

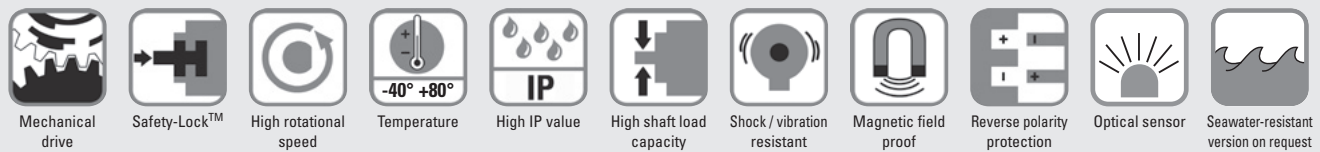
Absolute Encoders – Multiturn

Standard, optical **Sendix 5868 / 5888 (Shaft / Hollow shaft)** **Profibus-DP**



The singleturn encoders 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

Absolute Encoders
Multiturn

Order code Shaft version	8.5868 Type	<u>X</u> <u>X</u> <u>3</u> <u>X</u> . <u>31</u> <u>1</u> <u>X</u> a b c d e f	If for each parameter of an encoder the <u>underlined preferred option</u> 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	b Shaft (ø x L), with flat	d Type of connection	f Options (Service)	
<u>1 = clamping flange, ø 58 mm, IP65</u> <u>2 = synchro flange, ø 58 mm, IP65</u> 3 = clamping flange, ø 58 mm, IP67 4 = synchro flange, ø 58 mm, IP67 5 = square flange, 63,5 mm (2,5"), IP65 7 = square flange, 63,5 mm (2,5"), IP67	<u>1 = 6 mm x 10 mm¹⁾</u> <u>2 = 10 mm x 20 mm²⁾</u> 3 = 6,35 x 22,2 mm (1/4" x 7/8") 4 = 9,5 x 22,2 mm (3/8" x 7/8")	1 = removable bus terminal cover, with cable gland fitting, radial <u>2 = removable bus terminal cover, with 3 x M12 connectors, radial</u>	2 = no option <u>3 = SET button</u>	
	c Interface / Power supply	e Fieldbus profile	optional on request - Ex 2/22 - seawater-resistant	
	<u>3 = Profibus-DP V0</u> encoder profile V 1.1, 10 ... 30 V DC	<u>31 = Profibus-DP V0</u> encoder profile Class 2		

Order code Hollow shaft	8.5888 Type	<u>X</u> <u>X</u> <u>3</u> <u>X</u> . <u>31</u> <u>1</u> <u>X</u> a b c d e f	If for each parameter of an encoder the <u>underlined preferred option</u> 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	b Blind hollow shaft	d Type of connection	f Options (Service)	
1 = with torque stop set, IP65 2 = with torque stop set, IP67 3 = with stator coupling, TK 65, IP65 4 = with stator coupling, TK 65, IP67 <u>5 = with stator coupling, TK 63, IP65</u> 6 = with stator coupling, TK 63, IP67	3 = ø 10 mm <u>4 = ø 12 mm</u> 5 = ø 14 mm 6 = ø 15 mm 8 = ø 9.5 mm [3/8"] 9 = ø 12.7 mm [1/2"]	1 = removable bus terminal cover, with cable gland fitting, radial <u>2 = removable bus terminal cover, with 3 x M12 connectors, radial</u>	2 = no option <u>3 = SET button</u>	
	c Output circuit / Power supply	e Fieldbus profile	optional on request - Ex 2/22 - seawater-resistant	
	<u>3 = Profibus-DP V0</u> encoder profile V 1.1, 10 ... 30 V DC	<u>31 = Profibus-DP V0</u> encoder profile Class 2		

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 5868 / 5888 (Shaft / Hollow shaft)	Profibus-DP
Mounting accessory for shaft encoders		
Coupling	Bellows coupling ø 19 mm for shaft 6 mm	8.0000.1101.0606
	Bellows coupling ø 19 mm for shaft 10 mm	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 supply voltage	05.B8141-0
Cordset, pre-assembled, PUR cable	M12 cordset 6 m for Bus in	05.RKSW451-6M
	M12 cordset 6 m for Bus out	05.RSSW451-6M
	M12 cordset 2 m for supply voltage	05.WAK4-2/S90

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.

Mechanical characteristics		
Max. speed	without shaft seal (IP65) up to 70°C	9 000 min ⁻¹ , 7 000 min ⁻¹ (continuous)
	without shaft seal (IP65) up to T _{max}	7 000 min ⁻¹ , 4 000 min ⁻¹ (continuous)
	with shaft seal (IP67) up to 70°C	8 000 min ⁻¹ , 6 000 min ⁻¹ (continuous)
	with shaft seal (IP67) up to T _{max}	6 000 min ⁻¹ , 3 000 min ⁻¹ (continuous)
Starting torque	without shaft seal (IP65)	< 0.01 Nm
	with shaft seal (IP67)	< 0.03 Nm
Rotor 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	ca. 0.57 kg
	with fixed connection	ca. 0.52 kg
Protection EN 60 529	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	
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	

General electrical characteristics	
Power supply	10 ... 30 V DC
Power consumption (no load)	max. 120 mA
Reverse connection of the supply voltage (U_B)	yes
UL-certified	File 224618
CE compliant acc. to	EN 61000-6-2, EN 61000-6-4, EN 61000-6-3
RoHS compliant acc. to	EU-guideline 2002/95/EG

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

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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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
 - Number of revolutions
 - Total resolution over Singleturn/Multiturn
- Preset value
- Diagnostics mode
- Position 16/32 bit
- Speed RPM or Unit/s (16/32) bit

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

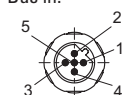
Terminal assignment terminal box

Signal :	BUS IN				BUS OUT			
	B	A	0 V	+ V	0 V	+ V	B	A
Terminal :	1	2	3	4	5	6	7	8

The shield of the connection cable must be connected over a large area via the cable gland.

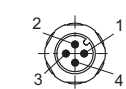
Terminal assignment M12 connector version

Bus in:



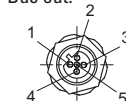
Signal:	–	BUS-B	–	BUS-B	Shield
Pin:	1	2	3	4	5

Supply voltage:



Signal:	U _B	–	0 V	–	
Pin:	1	2	3	4	

Bus out:



Signal:	BUS_VDC ¹⁾	BUS-A	BUS_GND ¹⁾	BUS-B	Shield
Pin:	1	2	3	4	5

1) For supplying an external Profibus-DP termination resistor

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Profibus-DP

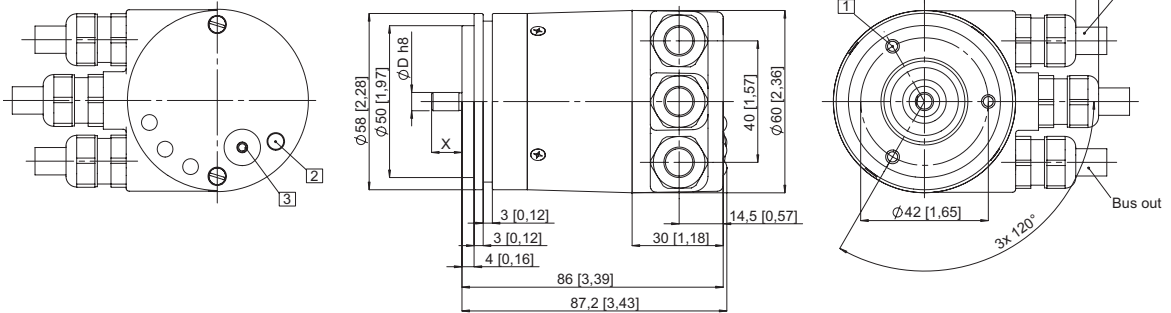
Dimensions shaft version, with removable bus terminal cover

Synchro flange, ø 58 mm

Flange type 2 and 4

(Drawing with cable)

- 1 3 x M4, 6 [0.24] deep
- 2 Status LED
- 3 SET button

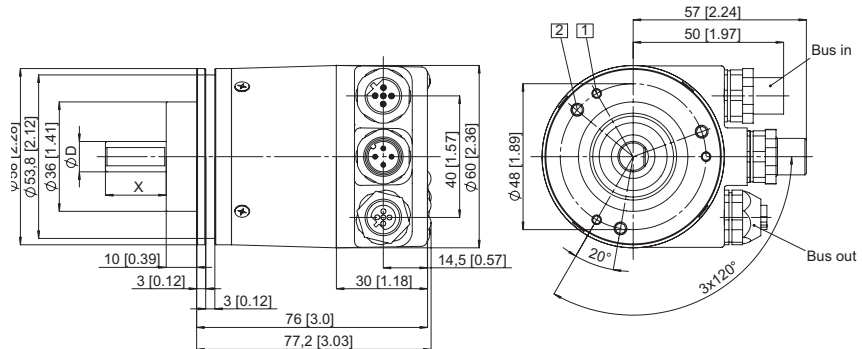


Clamping flange, ø 58 mm

Flange type 1 and 3

(Drawing with 3 x M12-connector)

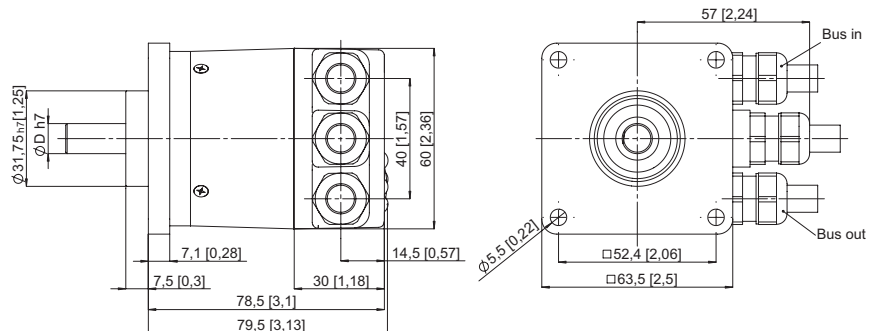
- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.32] deep



Square flange, □ 63.5 mm

Flange type 5 and 7

(Drawing with cable)



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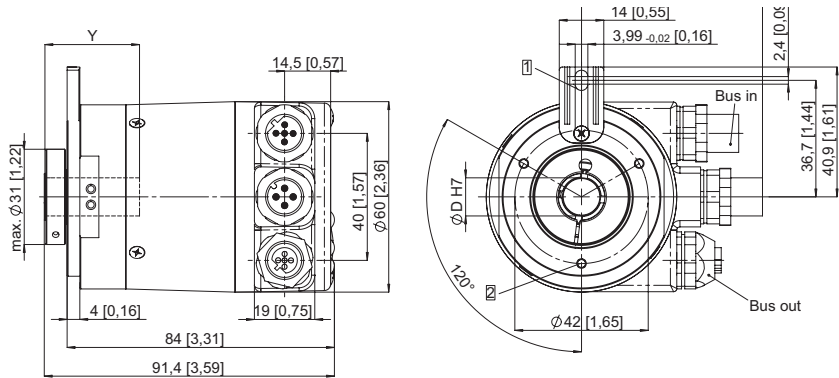
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Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover

Flange with torque stop set, long, ø 58 mm
Flange type 1 and 2

(Drawing with 3 x M12 connector)

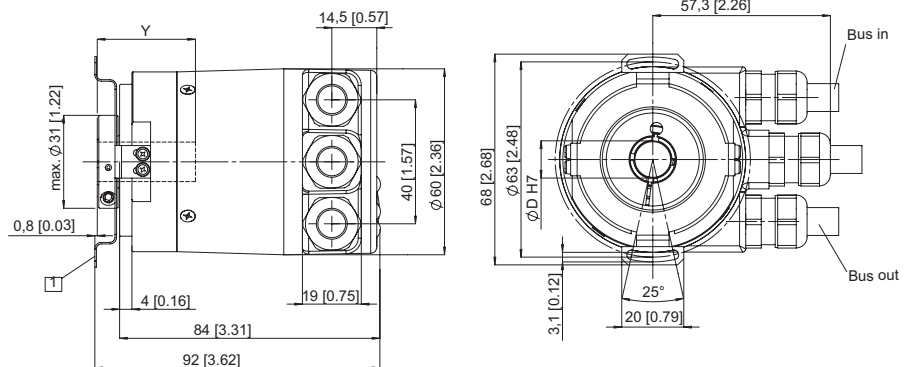
- 1 Torque stop slot,
Recommendation:
Cylindrical pin DIN7, ø 4 mm
- 2 3 x M3, 5.5 [0.21] deep



Flange with stator coupling, ø 58 mm
Flange type 5 and 6

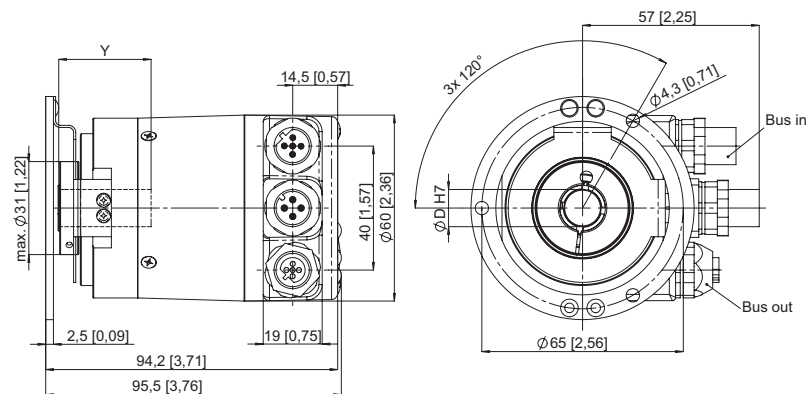
Pitch circle diameter for fixing screws 63 mm
(Drawing with cable)

- 1 Fixing screws DIN 912 M3 x 8
(Washer included in delivery)



Flange with stator coupling, ø 58 mm
Flange type 3 and 4

Pitch circle diameter for fixing screws 65 mm
(Drawing with 3x M12 connector)



Y: Insertion depth for blind hollow shaft: 30 mm