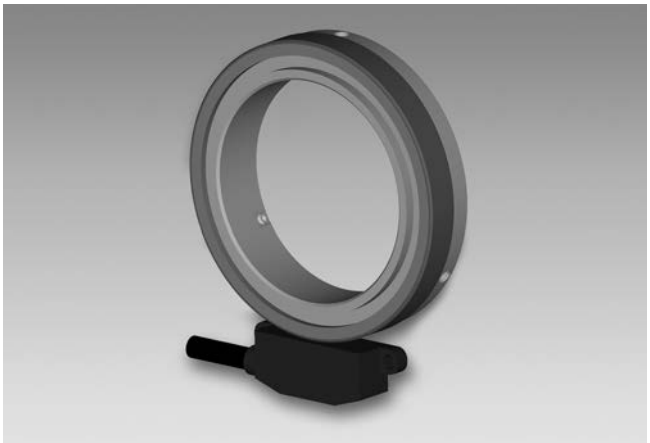
Encoders without bearings - incremental

Through hollow shaft ø40 to ø68 mm

128...4096 pulses per revolution

ITD69H02 - Rectangular signal



ITD69H02 - Fastened with threaded pins

Features

- **Bearingless magnetic encoder**
- **Max. 4096 pulses per revolution**
- **Output circuits: HTL or TTL**
- **Fast, easy and space saving installation**
- **Maintenance-free**
- **High accuracy - error max. ±0.2 °**
- **Rotation speed max. 6000 rpm**
- **High resistance to dirt and vibrations**

Optional

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

Technical data - electrical ratings

Voltage supply	5 VDC ±5 % 8...26 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption w/o load	≤50 mA
Pulses per revolution	128...4096
Interpolation	1-fold (single), 2-fold, 4-fold, 8-fold, 16-fold, 32-fold
Output signals	A 90° B + inverted A 90° B, N + inverted
Output current	≤30 mA
Output frequency	≤300 kHz (TTL) ≤160 kHz (HTL)
System accuracy	±0.2°
Output stages	TTL linedriver (short-circuit proof) HTL push-pull (short-circuit proof)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

Technical data - mechanical design

Dimensions W x H x L	12 x 16 x 48 mm
Shaft type	ø40...68 mm (through hollow shaft)
Protection DIN EN 60529	IP 67 (relating to sealed electronics)
Operating speed	≤6000 rpm
Working distance	0.2...0.5 mm (radial), optimal 0,3 mm
Axial offset	±0.5 mm
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.	390 g
Connection	Cable 1 m
Admitted cable length	15 m

ITD69H02 - Rectangular signal

Part number

ITD69H02				KR1	E		IP67

Pulse number - see table

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

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

Connection
- KR1 Cable 1 m, radial

Operating temperature
- E -40...+100 °C

Through hollow shaft
- 40 ø40 mm
- 42 ø42 mm
- 45 ø45 mm
- 50 ø50 mm
- 55 ø55 mm
- 60 ø60 mm
- 65 ø65 mm
- 68 ø68 mm
- ... other diameters on request

Protection
- IP67 IP 67

Pulse number

128*	512	2048
256*	1024	4096

* Featured pulse numbers available as BI output signals.

Encoders without bearings - incremental

Through hollow shaft ø40 to ø68 mm

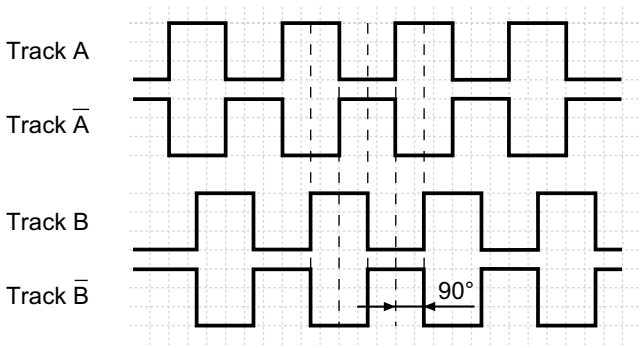
128...4096 pulses per revolution

ITD69H02 - Rectangular signal

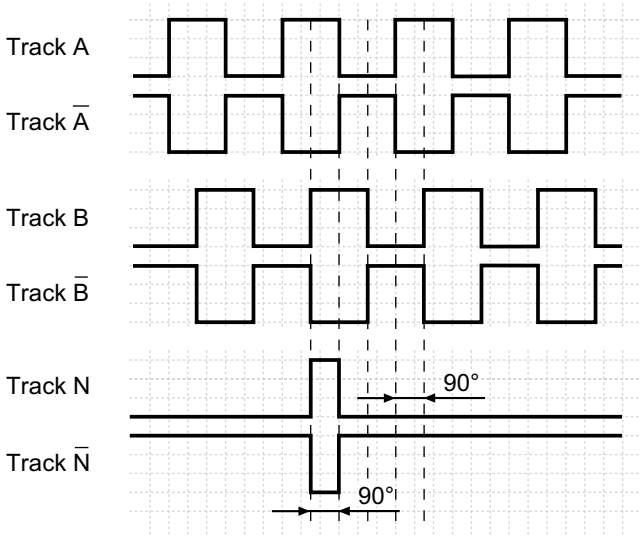
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals



Terminal assignment

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

Trigger level

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

ITD69H02 - Rectangular signal

Dimensions

mounting side (proposition)

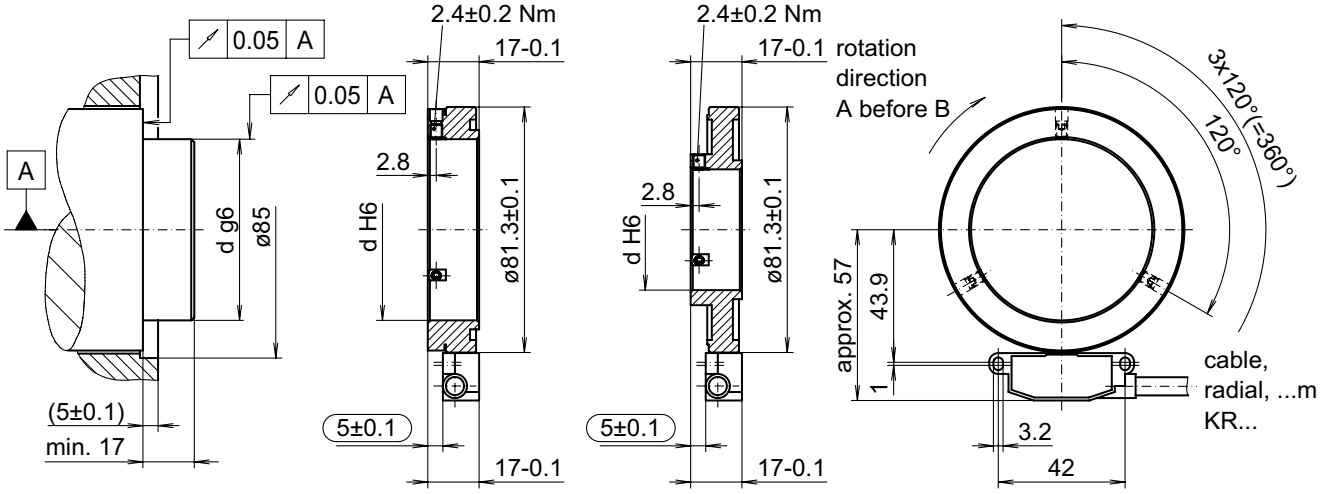
dimension drawing (optimal mounting)

d H6: ø60-ø68

3 set screws
DIN EN ISO 4029 - M4
A/F2
tightening torque
2.4±0.2 Nm

d H6: ø40-ø55

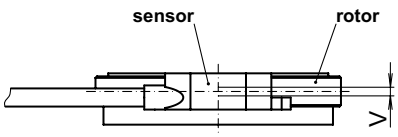
3 set screws
DIN EN ISO 4029 - M4
A/F2
tightening torque
2.4±0.2 Nm



Mounting tolerances, operating tolerances

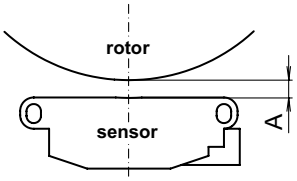
Permitted change of position sensor to rotor during mounting and operation:

Axial offset:



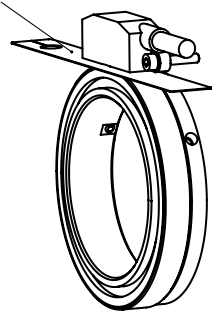
V = ±0.5 mm, optimal 0.1 mm

Working distance:



A = 0.2...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!