Incremental encoders

End shaft ø10 to ø16 mm

Resolution 2000…10000 pulses

ITD 41 A 4

ITD 41 A 4 with end shaft

Features

- **Encoder with end shaft ø10-16 mm**
- **Resolution max. 10000 ppr**
- **Optical sensing**
- **Mounting by torque support**
- **TTL or HTL output signals**
- **Cable output radial or axial**

Optional

- **Cable with connector**
- **Extended operating temperature range**

Technical data - electrical ratings

Voltage supply	5 VDC ±5 % 8...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA
Resolution (steps/turn)	2000...10000
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤300 kHz (TTL) ≤160 kHz (HTL)
Output signals	A, B, N + inverted
Output circuit	TTL linedriver (short-circuit proof) HTL push-pull (short-circuit proof)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 55011

Technical data - mechanical design

Dimensions (flange)	ø80 mm
Shaft	ø10...16 mm end shaft
Motor shaft tolerance	0.25 mm axial 0.1 mm radial
Mounting kit variant	050
Protection DIN EN 60529	IP 65
Operating speed	≤8000 rpm ≤5000 rpm IP 65 (>70 °C)
Starting torque	≤0.01 Nm
Materials	Housing: aluminium, black, powder-coated Shaft: stainless steel
Operating temperature	-20...+70 °C -20...+100 °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 55-2000 Hz DIN EN 60068-2-27 Shock 30 g, 11 ms
Connection	Cable 1 m
Weight approx.	550 g

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Part number

ITD 41 A 4 | | | **NI** | | | | | **050** |

Mounting kit
- 050 Mounting accessory kit 050

Protection
- IP54 IP 54
- IP65 IP 65

End shaft
- 10 End shaft ø10 mm
- 11 End shaft ø11 mm
- 12 End shaft ø12 mm
- 12.7 End shaft ø12.7 mm
- 14 End shaft ø14 mm
- 15 End shaft ø15 mm
- 16 End shaft ø16 mm

Operating temperature
- S -20...+70 °C
- E -20...+100 °C

Connection
- KR1 Cable 1 m, radial
- KA1 Cable 1 m, axial

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

Voltage supply / signals
- T 5 VDC / TTL level, linedriver
- H 8...30 VDC / HTL level, push pull
- R 8...30 VDC / TTL level, linedriver

See part number (pulses)

Part number (pulses)

2000	2500	3600	5000
2048	3072	4096	10000

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Resolution 2000…10000 pulses

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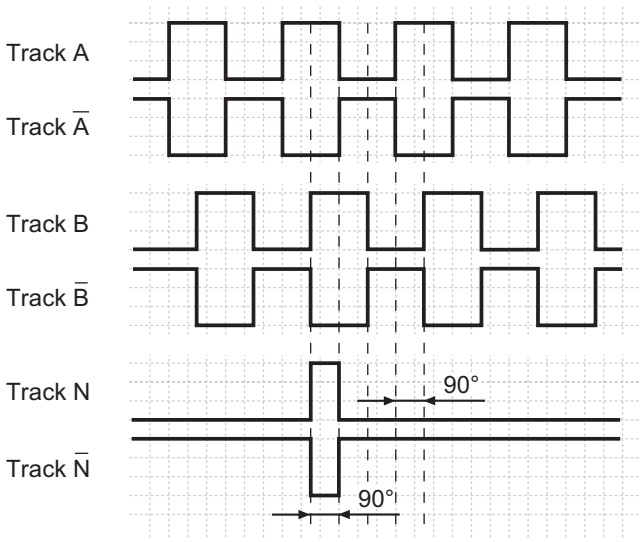
Output signals

Clockwise rotation when looking at the mounting side.

NI-Output signals



Terminal assignment

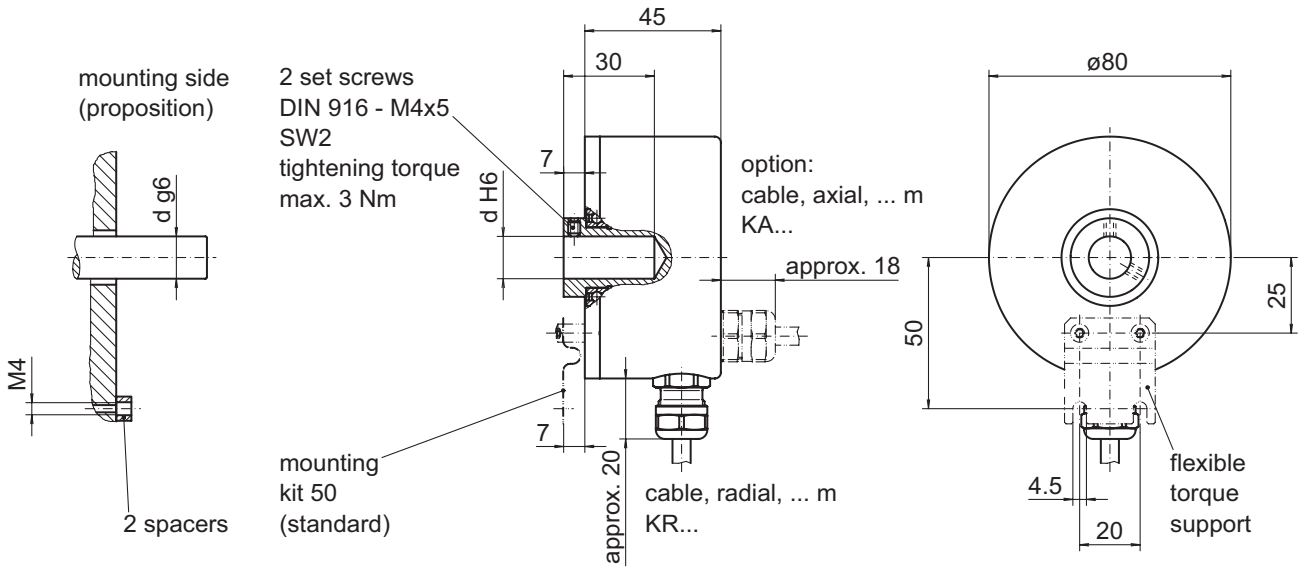
Core colour	Assignment
brown	Track A
green	Track A inv.
grey	Track B
pink	Track B inv.
red	Track N
black	Track N inv.
brown 0,5 mm²	UB
white 0,5 mm²	GND
blue	UB-Sense
white	GND-Sense
transparent	Shield/Housing

Trigger level

Outputs	**Linedriver**
Output level High	≥2.4 V
Output level Low	≤0.5 V
Load	≤70 mA

Outputs	**Push-pull** short-circuit proof
Output level High	≥UB -3 V
Output level Low	≤1.5 V
Load	≤70 mA

Dimensions



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