

Absolute encoders – multiturn

Standard
mechanical multiturn, optical

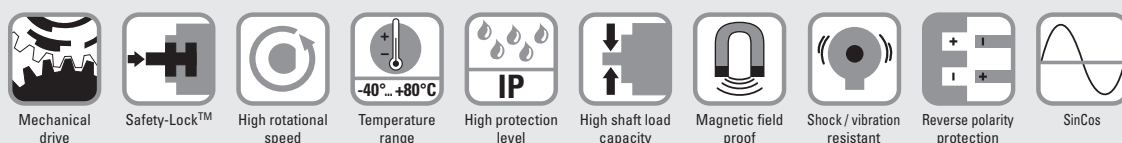
Sendix 5868 / 5888 (shaft / hollow shaft)

PROFIBUS DP



The multiturn encoders Sendix 5868 and 5888 with Profibus interface and optical sensor technology are the ideal solution for all Profibus applications.

With a maximum resolution of 28 bits these encoders are available with blind hollow shaft up to 15 mm.



Reliable

- Tried-and-tested in applications with the highest demands, such as in wind energy or mobile automation.
- Absolutely reliable operation in areas with strong magnetic fields, thanks to mechanical gear with optical sensor technology.

Flexible

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

Order code

8.5868
Type

.XX3X.311X
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, removable bus terminal cover

- 1 = with radial cable gland fitting
2 = with 3 x radial M12 connectors

Optional on request

- Ex 2/22
- surface protection salt spray tested
- seawater resistant (stainless steel V4A)

Salt spray tested / stainless steel V4A as standard types (deliverable as from 1 unit)



salt spray tested:
8.5868.3232.3112-C



stainless steel V4A:
8.5868.3232.3112-V4A

e Fieldbus profile

- 31 = PROFIBUS DP V0**
encoder profile class 2

f Options (service)

- 2 = no option
3 = SET button

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

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

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**Order code
Hollow shaft**

8.5888
Type

.XX3X.311X
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

(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 / power supply

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
- seawater resistant (stainless steel V4A)

Salt spray tested / stainless steel V4A as standard types (deliverable as from 1 unit)



salt spray tested:
8.5888.2432.3112-C
8.5888.2532.3112-C



stainless steel V4A:
8.5888.2432.3112-V4A

Mounting accessory for shaft encoders

Order no.

Coupling

- bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]
- bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]

8.0000.1102.0606
8.0000.1102.1010

Mounting accessory for hollow shaft encoders

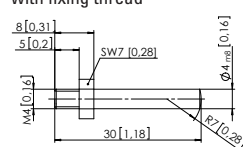
Dimensions in mm [inch]

Order no.

Cylindrical pin, long

for flange with spring element
(flange type 1 + 2)

with fixing thread



8.0010.4700.0000

Connection technology

Order no.

Cordset, pre-assembled

- M12 female connector with coupling nut for bus in , 5-pin
5 m [16.40'] PUR cable
- M12 male connector with external thread for bus out, 5-pin
5 m [16.40'] PUR cable
- M12 female connector with coupling nut for power supply, 4-pin
2 m [6.56'] PUR cable

05.00.6011.3211.005M
05.00.6011.3411.005M
05.00.6061.6211.002M

Connector, self-assembly (straight)

- M12 female connector with coupling nut for bus in , 5-pin
- M12 male connector with external thread for bus out, 5-pin
- M12 female connector with coupling nut for power supply, 4-pin

05.BMWS 8151-8.5
05.BMSWS 8151-8.5
05.B8141-0

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.

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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	7.5 x 10 ⁻⁶ kgm ²
Load capacity of shaft	radial	80 N
	axial	40 N
Weight	with bus terminal cover	approx. 0.57 kg [10.11 oz]
	with fixed connection	approx. 0.52 kg [18.34 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]
Materials	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	
Power supply	10 ... 30 V DC
Power consumption (no load)	max. 120 mA
Reverse polarity protection of the power supply	yes
UL approval	file 224618
CE compliant acc. to	EMC guideline 2014/30/EU RoHS 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)

Interface characteristics PROFIBUS DP	
Resolution singleturn	1 ... 65536 (16 bit), scalable default: 8192 (13 bit)
Number of revolutions (multiturn)	1 ... 4096 (12 bit), scalable
Total resolution	1 ... 268.435.456 (28 bit), scalable default: 33.554.432 (25 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 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 DP termination resistor.

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Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

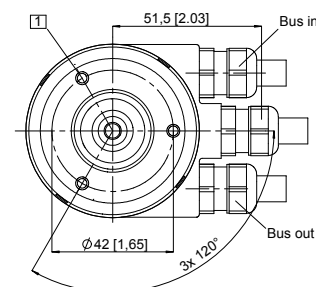
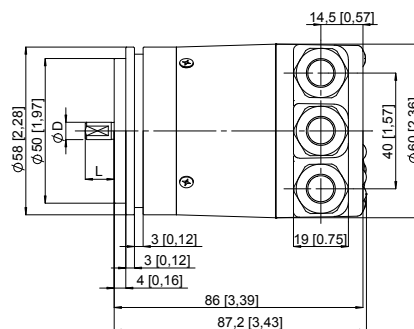
Synchro flange, $\varnothing 58$ [2.28]

Flange type 2 and 4

(drawing with cable)

1 3 x M4, 6 [0.24] deep

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



Clamping flange, $\varnothing 58$ [2.28]

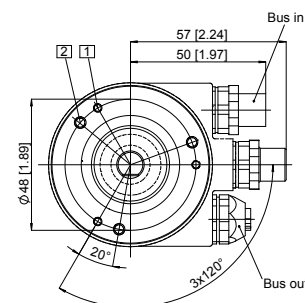
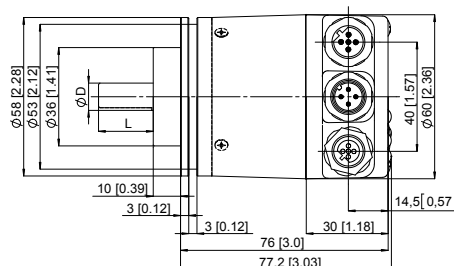
Flange type 1 and 3

(drawing with 3 x M12 connector)

1 3 x M3, 6 [0.24] deep

2 3 x M4, 8 [0.32] deep

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

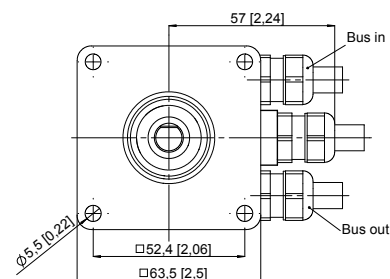
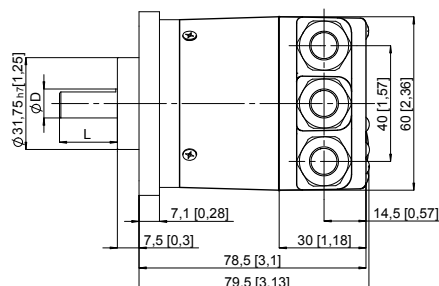


Square flange, $\square 63.5$ [2.5]

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"	h7	7/8"
3/8"	h7	7/8"



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

Dimensions in mm [inch]

Flange with spring element, long

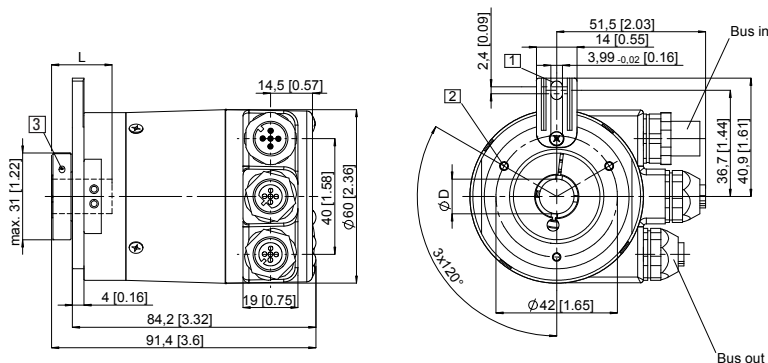
Flange type 1 and 2

(drawing with 3 x M12 connector)

- 1 Slot spring element recommendation: cylindrical pin DIN 7, $\varnothing 4$ [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, $\varnothing 63$ [2.48]

Flange type 5 and 6

Pitch circle diameter for fixing screws

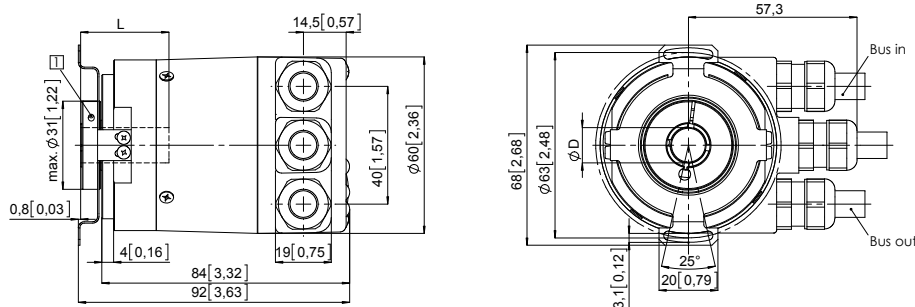
63 [2.48]

(drawing with cable)

- 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



Flange with stator coupling, $\varnothing 65$ [2.56]

Flange type 3 and 4

Pitch circle diameter for fixing screws

65 [2.56]

(drawing with 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

