

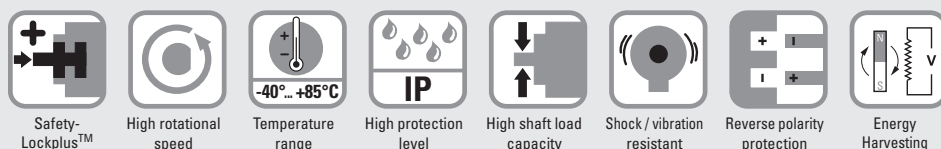
Absolute encoders – multiturn

Standard electronic multiturn, magnetic	Sendix M5863 (shaft)	SSI
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The Sendix M58 with Energy Harvesting Technology is an electronic multiturn encoder without gear and without battery – in the standard format with 58 mm flange.

High robustness and high resolution make this encoder the ideal device for use in demanding applications.



Highest robustness

- Sturdy bearing construction in Safety-Lockplus™ design for particularly high resistance.
- Extra large bearings.
- Mechanically protected shaft seal.
- Wide temperature range -40°C ... +85°C.
- Without gear and without battery, thanks to the Energy Harvesting technology.

Application oriented

- Absolute accuracy $\pm 1^\circ$.
- Repeat accuracy $\pm 0.2^\circ$.
- Short control cycles, clock frequency with SSI up to 2 MHz.
- Max. resolution 38 bit (14 bit ST + 24 bit MT).

Order code Shaft version

8.M5863
Type

a	b	c	d	e	f	g
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a Version

- 3 = clamping flange, IP65, $\varnothing$ 58 mm [2.28"]
- 4 = synchro flange, IP65, $\varnothing$ 58 mm [2.28"]

b Shaft ($\varnothing \times L$), with flat

- 1 = $\varnothing$ 6 x 12.5 mm [0.24 x 0.49"]
- 5 = $\varnothing$ 10 x 20 mm [0.39 x 0.79"]

c Interface / power supply

- 2 = SSI / 10 ... 30 V DC

d Type of connection

- 2 = radial cable, 1 m [3.28'] PUR
- B = radial cable, special length PUR *)
- 4 = radial M12 connector, 8-pin

*) Available special lengths (connection types B):
2, 3, 5, 8, 10, 15 m [5.56, 9.84, 16.40, 26.25, 32.80, 49.21']
order code expansion .XXXX = length in dm
ex.: 8.M5863.3524.G322.0030 (for cable length 3 m)

e Code

- B = SSI, binary
- G = SSI, gray

f Resolution (singleturn)

- A = 10 bit ST
- 2 = 12 bit ST
- 3 = 13 bit ST
- 4 = 14 bit ST

g Resolution (multiturn)

- 2 = 12 bit MT
- 6 = 16 bit MT
- A = 20 bit MT
- 4 = 24 bit MT

Optional on request

- Ex 2/22 (only for connection type 4)

Connection technology		Order no.
Coupling	Bellows coupling $\varnothing$ 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1102.1010
Connection technology		Order no.
Cordset, pre-assembled	M12 female connector with coupling nut, 8-pin, 2 m [6.56'] PUR cable	05.00.6051.8211.002M
Connector, self-assembly (straight)	M12 female connector with coupling nut, 8-pin	05.CMB 8181-0

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.

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Technical data

Mechanical characteristics		
Maximum speed		4000 min ⁻¹ 2000 min ⁻¹ (continuous)
Starting torque at 20°C [68°F]		< 0.01 Nm
Shaft load capacity	radial	80 N
	axial	40 N
Weight		approx. 0.2 kg [7.06 oz]
Protection acc. to EN 60529/DIN 40050-9		IP65
Working temperature range		-40°C ... +85°C [-40°F ... +185°F]
Materials	shaft	V2A
	flange	aluminum
	housing	zinc die-cast
	cable	PUR
Shock resistance acc. to EN 60068-2-27		5000 m/s ² , 4 ms
Vibration resistance acc. to EN 60068-2-6		300 m/s ² , 10 ... 2000 Hz

Electrical characteristics	
Power supply	10 ... 30 V DC
Current consumption (no load)	max. 30 mA
Reverse polarity protection of the power supply	yes
Short-circuit proof outputs	yes ¹⁾
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

SSI interface	
Output driver	RS485 transceiver type
Permissible load / channel	max. +/- 30 mA
Signal level	HIGH typ 3.8 V
	LOW with I _{Load} = 20 mA typ 1.3 V
Resolution singleturn	10 ... 14 bit
Absolute accuracy ²⁾	±1°
Repeat accuracy	±0.2°
Number of revolutions (multiturn)	max. 24 bit
Code	binary or gray
SSI clock rate	50 kHz ... 2 MHz
Data refresh rate	2 ms
Monoflop time	≤ 15 μs

Note: If the clock cycle starts within the monoflop time a second data transfer begins with the same data. If the clock cycle starts after the monoflop time the cycle begins with the new values. The update rate is dependent on the clock speed, data length and monoflop time.

SET input	
Input	active HIGH
Input type	comparator
Signal level (+V = power supply)	HIGH min. 60 % of +V, max: +V
	LOW max. 30 % of +V
Input current	< 0.5 mA
Min. pulse duration (SET)	10 ms
Input delay	1 ms
New position data readable after	1 ms
Internal processing time	200 ms

The encoder can be set to zero at any position by means of a HIGH signal on the SET input. Other preset values can be factory-programmed. The SET input has a signal processing time of approx. 1 ms, after which the new position data can be read via SSI or BiSS. Once the SET function has been triggered, the encoder requires an internal processing time of typ. 200 ms; during this time the power supply must not be switched off. The SET function should be carried out whilst the encoder is at rest.

The number of preset value writing cycles is limited to 10,000.

If this input is not used, it should be connected to 0 V (Encoder ground GND) in order to avoid interferences.

DIR input	
Direction input: A HIGH signal switches the direction of rotation from the default cw to ccw. This inverted function can also be factory-programmed.	
If this input is not used, it should be connected to 0 V (Encoder ground GND) in order to avoid interferences.	
Response time (DIR input)	1 ms

Power-ON	
After Power-ON the device requires a time of approx. 150 ms before valid data can be read.	
Hot plugging of the encoder should be avoided.	

1) Short circuit proof to 0 V or to output when power supply correctly applied.

2) Over the whole temperature range.

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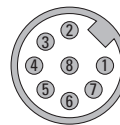
Terminal assignment

Interface	Type of connection	Features	Cable (isolate unused wires individually before initial start-up)									
2	2, B	SET, DIR	Signal:	0 V	+V	C+	C-	D+	D-	SET	DIR	⊥
			Cable color:	WH	BN	GN	YE	GY	PK	BU	RD	shield

Interface	Type of connection	Features	M12 connector, 8-pin									
2	4	SET, DIR	Signal:	0 V	+V	C+	C-	D+	D-	SET	DIR	⊥
			Pin:	1	2	3	4	5	6	7	8	PH

+V: Encoder power supply +V DC
 0 V: Encoder power supply ground GND (0 V)
 C+, C-: Clock signal
 D+, D-: Data signal
 SET: Set input
 DIR: Direction input
 PH ⊥: Plug connector housing (shield)

Top view of mating side, male contact base



M12 connector, 8-pin

Dimensions

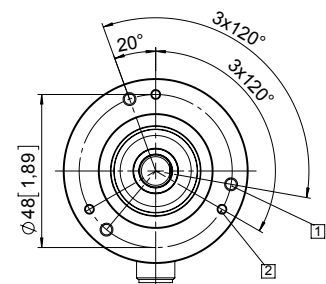
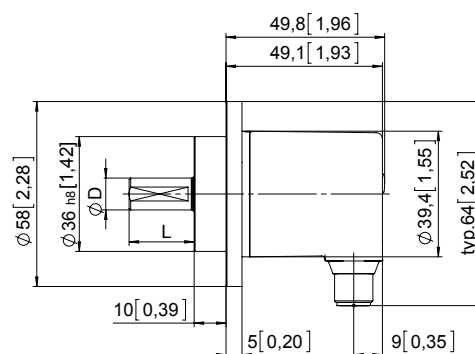
Dimensions in mm [inch]

Clamping flange, ø 58 [2.28]

Flange type 3

- 1 3 x M4, 10 [0.39] deep
- 2 3 x M3, 6 [0.24] deep

D	Fit	L
6 [0.24]	h7	12.5 [0.49]
10 [0.39]	f7	20 [0.79]



Synchro flange, ø 58 [2.28]

Flange type 4

- 1 3 x M4, 10 [0.39] deep

D	Fit	L
6 [0.24]	h7	12.5 [0.49]
10 [0.39]	f7	20 [0.79]

