

Absolute encoders – multiturn

Standard mechanical multiturn, optical	Sendix 5868 / 5888 (shaft / hollow shaft)	PROFINET IO
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The multiturn encoders Sendix 5868 and 5888 with PROFINET interface and optical sensor technology are ideal for use in all applications with PROFINET technology.

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

Mechanical drive	Safety-Lock™	High rotational speed	Temperature range -40°...+85°C	High protection level IP	High shaft load capacity	Shock / vibration resistant	Magnetic field proof	Reverse polarity protection	Optical sensor	Surface protection salt spray-tested optional

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

- Easy setting of a preset value using a control bit (telegram 860).
- IRT-Mode.
- Cycle time ≤ 1 ms.
- Firmware updater allows for easy expansion of characteristics without having to disassemble the encoder.

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Order code Shaft version	8.5868 Type	. X X C 2 . C 2 12 a b c d e	<p>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.</p>	
a Flange	b Shaft (ø x L), with flat	c Interface / power supply	e Fieldbus profile	
<u>1 = clamping flange, IP65 ø 58 mm [2.28"]</u> 3 = clamping flange, IP67 ø 58 mm [2.28"] <u>2 = synchro flange, IP65 ø 58 mm [2.28"]</u> 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"]	<u>1 = 6 x 10 mm [0.24 x 0.39"]¹⁾</u> <u>2 = 10 x 20 mm [0.39 x 0.79"]²⁾</u> 3 = 1/4" x 7/8" 4 = 3/8" x 7/8"	<u>C = PROFINET IO / 10 ... 30 V DC</u>	<u>C2 = PROFINET IO</u>	
		d Type of connection	Optional on request	
		<u>2 = 3 x M12 connector, 4-pin</u>	- Ex 2/22 - surface protection salt spray tested	

Order code Hollow shaft	8.5888 Type	. X X C 2 . C 2 12 a b c d e	<p>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.</p>	
a Flange	b Blind hollow shaft	c Interface / power supply	e Fieldbus profile	
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"] <u>5 = with stator coupling, IP65 ø 63 mm [2.48"]</u> 6 = with stator coupling, IP67 ø 63 mm [2.48"]	(insertion depth max. 30 mm [1.18"]) 3 = ø 10 mm [0.39"] <u>4 = ø 12 mm [0.47"]</u> 5 = ø 14 mm [0.55"] 6 = ø 15 mm [0.59"] 8 = ø 3/8" 9 = ø 1/2"	<u>C = PROFINET IO / 10 ... 30 V DC</u>	<u>C2 = PROFINET IO</u>	
		d Type of connection	Optional on request	
		<u>2 = 3 x M12 connector, 4-pin</u>	- Ex 2/22 - surface protection salt spray tested	

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			Order no.
Coupling	bellows coupling \varnothing 19 mm [0.75"] for shaft 6 mm [0.24"]		8.0000.1102.0606
	bellows coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"]		8.0000.1102.1010
Mounting accessory for hollow shaft encoders			Order no.
Cylindrical pin, long	with fixing thread		8.0010.4700.0000
for flange with spring element (flange type 1 + 2)			
Connection technology			Order no.
Cordset, pre-assembled	M12 male connector with external thread for port 1 and port 2, 4-pin 2 m [6.56"] PUR cable		05.00.6031.4411.002M
	M12 female connector with coupling nut for power supply, 4-pin 2 m [6.56"] PUR cable		05.00.6061.6211.002M
Connector, self-assembly (straight)	M12 male connector with external thread for port 1 and port 2, 4-pin		05.WACSY4S
	M12 female connector with coupling nut for power supply, 4-pin		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.

Technical data

Mechanical characteristics		
Maximum speed	IP65 up to 70°C [158°F] IP65 up to T _{max} IP67 up to 70°C [158°F] IP67 up to T _{max}	9000 min ⁻¹ , 7000 min ⁻¹ (continuous) 7000 min ⁻¹ , 4000 min ⁻¹ (continuous) 8000 min ⁻¹ , 6000 min ⁻¹ (continuous) 6000 min ⁻¹ , 3000 min ⁻¹ (continuous)
Starting torque - at 20°C [68°F]	IP65 IP67	< 0.01 Nm < 0.05 Nm
Mass moment of inertia	shaft version hollow shaft version	3.0 x 10 ⁻⁶ kgm ² 7.5 x 10 ⁻⁶ kgm ²
Load capacity of shaft	radial axial	80 N 40 N
Weight		approx. 0.54 kg [19.05 oz]
Protection acc. to EN 60529	housing side shaft side	IP67 IP65, opt. IP67
Working temperature range		-40°C ... +85°C [-40°F ... +185°F]
Material	shaft/hollow shaft flange housing	stainless steel aluminum 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

Interface characteristics PRROFINET IO		
Resolution singleturn	1 ... 65535 (16 bit), scalable default: 8192 (13 bit)	
Number of revolutions (multiturn)	max. 4096 (12 bit) scalable only via the total resolution	
Total resolution	1 ... 268.435.456 (28 bit), scalable default: 33.554.432 (25 bit)	
Code	binary	
Protocol	PROFINET IO	

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

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

Electrical characteristics	
Power supply	10 ... 30 V DC
Power consumption (no load)	max. 200 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

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General information about PROFINET IO

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 IO

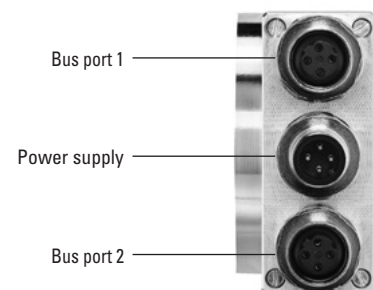
The complete encoder profile according to profile encoder version 4.1 as well as the identification & maintenance functionality version 1.16 has been implemented. IM blocks 0, 1, 2, 3 and 4 are supported.

The **M**edia **R**edundancy **P**rotocol is implemented here. Basically, the advantage of MRP is that the functionality of the components, which are wired in a ring structure, is maintained in case of a failure or of a breakage of the wires in any location.

Terminal assignment

Interface	Type of connection	Function	M12 connector, 4-pin					
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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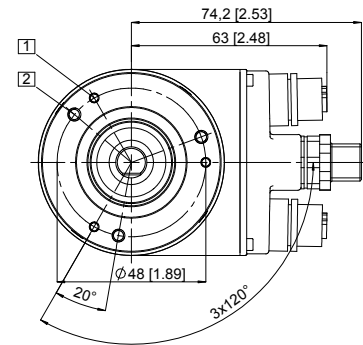
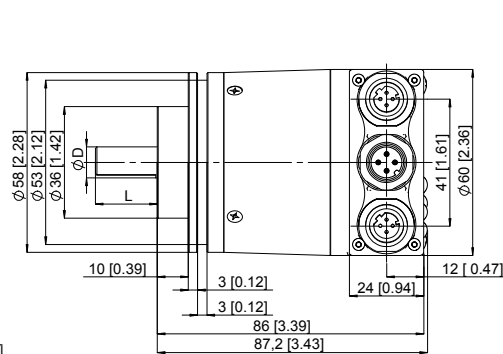
Dimensions shaft version, with removable bus terminal cover

Dimensions in mm [inch]

Clamping flange, $\varnothing 58$ [2.28]

Flange type 1 and 3

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

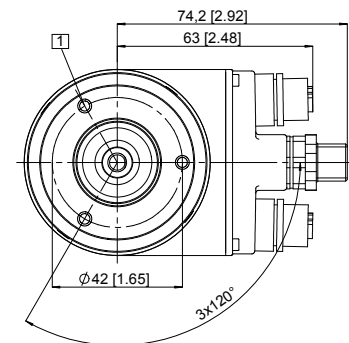
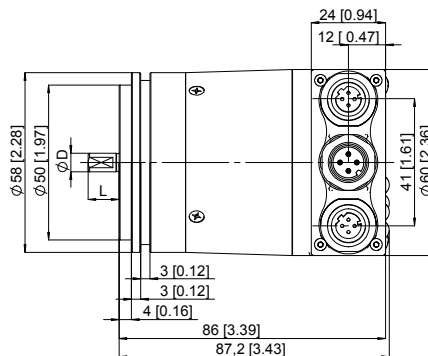


D	Fit	L
6 [0.24]	h7	10 [0.39]
10 [0.39]	f7	20 [0.79]
1/4"	h7	7/8"
3/8"	h7	7/8"

Synchro flange, $\varnothing 58$ [2.28]

Flange type 2 and 4

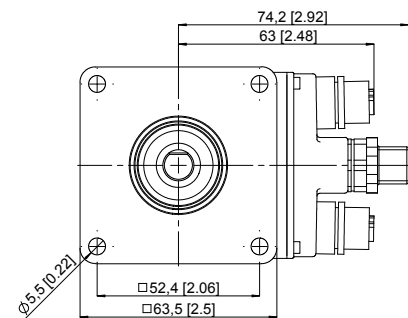
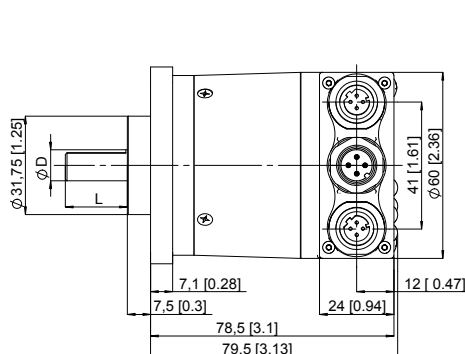
- 1 3 x M4, 6.0 [0.24] deep



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"

Square flange, $\square 63.5$ [2.5]

Flange type 5 and 7



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

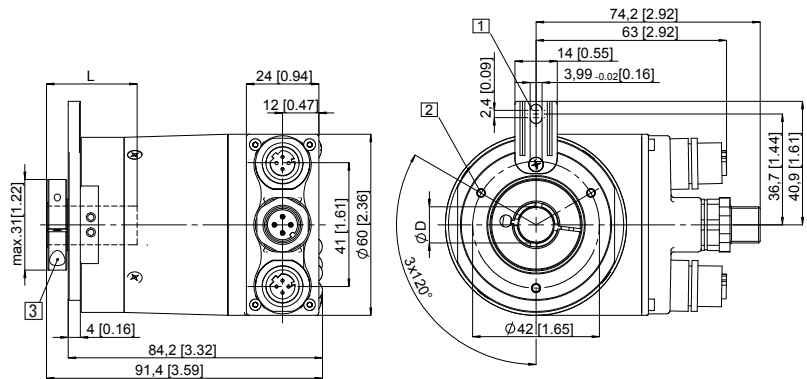
Dimensions in mm [inch]

Flange with spring element, long Flange type 1 and 2

- 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

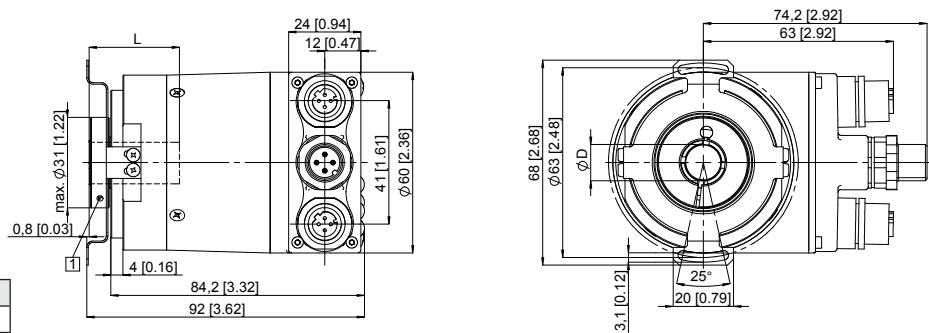


Flange with stator coupling, $\varnothing 63$ [2.48] Flange type 5 and 6

- 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

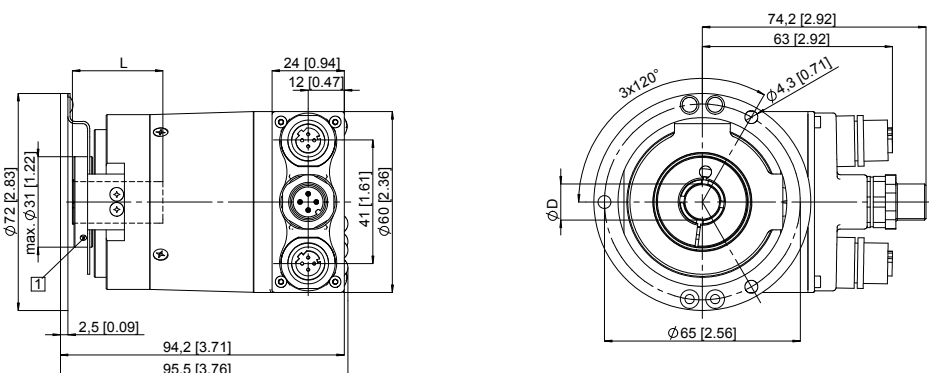


Flange with stator coupling, $\varnothing 65$ [2.56] Flange type 3 and 4

- 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



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