

Incremental encoders

Through hollow shaft $\varnothing 10$ to $\varnothing 16$ mm
100...2048 pulses per revolution

TIL



TIL with through hollow shaft

Features

- Robust industry standard
- Max. 2048 pulses per revolution
- Optical sensing method
- Extra large bearings for maximum life-time

Optional

- Cable with connector
- Extended operating temperature range

Technical data - electrical ratings

Voltage supply	5 VDC $\pm 5\%$ 8...26 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤ 85 mA
Pulses per revolution	100...2048
Reference signal	Zero pulse, width 90°
Sensing method	Optical
Output frequency	≤ 120 kHz
Output signals	A, B, N + inverted
Output stages	Linedriver/RS422 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)	60 x 72 mm
Shaft type	$\varnothing 10$ mm (through hollow shaft) $\varnothing 12$ mm (through hollow shaft) $\varnothing 14$ mm (through hollow shaft) $\varnothing 16$ mm (through hollow shaft)
Mounting kit	019
Protection DIN EN 60529	IP 54
Operating speed	≤ 6000 rpm
Starting torque	≤ 0.01 Nm ($+20^\circ\text{C}$)
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	$-20...+70^\circ\text{C}$
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 55-2000 Hz DIN EN 60068-2-27 Shock 100 g, 11 ms
Connection	Cable 1 m
Weight approx.	300 g

Subject to modification in technic and design. Errors and omissions excepted.

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Part number

TIL

			KT1			IP54	019
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										<u>Mounting kit</u>
										019 Mounting kit 019
										<u>Protection</u>
										IP54 IP 54
										<u>Through hollow shaft</u>
										10 $\varnothing 10$ mm
										12 $\varnothing 12$ mm
										14 $\varnothing 14$ mm
										16 $\varnothing 16$ mm
										<u>Operating temperature</u>
										S -20...+70 °C
										E -20...+100 °C
										<u>Connection</u>
										KT1 Cable 1 m, tangential, open cable end
										<u>Output signals</u>
										BI A, A inv, B, B inv
										NI A, A inv, B, B inv, 0, 0 inv
										<u>Voltage supply / signals</u>
										T 5 VDC / TTL level, linedriver
										H 8...26 VDC / HTL level, push-pull

Pulse number - see table

Pulse number

100	360	512	1024	2048
200	500	1000	2000	

Other pulse numbers on request.

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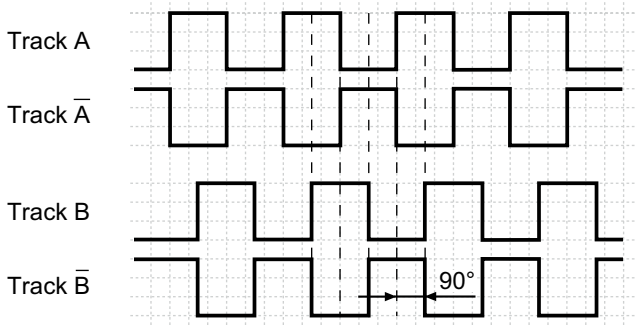
100...2048 pulses per revolution

TIL

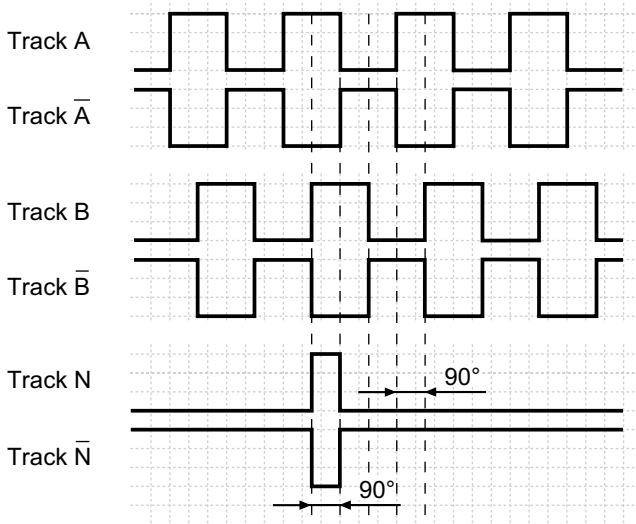
Output signals

Clockwise rotation when looking at the mounting side.

BI-Output signals



NI-Output signals



Terminal assignment

Core colour	Assignment
green	Track A
brown	Track A inv.
grey	Track B
black	Track B inv.
pink	Track N
white	Track N inv.
red	UB
blue	GND
transparent	Shield/Housing

Trigger level

Outputs	Linedriver
Output level High	≥ 2.4 V
Output level Low	≤ 0.5 V
Load	≤ 20 mA

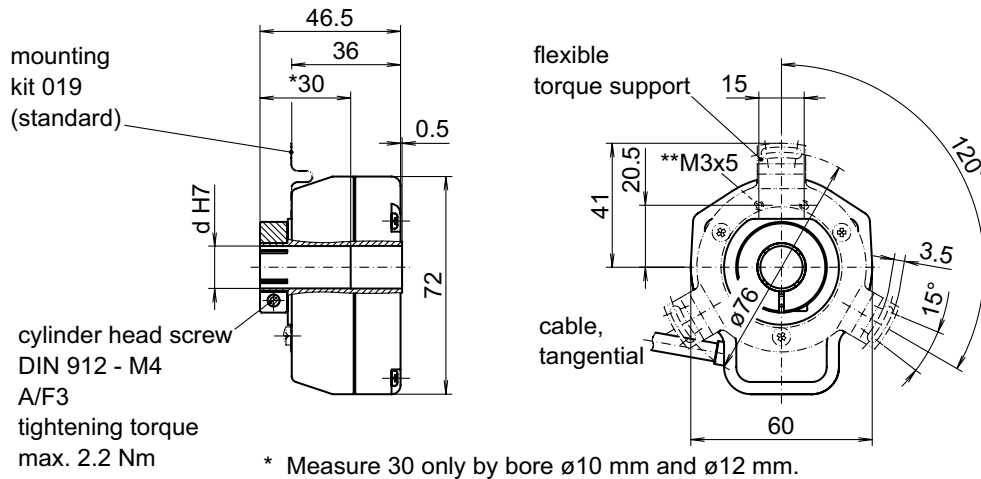
Outputs	Push-pull short-circuit proof
Output level High	$\geq UB - 3$ V
Output level Low	≤ 1.5 V
Load	≤ 20 mA

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Dimensions



mounting
kit 019
(standard)

cylinder head screw
DIN 912 - M4
A/F3
tightening torque
max. 2.2 Nm

* Measure 30 only by bore $\varnothing 10$ mm and $\varnothing 12$ mm.

** Mounting also for mounting kits of the ITD 2.-series possible.
With $\varnothing 16$ mm hollow shaft the assembly of the mounting kit
is possible only without spacers.

036-2