with inverted inputs) max. input frequency 1 MHz/channel
- Very bright LED display, 15 mm (6-digit) and 10 mm (8-digit) high
- 4 freely programmable fast solid-state outputs, each with 350 mA output current
- Step or tracking presets
- Simple programming – with function codes, dependent on the operating mode selected
- With 8 different fixed count functions, such as simple count, difference count and total count of both inputs, batch counter etc.

Compact and multifunctional

- One device caters for AC and DC power supplies
- Simple programming with 4 keys and programmable dual functions
- Can be used as counter or position display with limit values, where 2 values are monitored or calculated with respect to each other
- 4 fast, programmable inputs with various functions, such as reset, gate, display memory (store), reference input or switching between the display values
- Scalable analogue output 0/4 ... 20 mA, ±10 V or 0 ... 10 V
- RS232 interface as standard, for parameter setting, readout of values or for modifications during operation
- 2 auxiliary power supplies for sensors: 5.2 V DC and 24 V DC

Order specifications

4 fast switch outputs and serial interface (RS232)

- 6 digits
- 6 digits, scalable analogue outputs
- 8 digits
- 8 digits, scalable analogue outputs

Order-No.

- 6.572.0116.D05**
- 6.572.0116.D95**
- 6.572.0118.D05**
- 6.572.0118.D95**

Delivery specification

- Controller 572
- Gasket
- Fastening set
- Instruction manual German/English

Accessories

Order-No.

Mounting frame with cut-out 92 x 45 mm

For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

G300005



OS2 software for parameter setting

can be downloaded at www.kuebler.com

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Preset counters, electronic

LED preset counters Dual preset counters with 4 outputs and analogue output (AC+DC) **572**

General technical data		
Display	6 digits	LED display, 15 mm high
	8 digits	LED display, 10 mm high
Operating temperature	0°C ... +45°C (non-condensing)	
Storage temperature	-25°C ... +70°C	

Electrical characteristics		
Power supply	24 V AC, + 10% 24 (17 ... 30) V DC	
Current consumption DC	100 mA + current consumption encoder	
Connected load AC	15 VA	
Auxiliary power supply output for sensors	2 x 5.2 V DC, each 150 mA 2 x 24 V DC, each 120 mA	
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

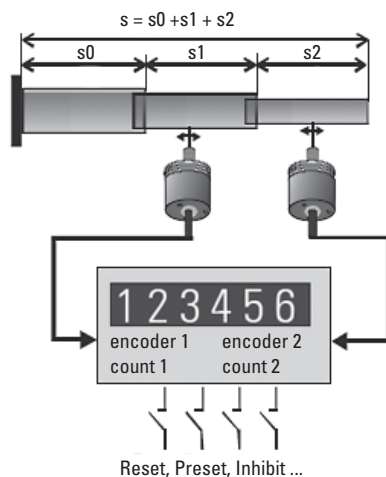
Mechanical characteristics		
Housing	Noryl UL94-V-0	
Screw terminal	Cable cross-section	max. 1.5 mm ²
Protection	IP65 (front side)	
Weight	approx. 250 g	

Inputs		
Universal incremental encoder inputs		
Count frequency	RS422 and TTL with Inv.	1 MHz
(per encoder)	HTL asymmetric	200 kHz
	TTL asymmetric	200 kHz
Control inputs HTL		
Ri (input resistor)		3.3 kOhm
Switching level	LOW	< 2.5 V
	HIGH	> 10 V
Min. pulse duration		50 µs

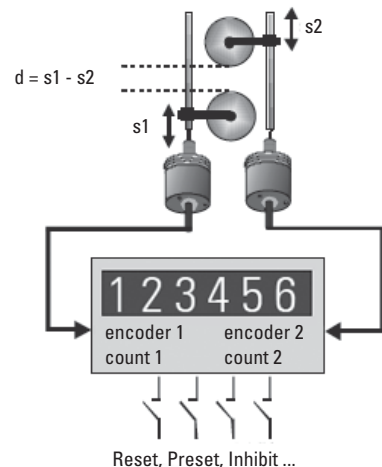
Outputs		
Switch outputs		
4 fast power transistors		5 ... 30 V DC, 350 mA
Reaction time		< 1 ms ¹⁾
Inductive loads require a freewheeling diode		
Serial interface		RS232, 2400 ... 38400 Baud
Analogue outputs		
Current		0 / 4 ... 20 mA
Load		max. 270 Ohm
Voltage		0 ... +10 V (max. 2 mA)
Resolution		14 bit
Precision		0.1 %
Reaction time		< 1 m

Application examples

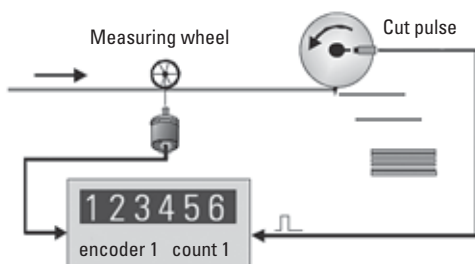
Total-Position display



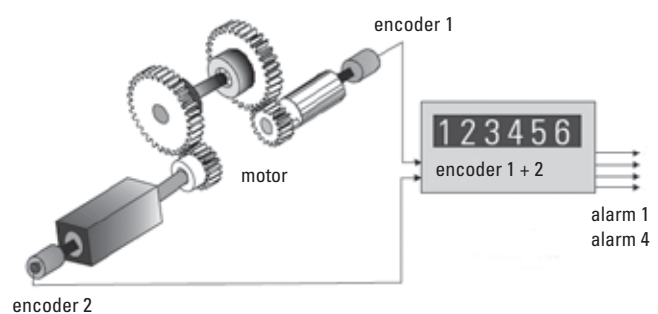
Difference-Position display



Measurement of the effective cut amount



Monitoring of torsion, shafts or gear breakage

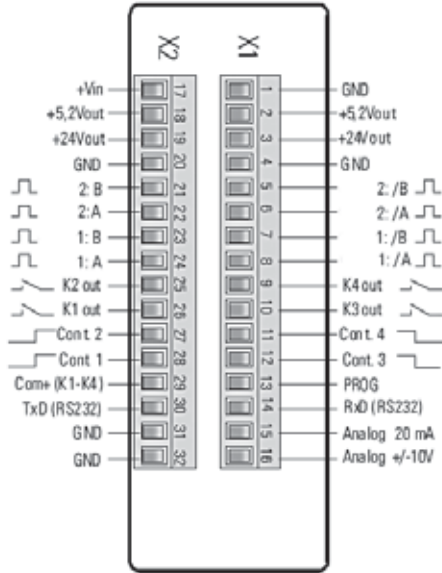


1) Intensive serial communication can temporarily prolong the reaction time

Preset counters, electronic

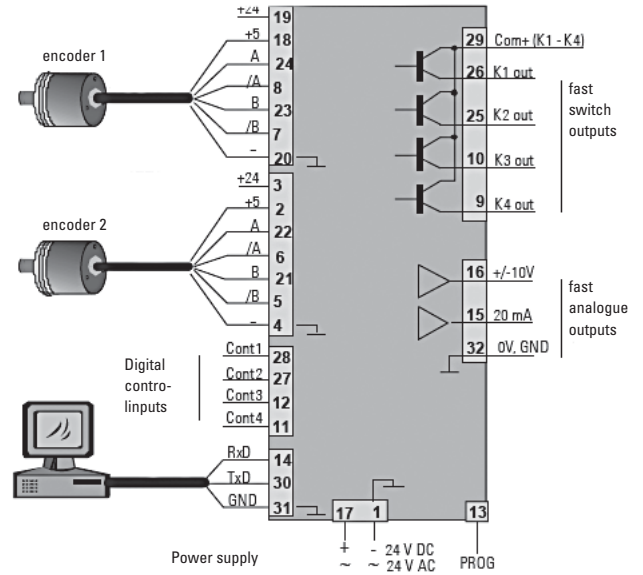
LED preset counters Dual preset counters with 4 outputs and analogue output (AC+DC) 572

Terminal assignment

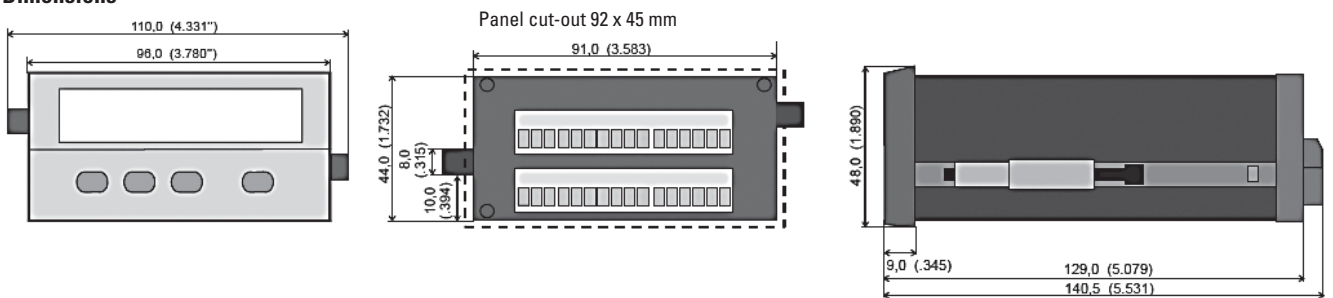


Connection examples

Example shows encoder with 5 V-supply and TTL / RS422-output



Dimensions



Preset counters, electromechanical

Standard counters

Adding, 5 digits (AC+DC)

BVa 15



The electromechanical preset counters BVa 15 (with manual reset) boast a robust construction. They are ideal for use in harsh industrial environments as stand-alone counters or as plug-in variants in combination with additional B, BVa, HB or HVa counters.

Display shows actual count and preset value.



Characteristics

- 3- or 5-digit adding preset counter with stationary preset value
- Manual reset to zero
- Potential free changeover contact (microswitch) on reaching the preset
- Contact remains switched till a zero reset occurs
- Counters without front bezel fit into bezel F2B and can be combined in RM 50 x 50 mm

Benefits

- Can be combined with counters of the B, BVa, HB and HVa series
- Count value and preset constantly visible
- Versions with transparent cover, sealing cover, zero reset key-lock

Applications

Piece counting, automation

Type series

Description

(Reset manual)

Without front bezel, plugs into socket box

Front bezel 1, mounting holes

Mounting clip

Front bezel 3, mounting holes

Further versions, fully assembled (on request)

Counter with lockable reset

Counter with transparent cover

Order-No.

BVa 15.01

BVa 15.11

BVa 15.21

BVa 15.31

Delivery specification

Counter complete with socket box

Order information

- Art.-No.

- For special voltages, please give type, voltage and series e.g.: BVa 15.31, 12 V DC ...

BVa 15.21 vs



Dv BVa 15.31 lockable



Dvs BVa 15.31 key lockable



Type / Counting mechanism

Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	3 W	48 %	-10°C ... +60°C
V AC	a	18 Hz	27.7 ms	27.7 ms	1 : 1	100 %	3 VA	-	-10°C ... +55°C

Preset counters, electromechanical

Standard counters	Adding, 5 digits (AC+DC)	BVa 15	Order-No.
Accessories			
Front bezel type F2B	For cut-out 54 x 54 mm, with screw mounting	beige	G007503
	for plug-in counters BVa 15.0x in socket box type 946.1	black	G007504
Socket box type 946.1	Für Zähler BVa 15.01, can be used for plug-in connections, in front bezel F2B	black	G008439
Sealing cover type K2, IP65	For front bezel 75 x 60 mm with screw mounting, for elektrom. counters and via adpter front bezel T008860 for counters 48 x 48 mm	grey	G008302
		black	G008303
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003
DIN rail mount SR 3	For snap-on mounting on 35 mm top-hat DIN rail		G300002
Replacement parts			
Transparent cover, IP65	Type 2 Dv, suitable for Dv BVa 15 and Dv HVa 15	lockable	G008141
	Type 2 Dvs, suitable for Dvs BVa 15 and Dvs HVa 15	key lockable	G008151
Key for key-locking zero reset			G050265

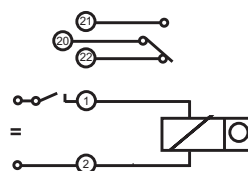
Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data			
Electrical connection	counter	tinned tabs ø 1.6 mm with push-on connectors	
	socket box	tinned plated tabs 0.8 x 2.8 mm	
Rated voltages	counting mechanism	12 / 24 / 48 / 115 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %	
Height of figures	counter	4.5 mm	
	preset	4 mm	
Colour of housing	grey	Art.-No. x.xxx.xx0.xxx	
	black	Art.-No. x.xxx.xx1.xxx	
Colour of figures	counter	white on black	
	preset	yellow on black	
Counting mechanism shaft		stainless steel	
Einbaulage		any	
Service life		approx. 100 x 10 ⁶ pulses	
Protection		IP40 (front side)	
Weight		approx. 130 g	
Test voltage		2000 V, effective	
Switching contact		1 change over contact (micro switch), release in 2nd half-step on the preset number	
Loading (max) (with resistive Load.)	AC	250 V AC	2.0 A
	DC	24 V DC	2.0 A
		60 V DC	0.7 A
		115 V DC	0.4 A
		230 V DC	0.2 A
Suitable spark quenching is required with inductive load, reducing the max. current to 60 %			

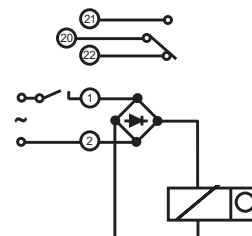
Options		
Key-locking zero reset	Housing grey	Art.-No.: 2.1X0.XX6.XXX
	Housing black	Art.-No.: 2.1X0.XX7.XXX
Lockable transparent cover (IP65)	Dv BVa counter with front bezel 3	Art.-No.: 2.1X0.7XX.XXX
Key lockable transparent cover (IP65)	Dvs BVa counter with front bezel 3	Art.-No.: 2.1X0.8XX.XXX
Flexible sealing cover K2 (IP54)	K2 BVa counter with front bezel 3	Art.-No.: 2.1X0.6XX.XXX
Screw terminal connection		Art.-No.: 2.XXX.XXX.XXX.023
Flat pin connection 2.8 x 0.8 mm (on request)		Art.-No.: 2.XX7.XXX.XXX

Connection diagrams

DC



AC



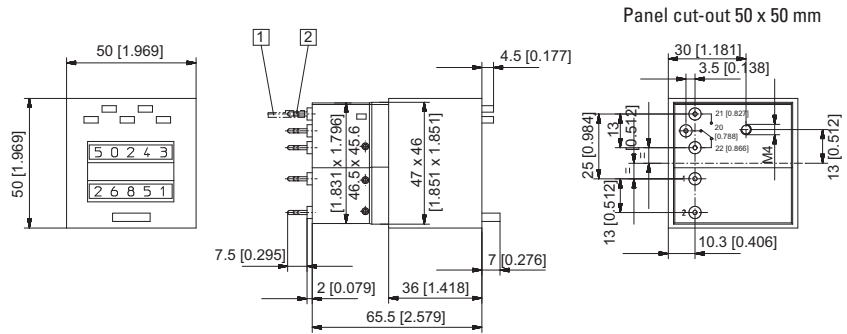
Preset counters, electromechanical

Standard counters

Adding, 5 digits (AC+DC)

BVa 15

Without front bezel,
plugs into socket box type 946.1
Type BVa 15.01

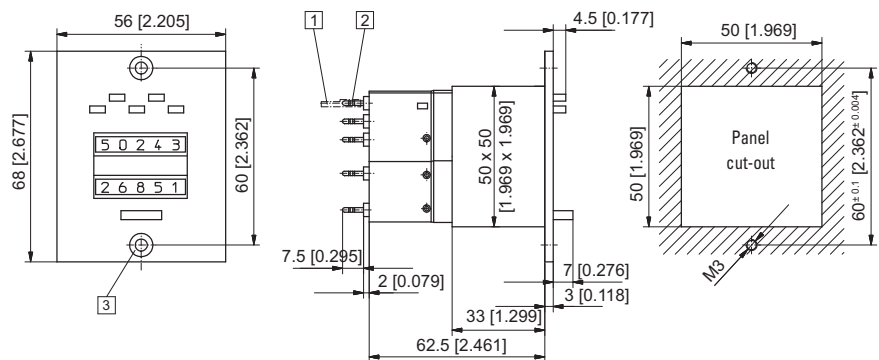


1] Push-on connector \varnothing 1.5 tinned 2] Round pin \varnothing 1.6 tinned
Colour of housing grey (standard)

Type	Voltage	Display	Art.-No.		
			24 V	115 V	230 V
BVa 15.01	DC (25 Hz)	5 digits	2.100.010.033	–	–
	AC (18 Hz)		2.100.010.061	2.100.010.064	2.100.010.066 ¹⁾

Colour of housing black: Art.-No. 2.1X0.011.XXX

Front bezel 1,
with mounting holes
Type BVa 15.11



1] Push-on connector \varnothing 1.5 tinned 2] Round pin \varnothing 1.6 tinned 3] Countersinking Af3 DIN 74
Colour of housing grey (standard)

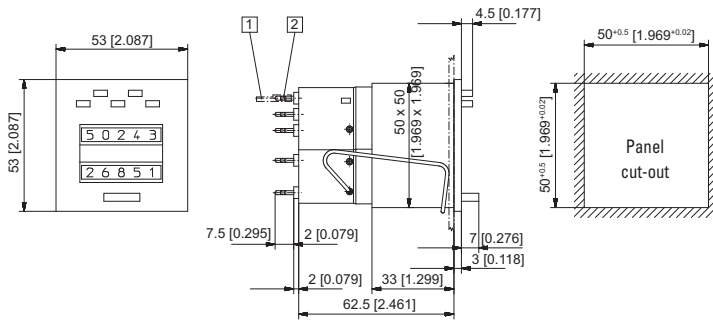
Type	Voltage	Display	Art.-No.		
			24 V	115 V	230 V
BVa 15.11	DC (25 Hz)	5 digits	2.100.110.033	–	–
	AC (18 Hz)		2.100.110.061	2.100.110.064	2.100.110.066 ¹⁾

Colour of housing black: Art.-No. 2.1X0.111.XXX

Preset counters, electromechanical

Standard counters **Adding, 5 digits (AC+DC)** **BVa 15**

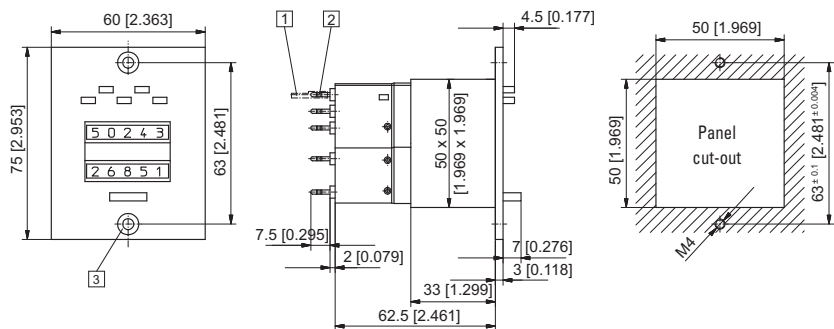
With mounting clips
Type BVa 15.21



- 1) Push-on connector \varnothing 1.5 tinned
 - 2) Round pin \varnothing 1.6 tinned
- Colour of housing grey (standard)

Type	Voltage	Display	Art.-No.		
			24 V	115 V	230 V
BVa 15.21	DC (25 Hz)	5 digits	2.100.210.033 ¹⁾	—	—
	AC (18 Hz)		2.100.210.061	2.100.210.064	2.100.210.066 ¹⁾
Colour of housing black: Art.-No. 2.1X0.211.XXX			Further stock types: Art.-No. 2.100.211.033		

Front bezel 3, with mounting holes
Type BVa 15.31



- 1) Push-on connector \varnothing 1.5 tinned
 - 2) Round pin \varnothing 1.6 tinned
 - 3) Countersinking Af3 DIN 74
- Colour of housing grey (standard)

Type	Voltage	Display	Art.-No.		
			24 V	115 V	230 V
BVa 15.31	DC (25 Hz)	5 digits	2.100.310.033	—	—
	AC (18 Hz)		2.100.310.061	2.100.310.064	2.100.310.066
Colour of housing black: Art.-No. 2.1X0.311.XXX			Further stock types: BVa 15.31.4sw 24 V DC / Art.-No. 2.107.311.013		

Preset counters, electromechanical

Standard counters

Subtracting, 2 or 3 digits (AC+DC)

MVs 13



The electromechanical preset counters MVs 13 (with manual and manual/electrical reset) boast a robust construction with very small dimensions.

They are ideal for use in harsh industrial environments. The subtracting counters are set to a value via the front keys, the signal occurs when the count value reaches 0.



Characteristics

- 2- or 3-digit subtracting preset counter
- Manual or manual and electrical reset
- Potential free changeover contact (microswitch) on reaching zero
- Contact remains switched till reset occurs

Benefits

- Delivery complete with push-on connectors
- Very small dimensions
- Versions with sealing cover on request

Applications

Piece counting, batch quantities and automation

Type series

	3 digits manual reset	3 digits manual and electr. reset	2 digits manual reset	2 digits manual and electr. reset
Front bezel with mounting holes	MVs 13.11	MVs 13.13	MVs 13.11/2	MVs 13.13/2
Front bezel with mounting clip	MVs 13.21	MVs 13.23	MVs 13.21/2	MVs 13.23/2

Accessories

			Order-No.
Sealing cover type KV3, IP65	For front bezel 39 x 68 mm, with screw mounting	transparent, grey transparent, black	G008310 G008311

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Preset counters, electromechanical

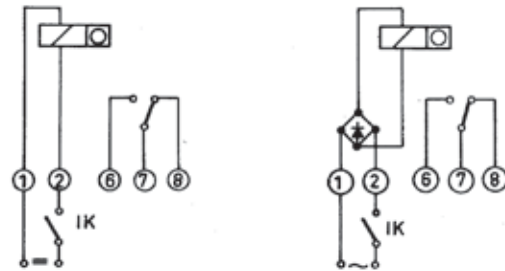
Standard counters Subtracting, 2 or 3 digits (AC+DC) MVs 13

Technical data	
Electrical connection	tinned flat pins 0.8 x 2.8 mm (with push on connectors)
Rated voltages	
count mechanism	12 / 24 / 48 / 115 / 230 V DC $\pm 10\%$ 24 / 48 / 115 / 230 V AC $\pm 10\%$
reset magnet	24 / 48 / 115 / 230 V DC $\pm 10\%$ 24 / 48 / 115 / 230 V AC $\pm 10\%$
Height of figures	4 mm
Colour of housing	similar to RAL 7001
Colour of figures	white on black
Counting mechanism shaft	stainless steel
Mounting position	any
Service life	approx. 100 x 10 ⁶ pulses
Protection	IP40 (front side)
Weight	approx. 150 g, with electrical reset approx. 190 g
Test voltage	2000 V, effective
Switching contact	1 change over contact (micro switch), release in 2nd half-step exactly at zero
Load (max.)	
AC (with resistive load)	250 V AC 2.0 A
DC	24 V DC 2.0 A 60 V DC 0.7 A 115 V DC 0.4 A 230 V DC 0.2 A
With inductive: suitable spark quenching is required on inductive load, reducing the max. current to approx. 60%	
Electrical reset	
On time	10% max. 40 seconds
Minimum pulse time	0.25 sec.
Power consumption	12 W at DC, 14 VA at AC

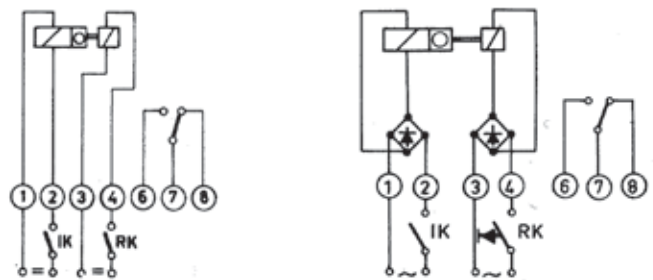
Options
Electrical reset only

Connection diagrams

Manual reset



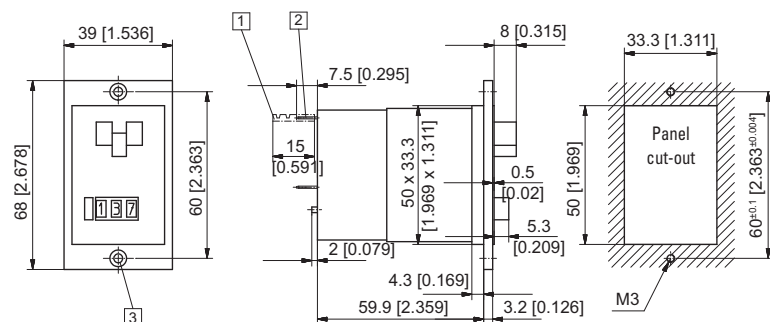
Manual and electrical reset



Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	4 W	48 %	-10°C ... +45°C
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	4.5 VA	-	-10°C ... +45°C

Front bezel with mounting holes, manual reset

Type MVs 13.11, MVs 13.11/2



1 Push-on connector 0.8 x 2.8 tinned 2 Flat pin 0.8 x 2.8 tinned 3 Countersinking Af3 DIN 74
Colour of housing grey (standard)

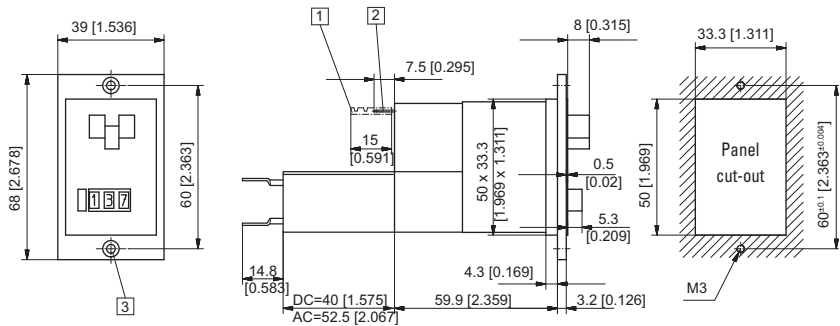
Voltage	Type / Art.-No.	MVs 13.11 (display 3 digits)			MVs 13.11/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		2.300.110.033	-	-	2.310.110.033	-	-
AC (18 Hz)		2.300.110.061	2.300.110.064	2.300.110.066	2.310.110.061	2.310.110.064	2.310.110.066

Dimensions in mm [inch]

Preset counters, electromechanical

Standard counters **Subtracting, 2 or 3 digits (AC+DC)** **MVs 13**

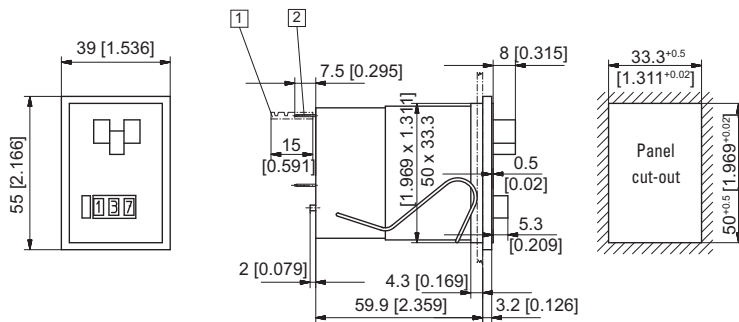
Front bezel with mounting holes, manual and electrical reset
Type MVs 13.13, MVs 13.13/2



1 Push-on connector 0.8 x 2.8 tinned 2 Flat pin 0.8 x 2.8 tinned 3 Countersinking Af3 DIN 74
 Colour of housing grey (standard)

Art.-No.	Type	MVs 13.13 (display 3 digits)			MVs 13.13/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
Colour of housing grey (standard)	DC (25 Hz)	2.300.130.033	–	–	2.310.130.033	–	–
	AC (18 Hz)	2.300.130.061	2.300.130.064	2.300.130.066	2.310.130.061	2.310.130.064	2.310.130.066

Front bezel with clip mounting, manual reset
Type MVs 13.21, MVs 13.21/2

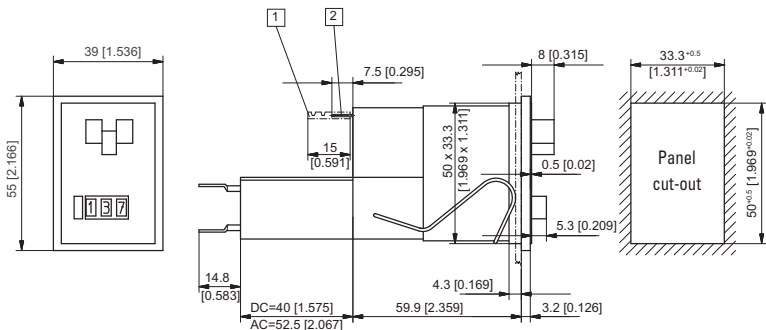


1 Push-on connector 0.8 x 2.8 tinned 2 Flat pin 0.8 x 2.8 tinned
 Colour of housing grey (standard)

Voltage	Type / Art.-No.	MVs 13.21 (display 3 digits)			MVs 13.21/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		2.300.210.033	–	–	2.310.210.033	–	–
AC (18 Hz)		2.300.210.061	2.300.210.064	2.300.210.066	2.310.210.061	2.310.210.064	2.310.210.066

Colour of housing black: Art.-No. 2.3X0.211.XXX

Front bezel with clip mounting, manual and electrical reset
Type MVs 13.23, MVs 13.23/2



1 Push-on connector 0.8 x 2.8 tinned 2 Flat pin 0.8 x 2.8 tinned
 Colour of housing grey (standard)

Voltage	Type / Art.-No.	MVs 13.23 (display 3 digits)			MVs 13.23/2 (display 2 digits)		
		24 V	115 V	230 V	24 V	115 V	230 V
DC (25 Hz)		2.300.230.033	–	–	2.310.230.033	–	–
AC (18 Hz)		2.300.230.061	2.300.230.064	2.300.230.066	2.310.230.061	2.310.230.064	2.310.230.066

Colour of housing black: Art.-No. 2.3X0.231.XXX

Dimensions in mm [inch]

Preset counters, electromechanical

Standard counters	Subtracting, 6 digits (AC+DC)	MVs 16
--------------------------	--------------------------------------	---------------



The electromechanical preset counters **MVs 16** (with manual and electrical reset) boast a robust construction. They are ideal for use in harsh industrial environments. The subtracting counters are set to a value via the keys on the front, the signal occurs when the count value reaches 0.



Preset counters

<p>Characteristics</p> <ul style="list-style-type: none"> • 6-digit subtracting preset counter • Manual and electrical reset • Potential free changeover (microswitch) on reaching zero • Contact remains switched till reset occurs 	<p>Benefits</p> <ul style="list-style-type: none"> • Delivery complete with push-on connectors • Versions with transparent cover or sealing cover on request <p>Applications</p> <p>Piece counting, batch quantities and automation</p>
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Type series	
Description	Order-No.
Front bezel 2 with mounting clip	MVs 16.23

Accessories			Order-No.
Socket box, type 926.1	For counters MVs 16 for plug-in connections	transparent	G008433
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Type / Counting mechanism									
Voltage	Type	Pulse frequency max.	Pulse on time min.	Pulse interval min.	Pulse ratio	On-time	Power consump. approx.	Permi. residual ripple max.	Operating temp. (non-condensing)
V DC	1	25 Hz	24 ms	16 ms	3 : 2	100 %	4 W	48 %	-10°C ... +45°C
V AC	a	18 Hz	22.2 ms	33.3 ms	2 : 3	100 %	4.5 VA	—	-10°C ... +45°C

Preset counters, electromechanical

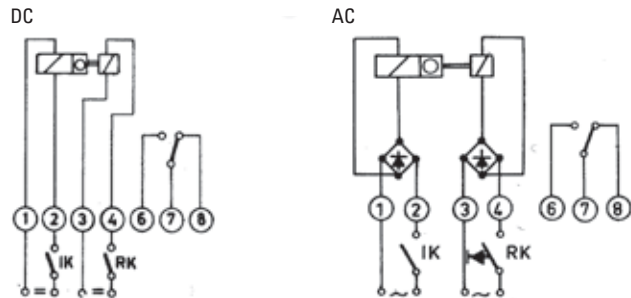
Standard counters Subtracting, 6 digits (AC+DC) MVs 16

Technical data	
Electrical connection	tinned flat pins 0.8 x 2.8 mm (with push-on connectors) socket box 0.3 x 2.8 mm
Rated voltages	
counting mechanism	12 / 24 / 48 / 115 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %
reset magnet	24 / 48 / 115 V DC ±10 % 24 / 48 / 115 / 230 V AC ±10 %
High of figures	4 mm
Colour of housing	similar to RAL 7001
Colour of figures	white on black
Counting mechanism shaft	stainless steel
Mounting position	any
Service life	approx. 100 x 10 ⁶ pulses
Protection	IP40 (front side)
Weight	approx. 170 g, with electrical reset approx. 210 g
Test voltage	2000 V AC, effective
Switching contact	1 change over contact (micro switch), contact making in 2nd half step at zero
Load (max.)	
(at resistive load)	AC 250 V AC 2.0 A DC 24 V DC 2.0 A 60 V DC 0.7 A 115 V DC 0.4 A 230 V DC 0.2 A
At inductive load: suitable spark quenching is required on inductive load, reducing the max. current to approx. 60 %	

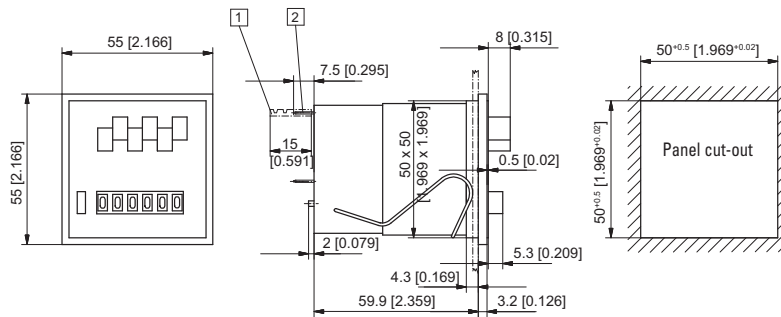
Options	
Electrical reset	
On time	20 % max. 1 minute
Minimum pulse time	0.25 sec.
Power consumption	10 W at DC, 14 VA at AC

Connection diagrams

Manual and electrical reset



Front bezel 2 with mounting clips, manual and electrical reset Type MVs 16.23



1 Push-on connector 0.8 x 2.8 tinned 2 Flat pin 0.8 x 2.8 tinned
Colour of housing grey (standard)

Type	Voltage	Display	Art.-No.		
			24 V	115 V	230 V
MVs 16.23	DC (25 Hz)	6-digits	2.320.230.033	—	—
	AC (18 Hz)		2.320.230.061	2.320.230.064	2.320.230.066

Preset counters, electromechanical

Hour meters / Timers



Hour meters / Timers

Hour meters / timers, electronic		Type	Page
LCD hour meter	Max. time range 99999 h 59 min or 99999.99 h (battery)	Codix 134	158
	Max. time range 9999 h 59 min 59 sec or 9999999.9 sec (battery)	Codix 135	161
	Adding counter, 99999.99 h (DC)	Codix 141	164
LCD service timers	Service timer, 99999.99 h (DC)	Codix 143	164
LED timers	h, min, sec or hh.mm.ss (DC)	Codix 523	167
	Multifunction – pulse, frequency, time (DC)	Codix 524	240
	Universal with dual functions 4 combinations (DC)	Codix 52U	248
	h, min, sec or hh.mm.ss (AC+DC)	Codix 543	170
	Multifunction – pulse, frequency, time (AC+DC)	Codix 544	243
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	254
LCD time modules	Max. time range 9999.99 h (DC)	194	173
	Max. time range 99999.9 h (DC)	198	175
Hour meters / timers, electromechanical		Type	Page
Micro timers	High shock resistance (DC)	HK 47	177
	Many different installation options (DC)	HK 07 / AHK 07	179
Timers with DIN dimensions	Small format (AC+DC)	HK 17	182
	DIN counter for panel mount, 48 x 24 mm (AC+DC)	H 37	185
	DIN counter for panel mount, 48 x 48 mm (AC+DC)	H 57	189
Timers for DIN rail mounting	DIN rail housing, 48 x 48 mm (AC+DC)	AH 57	189
	Micro DIN rail housing (AC+DC)	SHK 07.1	192
	DIN rail housing, 2 modules wide (AC+DC)	SH 17	194
Timers, round design	With LED run indicator (AC+DC)	HR 47	196
	High protection rating (AC+DC)	HR 76	198
Standard timers	9999.99 h / 99999.9 h with reset (AC+DC)	HB 26	200
	999999.9 h / 99999.99 h without reset (AC+DC)	HB 27	204
Dual function counters	Pulse + time (AC+DC)	HC 77	207
	Pulse + time for DIN rail (AC+DC)	SHC 77	210
	Energy + time (AC)	HW 66 / HW 66 M	262
Time preset counters, electronic		Type	Page
LCD time preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	123
	Multifunktional – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Time preset counters with multicolour or LED look	Multifunktional – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED preset counters	Multifunktional – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)	133
	Multifunktional – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)	Codix 560	138
	Pulse, frequency, time (also reciprocal), with analogue output (AC+DC)	571	246
Time preset counters, electromechanical		Type	Page
Standard time preset counters	Adding 999.99 h with mechanical reset (AC+DC)	HVa 15	212

Hour meters / timers, electronic

LCD hour meters

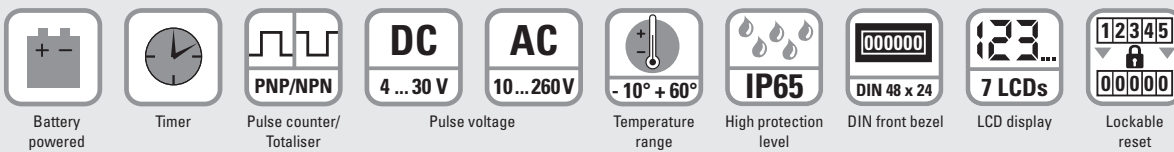
Max. time range 9999 h 59 min or 9999.99 h (battery)

Codix 134



The Codix 134 is a simple battery-powered hour meter for PNP, NPN and high voltage applications.

Its 7-digit LCD display with optional backlighting can display various time ranges.



Powerful

- High quality LCD display with 8 mm high figures – optional display backlighting
- Time range hours with minutes or industry minutes
1 pulse = 36 sec programmable via control input
- Battery lifetime 8 years
- High voltage versions for 10 ... 260 V AC/DC voltage pulses, thus to be connected directly via contactors, relays and motors
- Very high accuracy: 100 ppm

Simple

- Screw terminals, RM 5 mm
- Reset key lockable via the input 'Reset Enable'
- According to version for PNP, NPN switching level or high voltage version for 10 ... 260 V AC/DC switching voltage
- Accumulated time is always readable thanks to battery powering
- High protection level IP65

Order code

6.134 . 012 . 8XX
a b

a Backlighting
 5 = without ¹⁾
 6 = with

b Count input

	Mode	INP A:		INP B	
0 =	Timer ¹⁾	–		0 ... 0.7 V DC	NPN
1 =	Timer ¹⁾	–		4 ... 30 V DC	PNP
3 =	Timer ¹⁾	10 ... 260 V AC/DC	AC/DC	10 ... 260 V AC/DC	AC/DC

Delivery specification

- Timer
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types

Hour meters / timers, electronic

LCD hour meters	Max. time range 99999 h 59 min or 99999.99 h (battery)	Codix 134
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Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 7-digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Counting direction	adding
Display range	see next page
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604
Measuring error	per Start/Stop cycle a maximum error in the order of the smallest measuring time selected can occur

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

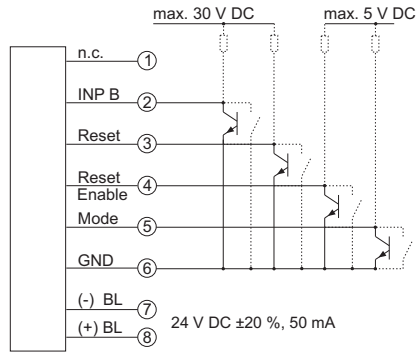
Count input	
A. Timer inputs DC versions (max. 30 V DC) INP B	
Timer input	NPN or PNP depending on the type (see table)
Switching level	NPN LOW: 0 ... 0.7 V DC HIGH: 3 ... 30 V DC PNP LOW: 0 ... 0.7 V DC HIGH: 4 ... 30 V DC
Counting start	NPN for LOW signal at the timer input PNP for HIGH signal at the timer input
B. Timer inputs high voltage versions (10 ... 260 V DC/V AC) INP A	
Timer input	optocoupler input
Min. pulse time	16 ms
Switching level	LOW: 0 ... 2 V DC/V AC HIGH: 10 ... 260 V DC/V AC
Counting start	for HIGH signal at the timer input
C. Time range change (Mode)	
Contact input	NPN open collector (switching at 0 V) LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Time range	depending on the circuit (s. order inform.)
D. Reset input for DC (reset) and High voltage (INPB)	
Min. pulse time	DC 50 ms High voltage 16 ms
Contact input DC	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
High voltage input	10 ... 260 V AC/DC
E. Reset locking input (for DC and AC)	
Electrical reset key locking	reset key locked
Input not active	open collector NPN (switching at 0 V)
Contact input	LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Switching level	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

Hour meters / timers, electronic

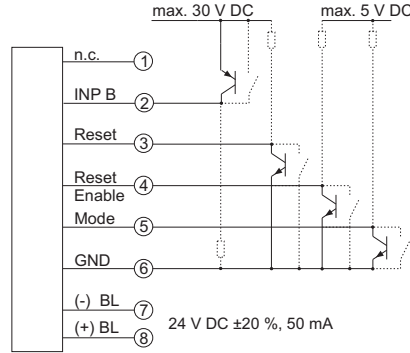
LCD hour meters	Max. time range 99999 h 59 min or 99999.99 h (battery)	Codix 134
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Terminal assignment

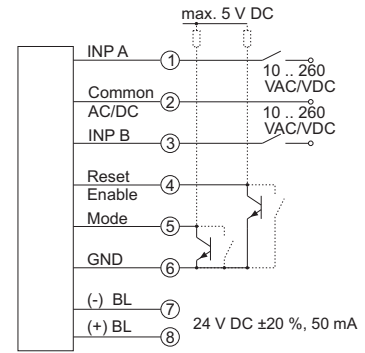
DC type: 6.134.012.8x0



DC type: 6.134.012.8x1



AC type: 6.134.012.8x3

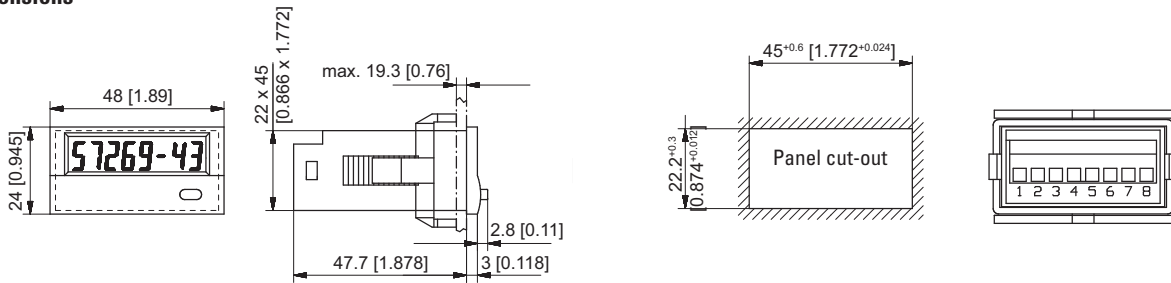


BL = backlighting

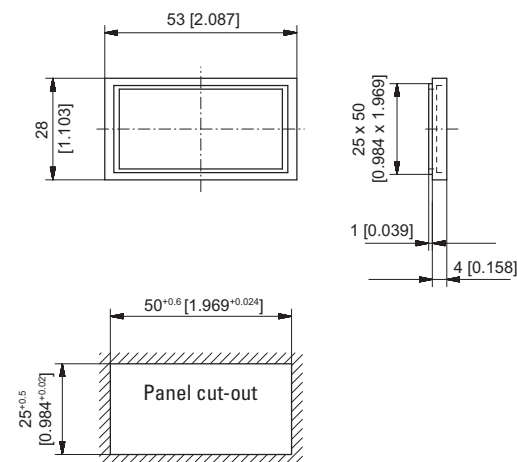
Display and time ranges

time range	display
99999 h 59 m	99999 - 59
99999.99 h	99999 - 99

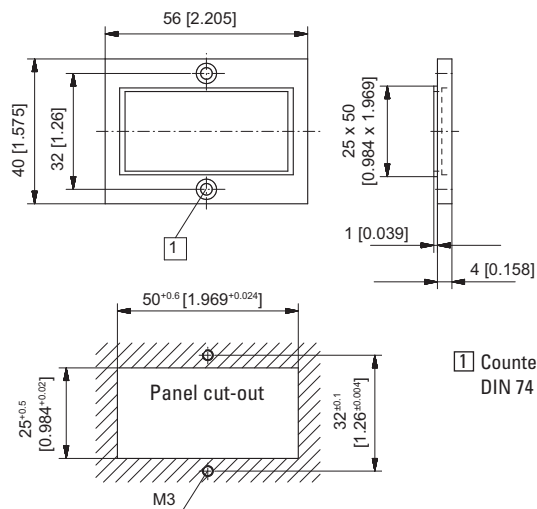
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Dimensions in mm [inch]

Hour meters / timers, electronic

LCD hour meters **Max. time range 9999 h 59 min 59 sec or 999999.9 sec (battery)** **Codix 135**



The Codix 135 is a simple battery-powered hour meter for PNP, NPN and high-voltage applications.

Its 8-digit LCD display with optional backlighting can display various time ranges.



Battery powered	Timer	Pulse counter/ Totaliser	DC 4 ... 30 V	AC 10 ... 260 V	Temperature range - 10° + 60°	High protection level IP65	DIN front bezel DIN 48 x 24	8 LCDs	Lockable reset

Powerful

- High quality LCD display with 8 mm high figures - optional display backlighting
- Time range up to 9999999.9 seconds or 9999h99m99s programmable via control input
- Battery lifetime 8 years
- High voltage versions for 10 ... 260 V AC/DC voltage pulses, thus to be connected directly via contactors, relays and motors
- Very high accuracy: 100 ppm

Simple

- Screw terminals, RM 5 mm
- Reset key lockable via the input 'Reset Enable'
- According to version for PNP, NPN switching level or high voltage version for 10 ... 260 V AC/DC switching voltage
- Accumulated time is always readable thanks to battery powering
- High protection level IP65

Order code

6.135 . 012 . 8XX
a b

a Backlighting
 5 = without ¹⁾
 6 = with

b Count input

Mode	INP A:		INP B:	
0 = Timer ¹⁾	–	–	0 ... 0.7 V DC	NPN
1 = Timer ¹⁾	–	–	4 ... 30 V DC	PNP
3 = Timer ¹⁾	10 ... 260 V AC/DC	AC/DC	10 ... 260 V AC/DC	AC/DC

Delivery specification

- Timer
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types

Hour meters / timers, electronic

LCD hour meters		Max. time range 9999 h 59 min 59 sec or 9999999.9 sec (battery)	Codix 135
Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 8-digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Counting direction	adding
Display range	see next page
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

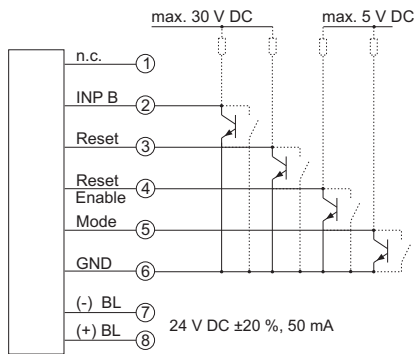
Count input	
A. Timer inputs DC versions (max. 30 V DC) INP B	
Timer input	NPN or PNP depending on the type (see table)
Switching level	NPN LOW: 0 ... 0.7 V DC HIGH: 3 ... 30 V DC PNP LOW: 0 ... 0.7 V DC HIGH: 4 ... 30 V DC
Counting start	NPN for LOW signal at the timer input PNP for HIGH signal at the timer input
B. Timer inputs high voltage versions (10 ... 260 V DC/V AC) INP A	
Timer input	optocoupler input
Min. pulse time	16 ms
Switching level	LOW: 0 ... 2 V DC/V AC HIGH: 10 ... 260 V DC/V AC
Counting start	for HIGH signal at the timer input
C. Time range change (Mode)	
Contact input	NPN open collector (switching at 0 V) LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC
Time range	depending on the circuit (s. order inform.)
D. Reset input for DC and high voltage	
Min. pulse time	DC 50 ms High voltage 16 ms
Contact input DC	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
High voltage input	10 ... 260 V AC/DC
E. Reset locking input (for DC and AC)	
Electrical reset key locking	
Input not active	reset key locked
Contact input	open collector NPN (switching at 0 V)
Switching level	NPN LOW 0 ... 0.7 V DC HIGH 3 ... 5 V DC

Hour meters / timers, electronic

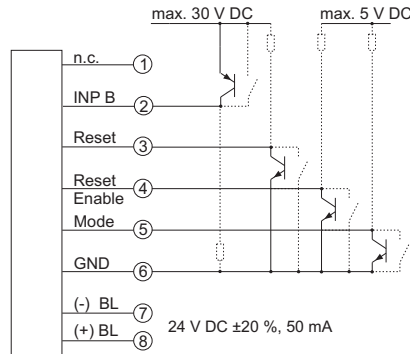
LCD hour meters **Max. time range 9999 h 59 min 59 sec or 999999.9 sec (battery)** **Codix 135**

Terminal assignment

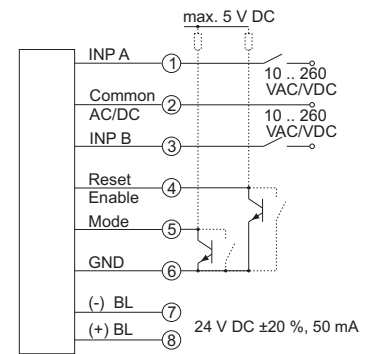
DC type: 6.135.012.8x0



DC type: 6.135.012.8x1

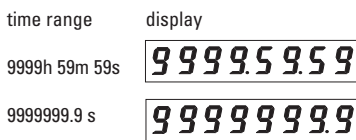


AC type: 6.135.012.8x3

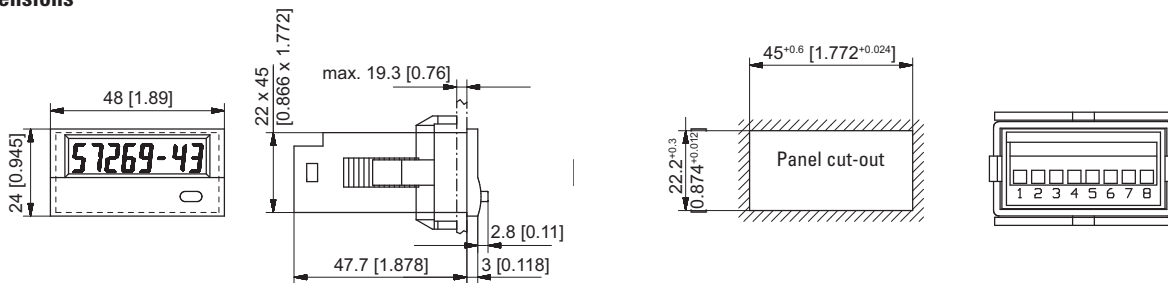


BL = backlighting

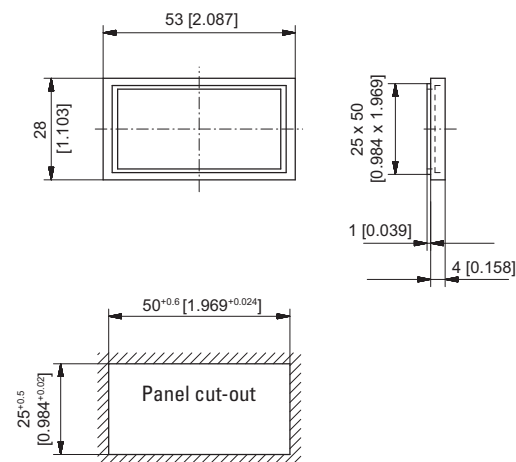
Display and time ranges



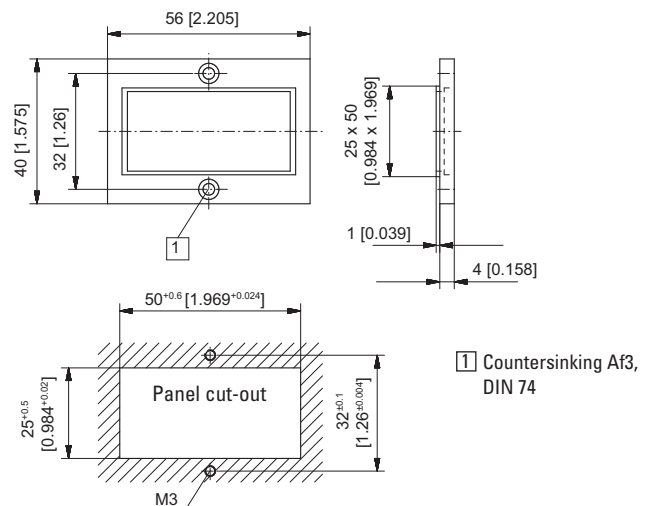
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Dimensions in mm [inch]

Hour meters / timers, electronic

LCD hour meters	Adding counter / service timer, 99999.99 h (DC)	Codix 141 / 143
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The Codix 141 / 143 is a simple externally powered hour meter with 7-digit LCD display for PNP, NPN input signals, optionally factory-programmable.

Codix 141: Standard timer
Codix 143: Service timer



DC 10 ... 30V	PNP/NPN	Timer	-20° + 65°	IP65	DIN 48 x 24	7 LCDs	Lockable reset	1 Transistor output (143)
Power supply	Pulse counter/ Totaliser	Timer	Temperature range	High protection level	DIN front bezel	LCD display	Lockable reset	Transistor output (143)

Functional

- Direct display of the total time
- Pressing the key displays the preset service value and its pre-signal
- Preset value output as a text on the display and on the transistor output
- Pre-signal for the service intervals as a text on the display
- Manual or electrical reset of the display or of the service intervals
- Fast PNP or damped NPN control via separate inputs

User-friendly

- Power supply 10 ... 30 V DC
- Values stored in EEPROM
- Fixed pre-programmed service intervals, e.g.: service at 5000.00 h (service), pre-signal at 4900.00 h (pre-service), blinking text message on the display (service or pre-service)
- Multifunction reset key, lockable via a separate input
- Can also be reset to its delivery condition
- Factory programmable

Order code	Standard timer	6.141 . 012 . 300
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Stock types:
6.141.012.300

Order code	Service timer	6.143 . 011 . 300 . XXXX . XX
		a b

Stock types:
6.143.011.300.005K.00

a Option 2 ¹⁾
005K = Service range 5000.00 h

b Option 1 ¹⁾
00 = Pre-warning at 100.00 before the preset service value
 Display shows text PrESerV with pre-warning and text SErViCE with preset service value

Delivery specification Codix 141 and 143

- Counter
- Mounting clip
- Gasket
- Instruction manual, multilingual

1) Options 1 and 2 can be individually programmed at the factory according to customer's requirements. Please note: The min. order quantity for custom versions is 10 pcs. with an extra charge, or 200+ pcs. with no extra charge.

Hour meters / timers, electronic

LCD hour meters	Adding counter / service timer, 99999.99 h (DC)	Codix 141 / 143
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Accessories		Order-No.
Adapter front bezel, 53 x 28 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	anthracite T008180
Adapter front bezel, 56 x 40 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with screw mounting for counters 48 x 24 mm	anthracite T008181
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 7 digits, 8 mm high
Undervoltage	display for $U_B < 8$ V: PO-FAIL and data backup
Counting range	0 ... 99999.99 h decimal point 0.00
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C

Mechanical characteristics	
Housing	front panel mount DIN 43700, 48 x 24 mm dark grey Ral 7021
Connections	8-pole screw terminals, pitch 5.08 mm
Cleaning	the front side should be cleaned using only a soft cloth moistened with water
Weight	40 g
Protection	IP65 (front side) IP20 (rear side)
Connections	8-pole screw terminals, pitch 5.08 mm
Vibration resistance	acc. to EN 60068-2-6 10 - 55 Hz / 1 mm / 30 min
Shock resistance	acc. to EN 60068-2-27 100G acc. to EN 60068-2-29 10G

Electrical characteristics	
Power supply	10 ... 30 V DC, max. 25 mA
Start delay	500 ms
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Inputs	
Input A	static PNP input
Input B	static NPN input
Reset key enable input	static NPN input
Reset	edge-triggered NPN input (min. 20 ms)
Input resistance	10 kOhm
Switching level	LOW 0 ... 2 V DC HIGH 3.5 ... 30 V DC
Switching threshold	approx. 2.7 V DC

Additional data for Codix 143 (service timer)	
Output	NPN transistor output, open collector
Output voltage	max. 30 V DC
Output current	max. 50 mA

Hour meters / timers, electronic

LCD hour meters

Adding counter / service timer, 99999.99 h (DC)

Codix 141 / 143

Display and inquiry mode service timer

If the reset key is not released by means of the activation input of pin 6, pressing the key makes the following functions available to the user.

Press 1x: The text "SErVICE" is displayed

Press 2x: The following service value is displayed

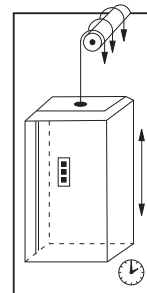
Press 3x: The text „PrESErV" is displayed

Press 4x: The following preservice value is displayed

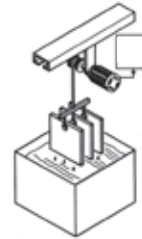
Press 5x: The current value is displayed

For the service timers, the values counted remain stored, the service values are incremented by the stored preset value when resetting. E.g. service value 5000.00 h, counter count when resetting 5100.00 h, new service value 10100.00 h.

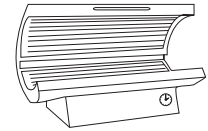
Applications



Operating time and service interval



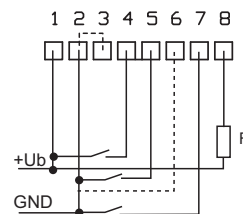
Total time and service interval



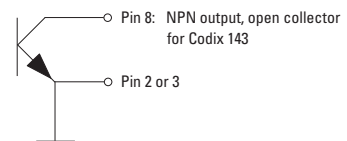
Service interval and total time of the UV lamps

Terminal assignment

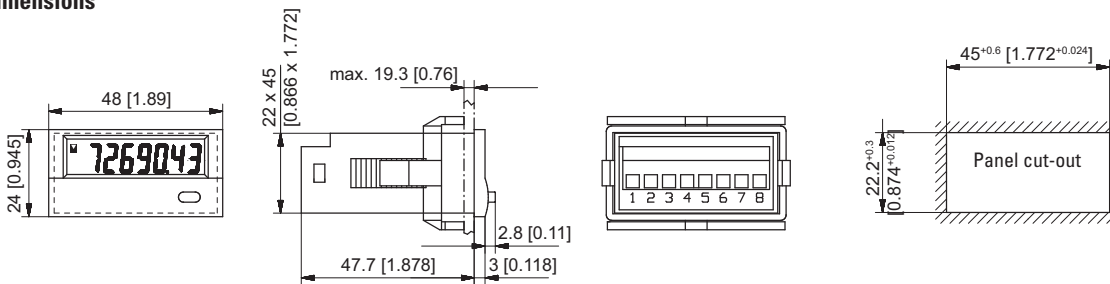
PIN	Description	Standard timer	Service timer
Power supply			
1	+U _B	10 ... 30 V DC	10 ... 30 V DC
2	0 V DC, GND	GND	GND
Inputs			
3	0 V DC, GND	GND	GND
4	Fast counting input	INP PNP	INP PNP
5	Slow counting input	INP NPN	INP NPN
6	Reset enable input	RESET MANUAL ENABLE	RESET MANUAL ENABLE
7	Reset input	RESET	RESET
Output			
8	NPN output	n.c.	OUT



Output 8 is only used with Codix 143 as a NPN output



Dimensions



LED timers **h, min, sec or hh.mm.ss (DC)** **Codix 523**



The Codix 523 is an externally powered timer, hour meter or short-time meter with 4 start input types and individually adjustable time base.

The 6-digit LED display shows the NPN, PNP input signals used for pulse width or time interval measurement.



DC 10 ... 30 V Power supply	000000 DIN 48 x 24 DIN front bezel	-20° + 65° Temperature range	IP65 High protection level	PROG Menu-driven programming	Timer	≥ 1 ms Resolution
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Powerful

- High accuracy thanks to quartz time base
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high
- Time base can be set individually
 - hours, minutes or seconds, the decimal point allows setting it even more accurately, up to max. 3 decimal places
 - smallest achievable resolution: milliseconds
 - time base hours (minutes and seconds as real-time display)
- Short start-up time – detects incoming pulses already 16 ms after having been switched on => no loss of pulses in case of a simultaneous motor start
- Individually adjustable Start/Stop function
2 Start/Stop inputs allow achieving 4 different measuring principles such as, for example, active or passive pulse width measurement, time interval measurement with one single input or with separate inputs.

User-friendly and universal

- Large keys – pressing either of the keys switches between displays (can also be operated wearing gloves)
- Programming
 - simple uniform menu-driven programming and operation
 - possibility to enter the programming mode also during operation with an authentication query
- Manual or electrical reset
Tamper-proof thanks to lockable reset function
- Freely programmable setpoint
Start time at which time counting begins
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available, for use as parallel displays for PLCs
- Optional output: 1 Hz clock pulse in case of active time measurement

Hour meters / Timers

Order code

6.523 . 01 X . 3 X 0

a Output

- 1 = Optocoupler
- 2 = No output ¹⁾

b Input switch level

- 0 = Standard (HTL) ¹⁾
- A = 4 ... 30 V DC

Delivery specification

- Timer
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm

1) Stock types

Hour meters / timers, electronic

LED timers	h, min, sec or hh.mm.ss (DC)	Codix 523
Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C >26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 55 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

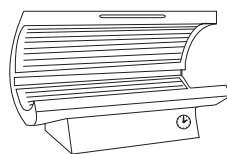
Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Resolution	up to 0.001 s
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	<50 ppm

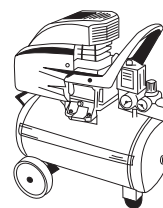
Outputs (optional)	
Output power optocoupler	max. 30 V, 10 mA

Applications for time and hour meters, short-time meters

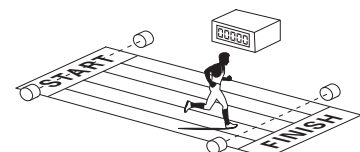
- Time measurements such as hours run recording on all machines and plant, e.g. compressors, solariums, special lights and lamps
- Accessories, OEM equipment or retrofitting to production machine
- Measurement of short times on processes and procedures, time recording (stopwatch function) at sporting events
- Hours run recording for motor vehicles and time monitoring for rally vehicles



Hours run of UV lamps



Operating hours

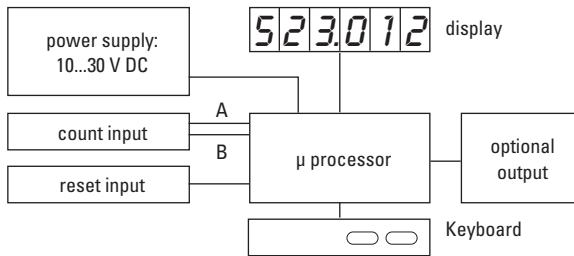


Short time measurement > 1 ms

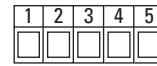
Hour meters / timers, electronic

LED timers **h, min, sec or hh.mm.ss (DC)** **Codix 523**

Block diagram



Terminal assignment

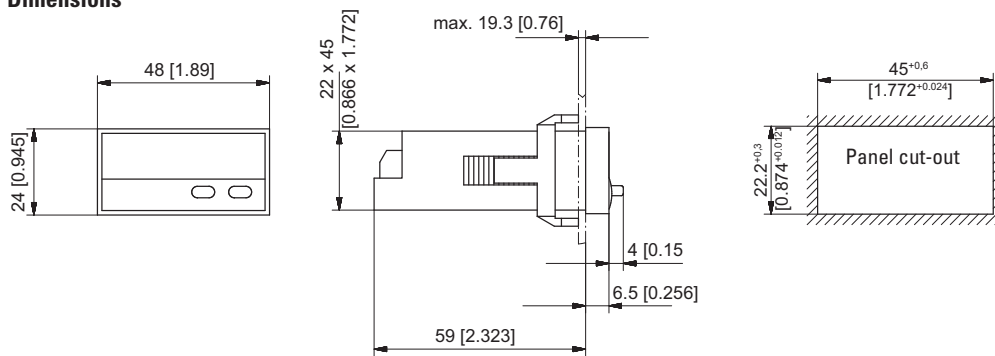


PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	reset

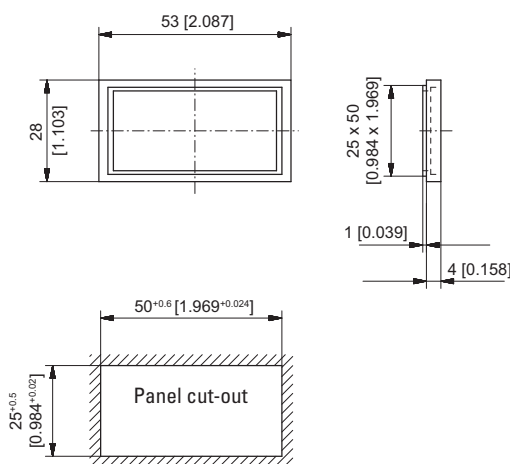


PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	reset
6	emitter
7	collector

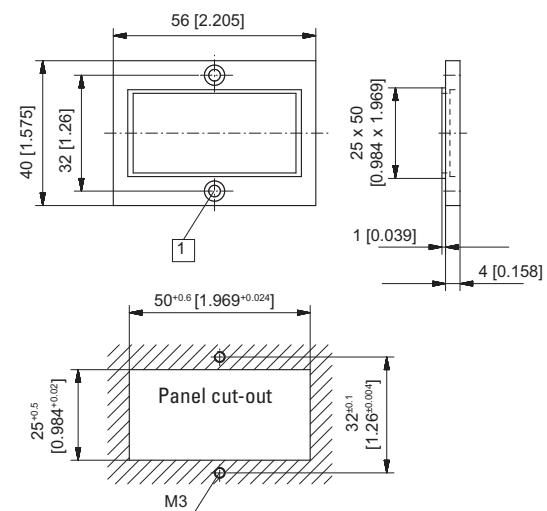
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Hour meters / timers, electronic

LED timers

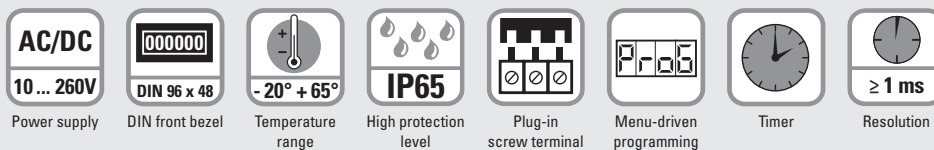
h, min, sec or hh.mm.ss (AC+DC)

Codix 543



The Codix 543 is an externally powered timer, hour meter or short-time meter with 4 start input types and individually adjustable time base.

The 6-digit LED display shows the NPN, PNP input signals used for pulse width or time interval measurement.



Powerful

- High accuracy thanks to quartz time base
- Robust housing – IP65 protection
- Very bright LED display 14 mm high
- Time base can be set individually
 - hours, minutes or seconds, the decimal point allows setting it even more accurately, up to max. 3 decimal places
 - smallest achievable resolution: milliseconds
 - time base hours (minutes and seconds as real-time display)
- Short start-up time – detects incoming pulses already 16 ms after having been switched on => no loss of pulses in case of a simultaneous motor start
- Individually adjustable Start/Stop function
 - 2 Start/Stop inputs allow achieving 4 different measuring principles such as, for example, active or passive pulse width measurement, time interval measurement with one single input or with separate inputs.

User-friendly and universal

- Large keys – pressing either of the keys switches between displays (can also be operated wearing gloves)
- Programming
 - Simple and unified programming and operation thanks to menu-driven programming
 - possibility to enter the programming mode also during operation with an authentication query
- Manual or electrical reset
 - Tamper-proof thanks to lockable reset function
- Freely programmable setpoint
 - Start time at which time counting begins
- AC or DC power supply with sensor power supply
- As an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs
- Optional output: 1 Hz clock pulse in case of active time measurement

Order code

6.543 . 01 X . X X 0

a Output
1 = Optocoupler
2 = No output ¹⁾

c Input switch level
0 = Standard (HTL) ¹⁾
A = 4 ... 30 V DC

Delivery specification
– Digital display
– Mounting clip
– Gasket
– 2 screw terminals
– Instruction manual, multilingual

Replacement parts
7 pin screw terminal RM 3.81 1 ... 7: N100387
2 pin screw terminal RM 5.08 1 ... 2: N100133

b Power supply
0 = 90 ... 260 V AC ¹⁾
3 = 10 ... 30 V DC ¹⁾

Accessories

Mounting frame with cut-out 92 x 45 mm

For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

Order-No.

G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

¹⁾ Stock types

Hour meters / timers, electronic

LED timers	h, min, sec or hh.mm.ss (AC+DC)	Codix 543
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General technical data	
Display	6 digits, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

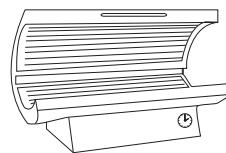
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Resolution	up to 0.001 s
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC]
	HIGH 0.6 x U _B ... 30 V DC
AC power supply	LOW 0 ... 4 V DC
	HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC
	HIGH 4 ... 30 V DC
Accuracy	< 50 ppm

Outputs	
Sensors power supply (AC version)	24 V DC ± 15 %/100 mA
Output power optocoupler	max. 30 V DC, 10 mA

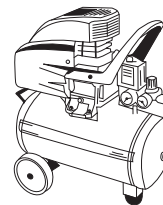
Hour meters / Timers

Applications for time and hour meters, short-time meters

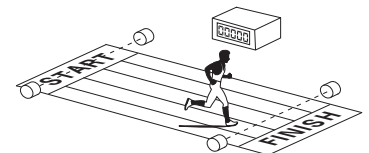
- Time measurements such as hours run recording on all machines and plant, e.g. compressors, solariums, special lights and lamps
- Accessories, OEM equipment or retrofitting to production machine
- Measurement of short times on processes and procedures, time recording (stopwatch function) at sporting events
- Hours run recording for motor vehicles and time monitoring for rally vehicles



Hours run of UV lamps

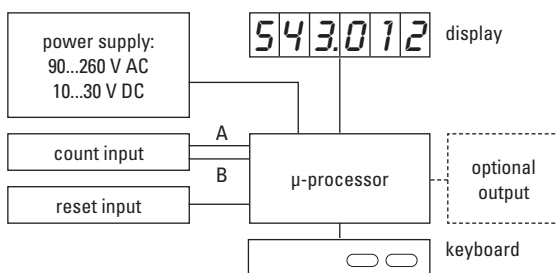


Operating hours



Short time measurement > 1 ms

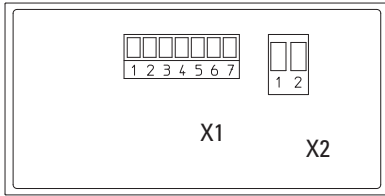
Block diagram



Hour meters / timers, electronic

LED timers	h, min, sec or hh.mm.ss (AC+DC)	Codix 543
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Terminal assignment



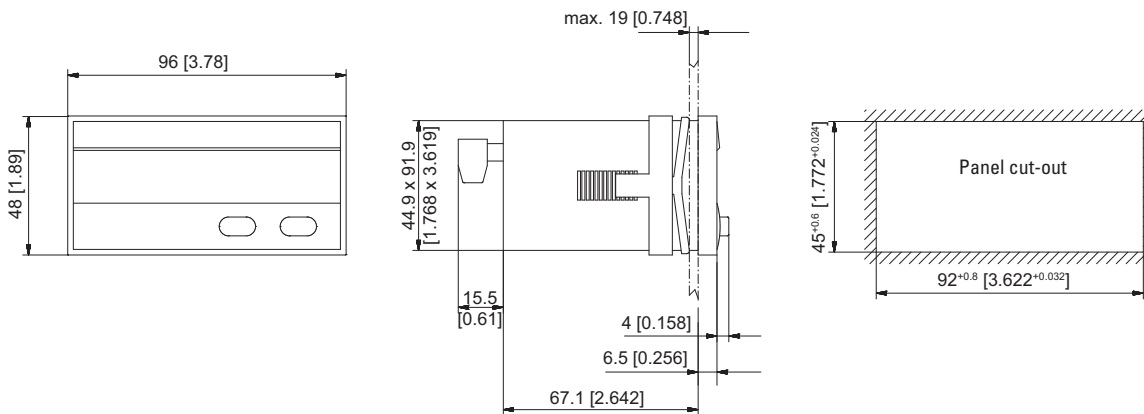
Connection X1

PIN	AC version	DC version
1	Optocoupler output	emitter
2	Optocoupler output	collector
3	Reset	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0V DC (GND)
2	90 ... 260 V AC	10...30 V DC

Dimensions



LCD time modules **Max. time range 9999.99 h (DC)** **194**



The timer module of the type 194 for PCB mount features a 6-digit LCD display and 2 voltage ranges (4.75...15 V DC and 9...60 V DC).

It is extremely robust and suitable for many different applications thanks to its wide temperature range.



Timer	Power supply 4.75...60 V	Input type PNP	High shock resistance	Temperature range -40° +80°	PCB mount	LCD display 6 LCDs	Electrical reset

- | | |
|---|---|
| <p>Powerful</p> <ul style="list-style-type: none"> • Display range up to 9999-99 hours • 6-digit LCD display, 6 mm high • Low power consumption • Wide voltage and temperature range • Very high shock and vibration resistance | <p>Simple</p> <ul style="list-style-type: none"> • Non-volatile memory (no battery) • Counting starts as soon as power supply is applied • Electrical reset • Very high reliability • Small size and low cost |
|---|---|

Order specifications			
<i>Power supply</i>	<i>Order-No.</i>	<i>Art.-No.</i>	<i>Delivery specification</i>
4.75 ... 15 V DC	6.194.012.F00	162 137	- LCD hour meter module type 194
9 ... 60 V DC	6.194.012.G00	162 138	- Operating instructions

General technical data	
Display	6 digits, LCD display, figure height 6 mm
Display range	9999-99 h
Data backup	CMOS EEPROM non-volatile memory up to 10 years
Operating temperature	-40°C ... +85°C (non-condensing)
Working temperature	-20°C ... +80°C (non-condensing)
Storage temperature	-50°C ... +90°C

Mechanical characteristics		
Housing	colour	black
Weight		approx. 8 g
Shock resistance	acc. to DIN-IEC 68-2-27	550 m/s ² , 11 ms
Vibration resistance	acc. to DIN-IEC 68-2-6	50 ... 200 m/s ² , 10 ... 80 Hz

Electrical characteristics			
Power supply	...F00	4.75 ... 15 V DC, with reverse polarity protection	
	...G00	9 ... 60 V DC	
Current consumption	...F00	8 mA at 4.75 ... 15 V DC	
	...G00	6 mA at 9 ... 60 V DC	
EMC	Emitted interference	EN 61000-6-3 EN 55011 class B	
	Immunity to interference	EN 61000-6-2	

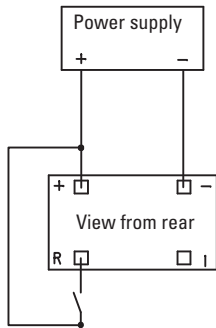
The module must be protected against inductive voltage spikes and high energy noise interference.

Inputs		
Reset input	HIGH	4 ... 60 V DC
	LOW	0 ... 0.7 V DC
	pulse length	min. 1 ms, edge triggered (rising)
Measuring error		a max. error of 36 sec. occur per Start/Stop cycle
Accuracy (Quarz)		max. 200 ppm (25°C)

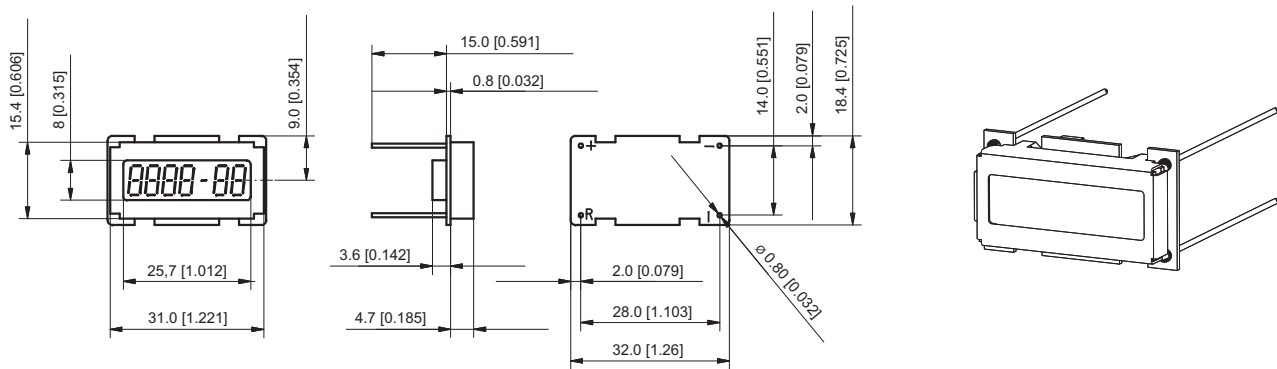
Hour meters / timers, electronic

LCD time modules	Max. time range 9999.99 h (DC)	194
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Terminal assignment



Dimensions



LCD time modules **Max. time range 99999.9 h (DC)** **198**



The timer module of the type 198 with 6-digit LCD display for PCB mounting features a wide voltage range from 4.5 to 28 V DC.

It is extremely robust and suitable for many different applications thanks to its wide temperature range.



Hour meters / Timers

Timer	Power supply 4.5... 28 V	Input type PNP	High shock resistance	Temperature range -40° + 85°	PCB mount	LCD display 6 LCDs	Electrical reset

- | | |
|---|---|
| <p>Powerful</p> <ul style="list-style-type: none"> • Display range up to 99999.9 hours • 6-digit LCD display, 5 mm high • Low power consumption • Wide voltage and temperature range • Very high shock and vibration resistance | <p>Simple</p> <ul style="list-style-type: none"> • Non-volatile memory (no battery) • Start/Stop input • Electrical reset • Very high reliability • Small size and low cost |
|---|---|

Order specifications	
<p><i>Power supply</i> 4.5 ... 28 V DC</p>	<p><i>Order-No.</i> 6.198.012.300¹⁾</p>
<p><i>Delivery specification</i></p> <ul style="list-style-type: none"> - LCD counter module type 198 - Operating instructions 	

General technical data	
Display	6 digits, LCD display, figures 5 mm high
Display range	99999.9 h
Data backup	CMOS EEPROM non-volatile memory up to 10 years (without battery)
Operating temperature	-40°C ... +85°C (non-condensing)
Humidity	95 % RH +32°C for max. 2 hours

Mechanical characteristics		
Housing	dimensions	18.4 x 32.4 mm
	colour	black
Weight		approx. 8 g
Vibration resistance	acc. to DIN-IEC 68-2-6	10 ... 80 m/s ² , 10 ... 75 Hz

Inputs	
Start/Stop input (Enable input timer) On-times smaller than 16 sec will not be counted	4.5 ... 28 V DC
Reset input	4.5 ... 28 V DC
	pulse length min. 500 ms

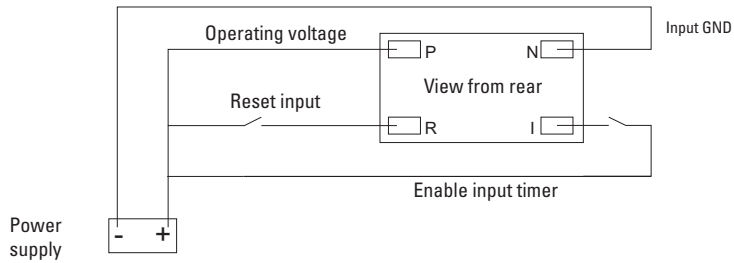
Electrical characteristics	
Power supply	4.5 ... 28 V DC
Current consumption	3 mA max. at 4.5 V DC 10 mA at 28 V DC
EMC	Emitted interference EN 61000-6-3 EN 55011 class B Immunity to interference EN 61000-6-2
The module must be protected against inductive voltage spikes and high energy noise interference.	

1) Stock types

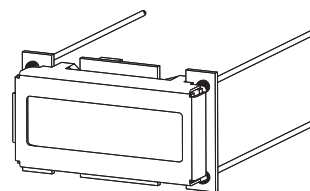
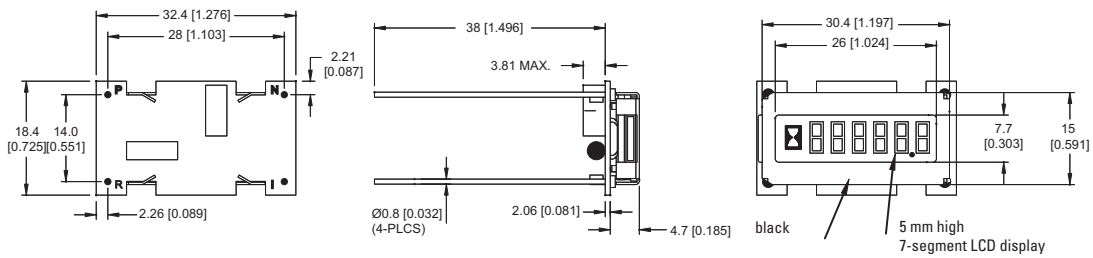
Hour meters / timers, electronic

LCD time modules	Max. time range 99999.9 h (DC)	198
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Terminal assignment

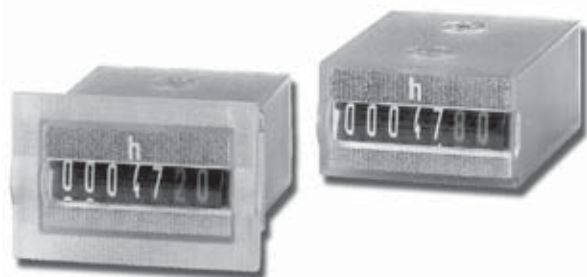


Dimensions



Hour meters / timers, electromechanical

Micro timers **High shock resistance (DC)** **HK 47**



The micro timers HK 47 have a very high shock resistance. Available as panel and PCB mount versions, they can be used in many different fields of application. Thanks to their encapsulated housing, these non-resettable counters are extremely tamper-proof.

Hour meters /
Timers

<h3>Characteristics</h3> <ul style="list-style-type: none"> • 7-digit micro hour meter • Low cost • High shock resistance • Small dimensions • Magnified large figures • Different reading possibilities • Panel-mount counter with integrated spring clip (HK 47.20) • PCB mount counter (HK 47.80) 	<h3>Benefits</h3> <ul style="list-style-type: none"> • Low power consumption; suitable for battery operation • Solderable and wash-proof (HK 47.80) • Data retention in case of power failure • Long service life <h3>Applications</h3> <p>Time registration, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels</p>
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Type series

Fig.	Mounting options	Display	Protection	El. connection	Order-No.
1)	Panel mount with latch	front side	IP65, front side	flying leads	HK 47.20
2)	PCB mount, upright	front side	IP65, front side/on rear	solder pins	HK 47.80

Mounting options and position of the display

1) Panel mount / display front side

2) PCB mount, upright / display front side

Technical data	
Drive	pulse-driven, precision crystal controller via electronic divider circuit
Pulse duration	32 ms; every 36 s = 0.01 h power on times < 36 s are not counted
Electrical connection	HK 47.20 flying leads AWG 22, approx. 150 mm long (red +, black -) HK 47.80 solder pins ø 0.64 mm
Display	99999.99 h
Counting drum	figures white on black, decimal place red on black
Rated Voltage	4.5 ... 35 V DC
Residual ripple	< 1 %
Current consumption	< 1.5 mA (average)
Power consumption	(count pulses every 36 s with a pulse duration of 32 ms) at U _B = 5 V DC typ. 82 mW at U _B = 12 V DC typ. 135 mW at U _B = 24 V DC typ. 135 mW max. 170 mW

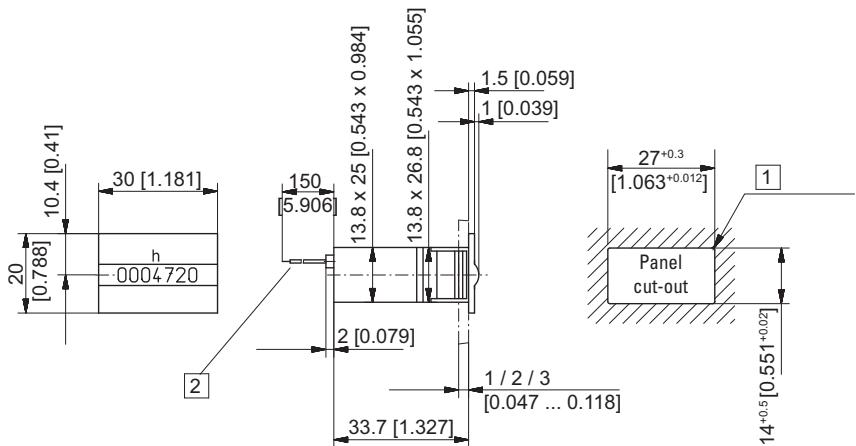
Accuracy	22.5 ppm at 25°C
Height of figures	4 x 1.25 mm
Reset	no reset
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C
Mounting position	horizontal (other on request)
Solderable and wash proof version	HK 47.80
Soldering temperature	265°C, 3 s
Protection	HK 47.80 IP66 (acc. to EN 60529) HK 47.20 IP66 (front side)
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Housing	PC transparent; HK 47.80 fully sealed (potted)
Weight	13 ... 15 g

Hour meters / timers, electromechanical

Micro timers	High shock resistance (DC)	HK 47
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Options	
HK 47.20, HK 47.80	flat pin 0.8 x 2.8 mm and push-on connectors
HK 47.20	solder pins \varnothing 0.64 x 1.2 mm
HK 47.80	flying leads AWG 22 approx. 150 mm long

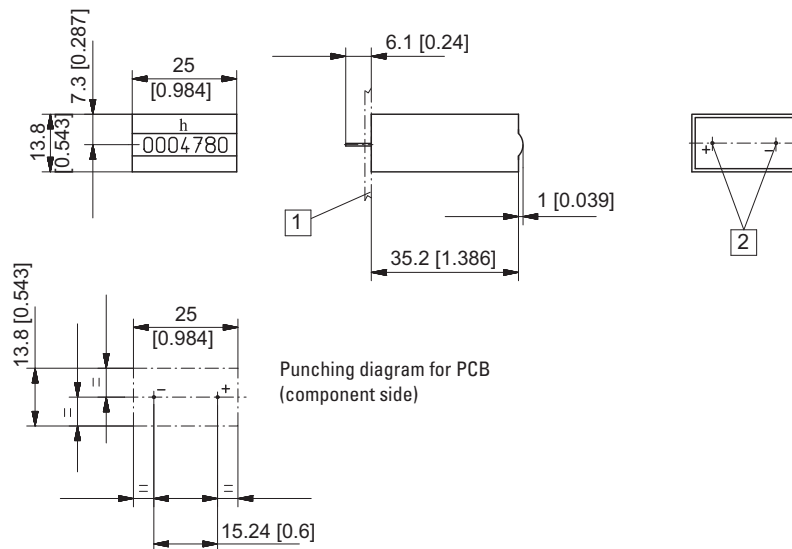
Panel mount with injection-moulded spring-clips Type HK 47.20



1) R_{max} 0.5 2) Flying leads AWG 22 (red+ / black-)

Type	Display	Art.-No. 4.5 ... 35 V DC
HK 47.20	99999.99 h	3.060.200.383 ¹⁾

PCB mount Type HK 47.80

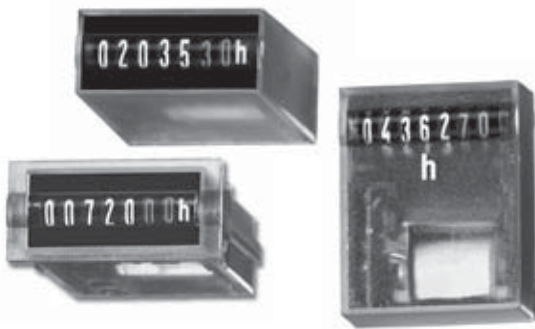


1) PCB 2) Solder pins \varnothing 0.64

Type	Display	Art.-No. 4.5 ... 35 V DC
HK 47.80	99999.99 h	3.060.800.383

Hour meters / timers, electromechanical

Micro timers	Many different installation options (DC)	HK 07 / AHK 07
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The micro timers of the HK 07 and AHK 07 families offer a particularly large number of variants and can be used in many different applications thanks to their wide voltage range from 4.5 to 35 V DC.

Available as panel, base and PCB mount versions, they can be used in many different fields of application. Thanks to their encapsulated housing, these non-resettable counters are extremely tamper-proof.

Hour meters / Timers

<p>Characteristics</p> <ul style="list-style-type: none"> • 7-digit micro hour meter • High shock and impact resistance • Low power consumption; suitable for battery operation • Small dimensions – magnified large figures • Panel-mount counter with integrated spring clip • PCB-mount counter • Machine-solderable and wash-proof • Protection IP65 	<p>Benefits</p> <ul style="list-style-type: none"> • Wide voltage range 4.5 ... 35 V DC • Count retention in case of power failure • Long service life <p>Applications</p> <p>General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles</p>
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Type series

Fig.	Mounting options	Display	Protection	El. connection	Housing	Height of fig.	Type
1)	Panel mount with latch	front side	IP65, front side	flying leads	plastic	4 mm	HK 07.20
2)	PCB mount, lying	on the top	IP65, front side/on rear	solder pins	plastic	4 mm	HK 07.90
4)	PCB mount, upright	front side	IP65, front side/on rear	solder pins	plastic	4 mm	HK 07.92
5)	Base mount, upright	front side	IP40	flying leads	plastic	4 mm	AHK 07.00

Mounting options and position of the display

<p>1) Panel mount / display front side</p>	<p>2) PCB mount, lying / display on the top</p>	<p>3) PCB mount, upright / display front side</p>
<p>4) Base mount, upright / display front side</p>	<p>Optional: PCB mount, hanging / display front side</p>	

Hour meters / timers, electromechanical

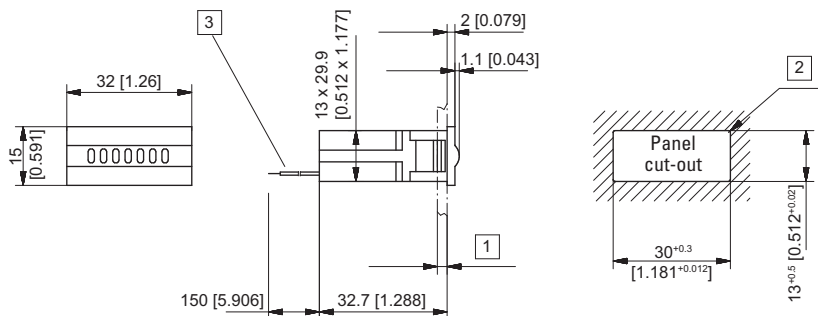
Micro timers	Many different installation options (DC)	HK 07 / AHK 07
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Technical data	
Electrical connection	panel mount flying leads, AWG 22 (red +, black -) approx. 150 mm, 6 mm stripped wire ends, tinned PCB mount solder pins 0.4 x 1.2 mm, tinned
Power consumption (every 36 s with a pulse length of 32 ms)	at $U_B = 5$ V DC typ. 82 mW at $U_B = 12$ V DC typ. 135 mW at $U_B = 24$ V DC typ. 135 mW max. 170 mW
Rated voltage	4.5... 35 V DC
Residual ripple	< 1 %
Current consumption	< 1.5 mA (average)
On time	100 %
Pulse duration	32 ms; every 36 s = 0.01 h On-times < 36 s will not be counted
Number of digits	7: 99999.99 h
Accuracy	22.5 ppm at 25°C

Height of figures	1.2 x 4.0 mm
Colour of figures	white and red on black
Reset	no reset
Operating temperature	-10°C ... +60°C (non-condensing)
Mounting position	horizontal, other on request
Solderable and washproof versions	HK 07.90, HK 07.91, HK 07.92
Soldering temperature	265°C, 3 s
Protection	up to IP65 depending on kind of type
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Housing	plastic PC (Polycarbonate)
Weight	15 ... 18 g

Options	
HK 07.20 flat pin 0.8 x 2.8 mm (other on request)	

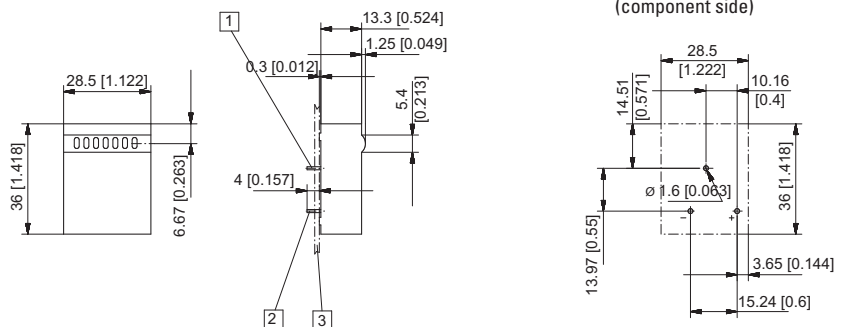
Panel mount with latch / display front side Type HK 07.20



- 1] 1.2 ... 3 mm 2] R_{max} 0.5 3] Flying leads (red+ / black-)

Type	Display	Art.-No.
		4.5 ... 35 V DC
HK 07.20	7 digits	3.100.200.383 ¹⁾
HK 07.20.35 with flat pins	7 digits	3.107.200.383 ¹⁾

PCB mount, lying / display on the top Type HK 07.90



- 1] Mounting pin without el. function 0.4 x 1.2 mm 2] Electrical connection 0.4 x 1.2 mm 3] PCB

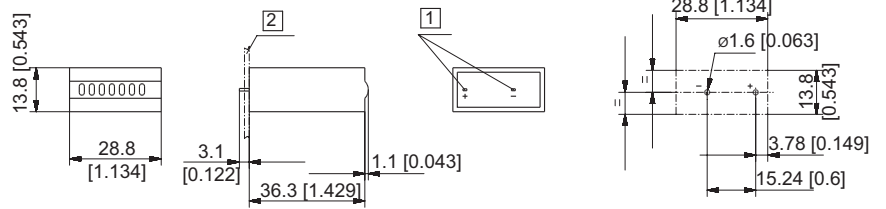
Type	Display	Art.-No.
		4.5 ... 35 V DC
HK 07.90	7 digits	3.100.900.383

Hour meters / timers, electromechanical

Micro timers **Many different installation options (DC)** **HK 07 / AHK 07**

PCB mount, upright / display front side
Type HK 07.92

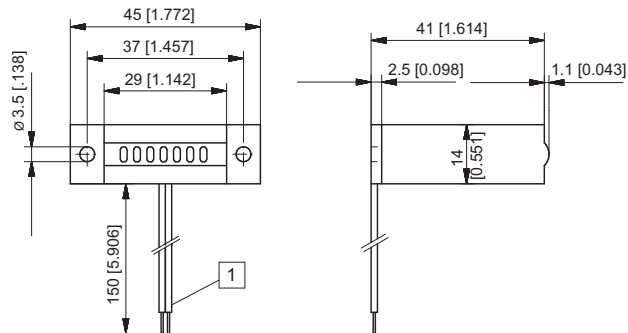
Punching diagram for PCB
(component side)



1 Electrical connection 0.4 x 1.2 mm 2 PCB

Type	Display	Art.-No.
HK 07.92	7 digits	4.5 ... 35 V DC 3.100.920.383

Base mount, upright / display front side
Type AHK 07.00



1 Flying leads (red+ / black-)

Type	Display	Art.-No.
AHK 07.00	7 digits	4.5 ... 35 V DC 3.100.000.383

Hour meters / timers, electromechanical

Timers with DIN dimensions

Small format (AC+DC)

HK 17



The hour meters HK 17 feature a very high shock resistance.

These panel-mount counters are available in many panel sizes. They can be used in many different fields of application.

These non-resettable counters are extremely tamper-proof.

Characteristics

- 7 or 8-digit hour meter
- Without reset
- High shock resistance
- Small dimensions
- Magnified large figures
- Protection IP65 on the front side
- UL-approved

Benefits

- Many different front panel sizes and cut-outs
- Data retention in case of power failure
- Long service life

Applications

General time measurement, maintenance intervals for medical equipment (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

Type code

HK17 . **a** **b** **c** **d** . 56¹⁾

a Front bezel

- 0 = without front bezel (through housing)
- 2 = small front bezel with clip
- 4 = front bezel with holes at the side

b Type of housing

- 5 = housing black with welded viewing window

c Colour

- 1 = black

d Electrical connection

- 11 = flat pin 0.8 x 6.3 mm (optional)
- 39 = screw terminal (standard) with flat pin 0.8 x 6.3 mm

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data

Electrical connection	flat pins 0.8 x 6.3 mm with screw terminals (max. tightening torque 0.8 Nm) or flat pins 0.8 x 6.3 mm																
Power consumption	<table border="0"> <tr> <td>10 ... 30 V DC</td> <td>approx. 500 mW</td> </tr> <tr> <td>36 ... 80 V DC</td> <td>approx. 900 mW</td> </tr> <tr> <td>100 ... 130 V DC</td> <td>approx. 750 mW</td> </tr> <tr> <td>20 ... 30 V AC, 50 Hz</td> <td>approx. 0.3 VA</td> </tr> <tr> <td>42 ... 48 V AC, 50 Hz</td> <td>approx. 0.25 VA</td> </tr> <tr> <td>100 ... 130 V AC, 50 Hz</td> <td>approx. 0.6 VA</td> </tr> <tr> <td>187 ... 264 V AC, 50 Hz</td> <td>approx. 1.2 VA</td> </tr> <tr> <td>360 ... 440 V AC, 50 Hz</td> <td>approx. 1.65 VA</td> </tr> </table>	10 ... 30 V DC	approx. 500 mW	36 ... 80 V DC	approx. 900 mW	100 ... 130 V DC	approx. 750 mW	20 ... 30 V AC, 50 Hz	approx. 0.3 VA	42 ... 48 V AC, 50 Hz	approx. 0.25 VA	100 ... 130 V AC, 50 Hz	approx. 0.6 VA	187 ... 264 V AC, 50 Hz	approx. 1.2 VA	360 ... 440 V AC, 50 Hz	approx. 1.65 VA
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360 ... 440 V AC, 50 Hz	approx. 1.65 VA																
Rated voltages	<table border="0"> <tr> <td>AC (50 or 60 Hz)</td> <td>20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V</td> </tr> <tr> <td>DC</td> <td>10 ... 30 V, 36 ... 80 V, 100 ... 130 V</td> </tr> </table>	AC (50 or 60 Hz)	20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V	DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V												
AC (50 or 60 Hz)	20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V																
DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V																
Number of digits	<table border="0"> <tr> <td>7 at AC</td> <td>99999.99 h</td> </tr> <tr> <td>8 at DC</td> <td>999999.99 h</td> </tr> </table>	7 at AC	99999.99 h	8 at DC	999999.99 h												
7 at AC	99999.99 h																
8 at DC	999999.99 h																
Accuracy	<table border="0"> <tr> <td>AC</td> <td>supply frequency + 30 ms</td> </tr> <tr> <td>DC</td> <td><0.003 % (at 24 h)</td> </tr> </table>	AC	supply frequency + 30 ms	DC	<0.003 % (at 24 h)												
AC	supply frequency + 30 ms																
DC	<0.003 % (at 24 h)																

Height of figures	3.8 x 1.7 mm optical						
Colour of figures	white and red on black						
Operating temperature	-15°C ... +50°C (non-condensing)						
Storage temperature	-40°C ... +85°C						
Mounting position	any						
Protection	IP65 (front side)						
EMC	<table border="0"> <tr> <td>Emitted interference</td> <td>EN 55011 class B</td> </tr> <tr> <td>Immunity to interference</td> <td>EN 61000-6-2</td> </tr> </table>	Emitted interference	EN 55011 class B	Immunity to interference	EN 61000-6-2		
Emitted interference	EN 55011 class B						
Immunity to interference	EN 61000-6-2						
Device safety	<table border="0"> <tr> <td>Designed to</td> <td>EN 61010 part 1</td> </tr> <tr> <td>Protection class</td> <td>2</td> </tr> <tr> <td>Application area</td> <td>Pollution level 2</td> </tr> </table>	Designed to	EN 61010 part 1	Protection class	2	Application area	Pollution level 2
Designed to	EN 61010 part 1						
Protection class	2						
Application area	Pollution level 2						
UL approval	E128604 ²⁾						
Housing	plastic PC (Polycarbonate) types with protection IP65 are sealed						
Weight	approx. 40 g						

Options

Counter with flat pin 0.8 x 6.3 mm Art.-No. 3.138.X51.XXX

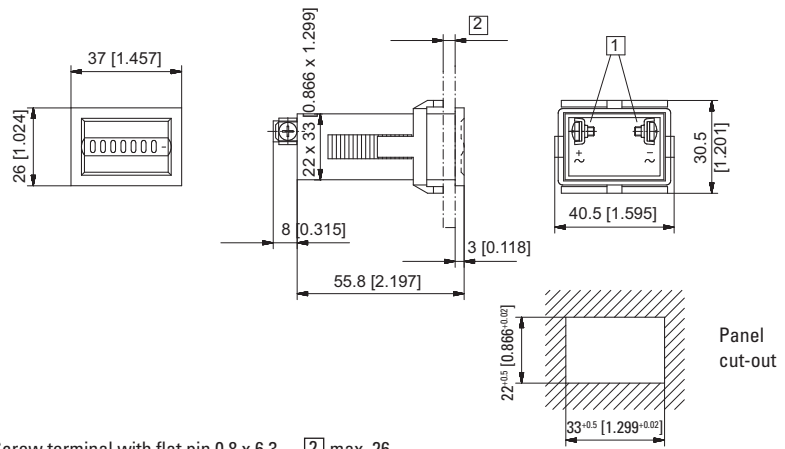
1) 56 for front bezel 36 x 24 mm

2) The version 360 ... 440 V AC is not UL listed

Hour meters / timers, electromechanical

Timers with DIN dimensions **Small format (AC+DC)** **HK 17**

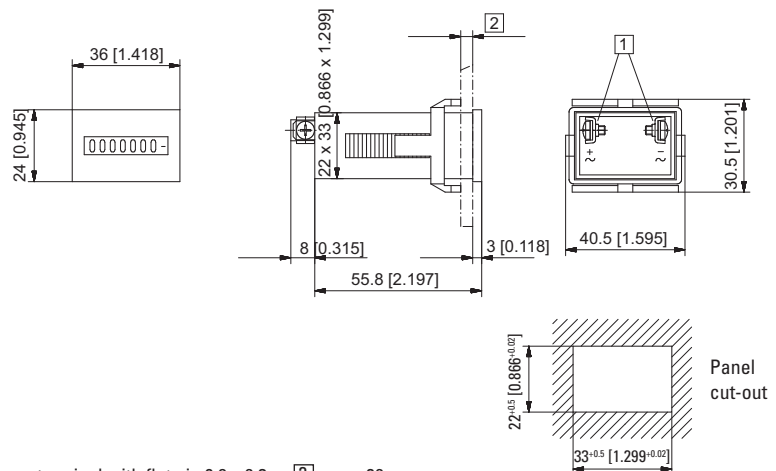
Panel mount with mounting clip
Type HK 17.251.39



1) Screw terminal with flat pin 0.8 x 6.3 2) max. 26

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.251.39	7 digits	AC (50 Hz)		3.130.251.071		3.130.251.072	3.130.251.074	3.130.251.075 ¹⁾	3.130.251.079
		AC (60 Hz)		3.130.251.081		3.130.251.082	3.130.251.084	3.130.251.085	3.130.251.089
		DC	3.130.251.351 ¹⁾		3.130.251.353		3.130.251.381		

Panel mount with mounting clips
Type HK 17.251.39.56



1) Screw terminal with flat pin 0.8 x 6.3 2) max. 26

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.251.39.56	7 digits	AC (50 Hz)		3.130.251.071.056		3.130.251.072.056	3.130.251.074.056	3.130.251.075.056 ¹⁾	3.130.251.079.056
		AC (60 Hz)		3.130.251.081.056		3.130.251.082.056	3.130.251.084.056	3.130.251.085.056	3.130.251.089.056
		DC	3.130.251.351.056 ¹⁾		3.130.251.353.056		3.130.251.381.056		

Hour meters / timers, electromechanical

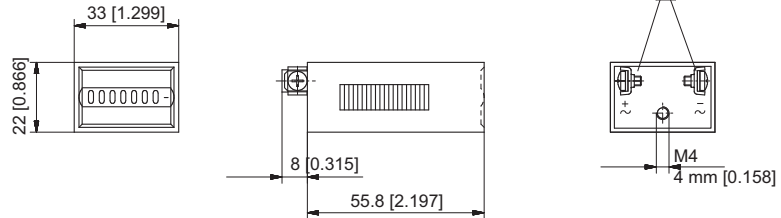
Timers with DIN dimensions

Small format (AC+DC)

HK 17

Base mount with central fixing on rear

Type HK 17.051.39

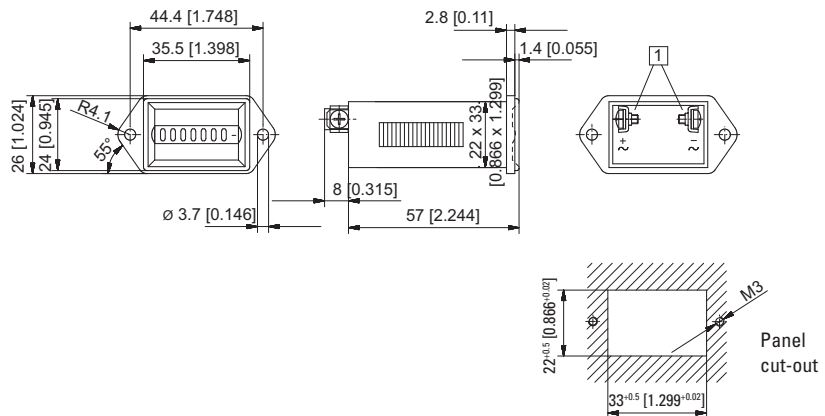


1) Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.051.39	7 digits	AC (50 Hz)		3.130.051.071		3.130.051.072	3.130.051.074	3.130.051.075	3.130.051.079
		AC (60 Hz)		3.130.051.081		3.130.051.082	3.130.051.084	3.130.051.085	3.130.051.089
		DC	3.130.051.351		3.130.051.353		3.130.051.381		

Panel mount with 2 holes at the side

Type HK 17.451.39



1) Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HK 17.451.39	7 digits	AC (50 Hz)		3.130.451.071		3.130.451.072	3.130.451.074	3.130.451.075	3.130.451.079
		AC (60 Hz)		3.130.451.081		3.130.451.082	3.130.451.084	3.130.451.085	3.130.451.089
		DC	3.130.451.351 ¹⁾		3.130.451.353		3.130.451.381		

Hour meters / timers, electromechanical

Timers with DIN dimensions

DIN counters for panel mount, 48 x 24 mm (AC+DC)

H 37



The hour meters H 37 feature a very high shock resistance. These panel mount counters with standard DIN dimensions can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.



Characteristics

- 7- or 8-digit hour meter
- Without reset, high shock resistance
- Small dimensions, magnified large figures
- Protection IP65 on the front side
- Panel mount counter with integrated spring clip (H 37.4)
- UL-approved

Benefits

- 5 years guarantee ¹⁾
- High reliability: for a better sale of your final product
- Data retention in case of power failure
- Long service life

Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

Hour meters /
Timers

Type series

Description	Mounting	Panel cut-out	Type
Standard DIN counter for panel mount	mounting clip, on rear	45 x 22 mm	H 37
Standard DIN counter for panel mount	2 mounting holes	50 x 25 mm	H 37.1
Standard DIN counter for panel mount	mounting clip, on rear	50 x 25 mm	H 37.2
Standard DIN counter for panel mount	mounting clip, on rear	45 x 22 mm	H 37.5

1) When used as specified in the technical data

Hour meters / timers, electromechanical

Timers with DIN dimensions	DIN counters for panel mount, 48 x 24 mm (AC+DC)	H 37	Order-No.
Accessories			
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Adapter front bezel, 56 x 40 mm	For cut-out 50 x 25 mm to cut-out 45 x 22.2 mm, with screw mounting for counters 48 x 24 mm	black	T008161
Adapter front bezel, 53 x 28 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	grey black	T008164 T008165
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004
Gasket 60 x 50 mm	For cut-out 54.4 x 29.4 mm, suitable for H 37.2 and H 37.4	black	N511005
Gasket 48 x 24 mm	For cut-out 45 x 22 mm, suitable for H 37 and H 37.45	black	N511029
Terminal cover type KA 37	For H 37 counters (2 pcs. per counter required)	transparent	T051687

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

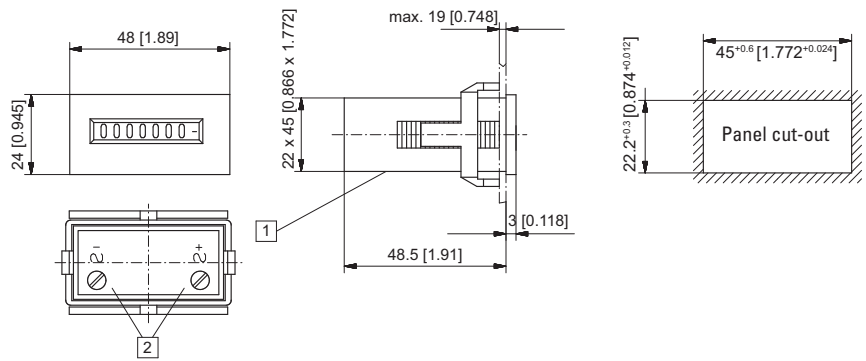
Technical data	
Electrical connection	screw terminals (tightening torque max. 0.8 Nm)
Power consumption	10 ... 30 V DC approx. 500 mW 36 ... 80 V DC approx. 900 mW 100 ... 130 V DC approx. 750 mW 20 ... 30 V AC, 50 Hz approx. 0.3 VA 42 ... 48 V AC, 50 Hz approx. 0.25 VA 100 ... 130 V AC, 50 Hz approx. 0.6 VA 187 ... 264 V AC, 50 Hz approx. 1.2 VA
Rated voltages	AC (50 or 60 Hz) 20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V DC 10 ... 30 V, 36 ... 80 V, 100 ... 130 V
On time	100 %
Number of digits	AC 7 – 99999.99 h DC 8 – 999999.99 h
Resolution	0.01 h equals 36 s
Height of figures	4 mm
Colour of figures	white and red on black
Reset	no reset
Operating temperature	-15°C ... +50°C (non-condensing)
Storage temperature	-40°C ... +85°C
Relativ humidity	< 95 % (non-condensing)
Mounting position	any

Protection	IP65 (front side) built in with gasket, (order gasket separately)
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	E128604
Housing	plastic PC (Polycarbonate) types with IP65 protection are sealed (potted)
Accuracy	AC supply frequency + 30 ms DC < 0.003 % (at 24 h)
Weight	H 37 approx. 50 g slip on bezel 37.1 6 g slip on bezel 37.2 2 g
Options	
Colour of housing	grey Art.-No. 3.130.X50.XXX
Electrical connection	flat pin 0.8 x 6.3 mm Art.-No.: 3.24X.20X.XXX.011 screw terminal with terminal cover Art.-No.: 3.24X.20X.XXX.456
360 - 440 V AC	on request

Hour meters / timers, electromechanical

Timers with DIN dimensions **DIN counters for panel mount, 48 x 24 mm (AC+DC)** **H 37**

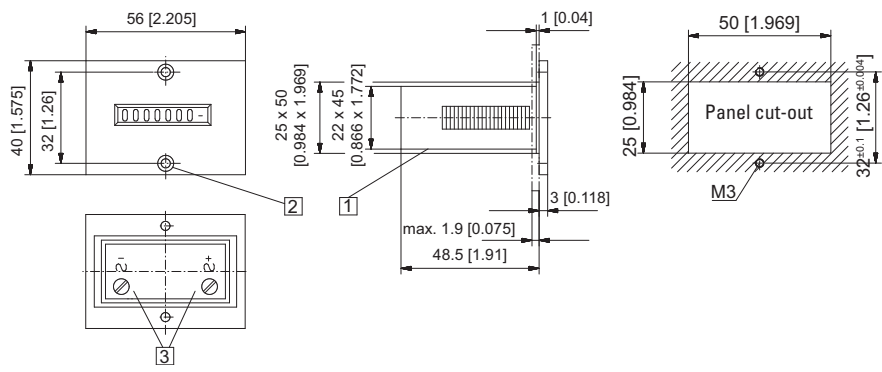
**Mounting clip, on rear,
panel mount dimensions 45 x 22 mm
Type H 37**



1 Wire entry 2 Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37	7 digits	AC (50 Hz)		3.240.201.071		3.240.201.072	3.240.201.074 ¹⁾	3.240.201.075 ¹⁾
		AC (60 Hz)		3.240.201.081		3.240.201.082	3.240.201.084	3.240.201.085
		DC	3.240.201.351 ¹⁾	3.240.201.353	3.240.201.381			

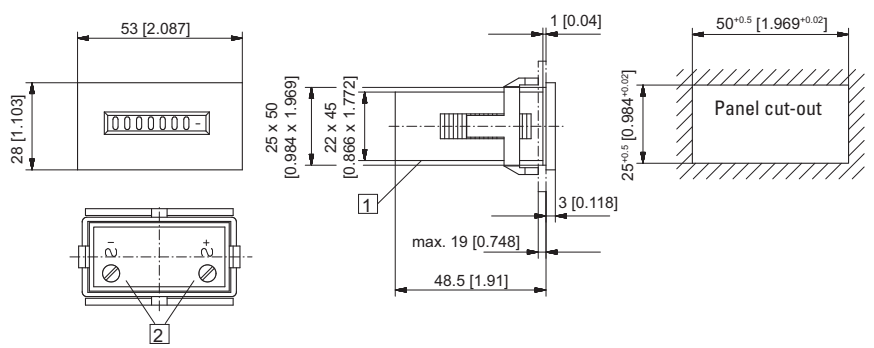
**2 mounting holes,
panel mount dimensions 50 x 25 mm
Type H 37.1**



1 Wire entry 2 Countersinking Af3, DIN 74 3 Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37.1	7 digits	AC (50 Hz)		3.241.201.071		3.241.201.072	3.241.201.074	3.241.201.075
		AC (60 Hz)		3.241.201.081		3.241.201.082	3.241.201.084	3.241.201.085
		DC	3.241.201.351 ¹⁾	3.241.201.353	3.241.201.381			

**Mounting clip, on rear,
panel mount dimensions 50 x 25 mm
Type H 37.2**



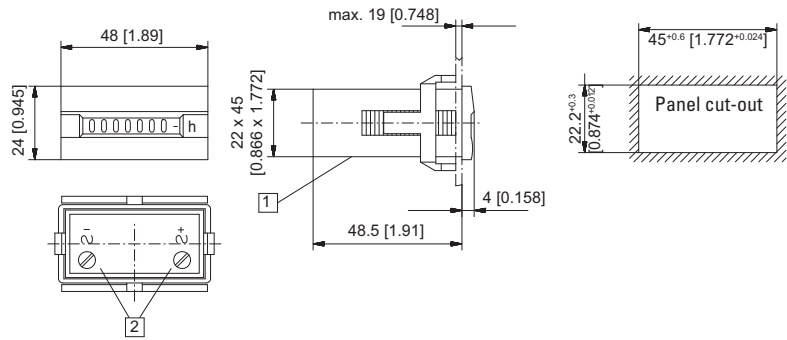
1 Wire entry 2 Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
H 37.2	7 digits	AC (50 Hz)		3.242.201.071		3.242.201.072	3.242.201.074	3.242.201.075 ¹⁾
		AC (60 Hz)		3.242.201.081		3.242.201.082	3.242.201.084	3.242.201.085
		DC	3.242.201.351 ¹⁾	3.242.201.353	3.242.201.381			

Hour meters / timers, electromechanical

Timers with DIN dimensions DIN counters for panel mount, 48 x 24 mm (AC+DC) H 37

**DIN counter for panel mount
mounting clip, on rear,
panel mount dimensions 45 x 22 mm
Type H 37.5**



1 Wire entry 2 Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	
H 37.5	7 digits	AC (50 Hz)		3.245.201.071		3.245.201.072	3.245.201.074	3.245.201.075 ¹⁾	
		AC (60 Hz)		3.245.201.081		3.245.201.082	3.245.201.084	3.245.201.085	
		DC	3.245.201.351 ¹⁾		3.245.201.353		3.245.201.381		

Hour meters / timers, electromechanical

Timers with DIN dimensions

DIN counter for panel mount / DIN rail housing, 48 x 48 mm (AC+DC)

H 57 / AH 57



The hour meters H 57, H 57.55, H 57.72 and AH 57 feature a very high shock resistance. These panel / DIN rail mount counters have a reduced mounting depth. They can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.



Characteristics

- 7 or 8-digit hour meter
- High shock and impact resistance
- Without reset, small mounting depth
- Magnified large figures
- Protection IP52 (optional IP65), suitable for any mounting position
- UL-approved
- Various front bezel sizes
 - H 57 48 x 48 mm
 - H 57.55 55 x 55 mm
 - H 57.72 72 x 72 mm
 - AH 57 48 x 48 mm for DIN rail

Benefits

- 5 years guarantee ¹⁾
- High reliability: for a better sale of your final product
- Data retention in case of power failure
- Long service life

Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

Hour meters /
Timers

Type series

Description	Mounting	Front bezel	Type
Standard DIN timer	clip mounting, on rear	48 x 48 mm	H 57
Standard DIN timer	clip mounting, on rear	55 x 55 mm	H 57.55
Standard DIN timer	clip mounting, on rear	72 x 72 mm	H 57.72
Base mount timer	DIN rail 35 mm acc. to DIN EN 50022		AH 57

Accessories

Order-No.

Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm or \varnothing 50.5 mm to cut-out 45 x 45 mm, with clip mounting for counters 48 x 48 mm	black	T008171
Adapter front bezel, 60 x 75 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm, with screw mounting for counters 48 x 48 mm	black	T008860
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm, mating clip T009420 must be ordered separately	black	T008177
Adapter front bezel, \varnothing 72 mm	For cut-out \varnothing 60 mm to 45 x 45 mm, with clip mounting for counters 48 x 48 mm	black	N510226
Base-mount socket	For H 57	black	G008040

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) When used as specified in the technical data

Hour meters / timers, electromechanical

Timers with DIN dimensions DIN counter for panel mount / DIN rail housing, 48 x 48 mm (AC+DC) H 57 / AH 57

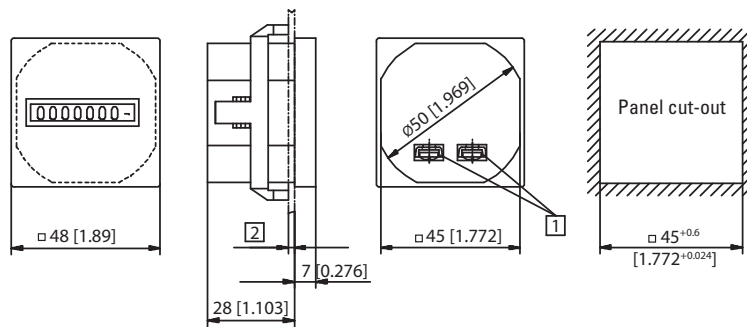
Technical data															
Electrical connection	screw terminals (tightening torque max. 0.8 Nm) wire entry from behind, for \varnothing 2.5 mm ²														
Power consumption	<table border="0"> <tr> <td>10 ... 30 V DC</td> <td>approx. 500 mW</td> </tr> <tr> <td>100 ... 130 V DC</td> <td>approx. 750 mW</td> </tr> <tr> <td>20 ... 30 V AC, 50 Hz</td> <td>approx. 0.3 VA</td> </tr> <tr> <td>42 ... 48 V AC, 50 Hz</td> <td>approx. 0.25 VA</td> </tr> <tr> <td>100 ... 130 V AC, 50 Hz</td> <td>approx. 0.6 VA</td> </tr> <tr> <td>187 ... 264 V AC, 50 Hz</td> <td>approx. 1.2 VA</td> </tr> <tr> <td>360 ... 440 V AC, 50 Hz</td> <td>approx. 1.65 VA</td> </tr> </table>	10 ... 30 V DC	approx. 500 mW	100 ... 130 V DC	approx. 750 mW	20 ... 30 V AC, 50 Hz	approx. 0.3 VA	42 ... 48 V AC, 50 Hz	approx. 0.25 VA	100 ... 130 V AC, 50 Hz	approx. 0.6 VA	187 ... 264 V AC, 50 Hz	approx. 1.2 VA	360 ... 440 V AC, 50 Hz	approx. 1.65 VA
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100 ... 130 V DC	approx. 750 mW														
20 ... 30 V AC, 50 Hz	approx. 0.3 VA														
42 ... 48 V AC, 50 Hz	approx. 0.25 VA														
100 ... 130 V AC, 50 Hz	approx. 0.6 VA														
187 ... 264 V AC, 50 Hz	approx. 1.2 VA														
360 ... 440 V AC, 50 Hz	approx. 1.65 VA														
Rated voltages	<table border="0"> <tr> <td>AC (50 or 60 Hz)</td> <td>20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V</td> </tr> <tr> <td>DC</td> <td>10 ... 30 V, 36 ... 80 V, 100 ... 130 V</td> </tr> </table>	AC (50 or 60 Hz)	20 ... 30 V, 42 ... 48 V, 100 ... 130 V, 187 ... 264 V, 360 ... 440 V	DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V										
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DC	10 ... 30 V, 36 ... 80 V, 100 ... 130 V														
On time	100 %														
Number of digits	<table border="0"> <tr> <td>7 at AC</td> <td>99999.99 h</td> </tr> <tr> <td>8 at DC</td> <td>999999.99 h</td> </tr> </table>	7 at AC	99999.99 h	8 at DC	999999.99 h										
7 at AC	99999.99 h														
8 at DC	999999.99 h														
Count mode	adding														
Height of figures	4 mm														
Colour of figures	white and red on black														
Operating temperature	-15°C ... +50°C (non-condensing)														
Storage temperature	-40°C ... +85°C														
Relative humidity	< 95% (non-condensing)														
Mounting position	any														
Protection	IP52, DIN 40050 (front side)														
Housing	plastic PC (Polycarbonate)														
Accuracy	<table border="0"> <tr> <td>AC</td> <td>supply frequency + 30 ms</td> </tr> <tr> <td>DC</td> <td>< 0.003 % (at 24 h)</td> </tr> </table>	AC	supply frequency + 30 ms	DC	< 0.003 % (at 24 h)										
AC	supply frequency + 30 ms														
DC	< 0.003 % (at 24 h)														
Weight	<table border="0"> <tr> <td>H 57</td> <td>approx. 48 g</td> </tr> <tr> <td>base mount socket no. 48</td> <td>36 g</td> </tr> <tr> <td>slip-on bezel 55</td> <td>8 g</td> </tr> <tr> <td>slip-on bezel 72</td> <td>13 g</td> </tr> </table>	H 57	approx. 48 g	base mount socket no. 48	36 g	slip-on bezel 55	8 g	slip-on bezel 72	13 g						
H 57	approx. 48 g														
base mount socket no. 48	36 g														
slip-on bezel 55	8 g														
slip-on bezel 72	13 g														
Operating indicator of the running time meter	<table border="0"> <tr> <td>AC</td> <td>fast rotating wheel with red dashes</td> </tr> <tr> <td>DC</td> <td>11/100 h display turns continuously by 1 digit in 36 s</td> </tr> </table>	AC	fast rotating wheel with red dashes	DC	11/100 h display turns continuously by 1 digit in 36 s										
AC	fast rotating wheel with red dashes														
DC	11/100 h display turns continuously by 1 digit in 36 s														
Test voltage	2000 V AC, 50 Hz for AC counters														
UL approval	E128604 the version 360 ... 440 V AC is not UL listed														

Options							
Colour of housing	grey Art.-No. 3.22X.400.XXX						
Timer H 57.55 mounted with adapter front bezel 55 x 55 mm	Art.-No. 3.221.XXX.XXX						
Timer H 57.72 montiert mit Adapter-Frontrahmen 72 x 72 mm	Art.-No. 3.222.XXX.XXX						
Electrical connection	flat pin 0.8 x 6.3 mm Art.-No.: 3.228.401.XXX						
IP65 version, welded front cover	<table border="0"> <tr> <td>H 57</td> <td>Art.-No. 3.220.XXX.XXX.422</td> </tr> <tr> <td>H 57.55</td> <td>Art.-No. 3.221.XXX.XXX.423</td> </tr> <tr> <td>H 57.72</td> <td>Art.-No. 3.222.XXX.XXX.424</td> </tr> </table>	H 57	Art.-No. 3.220.XXX.XXX.422	H 57.55	Art.-No. 3.221.XXX.XXX.423	H 57.72	Art.-No. 3.222.XXX.XXX.424
H 57	Art.-No. 3.220.XXX.XXX.422						
H 57.55	Art.-No. 3.221.XXX.XXX.423						
H 57.72	Art.-No. 3.222.XXX.XXX.424						
Required gaskets	between the counter and the bezel H 57 N511018						
Gasket set	<table border="0"> <tr> <td>H 57.55</td> <td>N511018 + N511017</td> </tr> <tr> <td>H 57.72</td> <td>N511018 + N511016</td> </tr> </table>	H 57.55	N511018 + N511017	H 57.72	N511018 + N511016		
H 57.55	N511018 + N511017						
H 57.72	N511018 + N511016						
(with the IP65 version, the gasket is included in the delivery)							
Further voltages on request							
Counter with cable inlet from underneath, screw fixing from rear Art.-No. 3.228.401.XXX.044							

Hour meters / timers, electromechanical

Timers with DIN dimensions **DIN counter for panel mount / DIN rail housing, 48 x 48 mm (AC+DC)** **H 57 / AH 57**

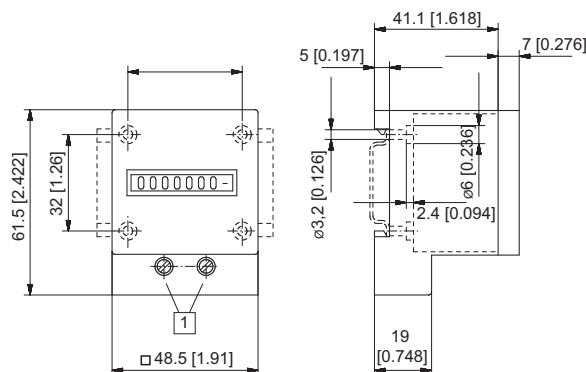
Standard DIN timer
clip mounting, on rear
Type H 57



1) Screw terminal with flat pin 0.8 x 6.3 2) max. 9

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
H 57	7 digits	AC (50 Hz)		3.220.401.071 ¹⁾	3.220.401.072	3.220.401.074 ¹⁾	3.220.401.075 ¹⁾	3.220.401.079
		AC (60 Hz)		3.220.401.081 ¹⁾	3.220.401.082	3.220.401.084 ¹⁾	3.220.401.085 ¹⁾	3.220.401.089
		DC	3.220.401.351 ¹⁾			3.220.401.381		
Further stock types:			3.220.401.075.422	187... 264 V AC, IP65				
			3.220.401.351.422	10 ... 30 V DC, IP65				

Base mount timer
DIN rail mount 35 mm acc. to DIN EN 50022
Type AH 57



1) Screw terminals

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
AH 57	7 digits	AC (50 Hz)		3.223.401.071	3.223.401.072	3.223.401.074 ¹⁾	3.223.401.075 ¹⁾	3.223.401.079
		AC (60 Hz)		3.223.401.081	3.223.401.082	3.223.401.084 ¹⁾	3.223.401.085 ¹⁾	3.223.401.089
		DC	3.223.401.351 ¹⁾			3.223.401.381		

Hour meters / timers, electromechanical

Timers for DIN rail mounting	Micro DIN rail housing (AC+DC)	SHK 07.1
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The micro timers SHK 07.1 feature a very high shock resistance. These base and DIN rail mount counters can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

Characteristics

- 7-digit micro hour meter
- DIN rail mount according to EN 50022
- Base mount counter
- High shock resistance
- Low power consumption
- Small dimensions
- Magnified large figures
- Display range 99999.99 h

Benefits

- Wide voltage range 4.5 ...35 V DC, 20 ...264 V AC
- Data retention in case of power failure
- Long service life

Applications

General time measurement, integration in control cabinets

Type series

Description	Mounting	Type
Timer	DIN rail 35 mm acc. to DIN EN 50022	SHK 07.1

Technical data

Electrical connection	clamp terminal tightening torque max.	up to 2.5 mm ² 0.8 Nm
Power consumption	(count pulses every 36 s with a pulse duration of 32 ms)	
	at U _B = 5 V DC	typ. 82 mW
	at U _B = 12 V DC	typ. 135 mW
	at U _B = 24 V DC	typ. 135 mW
	at U _B = 22 ... 32 V DC	typ. 170 mW
	20 ... 30 V AC	approx. 0.43 VA
	100 ... 130 V AC	approx. 0.82 VA
	187 ... 264 V AC	approx. 1.8 VA
On time		100 %
Number of digits		7 (99999.99 h)
Accuracy		22.5 ppm at 25°C
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

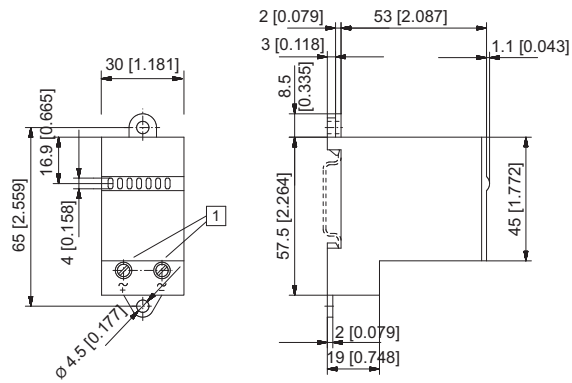
Height of figures	1.2 x 4 mm
Colour of figures	white and red on black
Operating temperature	AC -10°C ... +50°C (non-condensing) DC -10°C ... +60°C (non-condensing)
Mounting position	horizontal, other on request
Protection	up to IP52 depends on version
Housing	plastic PC (Polycarbonate)
Weight	approx. 55 g

Options	
Colour of housing	grey
Temperature range	-30°C ... +85°C
Version with 6 digits width of figures	1.7 mm

Hour meters / timers, electromechanical

Timers for DIN rail mounting **Micro DIN rail housing (AC+DC)** **SHK 07.1**

Timer for DIN rail mount
Type SHK 07.1



1) Electrical connection

Type	Display	Voltage	Art.-No.			
			4.5 ... 35 V	20 ... 30 V	100 ... 130 V	187 ... 264 V
SHK 07.1	7 digits	AC (50...60 Hz)		3.102.101.310	3.102.101.312	3.102.101.313 ¹⁾
		DC	3.102.101.383 ¹⁾			

Hour meters /
Timers

Hour meters / timers, electromechanical

Timers for DIN rail mounting

DIN rail housing, 2 modules wide (AC+DC)

SH 17



The hour meters SH 17 feature a very high shock resistance.

These DIN rail mount counters can be used in many different fields of application. These non-resettable counters are extremely tamper-proof.

Characteristics

- 7-digit hour meter
- DIN rail-mount housing, width 2 modules
- High shock and impact resistance
- Without reset
- Magnified large figures
- Protection IP65 on the front side

Benefits

- Easy mounting
- Data retention in case of power failure
- Long service life

Applications

General time measurement, maintenance intervals for measuring instruments, small appliances, UV lamps, integration in control cabinets

Type series

Description	Mounting	Type
Standard timer	DIN rail 35 mm acc. to DIN EN 50022	SH 17

Technical data

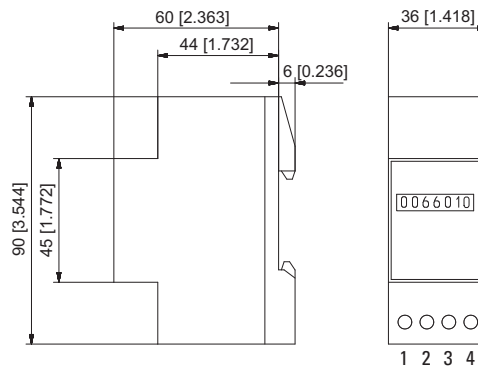
Electrical connection		screw terminals
	finely-stranded	0 .. 2.5 mm ²
	single-wires	0 .. 4 mm ²
	tightening torque max.	0.5 Nm
Power consumption	DC	approx. 1 W
	AC	approx. 2.5 VA
Rated voltages		24, 115, 230 V AC ±10%, 50Hz
		115 V AC ±10%, 60Hz
		10 ... 27 V DC
On time		100 %
Number of digits		7: 99999.99 h
Height of figures		1.8 x 3.6 mm
Colour of figures		white on black
Decimal figures		black on white
Housing		plastic PC (Polycarbonate)
Weight		approx. 60 g
Colour of housing		grey, Ral 7035

Reset		no reset
Operating temperature	AC/DC	-10°C ... +70°C (non-condensing)
Storage temperature	AC/DC	-40°C ... +80°C
Mounting position		any
Protection acc. to EN 60529		IP65 (front side)
	screw terminal	IP20
Vibration resistance		1 g (10 ... 500 Hz) acc. to EN 60028-2-34
Shock resistance		30 g (18 ms) acc. to EN 60068-2-27
		25 g (6 ms) acc. to EN 60068-2-29
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2
Accuracy		< 0.01%, for all versions

Hour meters / timers, electromechanical

Timers for DIN rail mounting **DIN rail housing, 2 modules wide (AC+DC)** **SH 17**

Standard timer
Type SH 17



Terminal assignment

PIN	DC	AC
1	n.c.	n.c.
2	+	~
3	-	~
4	n.c.	n.c.

Type	Display	Voltage	Art.-No.			
			24 V	115 V	230 V	10 ... 27 V DC
SH 17	7 digits	AC (50 Hz)	0.170.000.071	0.170.000.284	0.170.000.075 ¹⁾	
		AC (60 Hz)		0.170.000.287		
		DC		0.170.000.351 ¹⁾		

Hour meters / Timers

Hour meters / timers, electromechanical

Timers, round design

With LED run indicator (AC+DC)

HR 47



The hour meter HR 47 with run indicator feature a very high shock resistance.

These panel-mount counters for round panel cut-outs can be used in many different fields of application. These non-resettable counters are very robust and extremely tamper-proof.

Characteristics

- 7-digit hour meter
- For voltage ranges 10...80 V DC, 100...130 V AC and 187...264 V AC
- Magnified large figures
- Protection IP65 on the front and rear sides
- Suitable for any mounting position
- Without reset, and thus tamper-proof
- High shock and impact resistance

Benefits

- With run indicator (AC version), optional LED (DC version)
- For panel cut-out \varnothing 50.5 mm with front panel dimensions \varnothing 58 mm
- Simple and secure mounting with screwed clamping clip

Applications

General time measurement, construction machinery and industrial trucks, small appliances, UV lamps, display panels in vehicles, compressors, air-conditioning equipment, etc.

Type series

Description	Mounting	Type
Timer, round	Clamping clip fixing, screw-on	HR 47

Accessories

		Order-No.
Counter mounting fixture	For round counters with cut-out \varnothing 53 mm	black N510199
Gasket, \varnothing 58 mm	For cut-out \varnothing 50 mm	black N511182
Adapter and anti-vibration set	For HR 47, \varnothing 80 mm for cut-out \varnothing 71 mm	black 255319

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Hour meters / timers, electromechanical

Timers, round design	With LED run indicator (AC+DC)	HR 47
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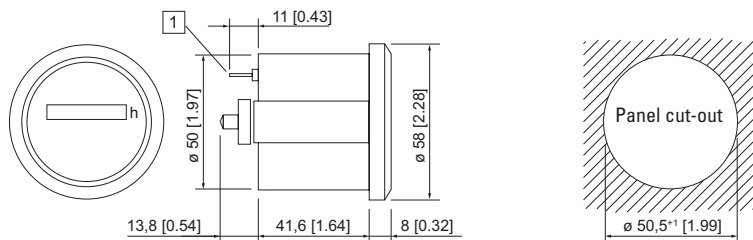
Technical data	
Electrical connection	screw terminal for flat pin 6.3 x 0.8
Power consumption	10 ... 80 V DC max. 720 mW 100 ... 130 V AC, 60 Hz max. 1.1 VA 187 ... 264 V AC, 50 Hz approx. 1.2 VA
Rated voltages	AC (50 or 60 Hz) 100 ... 130/187 ... 264 V AC, DC 10 ... 80 V DC
On time	100 %
Number of digits	AC 7: 99999.99 h DC 7: 999999.9 h
Resolution	AC 0.01 h equals 36 s DC 0.1 h equals 6 min
Count mode	adding
Height of figures	4 mm
Colour of figures	white and red on black
Operating temperature	AC -25°C ... +80°C (non-condensing) DC -20°C ... +70°C (non-condensing)
Relative humidity	< 95% (non-condensing)
Mounting position	any

Protection	up to IP65, EN 60529	
Housing	plastic PC (Polycarbonate)	
Accuracy	AC	± 0.02%
	DC	± 0.002%
Weight	approx. 50 g	
Run indicator	AC	fast rotating wheel in viewing window
	DC	optional LED
Test voltage	2000 V AC, 50 Hz for AC version	
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

Options	
Counter for ø 52 mm with screwed clamping bracket or screw thread on request	

Hour meters / Timers

Timer, round Type HR 47



1) Electrical connection

Front bezel thickness max. 6 mm without having to shorten the clamping bracket

Type	Display	Voltage	Art.-No.			further types on request
			10 ... 80 V DC	100 ... 130 V 60 Hz	187 ... 264 V 50 Hz	
HR 47	6 digits	V AC, with run indicator	3.474.901.373 ¹⁾	3.474.901.084 ¹⁾	3.474.901.075 ¹⁾	
		V DC, without run indicator				
		V DC, with run indicator				

Hour meters / timers, electromechanical

Timers, round design	High protection rating (AC+DC)	HR 76
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The hour meter HR 76 feature a very high shock resistance.

These panel-mount counters for round panel cut-outs can be used in many different fields of application. These non-resettable counters are very robust and extremely tamper-proof.

Characteristics

- 6-digit hour meter
- Low cost
- High shock resistance
- Low energy consumption
- Magnified large figures
- Protection IP65
- Data retention in case of power failure
- Long service life

Benefits

- 50/60 Hz in the same device
- Small mounting depth
- Waterproof on the front and on the rear

Applications

Operating hours measurement with construction and agricultural machinery, compressors, power units

Type series

Description	Mounting	Type
Timer, round	screw mounting front side	HR 76.1
Timer, round	clip mounting	HR 76.2

Accessories

Counter mounting fixture	For round counters with cut-out ø 53 mm	schwarz	Order-No.
			N510199

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Technical data

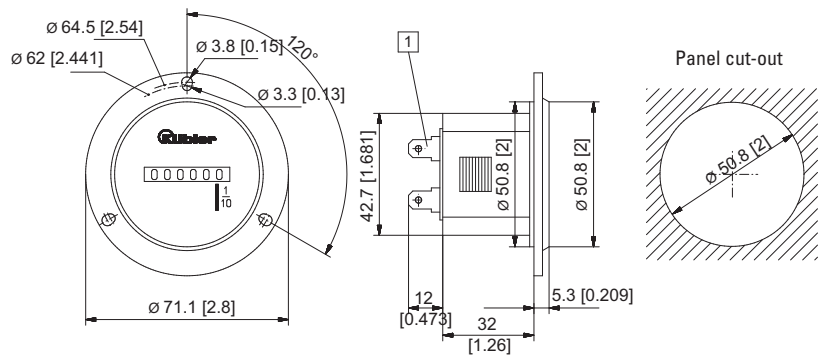
Electrical connection	flat pin 0.8 x 6.3 mm	
Power consumption	AC	max. 0.4 VA
	12 V DC	max. 0.08 W
	48 V DC	max. 0.7 W
Rated voltages	AC (50 or 60 Hz)	115/230 V AC, ± 10 %, 50/60 Hz
	DC	10 ... 80 V DC
On time	100 %	
Number of digits	6: 99999.9 h	
Count mode	adding	
Height of figures	3.5 mm heigh	
Colour of figures	white on black	
Reset	no reset	

Operating temperature	-30°C ... +65°C (non-condensing)	
Storage temperature	-40°C ... +85°C	
Mounting position	any	
Protection	IP65	
Housing	plastic PC (Polycarbonate)	
Accuracy	< 0.02% over the full range	
Weight	HR 76.1	56 g
	HR 76.2	54 g
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2
UL approval	E128604	

Hour meters / timers, electromechanical

Timers, round design **High protection rating (AC+DC)** **HR 76**

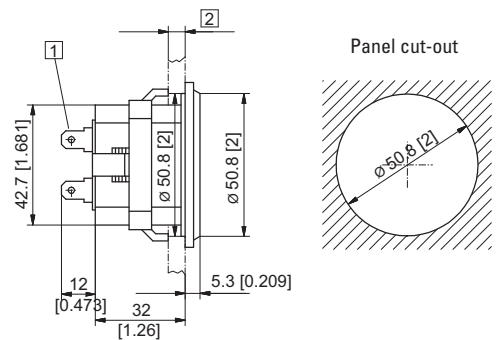
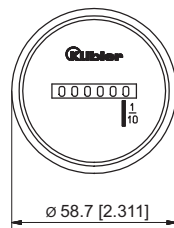
Timer, round screw mounting front side
Type HR 76.1



1) Electrical connection: flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.			
			10 ... 80 V DC	115 V	230 V	
HR 76.1	6 digits	AC (50/60 Hz)		0.135.100.301 ¹⁾	0.135.100.302 ¹⁾	Gasket for front bezel N511150 not included in delivery
		DC	0.135.100.373 ¹⁾			

Timer, round clip mounting
Type HR 76.2



For mounting the counter onto a flat plate, see accessories chapter
Art.-No.: N510199

1) Electrical connection: flat pin 0.8 x 6.3 2) max. 9

Type	Display	Voltage	Art.-No.			
			10 ... 80 V DC	115 V	230 V	
HR 76.2	6 digits	AC (50/60 Hz)		0.135.200.301 ¹⁾	0.135.200.302 ¹⁾	Gasket integrated in counter
		DC	0.135.200.373 ¹⁾			

Hour meters / timers, electromechanical

Standard timers	9999.99 h / 99999.9 h with reset (AC+DC)	HB 26
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The timer HB 26 with reset measure time ranges up to max. 999999.9 h or 99999.99 h.

These panel-mount counters can be used in many different fields of application.

Characteristics

- 6-digit hour meter without reset
- High shock and impact resistance
- Magnified large figures; height 4.5 mm
- Data retention in case of power failure
- Long service life
- Plug-in versions
- Counter without front bezel for mounting in front bezel F1B and F2B and for combination in 50 x 25 mm size with socket box 945.2

Benefits

- Can be combined with preset counters BVa and HVa, and with pulse counter B
- Can be equipped with various sealing covers to protect the counter against dust, dirt and moisture
- Key-locking 0-reset

Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

Type series

Description

- Screw mounting, 56 x 40 mm
- Clip mounting, 53 x 28 mm
- Plug-in for socket box 945.2 and front bezel F1B

Type

- HB 26.11**
- HB 26.21**
- HB 26.01.3**

Options

- Different voltages
- Extended temperature range on request
- Flat pin 0.8 x 6.3 mm without flat push on connectors: Art.-Nr. 3.168.X11.XXX
- Flat pin 0.8 x 2.8 mm with flat push on connectors: Art.-Nr. 3.167.X11.XXX
- Lockable 0-reset: Art.-Nr. 3.160.XX7.XXX

The button can be unlocked by means of the key



Hour meters / timers, electromechanical

Standard timers		9999.99 h / 99999.9 h with reset (AC+DC)	HB 26
Accessories			Order-No.
Front bezel, type F1B plastic	For cut-out 54 x 49 mm, with screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige	G007501
		black	G007502
Socket box, type 945.2	For counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black	G008434
Sealing cover, type K1, IP65	For front bezel 60 x 50 mm, with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 mm	transparent / grey transparent / black	G008300 G008301
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	transparent / black	N003002
Blind enclosure, 53 x 28 mm	For cut-out 50 x 25 mm, for counters 53 x 28 mm	black	T005753
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004
Mounting rail frame SR	For B and HB counters for snap-on mounting on 35 mm top-hat DIN rail	SR 1 for 1x3 B counters	G300000
		SR 2 for 2x3 B counters	G300001

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Electrical characteristics		
Electrical connection	cable type HB 26.01.3	2 x 0.5 mm ² , NYFAZ, 0.5 m long AC: grey/grey, DC: red +, black – round pins ø 1.6 mm (plugs into socket box type 945.2)
Power consumption	10 ... 30 V DC 36 ... 80 V DC 100 ... 130 V DC 20 ... 30 V AC 42 ... 48 V AC 100 ... 130 V AC 187 ... 264 V AC 360 ... 440 V AC	approx. 500 mW approx. 900 mW approx. 750 mW approx. 0.3 VA approx. 0.25 VA approx. 0.6 VA approx. 1.2 VA approx. 1.65 VA
Rated voltages	AC (50 or 60 Hz) DC	20 ... 30 / 42 ... 48 / 100 ... 130 / 187 ... 264 / 360 ... 440 V AC 10 ... 30 / 36 ... 80 / 100 ... 130 V DC
Accuracy	AC DC	supply frequency + 30 ms < 0.003 % (at 24 h)
EMC	Emitted interference Immunity to interference	EN 55011 class B EN 61000-6-2
Device safety	Designed to Protection class Application area	EN 61010 part 1 2 Pollution level 2

General technical data		
Display	number of digits	6, AC: 9999.99 h, DC: 99999.9 h
	height of figures	4.5 mm
	colour of figures	white and red on black
Operating temperature		-15°C ... +50°C (non-condensing)
Mounting position		any

Mechanical characteristics	
Housing	plastic PC (Polycarbonate)
Protection	IP41 (front side)
	with flexible sealing cover K1 IP54 (front side)
	with transparent cover Dv, Dvs IP55 (front side)
Weight	approx. 45 g

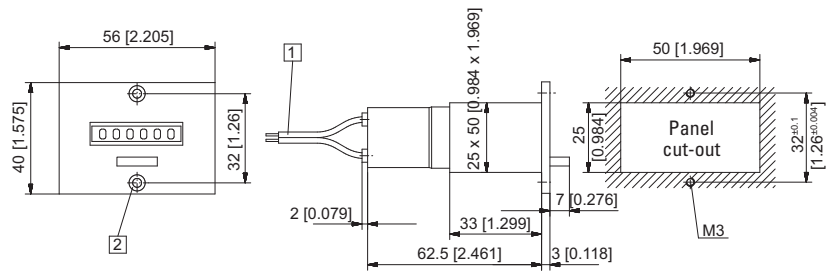
Options	
Different voltages and extended temperature range on request	
Flat pin 0.8 x 6.3 mm without flat push on connectors	Art.-No. 3.168.X11.XXX
Flat pin 0.8 x 2.8 mm with flat push on connectors	Art.-No. 3.167.X11.XXX
Key-locking 0-reset	Art.-No. 3.160.XX7.XXX

Hour meters /
Timers

Hour meters / timers, electromechanical

Standard timers **9999.99 h / 99999.9 h with reset (AC+DC)** **HB 26**

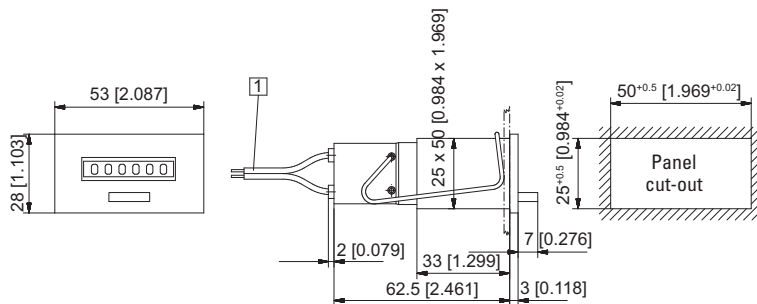
Screw mounting, 56 x 40 mm
Type HB 26.11



1) Connection cable, 2 x 0.5 mm², NYFAZ, 0.5 m long 2) Countersinking Af3, DIN 74

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.11	6 digits	AC (50 Hz)		3.160.111.071		3.160.111.072	3.160.111.074	3.160.111.075 ¹⁾	3.160.111.079
		AC (60 Hz)		3.160.111.081		3.160.111.082	3.160.111.084	3.160.111.085	3.160.111.089
		DC	3.160.111.351 ¹⁾		3.160.111.353		3.160.111.381		

Clip mounting, 53 x 28 mm
Type HB 26.21



1) Connection cable, 2 x 0.5 mm², NYFAZ, 0.5 m long

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.21	6 digits	AC (50 Hz)		3.160.211.071		3.160.211.072	3.160.211.074	3.160.211.075 ¹⁾	3.160.211.079
		AC (60 Hz)		3.160.211.081		3.160.211.082	3.160.211.084	3.160.211.085	3.160.211.089
		DC	3.160.211.351 ¹⁾		3.160.211.353		3.160.211.381		
Further stock types:			187... 264 V AC, key lockable reset		3.160.217.075				
			187... 264 V AC, flat pin 0.8 x 2.8 mm		3.167.211.075				
			10 ... 30 V DC, flat pin 0.8 x 2.8 mm		3.167.211.351				

Hour meters / timers, electromechanical

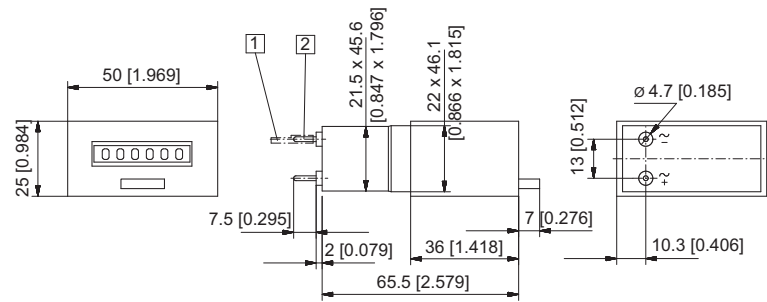
Standard timers	9999.99 h / 99999.9 h with reset (AC+DC)	HB 26
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Plug-in for socket box 945.2 and front bezel F1B

Type HB 26.01.3



socket box 945.2 not included in delivery



1 Push-on connector Ø 1.5 tinned 2 Round pin Ø 1.6 tinned

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 26.01.3	6 digits	AC (50 Hz)		3.165.011.071		3.165.011.072	3.165.011.074	3.165.011.075	3.165.011.079
		AC (60 Hz)		3.165.011.081		3.165.011.082	3.165.011.084	3.165.011.085	3.165.011.089
		DC	3.165.011.351		3.165.011.353		3.165.011.381		

Hour meters / timers, electromechanical

Standard timers	999999.9 h / 99999.99 h without reset (AC+DC)	HB 27
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The timers HB 27 without reset measure time ranges up to max. 999999.9 h or 99999.99 h.

These panel mount counters can be used in many different fields of application.

Characteristics

- 7-digit hour meter without reset
- High shock and impact resistance
- Magnified large figures; height 4.5 mm
- Data retention in case of power failure
- Long service life
- Plug-in versions
- Counter without front bezel for mounting in front bezel F1B and F2B and for combination in 50 x 25 mm size with socket box 945.2

Benefits

- Can be combined with preset counters BVa and HVa, and with pulse counter B
- Can be equipped with various sealing covers to protect the counter against dust, dirt and moisture
- Tamper-proof

Applications

General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles

Type series

Description	Type	Options
Plug-in for socket box 945.2 945.2 and front bezel F1B	HB 27.00.3	<ul style="list-style-type: none"> • Different voltages • Extended temperature range on request • Flat pin 0.8 x 6.3 mm without flat push on connectors: Art.-No. 3.208.X11.XXX • Flat pin 0.8 x 2.8 mm with flat push on connectors: Art.-No. 3.207.X01.XXX • Round pins ø 1.5 mm (tinned) with push on connectors Art.-No. 3.205.X01.XX
Screw mounting 56 x 40 mm	HB 27.10	
Clip mounting 53 x 28 mm	HB 27.20	

Accessories		Order-No.
Front bezel, type F1B plastic	For cut-out 54 x 49 mm, with screw mounting, for plug-in counters B1x.0x and HB2x.0x in socket box type 945.2	beige black G007501 G007502
Socket box, type 945.2	For counters B1x.0x and HB2x.0x, can be used for plug-in connections in front bezel F1B	black G008434
Sealing cover, type K1, IP65	For front bezel 60 x 50 mm, with screw mounting, for electromechanical counters and via adapter front bezel N003001 for counters 48 x 24 mm	transparent / grey transparent / black G008300 G008301
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	transparent / black N003002
Blind enclosure, 53 x 28 mm	For cut-out 50 x 25 mm, for counters 53 x 28 mm	black T005753
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004
Mounting rail frame SR	For B and HB counters for snap-on mounting on 35 mm top-hat DIN rail	SR 1 for 1x3 B counters SR 2 for 2x3 B counters G300000 G300001

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Hour meters / timers, electromechanical

Standard timers	999999.9 h / 99999.99 h without reset (AC+DC)	HB 27
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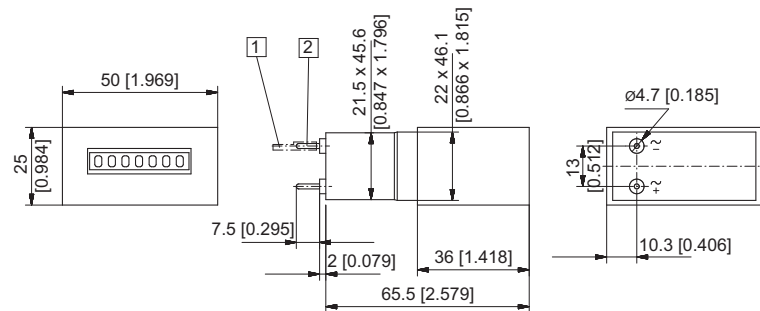
General technical data		
Display	number of digits	7, DC: 99999.99 h, AC: 999999.9 h
Height of figures		4.5 mm high
Colour of figures		white and red on black
Operating temperature		-15°C ... +50°C (non-condensing)
Mounting position		any

Mechanical characteristics		
Protection		up to IP51 (front side)
	with sealing cover K1	IP54 (front side)
	with transparent cover Dv, Dvs	IP55 (front side)
Housing		plastic PC (Polycarbonate)
Weight		approx. 45 g

Electrical characteristics		
Electrical connection	cable	2 x 0.5 mm ² , NYFAZ, 0.5 m long
		AC: grey/grey
		DC: red +, black –
	type HB 27.00.3	round pins ø 1.6 mm (plugs into socket box type 945.2)
Test voltage		2000 V AC, 50 Hz for AC counters
Power consumption		
	10 ... 30 V DC	approx. 500 mW
	36 ... 80 V DC	approx. 900 mW
	100 ... 130 V DC	approx. 750 mW
	20 ... 30 V AC	approx. 0.3 VA
	42 ... 48 V AC	approx. 0.25 VA
	100 ... 130 V AC	approx. 0.6 VA
	187 ... 264 V AC	approx. 1.2 VA
	360 ... 440 V AC	approx. 1.65 VA
Rated voltages	AC (50 or 60 Hz)	20 ... 30 / 42 ... 48 / 100 ... 130 / 187 ... 264 / 360 ... 440 V AC
	DC	10 ... 30 / 36 ... 80 / 100 ... 130 V DC
Accuracy		
	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
EMC		
	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety		
	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

Hour meters /
Timers

**Plug-in for socket box 945.2
and front bezel F1B
Type HB 27.00.3**



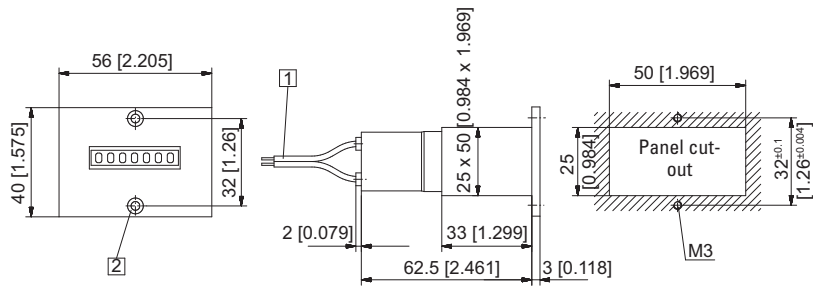
1 Push on connector Ø 1.5 tinned 2 Round pin Ø 1.6 tinned

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 27.00.3	7 digits	AC (50 Hz)		3.205.001.071		3.205.001.072	3.205.001.074	3.205.001.075	3.205.001.079
		AC (60 Hz)		3.205.001.081		3.205.001.082	3.205.001.084	3.205.001.085	3.205.001.089
		DC	3.205.001.351 ¹⁾		3.205.001.353		3.205.001.381		

Hour meters / timers, electromechanical

Standard timers **999999.9 h / 99999.99 h without reset (AC+DC)** **HB 27**

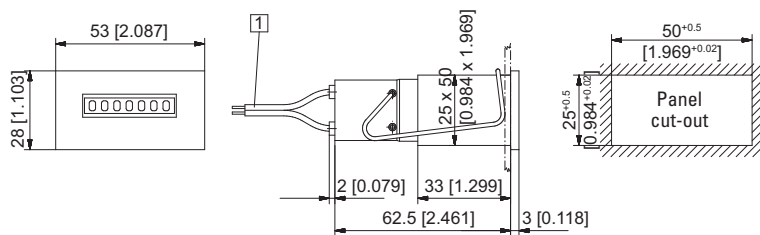
Screw mounting 56 x 40 mm
Type HB 27.10



1) Connection cable, 2 x 0.5 mm², NYFAZ, 0.5 m long 2) Countersinking Af3, DIN 74

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 27.10	7 digits	AC (50 Hz)		3.200.101.071		3.200.101.072	3.200.101.074	3.200.101.075	3.200.101.079
		AC (60 Hz)		3.200.101.081		3.200.101.082	3.200.101.084	3.200.101.085	3.200.101.089
		DC	3.200.101.351		3.200.101.353		3.200.101.381		

Clip mounting 53 x 28 mm
Type HB 27.20



1) Connection cable, 2 x 0.5 mm², NYFAZ, 0.5 m long

Type	Display	Voltage	Art.-No.						
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HB 27.20	7 digits	AC (50 Hz)		3.200.201.071		3.200.201.072	3.200.201.074	3.200.201.075 ¹⁾	3.200.201.079
		AC (60 Hz)		3.200.201.081		3.200.201.082	3.200.201.084	3.200.201.085	3.200.201.089
		DC	3.200.201.351 ¹⁾		3.200.201.353		3.200.201.381		
Further stock types:			187... 264 V AC, flat pin 0.8 x 2.8 mm		3.207.201.075				

Hour meters / timers, electromechanical

Dual function counters	Pulse + time (AC+DC)	HC 77
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The counter combinations HC 77 and HC 77.55 comprise an hour meter and a totaliser. They can be controlled both simultaneously and separately.

These panel mount counters have a reduced mounting depth. They can be used in many different fields of application.

Optionally with 2 hour meters on request.

Hour meters / Timers

Characteristics <ul style="list-style-type: none"> Hour meter and totaliser in one single device Without reset High shock resistance Magnified large figures Protection IP52 front side (optional IP65) Data retention in case of power failure UL-approved 	Benefits <ul style="list-style-type: none"> Long service life Optional: counters controlled separately
	Applications <p>General time measurement, maintenance intervals for measuring instruments (respiration units, oxygen, dialysis), small appliances, UV lamps, display panels in vehicles, lifts, heating burners</p>

Type series		
Description	Type	Options
Dual function counter 48 x 48 mm	HC 77	<ul style="list-style-type: none"> Colour of housing grey Art.-No. 3.55X.400.XXX
With adapter front bezel 55 x 55 mm	HC 77.55	<ul style="list-style-type: none"> Flat pin 0.8 x 6.3 mm Art.-No.: 3.55X.40X.XXX.011 Separate connections for running time meter and adding counter. This model is available for AC or DC (not mixed) Adding counter max. 10 Hz Electrical connection: 2 x cable 2 x 0.5 mm² NYFAZ, 0.5 m long (hour meter cable red/black, adding counter grey cable) Art.-No. 3.55X.40X.XXX.060 Sealed window (IP65 front side) with: <ul style="list-style-type: none"> Screw terminal Art.-No. 3.55X.40X.XXX.419 Flat pin 0.8 x 6.3 mm Art.-No. 3.55X.40X.XXX.062 Separated connections (cable) Art.-No. 3.55X.40X.XXX.061 Counter combination with 2 hour meters 10 ... 30 V DC Art.-No. 3.554.401.351.060
Order information:		
Art.-No. (for special voltages etc. indicate exact model, voltage and frequency e.g. HC 77, 120 V AC, 60 Hz)		

Accessories		Order-No.
Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm to cut-out \varnothing 50.5 mm, with clip mounting for counters 48 x 48 mm	black T008171
Adapter front bezel, 60 x 75 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm, with screw mounting for counters 48 x 48 mm	black T008860
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm, (Mating clip T009420 must be ordered separately)	black T008177
Adapter front bezel, \varnothing 72 mm	For cut-out \varnothing 60 mm to 45 x 45 mm, with clip mounting for counters 48 x 48 mm	black N510226

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Hour meters / timers, electromechanical

Dual function counters	Pulse + time (AC+DC)	HC 77
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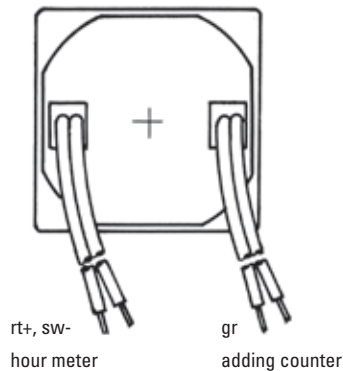
General technical data		
Operating indicator of the running time meter	AC	fast rotating wheel with red dashes : 99999.99 h
	DC	1/100 h display turns continuously by 1 digit in 36 s : 999999.99 h
Height of figures	4 x 1.7 mm optical	
Colour of figures	hour meter	hour: white on black
	pulse counter	decimal: red on black white on black
Operating temperature	-15°C ... +50°C (non-condensing)	
Mounting position	any	

Mechanical characteristics		
Protection	IP52 (front side) when built in	
Colour of housing	black (standard)	
Weight	HC 77	65 g
	plug in frame 55	8 g
	plug in frame 72	13 g

Electrical characteristics		
Electrical connection	screw terminal (tightening torque max. 0.8 Nm)	
Power consumption	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz	approx. 1.43 VA
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V
	DC	10 ... 30/36 ... 80/100 ... 130 V
On time	100 %	
Count mode	adding	
Accuracy	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
Reset	no reset	
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2
UL approval	E128604	

Terminal assignment

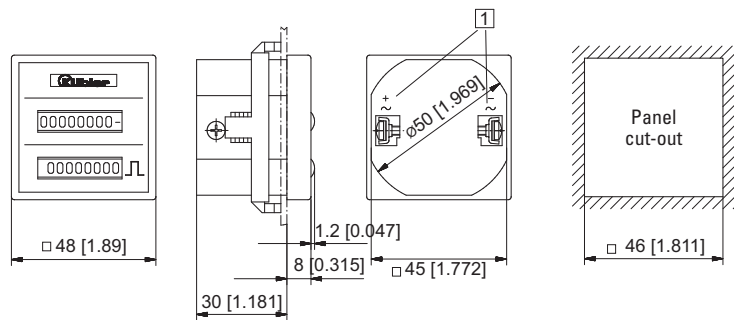
Counter with separate connections (rear view)



Hour meters / timers, electromechanical

Dual function counters	Pulse + time (AC+DC)	HC 77
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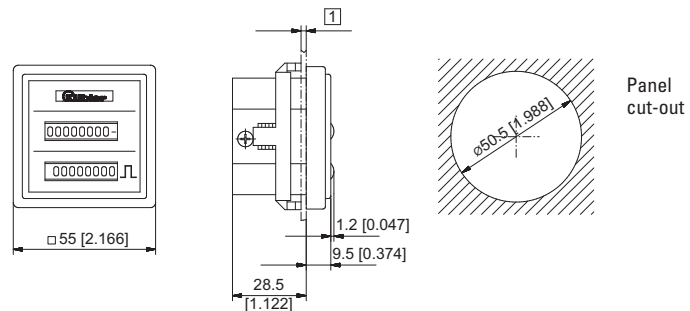
Dual function counter 48 x 48 mm
Type HC 77



1) Screw terminal with flat pin 0.8 x 6.3

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC 77	7/8 digits	AC (50 Hz)		3.550.401.071 ¹⁾		3.550.401.072	3.550.401.074 ¹⁾	3.550.401.075 ¹⁾
		AC (60 Hz)		3.550.401.081		3.550.401.082	3.550.401.084	3.550.401.085
		DC	3.550.401.351 ¹⁾		3.550.401.353		3.550.401.381	
Colour of housing grey:			Art.-No.		3.550.400.XXX			
Further stock types:			with separate connections		3.550.401.060			

Dual function counter 48 x 48 mm
with adapter front bezel 55 x 55 mm
Type HC 77.55



1) max. 6.5

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
HC 77.55	7-/8 digits	AC (50 Hz)		3.551.401.071		3.551.401.072	3.551.401.074	3.551.401.075
		AC (60 Hz)		3.551.401.081		3.551.401.082	3.551.401.084	3.551.401.085
		DC	3.551.401.351		on request		3.551.401.381	
Colour of housing grey:			Art.-No.		3.551.400.XXX			

Hour meters / timers, electromechanical

Dual function counters

Pulse + time for DIN rail (AC+DC)

SHC 77



The counter combinations SHC 77 comprise an hour meter and a totaliser. They can be controlled both simultaneously and separately.

These DIN rail mount counters have a reduced mounting depth. They can be used in many different fields of application.

Characteristics

- Hour meter and totaliser in one single device
optional: counters controlled separately
- Without reset
- High shock resistance
- Magnified large figures
- Protection IP52 (on the front side)
- Data retention in case of power failure

- Long service life
- UL-approved

Applications

General counting, alarm systems, pay stations, electricity meters, vending and gaming machines, copying machines, medical equipment, car washes, lifts, heating burners

Type series

Description	Type	Options
Dual function counter, common connections	SHC 77	SHC 77: The two meters are connected in parallel, this means, that the adding counter registers the total number of events and the time meter the total operating time of the device.
Dual function counter, separate connections	SHC 77.60	SHC 77.60: Hour meter and adding counter have two separate connections. This version is available for either AC or DC version (not mixed).

Order information:
Art.-No. (for special voltages etc. indicate exact counter types, voltage and frequency e.g. SHC 77, 120 V AC, 60 Hz)

General technical data

Operating indicator of the hour meter	AC	fast rotating wheels with red dashes: 99999.99 h
	DC	1/100 h display turns continuously by 1 digit per 36 s: 999999.99 h
Height of figures	4 x 1.7 mm optical	
Colour of figures	hour meter	hours: white figures on black
	1/10 u. 1/100 h adding counter	red figures on black white figures on black
Operating temperature	-15°C ... +50°C (non-condensing)	
Mounting position	any	

Mechanical characteristics

Protection	IP52 (front side) when built-in
Colour of housing	black (standard)
Weight	SHC 77 85 g
	SHC 77.60 105 g

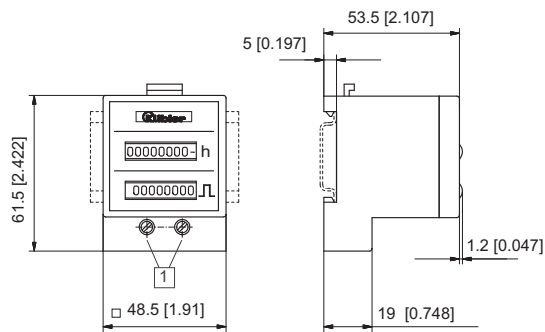
Electrical characteristics

Electrical connection	SHC 77	screw terminal (tightening torque max. 0.8 Nm)
	SHC 77.60	2 x cable – 2 x 0.5 mm ² NYFAZ, 0.5 m hour meter red/black adding counter grey
Power consumption	10 ... 30 V DC	approx. 1 W
	36 ... 80 V DC	approx. 1.65 W
	100 ... 130 V DC	approx. 1.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.53 VA
	42 ... 48 V AC, 50 Hz	approx. 0.53 VA
	100 ... 130 V AC, 50 Hz 187 ... 264 V AC, 50 Hz	approx. 1.43 VA approx. 3.0 VA
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264 V
	DC	10 ... 30/36 ... 80/100 ... 130 V
On time	100 %	
Count mode	adding	
Accuracy	AC	supply frequency + 30 ms
	DC	< 0.003 % (at 24 h)
Reset	no reset	
Test voltage	2500 V AC, 50 Hz	
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2
UL approval	E128604	

Hour meters / timers, electromechanical

Dual function counters	Pulse + time for DIN rail (AC+DC)	SHC 77
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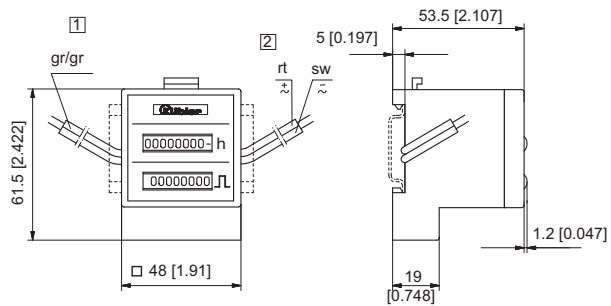
Dual function counter with common connections
Type SHC 77



1 Screw terminal

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC 77	7/8 digits	AC (50 Hz)		3.553.401.071		3.553.401.072	3.553.401.074	3.553.401.075
		AC (60 Hz)		3.553.401.081		3.553.401.082	3.553.401.084	3.553.401.085
		DC	3.553.401.351		3.553.401.353		3.553.401.381	

Dual function counter with separate connections
Type SHC 77.60



1 adding counter

2 hour meter

Type	Display	Voltage	Art.-No.					
			10 ... 30 V	20 ... 30 V	36 ... 80 V	42 ... 48 V	100 ... 130 V	187 ... 264 V
SHC 77.60	7/8 digits	AC (50 Hz)		3.553.401.071.060		3.553.401.072.060	3.553.401.074.060	3.553.401.075.060
		AC (60 Hz)		3.553.401.081.060		3.553.401.082.060	3.553.401.084.060	3.553.401.085.060
		DC	3.553.401.351.060		on request		3.553.401.381.060	

Time preset counters, electromechanical

Standard time preset counters

Adding 999.99 h with mechanical reset (AC+DC)

HVa 15



The time preset counters HVa 15 (with manual reset) have a robust construction.

They are used in harsh industrial environments as single counters or in combination, as a plug-in version, with other B, BVa, HB or HVa counters. They display the current counter value and the preset value.

Characteristics

- 5-digit adding time preset counter with stationary preset
- Manual reset
- Potential-free changeover contact (microswitch) when the preset time is reached
- Contact remains switched until reset occurs
- Counter without front bezel, for mounting in front bezel F2B; can be combined in 50 x 50 mm size

Benefits

- Can be combined with the counters of the B, BVa, HB and HVa series
- Counter value and preset value are constantly displayed
- Versions with transparent cover, sealing cover, lockable zero reset

Applications

Time control, automation

Type series

Description	Type	Options										
Mounting clip	HVa 15.21	<ul style="list-style-type: none"> • Lockable 0-reset 										
Front bezel 3, with mounting holes	HVa 15.31	<ul style="list-style-type: none"> • Housing: <table border="0"> <tr> <td>black (standard)</td> <td>Art.-No. 3.30X.X17.XXX</td> </tr> <tr> <td>grey</td> <td>Art.-No. 3.30X.X16.XXX</td> </tr> </table> • HVa 15.01 (without front bezel) <ul style="list-style-type: none"> - plugs into socket box 946.1 - DIN Rail mount SR 3 <table border="0"> <tr> <td>Housing</td> <td>black (standard)</td> <td>Art.-No. 3.300.011.XXX</td> </tr> <tr> <td></td> <td>grey</td> <td>Art.-No. 3.300.010.XXX</td> </tr> </table> 	black (standard)	Art.-No. 3.30X.X17.XXX	grey	Art.-No. 3.30X.X16.XXX	Housing	black (standard)	Art.-No. 3.300.011.XXX		grey	Art.-No. 3.300.010.XXX
black (standard)	Art.-No. 3.30X.X17.XXX											
grey	Art.-No. 3.30X.X16.XXX											
Housing	black (standard)	Art.-No. 3.300.011.XXX										
	grey	Art.-No. 3.300.010.XXX										

Accessories

			Order-No.
Socket box, type 946.1	For HVa 15 for plug-in connections in front bezel F2B	black	G008439
Sealing cover type K2, IP65	Suitable for front bezel 75 x 60 mm with screw mounting	grey	G008302
		black	G008303
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated	G300003
DIN rail mount SR 3	For snap-on mounting on 35 mm top-hat DIN rail		G300002

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Time preset counters, electromechanical

Standard time preset counters Adding 999.99 h with mechanical reset (AC+DC) HVa 15

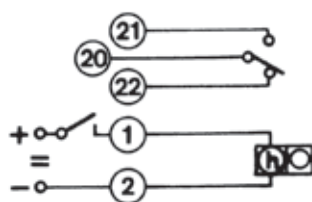
General technical data		
Colour of figures	hours	figures white on black
preset (approx. 4 mm high)	1/10 and 1/100 h	figures red on white
	hours	figures yellow on black
	1/10 and 1/100 h	figures red on white
Reset	manual	
Mounting position	any	
Operating temperature	-15°C ... +50°C (non-condensing)	
Gasket	oil and gasoline-resistant synthetic rubber, particularly suitable for use with acids and alkalis, very good age stability	

Mechanical characteristics		
Protection		IP42 (front side)
	sealing cover K1	IP65 (front side)
	transparent cover Dv and Dvs	IP65 (front side)
Colour of housing	black (standard)	

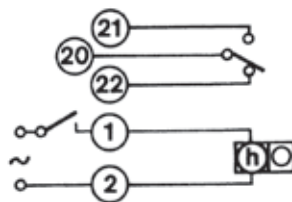
Electrical characteristics		
Switching contact		1 changeover contact (micro switch)
		release at the preset time
	loading capacity at AC	max. 250 V, max. 2 A
	loading capacity at DC (ohmic load)	24 V max. 2.0 A 60 V max. 0.7 A 115 V max. 0.4 A 230 V max. 0.2 A
With inductive load, spark quenching is required reducing the max. current to 60 %		
Test voltage	2000 V AC, 50 Hz for AC counter	
Electrical connection	tinned round pins ø 1.6 mm, with push on connectors	
Power consumption	10 ... 30 V DC	approx. 0.5 W
	36 ... 80 V DC	approx. 0.9 W
	100 ... 130 V DC	approx. 0.75 W
	20 ... 30 V AC, 50 Hz	approx. 0.3 VA
	42 ... 48 V AC, 50 Hz	approx. 0.25 VA
	100 ... 130 V AC, 50 Hz	approx. 0.6 VA
187 ... 264 V AC, 50 Hz	approx. 1.2 VA	
360 ... 440 V AC, 50 Hz	approx. 1.65 VA	
Rated voltages	AC (50 or 60 Hz)	20 ... 30/42 ... 48/100 ... 130/187 ... 264, 360 ... 440 V
	DC	10 ... 30/36 ... 80/100 ... 130
On time	100 %	
Count mode	adding	
Count range	AC	999.99 h
	DC	9999.9 h

Hour meters / Timers

Terminal assignment



DC, manual reset



AC, manual reset

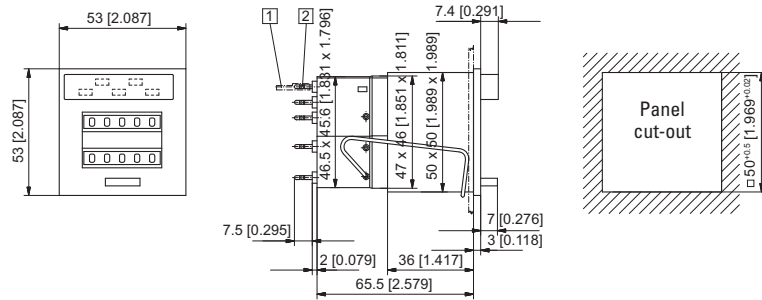
Time preset counters, electromechanical

Standard time preset counters

Adding 999.99 h with mechanical reset (AC+DC)

HVa 15

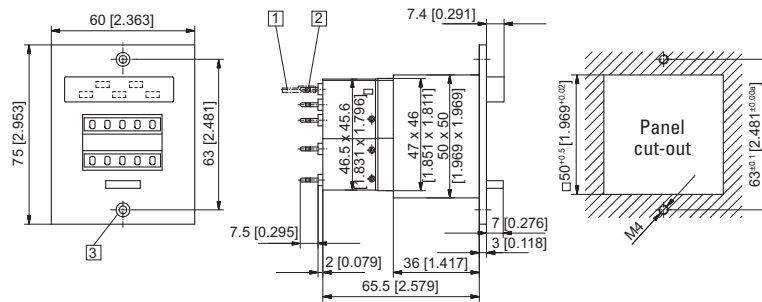
Mounting clip Type HVa 15.21



1 Push on connector \varnothing 1.5 tinned 2 Round pin \varnothing 1.6 tinned

Type	Voltage	Art.-No.					
		10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HVa 15.21	AC (50 Hz)		3.300.211.071	3.300.211.072	3.300.211.074	3.300.211.075	on request
	AC (60 Hz)		3.300.211.081	3.300.211.082	3.300.211.084	3.300.211.085	on request
	DC	3.300.211.351					

Front bezel 3, with mounting holes Type HVa 15.31



1 Push on connector \varnothing 1.5 tinned 2 Round pin \varnothing 1.6 tinned 3 Countersinking Af4., DIN 74


Type	Voltage	Art.-No.					
		10 ... 30 V	20 ... 30 V	42 ... 48 V	100 ... 130 V	187 ... 264 V	360 ... 440 V
HVa 15.31	AC (50 Hz)		3.300.311.071	3.300.311.072	3.300.311.074	3.300.311.075	on request
	AC (60 Hz)		3.300.311.081	3.300.311.082	3.300.311.084	3.300.311.085	on request
	DC	3.300.311.351					

Time preset counters

Frequency displays / tachometers



Frequency displays / tachometers

Frequency displays / tachometer		Type	Page
LCD frequency displays	Measuring in Hz (battery)	Codix 136	218
LED frequency displays	Measuring range 1/min or 1/sec HRA-measurement (DC)	Codix 522	220
	Multifunction – pulse, frequency, time (DC)	Codix 524	240
	Universal with dual functions 4 combinations (DC)	Codix 52U	248
	6 count modes with tachometer (DC)	Codix 52P	251
	Measuring range 1/min or 1/sec HRA-measurement (AC+DC)	Codix 542	223
	Multifunction – pulse, frequency, time (AC+DC)	Codix 544	243
	Universal with dual functions 4 combinations (AC+DC)	Codix 54U	254
	6 count modes with tachometer (AC+DC)	Codix 54P	257
Frequency displays / tachometers with limits		Type	Page
LCD tachometer	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Tachometer with multicolour, LED look	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED tachometer	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)	133
	Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)	Codix 560	138
	Pulse, frequency, time (also reciprocal), with analogue output (AC+DC)	571	246
	Dual frequency display with 4 outputs and analogue output (AC+DC)	574 	226

Frequency displays / tachometers

LCD frequency displays Measuring range in Hz (battery) Codix 136



The Codix 136 is a simple battery powered frequency display / tachometer for NPN, PNP pulses.

Fast and slow count pulses are displayed directly in Hz via the 8-digit LCD display with its optional backlighting.



Battery powered	Frequency display/Tachometer 1/sec	PNP/NPN Pulse counter/Totaliser	DC 4 ... 30 V	max. 12 kHz	Temperature range - 10° + 60°	High protection level IP65	DIN front bezel DIN 48 x 24	8 LCDs LCD display	Lockable reset

Powerful

- Input frequency range from 1 Hz ... 12 kHz – gate measuring method, gate time 1 second
- Battery life approx. 8 years
- Filter function for bounce-free counting with mechanical contacts
- Count frequency max. 12 kHz – accuracy 0.05 %
- High protection level IP65

Simple

- Screw terminals, RM 5 mm
- For positive or negative edges, depending on version
- Large 8-digit LCD display with 8 mm high figures and optional backlighting
- Display directly in Hz

Order code

6.136 . 012 . 8XX
a b

a Backlighting

5 = without¹⁾
6 = with

b Count input

	Mode	INP A:			INP B		
0 ¹⁾	Tacho	0 ... 0.7 V DC	NPN	7 kHz	0 ... 0.7 V DC	NPN	30 Hz
1 ¹⁾	Tacho	4 ... 30 V DC	PNP	12 kHz	4 ... 30 V DC	PNP	30 Hz

Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Frequency displays / tachometers

LCD frequency displays	Measuring range in Hz (battery)	Codix 136
-------------------------------	--	------------------

General technical data	
Display	LCD, 8 digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Display range	0 ... 99999999
Resolution	1/sec (1 Hz)
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C

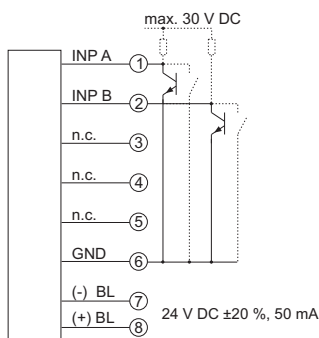
Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

Counting inputs	
Counting input of the DC-versions (max. 30 V DC)	
slow counting input	max. 30 Hz NPN or PNP
fast counting input	max. 12 kHz (PNP), 7 kHz (NPN)
switching level NPN	LOW 0 ... 0.7 V DC HIGH 3 ... 30 V DC
switching level PNP	LOW 0 ... 0.7 V DC HIGH 4 ... 30 V DC

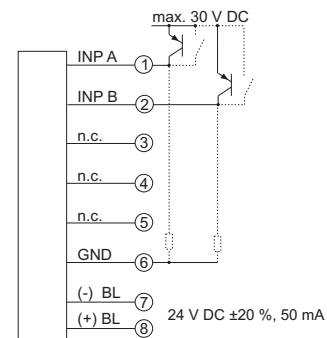
Terminal assignment

DC type: 6.136.012.8x0



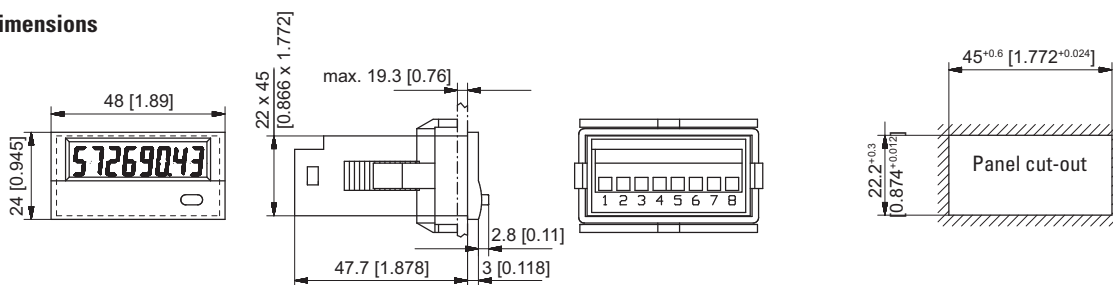
BL = backlighting

DC type: 6.136.012.8x1

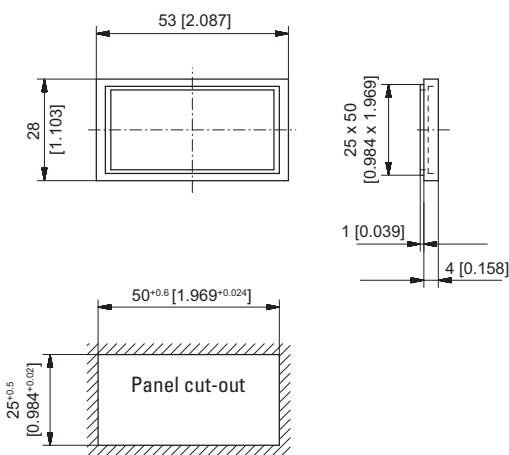


BL = backlighting

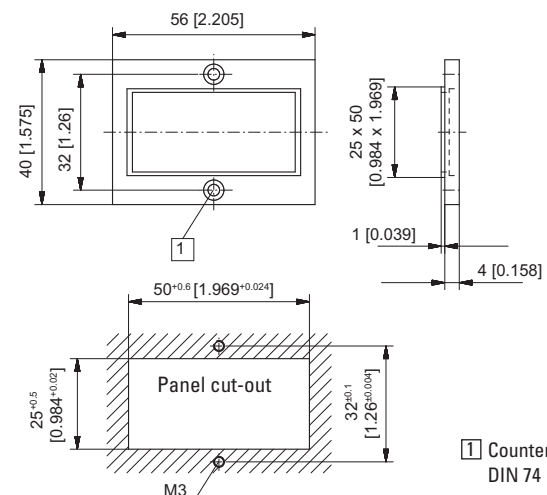
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Dimensions in mm [inch]

Frequency displays / tachometers

LED frequency displays

Measuring range 1/min or 1/sec HRA-measurement (DC)

Codix 522



The Codix 522 is a simple voltage powered frequency display / tachometer.

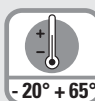
Display in 1/min or 1/sec, freely scalable, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals, with fast HRA measurement system (High Rate Accuracy).



Power supply



DIN front bezel



Temperature range



High protection level



Menu-driven programming



Frequency display/Tachometer



Frequency display with HRA

Powerful

- Very bright LED display, 8 mm high
- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very accurate precise frequency measurement principle (HRA - High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation. Possible to enter the programming also during operation with a confirmation prompt.
- Individually programmable scaling – multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. frequency in Hz and speed in RPM
- Programmable decimal point, can be set from 0.0 to 0.000 (this determines the resolution)
- Programmable delay until 0 is displayed
- Display in 1/min or 1/sec
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available
- Optional output for zero-speed monitoring

Order code

6.522 . 01 X . 3 X 0
a b

a Output

- 1 = optocoupler output
- 2 = no output ¹⁾

b Input switching level

- 0 = Standard (HTL) ¹⁾
- A = 4 ... 30 V DC level

Delivery specification

- Digital display
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

Frequency displays / tachometers

LED frequency displays Measuring range 1/min or 1/sec HRA-measurement (DC) Codix 522

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with integrated reverse polarity protection
Current consumption	max. 50 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

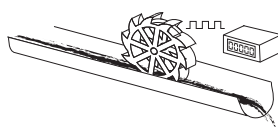
Inputs	
Polarity of inputs	programmable, NPN or PNP
Input resistance	approx. 5 kΩ
Counting frequency	max. 60 kHz, can be damped to 30 Hz
Measurement principle / Accuracy	Gate and/or time interval (period duration) measurement, with high accuracy <0.1% (HRA)
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC

Outputs (optional)	
Optocoupler output	max. 30 V DC, 10 mA

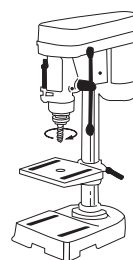
Frequency displ.
Tachometers

Applications for speed and frequency displays

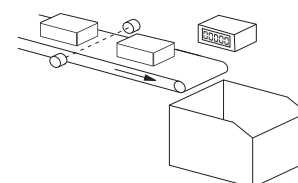
- Rotary speed applications, e.g. OEM equipment or retrofitting to drilling machines
- OEM equipment for flow rate measuring, e.g. current flow rate; production data such as volume/time
- Speed applications on motors, turbines, machines; feed-rate measurement
- Recording of production rates
- Frequency measurement



Mass flow rate



Drilling machine head, rotary speed



Production rate

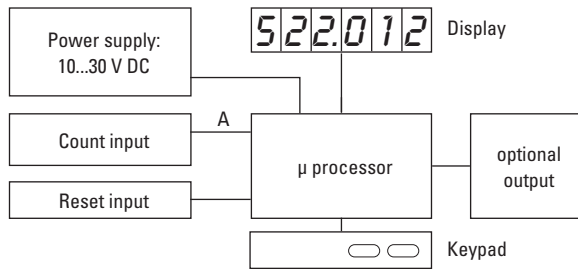
Frequency displays / tachometers

LED frequency displays

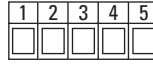
Measuring range 1/min or 1/sec HRA-measurement (DC)

Codix 522

Block diagram



Terminal assignment

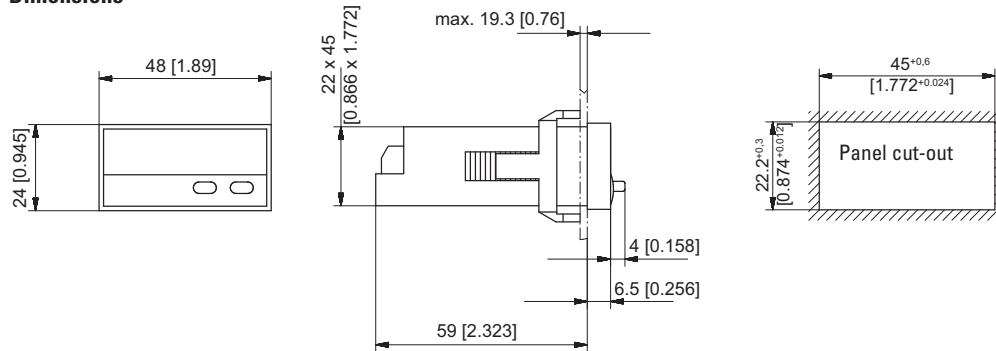


PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP
4	–
5	–

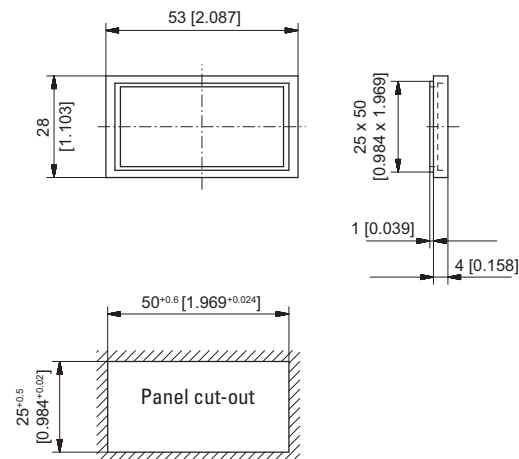


PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP
4	–
5	–
6	Emitter
7	Collector

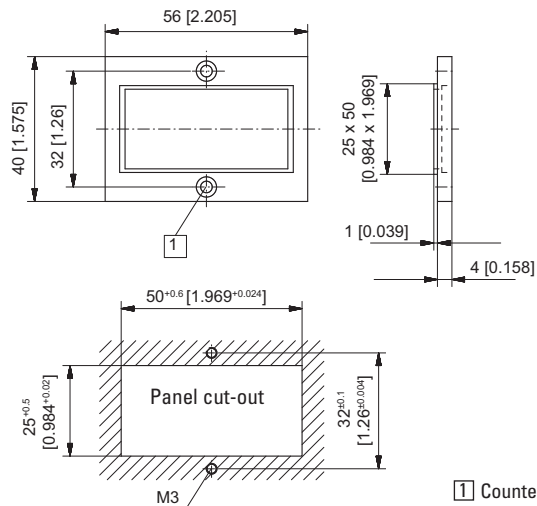
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Frequency displays / tachometers

LED frequency displays Measuring range 1/min or 1/sec HRA-measurement (AC+DC) **Codix 542**



The Codix 542 is a voltage powered frequency display / tachometer, with 6-digit LED display for NPN, PNP input signals.

The display in 1/min or 1/sec is freely scalable for fast and slow count pulses – with fast HRA measurement system (High Rate Accuracy).



AC/DC 10 ... 260 V	000000 DIN 96 x 48	-20° + 65° Temperature range	IP65 High protection level	Plug-in screw terminal	Menu-driven programming	Operation with gloves	1/sec 1/min Frequency display/ Tachometer	t Hz HRA Frequency display with HRA
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Powerful

- Very bright LED display, 14 mm high
- Fast count input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very accurate precise frequency measurement principle (HRA - High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Simple uniform menu-driven programming and operation. Possible to enter the programming also during operation with a confirmation prompt.
- Programmable decimal point, can be set from 0.0 to 0.000 (this determines the resolution)
- As an alternative to the HTL inputs, devices with a 4 ... 30 V DC input level are available
- Individually programmable scaling – multiplication and division factor (0.0001 to 99.9999), to display corresponding engineering units, e.g. frequency in Hz and speed in RPM
- Programmable delay until 0 is displayed
- Display in 1/min or 1/sec
- AC or DC power supply with sensor power supply
- Optional output for zero-speed monitoring

Frequency displ. Tachometers

Order code

6.542 . 01 X . X X 0

a Output

- 1 = Optocoupler output
- 2 = No output ¹⁾

b Power supply

- 0 = 90 ... 260 V AC ¹⁾
- 3 = 10 ... 30 V DC ¹⁾

c Input switching level

- 0 = Standard level (HTL) ¹⁾
- A = 4 ... 30 V DC level

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Instruction manual, multilingual

Accessories

Order-No.

Mounting frame with cut-out 92 x 45 mm

For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Frequency displays / tachometers

LED frequency displays Measuring range 1/min or 1/sec HRA-measurement (AC+DC) Codix 542

General technical data	
Display	6 digits, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

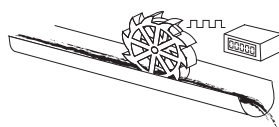
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 60 kHz, can be damped to 30 Hz
Measurement principle / Accuracy	Gate and/or time interval (period duration) measurement, with high accuracy <0.1% (HRA)
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC]
	HIGH 0.6 x U _B ... 30 V DC
AC power supply	LOW 0 ... 4 V DC
	HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC
	HIGH 4 ... 30 V DC

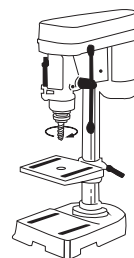
Outputs	
Sensors power supply (AC version)	24 V DC ±15 %/100 mA
Output power optocoupler	max. 30 V DC, 10 mA

Applications for speed and frequency displays

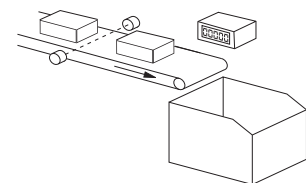
- Rotary speed applications, e.g. OEM equipment or retrofitting to drilling machines
- OEM equipment for flow rate measuring, e.g. current flow rate; production data such as volume/time
- Speed applications on motors, turbines, machines; feed-rate measurement
- Recording of production rates
- Frequency measurement



Mass flow rate

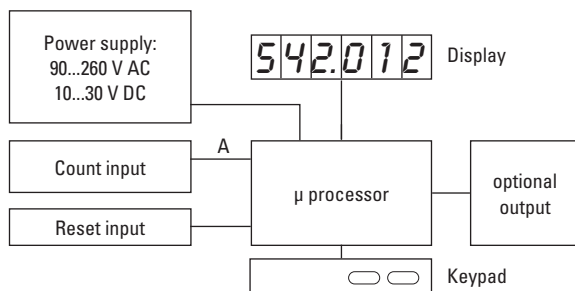


Drilling machine head, rotary speed

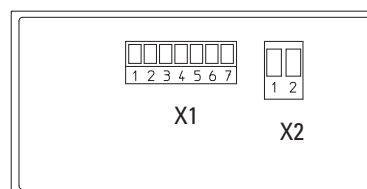


Production rate

Block diagram



Terminal assignment



Connection X1

PIN	AC version	DC version
1	Optocoupler-output	Collector
2	Optocoupler-output	Emitter
3	n.c.	
4	n.c.	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

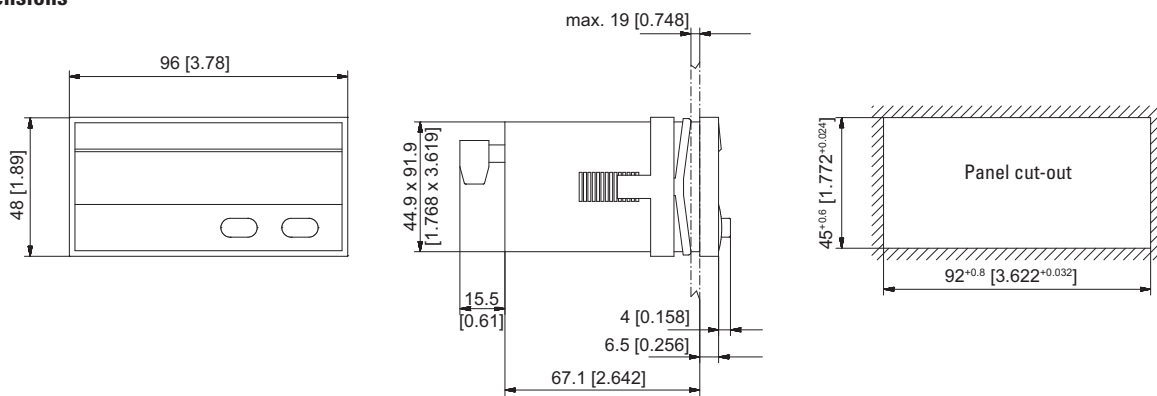
PIN	AC version	DC version
1	90 ... 260 V AC	0V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

¹⁾ Please refer to the manual

Frequency displays / tachometers

LED frequency displays **Measuring range 1/min or 1/sec HRA-measurement (AC+DC)** **Codix 542**

Dimensions



Frequency displ.
Tachometers

Frequency displays / tachometers with limits

LED tachometers

Dual frequency displays with 4 outputs and analogue output (AC+DC)

574

new



Frequency display for demanding applications, with two individually scalable encoder inputs, in each case A, /A, B, /B for count frequencies up to 1 MHz per channel (also for single channel use).

Operating modes can be selected for tachometer or frequency display with measurements for difference, total value, product or ratio (also with reciprocal display).



AC/DC 24/17...30V Power supply	000000 DIN 96 x 48 DIN front bezel	IP65 High protection level	max. 1 MHz 2 separate pulse inputs	Operation with gloves	TTL, HTL and RS422-input	6 LED LED display	DC OUT 5 / 24 V 2 x Sensor supply	mA, V Analogue output optional	4 Transistor output	RS232 Interface
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Innovative

- 2 separate freely scalable frequency inputs: HTL or TTL (both also with inverted inputs), max. input frequency 1 MHz/channel
- Very bright LED display, 15 mm high (6 digits)
- 4 freely programmable fast solid-state outputs, each with 350 mA output current
- Many different output modes
- Simple programming – with function codes, dependent on the operating mode selected
- With 9 fixed different frequency functions, e.g.:
 - Single, difference and total value measurement of both inputs
 - Product and ratio measurement
 - Percentage measurement
 - In-process time calculated from frequency (reciprocal speed)

Compact and multifunctional

- Up to 3 display values in a single device: display counter 1, display counter 2 as well as the display calculated from counter 1 and 2
- AC and DC power supply in one device
- Simple programming with 4 keys, all keys can be assigned dual programming functions
- Can be used as a frequency display or tachometer with limit values
- Monitoring function, where 2 values are monitored or calculated with respect to each other
- 4 fast programmable inputs with various functions such as start delay, key lockout, display memory, reference input or switching between the display values
- Scalable analogue output 0/4 ... 20 mA, +/- 10 V or 0 ... 10 V
- Standard interface RS232 for parameter setting, for reading out the values to a PC or PLC, for modifications during operation

Order specifications

4 fast switch outputs, serial interface (RS232)

6 digits

6 digits, scalable analogue output

6 digits, RS232 and RS485

Order-No.

6.574.0116.D05

6.574.0116.D95

6.574.0116.D07

Delivery specification

- Controller 574

- Gasket

- Fastening set

- Instruction manual German/English

Accessories

Mounting frame for DIN rail mount



with cut-out 92 x 45 mm

Order-No.

G300005

OS2 software for parameter setting

can be downloaded at www.kuebler.com

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

Frequency displays / tachometers with limits

LED tachometers Dual frequency displays with 4 outputs and analogue output (AC+DC) 574

General technical data		
Display	6-digit	LED display, 15 mm high
Operating temperature	0°C ... +45°C	(non-condensing)
Storage temperature	-25°C ... +70°C	

Electrical characteristics		
Power supply	24 V AC, + 10%	24 (17 ... 30) V DC
Current consumption DC	100 mA	+ Current consumption encoder
Connected load AC	15 VA	
Auxiliary power supply (for sensors)	2 x 5.2 V DC, each 150 mA	2 x 24 V DC, each 120 mA
EMC	Emitted interference	EN 61000-6-3
	Immunity to interference	EN 61000-6-2
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

Mechanical characteristics		
Housing material		Noryl UL94-V-0
Screw terminal	Cable cross-section	max. 1.5 mm ²
Protection		IP65 from front
Weight		approx. 250 g

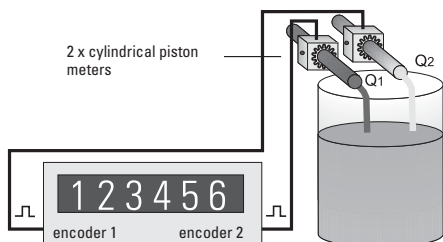
Inputs		
2 universal incremental encoder inputs		
Count frequency: (per encoder)	RS422 and TTL with inv.	1 MHz
	HTL asymmetric	200 kHz
	TTL asymmetric	200 kHz
Control inputs		
4 control inputs HTL, Ri = 3.3 kOhm		
Low < 2.5 V, High > 10 V, min. pulse duration 50 µs		

Outputs		
Switch outputs		
4 fast power transistors		5 ... 30 V DC, 350 mA
reaction time		< 1 ms ¹⁾
inductive loads require a freewheeling diode		
Serial interface		RS232, 2400 ... 38400 baud RS485 (6.574.0116.D07)
Analogue outputs (6.574.0116.D95)		
0 / 4 ... 20 mA, load max. 270 Ohm		
0 ... +10 V (max. 2 mA)		
Resolution 14 bit, precision 0.1 %, reaction time < 1 ms		

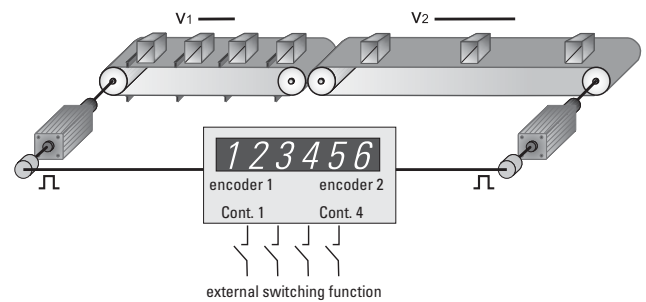
Frequency displ.
Tachometers

Application examples

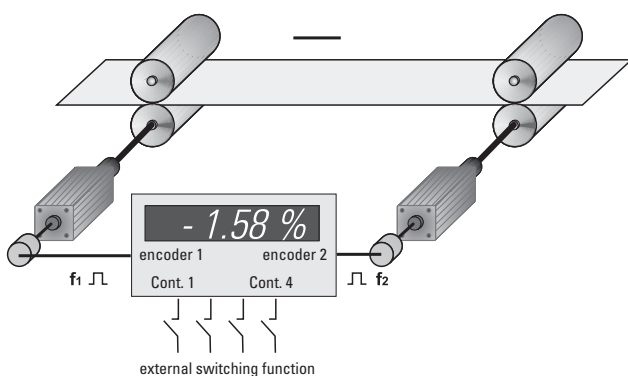
Total flow rate



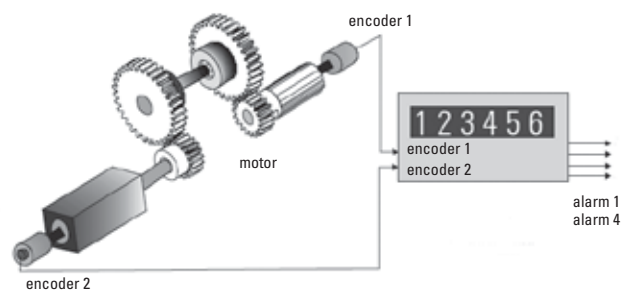
Speed difference



Material stretching to create tensile stress



Monitoring of torsion, shafts or gear breakage

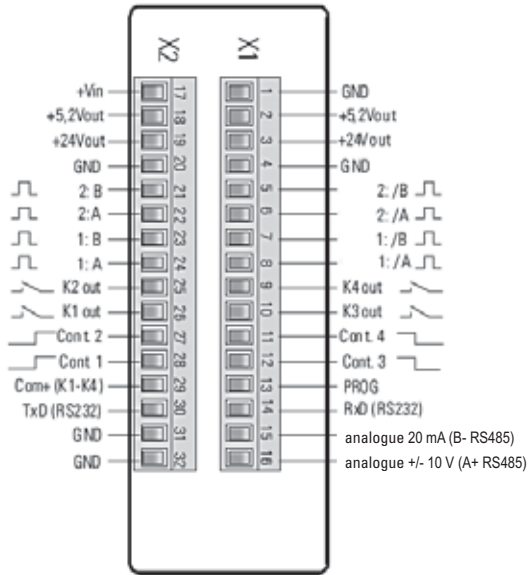


1) Intensive serial communication can temporarily increase the reaction time.

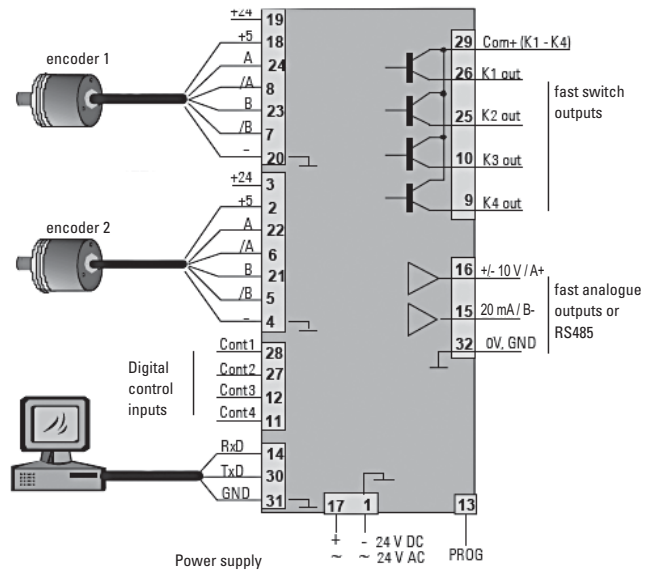
Frequency displays / tachometers with limits

LED tachometers Dual frequency displays with 4 outputs and analogue output (AC+DC) 574

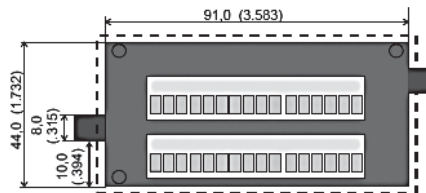
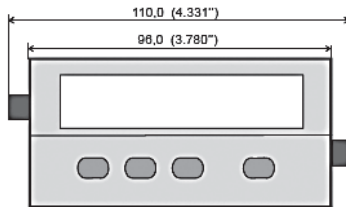
Terminal assignment



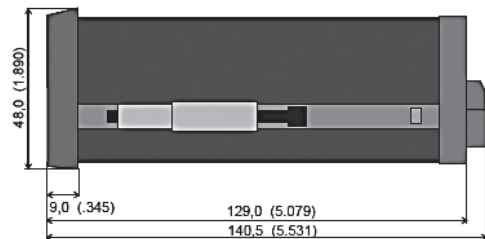
Application examples



Dimensions



Panel cut-out 92 x 45 mm



Frequency displays / tachometers

Position displays



Position displays

Position displays		Type	Page
LCD position displays	Phase discriminator (quadrature) x1 and x2 evaluation (battery)	Codix 133	232
LED position displays	6 count modes (DC)	Codix 521	63
	Multifunction – pulse, frequency, time (DC)	Codix 524	240
	6 count modes with tachometer (DC)	Codix 52P	251
	6 count modes (AC+DC)	Codix 541	75
	Multifunction – pulse, frequency, time (AC+DC)	Codix 544	243
	6 count modes with tachometer (AC+DC)	Codix 54P	257
Position displays with limits		Type	Page
LCD position preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	123
	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Position preset counters with multicolour or LED look	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED position preset counters	SSI absolute encoder display (AC+DC)	Codix 570	235
	Multifunction – pulse, frequency, time – 60 kHz, 2 Vorwahlen (AC+DC)	Codix 560	138
	Pulse, frequency, time (also reciprocal), with analogue output (AC+DC)	571	246
	Dual preset counters with 4 outputs and analogue output (AC+DC)	572	143

Position displays

LCD position displays **Phase discriminator (quadrature) x1 and x2 evaluation** **Codix 133**



The Codix 133 is a simple battery-powered position display with a phase discriminator (quadrature) counting input.

NPN and PNP pulses can be shown on the 8-digit LCD display that is also available with optional backlighting.



Battery powered	Pulse counter/ Totaliser	Phase discriminator	Pulse voltage 4 ... 30 V	Max. count frequency 6 kHz	Temperature range - 10° + 60°	High protection level IP65	DIN front bezel DIN 48 x 24	LCD display 8 LCDs	Lockable reset

Powerful

- High quality 8-digit LCD display with 8 mm high figures with optional backlighting
- Counting modes include phase discriminator (quadrature) counting (also with pulse doubling) for connection to incremental encoders
- Battery life approx. 8 years
- Count frequency max. 6 kHz
- High protection level IP65

Simple

- Screw terminals, RM 5 mm
- Reset key can be locked out via the Reset Enable input
- For positive or negative counting edge, depending on version

Order code

6.133 . 012 . 8XX
a b

a Backlighting

- 5 = without ¹⁾
- 6 = with

b Count input (input type: NPN/PNP ²⁾)

	Input type	INP A			INP B				
0 =	Quad/Quad2 ²⁾	0 ... 0.7 V DC	channel A	NPN	3 kHz	0 ... 0.7 V DC	channel B	NPN	3 kHz
1 ¹⁾ =		4 ... 30 V DC	channel A	PNP	6 kHz	4 ... 30 V DC	channel B	PNP	6 kHz

Delivery specification

- Counter
- Mounting clip
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm
- Gasket
- Instruction manual, multilingual

1) Stock types

2) Phase discriminator for incremental encoders with x1 / x2 evaluation

Position displays

LCD position displays Phase discriminator (quadrature) x1 and x2 evaluation Codix 133

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	LCD, 8 digits, 8 mm high
Backlighting	external electrical source 24 V DC $\pm 20\%$, 50 mA
Modes	phase discriminator x1 or x2 evaluation selectable
Display range	-9999999 ... 99999999, with overflow display
Reset	manual and electrical
Working temperature	-10°C ... +55°C (non-condensing)
Operating temperature	-10°C ... +60°C (non-condensing)
Storage temperature	-20°C ... +70°C

Electrical characteristics	
Power supply	internal lithium battery approx. 8 years at 20°C
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2
UL approval	File-No.: E128604

Mechanical characteristics	
Housing	dark grey RAL 7021
Protection	IP65 (front side)
Weight	approx. 50 g

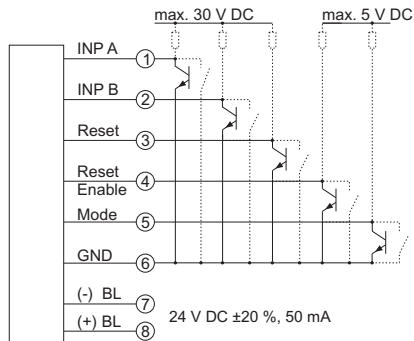
Counting inputs of the DC version (max. 30 V DC)		
Fast counting input		max. 6 kHz (PNP), 3 kHz (NPN)
Switching level NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 30 V DC
Switching level PNP	LOW	0 ... 0.7 V
	HIGH	4 ... 30 V DC
Switching		x1 or x2 evaluation can be set via the mode input
Contact input		Open Collector NPN (switching at 0 V DC)
Switching level NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 5 V DC
Reset Input		
Minimum pulse time	DC	50 ms
	high voltage	16 ms
Contact input DC – NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 30 V DC
Electrical reset key locking (for DC and AC)		
Contact input		Open Collector NPN (switching at 0 V DC)
Switching level – NPN	LOW	0 ... 0.7 V
	HIGH	3 ... 5 V DC

Position displays

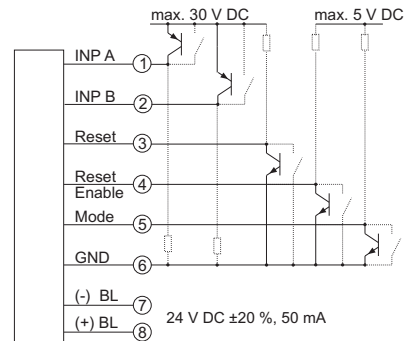
LCD position displays Phase discriminator (quadrature) x1 and x2 evaluation Codix 133

Terminal assignment

DC type: 6.133.012.8x0

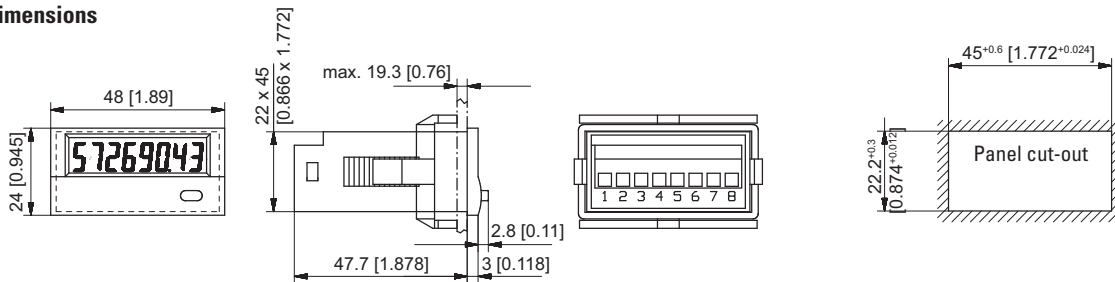


DC type: 6.133.012.8x1

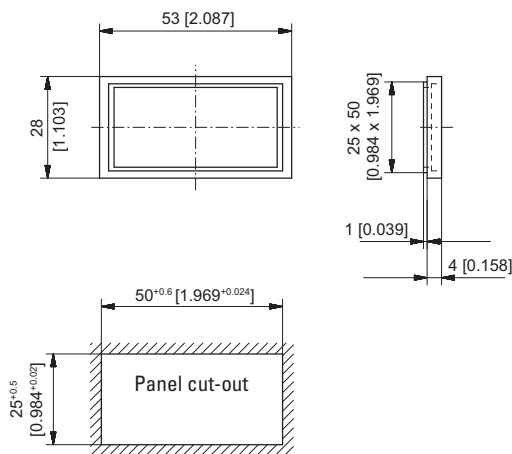


BL = backlighting

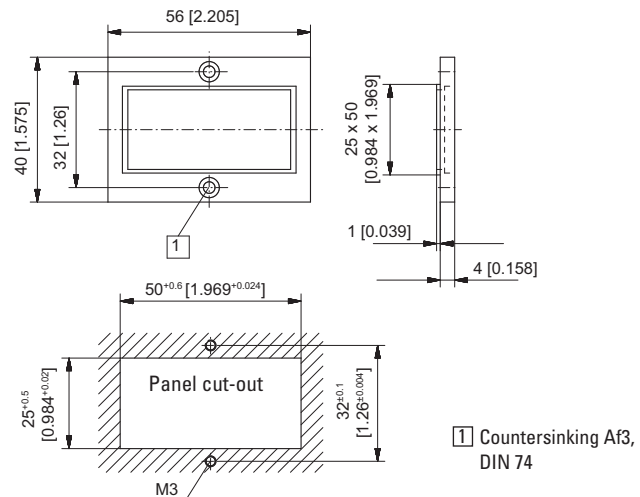
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



Position displays with limits

LED position preset counters **SSI absolute encoder display (AC+DC)** **570**



The fast SSI display type 570 is designed for absolute SSI encoders with a resolution up to 32 bits. It can be used as either a master or a slave display.

Thanks to simple bit assignment and bit blanking the display, which can be scaled and linearized, can also be cascaded, in order to extend the display range as desired. Output options include 2 limit values, analogue output or interface.



AC/DC 17 ... 260V Power supply	SSI SSI Input	max. 1 MHz Count frequency	2 2 limit values	mA, V Analogue output	14 bit Resolution	RS 232/485 RS232/485 Interface	IP65 High protection level	POSITION Position display	DIN 96 x 48 DIN front bezel	6 LED LED display
Prog Menu-driven programming	SSI Display linearization	Plug-in screw terminal								

Characteristics

- Suitable for SSI-protocols from 8 up to 32 bits
- Version with 2 optocoupler outputs to work as limit or preset values; also with programmable tracking preset
- Version with scaleable analogue output, resolution 14 bits, 0 ... 10 V, -10 ... +10 V, 0 ... 20 mA or 4 ... 20 mA
- Version with serial interface for reading data in and out (RS232 / RS485)
- **NEW:** Version with 2 relay outputs as limit values or presets; can also be programmed as tracking preset and with RS232 / RS485 interface
- Gray or binary code
- 96 x 48 mm DIN-housing, IP65

Benefits

- AC and DC power supply in one unit
- Master- or slave mode
- Plug-in screw terminals
- SSI-clock frequency from 100 Hz up to 1 MHz
- Display may be adjusted using scaling- and offset-features
- Large 15 mm high LED display, 6-digit, with adjustable brightness
- Round-loop function
- Linearization with teach option
- Bit blanking

Position-displays

Order specifications

Display with:	Order-No.	Delivery specification
2 optocoupler outputs ¹⁾	0.570.011.E00	- Display 570
Analogue output ¹⁾	0.570.012.E90	- Gasket
Serial interface RS232/485	0.570.012.E05	- Mounting kit
2 relay outputs and RS232/485	0.570.010.305	- Operating instruction German/English

Accessories

Accessories	Order-No.
Mounting frame with cut-out 92 x 45 mm For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Position displays with limits

LED position preset counters SSI absolute encoder display (AC+DC) 570

General technical data	
Display	LED display, 15 mm high 6 decades
Operating temperature	0°C ... +45°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	(0.570.01X.EXX) 17 ... 30 V DC and 115/230 V AC, ± 12.5 % (0.570.010.305) 17 ... 30 V DC
Current consumption DC	17 V 190 mA 24 V 150 mA 30 V 120 mA
Power consumption AC	7.5 VA
Sensor power supply (for encoder)	24 V DC ± 15%, 120 mA
EMC	Immunity to interference EN 55011 class B Emitted interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

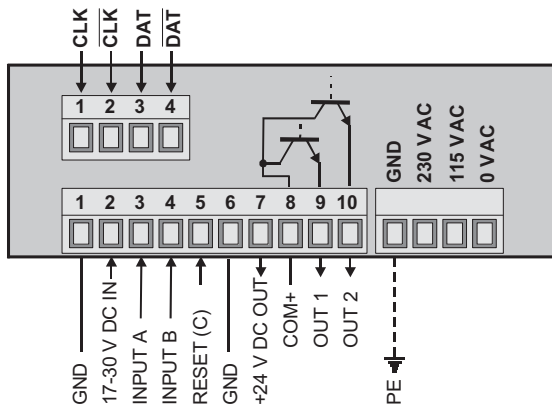
Mechanical characteristics	
Protection	IP65 (front side)
Weight	approx. 200 g

Inputs	
SSI data inputs	Differential RS422 input
Input frequency range	100 Hz ... 1 MHz
SSI clock output	Differential RS422 output
Output frequency range	100 Hz ... 1 MHz
Input reset	PNP or NPN, programmable 5.1 mA, 24 V DC R _i = 4.7 kOhm
Input level	LOW 0 ... 2 V HIGH 9 ... 35 V
Min. reset pulse time	min. 5 ms

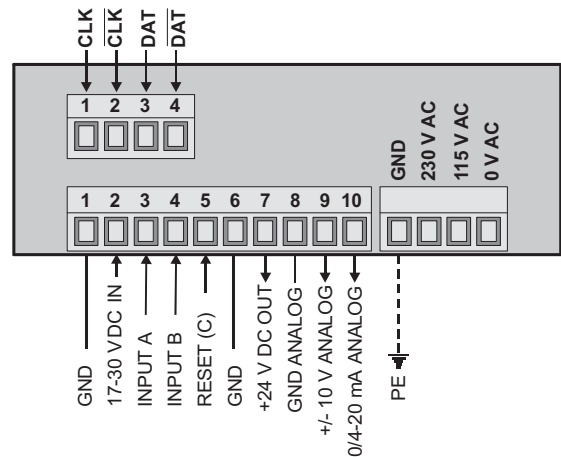
Outputs	
Scaleable analogue output	(0.570.012.E90) 0 ... 10 V, -10 ... +10 V or 0 ... 20 mA, 4 ... 20 mA
Resolution	14 bit + sign
Accuracy	0.1 %
Optocoupler output	(0.570.011.E00) 5 ... 35 V DC/150 mA reaction time approx. 5 ms
Interface	(0.570.012.E05 + 0.570.010.305) RS232 and RS485 acc. to ISO 1745 drivecom protocol or printer protocol
Relay output	(0.570.010.305) 2 changeover contacts max. 250 V AC / 1 A / 250 VA max. 100 V DC / 1 A / 100 W reaction time approx. 10 ms

Terminal assignment

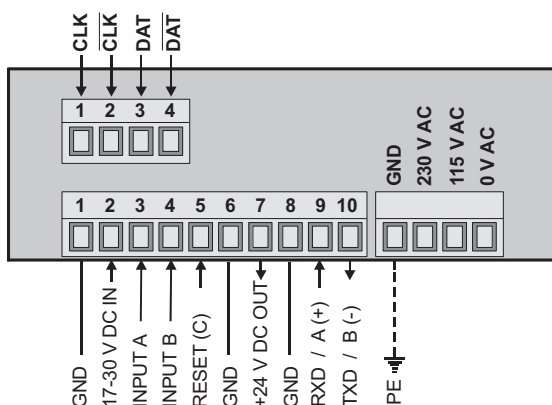
Display with 2 optocoupler outputs (0.570.011.E00)



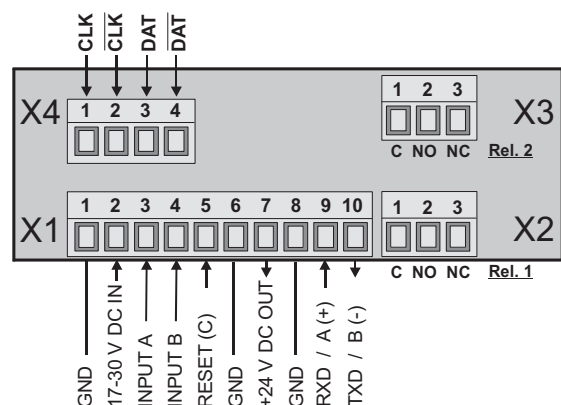
Display with analogue output (0.570.012.E90)



Display with serial interface RS 232/485 (0.570.012.E05)



Display with 2 relay outputs, RS 232/485 (0.570.010.305)

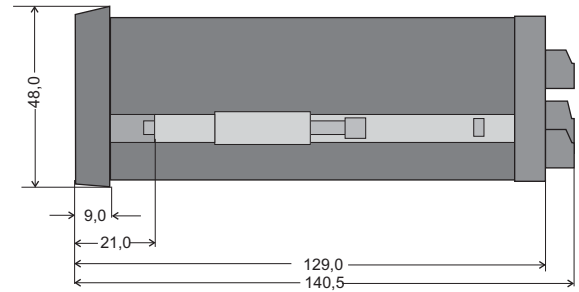
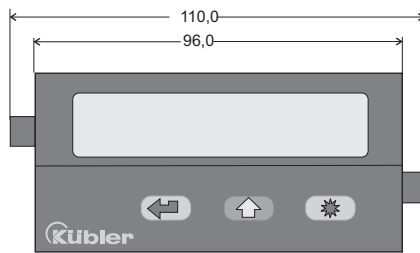


Position displays with limits

LED position preset counters	SSI absolute encoder display (AC+DC)	570
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Dimensions

Panel cut-out
92 x 45 mm



Position-
displays

Multifunction devices



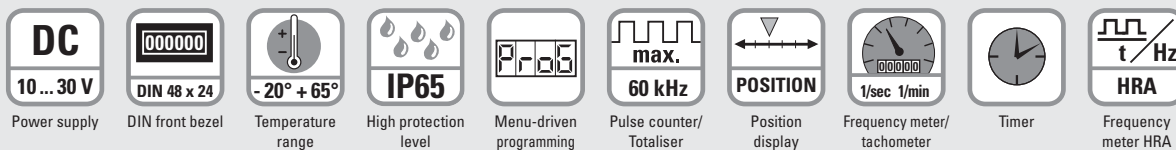
Multifunction devices

Multifunction devices, electronic		Type	Page
LED multifunction displays	Multifunction – pulse, frequency, time (DC)	Codix 524	240
	Multifunction – pulse, frequency, time (AC+DC)	Codix 544	243
LCD multifunction preset counters	1 or 2 presets – pulse, time – 5 kHz (AC+DC)	Codix 907 / 908	123
	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
Multifunction preset counters with multicolour or LED look	Multifunction – pulse, frequency, time – 1...6 presets (AC+DC)	Codix 923 / 924	126
LED multifunction preset counters	Multifunction – pulse, frequency, time (AC+DC)	Codix 716 / 717 (Ex)	133
	Multifunction – pulse, frequency, time – 60 kHz, 2 presets (AC+DC)	Codix 560	138
	Pulse, frequency, time (also reciprocal) with analogue output (AC+DC)	571	246
LED dual function displays	Universal with dual functions, 4 combinations (DC)	Codix 52U	248
	6 count modes with tachometer (DC)	Codix 52P	251
	2 counters with separate scaling (DC)	Codix 52T	66
	2 counters with separate inputs and separate scaling (DC)	Codix 52C	69
	Universal with dual functions, 4 combinations (AC+DC)	Codix 54U	254
	6 count modes with tachometer (AC+DC)	Codix 54P	257
Multifunction devices, electromechanical		Type	Page
Dual function counters	Pulse + time (AC+DC)	HC 77	207
	Pulse + time for DIN rail (AC+DC)	SHC 77	210
	Energy and time (AC)	HW 66 / HW 66 M	262



The Codix 524 is a voltage-powered multifunction counter with 3 functions in one device: pulse, position, frequency and speed display, timer and short time meter for fast and slow count pulses.

With 6-digit LED display for NPN / PNP input signals.



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling: Multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation
- Frequency measurement: display in 1/min or 1/sec
- Time counting: pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs
- Optional output: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement

Order code

6.524 . 01 X . 3 X 0
a b

a Output
 1 = optocoupler ¹⁾
 2 = no output ¹⁾

b Input switching level
 0 = Standard (HTL) ¹⁾
 A = 4 ... 30 V DC level

Delivery specification
 – Digital display
 – Mounting clip
 – Gasket
 – Instruction manual, multilingual

– Front bezel for screw mounting (T008181)
 56 x 40 mm, panel cut-out 50 x 25 mm
 – Front bezel for clip mounting (T008180)
 53 x 28 mm, panel cut-out 50 x 25 mm

Multifunction devices, electronic

LED multifunction display Multifunction – pulse, frequency, time (DC) Codix 524

Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 55 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

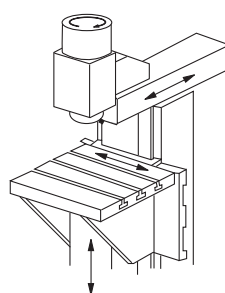
Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 60 kHz, can be damped to 30 Hz for position display max. 25 kHz
Display range	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	tachometer < 0.1 % timer < 50 ppm

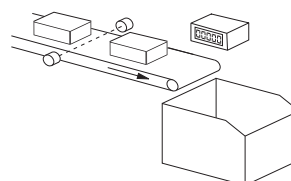
Outputs (optional)	
Optocoupler output	max. 30 V, 10 mA

Applications for multifunction display

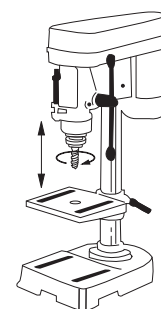
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding), or measurement of production times or production speeds
- Totalizing flow, quantity and other scaleable media, or display of current flow rates



Position or rotary speed on milling machine



Piece count on conveyor or production speed



Drilling machine head, speed or drilling depth

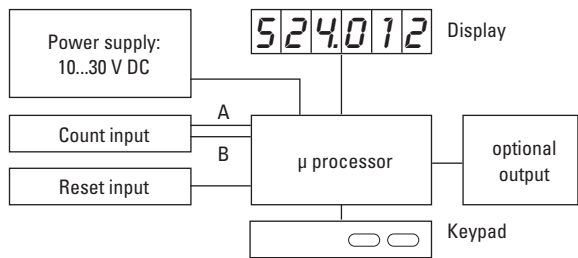
1) Details see manual

Multifunction devices

Multifunction devices, electronic

LED multifunction display **Multifunction – pulse, frequency, time (DC)** **Codix 524**

Block diagram



Terminal assignment

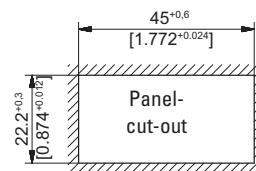
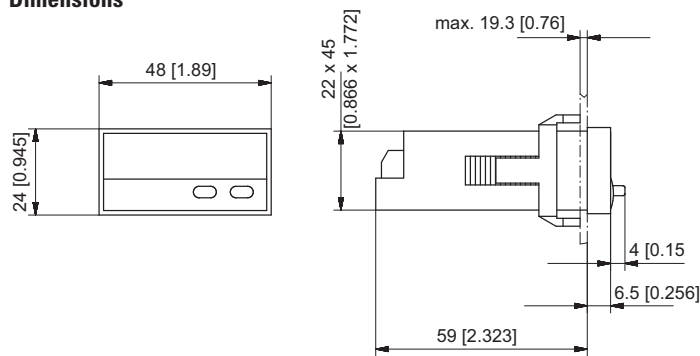


PIN	without optocoupler
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set

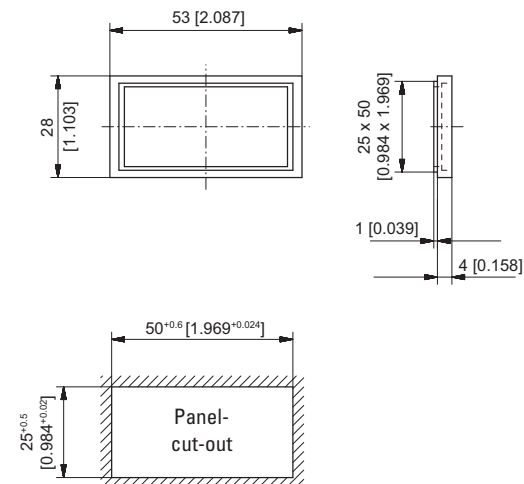


PIN	with optocoupler (NPN)
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset / Set
6	Emitter
7	Collector

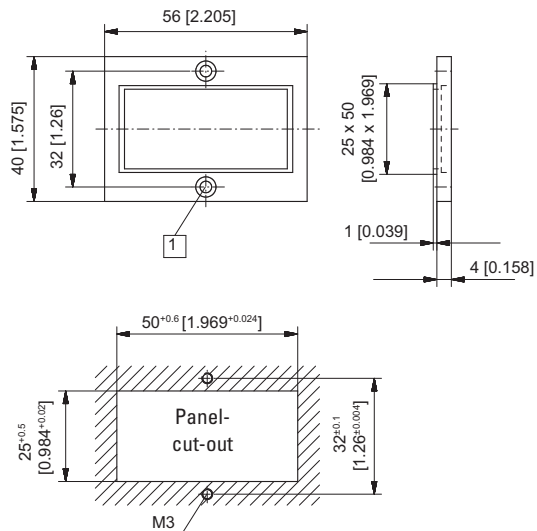
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

LED multifunction display **Multifunction – pulse, frequency, time (AC+DC)** **Codix 544**



The Codix 544 is a voltage-powered multifunction counter with 3 functions in one device:

pulse, position, frequency and speed display, timer and short time meter for fast and slow count pulses.

With 6-digit LED display for NPN, PNP input signals.

AC/DC 10 ... 260 V	000000 DIN 96 x 48	-20° + 65° Temperature range	IP65 High protection level	Plug-in screw terminal	Menu-driven programming	max. 60 kHz Pulse counter/ Totaliser	POSITION Position display	1/sec 1/min Frequency meter/ tachometer	Timer	t/Hz Frequency meter HRA
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Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- 4 different count input modes: 2-channel count input for detecting count direction, difference or adding mode, quadrature with x1, x2 or x4 evaluation
- Frequency measurement: display in 1/min or 1/sec
- Time counting: pulse width or time interval measurement in hours, minutes or seconds, as well as real-time display
- AC or DC power supply
- Inputs: as an alternative to the HTL inputs, devices are available with a 5 V DC input level, for use as parallel displays to PLCs
- Optional output: zero signal for position and count, zero speed monitoring, 1 Hz clock pulse for active time measurement

Multifunction devices

Order code **6.544 . 01 X . X X 0**

<p>a Output</p> <p>1 = optocoupler ¹⁾</p> <p>2 = no output ¹⁾</p>	<p>c Input switching level</p> <p>0 = Standard (HTL) ¹⁾</p> <p>A = 4 ... 30 V DC</p>	<p>Delivery specification</p> <ul style="list-style-type: none"> - Digital display - Mounting clip - Gasket - 2 plug-in screw terminals - Instruction manual, multilingual 	<p>Replacement parts</p> <p>7 pin screw terminal RM 3.81 1 ... 7: N100387</p> <p>2 pin screw terminal RM 5.08 1 ... 2: N100133</p>
<p>b Power supply</p> <p>0 = 90 ... 260 V AC ¹⁾</p> <p>3 = 10 ... 30 V DC</p>			

1) Stock types

Multifunction devices, electronic

LED multifunction display	Multifunction – pulse, frequency, time (AC+DC)	Codix 544
Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digit, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 VDC, galvanically isolated with integrated reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

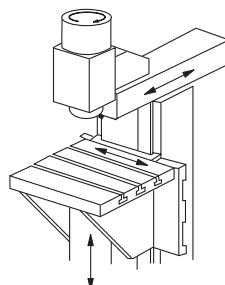
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency¹⁾	max. 60 kHz, can be damped to 30 Hz for position display max. 25 kHz
Display range	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC-power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	tachometer < 0.1 % timer < 50 ppm

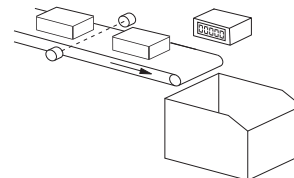
Outputs	
Sensor power supply (AC version)	24 V DC ±15 %/100 mA
Optocoupler output	max. 30 V, 10 mA

Applications for multifunction display

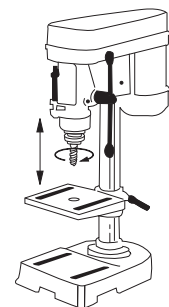
- Counting tasks such as quantity and piece counting, measuring and recording of speed and of operating and processing times
- Piece counting or tool-life measurement on die cutters, presses, extruders, woodworking machines, drilling machines, pick-and-place machines, guillotines, special-purpose vehicles etc.
- Positioning tasks on processing machines, such as sawing machines, milling machines, bending and folding machines, etc.
- Production data acquisition by means of piece counting (using difference or adding), or measurement of production times or production speeds
- Totalizing flow, quantity and other scaleable media, or display of current flow rates.



Position or rotary speed on milling machine



Piece count on conveyor or production speed



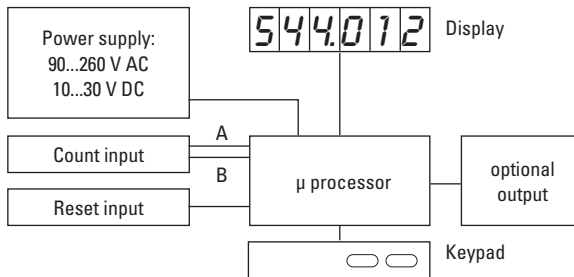
Drilling machine head, speed or drilling depth

1) Details see manual

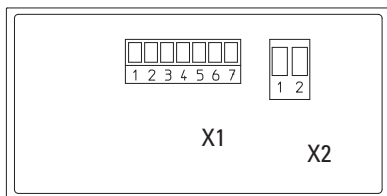
Multifunction devices, electronic

LED multifunction display **Multifunction – pulse, frequency, time (AC+DC)** **Codix 544**

Block diagram



Terminal assignment



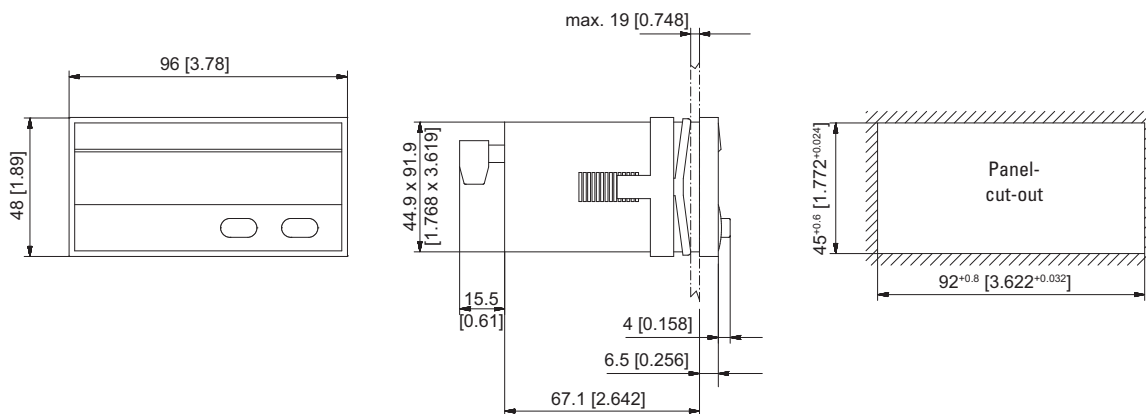
Connection X1

PIN	AC version	DC version
1	Optocoupler output	Emitter
2	Optocoupler output	Collector
3	Reset / Set	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0V DC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Dimensions



Multifunction devices

LED multifunction preset counters **Pulse, frequency, time (also reciprocal) – (AC+DC)** **571**



The multifunction preset counter 571 with its max. 100 kHz count frequency is ideal for fast counting tasks.

It can also be used as a tachometer, short time meter, stop-watch or to measure machine cycle times or throughput times.

Versions are available with 2 alarm outputs, analogue output or with serial interface.

This device is thus able to carry out virtually all count, measurement and control tasks.



AC/DC 17...260V Power supply	Multifunction Hz Multifunction	max. 100 kHz Clock frequency	2 2 Optocoupler outputs	mA, V Analogue output	14 bit Resolution analogue output	RS 232/485 RS232/485 interface	IP65 High protection level	POSITION Position display	DIN 96 x 48 DIN front bezel	6 LED LED display
Menu-driven programming	Plug-in screw terminal									

Characteristics

- Fast count input, works with our Limes measuring system (100 kHz)
- Version with 2 optocoupler outputs for alarms
- Version with scalable analogue output, resolution 14 bit, 0 ... 10 V, +10 ... -10 V, 0 ... 20 mA or 4 ... 20 mA
- Version with serial interface RS232/485 for importing and exporting data
- Sensor power supply 24 V DC, 150 mA
- 96 x 48 mm DIN housing, IP65

Benefits

- AC and DC power supply in one unit
- Measuring function can be programmed for RPM, speed (from elapsed time), machine cycle time, throughput and baking time (time interval), as well as numerous count and stop-watch functions
- Version with 2 optocoupler outputs; preset 2 can also be programmed as a tracking preset
- Scaleable display, programmed via 2 keys
- Large 15 mm high LED display, 6-digit, with adjustable brightness

Order specifications

Display with:	Order-No.	Delivery specifications
2 optocoupler outputs ¹⁾	0.571.011.E00	- Display 571
Analogue output ¹⁾	0.571.012.E90	- Gasket
Serial interface RS232/485	0.571.012.E05	- Mounting kit
		- Plug-in screw terminals
		- Manual German/English

Accessories

Accessories	Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm
	grey G300005
OS2 software for parameter setting	can be downloaded at www.kuebler.com

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Multifunction devices, electronic

LED multifunction preset counters Pulse, frequency, time (also reciprocal) – (AC+DC) 571

General technical data	
Display	LED display, 15 mm high 6 decades
Operating temperature	0°C ... +45°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	16 ... 35 V DC (rated voltage 24 V DC) 115/230 V AC, ± 12.5 %
Current consumption DC	18 V 120 mA 24 V 95 mA 30 V 80 mA
Power consumption AC	7.5 VA
Auxiliary power supply output for sensors	24 V DC ± 15%, 120 mA (for AC and DC supply)
EMC	Immunity to interference EN 55011 class B Emitted interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

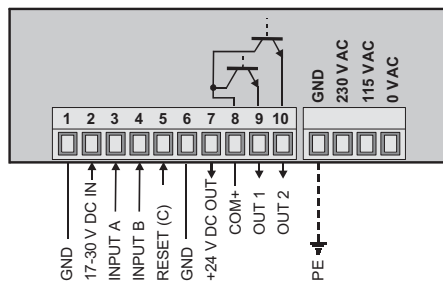
Mechanical characteristics	
Protection	IP65 (front side)
Weight	approx. 200 g

Inputs	
3 inputs	PNP, NPN and Namur A, B = pulse, C = reset
Max. input frequency	A, B 25 kHz (100 kHz for count) C 1 kHz
Input level HTL	LOW 0 ... 3.5 V HIGH 9 ... 35 V
Accuracy frequency	±1 ppm ±1 digit

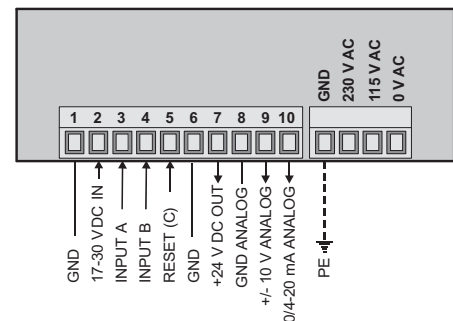
Outputs	
Analogue output (0.571.012.E90)	0 ... +10 V, +10 ... -10 V and 0 ... 20 mA, 4 ... 20mA
Resolution	14 bit + Sign
Accuracy	0.1 %
Optocoupler output (0.571.011.E00)	5 ... 35 V DC/150 mA
Interface (0.571.012.E05)	RS232 and RS485 n. ISO 1745 drivecom protocol

Terminal assignment

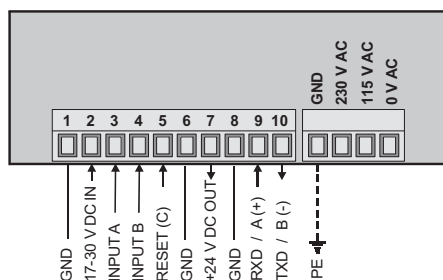
Display with 2 optocoupler outputs (0.571.011.E00)



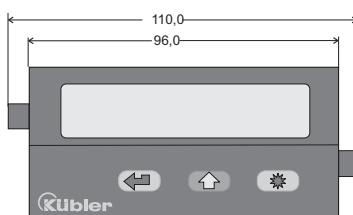
Display with analogue output (0.571.012.E90)



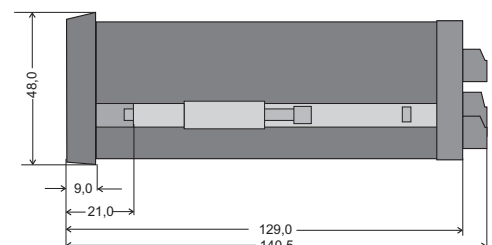
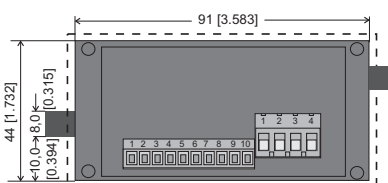
Display with serial interface (0.571.012.E05)



Dimensions



Panel cut-out 92 x 45 mm



Dimensions in mm [inch]



The Codix 52U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalising ranges, totaliser and timer, totaliser and frequency meter, timer with 2 time ranges.

For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
 - Pressing the right key switches between displays
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- Separate factors for frequency- and pulse counting
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs
- Timer specials: timer or hours-run meter with various Start/Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

Order code

6.52U . 01 2 . 3 X 0
a

a Input switching level
 0 = Standard (HTL) ¹⁾
 A = 4 ... 30 V DC

Delivery specification

- Digital counter
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm

Multifunction devices, electronic

LED dual function displays	Universal with dual functions, 4 combinations (DC)		Codix 52U
Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, for screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

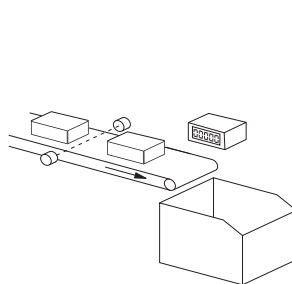
Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (from the front)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP
Input resistance	approx. 5 kΩ
Counting frequency¹⁾	max. 60 kHz, can be damped to 30 Hz
Display range	timer 0.001 s ... 999999 h frequency meter 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	< 0.1 % frequency meter, tachometer

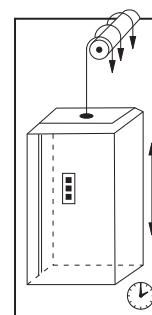
Multifunction devices

Applications for dual functions

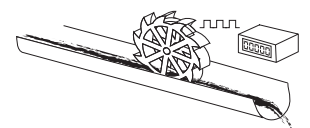
- Pulse and frequency (speed)
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)
Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers
Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time



Piece count on conveyor and production speed



Trip counter and hours-run



Flow rate and total volume

1) Details see manual

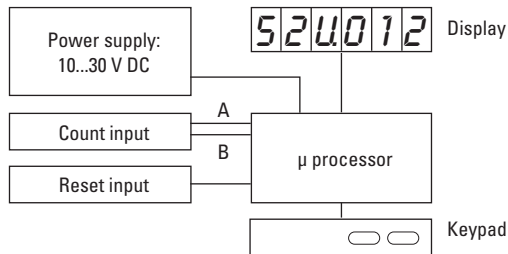
Multifunction devices, electronic

LED dual function displays

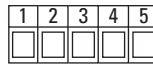
Universal with dual functions, 4 combinations (DC)

Codix 52U

Block diagram



Terminal assignment



PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A
4	INP B
5	Reset

Function of the inputs INP A, INP B

Counter with 2 totalising ranges:

INP A: Dynamic count input counter 1 and counter 2

INP B: Inactive

Totaliser and timer::

INP A: Dynamic count input for totaliser

INP B: Start/Stop or gate input for timer, totaliser and frequency meter

Totaliser and frequency meter:

INP A: Dynamic count input/frequency input

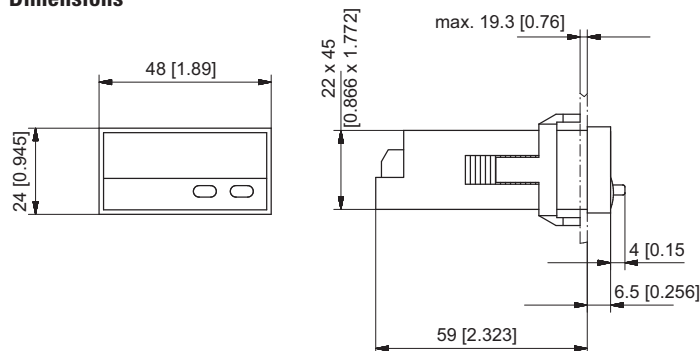
INP B: Inactive

Timer with 2 time ranges:

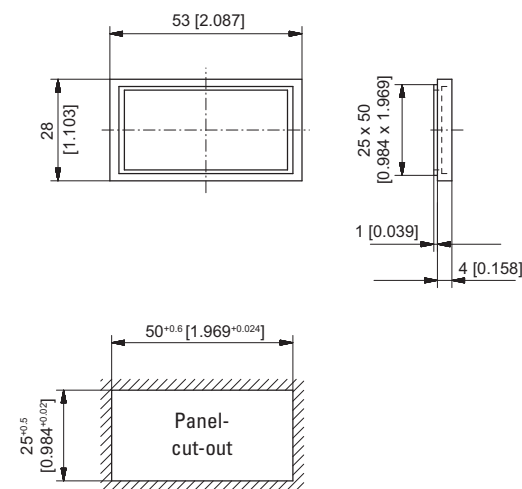
INP A: Start input (depends on input type)

INP B: Start/Stop or gate input for timer (depends on input type)

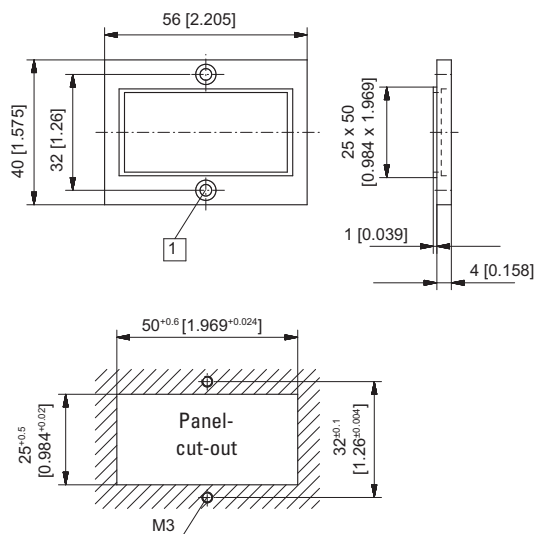
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (DC)	Codix 52P
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The Codix 52P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



DC 10 ... 30V	 DIN 48 x 24	 - 20° + 65°	 IP65	 Menu-driven programming	 max. 30 kHz	 1/sec 1/min	 POSITION	 t / Hz HRA
Power supply	DIN front bezel	Temperature range	High protection level	Menu-driven programming	Pulse counter/ Totaliser	Frequency meter/ tachometer	Position display	Frequency meter HRA

Powerful

- Fast count and frequency input – input frequency max. 30 kHz
- Robust housing – IP65 protected
- Very bright LED display, 8 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
 - Pressing the right key switches between displays
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- Separate factors for frequency- and pulse counting
- 4 different count input modes for the position display: 2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec
- Inputs: as an alternative to the HTL inputs, devices are available with a 4 ... 30 V DC input level, for use as parallel displays to PLCs

Multifunction devices

Order code	6.52P . 01 2 . 3 X 0
------------	----------------------

a Input switching level
0 = Standard (HTL) ¹⁾
A = 4 ... 30 V DC

Delivery specification

- | | |
|--|---|
| <ul style="list-style-type: none"> - Digital counter - Mounting clip - Gasket - Instruction manual, multilingual | <ul style="list-style-type: none"> - Front bezel for screw mounting (T008181)
56 x 40 mm, panel cut-out 50 x 25 mm - Front bezel for clip mounting (T008180)
53 x 28 mm, panel cut-out 50 x 25 mm |
|--|---|

1) Stock types

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (DC)	Codix 52P
Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front bezel 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter also for 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C > 26 ... 30 V DC -20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +70°C

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

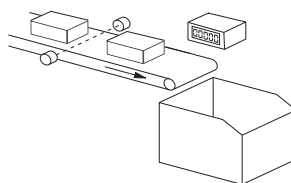
Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 30 kHz, can be damped to 30 Hz
Display range	tachometer 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level (HTL)	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	< 0.1 % frequency meter, tachometer

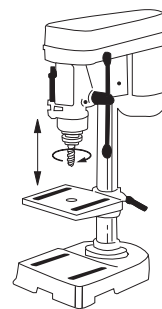
Applications for frequency and position display / totaliser

Position and rotary speed applications, e.g.

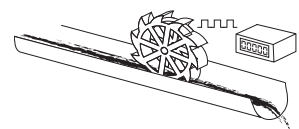
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed



Piece count on conveyor and production speed



Rotary speed and drilling depth



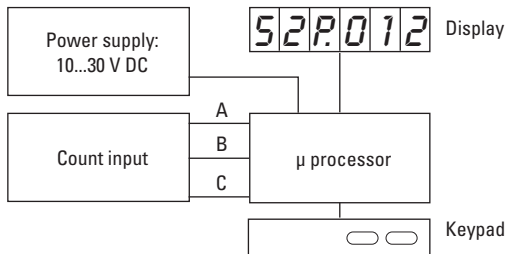
Flow rate and total volume

1) Details see manual

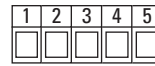
Multifunction devices, electronic

LED dual function displays 6 count modes with tachometer (DC) Codix 52P

Block diagram



Terminal assignment



PIN	DC version
1	10 ... 30 V DC
2	0 V GND
3	INP A (count)
4	INP B (count)
5	INP C (frequency)

Function of the inputs INP A, INP B, INP C

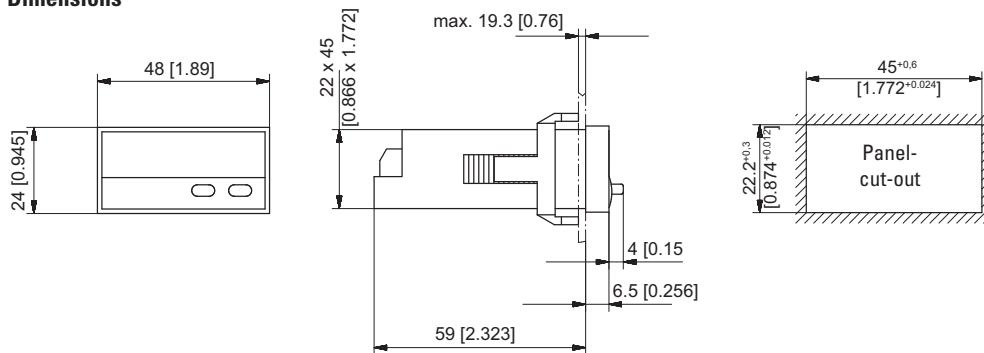
INP A and INP B:

Two channel pulse input with 6 different count modes

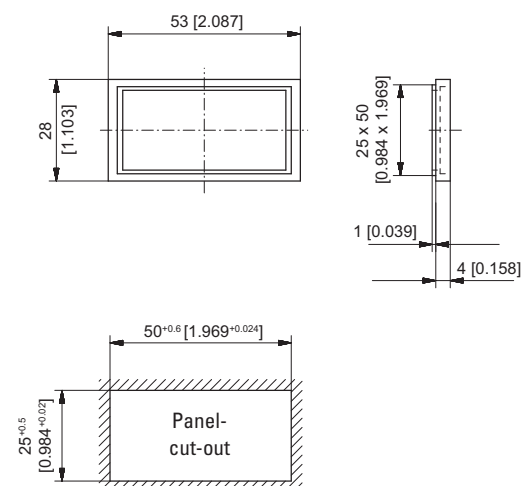
INP C:

Frequency input, single channel

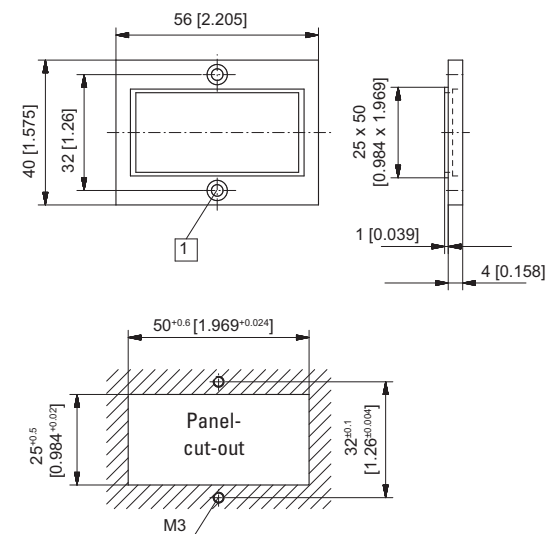
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

LED dual function displays

Universal with dual functions, 4 combinations (AC+DC)

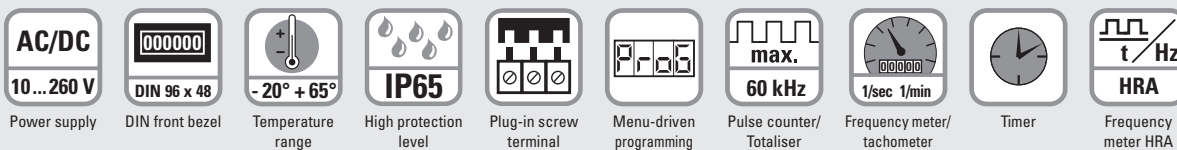
Codix 54U



The Codix 54U is a voltage-powered dual function counter with 4 functions in one device:

Counter with 2 totalising ranges, totaliser and timer, totaliser and frequency meter, timer with 2 time ranges.

For fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



Powerful

- Fast count and frequency input – input frequency max. 60 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
 - Pressing the right key switches between displays
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- Separate factors for frequency- and pulse counting
- AC or DC power supply
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs
- Timer specials: timer or hours-run meter with various Start/Stop measurements, time range settings in hours, minutes or seconds, with decimal point. Resolutions up to 1/1000 can be programmed.

Order code

6.54U . 01 2 . XX 0
a b

a Power supply
 0 = 90 ... 260 V AC ¹⁾
 3 = 10 ... 30 V DC

b Input switching level
 0 = Standard (HTL) ¹⁾
 A = 4 ... 30 V DC

Delivery specification
 – Digital display
 – Mounting clip
 – Gasket
 – 2 plug-in screw terminals
 – Instruction manual, multilingual

Replacement parts
 7 pin screw terminal RM 3.81 1 ... 7: N100387
 2 pin screw terminal RM 5.08 1 ... 2: N100133

Accessories

Mounting frame with cut-out 92 x 45 mm

For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

Order-No.

G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Multifunction devices, electronic

LED dual function displays Universal with dual functions, 4 combinations (AC+DC) Codix 54U

General technical data	
Display	6 digit, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	10 ... 26 V DC -20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference: EN 55011 class B Immunity to interference: EN 61000-6-2
Device safety	Designed to: EN 61010 part 1 Protection class: 2 Application area: Pollution level 2

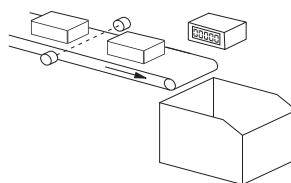
Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 60 kHz, can be damped to 30 Hz
Display range	timer: 0.001 s ... 999999 h frequency meter: 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW: 0 ... 0.2 x U _B [V DC] HIGH: 0.6 x U _B ... 30 V DC
AC power supply	LOW: 0 ... 4 V DC HIGH: 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW: 0 ... 2 V DC HIGH: 4 ... 30 V DC
Accuracy	frequency meter / tachometer: < 0.1 % timer: < 50 ppm

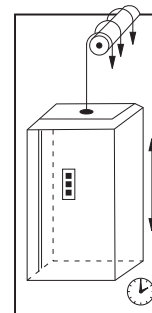
Outputs	
Sensor power supply (AC version)	24 V DC ± 15 %/100 mA

Applications for dual functions

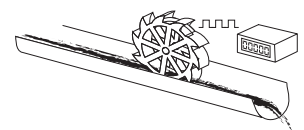
- Pulse and frequency (speed)
e.g. production data acquisition: total piece count and speed on OEM equipment, flow rate measuring systems – total flow and current flow
- 2 pulse counters
Measurement of batch and total piece count or of daily production count and total count values
- Pulse and time (maintenance counter)
Used in the lift industry as trip counters and hours-run meters and on production machines for piece and time counting, flow and time measurement, materials handling time and quantities
- 2 timers
Measurement of total time and orderspecific times, maintenance intervals and total time, time of day and total time



Piece count on conveyor and production speed

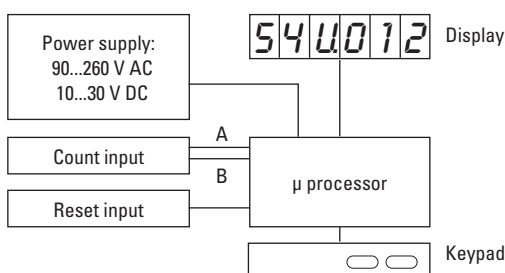


Trip counter and hours-run



Flow rate and total volume

Block diagram



1) Details see manual

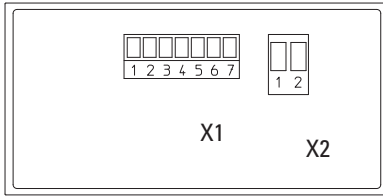
Multifunction devices, electronic

LED dual function displays

Universal with dual functions, 4 combinations (AC+DC)

Codix 54U

Terminal assignment



Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	Reset	
4	INP B	
5	INP A	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0VDC (GND)
2	90 ... 260 V AC	10...30 V DC

Function of the inputs INP A, INP B

Counter with 2 totalising ranges:

INP A: Dynamic count input counter 1 and counter 2

INP B: Inactive

Totaliser and timer:

INP A: Dynamic count input for totaliser

INP B: Start/Stop or gate input for timer, totaliser and frequency meter

Totaliser and frequency meter:

INP A: Dynamic count input/frequency input

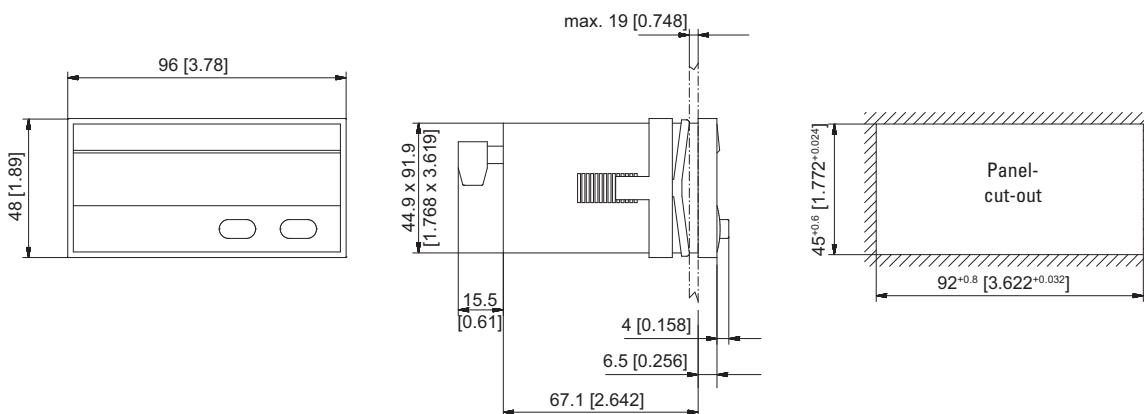
INP B: Inactive

Timer with 2 time ranges:

INP A: Start input (depends on input type)

INP B: Start/Stop or gate input for timer (depends on input type)

Dimensions



Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (AC+DC)	Codix 54P
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The Codix 54P is a voltage-powered pulse counter/ position display with 4 different count input modes and separate tachometer.

With separate inputs, for fast and slow count pulses, with 6-digit LED display for NPN, PNP input signals.



 10 ... 260 V Power supply	 DIN 96 x 48 DIN front bezel	 - 20° + 65° Temperature range	 IP65 High protection level	 Plug-in screw terminal	 Menu-driven programming	 max. 30 kHz Pulse counter/ Totaliser	 1/sec 1/min Frequency meter/ tachometer	 POSITION Position display	 t / Hz HRA Frequency meter HRA
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Powerful

- Fast count and frequency input – input frequency max. 30 kHz
- Robust housing – IP65 protected
- Very bright LED display, 14 mm high, 6 digits
- Very accurate precise frequency measurement principle (HRA-High Rate Accuracy System)
Frequencies up to 38 Hz are calculated using time-interval (period duration) measurement. Frequencies > 38 Hz are calculated using a special time base (gate time) measurement. A very high accuracy of < 0.1% is achieved, even with very short gate times. The resulting measurement is available after a max. of 50 ms.
- Short start-up time – detects input pulses just 16 msec after being switched on => no pulses are lost with a simultaneous motor start-up

User-friendly and universal

- Large keys – can also be operated when wearing gloves
- Programming:
 - Simple uniform menu-driven programming and operation
 - Possible to enter the programming also during operation with a confirmation prompt
 - Pressing the right key switches between displays
- Individually programmable scaling: multiplication and division factor (0.0001...99.9999), to display corresponding engineering units, e.g. position in 1/10 mm and speed in RPM
- Separate factors for frequency and pulse counting
- 4 different count input modes for the position display: 2-channel input for detecting count direction, difference or adding mode, quadrature x1, x2 or x4. 1 separate input for rotary speed and speed, display in 1/min or 1/sec
- AC or DC supply with sensor power supply
- Inputs: as an alternative to the HTL inputs, devices with a 5 V DC input level are available, for use as parallel displays for PLCs

Multifunction devices

Order code	6.54P . 01 2 . XX 0
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a Power supply
0 = 90 ... 260 V AC ¹⁾
3 = 10 ... 30 V DC

b Input switching level
0 = Standard (HTL) ¹⁾
A = 4 ... 30 V DC

Delivery specification
– Digital display
– Mounting clip
– Gasket
– 2 plug-in screw terminals
– Instruction manual, multilingual

Replacement parts
7 pin screw terminal RM 3.81 1 ... 7: N100387
2 pin screw terminal RM 5.08 1 ... 2: N100133

Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Multifunction devices, electronic

LED dual function displays 6 count modes with tachometer (AC+DC) Codix 54P

General technical data	
Display	6 digit, red 7 segment LED display; 14 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +70°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	10 ... 30 V DC, with reverse polarity protection 90 ... 260 V AC
Current consumption	max. 50 mA, 6 VA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

Mechanical characteristics	
Housing	front panel mount 96 x 48 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 150 g

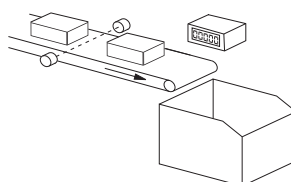
Inputs	
Polarity of inputs	programmable, NPN or PNP for all inputs
Input resistance	approx. 5 kΩ
Counting frequency ¹⁾	max. 30 kHz, can be damped to 30 Hz
Display range	tachometer 1/min or 1/sec
Minimum pulse duration of the reset input	5 ms
Input switching level standard version (HTL)	
DC power supply	LOW 0 ... 0.2 x U _B [V DC] HIGH 0.6 x U _B ... 30 V DC
AC power supply	LOW 0 ... 4 V DC HIGH 12 ... 30 V DC
Input switching level at 4 ... 30 V DC	LOW 0 ... 2 V DC HIGH 4 ... 30 V DC
Accuracy	frequency meter/tachometer < 0.1 %

Outputs	
Sensor power supply (AC version)	24 V DC ±15 %/100 mA

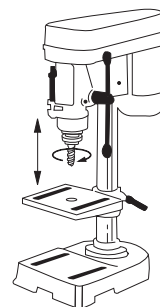
Applications for frequency and position display / totaliser

Position and rotary speed applications, e.g.

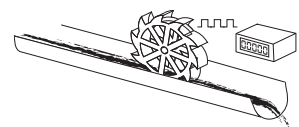
- OEM equipment or retrofitting to drilling machines
- OEM equipment on flow measuring plant, e.g. total flow and current flow
- Total piece count and pieces per minute, where the pulse counting occurs in the add/subtract mode, in order to deduct reject parts
- Production data acquisition: total piece count and production speed, or absolute distance traversed and current speed



Piece count on conveyor and production speed

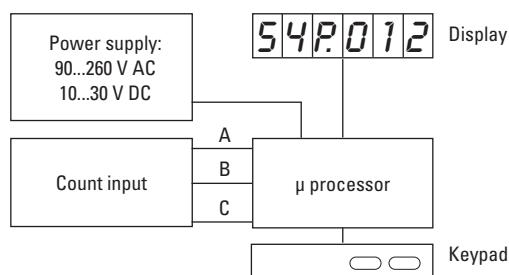


Rotary speed and drilling depth



Flow rate and total volume

Block diagram

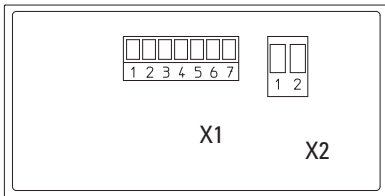


1) Details see manual

Multifunction devices, electronic

LED dual function displays	6 count modes with tachometer (AC+DC)	Codix 54P
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Terminal assignment



Connection X1

PIN	AC version	DC version
1	n.c.	
2	n.c.	
3	INP C (frequency)	
4	INP B (Count)	
5	INP A (Count)	
6	GND out	n.c.
7	+24 V out	n.c.

Connection X2

PIN	AC version	DC version
1	90 ... 260 V AC	0VDC (GND)
2	90 ... 260 V AC	10 ... 30 V DC

Function of the inputs INP A, INP B, INP C

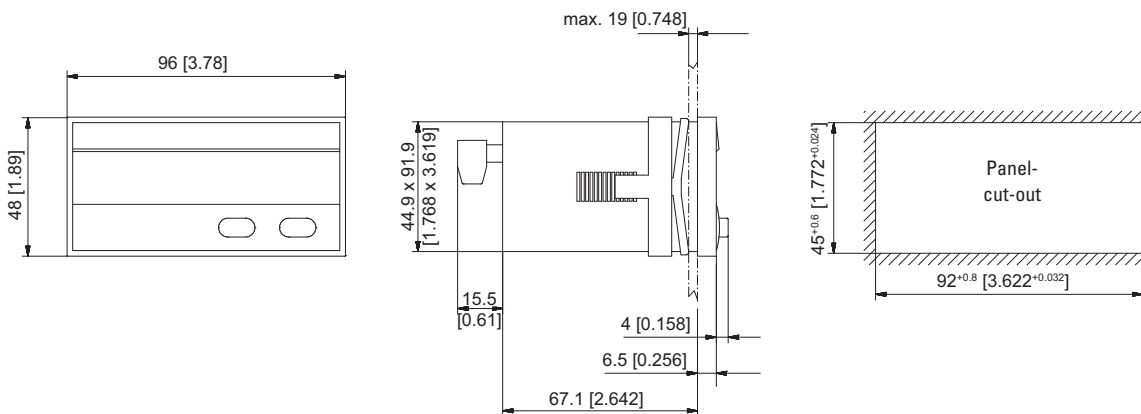
INP A and INP B:

Two channel pulse input with 6 different count modes

INP C:

Frequency input, single channel

Dimensions



Multifunction devices



Energy meters

Energy meters		Type	Page
Dual function counters	Energy and time (AC)	HW 66 / HW 66 M	262

Energy meters

Dual function counters **Energy and time (AC)** **HW 66 / HW 66 M**



The HW 66 and HW 66 M combination meters consist of an hour meter and an energy meter.

These panel-mounted devices require only a limited installation depth and can be used in a wide variety of application areas. The count pulses can be read out via the SO output.

Additional model:
MID version for applications requiring official calibration.

MID approved



AC 115/230V power supply	 -20° + 55° Temperature range	 DIN 48 x 48	 IP65 High protection level	 12345 12345 No reset	 00000 00000 2 x 6 Display 2 x 6 digit	 kWh Energy meter	 Timer
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Product features

- Metering of hours run and energy consumption in one compact device – panel mounting
- Wide temperature range
- Remote readout via SO outputs on request
- Shows both values in parallel
- Easy-to-read display – can also be read if no voltage present

Benefits

- Tamper-proof fixed installation with high degree of protection
- High measuring accuracy
- Can be officially calibrated (MID)

Applications

Dehumidifiers, hire equipment and machinery, air-conditioning, production equipment, current generators

Order specifications

	Voltage	Order-No.	Delivery includes	MID version
HW 66	230 V AC	3.563.201.075 ¹⁾	- Counter - Gasket - Mounting clip	
HW 66	115 V AC	3.563.201.074 ¹⁾		
MID version:				
HW 66 M	230 V AC	3.56M.201.075 ¹⁾		



Accessories

		Order-No.
Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm to ø 50.5 mm, with clip mounting for counters 48 x 48 mm	black T008171
Adapter front bezel, 60 x 75 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm, with screw mounting for counters 48 x 48 mm	black T008860
Adapter front bezel, 72 x 72 mm	For cut-out 68 x 68 mm to cut-out 45 x 45 mm, Mating clip T009420 must be ordered separately	black T008177
Adapter front bezel, ø 72 mm	For cut-out ø 60 mm to 45 x 45 mm, with clip mounting for counters 48 x 48 mm	black N510226
Adapter front bezel, 55 x 55 mm	For cut-out 50 x 50 mm to cut-out 45 x 45 mm with clip mounting for counters 48 x 48 mm Gasket 58 x 58 mm, for cut-out 50.2 x 50.2 mm	black T008853 N511004
Mounting frame with cut-out 50 x 50 mm (via supplied adapter also for 45 x 45 mm)	For snap-on mounting on 35 mm top-hat DIN rail, for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm	chromated G300003

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Standard stock model

Energy meters

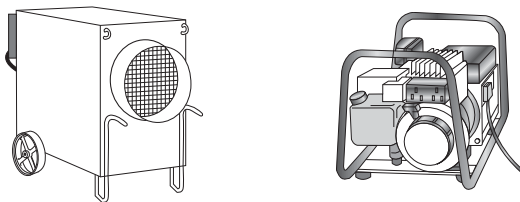
Dual function counters **Energy and time (AC)** **HW 66 / HW 66 M**

General technical data	
Power supply	115/230 V AC, -20 % / +15 % 50 or 60 Hz
Digits	2 x 6 digit (single units digit red)
Height of figures (optical)	4 x 1.7 mm
Colour of figures	white and red on black
Operating temperature	-20°C ... +55°C (non-condensing)
Storage temperature	-25°C ... +65°C
Housing	DIN panel-mount 48 x 48 mm
Depth	55 mm
Norm	EN 50470-1 and EN 50470-3
Protection	IP65, EN 60529 (front side)
Connections	screw terminal, touch-safe
Max. core cross-section	inputs/outputs 2.5 mm ² S0 output 2.5 mm ²
LED function	LED on when power supply is connected LED blinks when energy is being measured

Energy meter	
Display	99999.9 kWh
Accuracy	Class B, acc. to MID (for 50 Hz version)
Current	I _B = 5 A, I _{max} = 16 A
Current limits	> 20 mA up to 16 A
Start current	> 20 mA
S0 output	1000 pulses/kWh, 5 ... 30 V DC, I _{max} = 20 mA

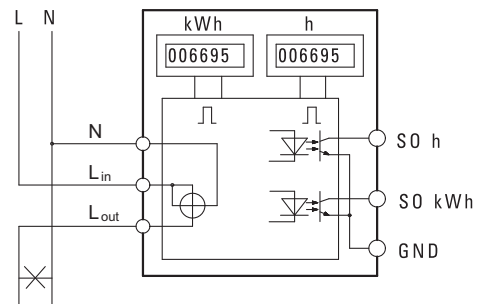
Hour meter	
Display	99999.9 h (0.1 h = 6 min)
Accuracy	± 2 %
S0 output	10 imp/h, 5 ... 30 V DC, I _{max} = 20 mA
Start	with voltage applied to L _{in}

Applications

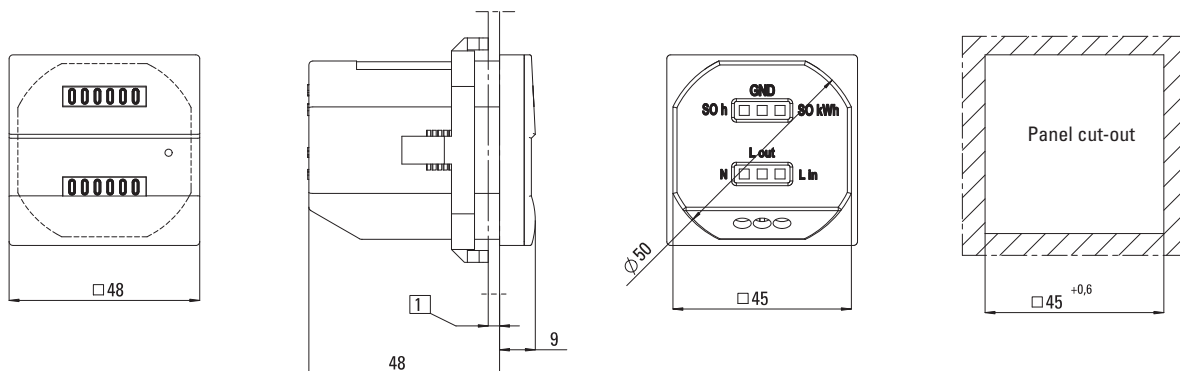


Retro- or standard fitting in dehumidifiers, current generators, air-conditioning, production equipment etc. for the accurate, traceable billing of operating and energy costs – especially also for hire equipment.

Terminal assignment



Dimensions





1 max. 6,5

Process displays / Process controllers / Setpoint adjuster



Process displays / Process controllers / Setpoint adjuster

Process displays		Type	Page
LED process displays	Analogue signals with Min / Max value detection (DC)	Codix 529	266
	Analogue signals with totaliser function (DC)	Codix 530	268
	Analogue signals with Min / Max value detection, totaliser function (AC+DC)	Codix 565 	270
Process controllers		Type	Page
LED process controllers	Analogue signals with 2 limit values, analogue output (AC+DC)	Codix 565 	270
	2 analogue signal inputs + 2 limit values or analogue output (AC+DC)	573	273
Setpoint adjuster		Type	Page
LED setpoint adjuster	Analogue signal output for mA or V, also time-controlled (DC)	Codix 533	276

Process displays

LED process displays **Analogue signals with Min / Max value detection (DC)** **Codix 529**



Cost-effective standard signal display for front panel mount with scalable bright 5-digit LED display.

The 14 bit resolution ensures an accurate measuring value display range with minimum and maximum value detection.



DC 10 ... 30 V Power supply	 mA, V Display scaling	 14 bit Resolution	 Menu-driven programming	 Galvanic isolation	 - 10° + 50° Temperature range	 IP65 High protection level	 min / max Min / Max value detection	 DIN 48 x 24 DIN front bezel	 5 LED LED display
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Product features

- Input range: 1 current measuring input, 1 voltage measuring input
- Compact display for analogue signals
- Display range -19 999 ... 99 999 with leading zeros suppression
- Modern industrial design

Benefits

- Galvanic isolation with protection against incorrect polarity
- Autom. Min / Max value detection
- Freely programmable characteristic curve end points
- Input for display hold

Order specifications

Display for analogue signals with Min / Max value detection

6.529.012.300 ¹⁾

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181) 56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180) 53 x 28 mm, panel cut-out 50 x 25 mm
- 1 set of self-adhesive symbols

Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front plate 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Process displays

LED process displays Analogue signals with Min/Max value detection (DC) Codix 529

General technical data	
Display	5 digits, red 7 segment LED display; 8 mm high
Measuring rate	2 measurements/second
Data backup	EEPROM
Operating temperature	-10°C ... +50°C (non-condensing)

Electrical characteristics	
Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 50 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

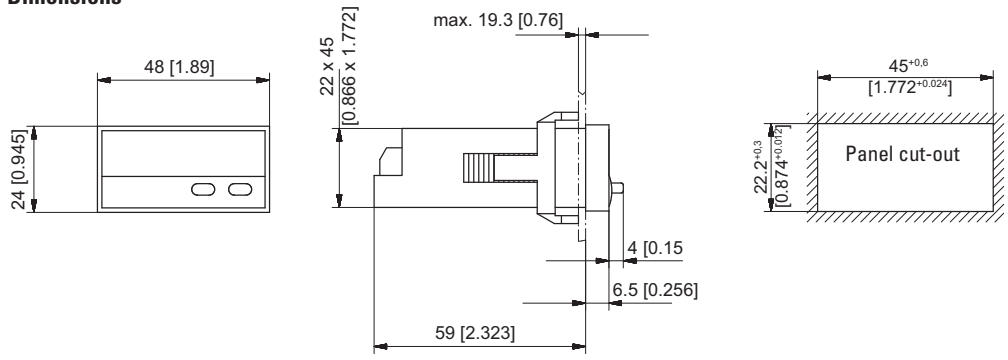
Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g
Connections	screw terminal, pitch 5.08 mm, 7 pin

Measuring signal inputs	
Input current measurement	0 ... 20 mA, 4 ... 20 mA
Voltage drop	max 1.5 V DC
Input voltage measurement	0 ... 10 V, 2 ... 10 V input resistance approx. 1 MΩ max. input signal level 30 V DC
Control inputs	HIGH 4 ... 30 V DC LOW 0 ... 2 V DC
Resolution	14 bit
Accuracy	< 0.1 % for the whole measuring range at an operating temperature of 20°C [68°F]
Temperature drift	< 70 ppm/K _{Ambient}

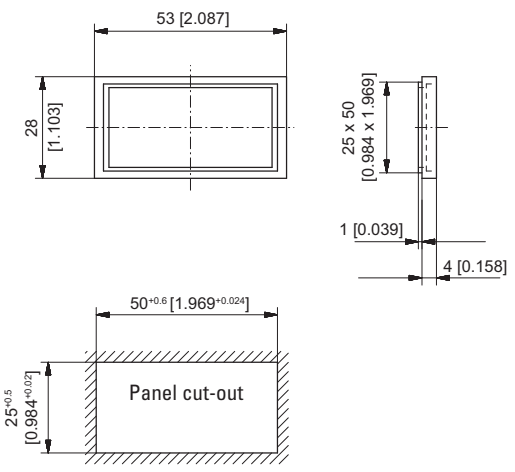
Terminal assignment

	PIN
1	10 ... 30 V DC
2	GND
3	GND
4	Latch
5	0 (4) ... 20 mA
6	Analogue GND
7	0 (2) ... 10 V DC

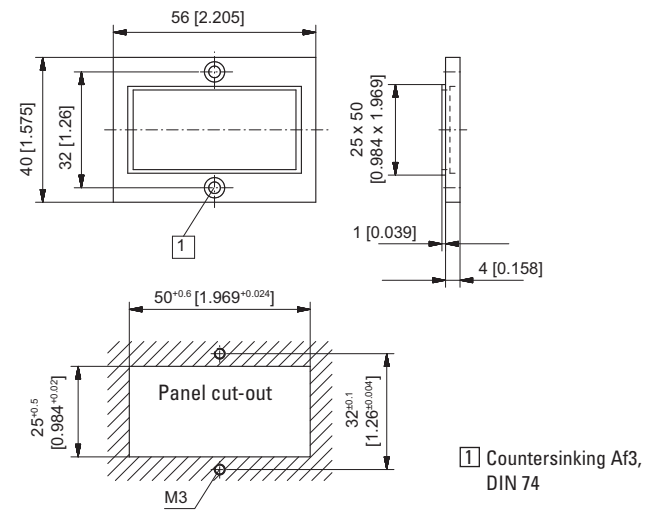
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1 Countersinking Af3, DIN 74

Dimensions in mm [inch]

Process devices

Process displays

LED process displays **Analogue signals with totaliser function (DC)** **Codix 530**



Cost-effective display for analogue input signals, for front panel mounting, with scalable bright 5-digit LED display.

The 14 bit resolution ensures an accurate measured value display range, with scalable time-controlled totalising of the measured value.



DC 10 ... 30 V Power supply	 mA, V Display scaling	 14 bit Resolution	 Menu-driven programming	 Galvanic isolation	 - 10° + 50° Temperature range	 IP65 High protection level	 Totaliser function	 DIN 48 x 24	 5 LED LED display
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Product features

- Input range: 1 current measuring input, 1 voltage measuring input
- Display range -19 999 ... 99 999 with leading zeros suppression
- Modern industrial design
- Programmable mains hum suppression

Benefits

- Compact display for analogue measured values and integration function (totaliser) with programmable factor
- Galvanic isolation with protection against incorrect polarity
- Programmable display hold input (MPI) or integration function (totaliser) reset input
- Freely programmable characteristic curve end points

Order specifications

Display for analogue signals with totaliser function

6.530.012.300 ¹⁾

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181) 56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180) 53 x 28 mm, panel cut-out 50 x 25 mm
- 1 set of self-adhesive symbols

Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front plate 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Process displays

LED process displays Analogue signals with totaliser function (DC) Codix 530

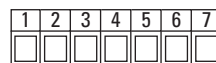
General technical data	
Display	5 digits, red 7 segment LED display; 8 mm high
Measuring rate	1 measurement/second
Data backup	EEPROM
Operating temperature	-10°C ... +50°C (non-condensing)

Electrical characteristics	
Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 50 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48 x 24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g
Connections	screw terminal, pitch 5.08 mm, 7 pin

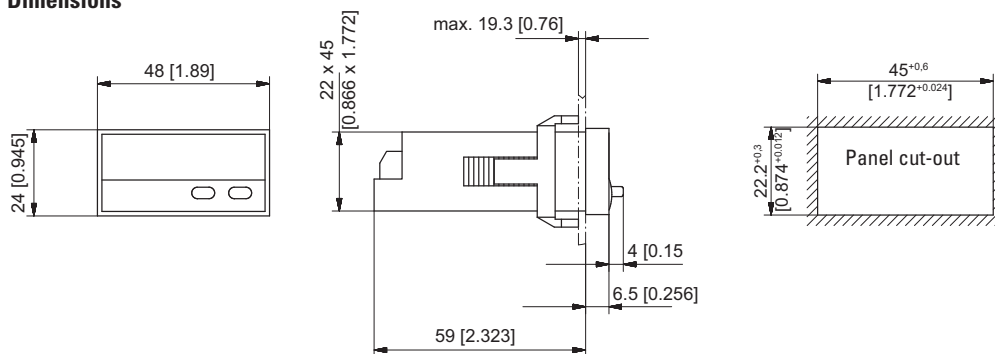
Input	
Input current measurement	0 ... 20 mA, 4 ... 20 mA
Voltage drop	max. 1.5 V DC
Input voltage measurement	0 ... 10 V, 2 ... 10 V
	input resistance approx. 1 MΩ
	max. input signal level 30 V DC
Control inputs (Display hold or reset totaliser)	HIGH 4 ... 30 V DC LOW 0 ... 2 V DC
Resolution	14 bit
Accuracy	< 0.1 % for the whole measuring range at an operating temperature of 20°C [68°F]
Accuracy totaliser	50 ppm
Temperature drift	< 70 ppm/K _{Ambient}

Terminal assignment

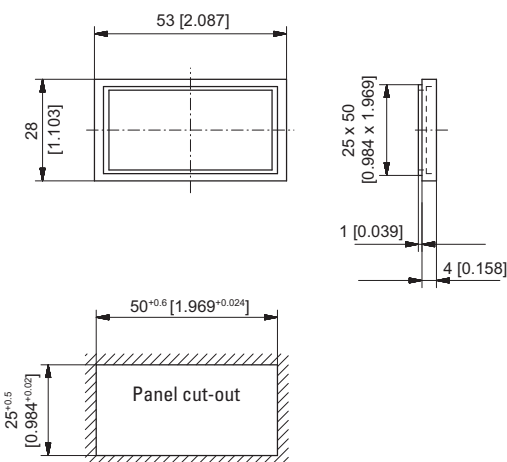


PIN	
1	10 ... 30 V DC
2	GND
3	GND
4	Latch
5	0 (4) ... 20 mA
6	Analogue GND
7	0 (2) ... 10 V DC

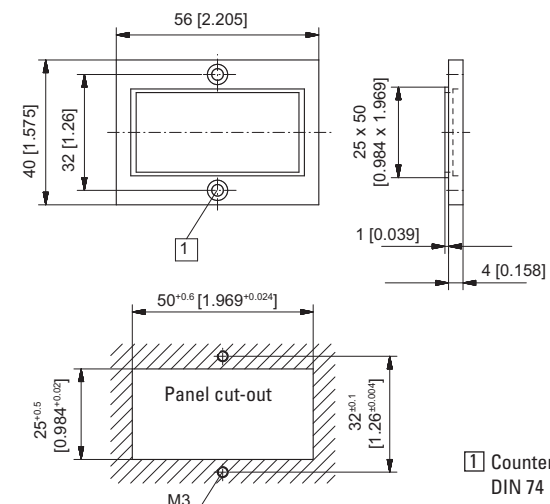
Dimensions



Front bezel for clip mounting (included in delivery)



Front bezel for screw mounting (included in delivery)



1] Countersinking Af3, DIN 74

Dimensions in mm [inch]



The process controller Codix 565 with totaliser function displays V and mA analogue input signals in high resolution. In addition it can monitor and control 2 limit values.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

NEW: with optional analogue output

DC 10 ... 30 V	AC 90 ... 260 V	A.Z* 6 LEDs	Prog	mA, V	Tara	Σ	mA V	min / max	2	AC/DC
Power supply		14-segment LED display	Menu-driven programming	Display linearization	Tare function	Totaliser-Function	Input	Min / Max value detection	2 limit values	Galvanic isolation
15 bit	-20° + 65°	000000 DIN 96 x 48	000000	Hand	mA, V					
Resolution	Temperature range	DIN front bezel	Installation in mosaic systems	Operation with gloves	Analogue output optional					

User-friendly

- Practical quick-start guide for setting the parameters and operating the device
- Help text as running text
- Easy-to-read 14-segment LED display, 6 digits 14 mm high
- Simple programming via 4 keys on the front
- One front key as well as 2 additional inputs can be programmed for specific applications
- Customer-specific characteristic (linearization) curve via 12 control points for all measurement signal inputs
- MIN/MAX memory function, individually resettable

Powerful

- Sampling rate of 10 readings per second
- Time-controlled totaliser function for totalising the measured values. Can be reset separately.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function for current measured or totaliser values
- Analogue output for the current measured value, MIN-value, MAX-value or totalizer value
- Auxiliary sensor power supply 15 V DC / 25 mA, also for 2-wire transmitters
- Inputs and outputs galvanically isolated
- Digital filter (first-order) for smoothing display fluctuation with unstable input signals
- Tare function

Order code

6.56 5 . 0 1 0 . X 0 X
a b c d

a Input type
 5 = Analogue input signal ¹⁾

b Outputs
 0 = relays ¹⁾

c Power supply
 0 = 90 ... 260 V AC ¹⁾
 3 = 10 ... 30 V DC ¹⁾

d Further outputs (optional)
 0 = none ¹⁾
 9 = analogue output
 (only for DC version)

Delivery specification:

- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device.

The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



¹⁾ Stock types

LED process controllers For analogue input signals (AC+DC) Codix 565

Accessories		Order-No.
Mounting frame with cut-out 92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6-digit, 14 segment LED
Digit height	14 mm
Display range	-199999 ... 999999, with leading zero blanking
Data retention	> 10 years, EEPROM
Operation	5 keys
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C
Relative humidity (non-condensing)	R.H. 93 % at +40°C
Altitude	up to 2000 m

Electrical characteristics		
Power supply	AC supply	90 ... 260 V AC / max. 9 VA 50 / 60 Hz ext. fuse protection: T 0.1 A
	DC supply	10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
Mains hum suppression		50 Hz or 60 Hz programmable
Sensor power supply	AC supply	24 V DC ±15 %, 30 mA
	DC supply	15 V DC ± 1 %, 25 mA
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2 with shielded signal and control cables
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

Mechanical characteristics		
Housing	Panel mount housing to DIN 43700, RAL 7021	
Dimensions	96 x 48 x 102 mm	
Panel cut-out	92 +0.8 x 45 +0.6 mm	
Installation depth	approx. 92 mm incl. terminals	
Weight	approx. 180 g 200 g with analogue output	
Protection	IP65 (front side)	
Housing material	Polycarbonate UL94 V-2	
Vibration resistance	acc. to EN 60068-2-6 10 - 55 Hz / 1 mm / XYZ 30 min in each direction	
Shock resistance	acc. to EN 60068-2-27	100G / XYZ 3 times in each direction
	acc. to EN 60068-2-29	10G / 6 ms / XYZ 2000 times in each direction
Connections		
Power supply and outputs	Plug-in screw terminal, 8-pin, RM 5.00, core ø max. 2.5 mm ²	
Signal and control inputs	Plug-in screw terminal, 9-pin, RM 3.50, core ø max. 1.5 mm ²	

Measuring signal inputs	
Sampling rate	10 readings/sec
Voltage input	
Input signal	0 ... 10 V, 2 ... 10 V, ± 10 V
Measuring range	-10.5 ... +10.5 V
Resolution	< 0.4 mV (±15 bit)
Measuring accuracy at 23°C (% of range)	typ. 0.02 % / max. ≤ 0.05 %
Temperature drift	< 100 ppm / K
Input resistance	1 MΩ
Max. voltage	± 30 V
Current input	
Input signal	0 ... 20 mA, 4 ... 20 mA
Measuring range	-0.5 ... 21 mA
Resolution	1 µA (> 14 bit)
Measuring accuracy at 23°C (% of range)	typ. 0.02 % / max. ≤ 0.05 %
Temperature drift	< 100 ppm / K
Input resistance	22 Ω + PTC 25 Ω
Voltage drop	approx. 1.8 V at 20 mA
Max. current	60 mA

Control inputs MPI 1 / MPI 2		
Quantity	2 optocouplers	
Function	programmable	
Switching levels	LOW	< 2 V
	HIGH	> 4 V (max. 30 V)
Pulse length	> 100 ms	

Alarm outputs		
Relays	changeover contacts	
Switching voltage	max.	250 V AC / 125 V DC
	min.	5 V AC / 5 V DC
Switching current	max.	5 A AC / 5 A DC
	min.	10 mA DC
Switching capacity	max.	1250 VA / 150 W

Analogue output (optional - only for DC version)		
Output ranges	0 (4) ... 20 mA / 0 (2) ... 10 V	
Load	current output	≤ 500 Ω
	voltage output	≥ 2000 Ω
Resolution	15 bit	
Update time (basic device measuring rate)	100 ms	
Temperature drift	≤ 100 ppm/K	
Accuracy	± 0.1% of the output range high value	
Output ripple	≤ 10 mV	
Isolation voltage	500 V AC for 1 minute or 1 kV DC for 1 second	

Process controllers

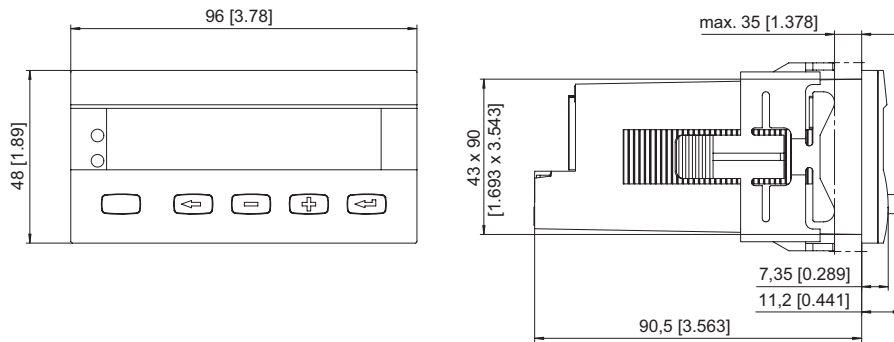
LED process controllers

For analogue input signals (AC+DC)

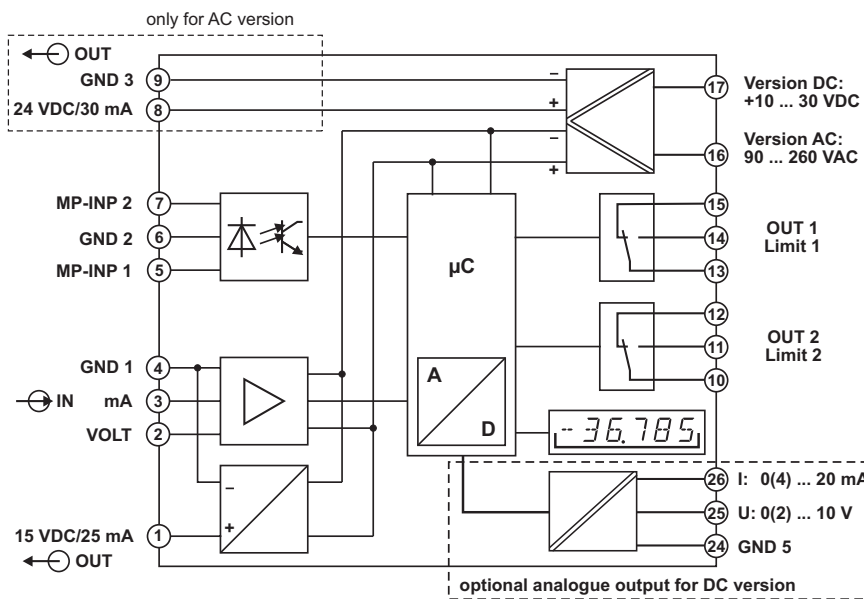
Codix 565

Dimensions

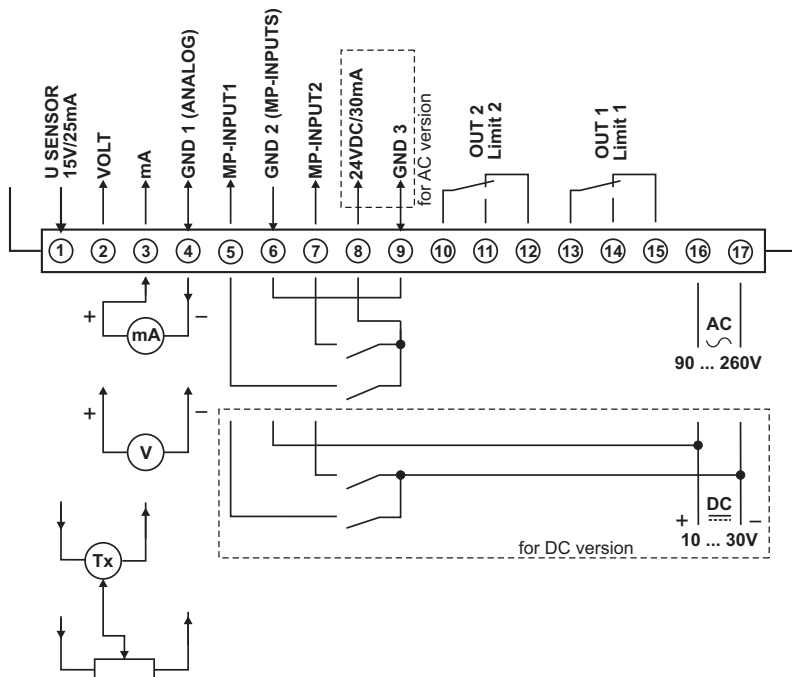
Panel cut-out
92 mm ^{+0.8} x 45 mm ^{+0.6}



Block diagram

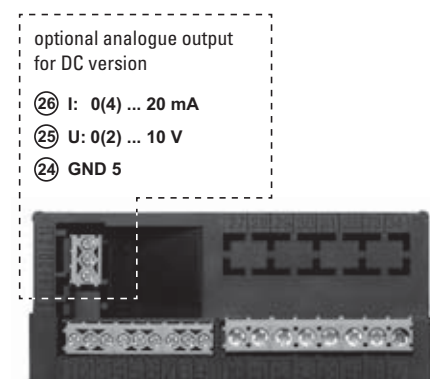


Terminal assignment



Dimensions in mm [inch]

Rear side view



Process controllers

LED process controllers **2 analogue signal inputs + 2 limit values or analogue output** **573**



The process controller with 2 analogue inputs can be used in both single channel mode as well as in dual channel. In dual channel mode, all arithmetic operations are available for displaying the sum total, difference, ratio or the product. Inputs and outputs can be scaled separately.

Can be used as a simple process signal converter, process controller (ON/OFF controller) or for complex measuring tasks, where the relationship between two values, one to the other, must be monitored, calculated or further processed in a higher-level controller.

 17 ... 260 V Power supply	 DIN 96 x 48 DIN front bezel	 IP65 High protection level	 Menu-driven programming	 Operation with gloves	 mA, V 2 inputs	 6 LED LED display	 Tara Tare function	 mA, V Output	 2 Transistor output
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Innovative

- 2 separate freely scalable analogue inputs +/-10 V, 0 ... 10 V and 0/4 ... 20 mA, resolution 14 bit
- Tare function – the unit can be set to 0 for any input voltage
- Programmable linearization: with up to 16 control points, input via key-pad or via the teach-in function
- Averaging measurement over 2 to 16 measuring cycles, for use with serious fluctuations of the input signals
- Easy to programme - the desired display value is simply keyed-in for a specific input signal
- Fast 25 ms sampling rate per channel alternating

Compact and multifunctional

- Up to 3 display values in one device, display A, display B + display calculated based on A and B
- AC and DC power supply in one device
- Simple menu-driven programming with just 2 keys, as well as tare or teach-in key
- Can be used as a simple process signal converter, process controller (ON/OFF controller) or for complex measuring tasks where the relationship between two values, one to the other, must be monitored, calculated or further processed in a higher-level controller
- Mathematical operation of the measured values of inputs A and B. The result can also if required be multiplied, divided or added to an offset value, in order to obtain the desired display value.
- Analogue output 0/4 ... 20 mA, +/-10 V or 0 ... 10 V
- 2 fast PNP switching outputs, 50 ms, with switching hysteresis, step or tracking preset
- Programmable display refresh time

Order specifications

Process controller with 2 outputs

6.573.011.E00 ¹⁾

Process controller with analogue output

6.573.012.E90 ¹⁾

Delivery specifications

- Process controller 573
- Gasket
- Mounting kit
- Manual German/English

Accessories

Order-No.

Mounting frame with cut-out 92 x 45 mm

For snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Process devices

Process controllers

LED process controllers 2 analogue signal inputs + 2 limit values or analogue output 573

General technical data	
Display	LED display, 15 mm high 6 decades
Operating temperature	0°C ... +45°C (non-condensing)
Storage temperature	-25°C ... +70°C

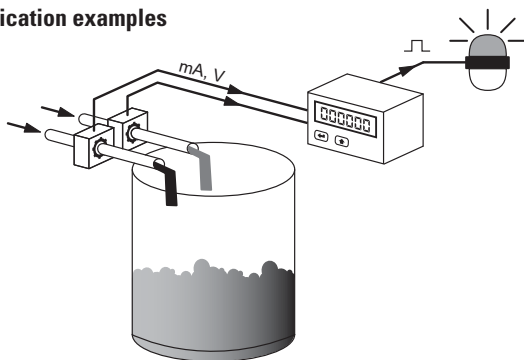
Electrical characteristics	
Power supply	17 ... 30 V DC (Nominal voltage: 24 V DC) 115/230 V AC ± 12.5 %
Current consumption	18 V 110 mA 24 V 90 mA 30 V 80 mA
Power consumption AC	7.5 VA
Auxiliary power supply output for sensors	24 V DC ± 15%, 100 mA (for AC and DC supply)
EMC	Immunity to interference EN 55011 class B Emitted interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

Mechanical characteristics	
Housing	Noryl UL94-V-0
Weight	approx. 200 g
Protection	IP65 (front side) IP20 (rear side)
Connection terminals	signal max. 1.5 mm ² AC supply max. 2.5 mm ²

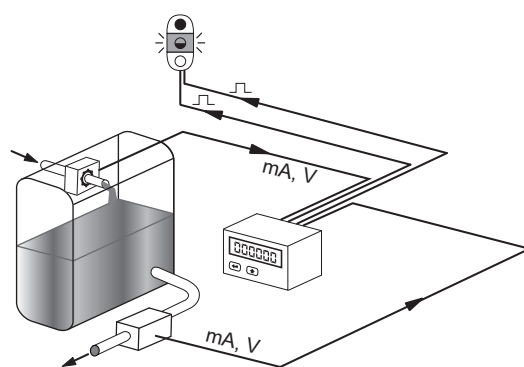
Measuring signal inputs	
2 analogue inputs	0 ... 20 mA, 4 ... 20 mA -10 ... +10 V, 0 ... 10 V
Input resistance	current Ri = 100 Ohm voltage Ri = 30 kOhm
Measuring time per channel	25 ms (alternating)
Resolution	14 bit (13 bit + sign)
Accuracy	±0.1% ± 1 digit

Outputs	
Switching outputs	2 x PNP, max. 35 V, max. 150 mA max. 50 ms response time
Analogue output	0 ... 20 mA, 4 ... 20 mA (max. 300 Ohm) -10 ... +10 V, 0 ... 10 V (max. 2 mA) max. 57 ms response time (analogue output 7 ms after detection of the measurement value)
Resolution	14 bit (13 bit + sign)

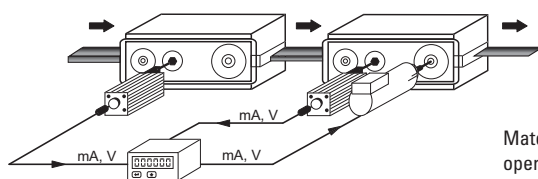
Application examples



Monitoring of mixing ratios and display of flow rate



Level monitoring and adjustment, display of inflow and outflow



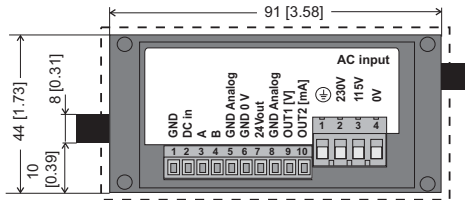
Material stretching, as well as monitoring of synchronous operation, with display of individual speeds

Process controllers

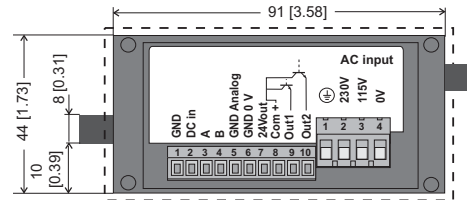
LED process controllers 2 analogue signal inputs + 2 limit values or analogue output 573

Terminal assignment

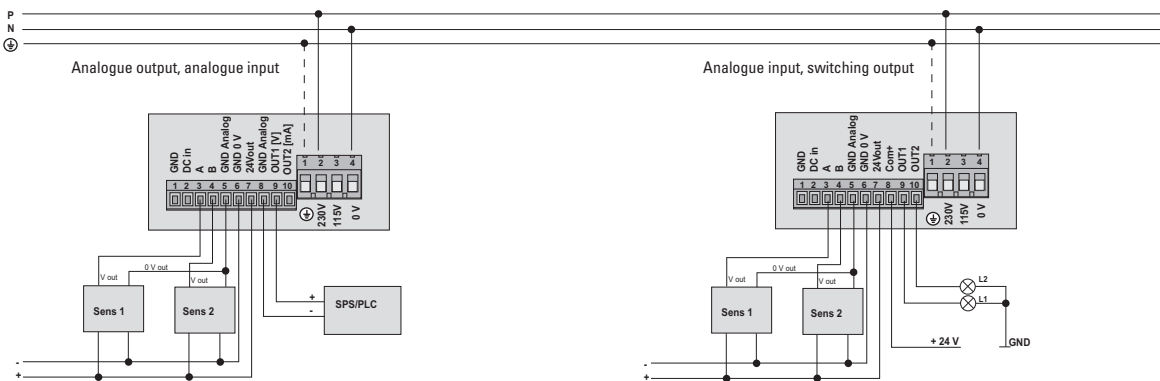
with analogue output



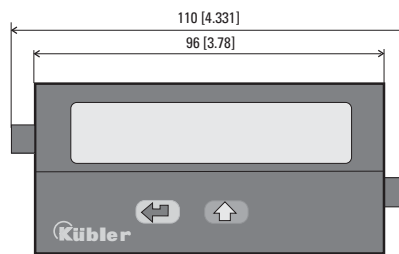
with 2 outputs



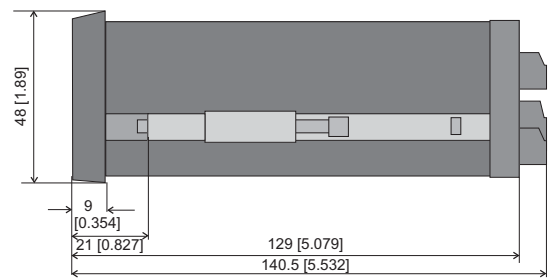
Connection example



Dimensions



Panel cut-out 91 mm x 44 mm



Setpoint adjuster

LED setpoint adjuster **Analogue signal output for mA or V, also time-controlled (DC)** **Codix 533**



The setpoint adjuster Codix 533 triggers a standard analogue signal or a freely programmable signal sequence from 0 ... 12 V or from 0 ... 24 mA.

The setpoint adjuster is a real innovation, opening up new application potentials in process technology and automation.



DIN front bezel	4 LED	10 ... 30 V	Menu-driven programming	High protection level	Temperature range	Output	Galvanic isolation

Innovative

- Function of a digital time controller with analogue output
- Manual functions with direct input or stepped incremental output of the setpoint
- 4-digit, 8 mm high top-quality LED display
- Physical variables output in the form of 0 to 12 V or 0 to 24 mA analogue signals
- Units of display can be freely programmed and displayed – no conversion of the specified output value required
- Ideal for simulation runs without the need for expensive, time-consuming running-in of processes

Powerful

- Simpler to run processes than with a PLC or process controller
- Everything can be programmed easily by means of 2 keys and the text menu
- Digital setting - no additional DIP switches or potentiometers
- Display allows simple monitoring of the specified setpoint output
- User-friendly display form as direct digital value
- 3 separate functions integrated as standard in the Codix 533
- High accuracy of < 0.2% of the final value

Order specifications

Setpoint adjuster	6.533.012.300 ¹⁾	<i>Delivery specification</i>	
		– Setpoint adjuster	– Instruction manual, multilingual
		– Mounting clip	– 1 set of self-adhesive symbols
		– Gasket	– Front bezel for screw mounting (T008181) 56 x 40 mm, panel cut-out 50 x 25 mm
			– Front bezel for clip mounting (T008180) 53 x 28 mm, panel cut-out 50 x 25 mm

Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front plate 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Setpoint adjuster

LED setpoint adjuster **Analogue signal output for mA or V, also time-controlled (DC)** **Codix 533**

General technical data	
Display	4 digits, red 7 segment LED display; 8 mm high
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +85°C

Mechanical characteristics	
Housing	front panel mount 48x24mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g
Connections	screw terminal, pitch 5.08 mm, 7 pin

Electrical characteristics	
Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Power consumption	max. 1 W
Test voltage	500 V, 50 Hz, 1 min.
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2
Device safety	Designed to EN 61010 part 1 Protection class 2 Application area Pollution level 2

General information about the measuring inputs	
Current output	0 ... 24 mA, increment 10 µA load 20 mA: ≤ 500 Ohm > 20 mA: ≤ 400 Ohm
Voltage output	0 ... 12 V, increment 10 mV load ≥ 2 kOhm
Control input	HIGH 4 ... 30 V DC Hold (HIGH active)
	LOW 0 ... 2 V DC
Accuracy	< 0.2% of the full scale value ±0.02 %/K

3 operating modes programmable

Manual direct input (Setp)

- Fast adjustment and manual approach to the desired setpoint value.
- Setpoint value can be specified directly during operation via the keys in V or mA.
- Output of the value 3 seconds after the last key actuation.

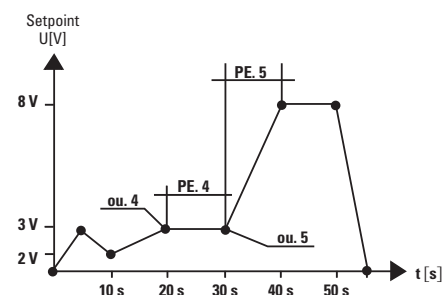
Manual ramping function (Man)

- Possibility of a stepped, incremental approach to the desired setpoint value using the keys on the front.
- Input of the minimum and maximum setpoint values and the increment by key actuation in the programming level.
- During operation the device starts with the minimum setpoint value – the right key is used to increase the value by the amount of the increment; the left key decreases the value.
- The programmed maximum value cannot be exceeded.

Automatic ramping function (Auto)

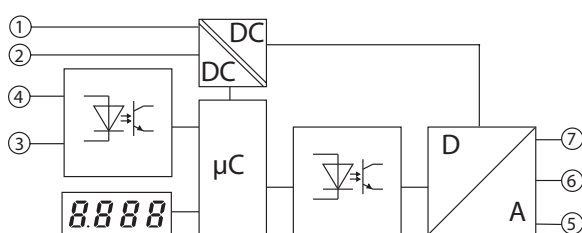
- Function of a digital time based controller with analogue output. Setpoint values can be programmed and carried out for process sequences, either cyclic or time dependent: irrigating, dosing, lubricating, filling, venting, mixing.
- With max. 20 current or voltage values.
- Cyclically limited (time) or unlimited.

Example of an automatic ramping function



Example with 8 points	
ou. 1	0 V
PE 1	5 s
ou. 2	3 V
PE 2	5 s
ou. 3	2 V
PE 3	10 s
ou. 4	3 V
PE 4	10 s
ou. 5	3 V
PE 5	10 s
ou. 6	8 V
PE 6	10 s
ou. 7	8 V
PE 7	10 s
ou. 8	0 V
PE 8	5 s

Block diagram



Inputs

1	2	3	4
10 ... 30 V DC	GND_1	GND_2	Hold

Outputs

5	6	7
0 ... 24 mA (Iout)	GND_3	0 ... 12 V DC (Uout)

Setpoint adjuster

LED setpoint adjuster **Analogue signal output for mA or V, also time-controlled (DC)** **Codix 533**

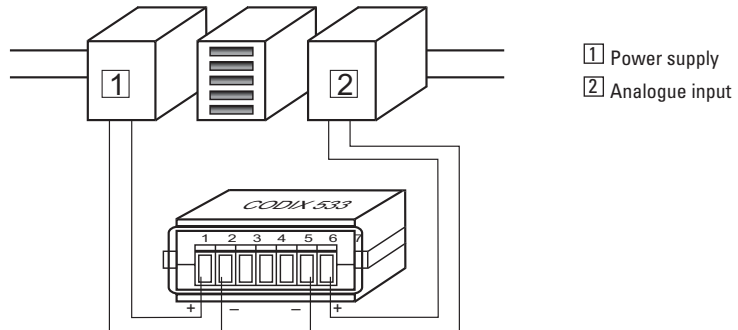
Terminal assignment

Inputs

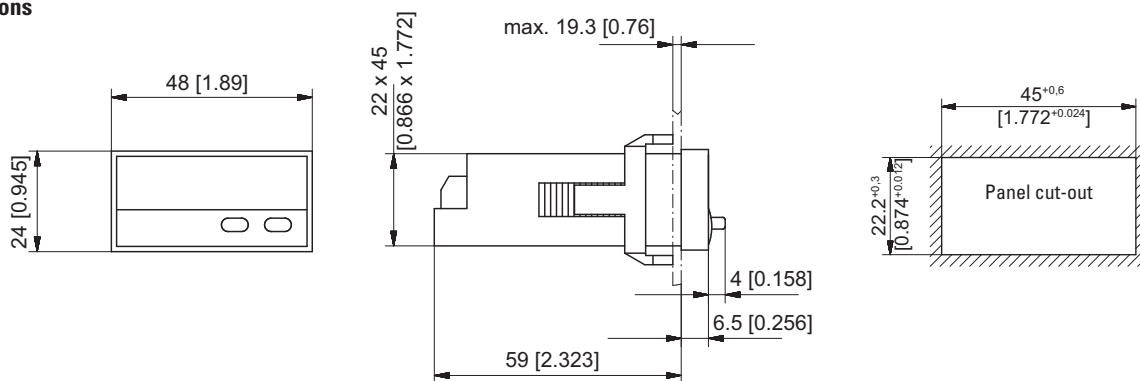
1	2	3	4
10 ... 30 V DC	GND_1	GND_2	Hold

Outputs

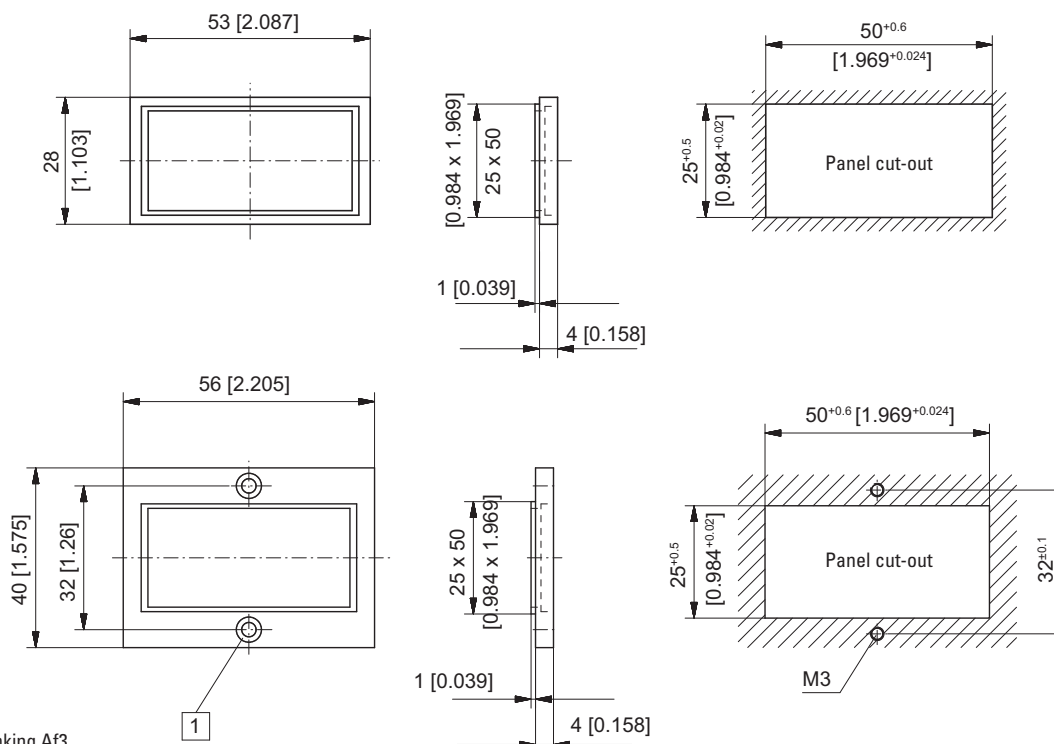
5	6	7
0 ... 24 mA	Analogue GND_3	0 ... 12 V DC



Dimensions



Front bezel



1 Countersinking Af3, DIN 74

Dimensions in mm [inch]

Setpoint adjuster

LED setpoint adjuster **Analogue signal output for mA or V, also time-controlled (DC)** **Codix 533**

Areas of application / Applications

Simple control (fixed installation) in plants, machines and devices

Time-based ramping up or down of:

For use in set-up mode of plants, machines and devices

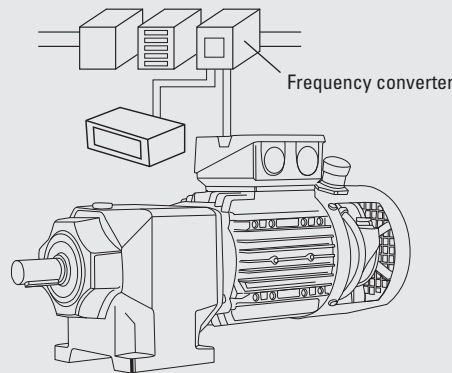
Manual (direct) specification or time-based or manual setting (ramping up or down) of:

Rotary speeds (e.g. frequency converter), flow rates, temperatures, positions, pressure and fill levels.
In short: all physical quantities that can be represented with analogue standard signals.

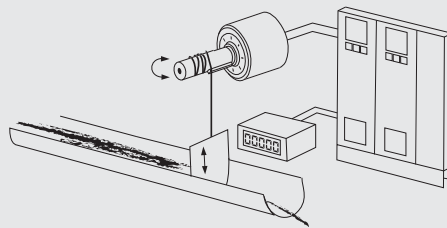
Applications

Simple time controller with analogue signal output

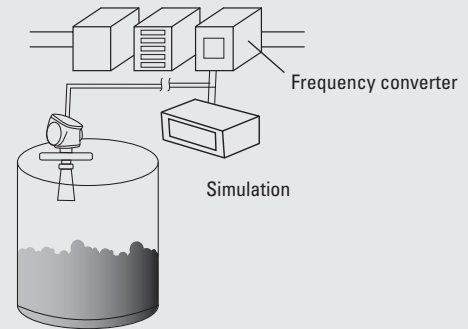
Commissioning, running-in processes or rotary speed control of motors through setpoint setting.



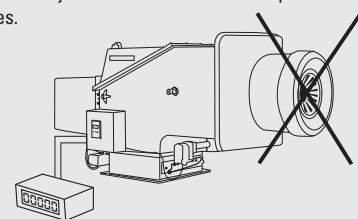
Control of simple, time-based processes by means of an analogue signal, e.g. ramping control for locks and sluices



Calibration of filling levels and flow rates: the setpoint adjuster simulates the output signals of a level or flow sensor for configuring a control.



Alignment for temperature-based processes without having to heat up the plant: the setpoint adjuster can simulate various processes for test purposes.



Solution with different modes

2 operating modes are provided for that purpose:
- Manual ramping function
- Automatic ramping function

The following operating modes are provided for that purpose:
- Manual direct input
- Manual ramping function
- Automatic ramping function

Advantages

Instead of using an expensive, complex and difficult-to-use PLC, our setpoint adjuster can handle this task as a standalone device. The user saves costs and the task can be performed in a flexible and quick way, even without any prior knowledge.



The setpoint adjuster simulates the sensor signal that is read by the physical process, e.g. the rise of the temperature, the filling of tank plants. Expensive and complex running-in of processes can be replaced with the simulation performed by the setpoint adjuster.

The output signal can be displayed directly or scaled in any desired unit.
The user always sees the exact progress.
An easy-to-use device with three selectable modes is available.

Process devices



Temperature displays / Temperature controllers

Temperature displays		Type	Page
LED temperature displays	Pt100 and Ni100 input (DC)	Codix 531	282
	For thermocouple inputs J, K and N (DC)	Codix 532	285
	mV, resistance, thermocouple inputs (AC+DC)	Codix 564 	288
Temperature controllers		Type	Page
LED temperature controllers	mV, resistance, thermocouple inputs, 2 limit values (AC+DC)	Codix 564 	288

Temperature displays

LED temperature displays **Pt100 and Ni100 input (DC)** **Codix 531**



Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using Pt100 and Ni100 resistance thermometers in 2, 3 or 4-wire technology, with permanently stored characteristic curves.

Minimum and maximum value detection for temperature monitoring over long periods of time.



DC 10 ... 30 V Power supply	 2, 3, 4 2-, 3-, 4-wire technology	 Pt100 / Ni100	 Menu-driven programming	 AC/DC Galvanic isolation	 - 20° + 65° Temperature range	 IP65 High protection level	 min / max Min / Max value detection	 DIN 48 x 24	 5 LED LED display
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Product features

- Input range: resistance thermometer
- Compact and low-price temperature display
- Easy programming and operation
- Modern industrial design
- 5 measurements/second

Benefits

- Temperature display in °C or °F
- MIN/MAX value acquisition and data backup in case of power off
- Galvanic isolation with protection against incorrect polarity
- Screw terminal connection: pitch 5 mm
- Display hold input

Order specifications

Temperature display for Pt100 and Ni100 resistance thermometer

6.531.012.300 ¹⁾

Delivery specification

- Digital display
- Mounting clip
- Gasket
- Instruction manual, multilingual
- Front bezel for screw mounting (T008181) 56 x 40 mm, panel cut-out 50 x 25 mm
- Front bezel for clip mounting (T008180) 53 x 28 mm, panel cut-out 50 x 25 mm
- 1 set of self-adhesive symbols

Accessories			Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised	162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black	T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black	N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm		N003002
Sealing cover type K1, IP65	Suitable for front plate 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm		G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated	G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Temperature displays

LED temperature displays Pt100 and Ni100 input (DC) Codix 531

General technical data	
Display	5 digits, red 7 segment LED display; 8 mm high
Display refresh	1 ... 2 times per second
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)

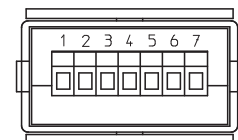
Electrical characteristics	
Power supply	10 ... 30 V DC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 40 mA
Circuit type	2-wire, 3-wire and 4-wire technology, programmable
EMC	Emitted interference: EN 55011 class B Immunity to interference: EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48x24mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g
Connections	screw terminal, pitch 5.08 mm, 7 pin

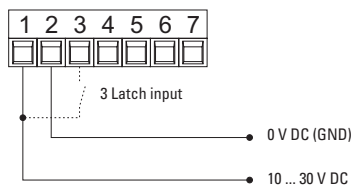
Measuring signal inputs		
Measuring rate	5 measurements / second	
Input	Pt100 resistance thermometer Ni100 resistance thermometer with sensor breakage monitoring	
Control inputs	HIGH LOW	4 ... 30 V DC 0 ... 2 V DC
Supply current	1 mA	
Supply line	2-wire 3-wire, 4-wire	max. 20 Ω, programmable max. 20 Ω, no balancing required
Temperature ranges	Pt100 acc. to DIN IEC 751 Ni100 acc. to DIN 43760	-199.9°C ... +850.0°C -327.8°F ... +1562.0°F -60.0°C ... +250.0°C -76.0°F ... +482.0°F
Resolution	0.1°C (0.1°F) or 1°C (1°F)	
Linearity error	Pt100 Ni100	< 0.1 % for the whole measuring range at an operating temperature of 20°C < 0.2 % for the whole measuring range at an operating temperature of 20°C
Temperature drift	0.1 K/K _{Ambient}	

Terminal assignment

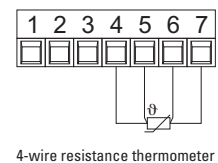
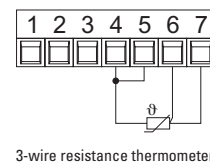
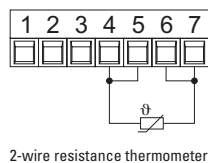
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC (GND)	Latch input	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100	Pt100/Ni100



Connection power supply and latch input



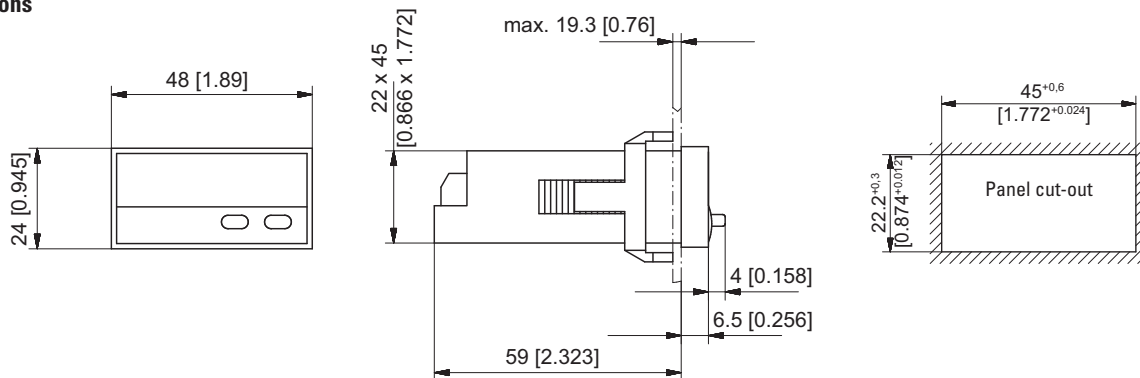
Connection resistance thermometer Pt100/Ni100



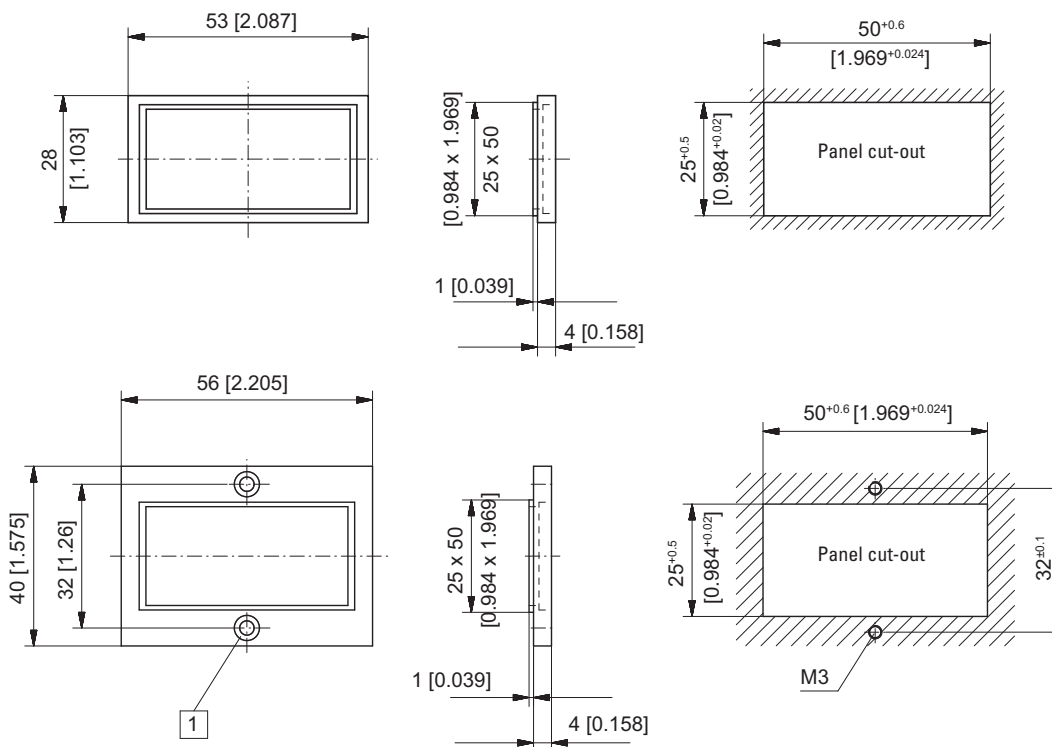
Temperature displays

LED temperature displays **Pt100 and Ni100 input (DC)** **Codix 531**

Dimensions



Front bezel



1 Countersinking Af3, DIN 74

Temperature displays

LED temperature displays For thermocouple inputs J, K and N (DC) **Codix 532**



Cost-effective temperature display for front panel mount with bright 5-digit LED display for values in °C or °F.

For very accurate temperature measurements using J, K or N thermocouples with permanently stored characteristic curves and selectable cold junction compensation.

Minimum and maximum value detection for temperature monitoring over long periods of time.



DC 10 ... 30 V								
Power supply	J, K, N thermocouples	Menu-driven programming	Galvanic isolation	Temperature range	High protection level	Min / Max value detection	DIN front bezel	LED display

Product features

- Input ranges: J, K, N thermocouples with external or internal cold junction compensation
- Compact and cost-effective temperature display
- Easy programming and operation
- Modern industrial design
- 5 measurements / second

Benefits

- Temperature display in °C or °F
- MIN/MAX value acquisition and data backup in case of power off
- Galvanic isolation with protection against incorrect polarity
- Screw terminal connection: pitch 5 mm
- Display hold input

Order specifications

Temperature display for J, K and N thermocouples	6.532.012.300 ¹⁾	<i>Delivery specification</i> <ul style="list-style-type: none"> – Digital display – Mounting clip – Gasket – Instruction manual, multilingual 	<ul style="list-style-type: none"> – Front bezel for screw mounting (T008181) 56 x 40 mm, panel cut-out 50 x 25 mm – Front bezel for clip mounting (T008180) 53 x 28 mm, panel cut-out 50 x 25 mm – 1 set of self-adhesive symbols
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Accessories		Order-No.
Adapter front bezel, 72 x 36 mm	For cut-out 68 x 33 mm to cut-out 45 x 22.2 mm, for counters 48 x 24 mm, as set	black and silver anodised 162704 Set
Adapter front bezel, 48 x 48 mm	For cut-out 45 x 45 mm to cut-out 45 x 22.2 mm, with clip mounting for counters 48 x 24 mm	black T008883
Adapter front bezel, 60 x 50 mm	For cut-out 54 x 29 mm to cut-out 45 x 22.2 mm, with screw mounting and gasket for counters 48 x 24 mm	black N003001
Transparent cover, lockable, IP65	For cut-out 54 x 29 mm, with screw mounting to front bezel F1B or adapter front bezel N003001, for counters with cut-out 50 x 25 mm or 45 x 22.2 mm	N003002
Sealing cover type K1, IP65	Suitable for front plate 60 x 50 mm with screw mounting of electromechanical counters and via adapter front bezel N003001, for counters 48 x 24 mm	G008301
Mounting frame with cut-out 50 x 25 mm via separate adapter 45 x 22.2 mm	For snap-on mounting on 35 mm top-hat DIN rail, for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm	chromated G300004

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

1) Stock types

Temperature devices

Temperature displays

LED temperature displays For thermocouple inputs J, K and N (DC) Codix 532

General technical data	
Display	5 digits, red 7 segment LED display; 8 mm high
Display refresh	1 ... 2 times per second
Data backup	EEPROM
Operating temperature	-20°C ... +65°C (non-condensing)

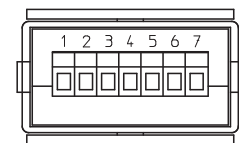
Electrical characteristics	
Power supply	10 ... 30 VDC, galvanically isolated with integrated reverse polarity protection
Current consumption	max. 40 mA
EMC	Emitted interference EN 55011 class B Immunity to interference EN 61000-6-2

Mechanical characteristics	
Housing	front panel mount 48x24 mm acc. to DIN 43700; RAL 7021, dark grey
Protection	IP65 (front side)
Weight	approx. 50 g
Connections	screw terminal, pitch 5.08 mm, 7 pin

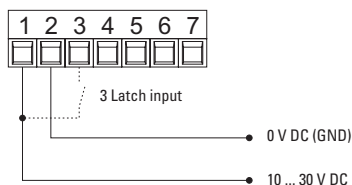
Measuring signal inputs	
Measuring rate	5 measurements / second
Input	thermocouple sensor J (Fe-CuNi) K (Ni-CrNi) N (NiCrSi-NiSi) with sensor breakage monitoring
Temperature ranges (according to DIN IEC 584)	J (Fe-CuNi) -210.0°C ... +1200.0°C -346.0°F ... +2192.0°F K (Ni-CrNi) -200.0°C ... +1372.0°C -328.0°F ... +2501.6°F N (NiCrSi-NiSi) -200.0°C ... +1300.0°C -328.0°F ... +2370.0°F
Resolution	0.1°C (0.1°F) or 1°C (1°F)
Linearity error	< 0.4 % for the whole measuring range at an operating temperature of 20°C
Temperature drift	0.1 K/K _{Ambient}
Cold junction error	±1°C typ. / ±3°C max.
Control inputs	HIGH 4 ... 30 V DC LOW 0 ... 2 V DC

Terminal assignment

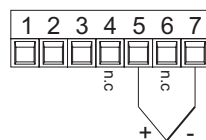
1	2	3	4	5	6	7
10 ... 30 V DC	0 V DC GND	Latch input	n.c.	Thermocouple +	n.c.	Thermocouple -



Connection power supply and latch input



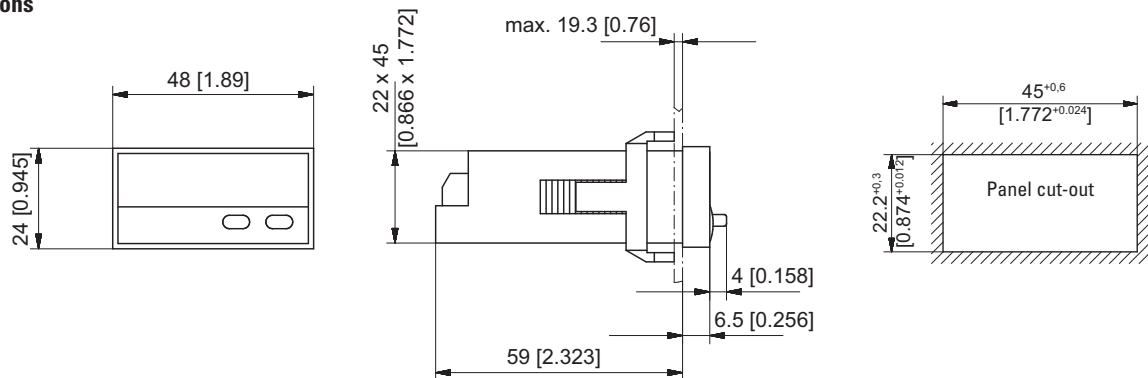
Connection thermocouple sensor



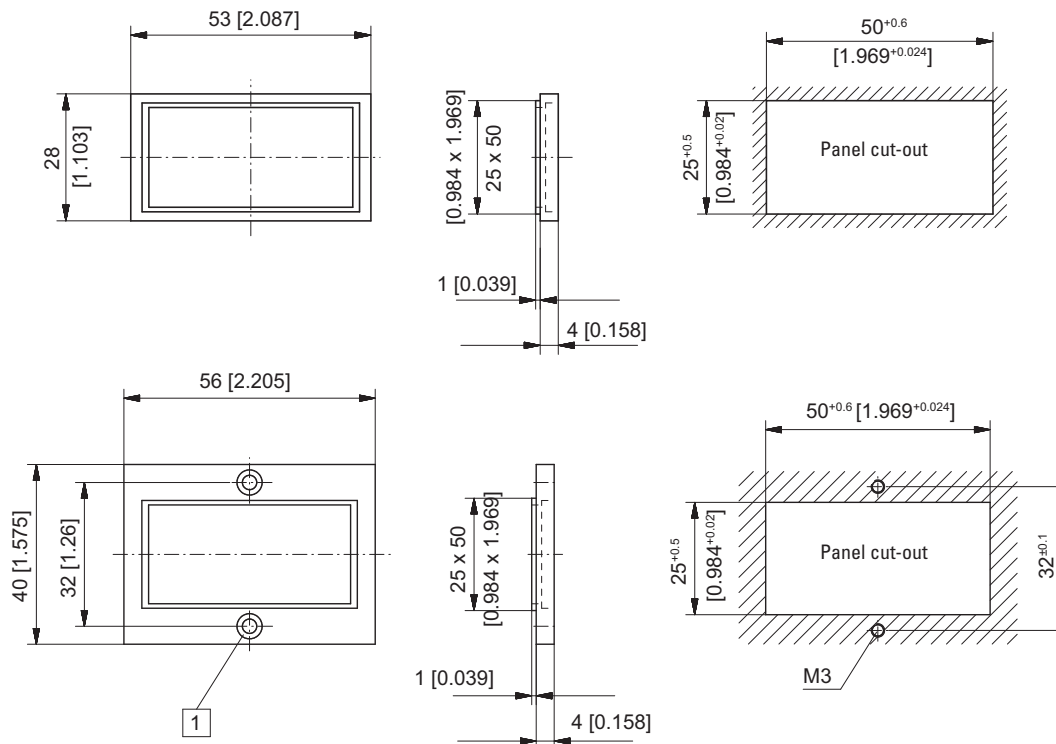
Temperature displays

LED temperature displays For thermocouple inputs J, K and N (DC) **Codix 532**

Dimensions



Frontbezel



1 Countersinking Af3, DIN 74

Temperature controllers

LED temperature controllers

For temperature sensors with limit value (AC+DC)

Codix 564

new



The temperature controller Codix 564 displays temperature values in high resolution. In addition it can monitor and control 2 limit values. All current temperature sensors, such as thermocouple types B, E, J, K, N, R, S and T, as well as mV inputs, Pt100 and resistance inputs, can be connected to the device.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

NEW: with optional analogue output

DC 10 ... 30 V Power supply	AC 90 ... 260 V Power supply	A..Z* 6 LEDs 14-segment LED display	Prog Menu-driven programming	mV, Ω Display linearization	Temperature input	2, 3, 4 2-, 3-, 4-wire technology	min / max Min / Max value detection	2 2 limit values	AC/DC Galvanic isolation	15 bit Resolution
-20° + 65° Temperature range	DIN 96 x 48 DIN front bezel	Installation in mosaic systems	Operation with gloves	mA, V Analogue output optional						

User-friendly

- Practical quick-start guide for setting the parameters and operating the device
- Help text as running text
- Easy-to-read 14-segment LED, 6-digit display, 14 mm high
- Simple programming via 4 keys on the front
- One front key as well as 2 additional inputs can be programmed for specific applications
- Characteristic curves for thermocouples and RTD permanently stored
- MIN/MAX memory function, individually resettable

Powerful

- Sampling rate of 10 readings per second
- Customised linearization via 12 control points
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function
- Analogue output for the current measured value, MIN-value, MAX-value
- Auxiliary sensor power supply with AC version
- Inputs and outputs galvanically isolated
- Digital filter (first-order) for smoothing display fluctuations with unstable input signals

Order code

6.56 4 . 0 1 0 . X 0 X
a b c d

- a** Input type
4 = Temperature signal input ¹⁾
- b** Outputs
0 = relays ¹⁾
- c** Power supply
0 = 90 ... 260 V AC ¹⁾
3 = 10 ... 30 V DC ¹⁾
- d** Further outputs (optional)
0 = none ¹⁾
9 = analogue output ¹⁾
(only for DC version)

- Delivery specification:*
- Process device
 - Mounting clip
 - Gasket
 - Instruction manual, multilingual
 - 1 sheet of self-adhesive symbols
 - Quick-start guide

¹⁾ Stock types

Practical quick-start guide for setting the parameters and operating the device. The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



Accessories

Mounting frame with cut-out 92 x 45 mm

for snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm

grey

Order-No.

G300005

Temperature controllers

LED temperature controllers For temperature sensors with limit value (AC+DC) Codix 564

General technical data	
Display	6-digit, 14 segment LED
Digit height	14 mm
Display range	-199999 ... 999999, with leading zero blanking
Data retention	> 10 years, EEPROM
Operation	5 keys
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C
Relative humidity (non-condensing)	R.H. 93 % at +40°C
Altitude	up to 2000 m

Electrical characteristics		
Power supply	AC supply	90 ... 260 V AC / max. 9 VA 50 / 60 Hz ext. fuse protection: T 0.1 A
	DC supply	10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
Mains hum suppression (programmable)		50 Hz or 60 Hz
Sensor power supply	AC supply	24 V DC ±15 %, 30 mA
EMC	Emitted interference	EN 55011 class B
	Immunity to interference	EN 61000-6-2 with shielded signal and control cables
Device safety	Designed to	EN 61010 part 1
	Protection class	2
	Application area	Pollution level 2

Mechanical characteristics	
Housing	Panel mount housing to DIN 43700 RAL 7021
Dimensions	96 x 48 x 102 mm
Panel cut-out	92 + 0.8 x 45 + 0.6 mm
Installation depth	approx. 92 mm incl. terminals
Weight	approx. 180 g 200 g with analogue output
Protection	IP65 (front side)
Housing material	Polycarbonate UL94 V-2
Vibration resistance	acc. to EN 60068-2-6 10 - 55 Hz / 1 mm / XYZ 30 min in each direction
Shock resistance	acc. to EN 60068-2-27 100G / XYZ 3 times in each direction
	acc. to EN 60068-2-29 10G / 6 ms / XYZ 2000 times in each direction
Connections	
Power supply and outputs	Plug-in screw terminal, 8-pin, RM 5.00, core cross-section max. 2.5 mm ²
Signal and control inputs	Plug-in screw terminal, 9-pin, RM 3.50, core cross-section max. 1.5 mm ²

Alarm outputs	
Relays	changeover contacts
Switching voltage	max. 250 V AC / 125 V DC min. 5 V AC / 5 V DC
Switching current	max. 5 A AC / 5 A DC min. 10 mA DC
Switching capacity	max. 1250 VA / 150 W
Pull-in time	approx. 10 ms

Measuring signal inputs		
Sampling rate	10 readings/sec	
Temperature drift	< 100 ppm/K	
Input Thermocouple		
thermocouple:	range: accuracy at 23°C:	
type B	+250°C ... 1820°C	typ. 1.0°C, max. 2.0°C
E	-200°C ... 1000°C	typ. 0.2°C, max. 0.5°C
J	-210°C ... 1200°C	typ. 0.2°C, max. 0.5°C
K	-200°C ... 499.9°C	typ. 0.6°C, max. 1.0°C
	-500°C ... 1372°C	typ. 0.3°C, max. 0.5°C
N	-200°C ... 1300°C	typ. 0.3°C, max. 0.7°C
R	-50°C ... 1768°C	typ. 1.0°C, max. 2.0°C
S	-50°C ... 1768°C	typ. 1.0°C, max. 2.0°C
T	-200°C ... 400°C	typ. 0.2°C, max. 0.5°C
Resolution J, K, T, E, N	1 or 0.1°C/°F	
Resolution S, R, B	1°C/°F	
Reference point	internal or external constant	
Reference point accuracy	≤ ±1°C	
Input mV		
Measuring range	± 105 mV (resolution ±15 bit)	
Measuring accuracy at 23°C (% of range)	typ. 0.02 / max. ≤ 0.05	
Input resistance	> 2 MΩ	
Input Pt100		
Measuring range	-200°C ... +850°C	
Resolution	1 or 0.1°C / °F	
Measuring accuracy at 23°C	typ. 0.3°C, max. ≤ 0.6°C	
Measuring current	200 µA	
Connection	2-, 3-, 4-wire	
Lead wire resistance	max. 25 Ω per wire	
Input 500 Ω		
Measuring range	0 ... 525 Ω (resolution ±15 bit)	
Measuring accuracy at 23°C	typ. 0.1 Ω, max. ≤ 0.2 Ω	
Measuring current	200 µA	
Connection	2-, 3-, 4-wire	
Lead wire resistance	max. 25 Ω per wire	

Control inputs MPI 1 / MPI 2		
Quantity	2 optocouplers	
Function	programmable	
Switching levels	LOW	< 2 V
	HIGH	> 4 V (max. 30 V)
Pulse length	> 100 ms	

Analogue output (optional - only for DC version)		
Output ranges	0 (4) ... 20 mA / 0 (2) ... 10 V	
Load	current output	≤ 500 Ω
	voltage output	≥ 2000 Ω
Resolution	15 bit	
Update time (basic device measuring rate)	100 ms	
Temperature drift	≤ 100 ppm/K	
Accuracy	± 0.1% of the output range high value	
Output ripple	≤ 10 mV	
Isolation voltage	500 V AC for 1 minute or 1 kV DC for 1 second	

Temperature devices

Temperature controllers

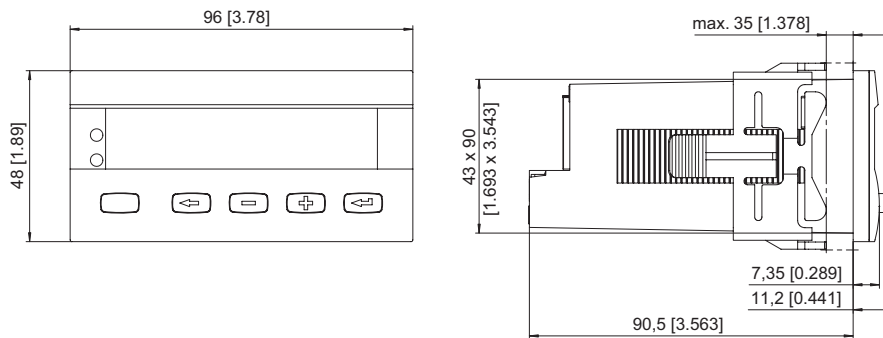
LED temperature controllers

For temperature sensors with limit value (AC+DC)

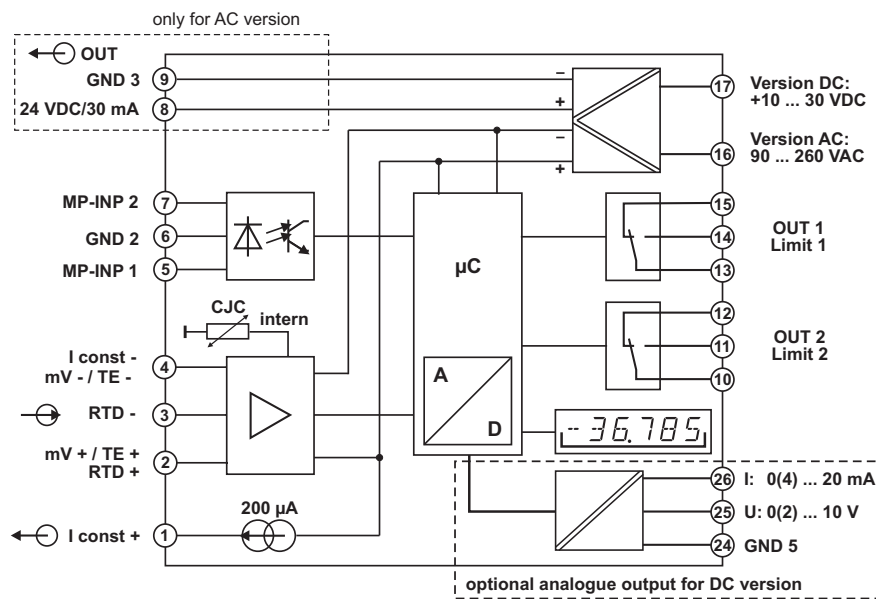
Codix 564

Dimensions

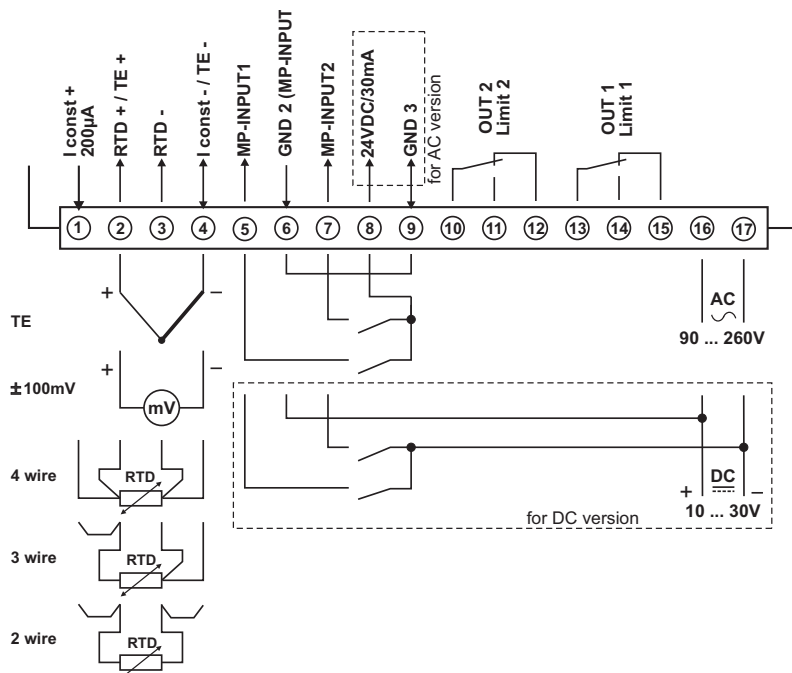
Panel cut-out
92 mm ^{+0.8} x 45 mm ^{+0.6}



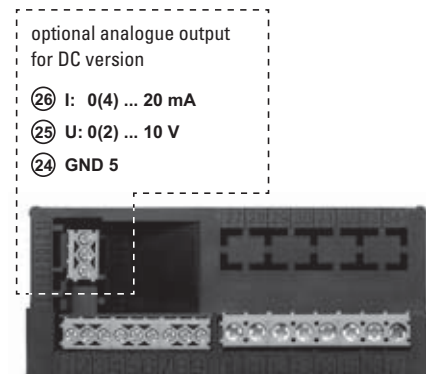
Block diagram



Terminal assignment



Rear side view



Dimensions in mm [inch]

Temperature controllers

Strain-gauge controllers



Strain-gauge controllers

Strain-gauge controllers	Type	Page
LED strain-gauge controllers	For strain-gauge inputs	Codix 566 
		294

Strain-gauge controllers

LED strain-gauge controllers

For strain-gauge inputs (AC+DC)

Codix 566

new



The process controller Codix 566 with totaliser function displays measured values from all common strain-gauge inputs in high resolution. In addition it can monitor and control 2 limit values.

These fast displays set new standards when it comes to user friendliness. Their easy-to-read 14-segment LED display, easy-to-understand running help texts and a practical quick-start guide eliminate the need to wade through time-consuming full instruction manuals.

NEW: with optional analogue output

DC 10 ... 30 V	AC 90 ... 260 V	A.Z* 6 LEDs	Prog	mV	Tara	Σ	Strain-gauge input	min / max	2	AC/DC
Power supply		14-segment LED display	Menu-driven programming	Display linearization	Tare function	Totaliser function		Min / Max value detection	2 limit values	Galvanic isolation
15 bit	-20° + 65°	DIN 96 x 48	Installation in mosaic systems	Operation with gloves	Analogue output optional					
Resolution	Temperature range									

User-friendly

- Practical quick-start guide for setting the parameters and operating the device
- Help text as running text
- Easy-to-read 14-segment LED, 6-digit display, 14 mm high
- Simple programming via 4 keys on the front
- One front key as well as 2 additional inputs can be programmed for specific applications
- Customer-specific characteristic (linearization) curve via 12 control points for all measurement signal inputs
- MIN/MAX memory function, individually resettable

Powerful

- Sampling rate of 10 readings per second
- Application-specific characteristic curves via 12 measurement points
- Manual totaliser function for totalising the measured values. Can be reset separately.
- 2 relay outputs (changeover contacts) for limit monitoring with hysteresis and ON/OFF delay function for current measured or totaliser values
- Analogue output for the current measured value, MIN-value, MAX-value or totalizer value
- Auxiliary sensor power supply 10 V DC / 30 mA for powering 350 Ω bridges
- Inputs and outputs galvanically isolated
- Digital filter (first-order) for smoothing display fluctuation with unstable input signals
- Tare function

Order code

6.566 . 010 . X0X

a Input type
6 = Strain-gauge inputs ¹⁾

b Outputs
0 = relays ¹⁾

c Power supply
0 = 90 ... 260 V AC ¹⁾
3 = 10 ... 30 V DC ¹⁾

d Further outputs (optional)
0 = none ¹⁾
9 = analogue output ¹⁾
(only for DC version)

Delivery specification:

- Process device
- Mounting clip
- Gasket
- Instruction manual, multilingual
- 1 sheet of self-adhesive symbols
- Quick-start guide

Practical quick-start guide for setting the parameters and operating the device.

The guide can be affixed directly to the front of the unit and can be removed and re-applied as required.



¹⁾ Stock types

Strain-gauge controllers

LED strain-gauge controllers	For strain-gauge inputs (AC+DC)	Codix 566
-------------------------------------	--	------------------

Accessories	Order-No.
Mounting frame with cut-out 92 x 45 mm for snap-on mounting on 35 mm top-hat DIN rail, for counters 96 x 48 mm	grey G300005

Suitable gaskets as well as further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories.

General technical data	
Display	6-digit, 14 segment LED
Digit height	14 mm
Display range	-199999 ... 999999, with leading zero blanking
Data retention	> 10 years, EEPROM
Operation	5 keys
Operating temperature	-20°C ... +65°C (non-condensing)
Storage temperature	-25°C ... +75°C
Relative humidity (non-condensing)	R.H. 93 % at +40°C
Altitude	up to 2000 m

Electrical characteristics	
Power supply	AC supply 90 ... 260 V AC / max. 9 VA 50 / 60 Hz ext. fuse protection: T 0.1 A
	DC supply 10 ... 30 V DC / max. 3.8 W with galvanic isolation and reverse polarity protection ext. fuse protection: T 0.4 A
Mains hum suppression	50 Hz or 60 Hz programmable
Sensor power supply	AC supply 24 V DC \pm 15 %, 30 mA 10 V DC \pm 1%, 30 mA
	DC supply 10 V DC \pm 1%, 30 mA
EMC	Emitted interference EN 55011 class B
	Immunity to interference EN 61000-6-2 with shielded signal and control cables
Device safety	Designed to Protection class 2
	EN 61010 part 1
	Application area Pollution level 2

Mechanical characteristics	
Housing	Panel mount housing to DIN 43700, RAL 7021
Dimensions	96 x 48 x 102 mm
Panel cut-out	92 +0.8 x 45 +0.6 mm
Installation depth	approx. 92 mm incl. terminals
Weight	approx. 180 g 200 g with analogue output
Protection	IP65 (front side)
Housing material	Polycarbonate UL94 V-2
Vibration resistance	acc. to EN 60068-2-6 10 - 55 Hz / 1 mm / XYZ 30 min in each direction
Shock resistance	acc. to EN 60068-2-27 100G / XYZ 3 times in each direction
	acc. to EN 60068-2-29 10G / 6 ms / XYZ 2000 times in each direction
Connections	
Power supply and outputs	Plug-in screw terminal, 8-pin, RM 5.00, core \varnothing max. 2.5 mm ²
Signal and control inputs	Plug-in screw terminal, 9-pin, RM 3.50, core \varnothing max. 1.5 mm ²

Control inputs MPI 1 / MPI 2	
Quantity	2 optocouplers
Function	programmable
Switching levels	LOW < 2 V
	HIGH > 4 V (max. 30 V)
Pulse length	> 100 ms

Strain-gauge measuring signal inputs	
Sampling rate	10 readings/sec
Input resistance	1 M Ω
Max. measuring signal range	approx. \pm 35 mV
Max. voltage	\pm 10 V

Sensitivity ranges: 3.3 – 3.0 – 2.0 mV / V	
Resolution	\pm 15 bit
Measuring accuracy at 23°C (% of range)	typ. 0.05 % / max. \leq 0.1 %
Temperature drift	< 100 ppm/K _{Ambient}

Sensitivity ranges: 1.5 – 1.0 mV / V	
Resolution	\pm 14 bit
Measuring accuracy at 23°C (% of range)	typ. 0.1 % / max. \leq 0.2 %
Temperature drift	< 100 ppm/K _{Ambient}

Alarm outputs	
Relays	changeover contacts
Switching voltage	max. 250 V AC / 125 V DC
	min. 5 V AC / 5 V DC
Switching current	max. 5 A AC / 5 A DC
	min. 10 mA DC
Switching capacity	max. 1250 VA / 150 W
Pull-in time	approx. 10 ms

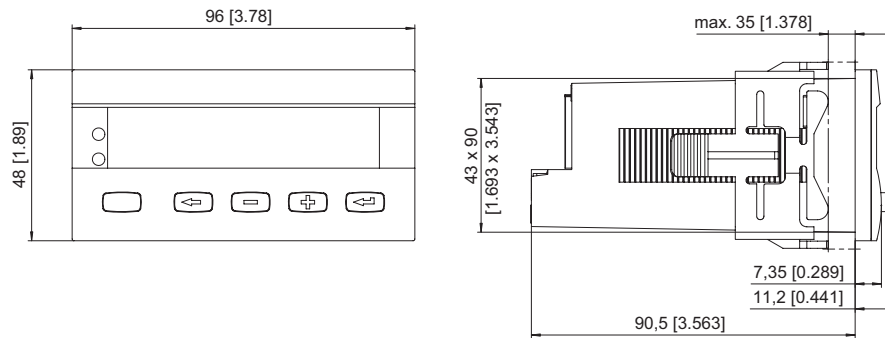
Analogue output (optional - only for DC version)	
Output ranges	0 (4) ... 20 mA / 0 (2) ... 10 V
Load	current output \leq 500 Ω
	voltage output \geq 2000 Ω
Resolution	15 bit
Update time (basic device measuring rate)	100 ms
Temperature drift	\leq 100 ppm/K _{Ambient}
Accuracy	\pm 0.1 % of the output range high value
Output ripple	\leq 10 mV
Isolation voltage	500 V AC for 1 minute or 1 kV DC for 1 second

Strain-gauge controllers

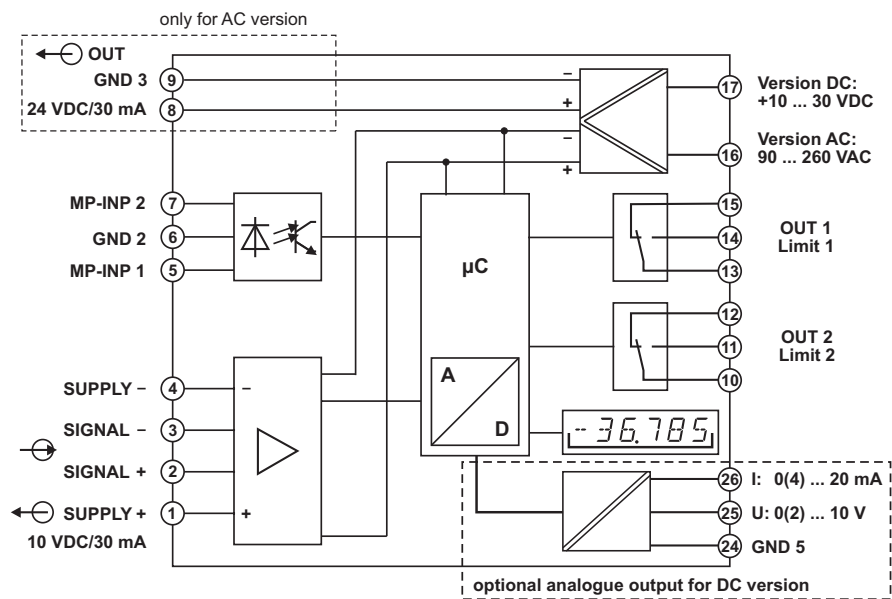
LED strain-gauge controllers For strain-gauge inputs (AC+DC) **Codix 566**

Dimensions

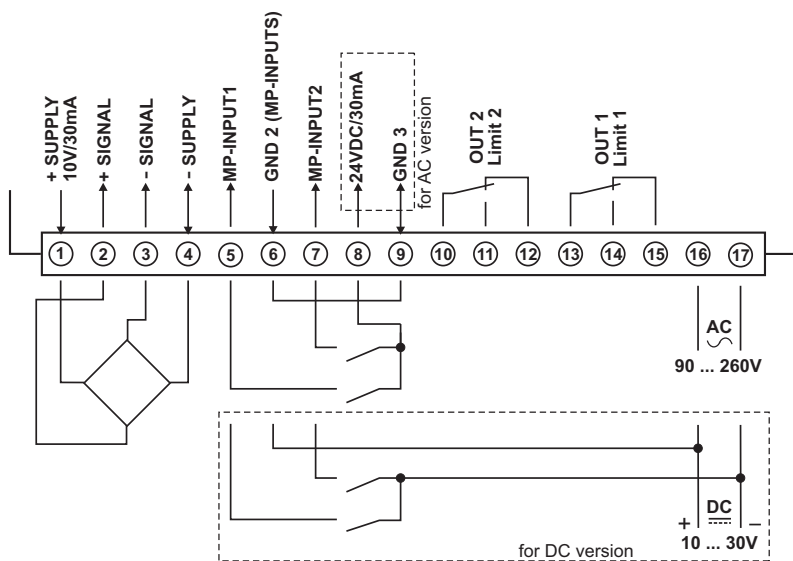
Panel cut-out
92 mm ^{+0.8} x 45 mm ^{+0.6}



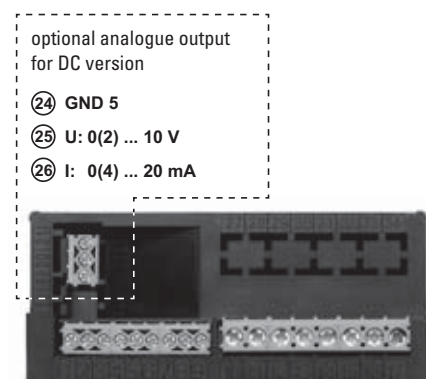
Block diagram



Terminal assignment



Rear side view



Strain-gauge controllers



Accessories / Index

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Accessories

Overview

Adapter front bezel						counter 48 x 24 mm						counter 48 x 48 mm				counter 96 x 48 mm			
Figure	Size	for cut-out	to cut-out	Order-No.:	Details s. page	Codix 13x	Codix 14x	Codix 52x	Codix 53x	W 1x.5	H 37, H 37.5	Codix 71x	Codix 90x, 92x	901	H 57, HC 77, HW 66	Codix 54x	Codix 56x	Codix 57x	
	53 x 28 mm	50 x 25 mm	45 x 22.2 mm	grey black anthracite	T008164 T008165 T008180	306	X	X	X	X	X	X							
	56 x 40 mm	50 x 25 mm	45 x 22.2 mm	black anthracite	T008161 T008181	306	X	X	X	X	X	X							
	72 x 36 mm	68 x 33 mm	45 x 22.2 mm	black and silver anodised as set	162704 Set	306	X	X	X	X	X	X							
	60 x 50 mm	54 x 29 mm	45 x 22.2 mm	black	N003001	307	X	X	X	X	X	X							
	48 x 48 mm	45 x 45 mm	45 x 22.2 mm	black	T008883	307	X	X	X	X	X	X							
	55 x 55 mm	50 x 50 mm or ø 50.5 mm	45 x 45 mm	grey black	T008170 T008171	307							X		X				
	55 x 55 mm	50 x 50 mm	45 x 45 mm	black	T008853	307							X	X	X	X			
	60 x 75 mm	50 x 50 mm	45 x 45 mm	black	T008860	308							X	X	X	X			
	72 x 72 mm	68 x 68 mm	45 x 45 mm	grey black mating clip	T008176 T008177 T009420	308							X	X	X	X			
	ø 72 mm	ø 60 mm	45 x 45 mm	black	N510226	308							X	X	X	X			

Accessories

Overview

Sealing cover					for electromechanical counters						for counters 48 x 24 mm ¹⁾				for counters 48 x 48 mm ²⁾		
Figure	Type	Description	Order-No.:	Details s. page	B 1x.3x	HB 2x.3x	BVa 15.3x	HVa 15.3x	MVs 16.3x	MVs 13.1x	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 71x	Codix 90x, 92x	901
	K1	for front bezel 60 x 50 mm	transparent / grey transparent / black	G008300 G008301	309	X	X				X	X	X	X			
	K2	for front bezel 75 x 60 mm	transparent / grey transparent / black	G008302 G008303	309			X	X	X					X	X	X
	KV3	for front bezel 39 x 68 mm	transparent / grey transparent / black	G008310 G008311	309					X							

1) via adapter front bezel N003001

2) via adapter front bezel T008860

Accessories

Overview




Transparent cover					for electromechanical counters				for counters 48 x 24 mm ¹⁾				for counters 48 x 48 mm					
Figure	Type	Description	Order-No.:	Details s. page	Dv B 1x, Dv HB 2x	Dvs B 1x, Dvs HB 2x	Dv BVa 15, Dv HVa 15, Dv MVs 16	Dvs BVa 15, Dvs HVa 15, Dvs MVs 16	B 1x.3x, HB 2x.3x	B 1x.0x, HB 2x.0x	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 71x	Codix 90x, 92x	901	H 57, HC 77, HW 66
	1 Dv (replacement part)	lockable cover, IP65 for size F1	transparent	G008121	310	X												
	1 Dvs (replacement part)	key lockable cover, IP65 for size F1	transparent	G008131	310		X											
	2 Dv (replacement part)	lockable cover, IP65 for size F2	transparent	G008141	310			X										
	2 Dvs (replacement part)	key lockable cover, IP65 for size F2	transparent	G008151	311			X										
	2 Dv (mounted on bezel)	lockable cover, IP65 for cut-out 50 x 50 mm	transparent / black	G008143	311										X	X	X	X
	2 Dvs (mounted on bezel)	key lockable cover, IP65 for cut-out 50 x 50 mm	transparent / black	G008153	311										X	X	X	X
	1 Dv (mounted on bezel)	lockable cover, IP65 for cut-out 54 x 29 mm	transparent / black	N003002	312				X	X ²⁾	X	X	X	X				



2) with front bezel F1B

1) with adapter front bezel N003001

Accessories




Overview

Socket boxes					for electromechanical counters				
Figure	Type	Description	Order-No.:	Details s. page	B 1x.0x, HB 2x.0x	MVs 16.0	BVa 15, HVa 15		
	945.2	for plug-in connection in front bezel F1B	black G008434	313	X				
	926.1	for plug-in connection in front bezel F2M	transparent G008433	314		X			
	946.1	for plug-in connection in front bezel F2B	black G008439	314			X		




Front bezel					for electromechanical counters			
Figure	Type	Description	Order-No.:	Details s. page	B 1x.0x, HB 2x.0x (in socket box type 945.2)	BVa 15.0x (in socket box type 946.1)	2 x B or HB counters (in 2x socket box 945.2)	MVs 16.0x (in socket box type 926.1)
	F1B	for cut-out 54 x 49 mm	beige black G007501 G007502	315	X			
	F2B	for cut-out 54 x 54 mm	beige black G007503 G007504	315		X	X	

Accessories

Overview



Mounting frame					for electrom. counters			for counters 48 x 24 mm ¹⁾			for counters 48 x 48 mm			for counters 96 x 48 mm			
Figure	Cut-out	Description	Order-No.:	Details s. page	BVa 15.21	MVs 16.2x	B 1x.2x, HB 2x.2x	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	Codix 71x	Codix 90x, 92x	901	H 57, HC 77, HW 66	Codix 54x, 55x	Codix 56x, 57x
	92 x 45 mm	For snap-on mounting on 35 mm top-hat DIN rail	grey G300005	316												X	X
	50 x 50 mm (45 x 45 mm via supplied adapter)	For snap-on mounting on 35 mm top-hat DIN rail	chromated G300003	316	X	X						X	X	X	X		
	50 x 25 mm (45 x 22.2 mm via separate adapter)	For snap-on mounting on 35 mm top-hat DIN rail	chromated G300004	316			X	X	X	X	X						





1) via adapter T008180

DIN rail mount					for electrom. counters		
Figure	Type	Description	Order-No.:	Details s. page	B and HB counter	2 x B and HB counter	BVa and HVa counter
	SR 1	For snap-on mounting on 35 mm top-hat DIN rail	G300000	317	X		
	SR 2	For snap-on mounting on 35 mm top-hat DIN rail	G300001	317		X	
	SR 3	For snap-on mounting on 35 mm top-hat DIN rail	G300002	317			X

Accessories

Overview

Enclosure blind						for counters 48 x 24 mm				for counters 53 x 28 mm	
Figure	Size	Cut-out	Order-No.:	Details s. page	Codix 13x, 14x	Codix 52x, 53x	W 1x.5	H 37, H 37.5	B and HB counters		
	48 x 24 mm	for cut-out 45 x 22.2 mm and 50 x 25 mm	anthracite G003836	318	X	X	X	X			
	53 x 28 mm	for cut-out 50 x 25 mm	black T005753	318					X		

Other accessories						for counters				
Figure	Description	Order-No.:	Details s. page	H 37	H 57	HR 76.2	HR 47			
	Terminal cover type KA 37	transparent T051687	319	X						
	Base-mount socket	black G008040	319		X					
	Mounting support	black N510199	319			X	X			
	Adapter and anti-vibration set	black 255319	320					X		

Accessories

Adapter front bezel

Details

Dimensions / Details

Adapter front bezel, 53 x 28 mm

with clip mounting
for counters 48 x 24 mm

cut-out:

for cut-out 50 x 25 mm
to cut-out 45 x 22.2 mm

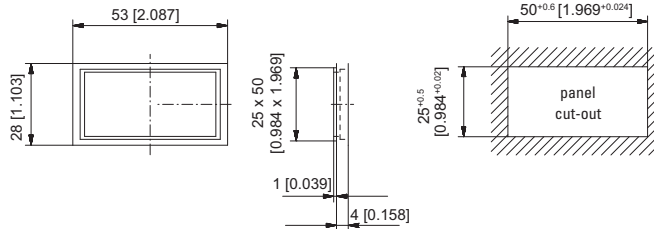
suitable for:

Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

grey
black
anthracite

Order-No.

T008164
T008165
T008180



Adapter front bezel, 56 x 40 mm

with screw mounting
for counters 48 x 24 mm

cut-out:

for cut-out 50 x 25 mm
to cut-out 45 x 22.2 mm

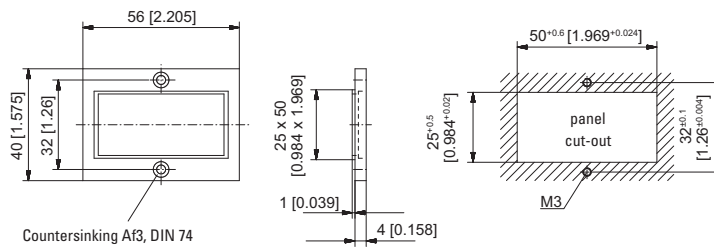
suitable for:

Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

black
anthracite

Order-No.

T008161
T008181



Adapter front bezel, 72 x 36 mm

for counters 48 x 24 mm

cut-out:

for cut-out 68 x 33 mm
to cut-out 45 x 22.2 mm

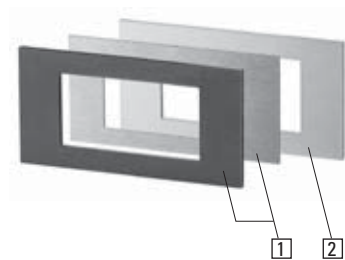
suitable for:

Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

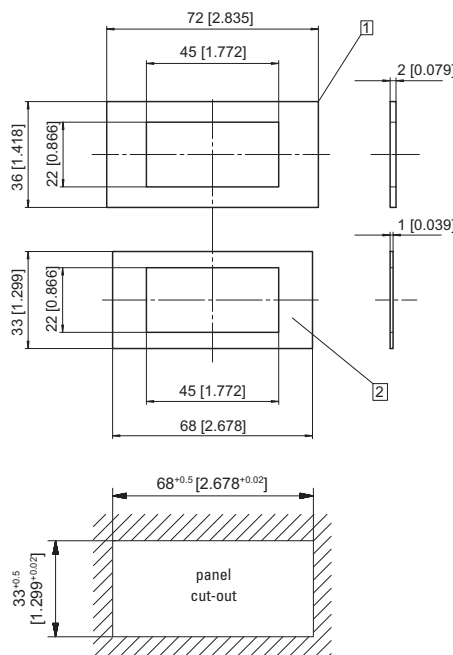
black and
silver anodised
as set

Order-No.

162704 Set



- 1 Front bezel
(1 x black, 1 x silver anodised)
- 2 Bezel adapter



Accessories

Adapter front bezel Details

Dimensions / Details

Adapter front bezel, 60 x 50 mm
with screw mounting, incl. gasket
for counters 48 x 24 mm



cut-out:

for cut-out 54 x 29 mm
to cut-out 45 x 22.2 mm,

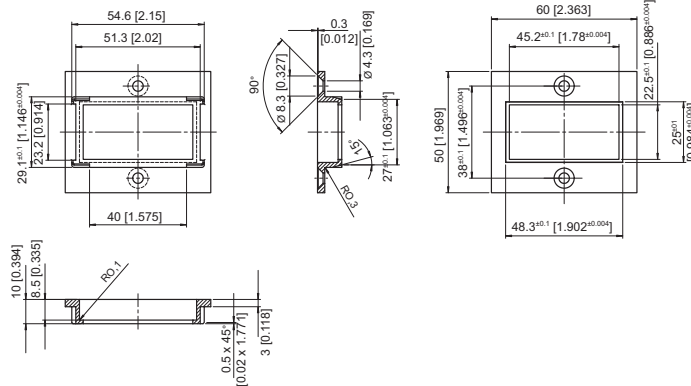
suitable for:

Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

black

Order-No.

N003001



Adapter front bezel, 48 x 48 mm

with clip mounting
for counters 48 x 24 mm



cut-out:

for cut-out 45 x 45 mm
to cut-out 45 x 22.2 mm

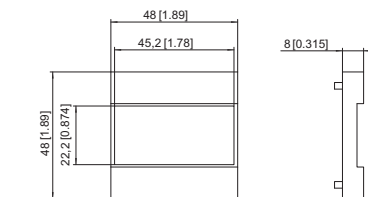
suitable for:

Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

black

Order-No.

T008883



Adapter front bezel, 55 x 55 mm

with clip mounting
for counters 48 x 48 mm



cut-out:

for cut-out 50 x 50 mm
or Ø 50.5 mm to
cut-out 45 x 45 mm

suitable for:

Codix 716 / 717,
H 57, HC 77, HW 66, HW 66 M

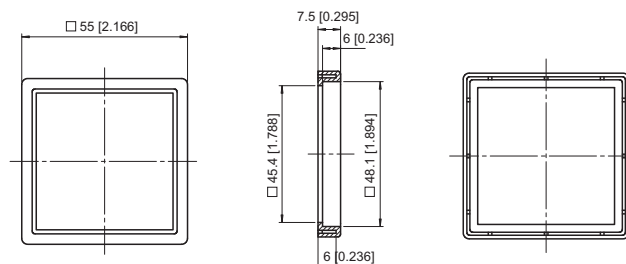
grey

black

Order-No.

T008170

T008171



Adapter front bezel, 55 x 55 mm

with clip mounting
for counters 48 x 48 mm



cut-out:

for cut-out 50 x 50 mm
to cut-out 45 x 45 mm

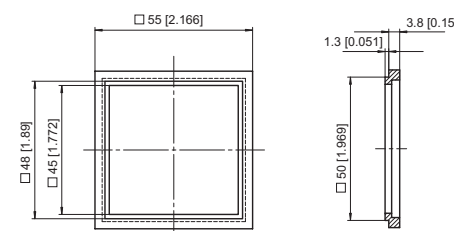
suitable for:

901, Codix 716 / 717,
Codix 923 / 924, Codix 907 / 908,
H 57, HC 77, HW 66

black

Order-No.

T008853



Accessories

Adapter front bezel Details

Dimensions / Details

Adapter front bezel, 60 x 75 mm

with screw mounting
for counters 48 x 48 mm



cut-out:

for cut-out 50 x 50 mm
for cut-out 45 x 45 mm

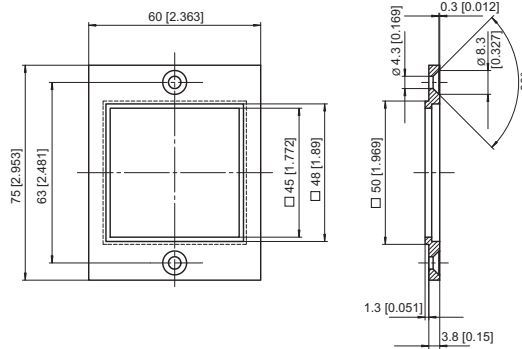
suitable for:

901, Codix 716 / 717,
Codix 923 / 924, Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M

black

Order-No.

T008860



Adapter front bezel, 72 x 72 mm

with clip mounting
for counters 48 x 48 mm
(Mating clip must be ordered separately)



cut-out:

for cut-out 68 x 68 mm
for cut-out 45 x 45 mm

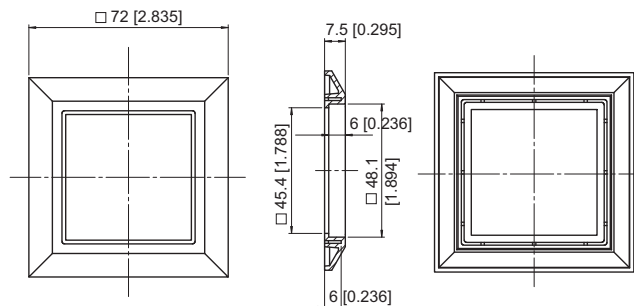
suitable for:

901, Codix 716 / 717,
Codix 923 / 924, Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M

grey
black
mating clip

Order-No.

T008176
T008177
T009420



Adapter front bezel, ø 72 mm

with clip mounting
for counters 48 x 48 mm



cut-out:

for cut-out ø 60 mm
for cut-out 45 x 45 mm

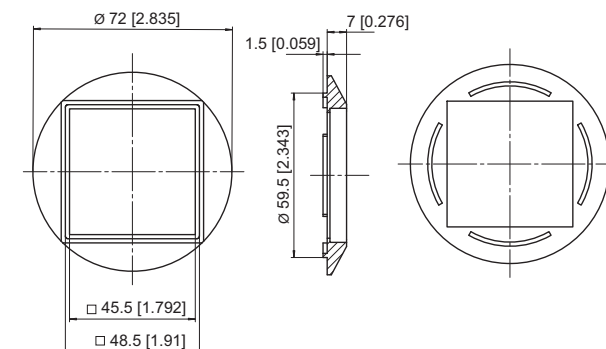
suitable for:

901, Codix 716 / 717,
Codix 923 / 924, Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M

black

Order-No.

N510226



Accessories

Sealing cover Details

Dimensions / Details

Sealing cover type K1 (screw mounting)

for electromechanical counters
and via adapter front bezel N003001
for counters 48 x 24 mm



description:

- for front bezel 60 x 50 mm
- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws
- IP65 protection to DIN 40050 when installed

suitable for:

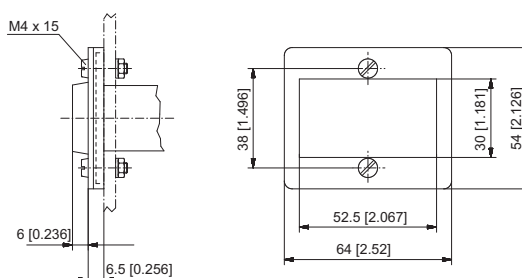
B 1x.3x, HB 2x.3x
via adapter front bezel:
Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

transparent /
grey
transparent /
black

Order-No.

G008300

G008301



Sealing cover type K2 (screw mounting)

for electromechanical counters
and via adapter front bezel T008860
for counters 48 x 48 mm



description:

- for front bezel 75 x 60 mm
- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws
- IP65 protection to DIN 40050 when installed

suitable for:

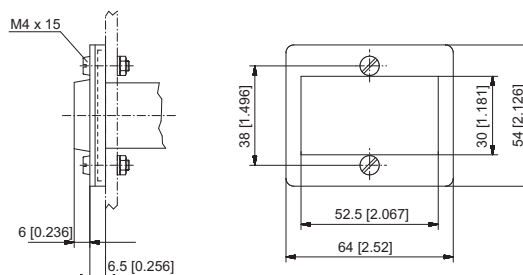
BVa 15.3x, HVa 15.3x,
MVa 16.3x
via adapter front bezel:
Codix 901, Codix 716 /717,
Codix 923 / 924,
Codix 907 / 908

transparent /
grey
transparent /
black

Order-No.

G008302

G008303



Sealing cover type KV3 (screw mounting)

for electromechanical counters



description:

- for front bezel 39 x 68 mm
- flexible sealing cover made of soft PVC, with varnished steel metal frame and fixing screws
- IP65 protection to DIN 40050 when installed

suitable for:

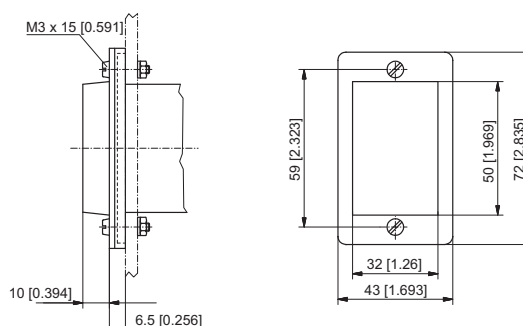
MVs 13.1x

transparent /
grey
transparent /
black

Order-No.

G008310

G008311



Accessories

Transparent cover Details

Dimensions / Details

Transparent cover type 1 Dv (replacement part)
lockable, IP65

description:

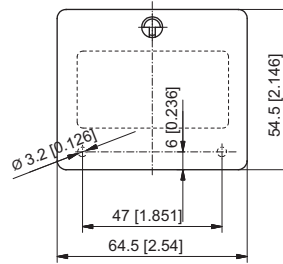
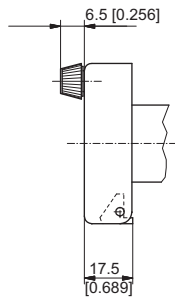
- screw-on, for size F1
- IP65 protection
- with gaskets and screws

suitable for:

Dv B 1x, Dv HB 2x transparent

Order-No.

G008121



Transparent cover type 1 Dvs (replacement part)
key lockable, IP65

description:

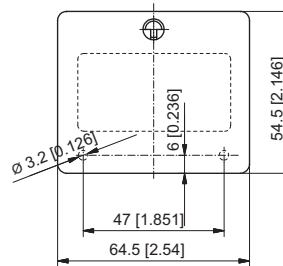
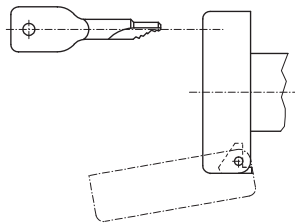
- screw-on, for size F1
- IP65 protection
- with gaskets and screws

suitable for:

Dvs B 1x, Dvs HB 2x transparent

Order-No.

G008131



Transparent cover type 2 Dv (replacement part)
lockable, IP65

description:

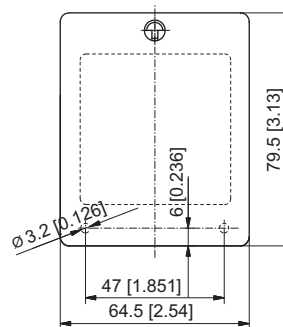
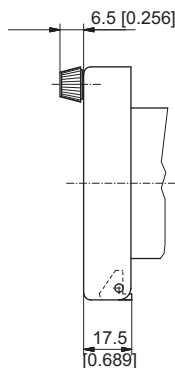
- screw-on, for size F2
- IP65 protection
- with gaskets and screws

suitable for:

Dv BVa 15, Dv HVa 15, transparent
Dv MVs 16

Order-No.

G008141



Accessories

Transparent cover

Dimensions / Details

Transparent cover type 2 Dvs, (replacement part) key lockable, IP65



description:

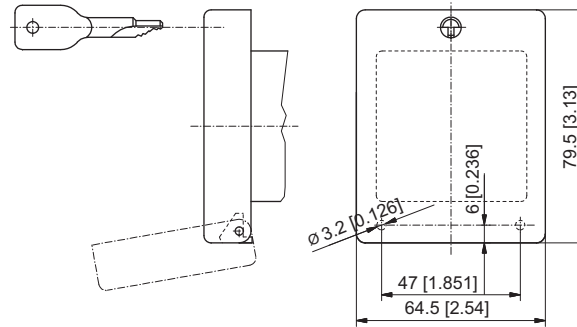
- screw-on, for size F2
- IP65 protection
- with gaskets and screws

suitable for:

Dvs BVa 15, Dvs HVa 15, transparent
Dvs MVs 16

Order-No.

G008151



Transparent cover type 2 Dv (mounted on bezel) lockable, IP65

for counter with cut-out 45 x 45 mm and front bezel 48 x 48 mm



description:

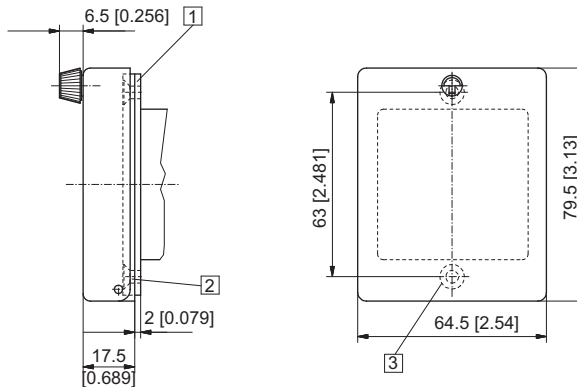
- for cut-out 50 x 50 mm
- screw mounting
- IP65 protection
- with gaskets and screws

suitable for:

901, Codix 716 / 717, transparent / black
Codix 923 / 924,
Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M

Order-No.

G008143



- 1 Gasket
- 2 Front bezel
- 3 Countersinking Bf4, DIN 74

Transparent cover type 2 Dvs (mounted on bezel) key lockable, IP65

for counters with cut-out 45 x 45 mm and front bezel 48 x 48 mm



description:

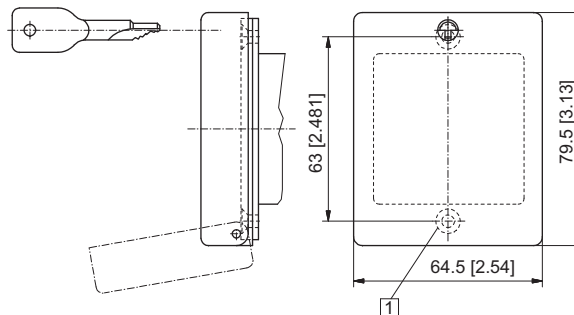
- for cut-out 50 x 50 mm
- screw mounting
- IP65 protection
- with gaskets and screws

suitable for:

901, Codix 716 / 717, transparent / black
Codix 923 / 924,
Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M

Order-No.

G008153



- 1 Countersinking Bf4, DIN 74

Transparent cover Details

Dimensions / Details

**Transparent cover type 1 Dv (mounted on bezel)
lockable, IP65**

for counters with cut-out 50 x 25 mm or 45 x 22.2 mm



- 1 Front bezel
- 2 Countersinking Bf4, DIN 74

description:

- for cut-out 54 x 29 mm
- screw mounting on front bezel F1B or adapter front bezel N003001
- IP65 protection with front bezel

suitable for:

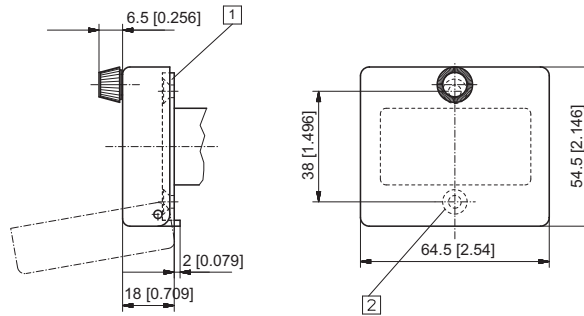
- B 1x.3x, HB 2x.3x
- with front bezel F1B:
B 1x.0x, HB 2x.0x

transparent /
black

via adapter front bezel
N003001:
Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

Order-No.

N003002



Socket box Details

Dimensions / Details

Socket box type 945.2



description:

for plug-in connection in front bezel F1B

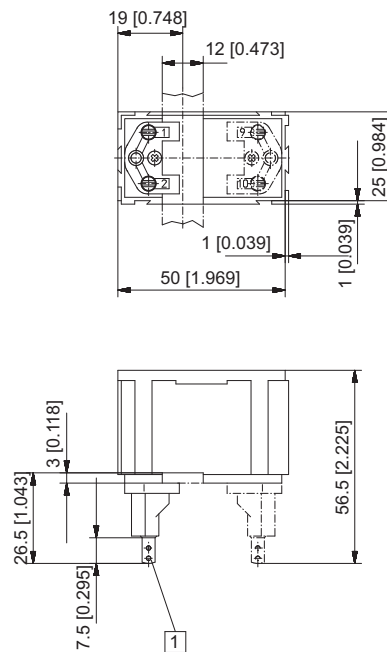
suitable for:

B 1x.0x, HB 2x.0x

black

Order-No.

G008434



1 Flat pin 0.8 x 2.8 silver-plated

Accessories

Socket box Details

Dimensions / Details

Socket box type 926.1



description:

for plug-in connection in

suitable for:

MVs 16

transparent

Order-No.

G008433

Socket box type 946.1



description:

for plug-in connection in front bezel F2B

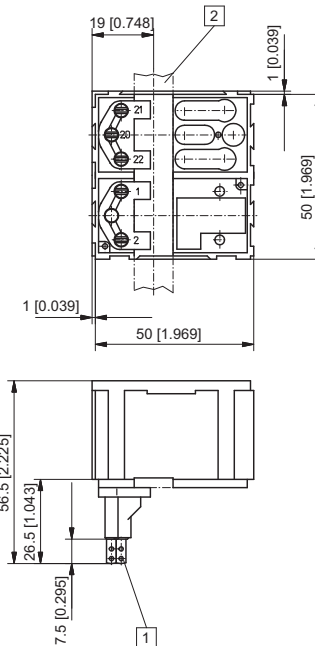
suitable for:

BVa 15, HVa 15

black

Order-No.

G008439



1 Flat pin 0.8 x 2.8 silver-plated

2 Fixing strip 3 x 12 mm

Accessories

Front bezel Details

Dimensions / Details

Front bezel type F1B

for plug-in counters B 1x.0x and HB 2x.0x in socket box type 945.2



description:

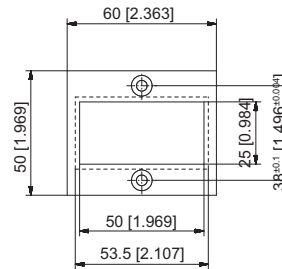
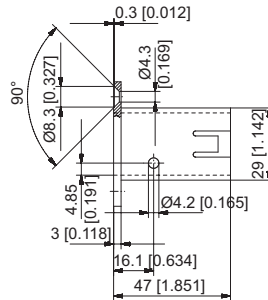
- for cut-out 54 x 49 mm
- screw mounting

suitable for:

B 1x.0x, HB 2x.0x beige
 black

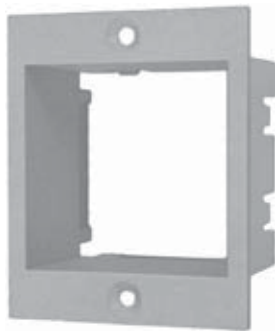
Order-No.

G007501
G007502



Front bezel type F2B

for plug-in counters BVa 15.0x in socket box type 946.1 or 2 x B- or HB counters in socket box type 945.2



description:

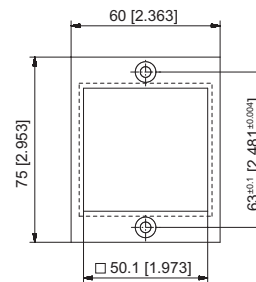
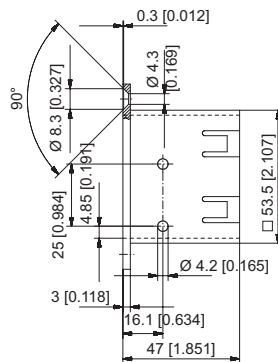
- for cut-out 54 x 54 mm
- screw mounting

suitable for:

BVa 15.0x beige
 black

Order-No.

G007503
G007504



Accessories

Mounting frame Details

Dimensions / Details

Mounting frame with cut-out 92 x 45 mm

for counters 96 x 48 mm



description:

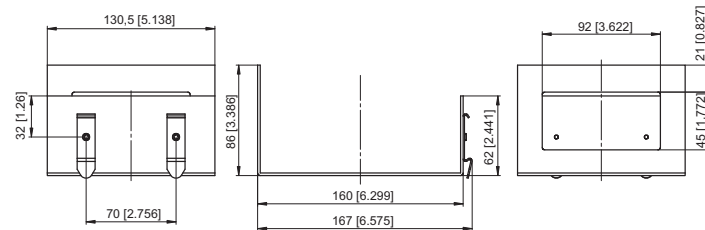
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:

Codix 54x, 55x, 56x, 57x grey

Order-No.

G300005



Mounting frame with cut-out 50 x 50 mm

(cut-out 45 x 45 mm via supplied adapter)

for counters 48 x 48 mm, 53 x 53 mm and 55 x 55 mm



description:

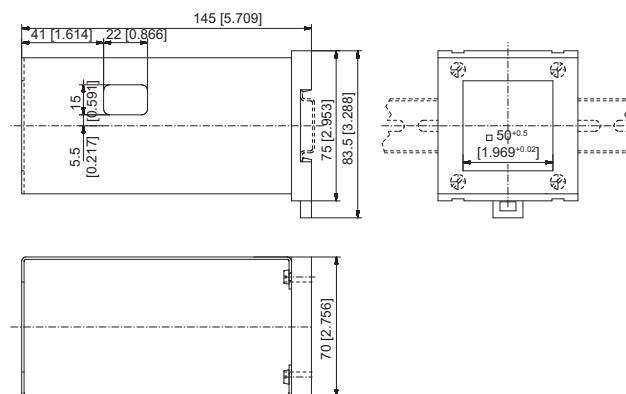
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:

901, Codix 716 / 717, chromated
Codix 923 / 924, Codix 907 / 908,
H 57, HC 77, HW 66, HW 66 M,
BVa 15.21, HVa 15.21,
MV's 16.2x

Order-No.

G300003



Mounting frame with cut-out 50 x 25 mm

(cut-out 45 x 22.2 mm via separate adapter)

for counters 53 x 28 mm and via separate adapter (T008180) for counters 48 x 24 mm



description:

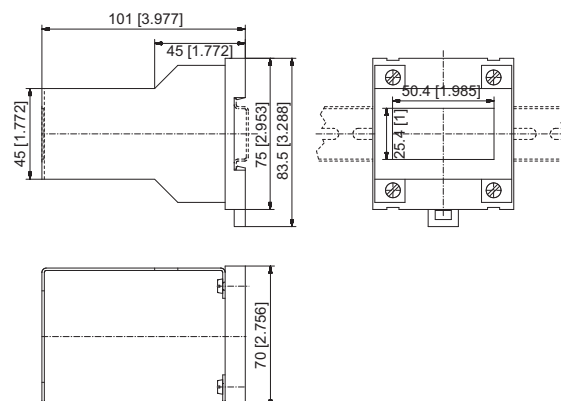
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:

B 1x.2x, HB 2x.2x. chromated
via adapter:
Codix 13x, 14x, 52x, 53x,
W 15.5, W 16.5, W 17.5,
H 37, H 37.5

Order-No.

G300004



Accessories

DIN rail mount Details

Dimensions / Details

DIN rail mount SR 1

for B and HB counters



description:

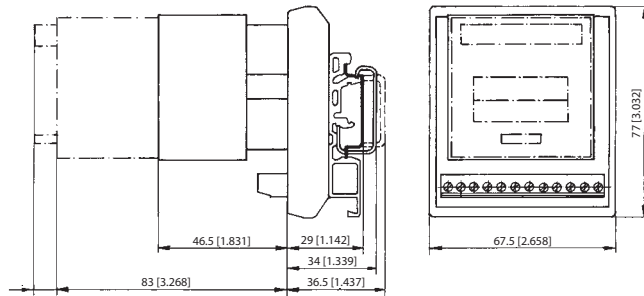
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:

B and HB counters

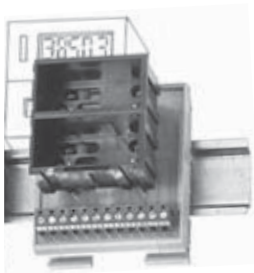
Order-No.

G300000



DIN rail mount SR 2

for 2 x B and HB counters



description:

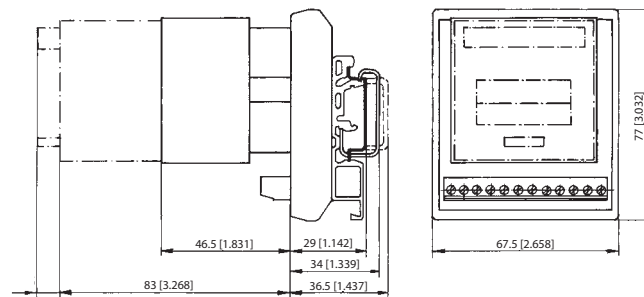
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:

B and HB counters

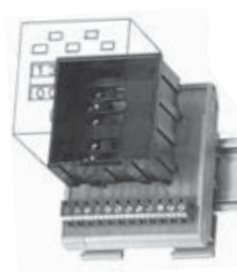
Order-No.

G300001



DIN rail mount SR 3

for BVa and HVa counters



description:

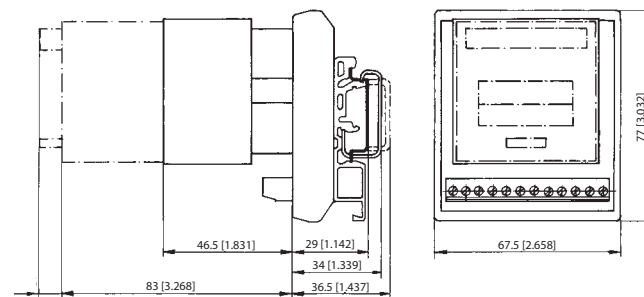
for snap-on mounting on 35 mm top-hat DIN rail

suitable for:



BVa and HVa counters

Order-No.

G300002



Accessories

Enclosure blind	Details		
Dimensions / Details			
Enclosure blind, 48 x 24 mm for counters 48 x 24 mm and 53 x 28 mm (via adapter front bezel T008180 or T008181; included in delivery)	<i>cut-out:</i> for cut-out 45 x 22.2 mm and cut-out 50 x 25 mm	<i>suitable for:</i> Codix 13x, 14x, 52x, 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	<i>Order-No.</i> G003836
			
Enclosure blind, 53 x 28 mm	<i>cut-out:</i>	<i>suitable for:</i>	<i>Order-No.</i>
for counters 53 x 28 mm	for cut-out 50 x 25 mm	B and HB counters	black
			T005753

Accessories

Other accessories Details

Dimensions / Details

Terminal cover type KA 37

for counter H 37



description:

2-pcs. per counter required



suitable for:

H 37

transparent

Order-No.

T051687

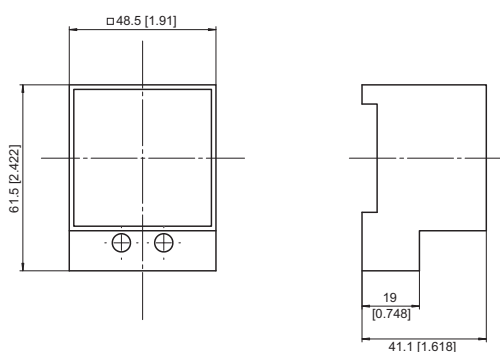
Base mount socket

for H 57 / AH 57 counters



description:

for DIN rail mount



suitable for:

H 57

black

Order-No.

G008040

Mounting support

for HR 76.2, HR 47



description:

for mounting the counter onto a flat plate

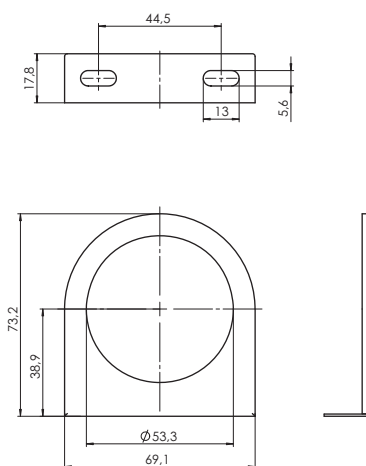
suitable for:

HR 76.2, HR 47

black

Order-No.

N510199



Other accessories	Details			Order-No.
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Dimensions / Details

Adapter and anti-vibration set

for HR 47



description:

Adapter- und anti-vibrationsset for panel cut-out \varnothing 71 mm, outer diameter \varnothing 80 mm

suitable for:

HR 47

black

Order-No.

255319

Delivery specification:

- 1 x rubber adapter
- 2 x cover mask
- 1 x spacer ring
- 1 x clamping bracket, shortened

Accessories

Gaskets		Overview		
Gasket, outer diameter	for cut-out	suitable for		Order-No.
60 x 75 mm	54.4 x 54.4 mm	F2B (G007503, G007504) + BVa 15.0x, MVs 16, T008860	black	N511003
58 x 58 mm	50.2 x 50.2 mm	BVa 15.2x, HVa 15.2x, MVs 16.2x, T008853	black	N511004
60 x 50 mm	54.4 x 29.4 mm	F1B (G007501, G007502) + B 1x.0x, HB 2x.0x, N003001	black	N511005
58 x 33 mm	50.2 x 25.2 mm	B 1x.2x, HB 2x.2x	black	N511006
39 x 40 mm	33.3 x 22 mm	Mk 14.11, PMk 14.11, Hk 17.151	black	N511011
53 x 28 mm	50 x 25 mm	B 1x.2x, HB 2x.2x, H 37.2, H 37.4, T008164, T008165, T008180	black	N511015
72 x 72 mm	ø 50.5 mm and 45 x 45 mm	H 57.72, HC 77.72, T008176, T008177	black	N511016
55 x 55 mm	ø 50.5 mm and 45 x 45 mm	H 57.55, HC 77.55, T008171, T008170	black	N511017
48 x 48 mm	ø 50 mm and 45 x 45 mm	H 57, HC 77, HW 66	black	N511018
60 x 50 mm	50 x 25 mm	B 1x.3x, HB 2x.3x	black	N511019
60 x 75 mm	50 x 50 mm	BVa 15.3x, HVa 15.3x, MVs 16.3x, T008860	black	N511020
48 x 48 mm	45 x 45 mm	901, Codix 716 / 717, Codix 923 / 924, Codix 907 / 908, H 57, HC 77, HW 66	black	N511028
48 x 24 mm	45 x 22 mm	Codix 13x, Codix 14x, Codix 52x, Codix 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	N511029
55 x 31.5 mm	37 x 24 mm	HK 17.611	black	N511030
96 x 49 mm	92 x 45 mm	Codix 54x, Codix 55x	black	N511031
49 x 49 mm	45 x 45 mm	901, Codix 716 / 717, Codix 923 / 924, Codix 907 / 908, H 57, HC 77, HW 66	black	N511033
49 x 25 mm	45 x 22 mm	Codix 13x, Codix 14x, Codix 52x, Codix 53x, W 15.5, W 16.5, W 17.5, H 37, H 37.5	black	N511034
36 x 24 mm	33.3 x 22 mm	HK 17.251 ... 56	black	N511040
55 x 26 mm	33.3 x 22 mm	HK 17.451	black	N511043
ø 71.1 mm	ø 50.8 mm	HR 76.1	black	N511150
96 x 48 mm	92 x 45 mm	Codix 56x	black	N511181
ø 58 mm	ø 50 mm	HR 47	black	N511182

List of order numbers

Order-No.	Type / Description	Page	Order-No.	Type / Description	Page
0.135.100.XXX	HR 76.1	198	1.700.800.XXX	K 46.80	82
0.135.200.XXX	HR 76.2	198	1.700.900.XXX	K 46.90	82
0.170.000.XXX	SH 17	194	1.700.950.XXX	K 46.95	82
0.570.010.305	570	235	1.710.200.XXX	K 47.20	82
0.570.011.E00	570	235	1.710.800.XXX	K 47.80	82
0.570.012.EXX	570	235	1.710.900.XXX	K 47.90	82
0.571.011.E00	571	246	1.710.910.XXX	K 47.91	82
0.571.012.EXX	571	246	1.740.500.XXX.550	W 17.50	99
1.100.200.XXX	K 04.20	88	1.740.900.XXX	W 17.90	99
1.100.401.XXX	K 04.40	88	1.943.XXX.XXX.XXX	KWh 17	113
1.110.200.XXX	K 05.20	88	1.944.XXX.XXX.XXX	KWh 17	113
1.120.200.XXX	K 06.20	88	1.945.XXX.XXX.XXX	KWh 17	113
1.120.800.XXX	K 06.80	88	2.100.010.XXX	BVa 15.01	146
1.130.000.XXX	AK 07.00	88	2.100.110.XXX	BVa 15.11	146
1.130.200.XXX	K 07.20	88	2.100.210.XXX	BVa 15.21	146
1.130.401.XXX	K 07.40	88	2.100.310.XXX	BVa 15.31	146
1.130.501.XXX	K 07.50	88	2.300.110.XXX	MVs 13.11	150
1.130.800.XXX	K 07.80	88	2.300.130.XXX	MVs 13.13	150
1.130.900.XXX	K 07.90	88	2.300.210.XXX	MVs 13.21	150
1.132.101.XXX	SK 07.1	94	2.300.230.XXX	MVs 13.23	150
1.150.210.XXX	W 15.21	96	2.310.110.XXX	MVs 13.11/2	150
1.150.510.XXX.550	W 15.51	96	2.310.130.XXX	MVs 13.13/2	150
1.160.200.XXX	W 16.20	99	2.310.210.XXX	MVs 13.21/2	150
1.160.601.XXX	W 16.60	99	2.310.230.XXX	MVs 13.23/2	150
1.180.110.XXX	Bk 14.11	102	2.320.230.XXX	MVs 16.23	153
1.180.210.XXX	Bk 14.21	102	255319	Adapter and anti-vibration set	320
1.230.012.XXX	B 16.01	104	3.060.200.383	HK 47.20	177
1.230.100.XXX	B 16.10	104	3.060.800.383	HK 47.80	177
1.230.110.XXX	B 16.11	104	3.100.000.383	AHK 07.00	179
1.230.200.XXX	B 16.20	104	3.100.200.383	HK 07.20	179
1.230.210.XXX	B 16.21	104	3.100.900.383	HK 07.90	179
1.230.300.XXX	B 16.30	104	3.100.920.383	HK 07.92	179
1.230.310.XXX	B 16.31	104	3.102.101.XXX	SHK 07.1	192
1.260.002.XXX	B 18.00	104	3.130.051.XXX	HK 17.051.39	182
1.260.100.XXX	B 18.10	104	3.130.251.XXX	HK 17.251.39	182
1.260.200.XXX	B 18.20	104	3.130.251.XXX.056	HK 17.251.39.56	182
1.260.300.XXX	B 18.30	104	3.130.451.XXX	HK 17.451.39	182
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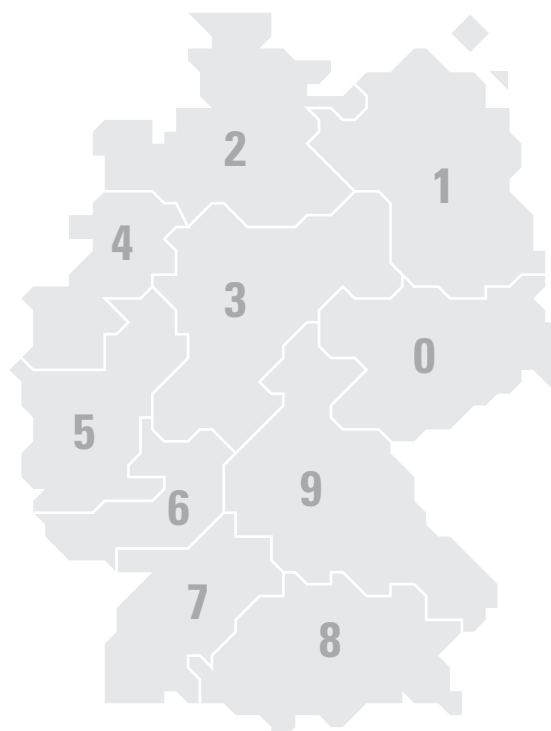
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The logo for Kübler, featuring the word "Kübler" in a bold, orange, sans-serif font. The letter "K" is stylized with a circular element that loops around its top and left sides.

 *pulses for automation*



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