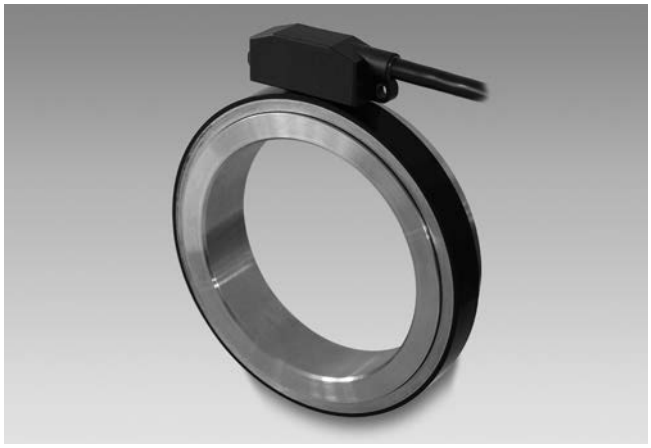
Encoders without bearings - incremental

Through hollow shaft ø70 to ø140 mm

256...8192 pulses per revolution

ITD89H00



ITD89H00 - for heat-shrink or adhesive mounting

Features

- **Bearingless magnetic encoder**
- **Max. 8192 pulses per revolution**
- **Output circuits: HTL, TTL or sine 1 Vpp**
- **Fast, easy and space saving installation**
- **Maintenance-free**
- **High accuracy - error max. ±0.1 °**
- **Rotation speed max. 7500 rpm**
- **High resistance to dirt and vibrations**

Optional

- **Cable with connector**
- **Redundant sensing**

Technical data - electrical ratings

Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption w/o load	≤50 mA
Interpolation	1-fold (single), 2-fold, 4-fold, 8-fold, 16-fold, 32-fold
Output signals	A 90° B, N A 90° B, N + inverted
System accuracy	±0.1°
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
ITD89H00	
Voltage supply	5 VDC ±5 % 8...26 VDC
Pulses per revolution	256...8192
Output current	≤30 mA
Output frequency	≤300 kHz (TTL) ≤160 kHz (HTL)
Output stages	TTL linedriver (short-circuit proof) HTL push-pull (short-circuit proof)
ITD89H00 sine	
Voltage supply	5 VDC ±10 %
Sinewave cycles per turn	256
Output frequency	≤180 kHz (-3 dB)
Output stages	SinCos 1 Vpp

Technical data - mechanical design

Dimensions W x H x L	12 x 16 x 48 mm
Shaft type	ø70...140 mm (through hollow shaft)
Motor shaft tolerance	±0.5 mm axial ±0.05 mm radial
Protection DIN EN 60529	IP 67 (relating to sealed electronics)
Operating speed	≤7500 rpm
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.	2200 g (at ø70 mm), 619 g (at ø140 mm)
Connection	Cable 1 m
Admitted cable length	15 m

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ITD89H00

Part number

Rectangular signal encoder

ITD89H00				KR1	E		IP67

Protection
IP67 IP 67

Through hollow shaft
70 ø70 mm
75 ø75 mm
80 ø80 mm
85 ø85 mm
120 ø120 mm
... other diameters on request

Operating temperature
E -40...+100 °C

Connection
KR1 Cable 1 m, radial

Output signals
BI A, A inv, B, B inv
NI A, A inv, B, B inv, 0, 0 inv

Voltage supply / signals
T 5 VDC / TTL level, linedriver
H 8...26 VDC / HTL level, push-pull

Pulse number - see table

Pulse number

256*	1024	4096
512*	2048	8192

* Featured pulse numbers available as BI output signals.

Encoders without bearings - incremental

Through hollow shaft ø70 to ø140 mm

256...8192 pulses per revolution

ITD89H00

Part number

Sine signal encoder

ITD89H00	256	M		KR1	E		IP67

Protection
IP67 IP 67

Through hollow shaft
70 ø70 mm
75 ø75 mm
80 ø80 mm
85 ø85 mm
120 ø120 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
256

ITD89H00

Terminal assignment

Square wave signal-encoder

With BI-signals, cable [4x2x0,08 mm²]

Core colour	Assignment
green	Track A
yellow	Track A inv.
grey	Track B
pink	Track B inv.
red	UB
blue	GND
transparent	Shield/Housing

With NI-signals, cable [4x2x0,08 mm²]

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

Sine signal-encoder

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

Trigger level

Square wave signal-encoder

Outputs	**Linedriver**
Output level High	≥2,5 V
Output level Low	≤0,5 V
Load	≤30 mA

Outputs	**Push-pull** short-circuit proof
Output level High	≥UB -3 V
Output level Low	≤1,5 V
Load	≤30 mA

Output signal level

Sine signal-encoder

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

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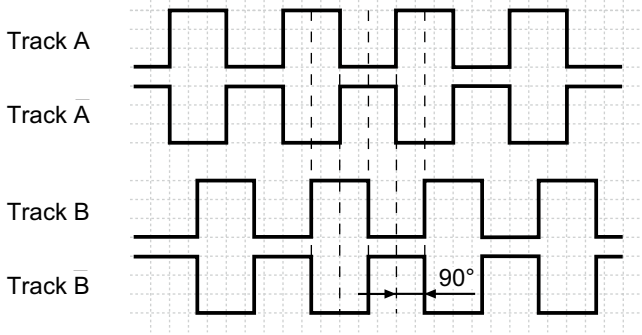
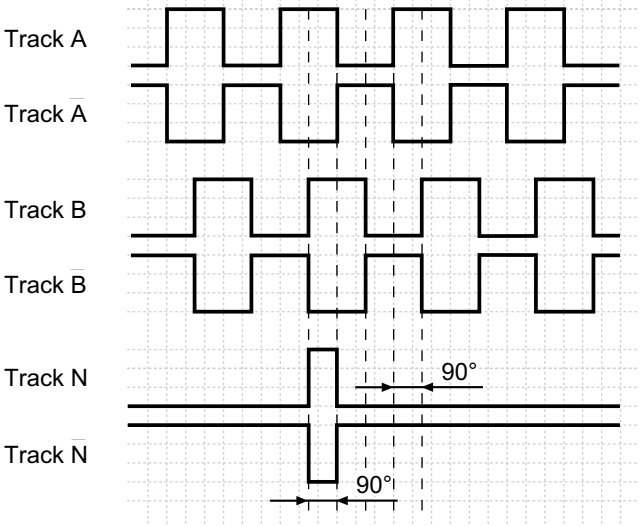
Output signals

Clockwise rotation when looking at the mounting side.

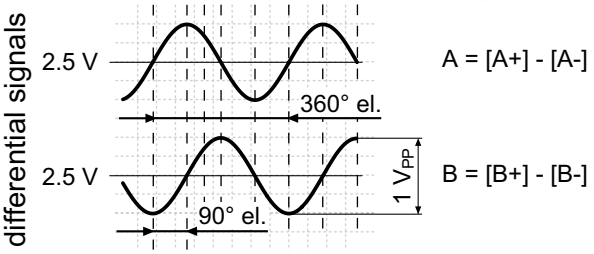
BI-Output signals (Square wave signal-encoder)



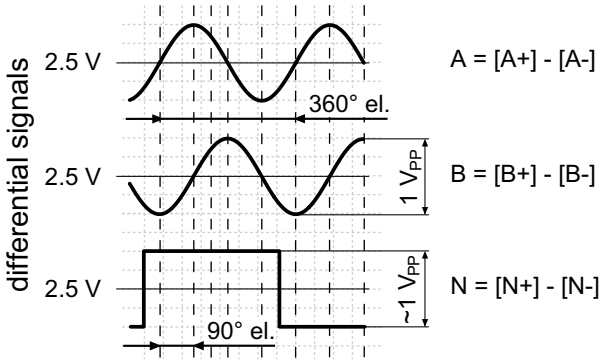
NI-Output signals (Square wave signal-encoder)



BI-Output signals (Sine signal-encoder)



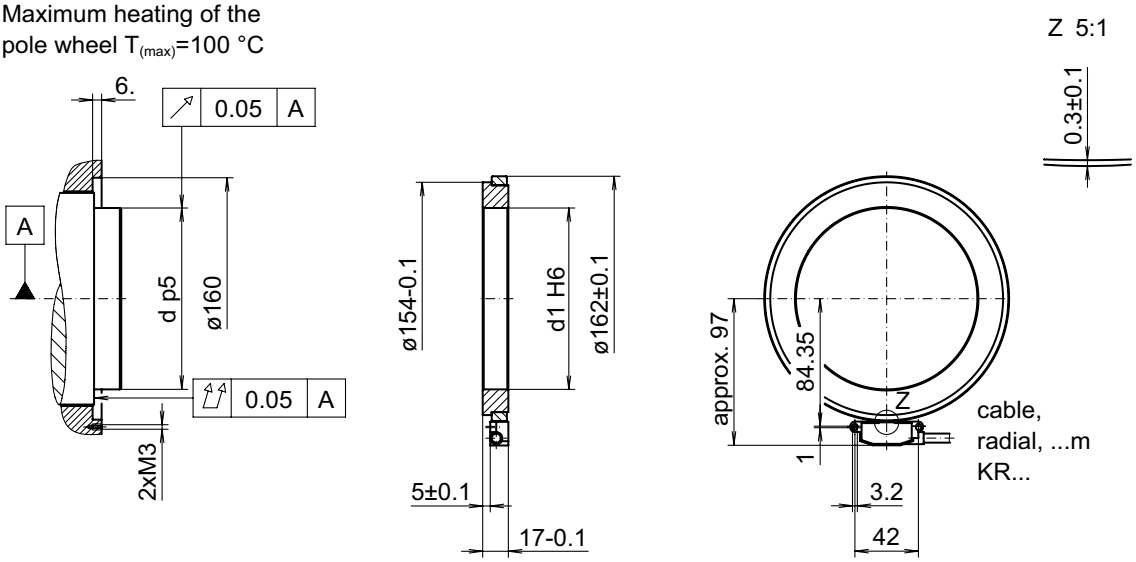
NI-Output signals (Sine signal-encoder)



ITD89H00

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: Locite 3504, air gap 15 µm ±5 µm

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