

## ITD69H00 - Sine signal

 Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

### Overview

- 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.  $\pm 0.2^\circ$
- 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  $\pm 10$  %

Reverse polarity protection Yes

Short-circuit proof Yes

 Consumption w/o load  $\leq 50$  mA

Sinewave cycles per revolution 128

Output signals A+, A-, B+, B-, A+, A-, B+, B-, N+, N-

Output stages SinCos 1 Vpp

 Output frequency  $\leq 180$  kHz (-3 dB)

 System accuracy  $\pm 0.2^\circ$ 

Interference immunity EN 61000-6-2

Emitted interference EN 61000-6-3

#### Technical data - mechanical design

 Shaft type  $\varnothing 40 \dots 68$  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  $\leq 10000$  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

 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. 390 g

Connection Cable 1 m

### Optional

- Cable with connector
- Redundant sensing

# ITD69H00 - Sine signal

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

## Terminal assignment

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

Core colour	Assignment
green	A +
yellow	A -
grey	B +
pink	B -
red	UB
blue	GND
transparent	Shield/Housing

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

Core colour	Assignment
green	A +
yellow	A -
grey	B +
pink	B -
brown	N +
white	N -
red	UB
blue	GND
transparent	Shield/Housing

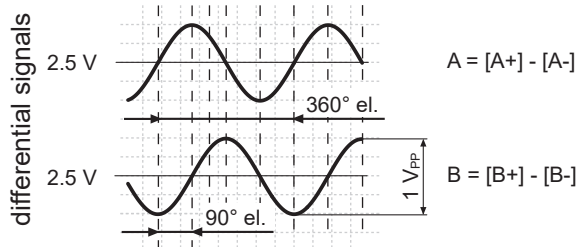
## Output signal level

Outputs	Sine
Output amplitude A + B	1 V <sub>PP</sub> at Z <sub>0</sub> = 120 Ω
Output amplitude N	approx. 2,5 V at Z <sub>0</sub> = 120 Ω

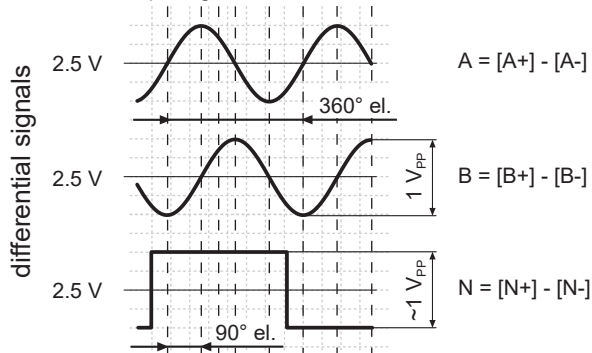
## Output signals

Clockwise rotation when looking at the mounting side.

### BI-Output signals



### NI-Output signals



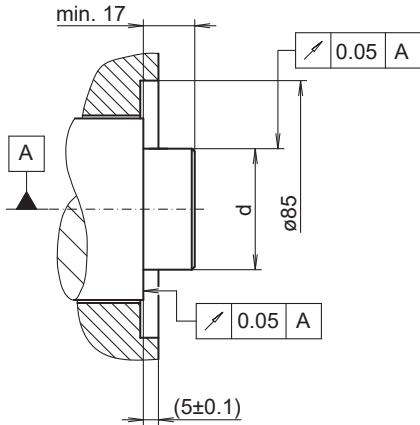
# ITD69H00 - Sine signal

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

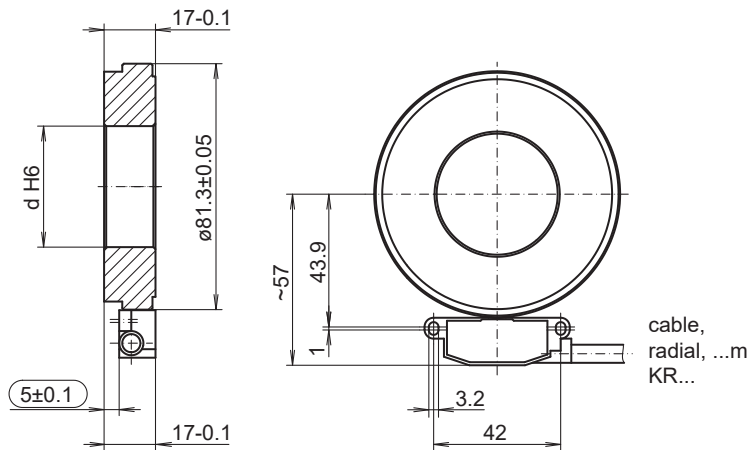
128 sinewave cycles per revolution

## 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

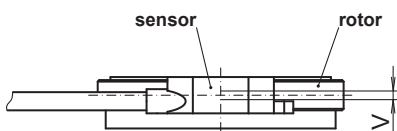
### Installation note:

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

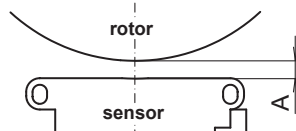
Permitted change of position sensor to rotor during mounting and operation:

### Axial offset:



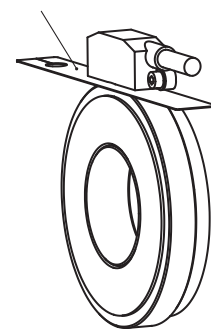
$V = \pm 0.5$  mm, optimal 0.1 mm

### Working distance:



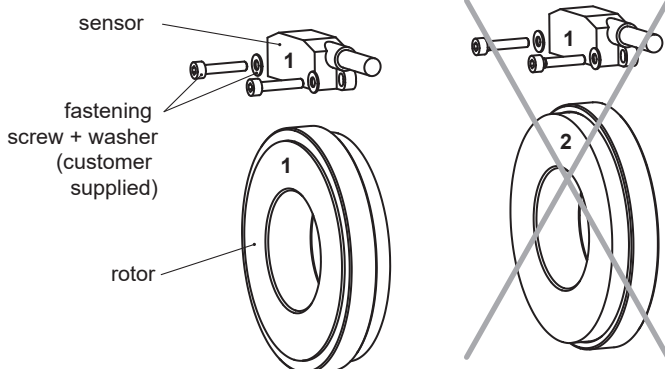
$A = 0.2 \dots 0.5$  mm,  
optimal 0.3 mm

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!



# ITD69H00 - Sine signal

 Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

**Ordering reference**

	<b>ITD69H00</b>	<b>128</b>	<b>M</b>	<b>####</b>	<b>KR1</b>	<b>E</b>	<b>#####</b>	<b>IP</b>	<b>67</b>
<b>Product</b>	ITD69H00								
<b>Sinewave cycles</b>	128								
<b>Voltage supply</b>	UB= 5 VDC $\pm 10\%$ / sine 1 Vpp		M						
<b>Output signal sine</b>	A+, A-, B+, B-		BI						
	A+, A-, B+, B-, N+, N-		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>	Ø40 mm, for adhesive or heat-shrink mounting		40						
	Ø45 mm, for adhesive or heat-shrink mounting		45						
	Ø50 mm, for adhesive or heat-shrink mounting		50						
	Ø55 mm, for adhesive or heat-shrink mounting		55						
	Ø60 mm, for adhesive or heat-shrink mounting		60						
	Ø65 mm, for adhesive or heat-shrink mounting		65						
	IP		IP						
<b>Protection class</b>	IP67 (relating to sealed electronics)		67						

Other diameters on request.

2022-10-06 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.