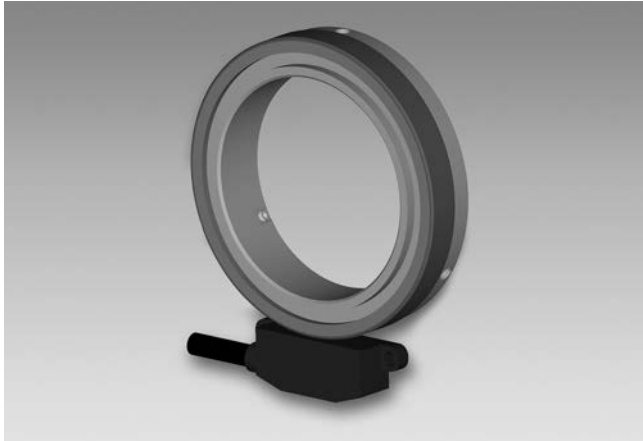


# Encoders without bearings - incremental

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

## ITD69H02 - Sine signal



ITD69H02 - Fastened with threaded pins

### Technical data - electrical ratings

Voltage supply	5 VDC $\pm 10$ %
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption w/o load	$\leq 50$ mA
Sinewave cycles per revolution	128
Output signals	A+, A-, B+, B- A+, A-, B+, B-, N+, N-
Output frequency	$\leq 180$ kHz (-3 dB)
System accuracy	$\pm 0.2^\circ$
Output stages	SinCos 1 Vpp
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

### Features

- Bearingless magnetic encoder
- 128 sinewave cycles per revolution
- Output circuit: Sine 1 Vpp
- Fast, easy and space saving installation
- Maintenance-free
- High accuracy - error max.  $\pm 0.2^\circ$
- Rotation speed max. 6000 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	$\varnothing 40 \dots 68$ mm (through hollow shaft)
Protection DIN EN 60529	IP 67 (relating to sealed electronics)
Operating speed	$\leq 6000$ rpm
Working distance	0.2...0.5 mm (radial), optimal 0,3 mm
Axial offset	$\pm 0.5$ mm
Materials	Housing: plastic Shaft: stainless steel
Operating temperature	$-40 \dots +100$ °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

# Encoders without bearings - incremental

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

ITD69H02 - Sine signal

## Part number

ITD69H02 128 M KR1 E IP67

Protection

IP67 IP 67

Through hollow shaft

40  $\varnothing 40$  mm

42  $\varnothing 42$  mm

45  $\varnothing 45$  mm

50  $\varnothing 50$  mm

55  $\varnothing 55$  mm

60  $\varnothing 60$  mm

65  $\varnothing 65$  mm

68  $\varnothing 68$  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

128

# Encoders without bearings - incremental

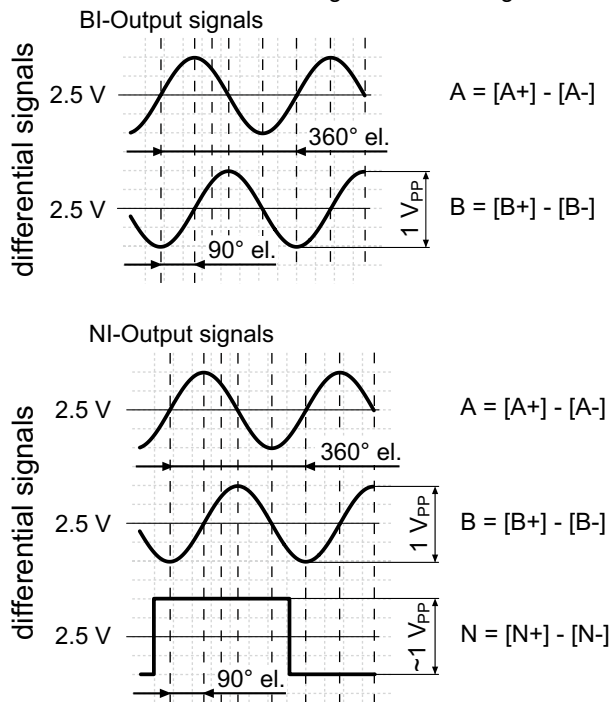
Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

## ITD69H02 - Sine signal

### Output signals

Clockwise rotation when looking at the mounting side.



### Output signal level

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

### Terminal assignment

#### 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

# Encoders without bearings - incremental

Through hollow shaft  $\varnothing 40$  to  $\varnothing 68$  mm

128 sinewave cycles per revolution

ITD69H02 - Sine signal

## Dimensions

mounting side (proposition)

dimension drawing (optimal mounting)

d H6:  $\varnothing 60$ - $\varnothing 68$

d H6:  $\varnothing 40$ - $\varnothing 55$

3 set screws

3 set screws

DIN EN ISO 4029 - M4

DIN EN ISO 4029 - M4

A/F2

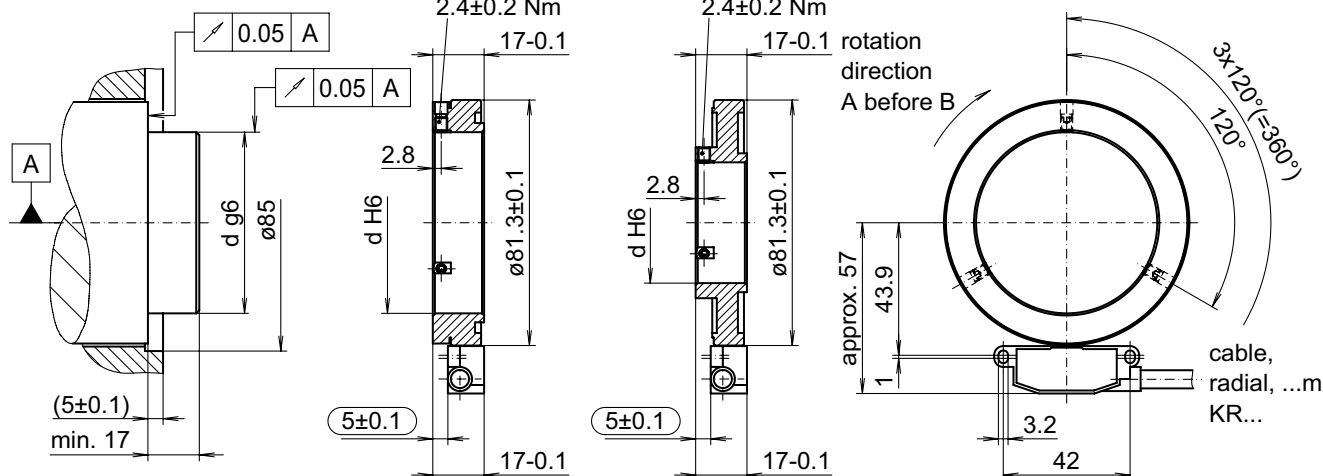
A/F2

tightening torque

tightening torque

$2.4 \pm 0.2$  Nm

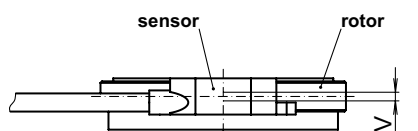
$2.4 \pm 0.2$  Nm



## Mounting tolerances, operating tolerances

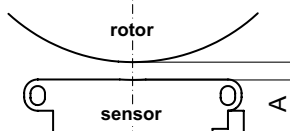
Permitted change of position sensor to rotor during mounting and operation:

**Axial offset:**



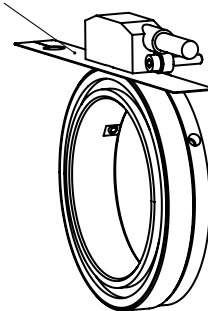
$V = \pm 0.5$  mm, optimal 0.1 mm

**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!

