

TURCK
works

Industrial
Automation

Sendix Magnetic Absolute Encoders

Kübler
by **TURCK**

Sendix[®]



- Compact and Robust
- Long Service and High Reliability
- Great For Outdoor Use, Works with Extreme Temps and Humidity
- High Shock Resistance
- Extremely Good Price/Performance Ratio

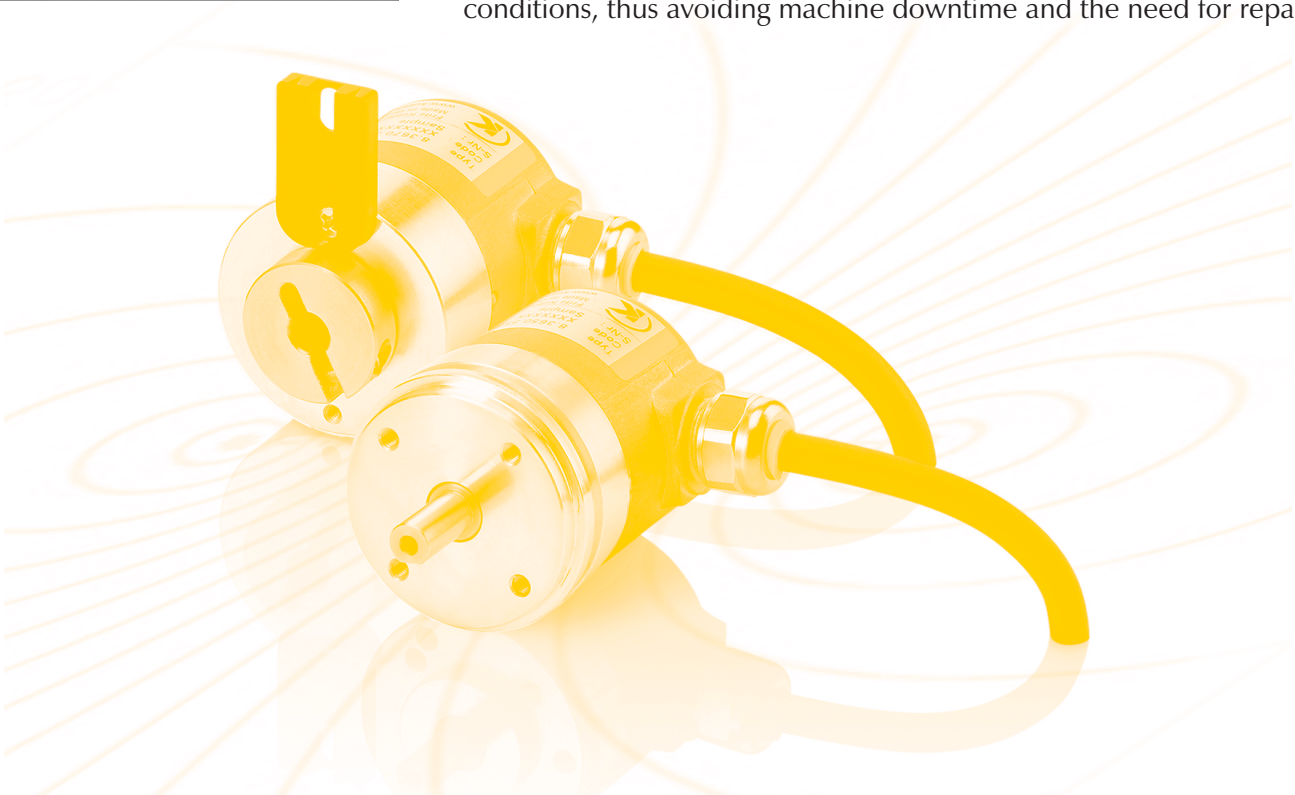
www.turck.com

NEW Highly Robust Absolute Singleturn Encoder in Compact 36 mm Format, with Magnetic Sensor Technology from Kübler by TURCK



The **Kübler by TURCK** 3650 and 3670 series offer a resolution of 9 bits with available outputs of SSI, 4-20 mA or 0-10 V. There is a suitable measuring range (45°, 90°, 180° or 360°) for every application. The encoders are robust, compact and versatile.

The non-contact magnetic measuring systems are not subject to wear and offer a long service life and high reliability compared to traditional potentiometers. The sturdy die-cast housing and the IP 69K protection rating ensure the encoder remains sealed, even in the harshest environments. Thanks to its wide temperature range of (-40° to +85°C) and an especially high resistance to humidity and condensation, the encoder is ideal for use outdoors - even with large fluctuations in temperature. These features, along with the extremely high resistance to shock (>500 g) and vibration (>30 g), guarantee that the encoders are better able to withstand difficult environmental conditions, thus avoiding machine downtime and the need for repairs.





Sendix® Magnetic Absolute, T8.3670



Sendix Magnetic Absolute, T8.3650

The compact design, as well as a blind hollow shaft of up to 10 mm, means the encoders can be used where space is restricted and can be mounted on a tight radius - even with large shafts. A green LED for reference point detection streamlines start-up, while a red LED simplifies fault diagnostics during maintenance.

The compact design and attractive price/performance ratio of the new 3650 and 3670 absolute encoders open up many new applications that had traditionally utilized potentiometers.



Kübler by TURCK

Magnetic Absolute Encoders

Sendix® Magnetic Absolute, Singleturn Type T8.3650 Part Number Key



Safety-Lock™



High Rotational Speed



Temperature
-40° +85°



High IP



High Shaft Load Capacity



Shock/Vibration Resistance



Short-Circuit Proof



Reverse Polarity Protection

T8. 3650. X X X X. XXXX.

Flange

2 = Synchro flange

Shaft Ø x L

3 = Ø6 mm x 12.5 mm
5 = Ø6.35 (1/4") mm x 12.5 mm

Output Circuit/Power Supply

2 = 5-30 VDC / SSI interface
3 = 18-30 VDC / 4-20 mA
4 = 20-30 VDC / 0-10 VDC

Option 1

1 = IP 67
2 = IP 69 K

Option 2

1 = Count direction cw*
2 = Count direction ccw*

Code

Use corresponding table

Connection Type

2 = Radial cable (PUR, 1 meter)

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

Code Type and Division:

SSI Interface
B9 = 9 Bit Binary

Current Interface 4-20 mA
45 = 45° Measurement Range
90 = 90° Measurement Range
18 = 180° Measurement Range
36 = 360° Measurement Range

Voltage interface 0-10 V
45 = 45° Measurement Range
90 = 90° Measurement Range
18 = 180° Measurement Range
36 = 360° Measurement Range

Measuring Range:

Measuring Range:	360°	180°	90°	45°
Internal Resolution (Measuring Range):	9 Bit	8 Bit	7 Bit	6 Bit
	512 Steps	256 Steps	128 Steps	64 Steps
Interfaces:	SSI	-	-	-
	4-20 mA	4-20 mA	4-20 mA	4-20 mA
	0-10 V	0-10 V	0-10 V	0-10 V



Sendix® Magnetic Absolute, Singleturn Type T8.3670 Part Number Key

- Safety-Lock™
- High Rotational Speed
- Temperature
-40° +85°
- High IP
- High Shaft Load Capacity
- Shock/Vibration Resistance
- Short-Circuit Proof
- Reverse Polarity Protection

T8. 3670. X X X X. XXXX.

Flange
 2 = Flange with long torque stop
 5 = Flange with stator coupling

Blind Hollow Shaft
 2 = Ø6 mm
 3 = Ø6.35 (1/4") mm
 4 = Ø8 mm
 6 = Ø10 mm

Output Circuit/Power Supply
 2 = 5-30 VDC / SSI interface
 3 = 18-30 VDC / 4-20 mA
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 1 = IP 67
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Measuring Range:

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Internal Resolution (Measuring Range):	9 Bit	8 Bit	7 Bit	6 Bit
	512 Steps	256 Steps	128 Steps	64 Steps
Interfaces:	SSI	-	-	-
	4-20 mA	4-20 mA	4-20 mA	4-20 mA
	0-10 V	0-10 V	0-10 V	0-10 V

Kübler by TURCK

Magnetic Absolute Encoders

Sendix® Magnetic Absolute, Singleturn Type T8.3650, T8.3670 Specifications

Mechanical:

Max. Speed	6000 min ⁻¹
Starting Torque	< 0.06 Nm
Weight	Appr. 0.4 lbs
Protection Acc. to EN 60 529.	IP 67 (IP 69k on Request)
Working Temperature Range	-40°C to +85°C
Materials	Shaft: Stainless Steel, Flange: Aluminum, Housing: Die Cast Zinc, Cable: PUR
Shock/Vibration	5000 m/s ² , 6 ms per DIN-IEC 68-2-27 / 300 m/s ² , 10-2000 Hz per DIN-IEC 68-2-6
Permanent Shock Resistance.	1000 m/s ² , 2 ms per DIN-IEC 68-2-29
Vibration (Broad-Band Random).	5-2500 Hz, 100 m/s ² - rms per DIN-IEC 68-2-64

3650 Only:

Radial Load Capacity of Shaft	40 N
Axial Load Capacity of Shaft	20 N

Electrical Characteristics SSI Interface:

Sensor:

Supply Voltage	5-30 VDC ¹⁾
Current (No Load) <1.0%	Typ. 22 mA, Max. 41 mA
Reverse Polarity Protection	Yes
Measuring Range	360°
Resolution/Code	9 Bit/Binary
Linearity (25°C).	<1.0%
Repeat Accuracy	<0.2%
Data Refresh Rate	Typ. 100 µs
Status LED	Green, Reference Point at 2.1°

SSI Interface:

Clock Speed	100 kHz - 1 MHz
Output Driver	RS 485
Monoflop Time Typ./Max	16 µs/20 µs
Short-Circuit Proof Outputs	Yes ²⁾
Permissible Load/Channel	Typ. 120 Ohm (Corresponding RS 485)

¹⁾ The supply voltage at the encoder input must not be less than 4.75 V (5 V - 5%).

²⁾ Short-circuit to 0 V or to output, with specified supply voltage applied.

Terminal Assignment:

Signal	Common	+V	0 V Sens	+V Sens	+Clock	-Clock	+Data	-Data
Color	WH	BN	BU	RD	GN	YE	GY	PK

Sendix® Magnetic Absolute, Singleturn Type T8.3650, T8.3670 Specifications

Electrical Characteristics Current Interface 4-20 mA:

Sensor:

- Supply Voltage 18-30 VDC
- Current (No Load) Typ. 25 mA, Max. 42 mA
- Reverse Polarity Protection Yes
- Measuring Range. 45°, 90°, 180°, 360° (See Table Measuring Range)
- Linearity (25°C). <1.0% (360° Measurement Range)
- Repeat Accuracy <0.2% (360° Measurement Range)
- Status LED Green: Reference Point at 2.1°
Red: Sensor Break Detection, Control Power Supply

4-20 mA Current Loop:

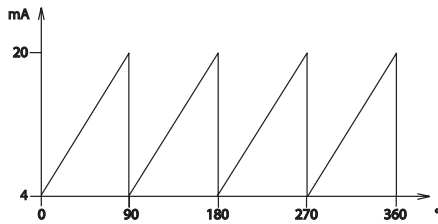
- Output Load max 500 Ohm at 24 VDC
- Setting Time <1 ms ($R_{load} = 400 \text{ Ohm}$, 25°C)
- Short-Circuit Proof Outputs Outputs may be shorted together. Shorting outputs to V+ or 0 V is not permitted.
- Supply voltage and sensor output signal are not galvanically isolated.

Terminal Assignment:

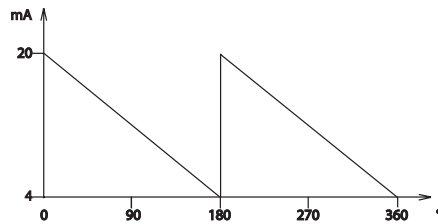
Signal	Common	+V	+I	-I
Color	WH	BN	GN	YE

Example (Output Signal Profile):

For 90° cw Range



For 180° ccw Range



Kübler by TURCK

Magnetic Absolute Encoders

Sendix® Magnetic Absolute, Singleturn Type T8.3650, T8.3670 Specifications

Electrical Characteristics Voltage Interface 0-10 V:

Sensor:

- Supply Voltage 20-30 VDC
- Current (No Load) Typ. 27 mA, Max. 47 mA
- Reverse Polarity Protection Yes
- Measuring Range 45°, 90°, 180°, 360° (See Table Measuring Range)
- Linearity (25°C) <1.0% (360° Measurement Range)
- Repeat Accuracy <0.2% (360° Measurement Range)
- Status LED Green: Reference Point at 2.1°

0-10 V Voltage Output:

- Current Output Max. 10 mA
 - Setting Time <1 ms ($R_{last} = 1\text{ KOhm}$, 25°C)
 - Short-Circuit Proof Outputs Yes¹⁾
- Supply voltage and sensor output signal are not galvanically isolated.**

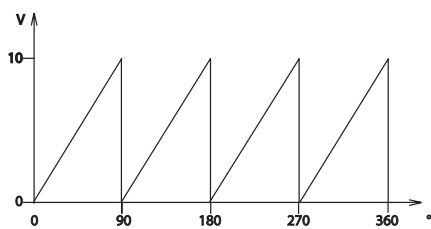
¹⁾ Short-circuit to 0 V or to output, only one channel at a time, with specified supply voltage applied.

Terminal Assignment:

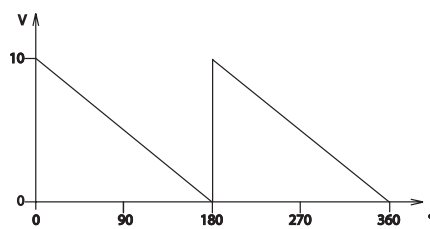
Signal	Common	+V	+I	-I
Color	WH	BN	GN	YE

Example (Output Signal Profile):

For 90° cw Range



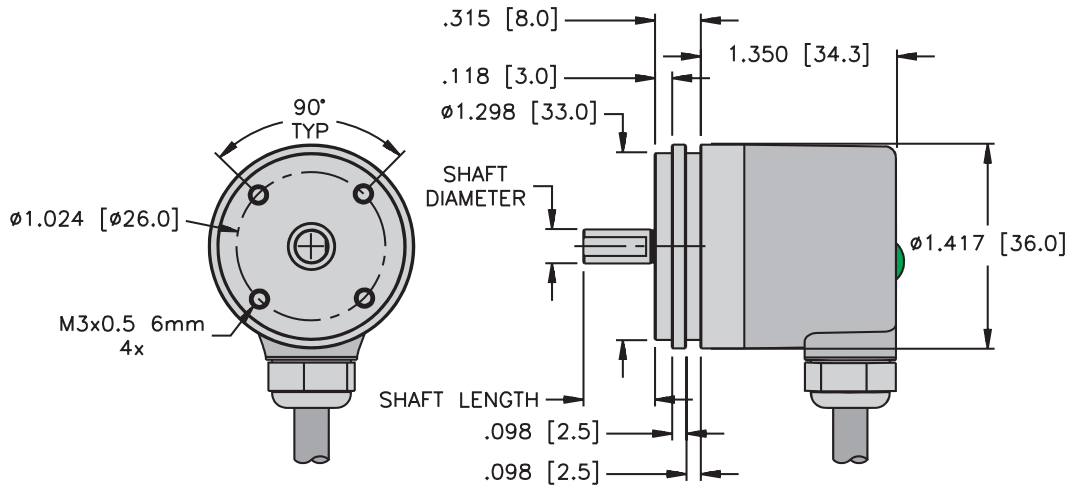
For 180° ccw Range



General Characteristics:

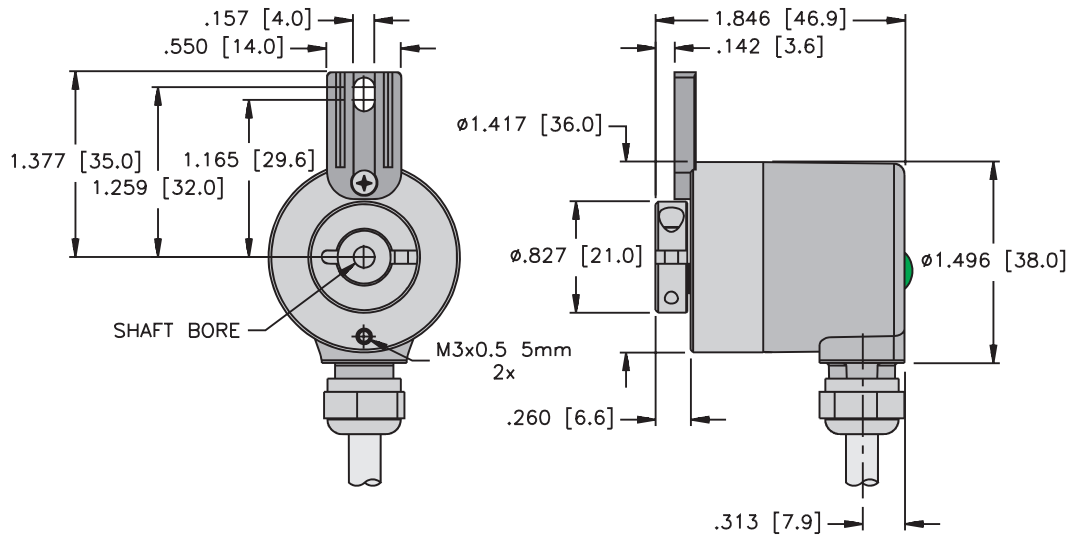
Conforms to CE requirements acc. to EN 61000-6-1, EN 61000-6-4, EN 61000-6-3 and EN 61000-4-8 (behavior under magnetic influence.)

Sendix® Magnetic Absolute, Singleturn Type T8.3650 Dimensions

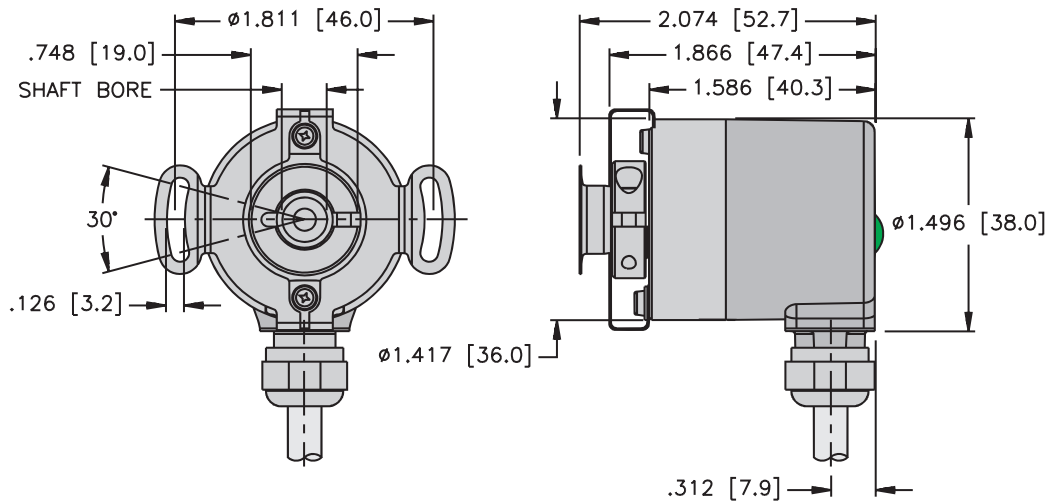


Flange Style 2: Synchro Flange

Sendix® Magnetic Absolute, Singleturn Type T8.3670 Dimensions



Flange Style 2: Flange with Long Torque Strap



Flange Style 3: Flange with Stator Coupling



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TURCK Inc. sells its products through authorized distributors. These distributors provide our customers with technical support, service and local stock. **TURCK** distributors are located nationwide, including all major metropolitan marketing areas.

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Specifications in this manual are subject to change without notice. **TURCK** reserves the right to make modifications, and makes no guarantee of the accuracy of the information contained herein.

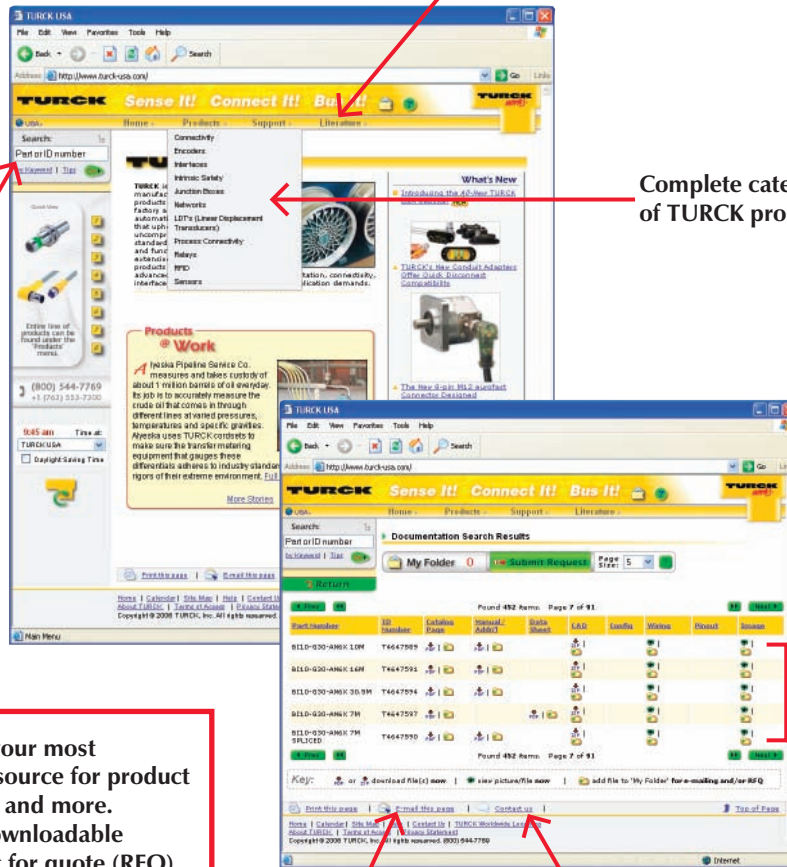
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