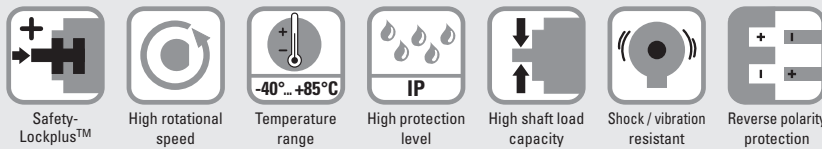


Absolute encoders – singleturn

Standard magnetic	Sendix M5851A (shaft)	Analog
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The Sendix M5851A is a magnetic singleturn encoder in compact design. 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.

Application oriented

- Current output 4 ... 20 mA.
- Voltage output 0 ... 10 V or 0 ... 5 V.
- Different measuring ranges.
- Set input for easy start-up.

Order code	8.M5851A.XXXXX.XXX2
Shaft version	Type

<p>a Version</p> <p>3 = clamping flange, IP65, ø 58 mm [2.28"]</p> <p>4 = synchro flange, IP65, ø 58 mm [2.28"]</p>	<p>d Type of connection</p> <p>2 = radial cable, 1 m [3.28'] PVC</p> <p>B = radial cable, special length PVC *)</p> <p>4 = radial M12 connector, 5-pin</p> <p>*) 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.M5851A.313B.3112.0030 (for cable length 3 m)</p>	<p>f Measuring range</p> <p>1 = 1 x 360°</p> <p>2 = 1 x 180°</p> <p>3 = 1 x 90°</p> <p>4 = 1 x 45°</p>
<p>b Shaft (ø x L), with flat</p> <p>1 = ø 6 x 12.5 mm [0.24 x 0.49"]</p> <p>5 = ø 10 x 20 mm [0.39 x 0.79"]</p>	<p>e Interface / resolution / supply voltage</p> <p>3 = 4 ... 20 mA / 12 bit / 10 ... 30 V DC</p> <p>4 = 0 ... 10 V / 12 bit / 15 ... 30 V DC</p> <p>5 = 0 ... 5 V / 11 bit / 10 ... 30 V DC</p>	<p>g Counting direction</p> <p>1 = cw</p> <p>2 = ccw</p> <p><i>Optional on request</i></p> <p>- Ex 2/22 (only for connection type 4)</p>
<p>c Output circuit¹⁾</p> <p>3 = current output</p> <p>4 = voltage output</p>		

Mounting accessory for shaft encoders		Order no.
Coupling	Bellows coupling ø 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, 5-pin, A coded, straight single ended 2 m [6.56'] PVC cable	05.00.6081.2211.002M
Connector	M12 female connector with coupling nut, 5-pin, A coded, straight (metal)	8.0000.5116.0000

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

1) Output circuit "3" only in conjunction with interface "3",
 output circuit "4" only in conjunction with interface "4" or "5".

Absolute encoders – singleturn

Standard magnetic	Sendix M5851A (shaft)	Analog
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Technical data

Electrical characteristics current interface 4 ... 20 mA	
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⁾
Measuring range	45°, 90°, 180° or 360°
DA converter resolution	12 bit
Angular measurement deviation ²⁾	±0,5°
Temperature coefficient	< 100 ppm/K
Repeat accuracy, at 25°C [77°F]	±0.2°
Output load	at 10 V DC max. 200 Ohm at 24 V DC max. 900 Ohm at 30 V DC max. 1200 Ohm
Setting time	< 1 ms, R _{Burden} = 900 Ohm, 25°C [77°F]
LEDs (green/red)	- system status - current loop interruption – input load too high - reference point display (only with factory settings) at cw: betw. 0° and 1° at ccw: betw. 0° and -1°
SET input	level = +V for 1 s minimum
PowerON Time	< 1 s
Update rate	1 ms

Electrical characteristics voltage interface 0 ... 10 V / 0 ... 5 V	
Supply voltage	output 0 ... 5 V 10 ... 30 V DC output 0 ... 10 V 15 ... 30 V DC
Current consumption (no load)	max. 30 mA
Reverse polarity protection of the supply voltage	yes
Short-circuit proof outputs	yes ¹⁾
Measuring range	45°, 90°, 180° or 360°
DA converter resolution	0 ... 10 V 12 bit 0 ... 5 V 11 bit
Angular measurement deviation ²⁾	±0,5°
Temperature coefficient	< 100 ppm/K
Repeat accuracy, at 25°C [77°F]	±0.2°
Current output	max. 10 mA
Setting time	< 1 ms, R _{Load} = 1000 Ohm, 25°C [77°F]
LEDs (green/red)	- system status - reference point display (only with factory settings) at cw: betw. 0° and 1° at ccw: betw. 0° and -1°
SET input	level = +V for 1 s minimum
PowerON Time	< 1 s
Update rate	1 ms

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. 280 g [9.88 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 PVC
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

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. 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.

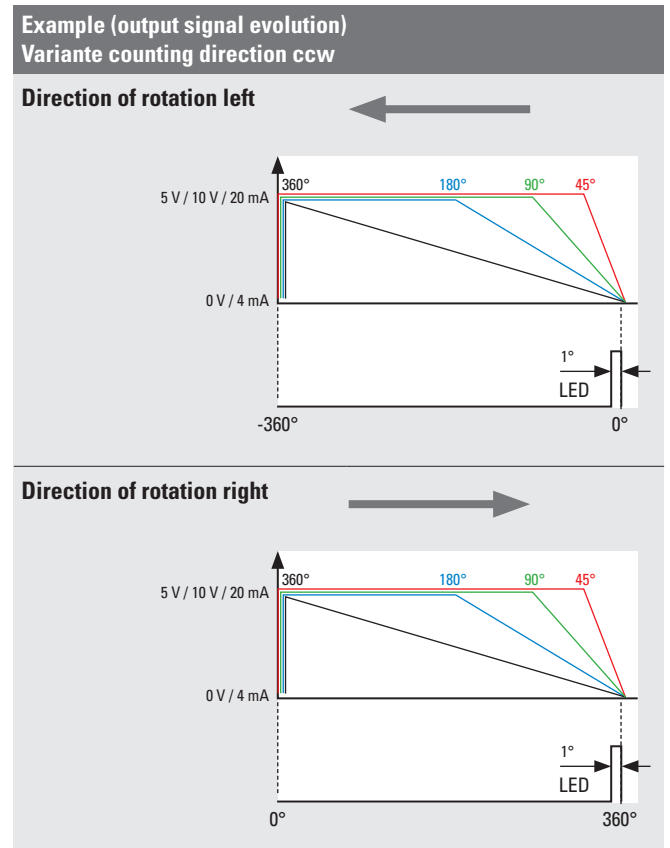
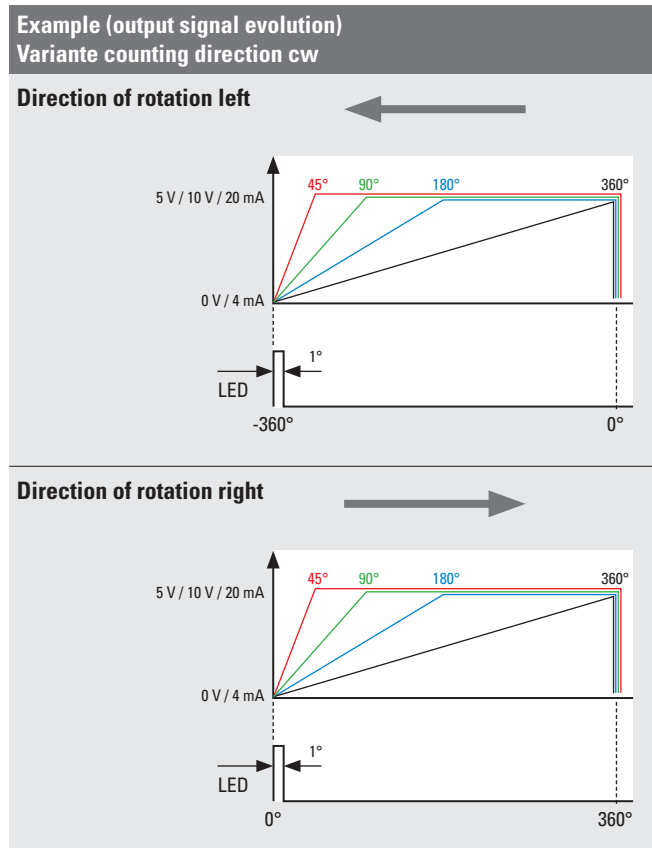
Approvals	
E1 compliant in accordance with	ECE guideline
UL compliant in accordance with	File no. E224618
CE compliant in accordance with	EMC Directive 2014/30/EU RoHS Directive 2011/65/EU ATEX Directive 2014/34/EU (for Ex 2/22 variants)
UKCA compliant in accordance with	EMC Regulations S.I. 2016/1091 RoHS Regulations S.I. 2012/3032 UKEX Regulations S.I. 2016/1107 (for Ex 2/22 variants)

1) When the supply voltage is correctly applied.
But not output to +V. Supply voltage and sensor output signal are not galvanically isolated.

2) Over the whole temperature range.

Absolute encoders – singleturn

Standard magnetic	Sendix M5851A (shaft)	Analog
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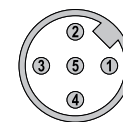


Terminal assignment

Interface	Type of connection	Cable (isolate unused cores individually before initial start-up)					
3 (current)	2, B	Signal:	0 V	+V	+I	SET	-
		Core color:	WH	BN	GN	GY	PK
Interface	Type of connection	M12 connector, 5 pin					
3 (current)	4	Signal:	0 V	+V	+I	SET	-
		Pin:	3	2	1	5	4
Interface	Type of connection	Cable (isolate unused cores individually before initial start-up)					
4, 5 (voltage)	2, B	Signal:	0 V	+V	+U	SET	-
		Core color:	WH	BN	GN	GY	PK
Interface	Type of connection	M12 connector, 5 pin					
4, 5 (voltage)	4	Signal:	0 V	+V	+U	SET	-
		Pin:	3	2	1	5	4

- +V: Supply voltage encoder +V DC
- 0 V: Supply voltage encoder ground GND (0 V)
- +U: Voltage
- +I: Current
- SET: Set input

Top view of mating side, male contact base



M12 connector, 5-pin

Absolute encoders – singleturn

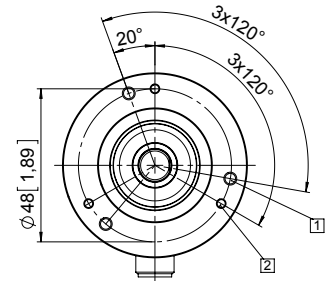
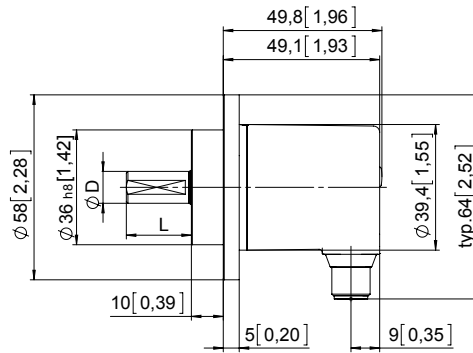
Standard magnetic	Sendix M5851A (shaft)	Analog
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Dimensions

Dimensions in mm [inch]

Clamping flange, ø 58 [2.28] Flange type 3

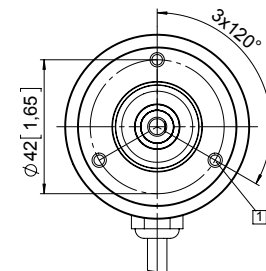
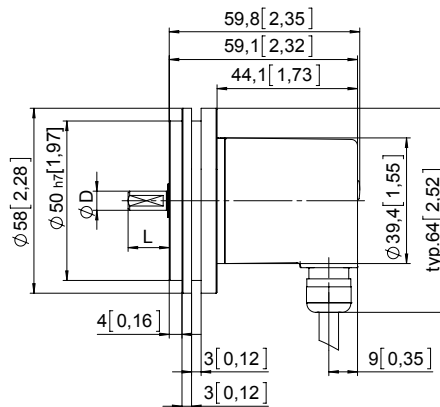
- 1 3 x M4
- 2 3 x M3



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