

ITD49H00 - Sine signal

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

64 sinewave cycles per revolution

Overview

- Bearingless magnetic encoder
- 64 sinewave cycles per revolution
- Output circuit: Sine 1 Vpp
- 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 $\pm 10\%$
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption w/o load	≤ 50 mA
Sinewave cycles per revolution	64
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	$\pm 0.3^\circ$
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

Technical data - mechanical design

Shaft type	$\varnothing 8 \dots 28$ 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	≤ 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	$-40 \dots +100$ °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.	250 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

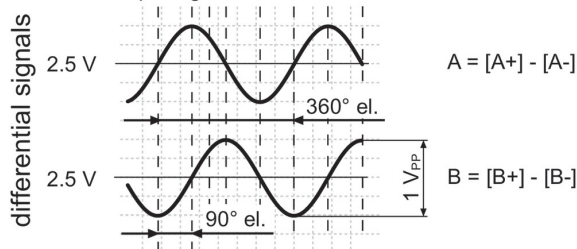
Output signal level

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

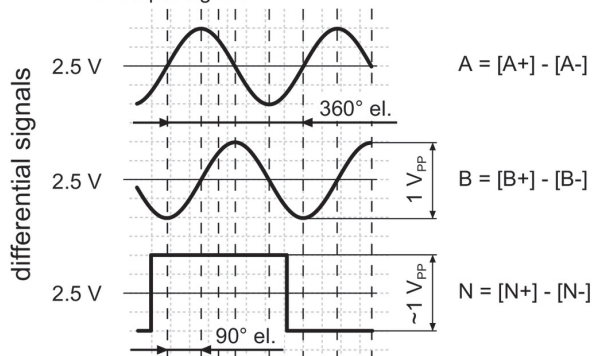
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals



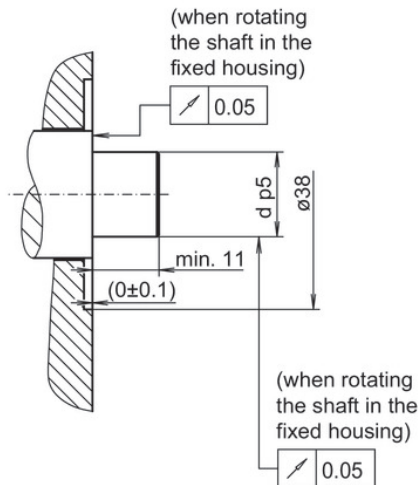
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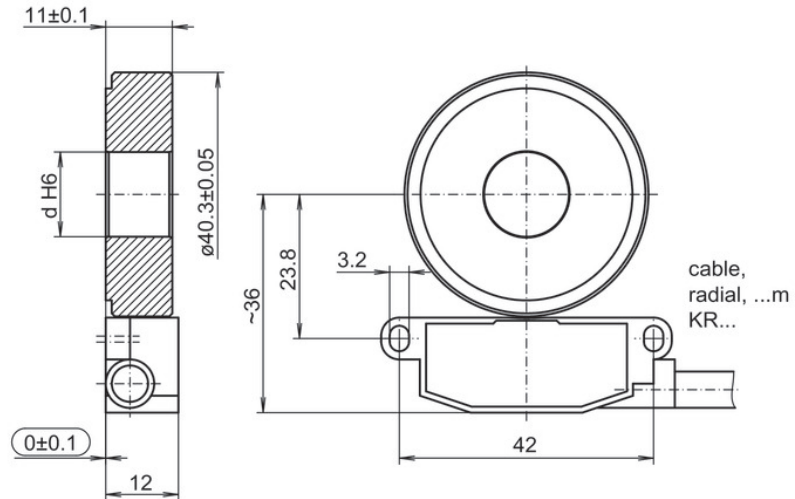
Dimensions

mounting side (proposition)



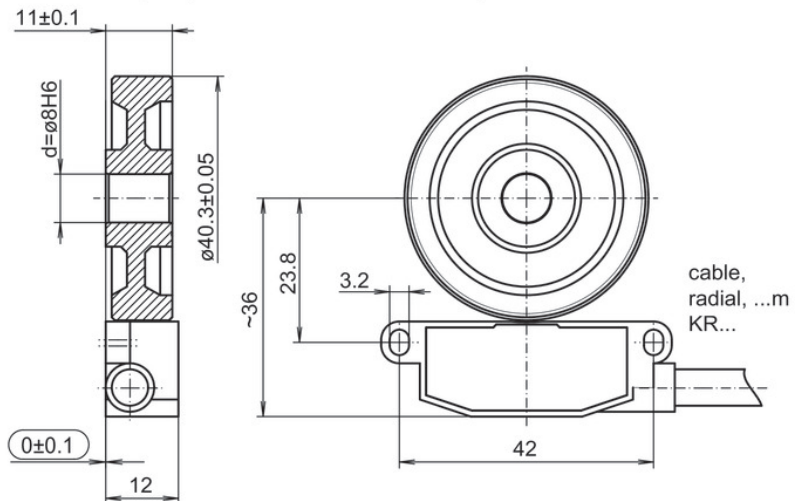
dimension drawing (optimal mounting)

$d = \varnothing 9$ 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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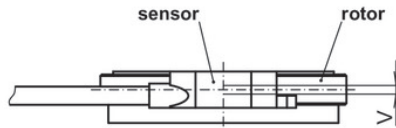
64 sinewave cycles per revolution

Dimensions

Mounting tolerances, operating tolerances

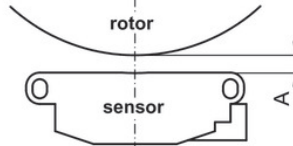
Permitted change of position sensor to rotor during mounting and operation:

Axial offset:



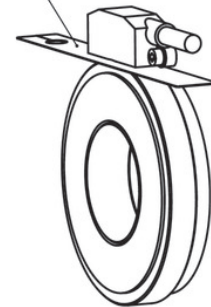
$V = \pm 0.5$ mm, optimal 0.1 mm

Working distance:



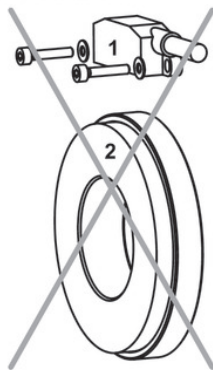
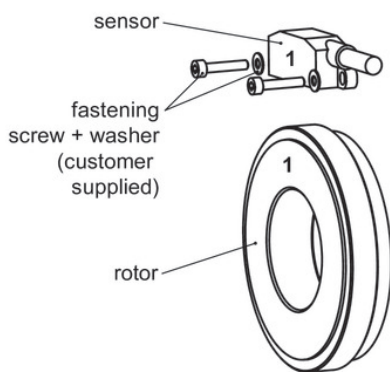
$A = 0.2 \dots 0.5$ mm,
optimal 0.3 mm

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	64	M	####	KR1	E	#####	IP	67
Product	ITD49H00								
Sinewave cycles		64							
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									
$\varnothing 8$ mm, for adhesive or heat-shrink mounting							08		
$\varnothing 9$ mm, for adhesive or heat-shrink mounting							09		
$\varnothing 10$ mm, for adhesive or heat-shrink mounting							10		
$\varnothing 12$ mm, for adhesive or heat-shrink mounting							12		
$\varnothing 14$ mm, for adhesive or heat-shrink mounting							14		
$\varnothing 15$ mm, for adhesive or heat-shrink mounting							15		
$\varnothing 19$ mm, for adhesive or heat-shrink mounting							19		
$\varnothing 25$ mm, for adhesive or heat-shrink mounting							25		
$\varnothing 28$ mm, for adhesive or heat-shrink mounting							28		
IP								IP	
Protection class									
IP67 (relating to sealed electronics)									67

Other diameters on request.