# Kübler

Fast and simple
Sendix PROFINET IO encoders

The real-time encoders. The absolute singleturn and multiturn Sendix PROFINET IO encoders support the Isochronous Real-Time-Mode (IRT) and are therefore ideal for real-time applications. The Fast Start Up (FSU) allows now to start up a system in well less than a second.
In addition, the "Ezturn" software ensures a fast commissioning of the encoders.
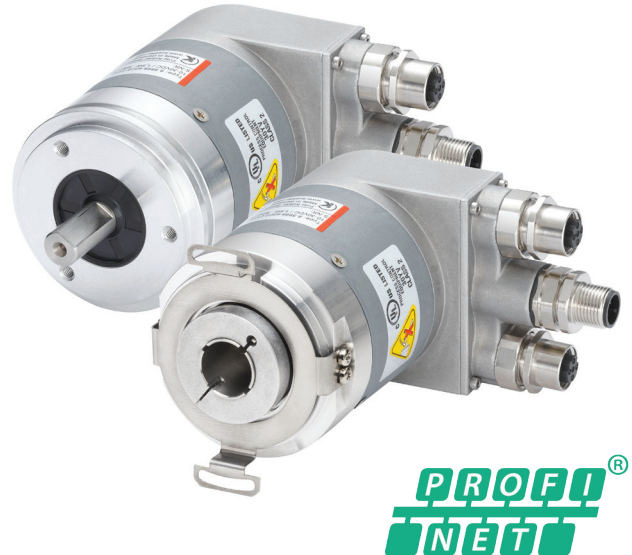
Characteristics and advantages at a glance

- Isochronous Real-Time-Mode (IRT)
  - ► Ideal for real-time applications
- Fast Start Up (FSU) - System start-up in less than one second
  - ► This reduces cost-intensive stoppages (repeated start-up times)
- Plug-and-Play commissioning thanks to the "Ezturn for Profinet" software
  - ► Allows an easy use and saves time
- Easy firmware update to extend the features of the encoder
  - ► Dismounting the encoder is therefore no more necessary
- Media Redundancy Protocol (MRP)
  - ► The functionality is maintained in the case of an interruption of the ring structure

Scan the QR code for further information

Applications

Industrial Ethernet is increasingly imposing itself as the communication standard in automation technology. The goal is to create a vertical integration – that is to say: only one core computer, from the control level up to the industrial production plants - that will be able to control any device.

A minimal cycle time of < 1 ms is the prerequisite for this. The Sendix PROFINET IO encoders demonstrate their abilities in the following application examples: metal-working machines, slitting and winding machines, automotive production.

■■■ pulses for automation

www.kuebler.com/profinet_en

![Kübler logo]

| Standard Optical | Sendix 5858 / 5878 (Shaft / Hollow shaft) | PROFINET IO |

The singleturn encoders 5858 and 5878 with PROFINET interface and optical sensor technology are ideal for use in all applications with a PROFINET interface.

The encoder supports the IRT mode and is therefore ideal for real-time applications.

Easy start-up thanks to the "Ezturn for PROFINET" software supplied with the encoder.

Ex 2/22   c **UL** us   **RoHS**   **PROFI**®**NET**

| Safety-Lock™ | High rotational speed | Temperature range -40°... +85°C | High protection level IP | High shaft load capacity | Shock / vibration resistant | Magnetic field proof | Short-circuit proof | Reverse polarity protection | Optical sensor | Seawater-resistant version on request |

Reliable

- Ideally suited for all PROFINET applications thanks to the use of encoder profile 4.1
- Perfect for use in harsh outdoor environments, as a result of IP67 protection and rugged housing construction

Flexible

- IRT-Mode
- Cycle time ≤ 1 ms
- Firmware updater allows for easy expansion of characteristics without having to disassemble the encoder.
- M12 connector ensures fast, simple, error-free connection

Order code Shaft version	8.5858 . XXC2 . C212
	Type a b c d e

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

ⓐ *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"]

ⓑ *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"

ⓒ *Interface / Power supply*
C = PROFINET IO / 10 ... 30 V DC

ⓓ *Type of connection*
removable bus terminal cover
2 = 3 x M12 connector

ⓔ *Field bus profile*
C2= PROFINET IO

optional on request
- Ex 2/22
- seawater-resistant

Order code Hollow shaft	8.5878 . XXC2 . C212
	Type a b c d e

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

ⓐ *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"]

ⓑ *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"

ⓒ *Interface / Power supply*
C = PROFINET IO / 10 ... 30 V DC

ⓓ *Type of connection*
removable bus terminal cover
2 = 3 x M12 connector

ⓔ *Field bus profile*
C2= PROFINET IO

optional on request
- Ex 2/22
- seawater-resistant

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[1] Preferred type only in conjunction with flange type 2
[2] Preferred type only in conjunction with flange type 1

Absolute Encoders - Singleturn

Standard Optical	Sendix 5858 / 5878 (Shaft / Hollow shaft)	PROFINET IO

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	With fixing thread	**8.0010.4700.0000**

Connection technology		
Connector, self-assembly (straight)	Coupling M12 for Port 1 and Port 2	**05.WASCSY4S**
	Connector M12 for power supply	**05.B8141-0**
Cordset, pre-assembled	M12 for Port 1 and Port 2, 2 m [6.56'] PUR cable	**05.00.6031.4411.002M**
	M12 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		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 ... +85°C [-40°F ... +185°F]
Material	shaft/hollow shaft	stainless steel
	flange	aluminium
	housing	zinc die-cast housing
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

Device characteristics

Singleturn resolution	1 ... 65535 (16 bit), scaleable
Default value	8192 (13 bit)
Total resolution	scaleable from 1 up to 65535 (13 bit)
Code	binary
Protocol	PROFINET IO

Link 1 and 2, LED (green / yellow)

two coloured	green	active link
	yellow	data transfer

Error LED (red) / PWR LED (green)

Functionality see manual

Ezturn software for PROFINET IO (supplied with the encoder)

- Monitoring of cyclic data (e.g. position, speed)
- Monitoring of acyclic data (e.g. IMO, electronic name plate, encoder parameters, warnings and error messages, preset)
- Setting of preset values
- Firmware updates via the bus

Electrical characteristics

Power supply	10 ... 30 V DC
Power consumption (no load)	max. 200 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

Standard Optical	Sendix 5858 / 5878 (Shaft / Hollow shaft)	PROFINET IO

General information about PROFINET IO

The PROFINET encoder implements the Encoder Profile 4.1. (according to the specification Encoder Version 4.1 Dec 2008")

It permits scaling and preset values, as well as many other additional parameters to be programmed via the PROFINET-Bus.

When switching on, all parameters are loaded from an EEPROM, where they were saved previously to protect them against power-failure, or taken over by the controller in the start-up phase.

Position, speed and many other states of the encoder can be transmitted.

PROFINET IO

The complete encoder profile according to Profile Encoder Version 4.1 as well as the Identification & Maintenance functionality Version 1.16 has been implemented. IM blocks 0, 1, 2, 3 and 4 are supported.

The **M**edia **R**edundancy **P**rotokoll is implemented here.
Basically, the advantage of MRP is that the functionality of the components, which are wired in a ring structure, is maintained in case of a failure or of a breakage of the wires in any location.

Terminal assignment bus

Interface	Type of connection	Function	M12 connector					
C	2 (3 x M12 connector)	Bus Port 1	Signal:	Transmit data+	Receive data+	Transmit data -	Receive data -	1 2 4 3 D coded
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	
		Power supply	Signal:	Voltage +	–	Voltage –	–	4 3 1 2
			Abbreviation:	+ V	–	0 V	–	
			Pin:	1	2	3	4	
		Bus Port 2	Signal:	Transmit data+	Receive data+	Transmit data -	Receive data -	1 2 4 3 D coded
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	

Bus Port 1 ——

Power supply ——

Bus Port 2 ——
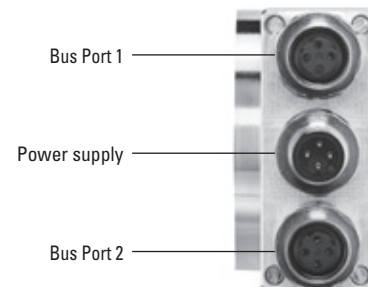
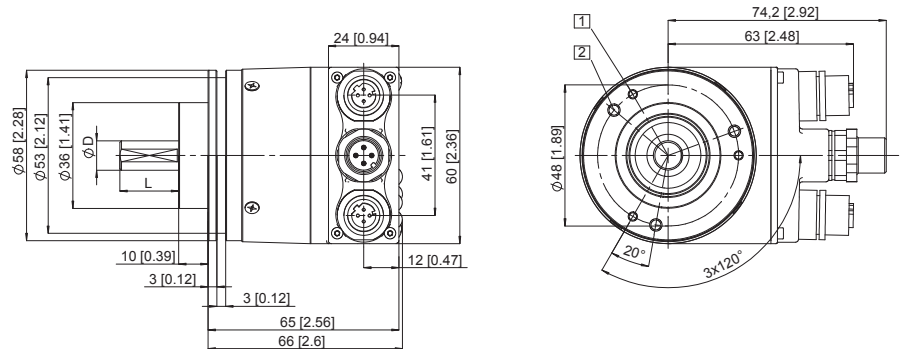| Standard Optical	Sendix 5858 / 5878 (Shaft / Hollow shaft)	PROFINET IO

Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]
Flange type 1 and 3
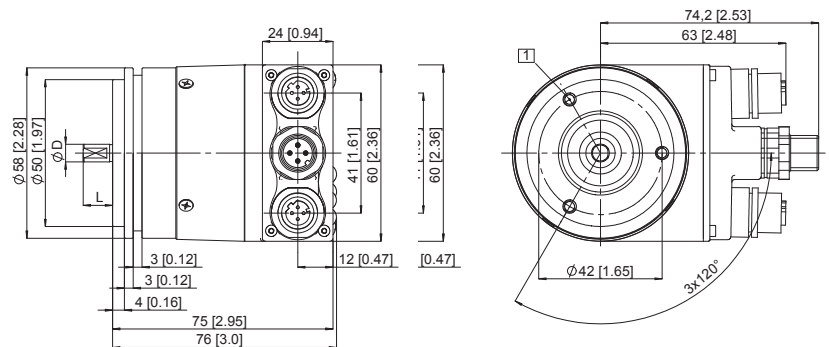
1 3 x M3, 6 [0.24] deep
2 3 x M4, 8 [0.32] deep

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

Synchro flange, ø 58 [2.28]
Flange type 2 and 4

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

Square flange, ☐ 63.5 [2.5]
Flange type 5 and 7

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
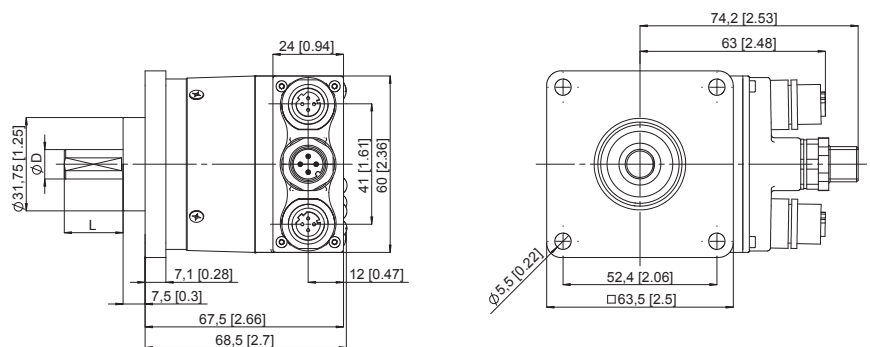
| Standard Optical	Sendix 5858 / 5878 (Shaft / Hollow shaft)	PROFINET IO

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

1. Torque stop slot,
   Recommendation:
   Cylindrical pin DIN 7, ø 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]
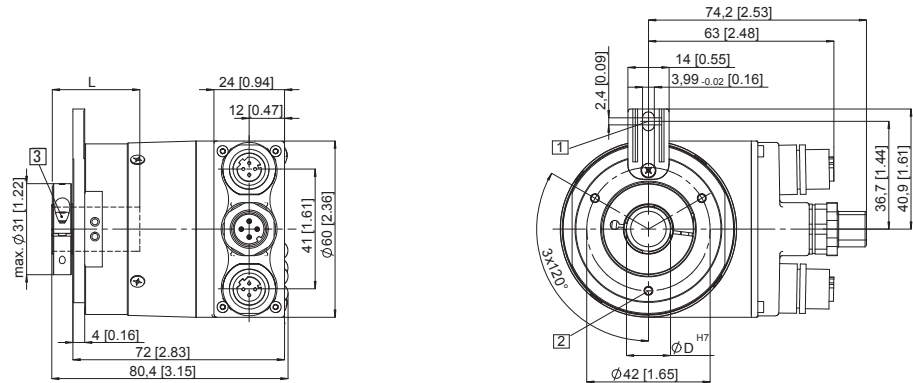
Flange with stator coupling, ø 63 [2.48]
Flange type 5 and 6

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]
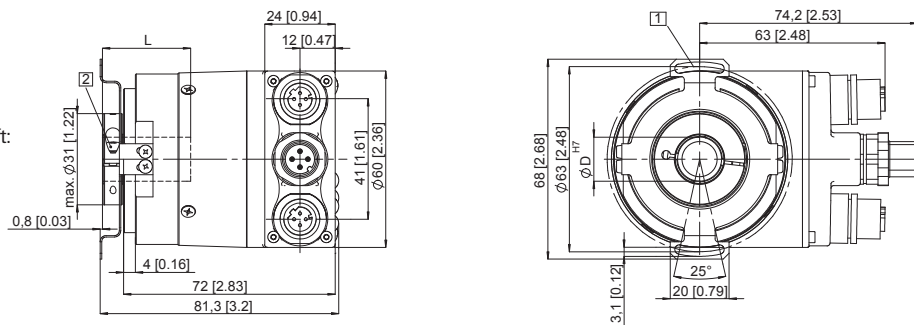
Flange with stator coupling, ø 65 [2.56]
Flange type 3 and 4

1. Recommended torque for the
   clamping ring 0.6 Nm

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