

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



Picture similar

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	256
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	$\pm 0.1^\circ$
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823

Technical data - mechanical design

Shaft type	$\varnothing 70 \dots 140$ mm (through hollow shaft)
Dimensions (sensor head)	12 x 16 x 49 mm
Motor shaft tolerance	0.5 mm axial 0.05 mm radial
Protection EN 60529	IP 67 (relating to sealed electronics)
Operating speed	≤ 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 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

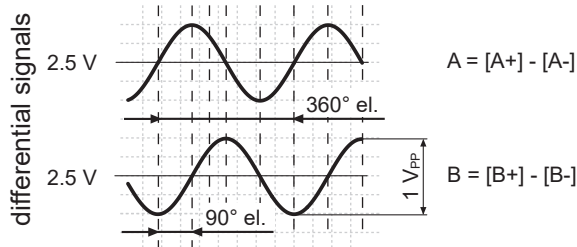
Output signal level

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

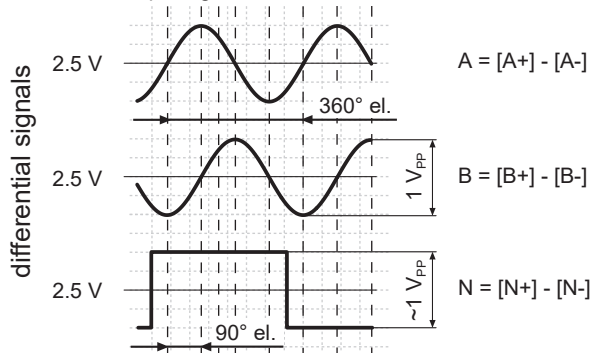
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals



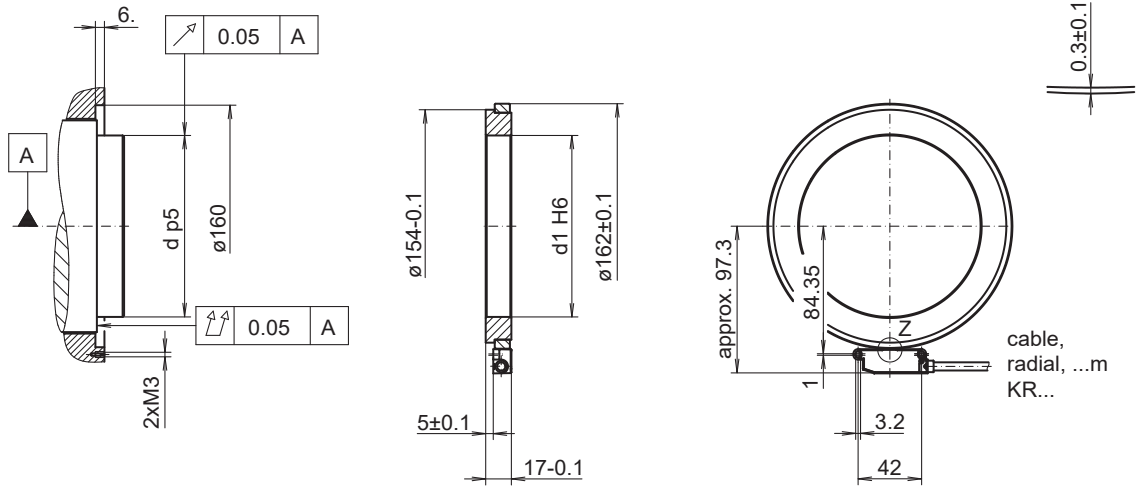
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Dimensions

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



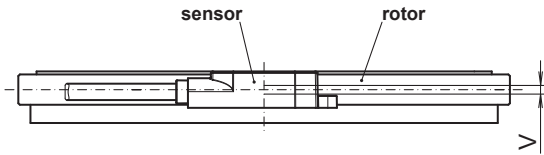
* Please observe the manufacturer's instructions for the adhesive mounting with respect to adhesives and adhesive air gap.
Recommendation: Loctite 3504, air gap $15 \mu\text{m} \pm 5 \mu\text{m}$

Dimensions

Mounting tolerances, operating tolerances

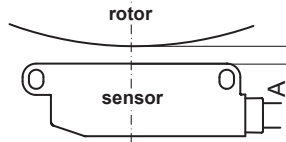
Permitted change of position sensor to rotor during mounting and operation:

Axial offset:



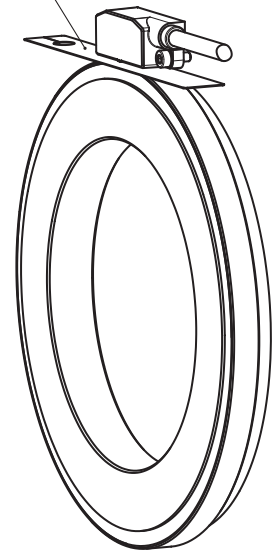
$V = \pm 0.5$ mm, optimal 0.1 mm

Working distance:



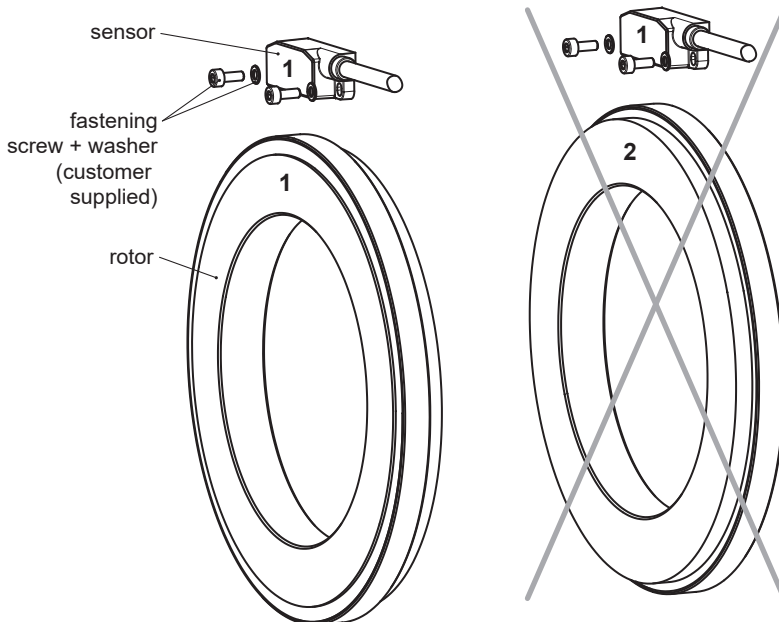
$A = 0.2 \dots 0.5$ mm,
optimal 0.3 mm

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

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

Other diameters on request