Encoders without bearings - incremental

Through hollow shaft ø8 to ø28 mm
64 sinewave cycles per revolution

ITD49H00 - Sine signal

ITD49H00 - attachment variant adhesive mounting

Features

– **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. ±0.3°**
– **Rotation speed max. 30000 rpm**
– **High resistance to dirt and vibrations**

Optional

– **Cable with connector**
– **Redundant sensing**

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	64
Output signals	A+, A-, B+, B- A+, A-, B+, B-, N+, N-
Output frequency	≤180 kHz (-3 dB)
System accuracy	±0.3°
Output stages	SinCos 1 Vpp
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

Technical data - mechanical design

Dimensions W x H x L	12 x 16 x 48 mm
Shaft type	ø8...28 mm (through hollow shaft)
Protection DIN EN 60529	IP 67 (relating to sealed electronics)
Operating speed	≤30000 rpm
Working distance	0.2...0.5 mm (radial), optimal 0,3 mm
Axial offset	±0.5 mm
Materials	Housing: plastic Shaft: stainless steel 1.4104
Operating temperature	-40...+100 °C (fixed cable)
Resistance	DIN EN 60068-2-6 Vibration 10 g, 55-2000 Hz DIN EN 60068-2-27 Shock 100 g, 11 ms
Weight approx.	250 g
Connection	Cable 1 m
Admitted cable length	15 m

Part number

| ITD49H00 | 64 | M | | KR1 | E | | IP67 |

Protection
IP67 IP 67

Through hollow shaft
8   ø8 mm
9   ø9 mm
10   ø10 mm
12   ø12 mm
14   ø14 mm
15   ø15 mm
19   ø19 mm
25   ø25 mm
25.4   ø25.4 mm
28   ø28 mm
...   other diameters on request

Operating temperature
E   -40...+100 °C

Connection
KR1 Cable 1 m, radial

Output signals
BI   A+, A-, B+, B- (sine)
NI   A+, A-, B+, B-, N+, N- (sine)

Voltage supply / signals
M   5 VDC / sine 1 Vpp

Sinewave cycles
64

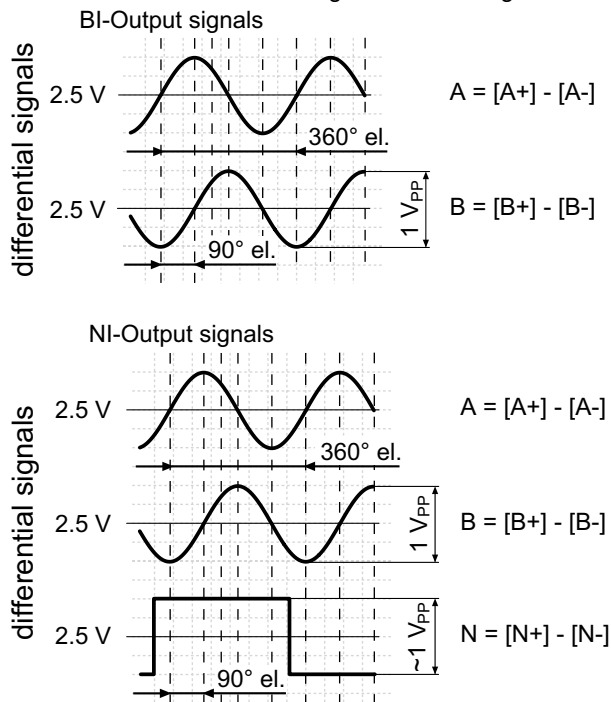# Encoders without bearings - incremental
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Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals

2.5 V   A = [A+] - [A-]

360° el.

2.5 V   B = [B+] - [B-]

90° el. $1 V_{PP}$

NI-Output signals

2.5 V   A = [A+] - [A-]

360° el.

2.5 V   B = [B+] - [B-] $1 V_{PP}$

2.5 V   N = [N+] - [N-] $\sim 1 V_{PP}$

90° el.

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

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Dimensions

mounting side (proposition)
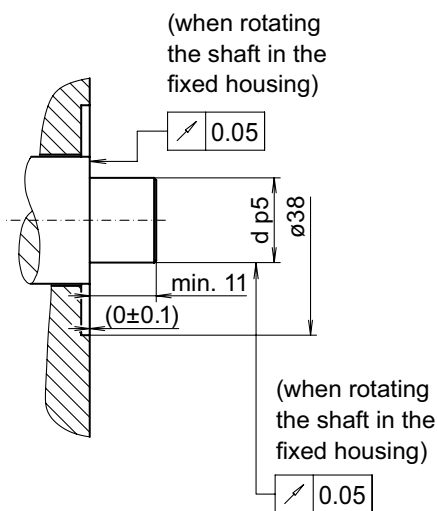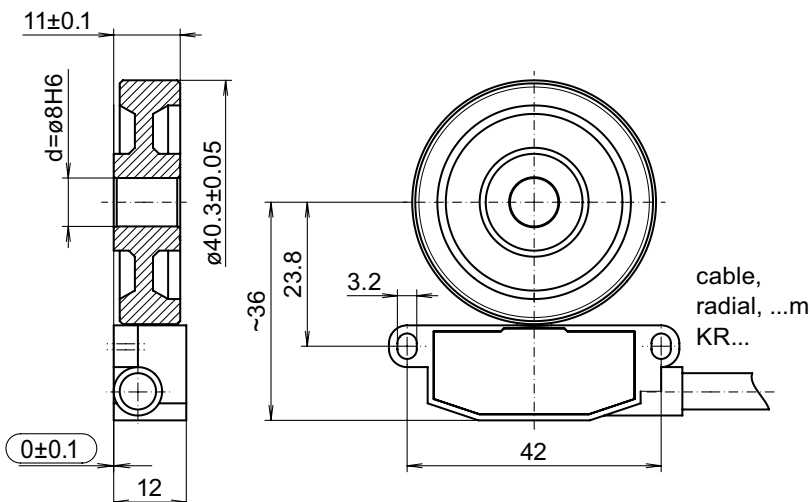
dimension drawing (optimal mounting)

d = ø9 mm, ø9.525 mm, ø10 mm, ø12 mm, ø12.7 mm, ø14 mm, ø15 mm, ø15.875 mm, ø19 mm, ø25 mm, ø25.4 mm, ø28 mm.
Please specify the desired bore diameter in your order.

(when rotating the shaft in the fixed housing)

∠ 0.05

d p5

ø38

min. 11

(0±0.1)

(when rotating the shaft in the fixed housing)

∠ 0.05

11±0.1

d H6

ø40.3±0.05

23.8

3.2

~36

42

cable, radial, ...m KR...

0±0.1

12

d = ø8 mm
Please specify the desired bore diameter in your order.

11±0.1

d=ø8H6

ø40.3±0.05

23.8

3.2

~36

42

cable, radial, ...m KR...

0±0.1

12
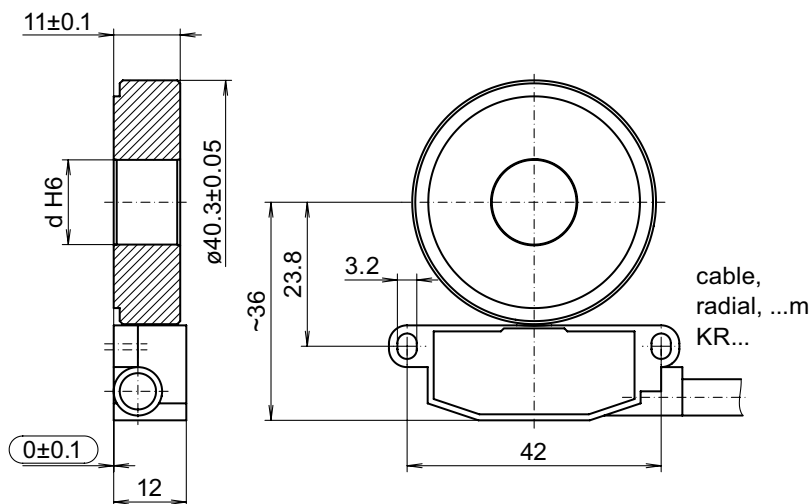
| Mounting type	Shaft tolerance	Requirement
Shrink fitting	d p5	Maximum heating of the pole wheel $T_{(max)}$=100 °C
Adhesive mounting	d g6	Please observe the manufacturer's instructions for the adhesive mounting with respect to adhesives and adhesive air gap. Recommendation: Adhesive Loctite 3504

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.

Encoders without bearings - incremental
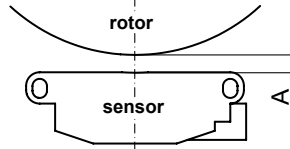
Mounting tolerances, operating tolerances

Permitted change of position sensor to rotor during mounting and operation:
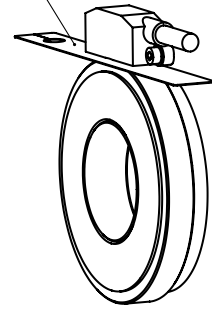
Axial offset:
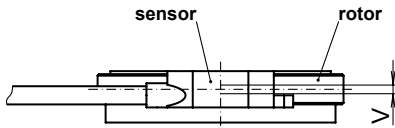
V = ±0.5 mm, optimal 0.1 mm

Working distance:

A = 0.2...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!

sensor

fastening
screw + washer
(customer
supplied)

rotor

Baumer