

## ITD69H00 - Rectangular signal

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128...4096 pulses per revolution

### Overview

- Bearingless magnetic encoder
- Max. 4096 pulses per revolution
- Output circuits: HTL or TTL
- 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  $\pm 5\%$   
8...26 VDC

Reverse polarity protection Yes

Short-circuit proof Yes

Consumption w/o load  $\leq 50$  mA

Pulses per revolution 128 ... 4096

Interpolation 1-fold (single)  
2-fold  
4-fold  
8-fold  
16-fold  
32-fold

Output signals A 90° B + inverted  
A 90° B, N + inverted

Output stages TTL linedriver (short-circuit proof)  
HTL push-pull (short-circuit proof)

Output current  $\leq 30$  mA

Output frequency  $\leq 300$  kHz (TTL)  
 $\leq 160$  kHz (HTL)

#### Technical data - electrical ratings

System accuracy  $\pm 0.2^\circ$

Interference immunity EN 61000-6-2

Emitted interference EN 61000-6-3

#### Technical data - mechanical design

Shaft type  $\varnothing 40$ ...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  $\leq 10000$  rpm

Working distance 0.2 ... 0.5 mm (radial), optimal 0,3 mm

Axial offset  $\pm 0.5$  mm

Material Housing: plastic  
Shaft: stainless steel

Operating temperature  $-40$ ... $+100$  °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 mm<sup>2</sup>]

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

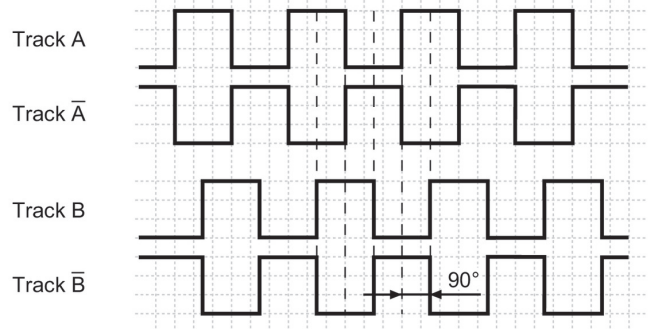
#### With NI-signals, cable [4x2x0,08 mm<sup>2</sup>]

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

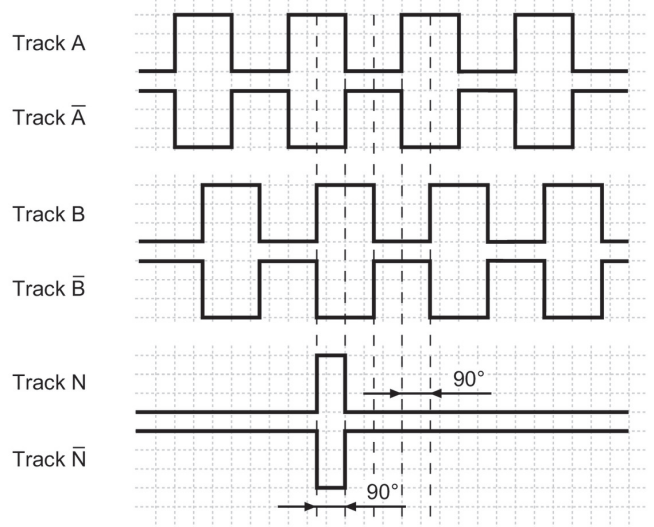
### Output signals

Clockwise rotation when looking at the mounting side.

#### BI-Output signals



#### NI-Output signals



### Trigger level

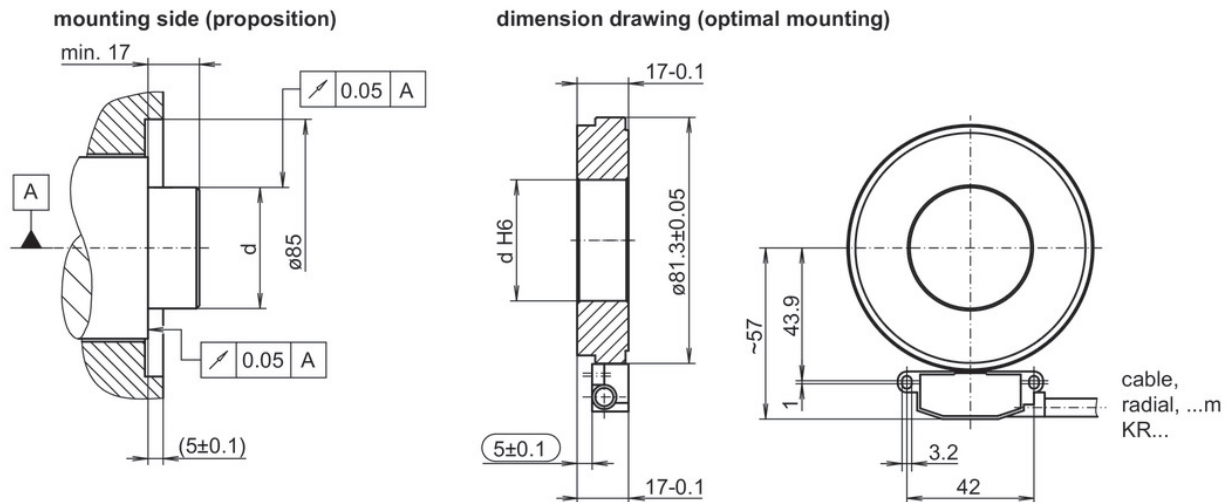
| Outputs           | Linedriver                    |
|-------------------|-------------------------------|
| Output level High | $\geq 2,5$ V                  |
| Output level Low  | $\leq 0,5$ V                  |
| Load              | $\leq 30$ mA                  |
| Outputs           | Push-pull short-circuit proof |
| Output level High | $\geq U_B - 3$ V              |
| Output level Low  | $\leq 1,5$ V                  |
| Load              | $\leq 30$ mA                  |

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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.<br>Recommendation: Adhesive Loctite 3504 |

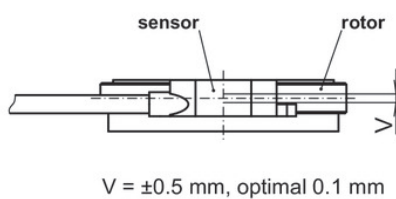
### Installation note:

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.

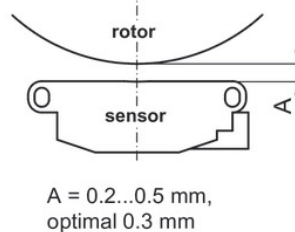
### Mounting tolerances, operating tolerances

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

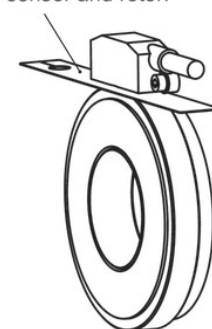
#### Axial offset:



#### Working distance:

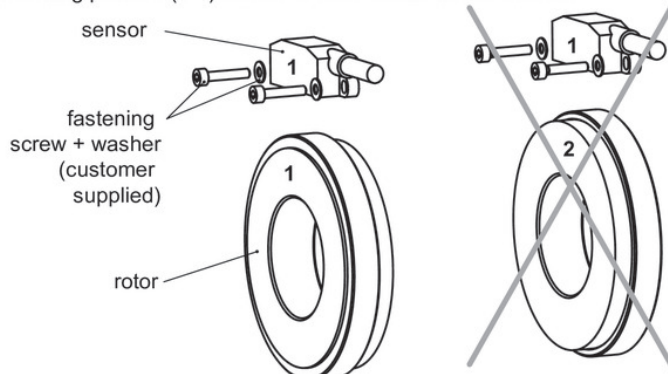


Use the distance band as a mounting tool for optimal gap (0.3 mm) between sensor and rotor.



### Mounting position

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



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### Ordering reference

|  | ITD69H00 | #### | # | #### | KR1 | E | ##### | IP | 67 |
|--|----------|------|---|------|-----|---|-------|----|----|
| <b>Product</b>                               | ITD69H00 |      |   |      |     |   |       |    |    |
| <b>Pulse number</b>                          |          |      |   |      |     |   |       |    |    |
| 128 <sup>(1)</sup>                           |          | 128  |   |      |     |   |       |    |    |
| 256 <sup>(1)</sup>                           |          | 256  |   |      |     |   |       |    |    |
| 512  |          | 512  |   |      |     |   |       |    |    |
| 1024   |          | 1024 |   |      |     |   |       |    |    |
| 2048   |          | 2048 |   |      |     |   |       |    |    |
| 4096   |          | 4096 |   |      |     |   |       |    |    |
| <b>Voltage supply</b>                        |          |      |   |      |     |   |       |    |    |
| UB= 5 VDC ±5% / TTL level, linedriver        |          |      | T |      |     |   |       |    |    |
| UB= 8...26 VDC / HTL level, push-pull        |          |      | H |      |     |   |       |    |    |
| <b>Output signal</b>                         |          |      |   |      |     |   |       |    |    |
| A, A inv, B, B inv                           |          |      |   | BI   |     |   |       |    |    |
| A, A inv, B, B inv, N, N inv                 |          |      |   | NI   |     |   |       |    |    |
| <b>Connection</b>                            |          |      |   |      |     |   |       |    |    |
| Cable radial, 1.00 m                         |          |      |   |      | KR1 |   |       |    |    |
| <b>Operating temperature</b>                 |          |      |   |      |     |   |       |    |    |
| -40...+100 °C (fixed cable)                  |          |      |   |      |     | E |       |    |    |
| <b>Magnetic wheel H00</b>                    |          |      |   |      |     |   |       |    |    |
| Ø40 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 40    |    |    |
| Ø45 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 45    |    |    |
| Ø50 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 50    |    |    |
| Ø55 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 55    |    |    |
| Ø60 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 60    |    |    |
| Ø65 mm, for adhesive or heat-shrink mounting |          |      |   |      |     |   | 65    |    |    |
| <b>IP</b>                                    |          |      |   |      |     |   |       | IP |    |
| <b>Protection class</b>                      |          |      |   |      |     |   |       |    |    |
| IP67 (relating to sealed electronics)        |          |      |   |      |     |   |       |    | 67 |

(1) Featured pulse numbers available as BI output signals.  
 Other diameters on request.