

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 |

Technical data - mechanical design

| | |
|------------|--|
| Shaft type | $\varnothing 70 \dots 140$ mm (through hollow shaft) |
|------------|--|

Technical data - mechanical design

| | |
|--------------------------|---|
| 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

ITD89H00 - Sine signal

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

256 sinewave cycles per revolution

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 |

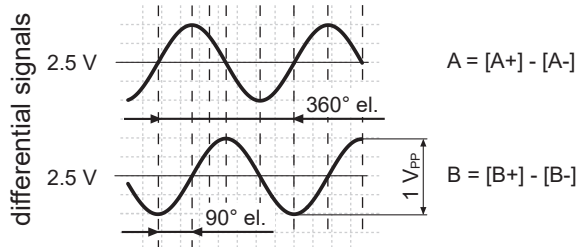
Output signal level

| 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 |

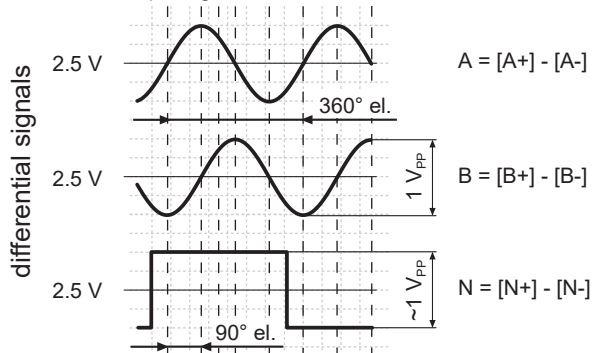
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals



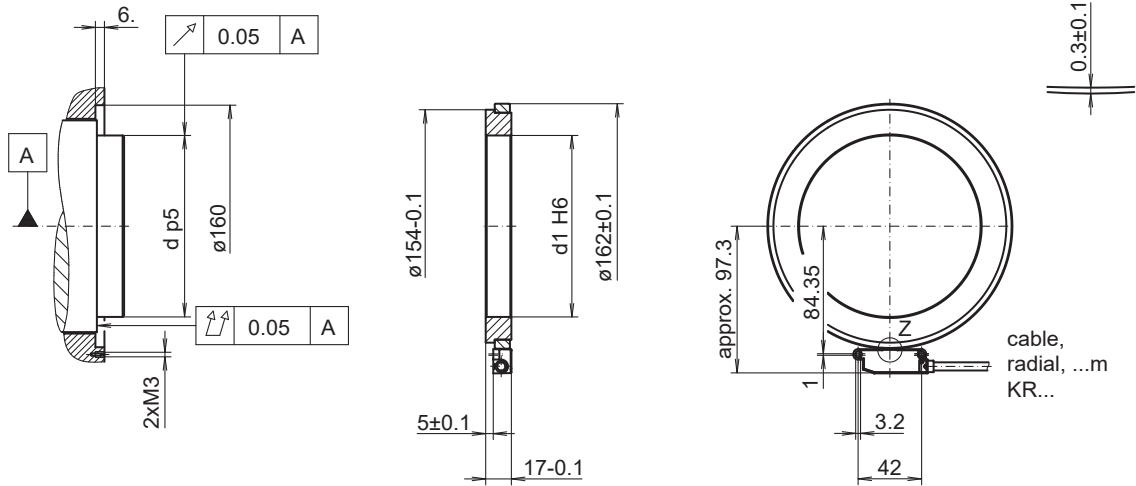
ITD89H00 - Sine signal

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

256 sinewave cycles per revolution

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 $15 \mu\text{m} \pm 5 \mu\text{m}$

ITD89H00 - Sine signal

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

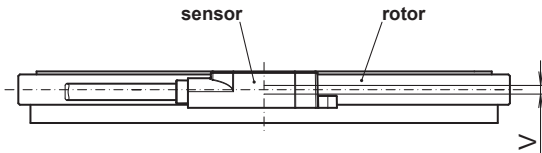
256 sinewave cycles per revolution

Dimensions

Mounting tolerances, operating tolerances

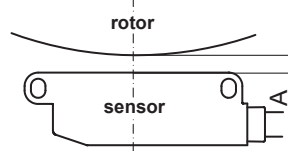
Permitted change of position sensor to rotor during mounting and operation:

Axial offset:



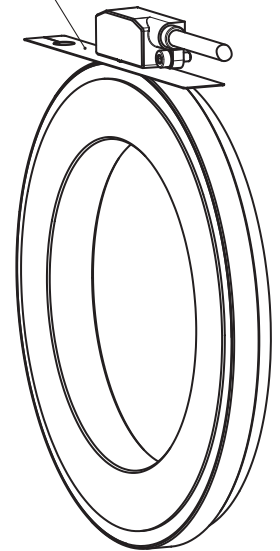
$V = \pm 0.5$ mm, optimal 0.1 mm

Working distance:



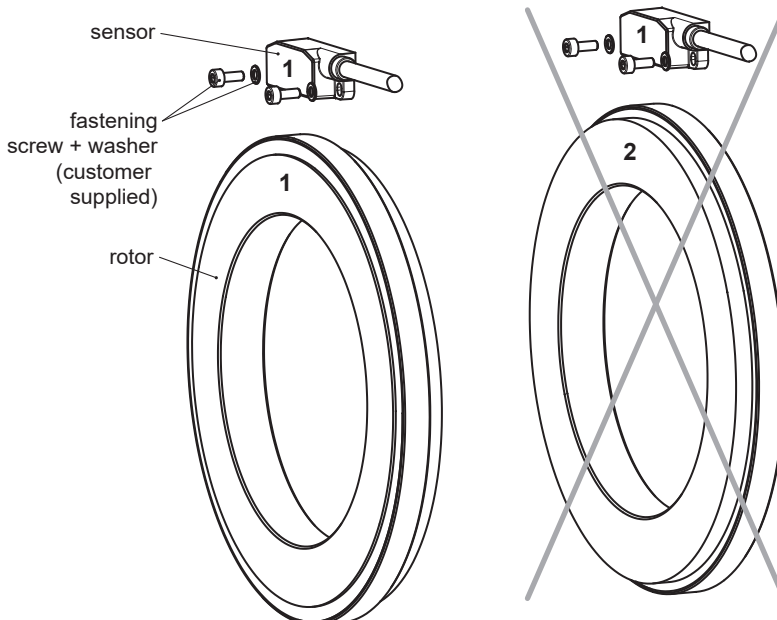
$A = 0.2 \dots 0.5$ mm,
optimal 0.3 mm

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!



ITD89H00 - Sine signal

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

256 sinewave cycles per revolution

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