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 -40°... +80°C | High protection level IP | High shaft load capacity | Shock / vibration resistant | Short-circuit proof | Magnetic field proof sensor technology | Reverse polarity protection | Optical sensor | Surface protection salt spray-tested optional

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

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 / supply voltage*
- **3 = PROFIBUS DP V0 encoder profile V 1.1, 10 ... 30 V DC**

d *Type of connection removable bus terminal cover*
- 1 = with radial cable gland fitting
- **2 = with 3 x radial M12 connectors**

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
- surface protection salt spray tested

Order code Hollow shaft

8.5878	.	X	X	3	X	.	31	1	X
Type		a	b	c	d		e		f

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 (insertion depth max. 30 mm [1.18"])*
- 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 / supply voltage*
- **3 = PROFIBUS DP V0 encoder profile V 1.1, 10 ... 30 V DC**

d *Type of connection removable bus terminal cover*
- 1 = with radial cable gland fitting
- **2 = with 3 x radial M12 connectors**

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
- surface protection salt spray tested

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

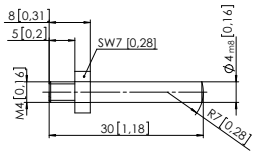
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Standard optical	Sendix 5858 / 5878 (shaft / hollow shaft)	PROFIBUS DP

Mounting accessory for shaft encoders

		Order no.
Coupling	bellows coupling ø 19 mm [0.75“] for shaft 6 mm [0.24“]	**8.0000.1102.0606**
	bellows coupling ø 19 mm [0.75“] for shaft 10 mm [0.39“]	**8.0000.1102.1010**

Mounting accessory for hollow shaft encoders Dimensions in mm [inch]

		Order no.
Torque pin, ø 4 mm for flange with spring element (flange type 1)	with fixing thread 	**8.0010.4700.0000**

Cables and connectors

			Order no.
Preassembled cables	M12 female connector with coupling nut, 5-pin, B coded, straight single-ended 5 m [16.40’] PUR cable	Bus in	**05.00.6011.3211.005M**
	M12 male connector with external thread, 5-pin, B coded, straight single-ended 5 m [16.40’] PUR cable	Bus out	**05.00.6011.3411.005M**
	M12 female connector with coupling nut, 4-pin, A coded, straight Ende offen 2 m PUR-Kabel	supply voltage	**05.00.6061.6211.002M**
Connectors	M12 female connector with coupling nut, 5-pin, B coded, straight (metal)	Bus in	**05.BMWS 8151-8.5**
	M12 male connector with external thread, 5-pin, B coded, straight (metal)	Bus out	**05.BMSWS 8151-8.5**
	M12 female connector with coupling nut, 4-pin, A coded, straight (plastic)	supply voltage	**05.B8141-0**

Further Kübler accessories can be found at: kuebler.com/accessories
Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

Technical data

Mechanical characteristics

Maximum speed		
	IP65 up to 70 °C [158 °F]	9000 min^{-1}, 7000 min^{-1} (continuous)
	IP65 up to T_{max}	7000 min^{-1}, 4000 min^{-1} (continuous)
	IP67 up to 70 °C [158 °F]	8000 min^{-1}, 6000 min^{-1} (continuous)
	IP67 up to T_{max}	6000 min^{-1}, 3000 min^{-1} (continuous)
Starting torque - at 20 °C [68 °F]	IP65	< 0.01 Nm
	IP67	< 0,05 Nm
Mass 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
Working temperature range		-40 °C ... +80 °C [-40 °F ... +176 °F]
Material	shaft/hollow shaft	stainless steel
	flange	aluminum
	housing	zinc die-cast
Shock resistance acc. to EN 60068-2-27		2500 m/s^2, 6 ms
Vibration resistance acc. to EN 60068-2-6		100 m/s^2, 55 ... 2000 Hz

Electrical characteristics

Supply voltage	10 ... 30 V DC
Power consumption (no load)	max. 110 mA
Reverse polarity protection of the supply voltage	yes

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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Standard optical | **Sendix 5858 / 5878 (shaft / hollow shaft)** | **PROFIBUS DP**

Interface characteristics PROFIBUS DP	
Resolution	1 ... 65536 (16 bit), scalable default: 8192 (13 bit)
Interface	interface specification acc. to PROFIBUS DP 2.0 / standard (DIN 19245 part 3) / RS485 driver galvanically isolated
Protocol	Profibus encoder profile V1.1 class 1 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

Approvals	
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU
ATEX Directive	2014/34/EU (for Ex 2/22 variants)

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	Funktion	3 x M12 connector						
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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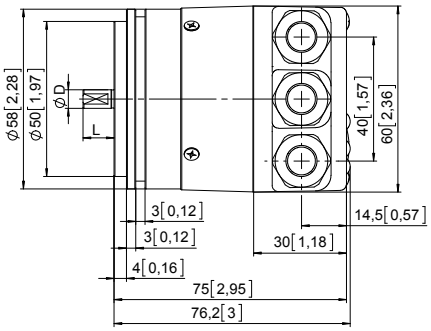
Standard optical | **Sendix 5858 / 5878 (shaft / hollow shaft)** | **PROFIBUS DP**

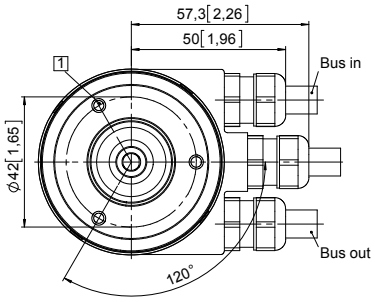
Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

Synchro flange, ø 58 [2.28]
Flange type 2 and 4
(drawing with cable)

1 3 x M4, 6 [0.24] deep

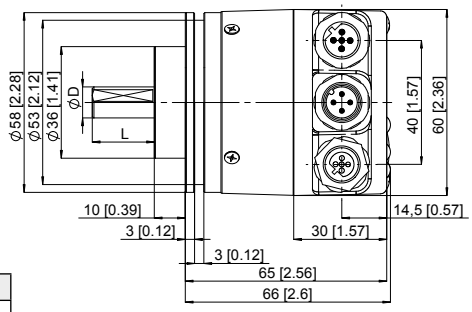


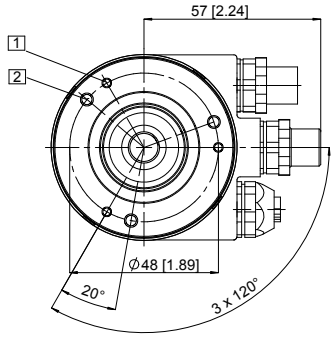


D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

Clamping flange, ø 58 [2.28]
Flange type 1 and 3
(drawing with 3 x M12 connector)

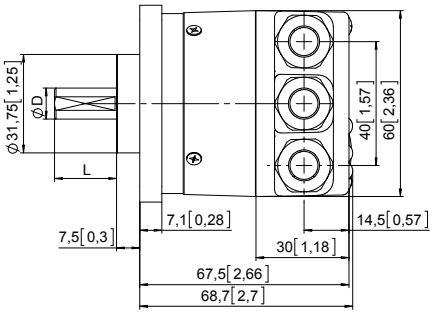
1 3 x M3, 6 [0.24] deep
2 3 x M4, 8 [0.32] deep

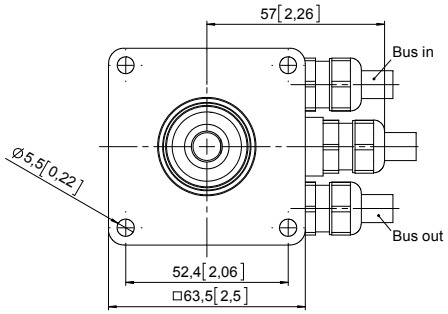




D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

Square flange, □63.5 [2.5]
Flange type 5 and 7
(drawing with cable)





D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h8	7/8"
3/8"	h8	7/8"

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Standard optical | **Sendix 5858 / 5878 (shaft / hollow shaft)** | **PROFIBUS DP**

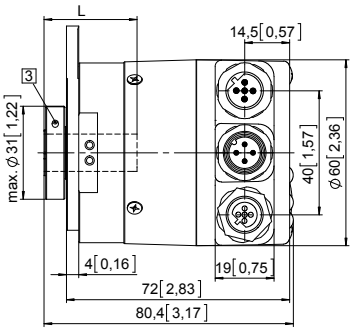
Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover

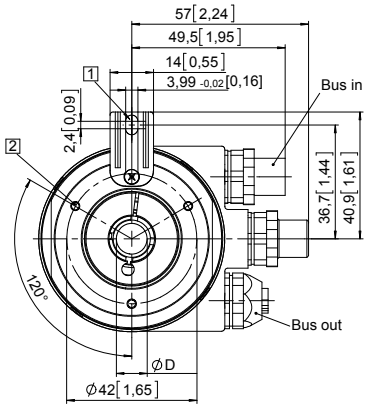
Dimensions in mm [inch]

Flange with spring element, long
Flange type 1 and 2
(drawing with 3 x M12 connector)

1 Slot spring element, recommendation: torque pin DIN 7, ø 4 [0.16]
2 3 x M3, 5.5 [0.22] deep
3 Recommended torque for the clamping ring 0.6 Nm

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		

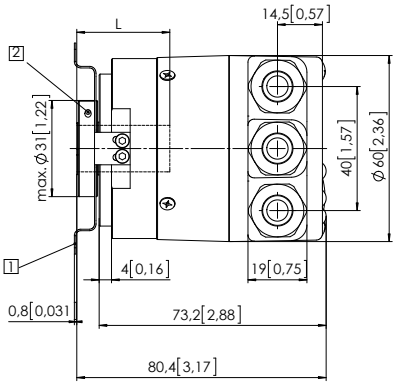


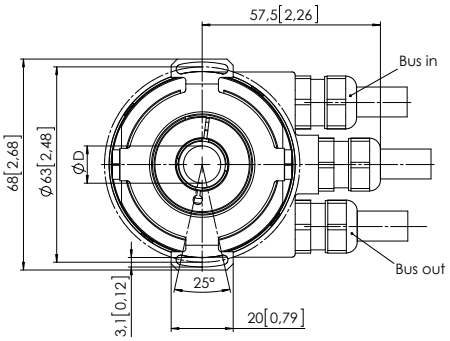


Flange with stator coupling, ø 63 [2.48]
Flange type 5 and 6
Pitch circle diameter for fixing screws 63 [2.48]
(drawing with cable)

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

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		

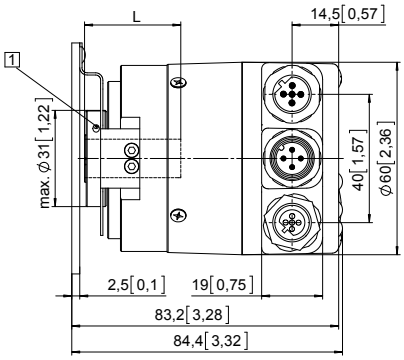


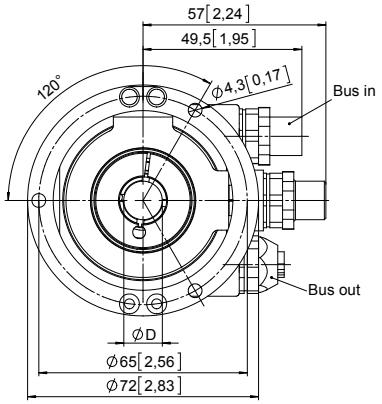


Flange with stator coupling, ø 65 [2.56]
Flange type 3 and 4
Pitch circle diameter for fixing screws, 65 [2.56]
(drawing 3 x M12 connector)

1 Recommended torque for the clamping ring 0.6 Nm

D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]
L = insertion depth max. blind hollow shaft		





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