

# Absolute Encoders - Singleturn

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.



## 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 . XX3X . 311X  
Type                    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.



#### a Flange

- 1 = clamping flange, ø 58 mm, IP65
- 2 = synchro flange, ø 58 mm, IP65
- 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

#### b Shaft (ø x L), with flat

- 1 = 6 x 10 mm<sup>1)</sup>
- 2 = 10 x 20 mm<sup>2)</sup>
- 3 = 6,35 x 22,2 mm (1/4" x 7/8")
- 4 = 9,5 x 22,2 mm (3/8" x 7/8")

#### 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

#### f Options (Service)

- 2 = no option
- 3 = SET button

#### c Interface / Power supply

- 3 = Profibus-DP V0  
Encoder profile V 1.1, 10 ... 30 V DC

#### e Fieldbus profile

- 31 = Profibus-DP V0  
Encoder profile Class 2

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

### Order code Hollow shaft

8.5878 . XX3X . 311X  
Type                    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.



#### a Flange

- 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
- 5 = with stator coupling, TK 63, IP65
- 6 = with stator coupling, TK 63, IP67

#### b Blind hollow shaft

- 3 = ø 10 mm
- 4 = ø 12 mm
- 5 = ø 14 mm
- 6 = ø 15 mm
- 8 = ø 9.5 mm (3/8")
- 9 = ø 12.7 mm (1/2")

#### 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

#### f Options (Service)

- 2 = no option
- 3 = SET button

#### c Output circuit / Power supply

- 3 = Profibus-DP V0  
Encoder profile V 1.1, 10 ... 30 V DC

#### e Fieldbus profile

- 31 = Profibus-DP V0  
Encoder profile Class 2

- 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

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## Mounting accessory for shaft encoders

<b>Coupling</b>	Bellows coupling ø 19 mm for shaft 6 mm	<b>8.0000.1101.0606</b>
	Bellows coupling ø 19 mm for shaft 10 mm	<b>8.0000.1101.1010</b>

## Mounting accessory for hollow shaft encoders

<b>Cylindrical pin, long</b> for torque stops		With fixing thread	<b>8.0010.4700.0000</b>
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## Connection Technology

<b>Connector, self-assembly</b> (straight)	Coupling M12 for Bus in	<b>05.BMWS 8151-8.5</b>
	Connector M12 for Bus out Connector M12 for supply voltage	<b>05.BMSWS 8151-8.5</b> <b>05.B8141-0</b>
<b>Cordset, pre-assembled with 2 m PUR cable</b>	M12 cordset 6m for Bus in	<b>05.RKSW451-6M</b>
	M12 cordset 6m for Bus out	<b>05.RSSW451-6M</b>
	M12 cordset 2m for supply voltage	<b>05.WAK4-2/S90</b>

Further accessories can be found in the Accessories section or in the Accessories area of our website at: [www.kuebler.com/accessories](http://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](http://www.kuebler.com/connection_technology).

Mechanical characteristics		
<b>Max. speed</b>		
without shaft seal (IP65) up to 70°C		9 000 min <sup>-1</sup> , 7 000 min <sup>-1</sup> (continuous)
without shaft seal (IP65) up to T <sub>max</sub>		7 000 min <sup>-1</sup> , 4 000 min <sup>-1</sup> (continuous)
with shaft seal (IP67) up to 70°C		8 000 min <sup>-1</sup> , 6 000 min <sup>-1</sup> (continuous)
with shaft seal (IP67) up to T <sub>max</sub>		6 000 min <sup>-1</sup> , 3 000 min <sup>-1</sup> (continuous)
<b>Starting torque without shaft seal (IP65)</b>		< 0.01 Nm
<b>Starting torque with shaft seal (IP67)</b>		
shaft version		< 0.05 Nm
hollow shaft version		< 0.03 Nm
<b>Rotor moment of inertia</b>		
shaft version		3.0 x 10 <sup>-6</sup> kgm <sup>2</sup>
hollow shaft version		6.0 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Load capacity of shaft</b>	radial	80 N
	axial	40 N
<b>Weight</b>	with bus terminal cover	approx. 0.53 kg
	with fixed connection	approx. 0.50 kg
<b>Protection EN 60 529</b>	housing side	IP67
	shaft side	IP65, opt. IP67
<b>EX approval for hazardous areas</b>		optional Zone 2 and 22
<b>Working temperature range</b>		-40°C ... +80°C
<b>Materials</b>	shaft/hollow shaft	stainless steel
	flange	aluminium
	housing	zinc die-cast housing
	cable	PVC
<b>Shock resistance</b> acc. EN 60068-2-27		2500 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance</b> acc. EN 60068-2-6		100 m/s <sup>2</sup> , 55 ... 2000 Hz

General electrical characteristics	
<b>Power supply</b>	10 ... 30 V DC
<b>Power consumption</b> (no load)	max. 110 mA
<b>Reverse connection of the supply voltage</b> (U <sub>B</sub> )	yes
<b>UL-certified</b>	File 224618
<b>CE compliant</b> acc. to	EN 61000-6-2, EN 61000-6-4, EN 61000-6-3
<b>RoHS compliant</b> acc. to	EU guideline 2002/95/EG

Interface characteristics Profibus-DP	
<b>Singleturn resolution</b>	1 ... 65536 (16 bit), scaleable
<b>Default value</b>	8192 (13 bit)
<b>Code</b>	Binary
<b>Interface</b>	Interface specification acc. to Profibus-DP 2.0 / Standard (DIN 19245 Part 3) / RS485 driver galvanically isolated
<b>Protocol</b>	Profibus Encoder Profile V1.1 Class1 and Class 2 with manufacturer-specific add-ons
<b>Baud rate</b>	max. 12 Mbit/s
<b>Device address</b>	1 ... 127 (set by rotary switches)
<b>Termination switchable</b>	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)	
<b>LED is ON with following errors</b>	Sensor error (Profibus error)

### 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

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**Profibus-DP**

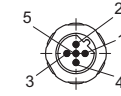
## Terminal assignment terminal box

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.

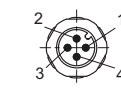
## Terminal assignment M12 connector version

Bus in



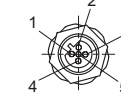
Signal	-	BUS-B	-	BUS-B	shield
Pin	1	2	3	4	5

Supply voltage



Signal	U <sub>B</sub>	-	0 V	-	
Pin	1	2	3	4	

Bus out



Signal	BUS_VDC <sup>1)</sup>	BUS-A	BUS_GND <sup>1)</sup>	BUS-B	shield
Pin	1	2	3	4	5

1) For supplying an external Profibus-DP termination resistor

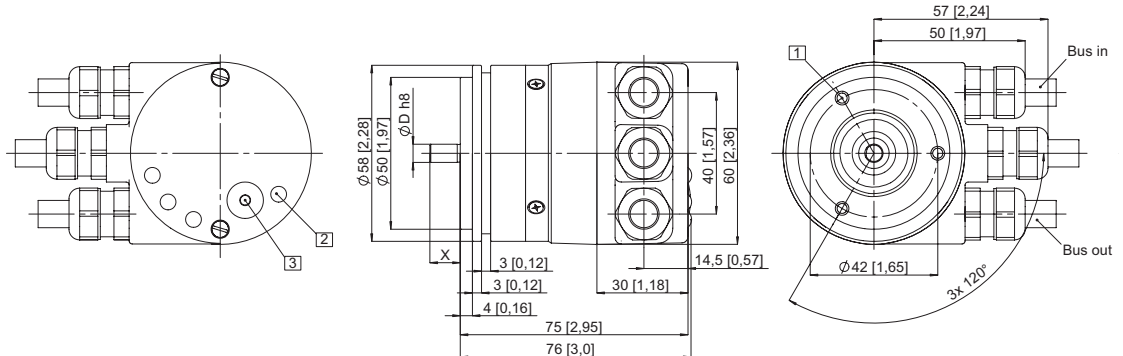
## Dimensions shaft version, With removable bus terminal cover

**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

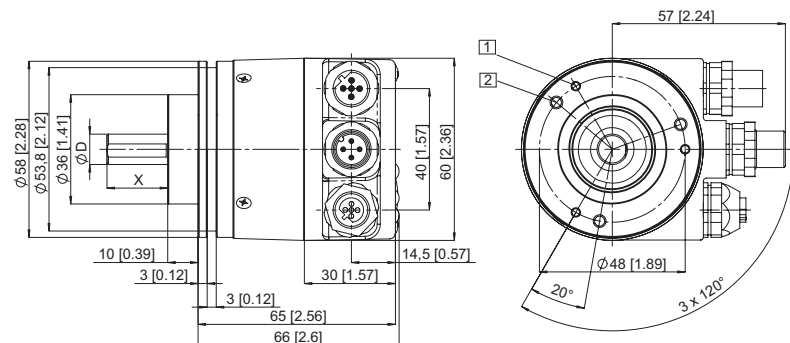


**Clamping flange, ø 58 mm**

**Flange type 1 and 3**

(Drawing with 2 x M12 connector)

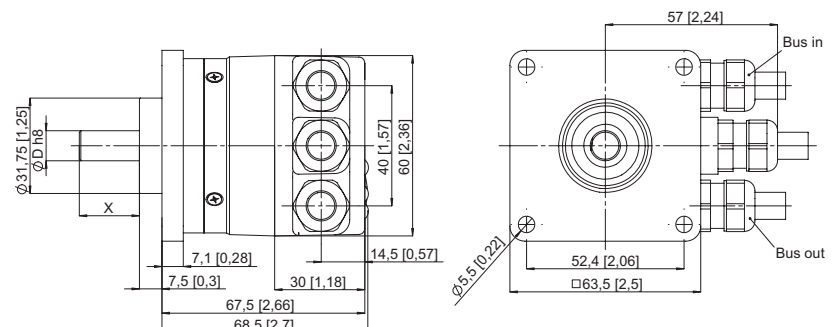
- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.32] deep



**Square flange, □ 63.5 mm**

**Flange type 5 and 7**

(Drawing with cable)



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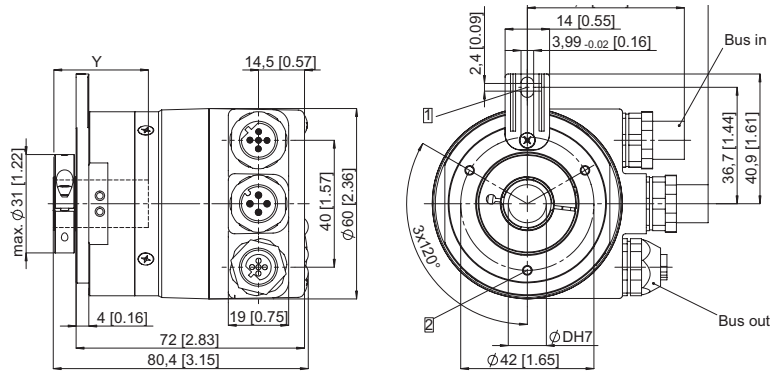
**Dimensions hollow shaft version (blind hollow shaft), with removable bus terminal cover**

**Flange with torque stop set, long, ø 58 mm**

**Flange type 1 and 2**

(Drawing with 2 x M12 connector)

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



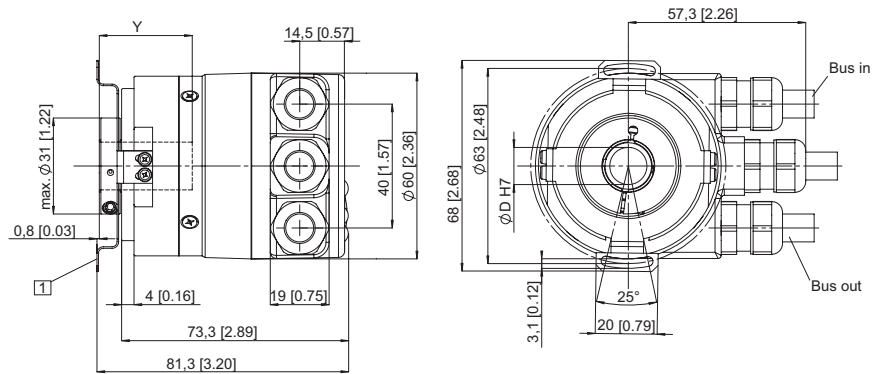
**Flange with stator coupling, ø 58 mm**

**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)

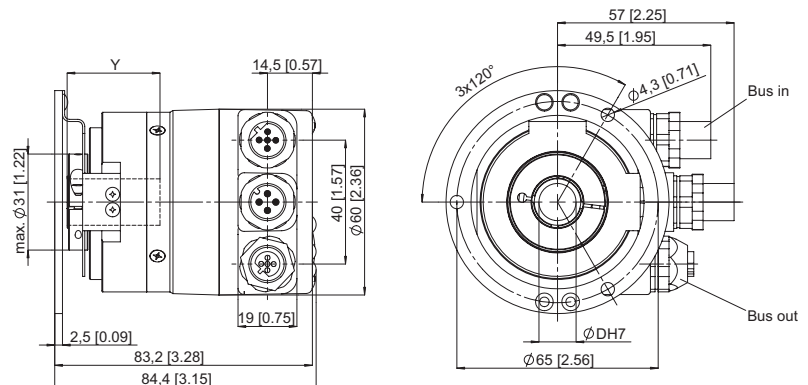


**Flange with stator coupling, ø 58 mm**

**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