

## ITD49H00 - Rectangular signal

Through hollow shaft  $\varnothing 8$  to  $\varnothing 28$  mm

64...2048 pulses per revolution

### Overview

- Bearingless magnetic encoder
- Max. 2048 pulses per revolution
- Output circuits: HTL or TTL
- Fast, easy and space saving installation
- Maintenance-free
- High accuracy - error max.  $\pm 0.3^\circ$
- Rotation speed max. 18000 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	64 ... 2048
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	$\pm 0.3^\circ$
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

#### Technical data - mechanical design

Shaft type	$\varnothing 8$ ...28 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	$\leq 18000$ 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 1.4104
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.	250 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

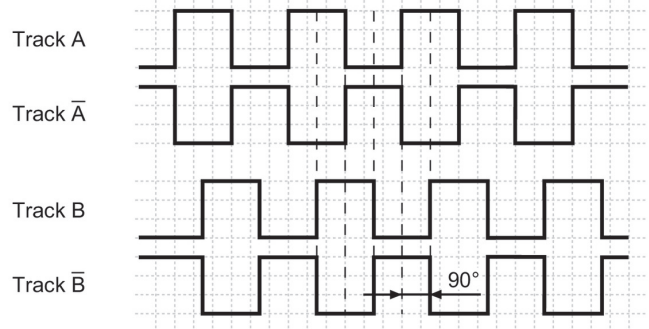
#### With NI-signals, cable [4x2x0,08 mm<sup>2</sup>]

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

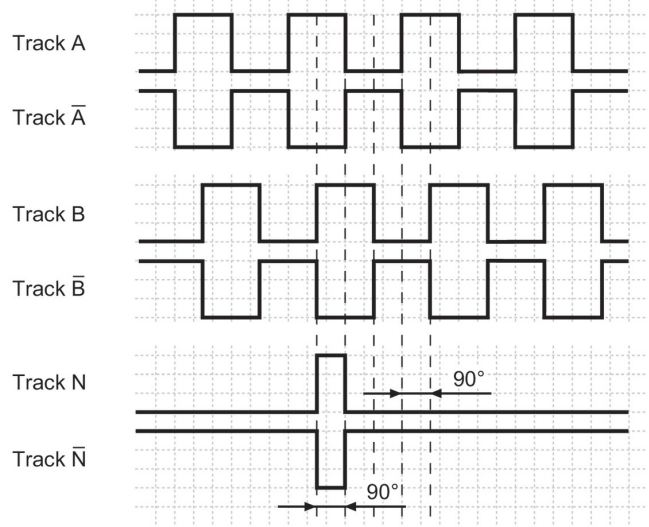
### Output signals

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

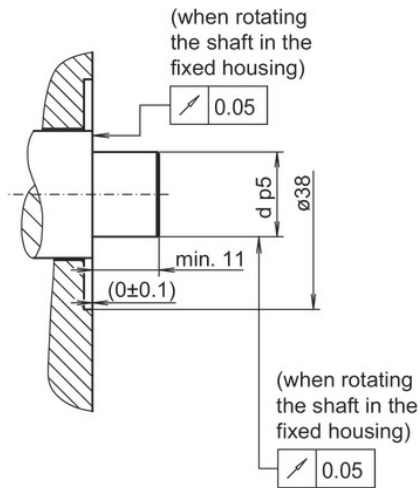
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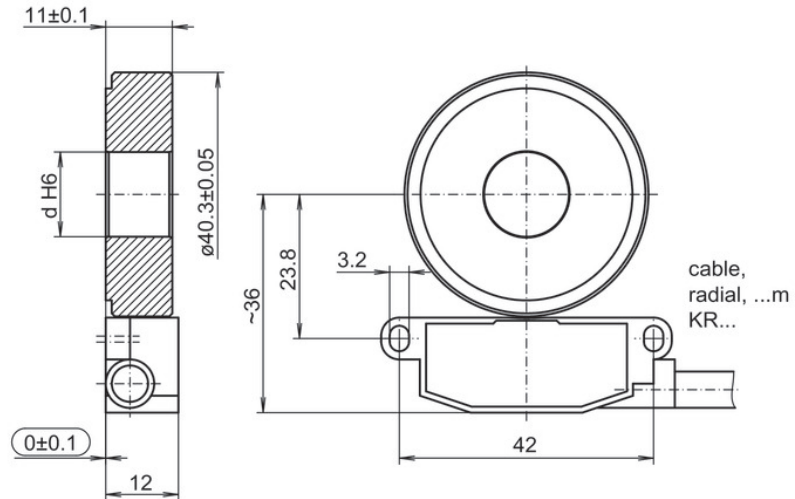
### Dimensions

#### mounting side (proposition)



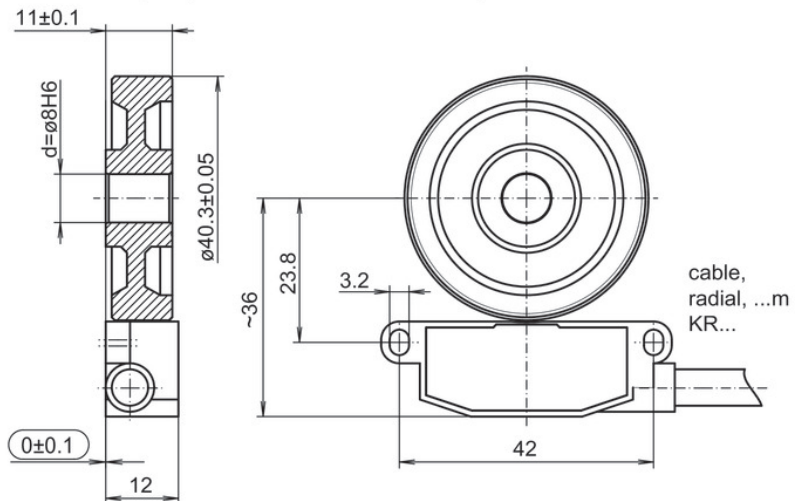
#### dimension drawing (optimal mounting)

d =  $\varnothing 9$  mm,  $\varnothing 9.525$  mm,  $\varnothing 10$  mm,  $\varnothing 12$  mm,  $\varnothing 12.7$  mm,  $\varnothing 14$  mm,  $\varnothing 15$  mm,  $\varnothing 15.875$  mm,  $\varnothing 19$  mm,  $\varnothing 25$  mm,  $\varnothing 25.4$  mm,  $\varnothing 28$  mm.  
Please specify the desired bore diameter in your order.



d =  $\varnothing 8$  mm

Please specify the desired bore diameter in your order.



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.

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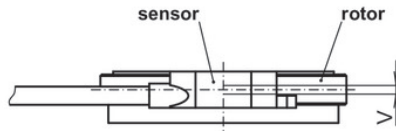
64...2048 pulses per revolution

### Dimensions

#### Mounting tolerances, operating tolerances

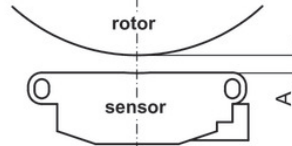
Permitted change of position sensor to rotor during mounting and operation:

##### Axial offset:



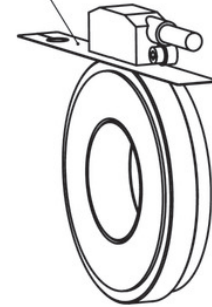
$V = \pm 0.5$  mm, optimal 0.1 mm

##### Working distance:



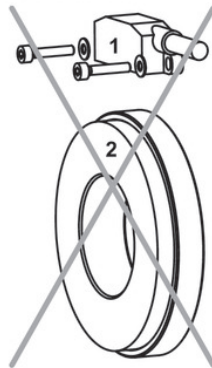
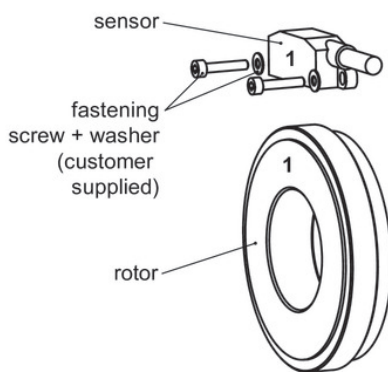
$A = 0.2 \dots 0.5$  mm,  
optimal 0.3 mm

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

	ITD49H00	#####	#	####	KR1	E	#####	IP	67
<b>Product</b>	ITD49H00								
<b>Pulse number</b>									
64 <sup>(1)</sup>		64							
128 <sup>(1)</sup>		128							
256		256							
512		512							
1024		1024							
2048		2048							
<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 (fixiertes Kabel)						E			
<b>Magnetic wheel H00</b>									
Ø8 mm, for adhesive or heat-shrink mounting							08		
Ø9 mm, for adhesive or heat-shrink mounting							09		
Ø10 mm, for adhesive or heat-shrink mounting							10		
Ø12 mm, for adhesive or heat-shrink mounting							12		
Ø14 mm, for adhesive or heat-shrink mounting							14		
Ø15 mm, for adhesive or heat-shrink mounting							15		
Ø19 mm, for adhesive or heat-shrink mounting							19		
Ø25 mm, for adhesive or heat-shrink mounting							25		
Ø28 mm, for adhesive or heat-shrink mounting							28		
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.