

Absolute Encoders - Singleturn

Standard
Optical

Sendix 5858 / 5878 (Shaft / Hollow shaft)

PROFIBUS DP



The singleturn encoders 5858 and 5878 with Profibus interface and optical sensor technology are the ideal solution for all Profibus applications.

They offer a maximum resolution of 16 bits, divided over 360°. These encoders are available with blind hollow shaft up to 15 mm.



Safety-Lock™



High rotational speed



Temperature range



High protection level



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Short-circuit proof



Reverse polarity protection



Optical sensor



Seawater-resistant version on request

Reliable

- Tried-and-tested in applications with the highest demands, such as in wind energy or mobile automation
- Ideal for use outdoors thanks to IP67 protection and wide temperature range from -40°C up to +80°C

Flexible

- Fast, simple, error-free connection using versions with M12 connector
- Wide-ranging programming options thanks to latest encoder profile

Order code Shaft version

8.5858
Type

. X X 3 X . 31 1 X
a b c d e f

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces.
Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a Flange

- 1 = clamping flange, IP65 ø 58 mm [2.28"]
- 3 = clamping flange, IP67 ø 58 mm [2.28"]
- 2 = synchro flange, IP65 ø 58 mm [2.28"]
- 4 = synchro flange, IP67 ø 58 mm [2.28"]
- 5 = square flange, IP65 □ 63.5 mm [2.5"]
- 7 = square flange, IP67 □ 63.5 mm [2.5"]

b Shaft (ø x L), with flat

- 1 = 6 x 10 mm [0.24 x 0.39"]¹⁾
- 2 = 10 x 20 mm [0.39 x 0.79"]²⁾
- 3 = 1/4" x 7/8"
- 4 = 3/8" x 7/8"

c Interface / Power supply

- 3 = PROFIBUS DP V0
encoder profile V 1.1, 10 ... 30 V DC

d Type of connection

- 1 = removable bus terminal cover, with cable gland fitting, radial
- 2 = removable bus terminal cover, with 3 x M12 connectors, radial

e Fieldbus profile

- 31 = PROFIBUS DP V0
encoder profile Class 2

f Options (Service)

- 2 = no option
- 3 = SET button
- optional on request
- Ex 2/22
- seawater-resistant

Order code Hollow shaft

8.5878
Type

. X X 3 X . 31 1 X
a b c d e f

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces.
Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.

10 by 10

a Flange

- 1 = with spring element long, IP65
- 2 = with spring element long, IP67
- 3 = with stator coupling, IP65 ø 65 mm [2.56"]
- 4 = with stator coupling, IP67 ø 65 mm [2.56"]
- 5 = with stator coupling, IP65 ø 63 mm [2.48"]
- 6 = with stator coupling, IP67 ø 63 mm [2.48"]

b Blind hollow shaft

- 3 = ø 10 mm [0.39"]
- 4 = ø 12 mm [0.47"]
- 5 = ø 14 mm [0.55"]
- 6 = ø 15 mm [0.59"]
- 8 = ø 3/8"
- 9 = ø 1/2"

c Interface / Power supply

- 3 = PROFIBUS DP V0
encoder profile V 1.1, 10 ... 30 V DC

d Type of connection

- 1 = removable bus terminal cover, with cable gland fitting, radial
- 2 = removable bus terminal cover, with 3 x M12 connectors, radial

e Fieldbus profile

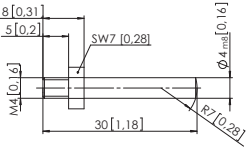
- 31 = PROFIBUS DP V0
encoder profile Class 2

f Options (Service)

- 2 = no option
- 3 = SET button
- optional on request
- Ex 2/22
- seawater-resistant

1) Preferred type only in conjunction with flange type 2
2) Preferred type only in conjunction with flange type 1

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Standard Optical	Sendix 5858 / 5878 (Shaft / Hollow shaft)	PROFIBUS DP
Mounting accessory for shaft encoders		Order No.
Coupling	Bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]	8.0000.1101.0606
	Bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1101.1010
Mounting accessory for hollow shaft encoders		
Cylindrical pin, long for torque stops		8.0010.4700.0000
Connection technology		
Connector, self-assembly (straight)	Coupling M12 for Bus in	05.BMWS 8151-8.5
	Connector M12 for Bus out	05.BMSWS 8151-8.5
	Connector M12 for power supply	05.B8141-0
Cordset, pre-assembled	M12 cordset for Bus in, 6 m [19.68'] PUR cable	05.00.6011.3211.006M
	M12 cordset for Bus out, 6 m [19.68'] PUR cable	05.00.6011.3411.006M
	M12 cordset for power supply, 2 m [6.56'] PUR cable	05.00.6061.6211.002M

Further accessories can be found in the accessories section or in the accessories area of our website at: www.kuebler.com/accessories

Additional connectors can be found in the connection technology section or in the connection technology area of our website at: www.kuebler.com/connection_technology

Technical data		
Mechanical characteristics		
Max. speed	IP65 up to 70°C [158°F]	9 000 min ⁻¹ , 7 000 min ⁻¹ (continuous)
	IP65 up to T _{max}	7 000 min ⁻¹ , 4 000 min ⁻¹ (continuous)
	IP67 up to 70°C [158°F]	8 000 min ⁻¹ , 6 000 min ⁻¹ (continuous)
	IP67 up to T _{max}	6 000 min ⁻¹ , 3 000 min ⁻¹ (continuous)
Starting torque - at 20°C [68°F]	IP65	< 0.01 Nm
	IP67	< 0.05 Nm
Moment of inertia		
	Shaft version	3.0 x 10 ⁻⁶ kgm ²
	Hollow shaft version	6.0 x 10 ⁻⁶ kgm ²
Load capacity of shaft	radial	80 N
	axial	40 N
Weight	with bus terminal cover	approx. 0.53 kg [18.69 oz]
	with fixed connection	approx. 0.50 kg [17.64 oz]
Protection acc. to EN 60529		
	housing side	IP67
	shaft side	IP65, opt. IP67
EX approval for hazardous areas		
		optional zone 2 and 22
Working temperature range		
		-40°C ... +80°C [-40°F ... +176°F]
Material		
	shaft/hollow shaft	stainless steel
	flange	aluminium
	housing	zinc die-cast housing
	cable	PVC
Shock resistance acc. EN 60068-2-27		
		2500 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6		
		100 m/s ² , 55 ... 2000 Hz
Electrical characteristics		
Power supply		10 ... 30 V DC
Power consumption (no load)		max. 110 mA
Reverse polarity protection of the power supply (+V)		yes
UL approval		File 224618
CE compliant acc. to		EMC guideline 2004/108/EC
RoHS compliant acc. to		guideline 2011/65/EU
SET button (zero or defined value, option)		
Protection against accidental activation. Button can only be operated with a ball-pen or pencil.		
Diagnostic LED (yellow)		
LED is ON with following errors		Sensor error (Profibus error)

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Interface characteristics PROFIBUS DP	
Singleturn resolution	1 ... 65536 (16 bit), scaleable
Default value	8192 (13 bit)
Code	Binary
Interface	Interface specification acc. to PROFIBUS DP 2.0 / Standard (DIN 19245 Part 3) / RS485 driver galvanically isolated
Protocol	Profibus Encoder Profile V1.1 Class1 and Class 2 with manufacturer-specific add-ons
Baud rate	max. 12 Mbit/s
Device address	1 ... 127 (set by rotary switches)
Termination switchable	set by DIP switches

Profibus Encoder-Profile V1.1

The PROFIBUS DP device profile describes the functionality of the communication and the user-specific component within the Profibus field bus system. For encoders, the encoder profile is definitive. Here the individual objects are defined independent of the manufacturer. Furthermore, the profiles offer space for additional manufacturer-specific functions; this means that Profibus-compliant device systems can be used now with the guarantee that they are ready for the future too.

The following parameters can be programmed

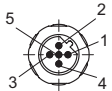
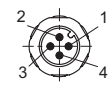

- Direction of rotation
- Scaling (Number of steps per revolution)
- Preset value
- Diagnostics mode

The following functionality is integrated

- Galvanic isolation of the bus stage with DC/DC converter
- Line driver acc. to RS485 max. 12 MB
- Address programmable via DIP switches
- Diagnostics LED
- Full Class 1 and Class 2 functionality

Terminal assignment terminal box

Interface	Type of connection		BUS IN				BUS OUT				
3	1 (terminal box)	Signal:	B	A	0 V	+ V	0 V	+ V	B	A	The shield of the connection cable must be connected over a large area via the cable gland.
		Terminal:	1	2	3	4	5	6	7	8	

Interface	Type of connection	Function							
3	2 (3 x M12 connector)	Bus in	Signal:	–	PB_A	–	PB_B	Shield	
			Pin:	1	2	3	4	5	
		Power supply	Signal:	+V	–	0 V	–		
			Pin:	1	2	3	4		
		Bus out	Signal:	BUS_VDC ¹⁾	PB_A	BUS_GND ¹⁾	PB_B	Shield	
			Pin:	1	2	3	4	5	

1) For supplying an external Profibus termination resistor

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Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

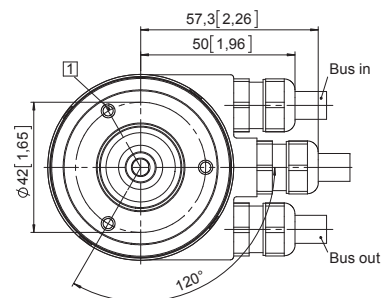
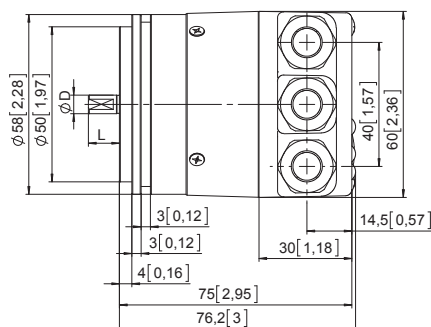
Synchro flange, $\varnothing 58$ [2.28]

Flange type 2 and 4

(Drawing with cable)

- 1 3 x M4, 6 [0.24] deep

D	L	Fit
6 [0.24]	10 [0.39]	h7
10 [0.39]	20 [0.79]	f7
1/4"	7/8"	h7
3/8"	7/8"	h7



Clamping flange, $\varnothing 58$ [2.28]

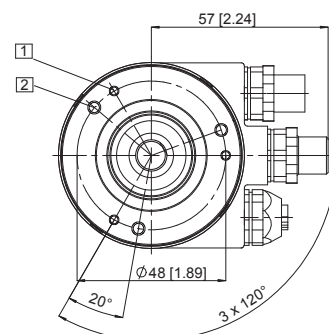
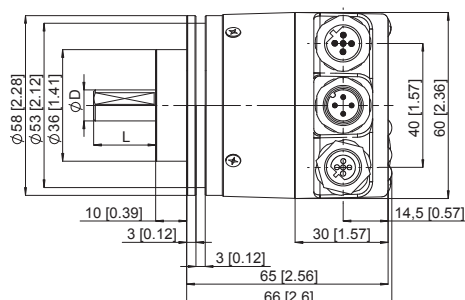
Flange type 1 and 3

(Drawing with 3 x M12 connector)

- 1 3 x M3, 6 [0.24] deep

- 2 3 x M4, 8 [0.32] deep

D	L	Fit
6 [0.24]	10 [0.39]	h7
10 [0.39]	20 [0.79]	f7
1/4"	7/8"	h7
3/8"	7/8"	h7

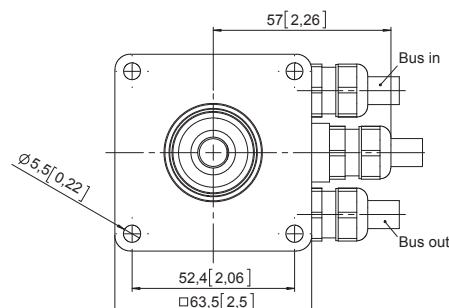
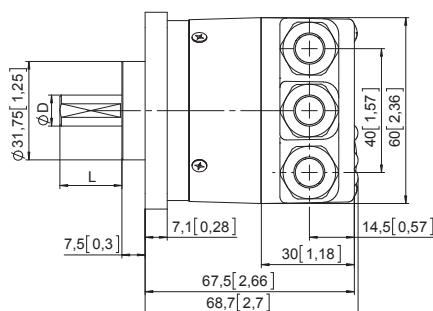


Square flange, $\square 63.5$ [2.5]

Flange type 5 and 7

(Drawing with cable)

D	L	Fit
6 [0.24]	10 [0.39]	h7
10 [0.39]	20 [0.79]	f7
1/4"	7/8"	h7
3/8"	7/8"	h7



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PROFIBUS DP

Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover

Dimensions in mm [inch]

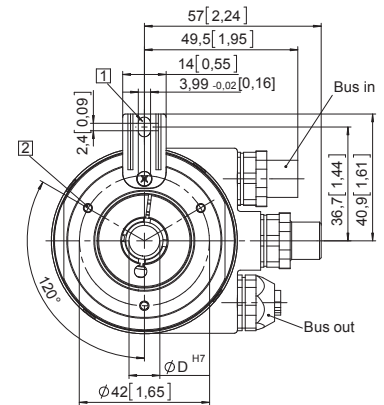
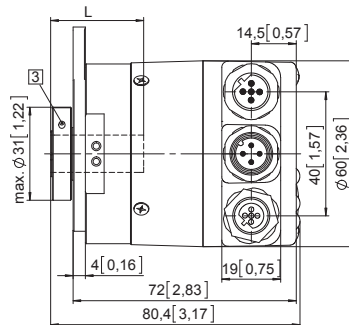
Flange with spring element long

Flange type 1 and 2

(drawing with 3 x M12 connector)

- 1 Torque stop slot,
Recommendation:
Cylindrical pin DIN 7, \varnothing 4 [0.16]
- 2 3 x M3, 5.5 [0.21] deep
- 3 Recommended torque for the
clamping ring 0.6 Nm

L: Insertion depth for blind hollow shaft: 30 [1.18]



Flange with stator coupling, \varnothing 63 [2.48]

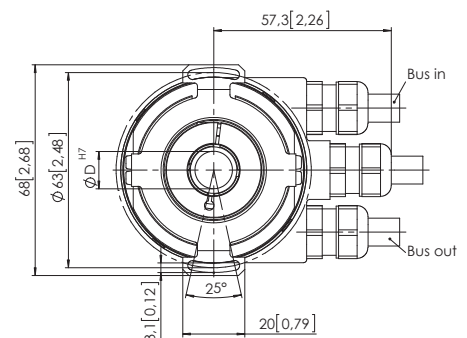
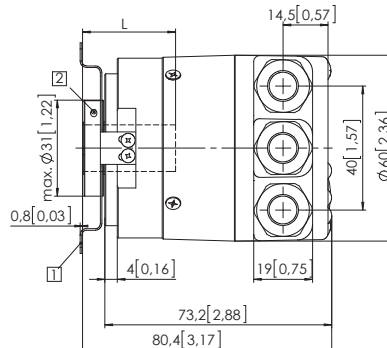
Flange type 5 and 6

Pitch circle diameter for fixing screws 63 [2.48]

(Drawing with cable)

- 1 Fixing screws DIN 912 M3 x 8
(Washer included in delivery)
- 2 Recommended torque for the
clamping ring 0.6 Nm

L: Insertion depth for blind hollow shaft: 30 [1.18]



Flange with stator coupling, \varnothing 65 [2.56]

Flange type 3 and 4

Pitch circle diameter for fixing screws, 65 [2.56]

(Drawing with cable)

- 1 Recommended torque for the
clamping ring 0.6 Nm

L: Insertion depth for blind hollow shaft: 30 [1.18]

