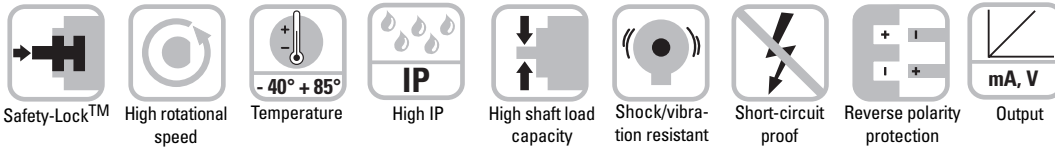


### Sendix absolut, Singleturn Encoder Type 3651 (Shaft) / 3671 (Hollow shaft), analogue



#### Rugged

- Ensures long service life and reliability of the application, no wear  
Non-contact measuring system

- Stays sealed even when subjected to harsh everyday use. Offers security against failures in the field  
Solid die-cast housing with up to IP 69K protection

- Can be used for a wide temperature range without additional expense.

Wide temperature range (-40 °C ... +85 °C)

- Increased ability to withstand vibration and installation errors. Eliminates machine downtime and repairs.  
High shock resistance (> 500g) and vibration resistance (>30g)

- Can be used in outdoor applications with large fluctuations in temperature.  
Resistant against humidity and condensation.



Sendix<sup>®</sup> absolut

#### Compact

- Can be used where space is tight  
Overall diameter of only 36 mm

- **Shaft version:** can be mounted on a tight radius  
Fixing holes on D26 mm

- **Hollow shaft version:** compact encoder, ideal for large shafts  
Blind hollow shaft up to 10 mm

#### Versatile

- **Interface:** 4 ... 20 mA, 0 ... 10 V  
One size available for different applications

- **Measuring range:** 45°; 90°; 180°; 360°:  
Suitable measuring range available for different applications

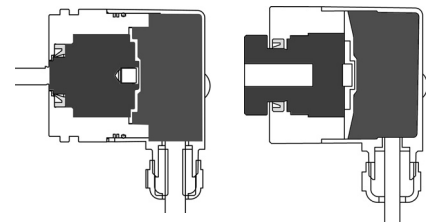
- **Easy diagnosis in case of fault condition**  
Error indication via red LED (only current output)

- **Hollow shaft version:** can be fixed individually  
Torque stop and stator coupling available

#### Mechanical characteristics:

Max. speed:	6000 min <sup>-1</sup>
Starting torque	< 0,06 Nm
Radial load capacity of shaft:	40 N
Axial load capacity of shaft:	20 N
Weight:	approx. 0,2 kg
Protection acc. to EN 60 529/ DIN 40050-9:	IP 67 / IP69k
EX approval for hazardous areas:	optional zone 2 and 22
Working temperature range:	-40 °C ... +85 °C
Materials:	Shaft: stainless steel, Flange: aluminium, Housing: die cast zinc, Cable: PUR
Shock resistance acc. to DIN-IEC 68-2-27:	5000 m/s <sup>2</sup> , 6 ms
Vibration resistance acc. to DIN-IEC 68-2-6:	300 m/s <sup>2</sup> , 10 ... 2000 Hz
Permanent shock resistance acc. to DIN-IEC 68-2-29	1000 m/s <sup>2</sup> , 2 ms
Vibration (broad-band random) to DIN-IEC 68-2-64	5 ... 2500 Hz, 100 m/s <sup>2</sup> - rms

All-round protection thanks to Safety-Lock<sup>plus</sup><sup>™</sup> and Sensor-Protect<sup>™</sup> technology



#### Safety-Lock<sup>plus</sup><sup>™</sup>:

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

#### Sensor-Protect<sup>™</sup>

Fully encapsulated electronics, separate mechanical bearing assembly

### Sendix absolut, Singleturn Encoder Type 3651 (Shaft) / 3671 (Hollow shaft), analogue

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

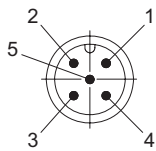
<b>Sensor:</b>	
Supply voltage:	18 ... 30 V DC
Current consumption (w/o output load):	typ 32 mA, max. 38 mA
Reverse polarity protection at power supply (U <sub>b</sub> ):	Yes
Measuring range:	45°, 90°, 180° or 360°
Resolution:	12 Bit
Linearity (25 °C)	< 1° (360 ° measurement range)
Repeat accuracy:	< 0.1° (360 ° measurement range)
Status LED:	Red: sensor break detection , Monitoring of power supply

#### 4 ... 20 mA current loop

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

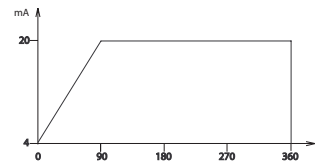
#### Terminal assignment:

<b>Sig.:</b>	0V	+U <sub>b</sub>	+I	-I
<b>Col.:</b>	WH	BN	GN	YE
<b>M12/Pin:</b>	3	2	4	5

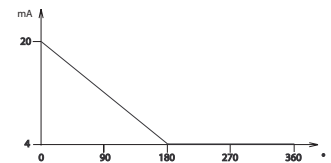


#### Example (output signal profile):

for range 90° cw



for range 180° ccw



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

<b>Sensor:</b>	
Supply voltage:	18 ... 30 V DC
Current consumption: (w/o output load):	typ 29 mA, max. 35 mA
Reverse polarity protection at power supply (U <sub>b</sub> ):	Yes
Measuring range:	45°, 90°, 180° or 360°
Resolution:	12 Bit
Linearity(25 °C)	< 1° (360 ° measurement range)
Repeat accuracy:	< 0.1° (360 ° measurement range)

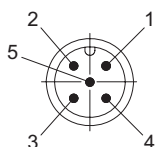
#### 0 ... 10 V voltage output

Current output:	max. 10 mA
Setting time:	< 1 ms (R <sub>last</sub> ≥ 1 KOhm, 25 °C)
Short-circuit proof outputs:	Yes <sup>2)</sup>
Supply voltage and sensor output signal are not galvanically isolated.	

<sup>2)</sup>Short-circuit proof outputs: when the supply voltage is correctly applied, then output to output is short-circuit protected. But not output to 0 V or to +U<sub>b</sub>

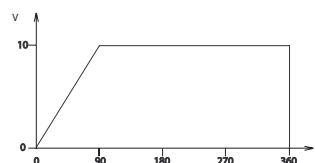
#### Terminal assignment:

<b>Sig.:</b>	0V	+U <sub>b</sub>	+U <sub>o</sub>	-U <sub>o</sub>
<b>Col.:</b>	WH	BN	GN	YE
<b>M12/Pin:</b>	3	2	4	5

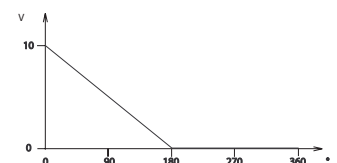


#### Example (output signal profile):

for range 90° cw



for range 180° ccw



#### General characteristics:

Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4, EN 61000-6-3 and EN 61000-4-8 (behaviour under magnetic influence).  
RoHS compliant acc. to EU guideline 2002/95/EG

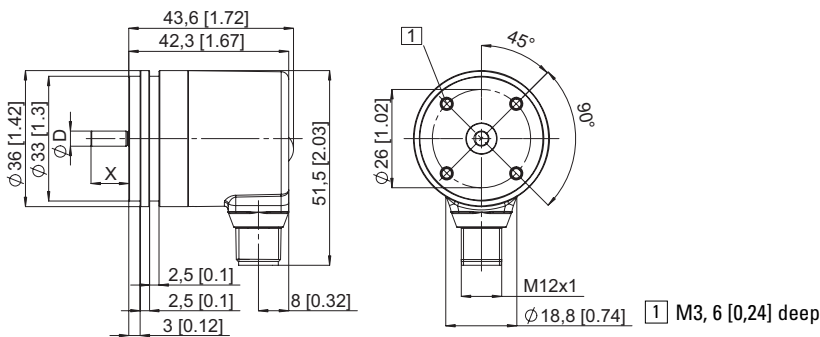
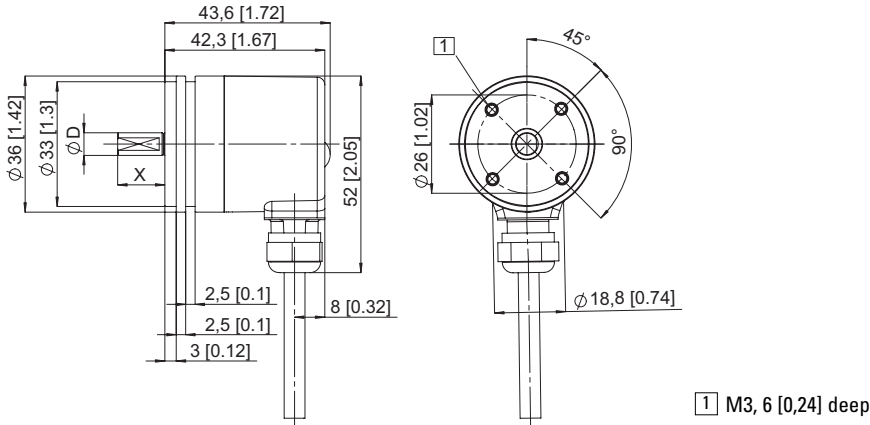
# Rotary Measuring Technology

## Magnetic measurement system



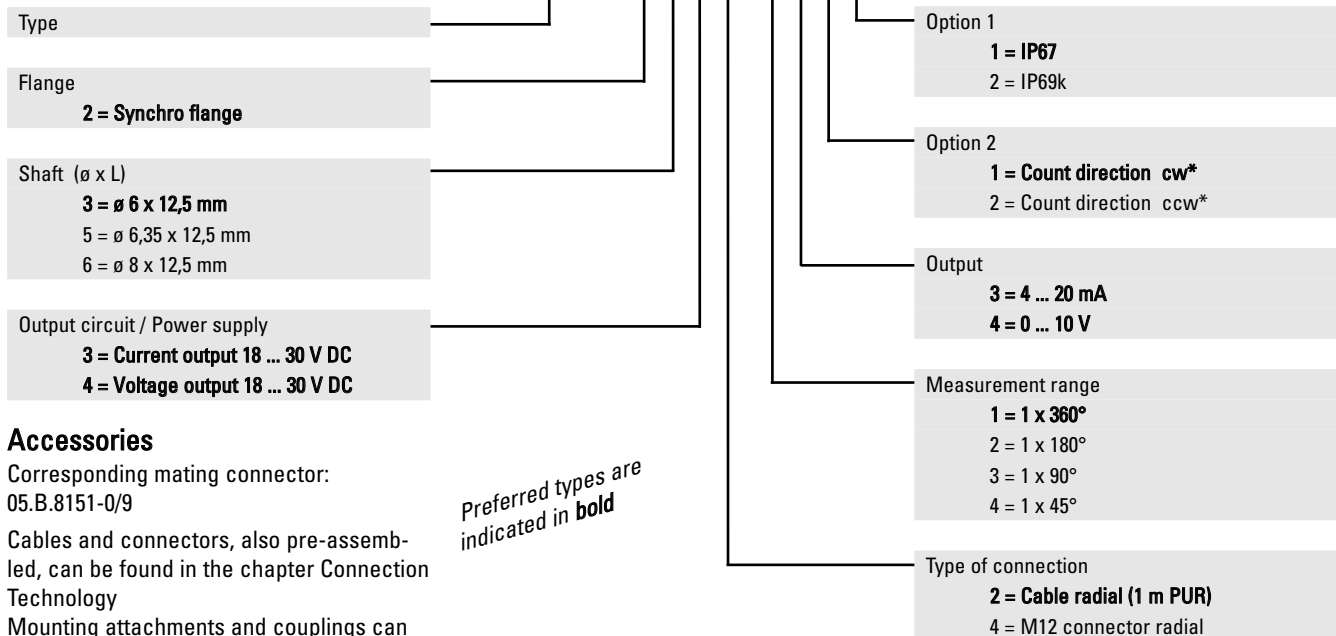
### Sendix absolut, Singleturn Encoder Type 3651 (Shaft) / 3671 (Hollow shaft), analogue

Dimensions shaft version:  
 ø 36 mm, Synchro flange



Order code shaft version:

**8 . 3 6 5 1 . X X X X . X X X X**



*Preferred types are indicated in bold*

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

# Rotary Measuring Technology

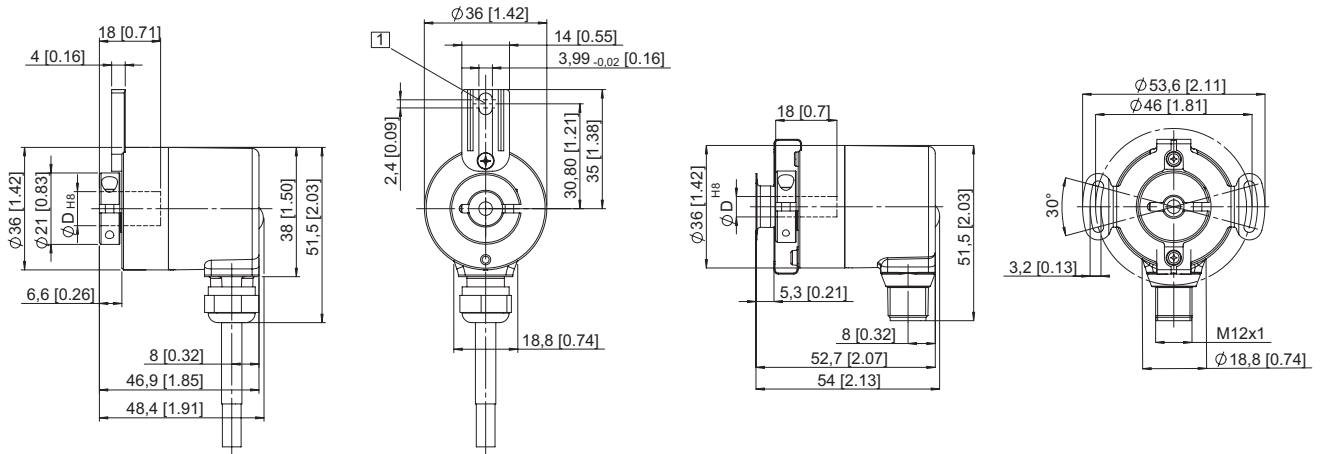
## Magnetic measurement system

### Sendix absolut, Singleturn Encoder Type 3651 (Shaft) / 3671 (Hollow shaft), analogue

#### Dimensions hollow shaft version:

ø 36 mm, with stator coupling

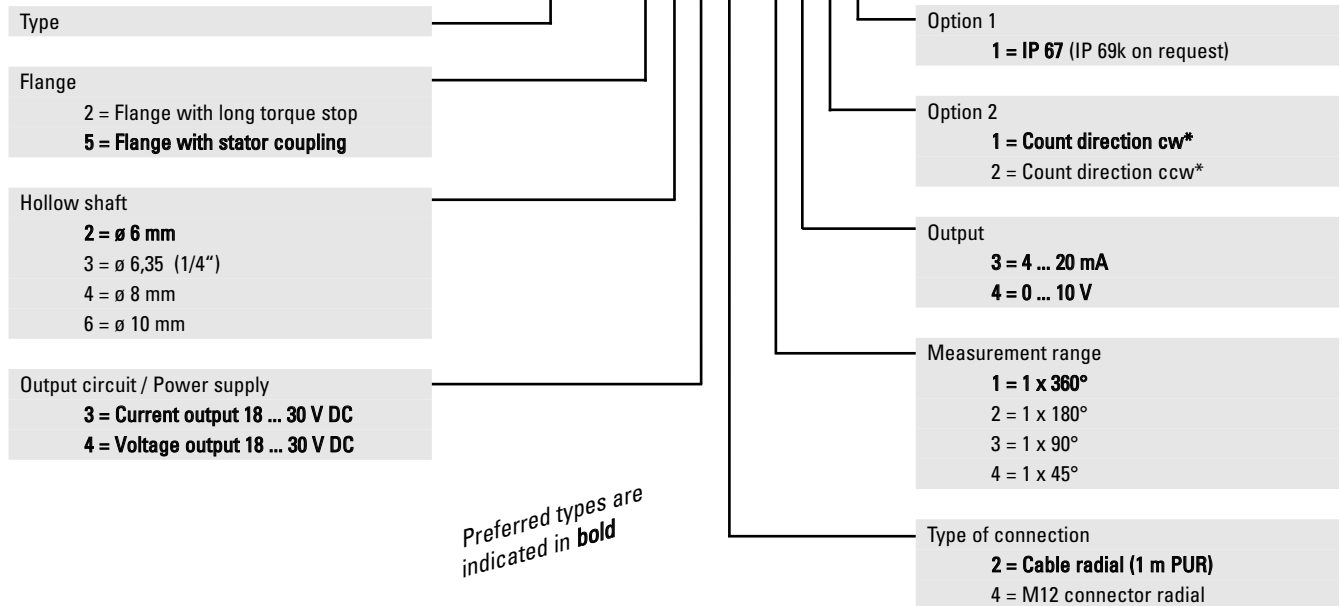
ø 36 mm, Flange with long torque stop



1 Torque stop slot,  
Recommendation: cyl. pin. acc. DIN 7 ø4

#### Order code hollow shaft version:

8 . 3 6 7 1 . X X X X . X X X X



- Type
- Flange
  - 2 = Flange with long torque stop
  - 5 = Flange with stator coupling**
- Hollow shaft
  - 2 = ø 6 mm**
  - 3 = ø 6,35 (1/4")
  - 4 = ø 8 mm
  - 6 = ø 10 mm
- Output circuit / Power supply
  - 3 = Current output 18 ... 30 V DC**
  - 4 = Voltage output 18 ... 30 V DC**

- Option 1
  - 1 = IP 67 (IP 69k on request)**
- Option 2
  - 1 = Count direction cw\***
  - 2 = Count direction ccw\*
- Output
  - 3 = 4 ... 20 mA**
  - 4 = 0 ... 10 V**
- Measurement range
  - 1 = 1 x 360°**
  - 2 = 1 x 180°
  - 3 = 1 x 90°
  - 4 = 1 x 45°
- Type of connection
  - 2 = Cable radial (1 m PUR)**
  - 4 = M12 connector radial

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

Cables and connectors, also pre-assembled, can be found in the chapter Connection Technology  
Mounting attachments and couplings can be found in the chapter Accessories