

Absolute Encoders - Singleturn

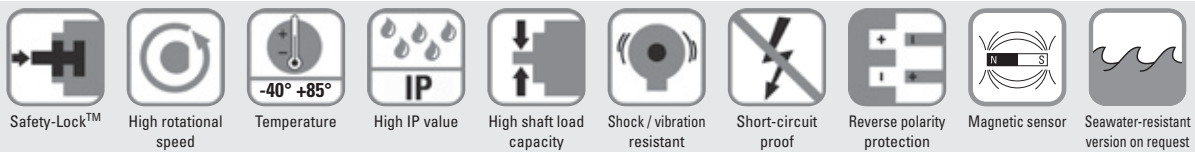
Compact, magnetic **Sendix 3651 / 3671 (Shaft / Hollow shaft)** **Analogue**



Thanks to their different interfaces and measurement ranges, the Sendix 3651 and Sendix 3671 singleturn encoders with analogue interface, 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.

These encoders have an e1-approval from the German Federal Motor Transport Authority.



Safe operation

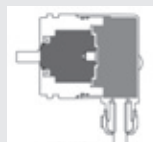
- Non-contact measuring system for long-life non-wear applications
- Rugged die cast housing and IP protection up to 69K for an exceptional tightness
- High shock and vibration resistance for an exceptional robustness

Compact and effective

- Outer diameter of only 36 mm
- The hollow shaft version is fitted with a blind hole with a diameter of up to 10 mm. It can be mounted as required with either a torque stop pin or a stator coupling.
- 360° with 12 bit resolution (4096 positions)
- For use in 12 V or 24 V vehicle electrical systems

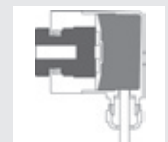
Safety-Lockplus™

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 . 2 X X X . X X X X

Type a b c d e f g h

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



<p>a Flange <u>2 = synchro flange</u></p> <p>b Shaft (ø x L), with flat <u>3 = ø 6 x 12.5 mm</u> 5 = ø 6.35 (1/4") x 12.5 mm 6 = ø 8 x 12.5 mm</p>	<p>c Output circuit²⁾ <u>3 = current output</u> <u>4 = voltage output</u></p> <p>d Type of connection 1 = axial cable (1 m PUR) <u>2 = radial cable (1 m PUR)</u> 3 = M12 connector, axial 4 = M12 connector, radial</p>	<p>e Measuring range <u>1 = 1 x 360°</u> 2 = 1 x 180° 3 = 1 x 90° 4 = 1 x 45°</p> <p>f Output / Power supply <u>3 = 4 ... 20 mA / 10 ... 30 V DC</u> <u>4 = 0 ... 10 V / 15 ... 30 V DC</u> 5 = 0 ... 5 V / 10 ... 30 V DC</p>	<p>g Option 1 <u>1 = count direction cw¹⁾</u> 2 = count direction ccw¹⁾</p> <p>h Option 2 <u>1 = IP67</u> 2 = IP69K</p>	<p><i>optional on request</i> - Ex 2/22 - seawater-resistant - special cable length</p>
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Order code Hollow shaft

8.3671 . X X X X . X X X X

Type a b c d e f g h

If for each parameter of an encoder the underlined preferred option is selected, then the delivery time will be 10 working days for a maximum of 10 pieces. Qts. up to 50 pcs. of these types generally have a delivery time of 15 working days.



<p>a Flange 2 = with torque stop set <u>5 = with stator coupling</u></p> <p>b Hollow shaft <u>2 = ø 6 mm</u> 3 = ø 6.35 mm (1/4") 4 = ø 8 mm 6 = ø 10 mm</p>	<p>c Output circuit²⁾ <u>3 = current output</u> <u>4 = voltage output</u></p> <p>d Type of connection 1 = axial cable (1 m PUR) <u>2 = radial cable (1 m PUR)</u> 3 = M12 connector, axial 4 = M12 connector, radial</p>	<p>e Measuring range <u>1 = 1 x 360°</u> 2 = 1 x 180° 3 = 1 x 90° 4 = 1 x 45°</p> <p>f Output / Power supply <u>3 = 4 ... 20 mA / 10 ... 30 V DC</u> <u>4 = 0 ... 10 V / 15 ... 30 V DC</u> 5 = 0 ... 5 V / 10 ... 30 V DC</p>	<p>g Option 1 <u>1 = count direction cw¹⁾</u> 2 = count direction ccw¹⁾</p> <p>h Option 2 <u>1 = IP67</u> 2 = IP69K</p>	<p><i>optional on request</i> - Ex 2/22 - seawater-resistant - special cable length</p>
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1) cw = Increasing code values when shaft turning clockwise (cw). Top view on shaft
2) Output circuit "3" only in conjunction with output "3", Output circuit "4" only in conjunction with output "4" or "5".

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Mounting accessory for shaft encoders

Coupling	Bellows coupling \varnothing 19 mm for shaft 6 mm	8.0000.1101.0606
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Mounting accessory for hollow shaft encoders

Cylindrical pin, long for torque stops		With fixing thread	8.0010.4700.0000
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Connection Technology

Connector, self-assembly	M12	8.0000.5116.0000
Cordset, pre-assembled with 2 m PVC cable	M12	05.WAKS4.5-2/P00

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.

Mechanical characteristics	
Max. speed	6000 min ⁻¹
Starting torque	< 0.06 Nm
Load capacity of shaft	radial 40 N axial 20 N
Weight	approx. 0.2 kg
Protection EN 60 529/DIN 40050-9	IP67 / IP69k
EX approval for hazardous areas	optional Zone 2 and 22
Working temperature range	-40°C ... +85°C
Materials	shaft / hollow shaft stainless steel flange aluminium housing zinc die-cast housing cable PUR
Shock resistance acc. EN 60068-2-27	5000 m/s ² , 6 ms
Vibration resistance acc. EN 60068-2-6	300 m/s ² , 10 ... 2000 Hz
Permanent shock resistance acc. EN 60068-2-29	1000 m/s ² , 2 ms
Vibration (broad-band random) EN 60068-2-64	5 ... 2500 Hz, 100 m/s ² - rms

General electrical characteristics	
RoHS compliant acc. to	EU guideline 2002/95/EG
CE compliant acc. to	EN 61000-6-2, EN 61000-6-4, EN 61000-6-3 and EN 61000-4-8 (behaviour under magnetic influence)
e1 compliant acc. to	EU guideline 2009/19/EG (acc. to EN 55025, ISO 11452 and ISO 7637)

Electrical characteristics current interface 4 ... 20 mA

Sensor	
Power supply	10 ... 30 V DC
Current consumption (no load)	max. 38 mA
Reverse connection of the supply voltage	yes
Measuring range	45°, 90°, 180° or 360°
Resolution	12 bit
Linearity	< 1° (360° measuring range)
Repeat accuracy (25°C)	< 0.1° (360° measuring range)
Status LED	Red break in current loop, input load too high. Green reference point display turns ON at cw: betw. 0° and 1° at ccw: betw. 0° and -1°
Current loop	
Output load	max. 200 Ohm at 10 V DC max. 900 Ohm at 24 V DC
Setting time	< 1 ms (R _{load} = 400 Ohm, 25°C)
Short-circuit proof outputs	When the supply voltage is correctly applied. But not output to 0 V or to +U _B . Supply voltage and sensor output signal are not galvanically isolated.

Electrical characteristics voltage interface

Sensor	
Power supply	output 0 ... 5 V 10 ... 30 V DC output 0 ... 10 V 15 ... 30 V DC
Current consumption (no load)	max. 35 mA
Reverse connection of the supply voltage	yes
Measuring range	45°, 90°, 180° or 360°
Resolution	12 bit
Linearity	< 1° (360° measuring range)
Repeat accuracy (25°C)	< 0.1° (360° measuring range)
Voltage output	
Current output	max. 10 mA
Setting time	< 1 ms (R _{load} ≥ 1 KOhm, 25°C)
Short-circuit proof outputs	When the supply voltage is correctly applied. But not output to 0 V or to +U _B . Supply voltage and sensor output signal are not galvanically isolated.
Status LED	Green reference point display turns ON at cw: betw. 0° and 1° at ccw: betw. 0° and -1°

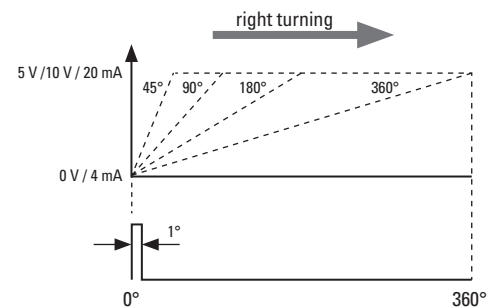
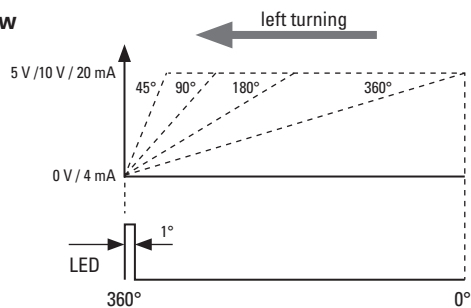
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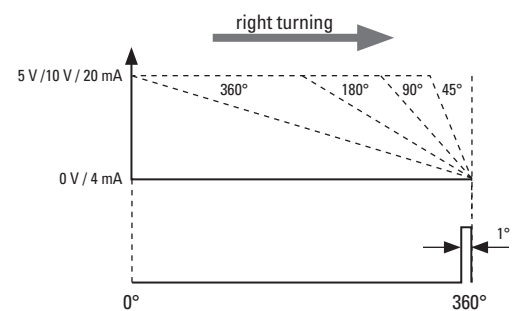
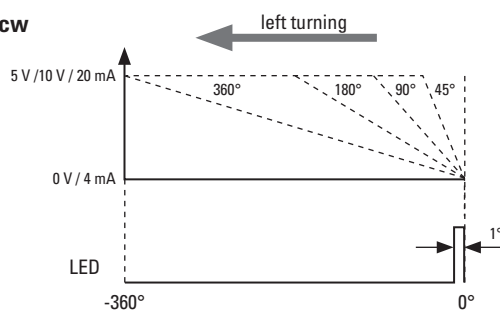
Example (output signal profile)

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

Version cw

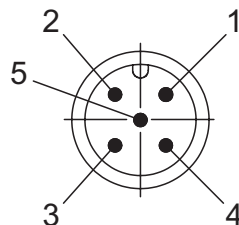


Version ccw



Terminal assignment

Signal	0V	+U _B	+I	-I
Cable colour	WH	BN	GN	YE
M12 / Pin	3	2	4	5



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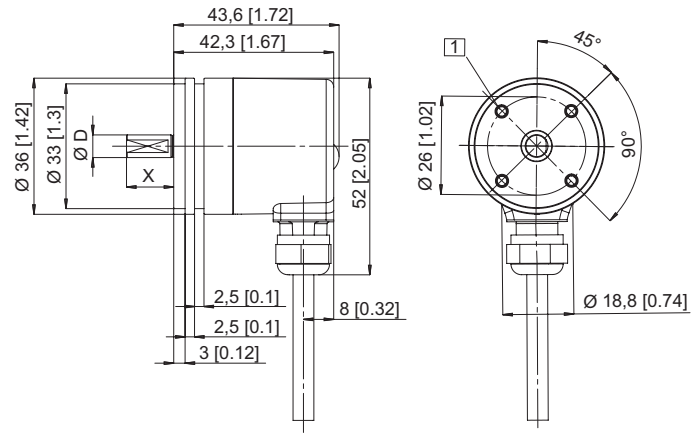
Sendix 3651 / 3671 (Shaft / Hollow shaft)

analogue

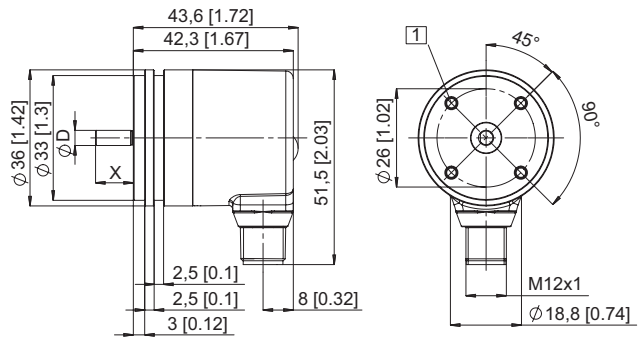
Dimensions shaft version

Synchro flange, \varnothing 36 mm

1 M3, 6 [0.24] deep



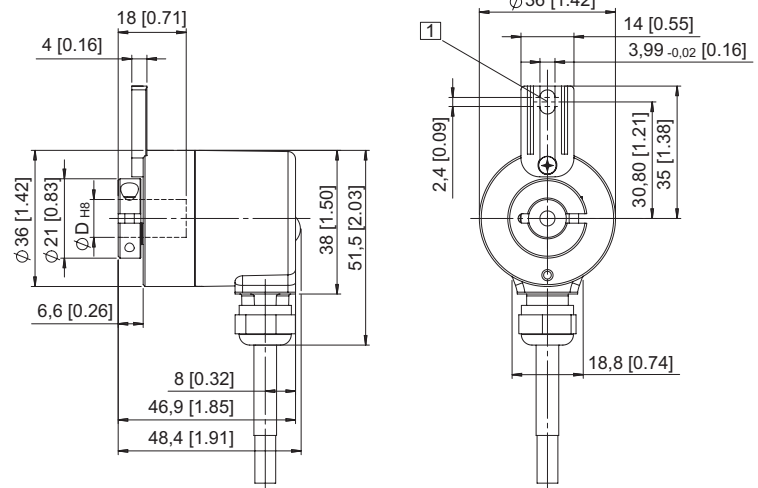
1 M3, 6 [0.24] deep



Dimensions hollow shaft version

With torque stop set, \varnothing 36 mm

1 Torque stop slot,
Recommendation: Cylindrical pin DIN7, \varnothing 4 mm



With stator coupling, \varnothing 36 mm

