

Absolute encoders – singleturn

Standard optical	Sendix F5858 / F5878 (shaft / hollow shaft)	PROFINET IO
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The Sendix F58 singleturn is a particularly high resolution optical encoder without gears and with 100 percent magnetic insensitivity.

19 bits total resolution, shaft up to 10 mm, blind hollow shaft up to 15 mm and certified PROFINET functionality. A minimum cycle time of 250 µs, the PROFIdrive application profile and a web server for FW updates are supported.



Safety-Lock™



High rotational speed



Temperature range
-40... +80 °C



High protection level
IP67



High shaft load capacity



Shock / vibration resistant



Magnetic field proof



Reverse polarity protection



Optical sensor

Latest PROFINET functionality

- PROFINET IO, RT, IRT allows integration in applications with different performance requirements.
- Supports the Isochronous Mode, can thus be implemented in networks for hard real-time requirements with clock cycles up to 250 µs.
- Encoder profile V 4.2 with full support of various Profinet features.
- Ideal for highly synchronous applications, such as e. g. axis synchronization.
- Interoperability between many different control and drive manufacturers thanks to the PROFIdrive profile.

Reliable and insensitive

- Sturdy bearing construction in Safety-Lock™ Design for resistance against vibration and installation errors.
- Wide temperature range, -40 °C ... +80 °C.

Order code	8.F5858	.XXCN.	C1	2	2
Shaft version	Type	a b c d	e		

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"]
- 2 = 10 x 20 mm [0.39 x 0.79"]
- 3 = 1/4" x 7/8"
- 4 = 3/8" x 7/8"

c Interface / Power supply

C = PROFINET IO / 10 ... 30 V DC

e Fieldbus profile

C1 = PROFINET IO

d Type of connection

N = 3 x axial M12 connector, 4-pin

Optional on request

- Ex 2/22
- surface protection salt spray tested

Order code	8.F5878	.XXCN.	C1	2	2
Hollow version	Type	a b c d	e		

a Flange

- 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"]
- 9 = with torque stop, flexible, IP65
- J = with torque stop, flexible, IP67

b Blind hollow shaft

(insertion depth max. 30 mm [1.18"])

- A = ø 10 mm [0.39"]
- B = ø 12 mm [0.47"]
- C = ø 14 mm [0.55"]
- D = ø 15 mm [0.59"]
- E = ø 3/8"
- F = ø 1/2"

c Interface / Power supply

C = PROFINET IO / 10 ... 30 V DC

e Fieldbus profile

C1 = PROFINET IO

d Type of connection

N = 3 x axial M12 connector, 4-pin

Optional on request

- Ex 2/22
- surface protection salt spray tested

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Standard optical		Sendix F5858 / F5878 (shaft / hollow shaft)	PROFINET IO
Mounting accessory for shaft encoders			Order no.
Coupling	bellows coupling ø 19 mm [0.75"] for shaft 6 mm [0.24"]		8.0000.1102.0606
	bellows coupling ø 19 mm [0.75"] for shaft 10 mm [0.39"]		8.0000.1102.1010
Mounting accessory for hollow shaft encoders Dimensions in mm [inch]			Order no.
Cylindrical pin, long for flange with spring element (flange type 1)	with fixing thread		8.0010.4700.0000
Connection technology			Order no.
Cordset, pre-assembled	M12 male connector with external thread, 4-pin, D coded, straight single-ended 2 m [6.56'] PUR cable	port 1 + port 2	05.00.6031.4411.002M
	M12 male connector with external thread, 4-pin, D coded, right-angle single-ended 2 m [6.56'] PUR cable	port 1 + port 2	05.00.6031.4511.002M
	M12 female connector with coupling nut, 4-pin, A coded, straight single-ended 2 m [6.56'] PUR cable	power supply	05.00.6061.6211.002M
	M12 female connector with coupling nut, 4-pin, A coded, right-angle single-ended 2 m [6.56'] PUR cable	power supply	05.00.6061.6311.002M
Connector, self-assembly	M12 female connector with coupling nut, 4-pin, A coded, straight (plastic)		05.B8141-0
	M12 female connector with coupling nut, 5-pin, A coded, right-angle (plastic)		05.B-8251-0/9

Further Kübler accessories can be found at: kuebler.com/accessories
 Further Kübler cables and connectors can be found at: kuebler.com/connection-technology

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Technical data

Mechanical characteristics		
Max. speed		9000 min ⁻¹ (short-term – 10 min) 6000 min ⁻¹ (continuous)
Starting torque at 20 °C [68 °F]		< 0.01 Nm
Moment of inertia	shaft version hollow shaft version	3.0 x 10 ⁻⁶ kgm ² 6.0 x 10 ⁻⁶ kgm ²
Load capacity of shaft	radial axial	80 N 40 N
Weight		approx. 0.45 kg [15.87 oz]
Protection acc. to EN 60529		IP67
Working temperature range		-40 °C ... +80 °C [-40 °F ... +176 °F]
Material	shaft/hollow shaft flange housing	stainless steel aluminum aluminum
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. 250 mA
Reverse polarity protection of the power supply (+V)		yes
UL approval		file no. E224618
CE compliant acc. to		EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

Interface characteristics PROFINET IO	
Resolution	1 ... 524.288 (19 bit), scalable default: 8192 (13 bit)
Protocol	PROFINET IO
Classifications	RT Class 3 (IRT) Conformance Class C Application Class 6 Encoder Class 4 Netload Class III
Features	- I&M 0...3 - standard telegrams (81, 82, 83, 84, 86, 88) - IRT up to 250 µs - Isochronous Mode - MRP - LLDP - PDEV - SNMP - FSU

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

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

General information about PROFINET IO

The PROFINET encoder implements the Encoder Profile 4.2.

It permits scaling and preset values, as well as many other additional parameters to be programmed.

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

- Implementation of the whole encoder profile according to Encoder Profile Version 4.2.
- The product has been developed with regard to the Enhanced Motion Control requirements and complies with Conformance Class C - Encoder Class 4.
- Identification & maintenance functionality version 1.16 is implemented. IM-Block 0 is supported.
- The Media Redundancy Protocol (MRP) is implemented in addition.
- ProfiDrive meets the requirements of Application Class 6 and includes the Fault Buffer and Position Feedback Interface functionalities.
- Isochronous Real Time (IRT) with a max. jitter of max. ± 1 µs.
- Neighborhood detection is possible via LLDP.
- Shared Devices allows several PLC's to access to the encoder.
- Fast Startup ensures an up to 3x faster availability after a plant start-up.

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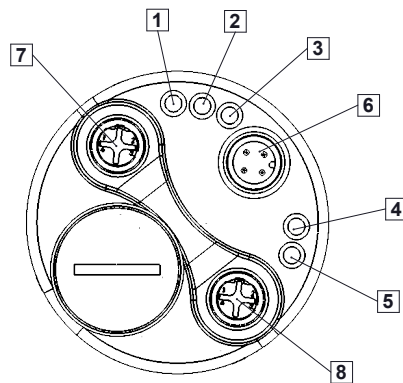
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Terminal assignment bus

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

Rear side connections and display elements

- 1 LED: Link 2
- 2 LED: Bus error
- 3 LED: Collecting error
- 4 LED: ENC
- 5 LED: Link 1
- 6 Power
- 7 Link 2
- 8 Link 1



Absolute encoders – singleturn

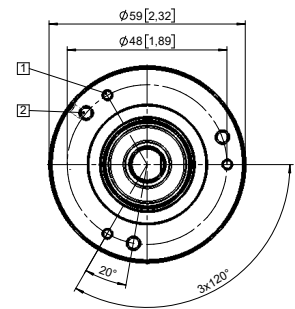
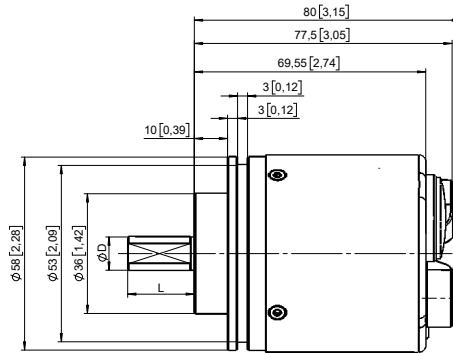
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Dimensions shaft version

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28] Flange type 1 + 3

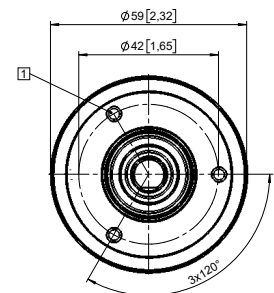
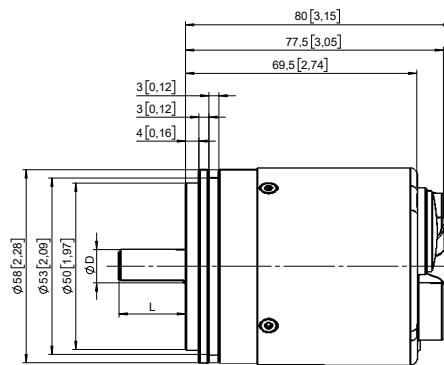
- 1 3 x M3, 6 [0.24] deep
- 2 3 x M4, 8 [0.31] deep



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"

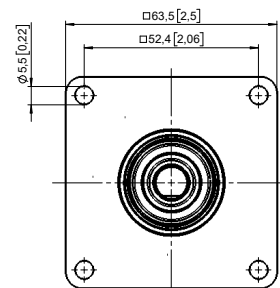
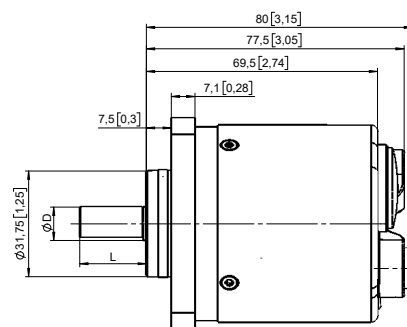
Synchro flange, ø 58 [2.28] Flange type 2 + 4

- 1 3 x M3, 6 [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, □ 63.5 [2.5] Flange type 5 + 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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Standard optical

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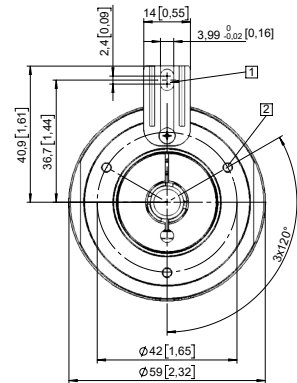
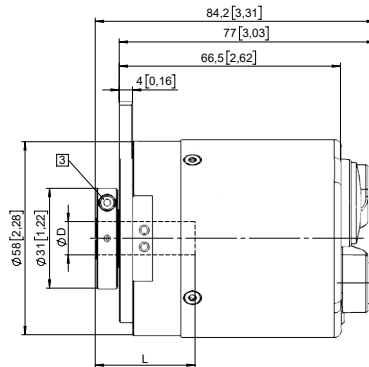
PROFINET IO

Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with spring element, long Flange type 1 + 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

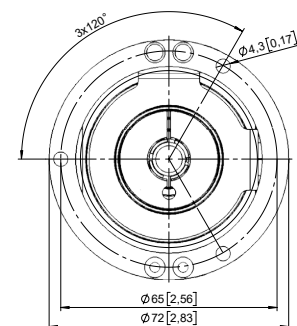
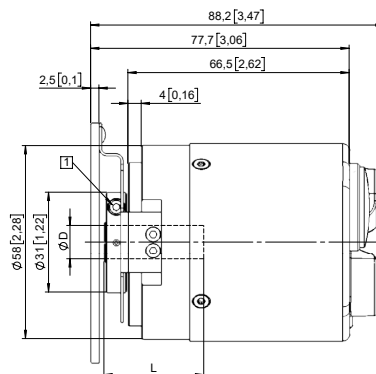


D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]

L = insertion depth max. blind hollow shaft

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

- 1 Recommended torque for the clamping ring 0.6 Nm

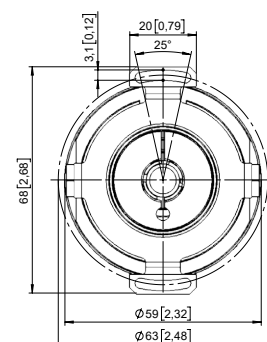
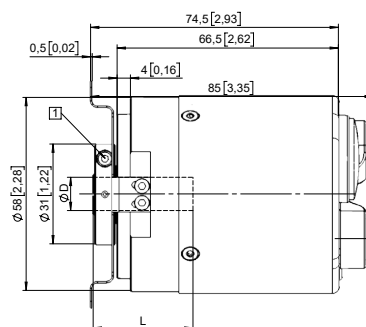


D	Fit	L
10 [0.39]	H7	30 [1.18]
12 [0.47]	H7	30 [1.18]
14 [0.55]	H7	30 [1.18]
15 [0.59]	H7	30 [1.18]
3/8"	H7	30 [1.18]
1/2"	H7	30 [1.18]

L = insertion depth max. blind hollow shaft

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

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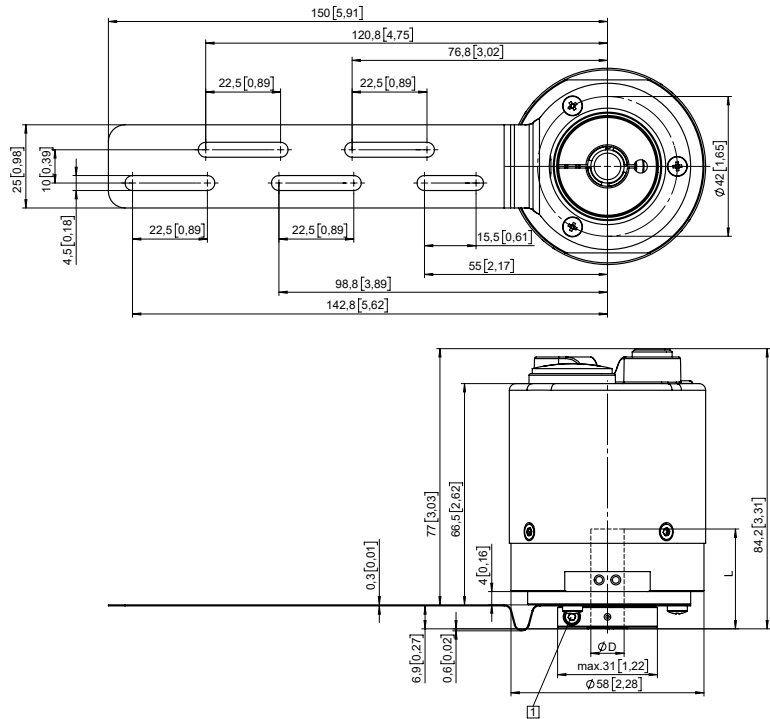
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Dimensions hollow shaft version

Dimensions in mm [inch]

Flange with torque stop, flexible Flange type 9 + J

- 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