

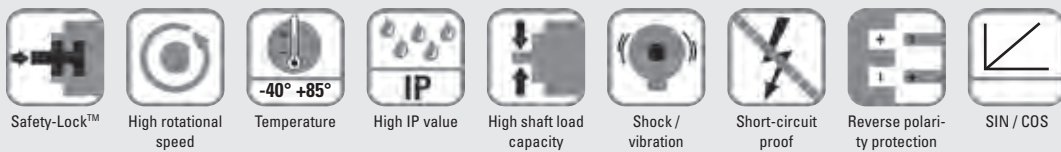
# Rotary Measuring Technology

**Absolute Singleturn Encoders**    **Sendix absolut**    **Typ 3651/ 3671 (Shaft / Hollow shaft)**    **analogue**



Thanks to their different interfaces and measurement ranges, the Sendix 3651 and Sendix 3671 singleturn encoders, in shaft and hollow shaft versions, are particularly flexible in use. A green and a red LED, acting as reference point and fault indicators, ensure easy installation and troubleshooting.

Protected up to IP 69K, shock-tested and resistant against extreme temperature variations, the Sendix are suitable even for the most demanding outdoor uses.



### Safe operation

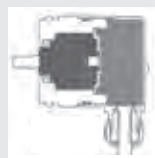
- Contactless measuring system for long-life non-wear applications
- Rugged die cast housing and IP protection up to 69K for an exceptional tightness
- High shock and vibration resistance for an exceptional robustness

### Compact and effective

- Outside diameter of only 36 mm
- The shaft version can be mounted on a very small radius, with a diameter of only 26 mm.
- The hollow shaft version is fitted with a blind hole with a diameter of up to 10 mm. It can be mounted according to the needs, with a torque stop pin or a stator coupling.

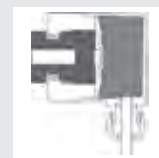
### Safety-Lockplus™

IP69k protection on the flange side, robust bearing assemblies with interlocking bearings, mechanically protected shaft seal



### Sensor-Protect™

Fully encapsulated electronics, separate mechanical bearing assembly



### Order code Shaft version

8.3651 . XXXX . XXXX

- |  |   |   |   |   |
|--|---|---|---|---|
| <p><b>1 Flange</b><br/><u>2 = Synchro flange</u></p> <p><b>2 Shaft (ø x L)</b><br/><u>3 = ø 6 x 12,5 mm</u><br/><u>5 = ø 6,35 x 12,5 mm</u><br/><u>6 = ø 8 x 12,5 mm</u></p> | <p><b>3 Output circuit / Power supply</b><br/><u>3 = Current output, 18 ... 30 V DC</u><br/><u>4 = Voltage output, 18 ... 30 V</u></p> <p><b>4 Type of connection</b><br/><u>2 = Cabel radial (1 m PUR)</u><br/><u>4 = M12 connector radial</u></p> | <p><b>5 Measurement range</b><br/><u>1 = 1 x 360°</u><br/><u>2 = 1 x 180°</u><br/><u>3 = 1 x 90°</u><br/><u>4 = 1 x 45°</u></p> <p><b>6 Output</b><br/><u>3 = 4 ... 20 mA</u><br/><u>4 = 0 ... 10 V</u></p> | <p><b>7 Option 1</b><br/><u>1 = Count direction cw*</u><br/><u>2 = Count direction ccw*</u></p> <p><b>8 Option 2</b><br/><u>1 = IP67</u><br/><u>2 = IP69K</u></p> | <p><u>Preferred types are underlined</u></p> <p><b>Corresponding mating connector:</b><br/>05.B-8151-0/9</p> <p>Seawater resistant version on request</p> |
|--|---|---|---|---|

### Order code Hollow shaft

8.3671 . XXXX . XXXX

- |   |   |   |   |   |
|---|---|---|---|---|
| <p><b>1 Flange</b><br/><u>2 = with torque stop</u><br/><u>5 = with stator coupling</u></p> <p><b>2 Hollow shaft</b><br/><u>2 = ø 6 mm</u><br/><u>3 = ø 6,35 (1/4")</u><br/><u>4 = ø 8 mm</u><br/><u>6 = ø 10 mm</u></p> | <p><b>3 Output circuit / Power supply</b><br/><u>3 = Current output, 18 ... 30 V DC</u><br/><u>4 = Voltage output, 18 ... 30 V</u></p> <p><b>4 Type of connection</b><br/><u>2 = Cabel radial (1 m PUR)</u><br/><u>4 = M12 connector radial</u></p> | <p><b>5 Measurement range</b><br/><u>1 = 1 x 360°</u><br/><u>2 = 1 x 180°</u><br/><u>3 = 1 x 90°</u><br/><u>4 = 1 x 45°</u></p> <p><b>6 Output</b><br/><u>3 = 4 ... 20 mA</u><br/><u>4 = 0 ... 10 V</u></p> | <p><b>7 Option 1</b><br/><u>1 = Count direction cw*</u><br/><u>2 = Count direction ccw*</u></p> <p><b>8 Option 2</b><br/><u>1 = IP67</u><br/><u>2 = IP69K</u></p> | <p><u>Preferred types are underlined</u></p> <p><b>Corresponding mating connector:</b><br/>05.B-8151-0/9</p> <p>Seawater resistant version on request</p> |
|---|---|---|---|---|

\* cw = increasing code values when shaft turning clockwise (cw).  
Top view on shaft.

**Suitable accessories:**  
– further cables and connectors, also pre-assembled, can be found in the Connection Technology section.  
– further mounting attachments and stator couplings can be found in the Accessories section.

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Mechanical characteristics:	
<b>Maximum speed</b>	6000 min <sup>-1</sup>
<b>Starting torque</b>	< 0,06 Nm
<b>Shaft load capacity</b>	radial 40 N axial 20 N
<b>Weight</b>	ca. 0.2 kg
<b>Protection to EN 60 529/DIN 40050-9</b>	IP 67 / IP 69k
<b>EX approval for hazardous areas</b>	optional Zone 2 and 22
<b>Working temperature range</b>	-40 °C ... +85 °C
<b>Materials</b>	Shaft/Hollow shaft stainless steel Flange Aluminium Housing Zinc die-cast Cable PUR
<b>Shock resistance</b> acc. to DIN-IEC 68-2-27	5000 m/s <sup>2</sup> , 6 ms
<b>Vibration resistance</b> acc. to DIN-IEC 68-2-6	300 m/s <sup>2</sup> , 10 ... 2000 Hz
<b>Permanent shock resistance</b> to DIN-IEC 68-2-29	1000 m/s <sup>2</sup> , 2 ms
<b>Vibration (broad-band random)</b> to DIN-IEC 68-2-64	5 ... 2500 Hz, 100 m/s <sup>2</sup> - rms

## Electrical characteristics current interface 4 ... 20 mA

Sensor	
<b>Supply voltage</b>	18 ... 30 V DC
<b>Current consumption</b> (w/o output load)	typ. 32 mA, max. 38 mA
<b>Reverse polarity protection at power supply (Ub)</b>	yes
<b>Measuring range</b>	45°, 90°, 180° or 360°
<b>Resolution</b>	12 Bit
<b>Linearity</b>	< 1° (360 ° measurement range)
<b>Repeat accuracy</b> (25 °C)	< 0,1° (360 ° measurement range)
<b>Status LED</b>	Red sensor break detection, monitoring of power supply  Green reference point is lightening at cw: betw. 0° and 1° at ccw: betw. 0° and -1°

### Current loop

<b>Output load</b>	max. 900 Ohm at 24 V DC
<b>Setting time:</b>	< 1 ms (R <sub>load</sub> = 400 Ohm, 25°C)
<b>Short-circuit proof outputs</b>	
When the supply voltage is correctly applied, then output to output is short-circuit protected. But not output to 0 V or to +Ub. Supply voltage and sensor output signal are not galvanically isolated.	

General characteristics
RoHS compliant acc. to EU guideline 2002/95/EG
Conforms to CE requirements acc. to EN 61000-6-2, EN 61000-6-4, EN 61000-6-3 and EN 61000-4-8 (behaviour under magnetic influence).

## Electrical characteristics voltage interface 0 ... 10 V

Sensor	
<b>Supply voltage</b>	18 ... 30 V DC
<b>Current consumption</b> (w/o output load)	typ. 29 mA, max. 35 mA
<b>Reverse polarity protection at power supply (Ub)</b>	yes
<b>Measuring range</b>	45°, 90°, 180° or 360°
<b>Resolution</b>	12 Bit
<b>Linearity</b>	< 1° (360 ° measurement range)
<b>Repeat accuracy</b> (25 °C)	< 0,1° (360 ° measurement range)

### 0 ... 10 V Voltage output

<b>Current output</b>	max. 10 mA
<b>Setting time</b>	< 1 ms (R <sub>last</sub> ≥ 1 KOhm, 25°C)
<b>Short-circuit proof outputs</b>	
When the supply voltage is correctly applied, then output to output is short-circuit protected. But not output to 0 V or to +Ub. Supply voltage and sensor output signal are not galvanically isolated.	
<b>Status LED</b>	Green reference point is lightening at cw: betw. 0° and 1° at ccw: betw. 0° and -1°

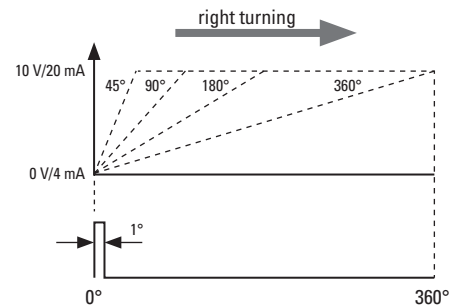
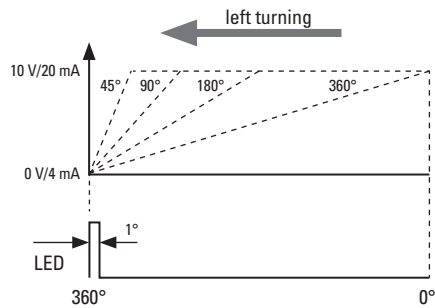
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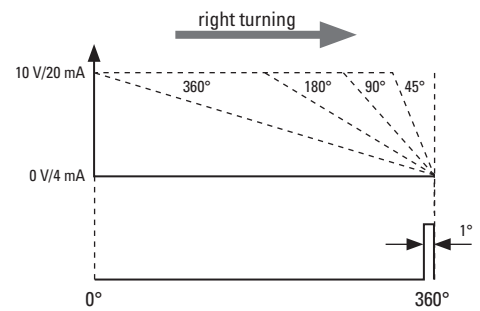
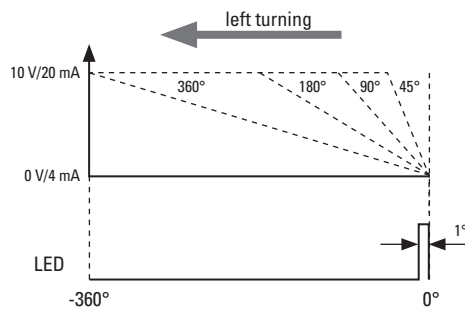
### Example (output signal profile)

Measurement range 45° / 90° / 180° / 360°

**Version cw**

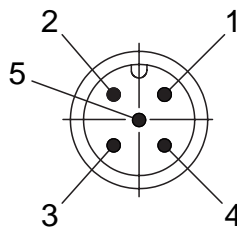


**Version cww**



### Terminal assignment

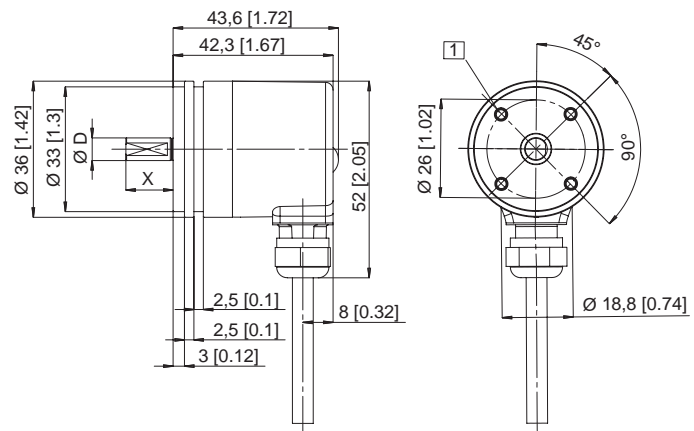
Sig.:	0V	+Ub	+I	-I
Col.:	WH	BN	GN	YE
M12/Pin:	3	2	4	5



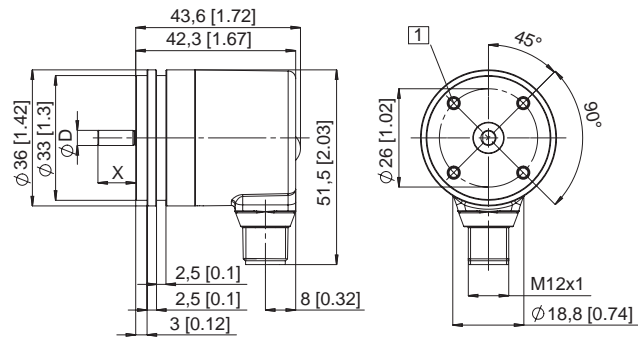
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**Dimensions shaft version:**  
**Synchro flange,  $\varnothing$  36 mm**

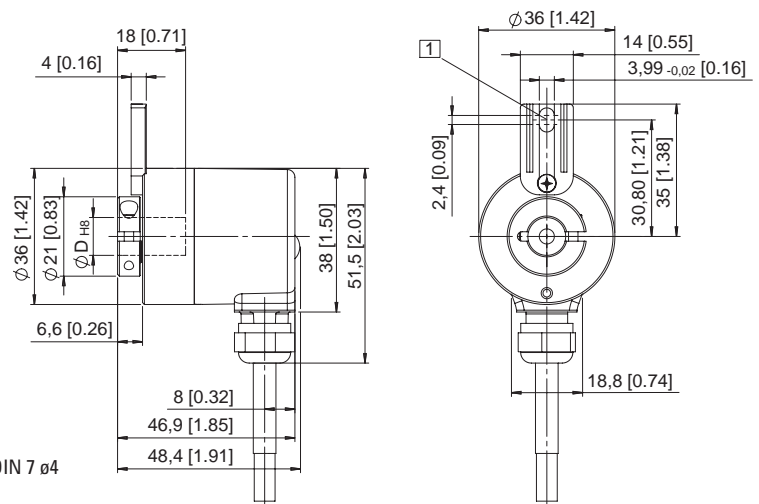


1 M3, 6 [0,24] deep



1 M3, 6 [0,24] deep

**Dimensions hollow shaft version:**  
**Flange with long torque stop,  $\varnothing$  36 mm**



1 Torque stop slot,  
 Recommendation: cyl. pin. acc. DIN 7  $\varnothing$ 4

**With stator coupling,  $\varnothing$  36 mm**

