Encoders without bearings - incremental

Through hollow shaft ø40 to ø65 mm
128 sinewave cycles per revolution

ITD69H00 - Sine signal

ITD69H00 - Design for heat-shrink or adhesive mounting

Features
– **Bearingless magnetic encoder**
– **128 sinewave cycles per revolution**
– **Output circuit: Sine 1 Vpp**
– **Fast, easy and space saving installation**
– **Maintenance-free**
– **High accuracy - error max. ±0.2°**
– **Rotation speed max. 15000 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	128
Output signals	A+, A-, B+, B- A+, A-, B+, B-, N+, N-
Output frequency	≤180 kHz (-3 dB)
System accuracy	±0.2°
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	ø40...65 mm (through hollow shaft)
Protection DIN EN 60529	IP 67 (relating to sealed electronics)
Operating speed	≤15000 rpm
Working distance	0.2...0.5 mm (radial), optimal 0,3 mm
Axial offset	±0.5 mm
Materials	Housing: plastic Shaft: stainless steel
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.	390 g
Connection	Cable 1 m
Admitted cable length	15 m

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Part number

| ITD69H00 | 128 | M | | KR1 | E | | IP67 |

Protection
IP67   IP 67

Through hollow shaft
40   ø40 mm
45   ø45 mm
50   ø50 mm
55   ø55 mm
60   ø60 mm
65   ø65 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

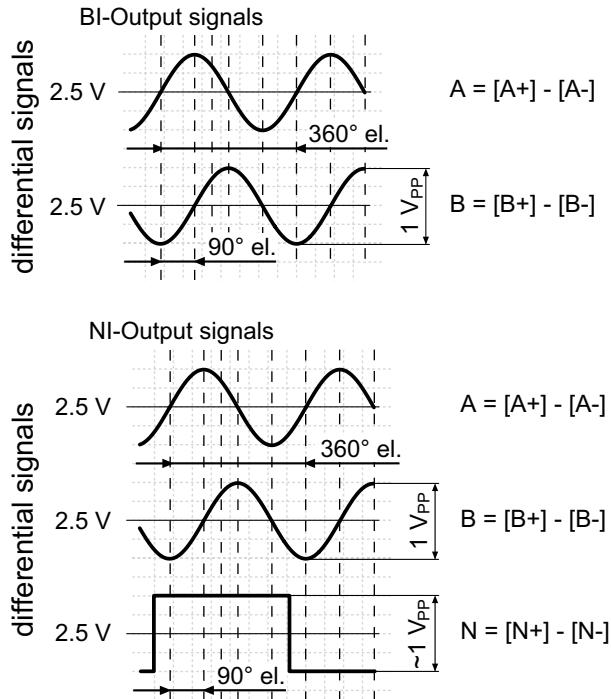**Sinewave cycles**
128

17/4/2019

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Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals

$A = [A+] - [A-]$

$B = [B+] - [B-]$

NI-Output signals

$A = [A+] - [A-]$

$B = [B+] - [B-]$

$N = [N+] - [N-]$

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

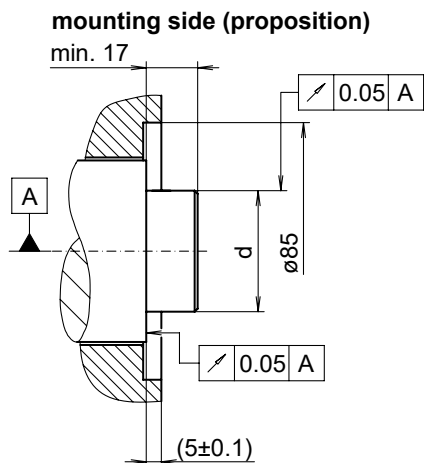| Outputs	Sine
Output amplitude A + B	1 V_{PP} at $Z_0 = 120\ \Omega$
Output amplitude N	approx. 2,5 V at $Z_0 = 120\ \Omega$

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Dimensions

mounting side (proposition)

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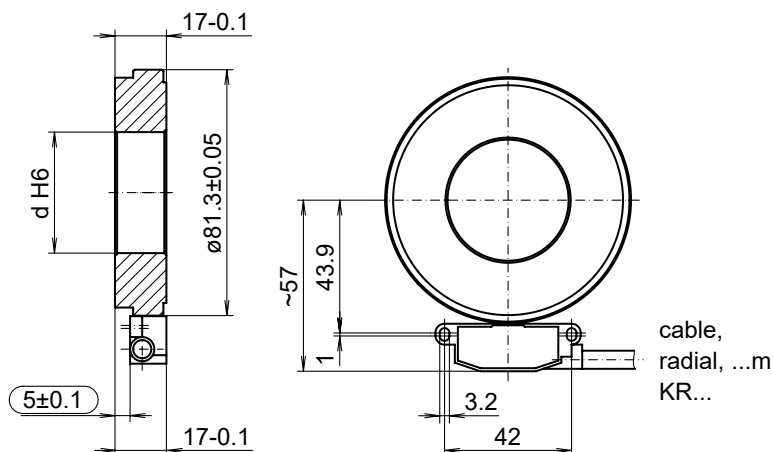
| Mounting type	Shaft tolerance	Requirement
Shrink fitting	d p5	Maximum heating of the pole wheel $T_{(max)}$=100 °C
Adhesive mounting	d g6	Please observe the manufacturer's instructions for the adhesive mounting with respect to adhesives and adhesive air gap. Recommendation: Adhesive Loctite 3504

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.
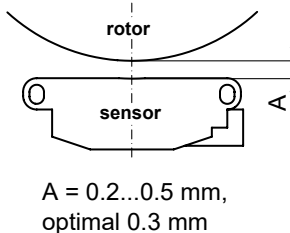
Mounting tolerances, operating tolerances

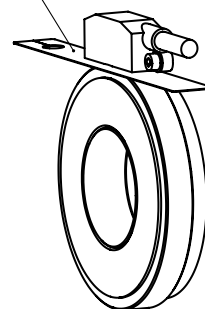Permitted change of position sensor to rotor during mounting and operation:

Axial offset:

V = ±0.5 mm, optimal 0.1 mm

Working distance:

A = 0.2...0.5 mm, optimal 0.3 mm
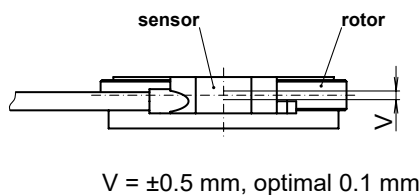
Use the distance band as a mounting tool for optimal gap (0.3 mm) between sensor and rotor.

Mounting position

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

sensor

fastening screw + washer (customer supplied)

rotor