

ENCODER

Profibus Multiturn



Series 8.5868, 8.5888

Key-Features:

- Solid shaft: maximum diameter 10 mm
- Blind hollow shaft: maximum diameter 15 mm
- Housing diameter 58 mm
- Protection class up to IP67
- Total resolution up to 28 Bit
- Maximum revolution speed 9000 turns/min
- Temperature range -40...+80°C

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**Standard
mechanical Multiturn, optical**

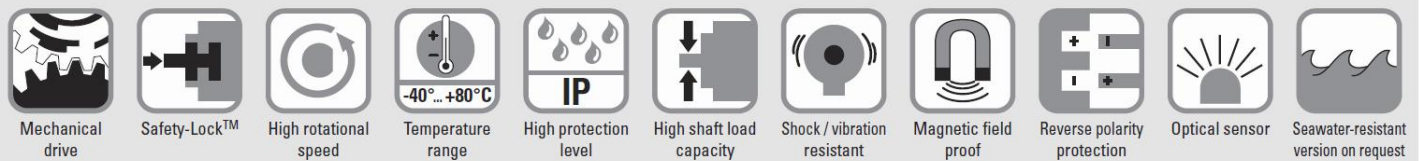
Sendix 5868 / 5888 (Shaft / Hollow shaft)

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
Shaft version**

8.5868 . **XX3X** . **311X**
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 / 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, 5-pin
 - 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**

8.5888 . **XX3X** . **311X**
Type **a b c d e f**

- a Flange with torque stop**
 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, 5-pin
 - e Fieldbus profile**
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 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

Standard mechanical Multiturn, optical		Sendix 5868 / 5888 (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		With fixing thread	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

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	4.0 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	
EX approval for hazardous areas	optional zone 2 and 22		
Working temperature range	-40°C ... +80°C [-40°F ... +176°F]		
Materials	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. 120 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)		

Interface characteristics PROFIBUS-DP

Singleturn resolution	1 ... 65536 (16 bit), scaleable
Default value	8192 (13 bit)
Total resolution	28 bit (scaleable 1 ... 2 ²⁸ steps)
Number of revolutions	4096 (12 bit), scaleable: 1 ... 4096
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

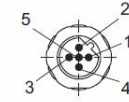
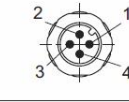
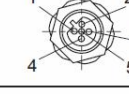
- Direction of rotation
- Scaling (Number of steps per revolution)
- Preset value
- Diagnostics mode

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

Interface	Type of connection	Function								
			Signal:	-	PB_A	-	PB_B	Shield		
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

Dimensions shaft version, with removable bus terminal cover

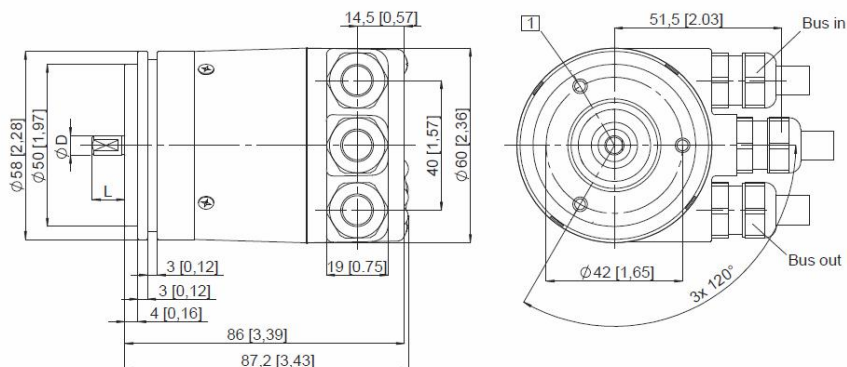
Dimensions in mm [inch]

Synchro flange, \varnothing 58 [2.28]

Flange type 2 and 4

(Drawing with cable)

1 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

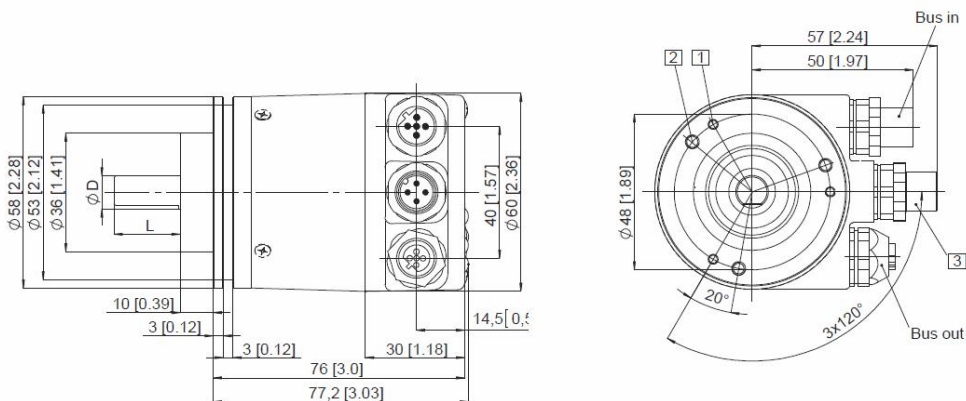
Clamping flange, \varnothing 58 [2.28]

Flange type 1 and 3

(Drawing with 2 x M12 connector)

1 3 x M3, 6 [0.24] deep

2 3 x M4, 8 [0.32] deep

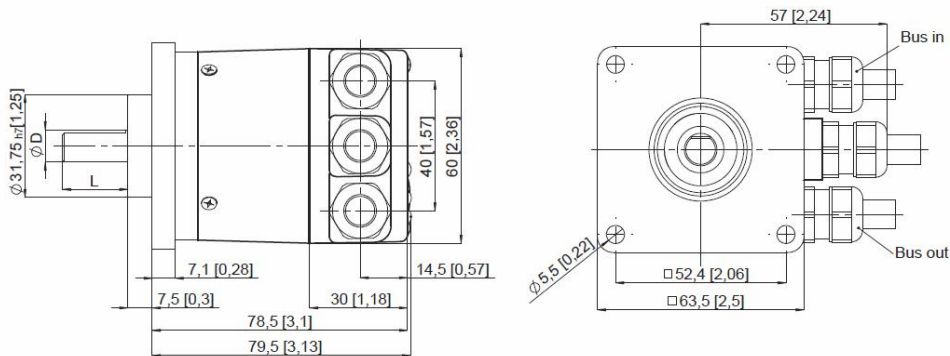


D	L	Fit
6 [0.24]	10 [0.39]	h7
10 [0.39]	20 [0.79]	f7
1/4"	7/8"	h7
3/8"	7/8"	h7

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

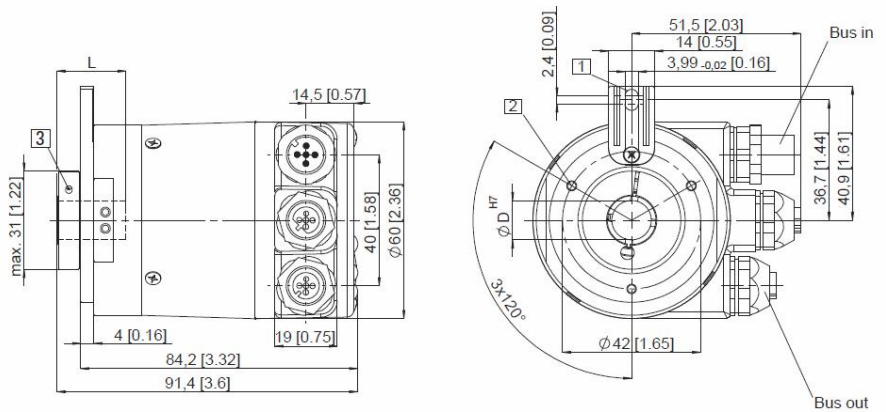
Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover

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]



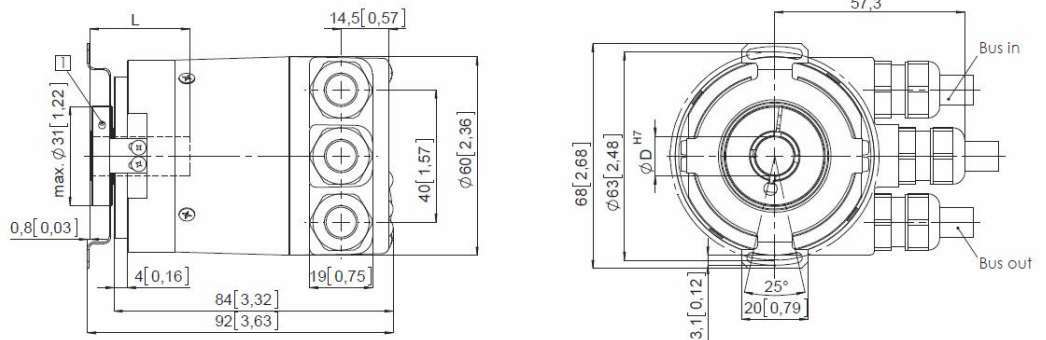
Flange with stator coupling, \varnothing 63 [2.48]

Flange type 5 and 6

Pitch circle diameter for fixing screws 63 [2.48]

(Drawing with cable)

- 1 Recommended torque for the
clamping ring 0.6 Nm
- L: Insertion depth for blind
hollow shaft: 30 [1.18]



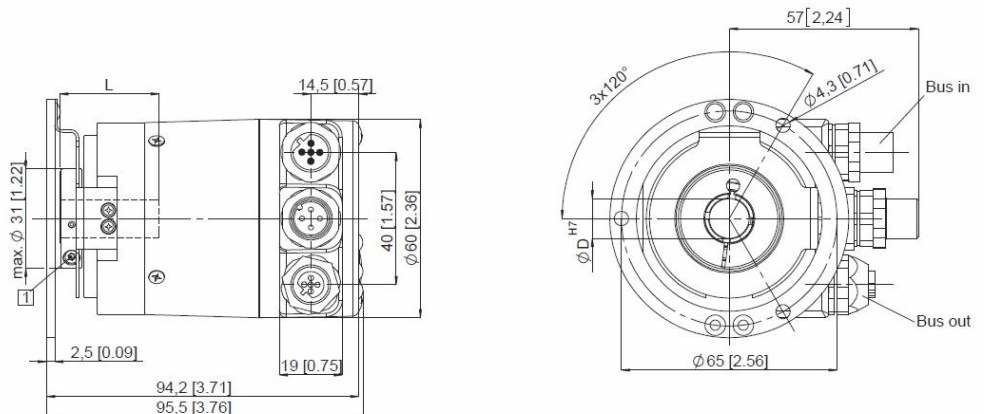
Flange with stator coupling, \varnothing 65 [2.56]

Flange type 3 and 4

Pitch circle diameter for fixing screws 65 [2.56]

(drawing with 3 x M12 connector)

- 1 Recommended torque for the
clamping ring 0.6 Nm
- L: Insertion depth for blind
hollow shaft: 30 [1.18]



Subject to change without prior notice.

WayCon Positionsmesstechnik GmbH

email: info@waycon.de

internet: www.waycon.de

Head Office

Mehlbeerenstr. 4

82024 Taufkirchen

Tel. +49 (0)89 67 97 13-0

Fax +49 (0)89 67 97 13-250

Office Köln

Auf der Pehle 1

50321 Brühl

Tel. +49 (0)2232 56 79 44

Fax +49 (0)2232 56 79 45