

## ITD89H00 - Sine signal

Through hollow shaft  $\varnothing 70$  to  $\varnothing 140$  mm

256 sinewave cycles per revolution

### Overview

- Bearingless magnetic encoder
- 256 sinewave cycles per revolution
- Output circuit: Sine 1 Vpp
- Fast, easy and space saving installation
- Maintenance-free
- High accuracy - error max.  $\pm 0.1^\circ$
- Rotation speed max. 5000 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	256
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	$\pm 0.1^\circ$
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3

#### Technical data - mechanical design

Shaft type	$\varnothing 70 \dots 140$ mm (through hollow shaft)
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#### Technical data - mechanical design

Dimensions W x H x L	12 x 16 x 48 mm
Motor shaft tolerance	0.5 mm axial 0.05 mm radial
Protection EN 60529	IP 67 (relating to sealed electronics)
Operating speed	$\leq 5000$ rpm
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.	2200 g (at $\varnothing 70$ mm) 619 g (at $\varnothing 140$ mm)
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	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

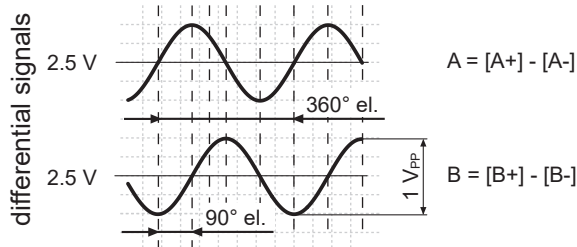
## Output signal level

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

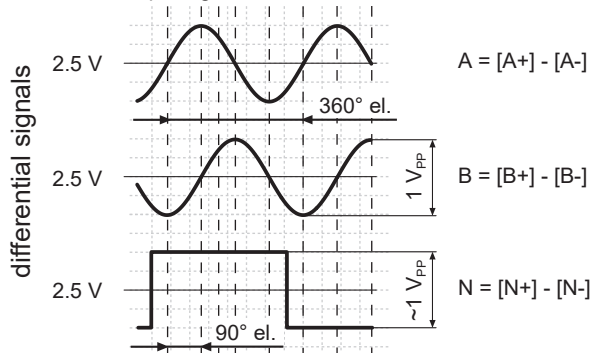
## Output signals

Clockwise rotation when looking at the mounting side.

### BI-Output signals



### NI-Output signals



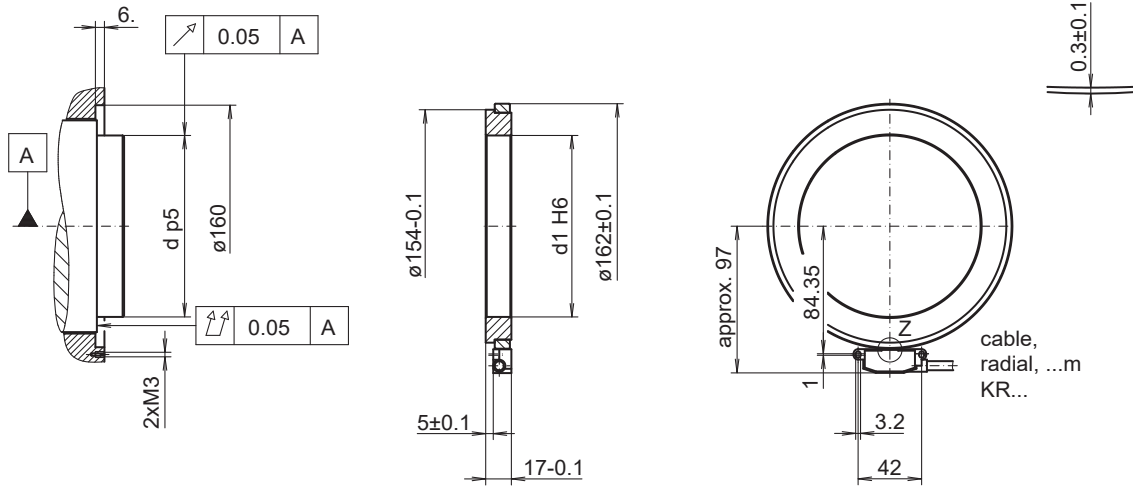
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## Dimensions

Mounting side:  
Proposal for shrink fitting\*.  
Maximum heating of the  
pole wheel  $T_{(max)}=100$  °C



\* Please observe the manufacturer's instructions for the adhesive mounting with respect to adhesives and adhesive air gap.  
Recommendation: Loctite 3504, air gap  $15 \mu\text{m} \pm 5 \mu\text{m}$

040-2

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**Ordering reference**

	<b>ITD89H00</b>	<b>0256</b>	<b>M</b>	<b>####</b>	<b>KR1</b>	<b>E</b>	<b>##</b>	<b>IP67</b>
<b>Product</b>	ITD89H00							
<b>Sinewave cycles</b>	256	0256						
<b>Voltage supply / signals</b>	5 VDC / sine 1 Vpp		M					
<b>Output signals</b>	A+, A-, B+, B- (sine)			BI				
	A+, A-, B+, B-, N+, N- (sine)			NI				
<b>Connection</b>	Cable 1 m, radial				KR1			
<b>Operating temperature</b>	-40...+100 °C					E		
<b>Through hollow shaft</b>	$\varnothing 70$ mm							70
	$\varnothing 75$ mm							75
	$\varnothing 80$ mm							80
	$\varnothing 85$ mm							85
	$\varnothing 120$ mm							120
<b>Protection</b>	IP 67							IP67

Other diameters on request.