

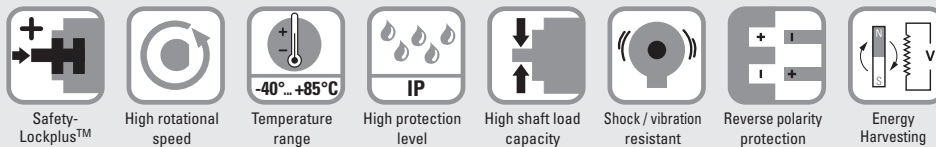
Absolute encoders – multiturn

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	8.M5863	.XX2X.XXX2
Shaft version	Type	a b c d e f g
a Version	3 = clamping flange, IP65, \varnothing 58 mm [2.28"] 4 = synchro flange, IP65, \varnothing 58 mm [2.28"]	d Type of connection 2 = radial cable, 1 m [3.28'] PUR B = radial cable, special length PUR *) 4 = radial M12 connector, 8-pin
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"]	e Code B = SSI, binary G = SSI, gray
c Interface / supply voltage	2 = SSI / 10 ... 30 V DC	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
		<i>Optional on request</i> - Ex 2/22 (only for connection type 4)

Mounting accessory for shaft encoders		Order no.
Coupling	Bellows coupling \varnothing 19 mm [0.75"] for shaft 10 mm [0.39"]	8.0000.1102.1010
Cables and connectors		Order no.
Preassembled cables	M12 female connector with coupling nut, 8-pin, A coded, straight single ended 2 m [6.56'] PUR cable	05.00.6051.8211.002M
Connectors	M12 female connector with coupling nut, 8-pin, A coded, straight (metal)	05.CMB 8181-0

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	
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	
Supply voltage	10 ... 30 V DC
Current consumption (no load)	max. 30 mA
Reverse polarity protection of the supply voltage	yes
Short-circuit proof outputs	yes ¹⁾
UL approval	File no. E224618
CE compliant acc. to	EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

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.	

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	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. Once the SET function has been triggered, the encoder requires an internal processing time of typ. 200 ms; during this time the supply voltage 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.	

1) Short circuit proof to 0 V or to output when supply voltage correctly applied.
2) Over the whole temperature range.

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Terminal assignment

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

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

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder 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

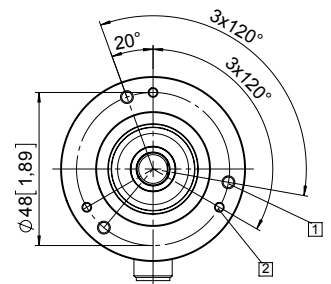
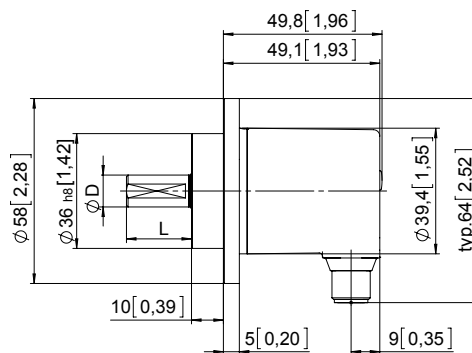
Dimensions

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28] Flange type 3

- 1 3 x M4
- 2 3 x M3

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]

