

# Encoders without bearings - incremental

Through hollow shaft  $\varnothing 40$  to  $\varnothing 65$  mm

128...4096 pulses per revolution

## ITD69H00



ITD69H00 - Design for heat-shrink or adhesive mounting

### Technical data - electrical ratings

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, 0 A 90° B, N + inverted
Short-circuit proof	Yes
Reverse polarity protection	Yes
System accuracy	±0.2°
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

### ITD69H00

Voltage supply	5 VDC ±5 % 8...26 VDC
Pulses per revolution	128...4096
Output stages	TTL linedriver (short-circuit proof) HTL push-pull (short-circuit proof)
Output current	≤30 mA
Output frequency	≤300 kHz (TTL) ≤160 kHz (HTL)

### ITD69H00 sine

Voltage supply	5 VDC ±10 %
Sinewave cycles per turn	128
Output stages	SinCos 1 Vpp
Output frequency	≤180 kHz (-3 dB)

### Features

- Bearingless magnetic encoder
- Max. 4096 pulses per revolution
- Output circuits: HTL, TTL or sine 1 Vpp
- Fast, easy and space saving installation
- Maintenance-free
- High accuracy - error max. ±0.2 °
- Rotation speed max. 15000 rpm
- High resistance to dirt and vibrations

### Optional

- Cable with connector
- Redundant sensing

### Technical data - mechanical design

Dimensions W x H x L	12 x 16 x 48 mm
Shaft type	Ø40...65 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 temperature	-40...+100 °C (fixed cable)
Operating speed	≤15000 rpm
Resistance	DIN EN 60068-2-6 Vibration 10 g, 55-2000 Hz DIN EN 60068-2-27 Shock 100 g, 11 ms
Materials	Housing: plastic Shaft: stainless steel
Connection	Cable 1 m
Weight approx.	390 g
Admitted cable length	15 m

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ITD69H00

## Part number

### Rectangular signal encoder

ITD69H00 

			KR1	E		IP67
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Protection  
IP67 IP 67

Through hollow shaft  
40  $\varnothing 40$  mm  
45  $\varnothing 45$  mm  
50  $\varnothing 50$  mm  
55  $\varnothing 55$  mm  
60  $\varnothing 60$  mm  
65  $\varnothing 65$  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

128*	512	2048
256*	1024	4096

\* Featured pulse numbers available as BI output signals.

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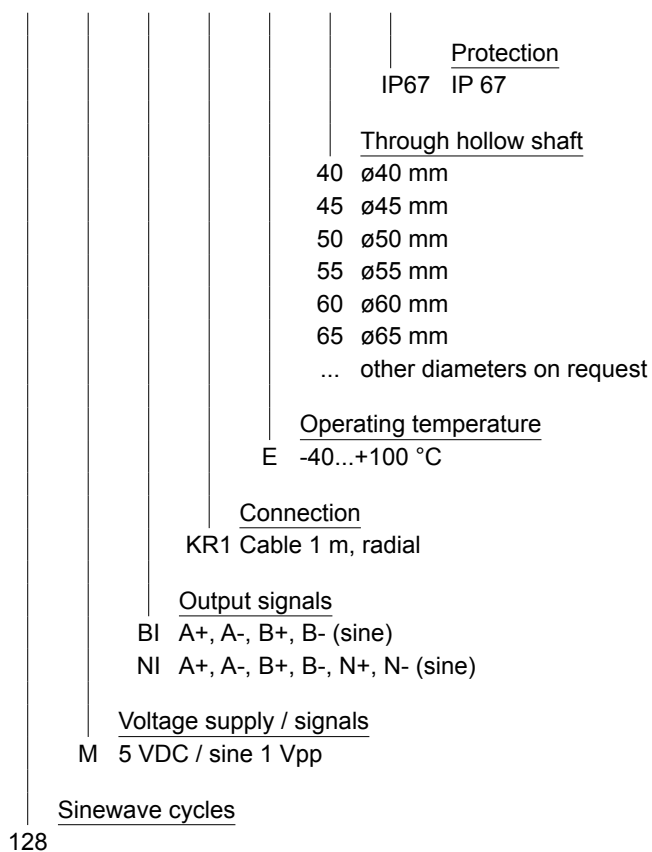
128...4096 pulses per revolution

## ITD69H00

### Part number

### Sine signal encoder

ITD69H00 128 M KR1 E IP67



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ITD69H00

## Terminal assignment

### Square wave signal-encoder

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

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 mm<sup>2</sup>]

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 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

## Trigger level

### Square wave signal-encoder

Outputs	Linedriver
Output level High	$\geq 2,5$ V
Output level Low	$\leq 0,5$ V
Load	$\leq 30$ mA

Outputs	Push-pull short-circuit proof
Output level High	$\geq UB - 3$ V
Output level Low	$\leq 1,5$ V
Load	$\leq 30$ mA

## Output signal level

### Sine signal-encoder

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

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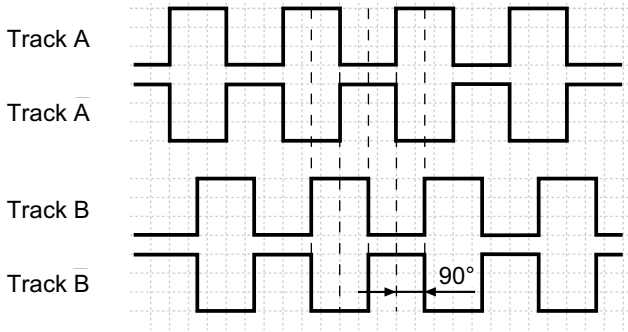
128...4096 pulses per revolution

## ITD69H00

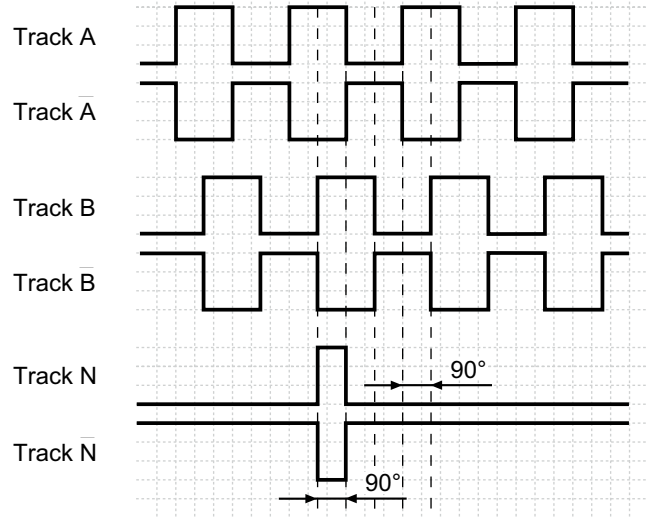
### Output signals

Clockwise rotation when looking at the mounting side.

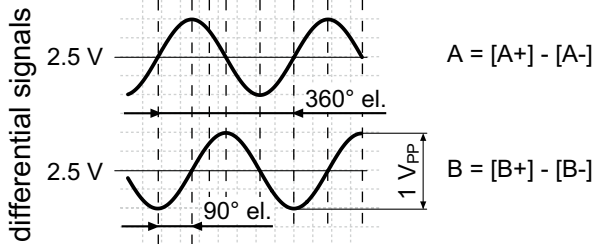
BI-Output signals (Square wave signal-encoder)



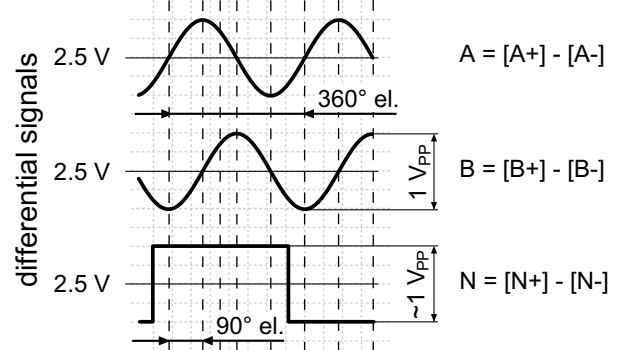
NI-Output signals (Square wave signal-encoder)



BI-Output signals (Sine signal-encoder)



NI-Output signals (Sine signal-encoder)



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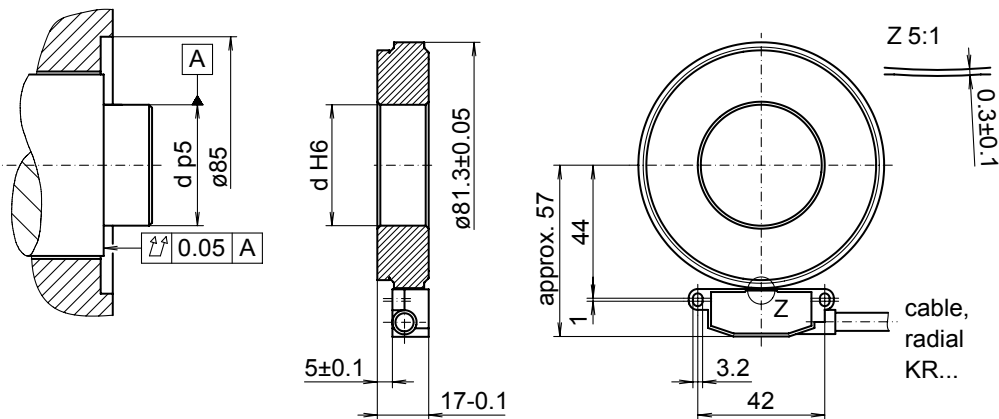
ITD69H00

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

039- 8