

# Incremental encoders

## Blind hollow shaft $\varnothing 10$ to $\varnothing 14$ mm

### 200...6000 pulses per revolution

#### ITD 21 A 4 Y109



ITD 21 A 4 Y109 with blind hollow shaft

#### Features

- Encoder with blind hollow shaft  $\varnothing 10...14$  mm
- Max. 6000 pulses per revolution
- Optical sensing
- Anodised version
- Mounting by torque support
- TTL or HTL output signals
- Cable output radial
- High protection standard

#### Optional

- Cable with connector

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm 5\%$ 8...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	$\leq 100$ mA
Pulses per revolution	200...6000
Reference signal	Zero pulse, width $90^\circ$
Sensing method	Optical
Output frequency	$\leq 300$ kHz (TTL) $\leq 160$ kHz (HTL)
Output signals	A, B, N + inverted
Output stage	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

Size (flange)	$\varnothing 68$ mm
Shaft type	$\varnothing 10$ mm (blind hollow shaft) $\varnothing 12$ mm (blind hollow shaft) $\varnothing 14$ mm (blind hollow shaft)
Motor shaft tolerance	0.25 mm axial 0.1 mm radial
Mounting kit	038
Protection DIN EN 60529	IP 66
Operating speed	$\leq 5000$ rpm
Starting torque	$\leq 0.03$ Nm (+20 °C)
Materials	Housing: aluminium, anodised Shaft: stainless steel
Operating temperature	-20...+70 °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.	410 g

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## Blind hollow shaft $\varnothing 10$ to $\varnothing 14$ mm

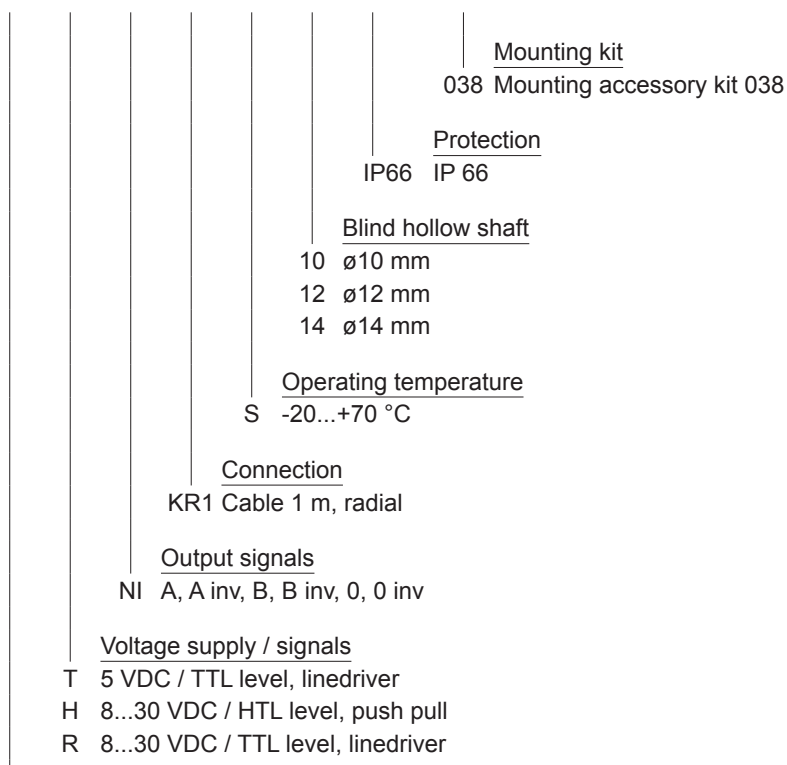
### 200...6000 pulses per revolution

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#### Part number

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		NI	KR1	S		IP66	038
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Pulse number - see table

#### Pulse number

200	500	1000	1800	4000
250	512	1024	2000	4096
256	600	1200	2048	5000
300	720	1250	2500	6000
360	800	1440	3000	
400	900	1500	3600	

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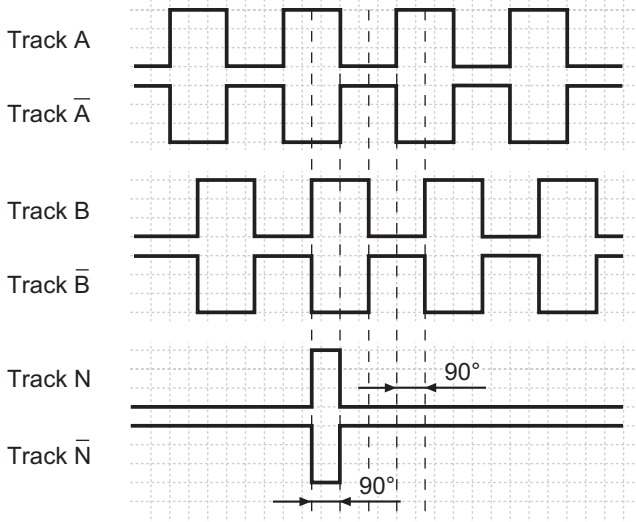
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### Output signals

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

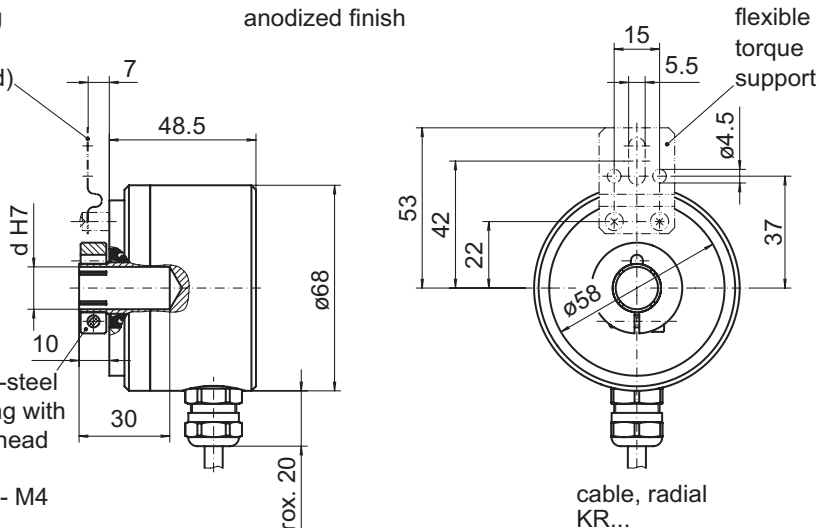
### Dimensions

mounting kit 038 (standard)

anodized finish

stainless-steel clamp ring with cylinder head screw  
DIN 912 - M4 A/F3  
tightening torque max. 2.2 Nm

approx. 20



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