

ITD69H00 - Sine signal

Through hollow shaft $\varnothing 20$ to $\varnothing 68$ mm

128 sinewave cycles per revolution

Overview

- Bearingless magnetic encoder
- 128 sinewave cycles per revolution
- Output circuit: Sine 1 Vpp
- Fast, easy and space saving installation
- Maintenance-free
- High accuracy - error max. $\pm 0.2^\circ$
- Rotation speed max. 10000 rpm
- High resistance to dirt and vibrations



Technical data

Technical data - electrical ratings

| | |
|--------------------------------|--|
| Voltage supply | 5 VDC ± 10 % |
| Reverse polarity protection | Yes |
| Short-circuit proof | Yes |
| Consumption w/o load | ≤ 50 mA |
| Sinewave cycles per revolution | 128 |
| Output signals | A+, A-, B+, B- A+, A-, B+, B-, N+, N- |
| Output stages | SinCos 1 Vpp |
| Output frequency | ≤ 180 kHz (-3 dB) |
| System accuracy | $\pm 0.2^\circ$ |
| Interference immunity | EN 61000-6-2 |
| Emitted interference | EN 61000-6-3 |

Technical data - mechanical design

| | |
|-----------------------|---|
| Shaft type | $\varnothing 20 \dots 68$ mm (through hollow shaft) |
| Dimensions W x H x L | 12 x 16 x 48 mm |
| Protection EN 60529 | IP 67 (relating to sealed electronics) |
| Operating speed | ≤ 10000 rpm |
| Working distance | 0.2 ... 0.5 mm (radial), optimal 0,3 mm |
| Axial offset | ± 0.5 mm |
| Material | Housing: plastic Shaft: stainless steel |
| Operating temperature | $-40 \dots +100$ °C (fixed cable) |
| Resistance | EN 60068-2-6 Vibration 10 g, 55-2000 Hz EN 60068-2-27 Shock 100 g, 11 ms |
| Weight approx. | 390 g |
| Connection | Cable 1 m |

Optional

- Cable with connector
- Redundant sensing

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Terminal assignment

With BI-signals, cable [4x2x0,08 mm²]

| Core colour | Assignment |
|-------------|----------------|
| green | A + |
| yellow | A - |
| grey | B + |
| pink | B - |
| red | UB |
| blue | GND |
| transparent | Shield/Housing |

With NI-signals, cable [4x2x0,08 mm²]

| Core colour | Assignment |
|-------------|----------------|
| green | A + |
| yellow | A - |
| grey | B + |
| pink | B - |
| brown | N + |
| white | N - |
| red | UB |
| blue | GND |
| transparent | Shield/Housing |

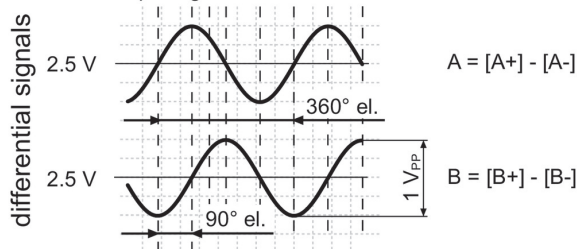
Output signal level

| Outputs | Sine |
|------------------------|---|
| Output amplitude A + B | 1 V _{PP} at Z ₀ = 120 Ω |
| Output amplitude N | approx. 2,5 V at Z ₀ = 120 Ω |

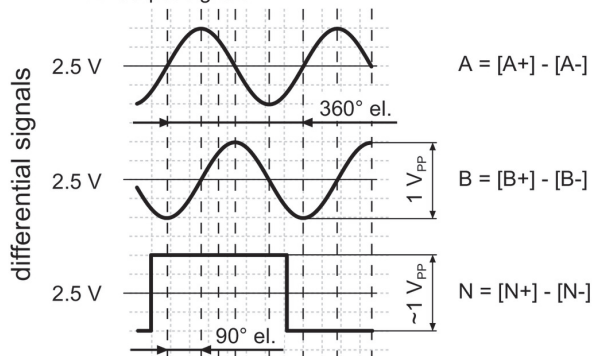
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals

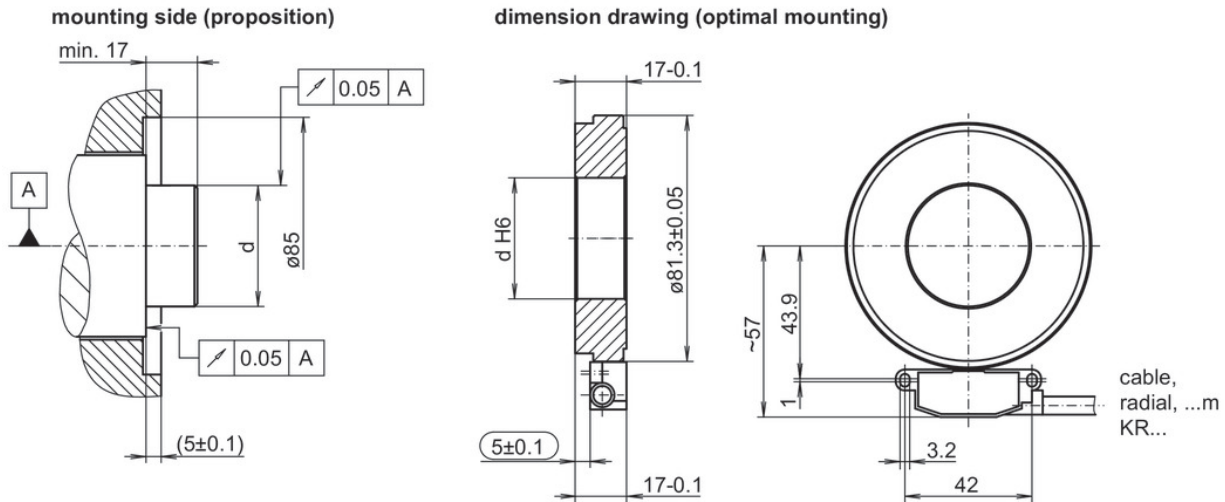


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Dimensions



| Mounting type | Shaft tolerance | Requirement |
|-------------------|-----------------|---|
| Shrink fitting | d p5 | Maximum heating of the pole wheel $T_{(max)} = 100$ °C |
| Adhesive mounting | d g6 | Please observe the manufacturer's instructions for the adhesive mounting with respect to adhesives and adhesive air gap. Recommendation: Adhesive Loctite 3504 |

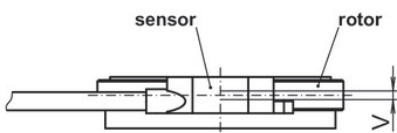
Installation note:

The system, consisting of sensor and rotor, form a matched pair. They may not be exchanged individually. The sensor should be mounted on an electrically conductive surface on potting side.

Mounting tolerances, operating tolerances

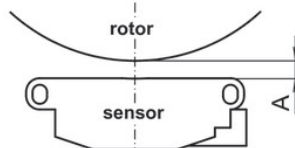
Permitted change of position sensor to rotor during mounting and operation:

Axial offset:



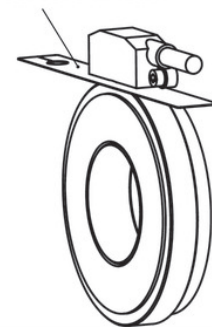
$V = \pm 0.5$ mm, optimal 0.1 mm

Working distance:



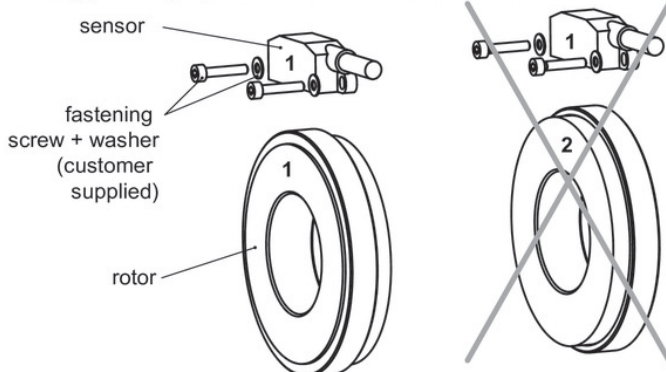
$A = 0.2 \dots 0.5$ mm,
optimal 0.3 mm

Use the distance band as a mounting tool for optimal gap (0.3 mm) between sensor and rotor.



Mounting position

Mounting position (1-1) sensor to rotor should not be altered!



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Ordering reference

| | | | | | | | | | |
|---|-----------------|------------|----------|-------------|------------|----------|--------------|-----------|-----------|
| | ITD69H00 | 128 | M | #### | KR1 | E | ##### | IP | 67 |
| Product | ITD69H00 | | | | | | | | |
| Sinewave cycles | | 128 | | | | | | | |
| Voltage supply | | | | | | | | | |
| UB= 5 VDC $\pm 10\%$ / sine 1 Vpp | | | M | | | | | | |
| Output signal sine | | | | | | | | | |
| A+, A-, B+, B- | | | | | BI | | | | |
| A+, A-, B+, B-, N+, N- | | | | | NI | | | | |
| Connection | | | | | | | | | |
| Cable radial, 1.00 m | | | | | KR1 | | | | |
| Operating temperature | | | | | | | | | |
| -40...+100 °C (fixiertes Kabel) | | | | | | E | | | |
| Magnetic wheel H00 | | | | | | | | | |
| $\varnothing 40$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 40 |
| $\varnothing 45$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 45 |
| $\varnothing 50$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 50 |
| $\varnothing 55$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 55 |
| $\varnothing 60$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 60 |
| $\varnothing 65$ mm, for adhesive or heat-shrink mounting | | | | | | | | | 65 |
| IP | | | | | | | | | IP |
| Protection class | | | | | | | | | |
| IP67 (relating to sealed electronics) | | | | | | | | | 67 |

Other diameters on request.