

## 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
- Magnetic rotor included in delivery



### Technical data

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm 5\%$ 8...26 VDC
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Reverse polarity protection	Yes
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Short-circuit proof	Yes
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Consumption w/o load	$\leq 50$ mA
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Pulses per revolution	128 ... 4096
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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
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Output frequency	$\leq 300$ kHz (TTL)
	$\leq 160$ kHz (HTL)

#### Technical data - electrical ratings

System accuracy	$\pm 0.2^\circ$
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Interference immunity	EN 61000-6-2
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Emitted interference	EN 61000-6-3
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#### Technical data - mechanical design

Shaft type	$\varnothing 40$ ...68 mm (through hollow shaft)
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Dimensions W x H x L	12 x 16 x 48 mm
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Protection EN 60529	IP 67 (relating to sealed electronics)
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Operating speed	$\leq 10000$ rpm
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Working distance	0.2 ... 0.5 mm (radial), optimal 0,3 mm
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Axial offset	$\pm 0.5$ mm
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Material	Housing: plastic
	Shaft: stainless steel

Operating temperature	-40...+100 °C (fixed cable)
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Resistance	EN 60068-2-6
	Vibration 10 g, 55-2000 Hz
	EN 60068-2-27
	Shock 100 g, 11 ms

Weight approx.	390 g
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Connection	Cable 1 m
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### 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

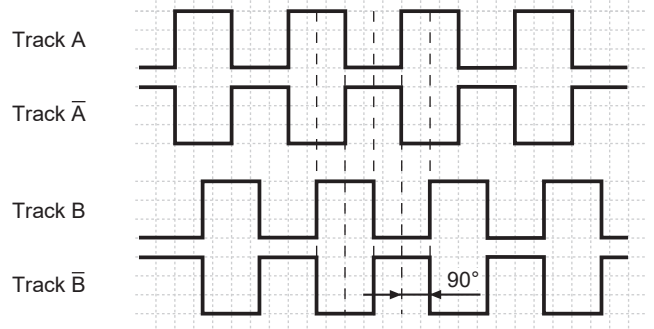
### With NI-signals, cable [4x2x0,08 mm<sup>2</sup>]

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

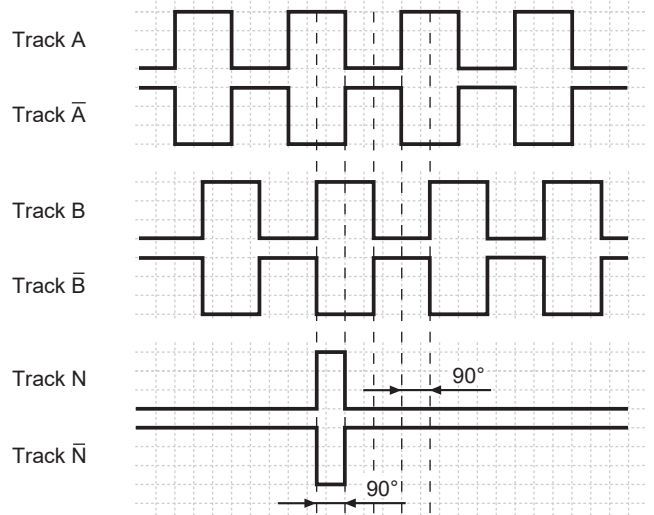
## Output signals

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	$\geq UB - 3$ V
Output level Low	$\leq 1,5$ V
Load	$\leq 30$ mA

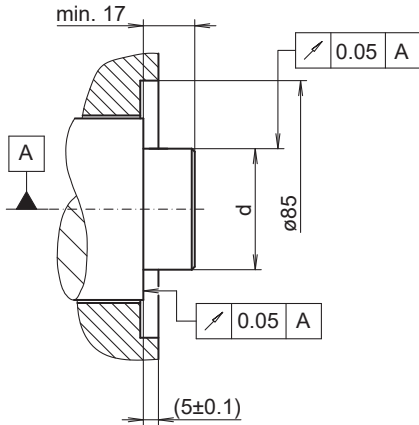
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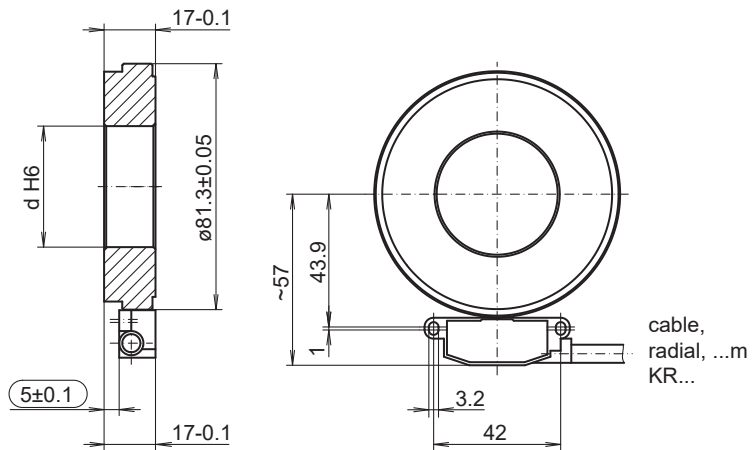
128...4096 pulses per revolution

## Dimensions

mounting side (proposition)



dimension drawing (optimal mounting)



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

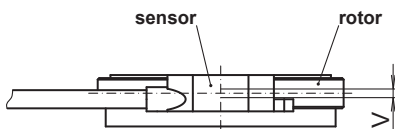
### Installation note:

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

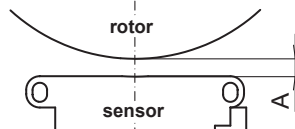
Permitted change of position sensor to rotor during mounting and operation:

### Axial offset:



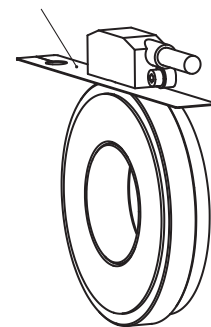
$V = \pm 0.5$  mm, optimal 0.1 mm

### Working distance:



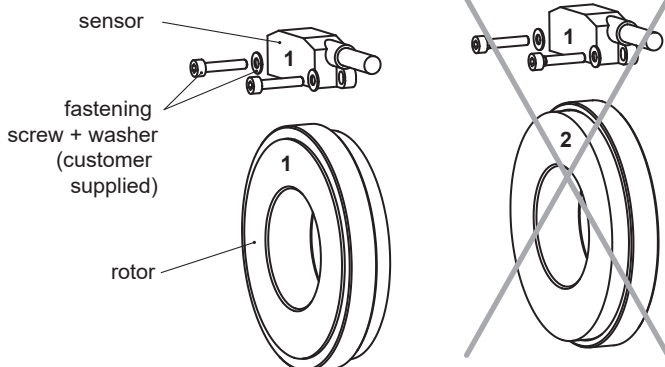
$A = 0.2 \dots 0.5$  mm,  
optimal 0.3 mm

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	####	#	####	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 $\pm 5\%$ / 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>									
$\varnothing 40$ 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
<b>Protection class</b>									
IP67 (relating to sealed electronics)									67

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