

# Incremental encoders

Hollow shaft  $\varnothing 10$  to  $\varnothing 16$  mm

Resolution 2000...10000 pulses

## ITD 41 A 4 Y 2



ITD 41 A 4 Y 2 with hollow shaft

### Features

- Encoder with hollow shaft  $\varnothing 10$ -16 mm
- Resolution max. 10000 ppr
- Optical sensing
- Through-hollow shaft
- Mounting by torque support
- TTL or HTL output signals
- Cable output radial

### Optional

- Cable with connector
- Extended operating temperature range

### Technical data - electrical ratings

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

### Technical data - mechanical design

|                         |  |
|-------------------------|--|
| Dimensions (flange)     | $\varnothing 80$ mm  |
| Shaft                   | $\varnothing 10$ ...16 mm hollow shaft   |
| Motor shaft tolerance   | 0.25 mm axial<br>0.1 mm radial   |
| Mounting kit variant    | 050  |
| Protection DIN EN 60529 | IP 65  |
| Operating speed         | $\leq 8000$ rpm<br>$\leq 5000$ rpm IP 65 ( $> 70^\circ\text{C}$ )                        |
| Starting torque         | $\leq 0.015$ Nm  |
| Materials               | Housing: aluminium, black, powder-coated<br>Shaft: stainless steel                       |
| Operating temperature   | $-20$ ... $+70^\circ\text{C}$<br>$-20$ ... $+100^\circ\text{C}$                          |
| Relative humidity       | 90 % non-condensing  |
| Resistance              | DIN EN 60068-2-6<br>Vibration 10 g, 55-2000 Hz<br>DIN EN 60068-2-27<br>Shock 30 g, 11 ms |
| Connection              | Cable 1 m  |
| Weight approx.          | 600 g  |

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## Part number

ITD 41 A 4 Y 2     NI KR1       050

### Mounting kit

050 Mounting accessory kit 050

### Protection

IP54 IP 54

IP65 IP 65

### Hollow shaft

10 Hollow shaft  $\varnothing 10$  mm

11 Hollow shaft  $\varnothing 11$  mm

12 Hollow shaft  $\varnothing 12$  mm

12.7 Hollow shaft  $\varnothing 12.7$  mm

14 Hollow shaft  $\varnothing 14$  mm

15 Hollow shaft  $\varnothing 15$  mm

16 Hollow shaft  $\varnothing 16$  mm

### Operating temperature

S -20...+70 °C

E -20...+100 °C

### Connection

KR1 Cable 1 m, radial

### 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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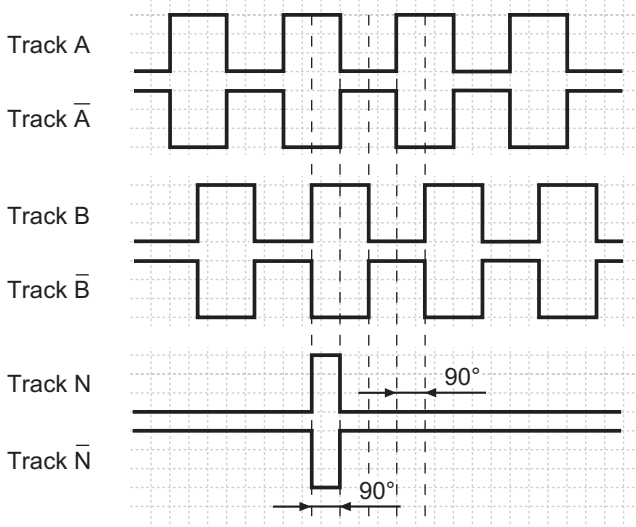
Resolution 2000...10000 pulses

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### Output signals

Clockwise rotation when looking at the mounting side.

NI-Output signals



### Terminal assignment

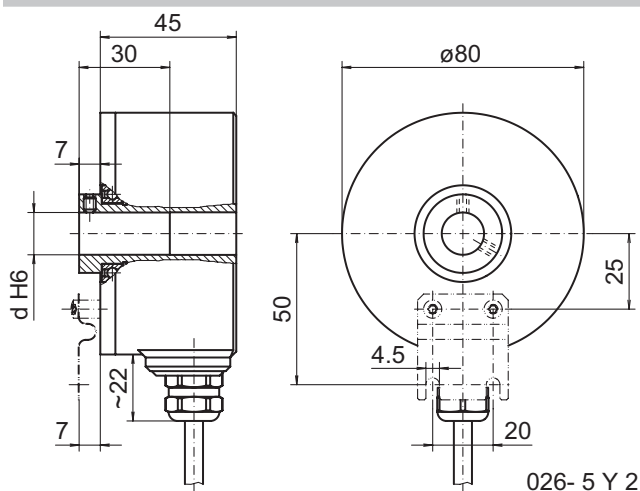
| Core colour               | Assignment     |
|---------------------------|----------------|
| brown                     | Track A        |
| green                     | Track A inv.   |
| grey                      | Track B        |
| pink                      | Track B inv.   |
| red                       | Track N        |
| black                     | Track N inv.   |
| brown 0,5 mm <sup>2</sup> | UB             |
| white 0,5 mm <sup>2</sup> | GND            |
| blue                      | UB-Sense       |
| white                     | GND-Sense      |
| transparent               | Shield/Housing |

### Trigger level

| Outputs           | Linedriver   |
|-------------------|--------------|
| Output level High | $\geq 2.4$ V |
| Output level Low  | $\leq 0.5$ V |
| Load              | $\leq 70$ mA |

| Outputs           | Push-pull short-circuit proof |
|-------------------|-------------------------------|
| Output level High | $\geq UB - 3$ V               |
| Output level Low  | $\leq 1.5$ V                  |
| Load              | $\leq 70$ mA                  |

### Dimensions



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