

# Absolute Encoders – Multiturn

**Standard, optical, mechanical multiturn**      **Sendix 5868 / 5888 (Shaft / Hollow shaft)**      **PROFINET**



The multiturn encoders 5868 and 5888 with PROFINET interface and optical sensor technology are ideal for use in all applications with a PROFINET interface.

The encoder supports the isochronous (IRT) mode and is therefore ideal for real-time applications.

Easy start-up thanks to the “Ezturn for PROFINET” software supplied with the encoder.

Mechanical drive	Safety-Lock™	High rotational speed	Temperature -40° + 85°	High protection level IP	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Reverse polarity protection	Optical sensor	Seawater-resistant version on request

## Reliable

- Ideally suited for all PROFINET applications thanks to the use of encoder profile 4.1
- Perfect for use in harsh outdoor environments, as a result of IP67 protection and rugged housing construction

## Flexible

- IRT-Mode
- Cycle time ≤ 1 ms
- Firmware updater allows for easy expansion of characteristics without having to disassemble the encoder.
- Faster, easier error-free connection thanks to M12 connectors

<b>Order code</b> <b>Shaft version</b>	<b>8.5868</b> Type	<b>. X X C 2 . C 1 12</b> a b c d e	If for each parameter of an encoder the <b>underlined preferred option</b> 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.	
<b>a Flange</b>	<b>b Shaft (ø x L), with flat</b>	<b>c Interface / Power supply</b>	<b>d Type of connection</b>	<b>e Fieldbus profile</b>
<u>1 = clamping flange, ø 58 mm, IP65</u> 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	<u>1 = 6 x 10 mm<sup>1)</sup></u> <u>2 = 10 x 20 mm<sup>2)</sup></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")	<u>C = PROFINET / 10 ... 30 V DC</u>	<u>2 = 3 x M12 connector</u>	<u>C1 = PROFINET</u>
			removable bus terminal cover	optional on request - Ex 2/22 - seawater-resistant

<b>Order code</b> <b>Hollow shaft</b>	<b>8.5888</b> Type	<b>. X X C 2 . C 1 12</b> a b c d e	If for each parameter of an encoder the <b>underlined preferred option</b> 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.	
<b>a Flange</b>	<b>b Blind hollow shaft</b>	<b>c Interface / Power supply</b>	<b>d Type of connection</b>	<b>e Fieldbus profile</b>
<u>1 = with torque stop set, IP65</u> 2 = with torque stop set, IP67 3 = with stator coupling, ø 65, IP65 4 = with stator coupling, ø 65, IP67 <u>5 = with stator coupling, ø 63, IP65</u> 6 = with stator coupling, ø 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"]	<u>C = PROFINET / 10 ... 30 V DC</u>	<u>2 = 3 x M12 connector</u>	<u>C1 = PROFINET</u>
			removable bus terminal cover	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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<b>Mounting accessory for shaft encoders</b>		
<b>Coupling</b>	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
<b>Mounting accessory for hollow shaft encoders</b>		
<b>Cylindrical pin, long</b> for torque stops		With fixing thread 8.0010.4700.0000
<b>Connection technology</b>		
<b>Connector, self-assembly</b> (straight)	Coupling M12 for Port 1 and Port 2 Connector M12 for supply voltage	05.WASCSY4S 05.B8141-0
<b>Cordset, pre-assembled with 2 m PUR cable</b>	M12 for Port 1 and Port 2	05.00.6031.4411.002M
	M12 for power supply	05.00.6061.6211.002M

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	7.5 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Load capacity of shaft</b>	radial	80 N
	axial	40 N
<b>Weight</b>		approx. 0.54 kg
<b>Protection</b> acc. to EN 60529	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 ... +85°C
<b>Materials</b>	shaft / hollow shaft	stainless steel
	flange	aluminium
	housing	zinc die-cast housing
<b>Shock resistance</b> acc. EN 60068-2-27		2000 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. 200 mA
<b>Reverse polarity protection of the power supply</b> (U <sub>B</sub> )		yes
<b>UL approval</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/EC

Device characteristics		
<b>Singleturn resolution</b>		1 ... 65535 (16 bit), (scaleable: 1 ... 65535)
<b>Default value</b>		8192 (13 bit)
<b>Total resolution</b>		scaleable from 1 up to 268435456 (28 bit) 12 bit multiturn
<b>Code</b>		binary
<b>Protocol</b>		PROFINET

Link 1 and 2, LED (green / yellow)		
two coloured	green	active link
	yellow	data transfer

Error LED (red) / PWR LED (green)	
Functionality see manual	

Ezturn software for PROFINET (supplied with the encoder)	
<ul style="list-style-type: none"> <li>Monitoring of cyclic data (e.g. position, speed)</li> <li>Monitoring of acyclic data (e.g. IMO, electronic name plate, encoder parameters, warnings and error messages, preset)</li> <li>Setting of preset values</li> <li>Firmware updates via the bus</li> </ul>	

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### General information about PROFINET

The PROFINET encoder implements the Encoder Profile 4.1. (according to the specification Encoder Version 4.1 Dec 2008")

It permits scaling and preset values, as well as many other additional parameters to be programmed via the PROFINET-Bus.

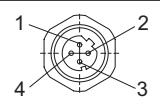
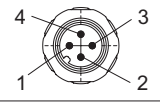
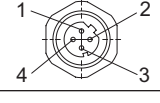
When switching on, all parameters are loaded from an EEPROM, where they were saved previously to protect them against power-failure, or taken over by the controller in the start-up phase.

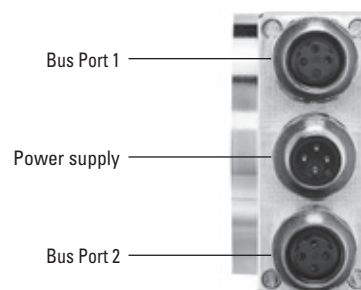
Position, speed and many other states of the encoder can be transmitted.

### PROFINET

The complete encoder profile according to Profile Encoder Version 4.1 as well as the Identification & Maintenance functionality Version 1.16 has been implemented. IM blocks 0, 1, 2, 3 and 4 are supported.

### Terminal assignment

Interface	Type of connection	Function	M12 connector					Diagram
			Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
C	2 (3 x M12 connector)	Bus Port 1	Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	
		Power supply	Signal:	Voltage +	–	Voltage -	–	
			Abbreviation:	+ V	–	0 V	–	
			Pin:	1	2	3	4	
		Bus Port 2	Signal:	Transmit data +	Receive data +	Transmit data -	Receive data -	
			Abbreviation:	TxD+	RxD+	TxD-	RxD-	
			Pin:	1	2	3	4	



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**Standard, optical, mechanical multiturn**

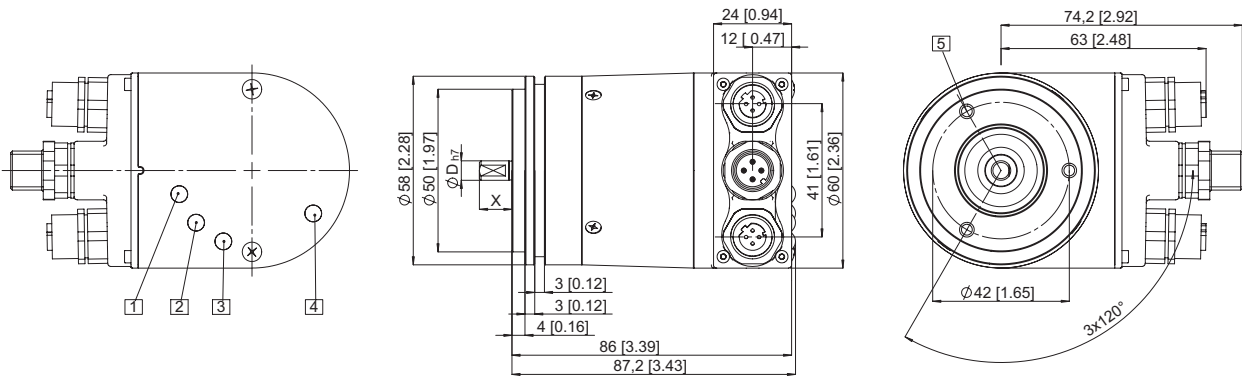
**Sendix 5868 / 5888 (Shaft / Hollow shaft)**

**PROFINET**

## Dimensions shaft version, with removable bus terminal cover

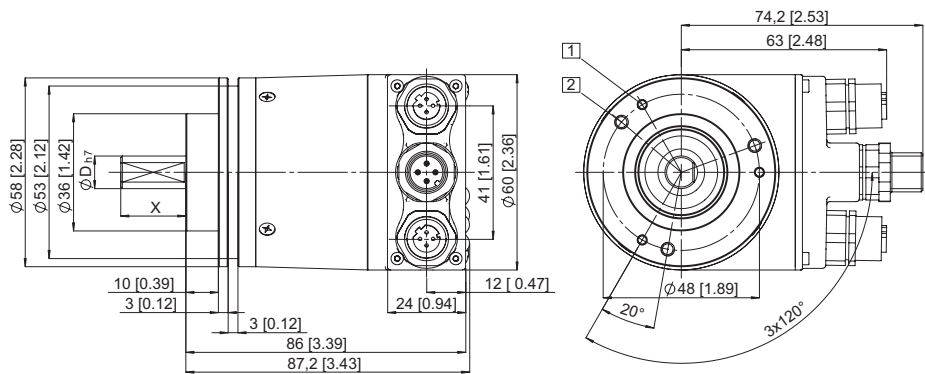
Synchro flange,  $\varnothing$  58 mm  
Flange type 2 and 4

- 1 LINK 1, yellow/green LED
- 2 LINK 2, yellow/green LED
- 3 RUN, green LED
- 4 ERR, red LED
- 5 3 x M4, 6,0 [0.24] deep

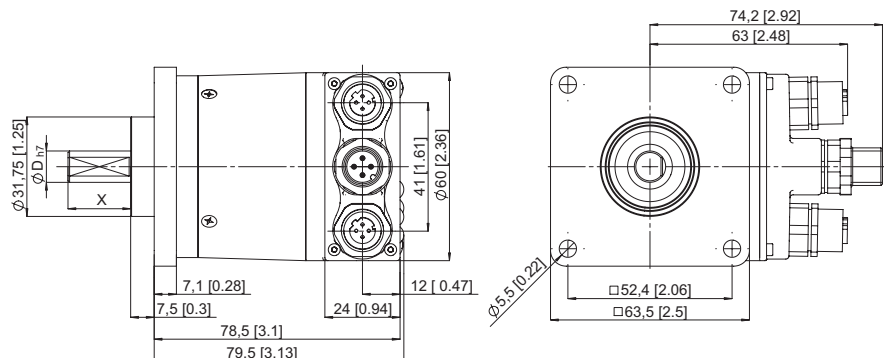


Clamping flange,  $\varnothing$  58 mm  
Flange type 1 and 3

- 1 3 x M3, 6.0 [0.24] deep
- 2 3 x M4, 8.0 [0.31] deep



Square flange,  $\square$  63.5 mm  
Flange type 5 and 7



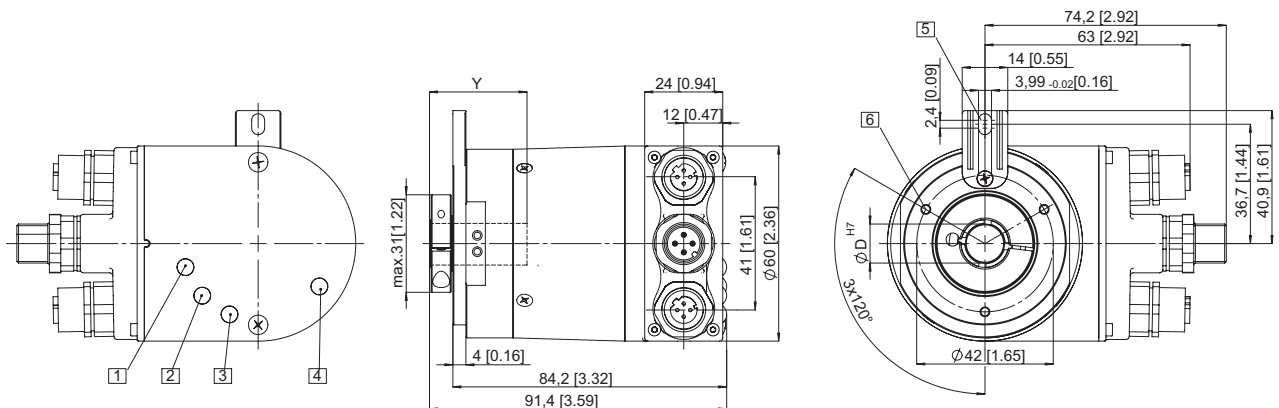
# Absolute Encoders – Multiturn

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

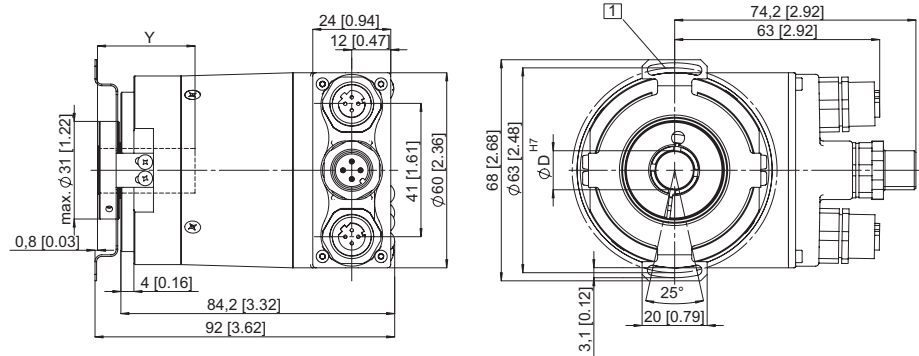
Flange with torque stop set,  $\varnothing$  58 mm  
Flange type 1 and 2

- 1 LINK 1, yellow/green LED
- 2 LINK 2, yellow/green LED
- 3 RUN, green LED
- 4 ERR, red LED
- 5 Torque stop slot,  
Recommendation: Cylindrical pin DIN7,  $\varnothing$  4 mm
- 6 3 x M3, 5,5 [0.21] deep

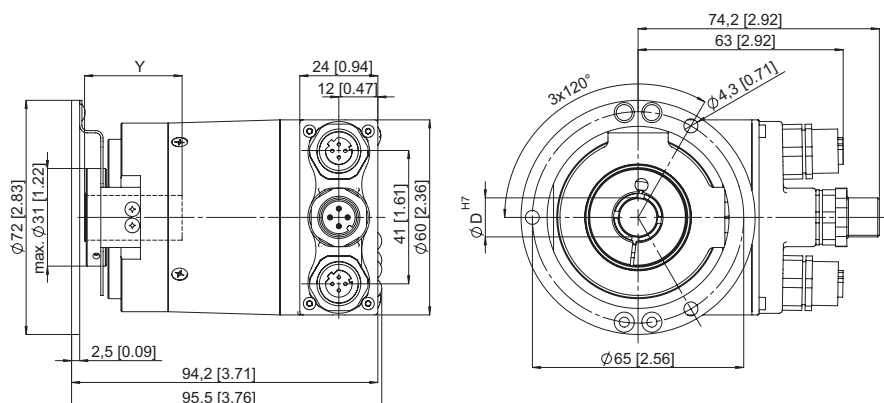


## Flange with stator coupling, $\varnothing$ 58 mm Flange type 5 and 6

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



## Flange with stator coupling, $\varnothing$ 58 mm Flange type 3 and 4



Y: Insertion depth for blind hollow shaft: 30 mm