

# Incremental encoders

Through hollow shaft  $\varnothing 14$  mm  
100...10000 pulses per revolution



RAD ELECTRIC Int.  
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## ITD21H01



ITD21H01 with through hollow shaft

### Features

- Size  $\varnothing 58$  mm
- Precise optical sensing
- Output signal level TTL or HTL
- Through hollow shaft,  $\varnothing 14$  mm
- For cone clamping installation
- Max. 10000 pulses per revolution
- Operating temperature  $-30...+100$  °C
- Detachable cable – tangential outlet

### 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	100...10000
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 stages	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)	$\varnothing 58$ mm
Shaft type	$\varnothing 14$ mm (through hollow shaft)
Protection DIN EN 60529	IP 65
Operating speed	$\leq 6000$ rpm
Starting torque	$\leq 0.015$ Nm ( $+20$ °C)
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	$-30...+100$ °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 20 g, 60-2000 Hz DIN EN 60068-2-27 Shock 100 g, 6 ms
Connection	Board connector, 8-pin
Weight approx.	150 g



**Part number**

ITD21H01 

		NI	S21SG8	E	14	IP65
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					14	IP65
					Through hollow shaft	Protection
					14 $\varnothing 14$ mm	IP65 IP 65
				E	Operating temperature	
				-30...+100 °C		
			S21SG8	Connection		
				Board connector type 21, pin contacts, straight, 8-pin		
		NI	Output signals			
			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			

Pulse number - see table

**Pulse number**

100	360	900	1800	4096
120	400	1000	2000	5000
150	500	1024	2048	6000
200	512	1200	2500	8192*
250	600	1250	3000	10000*
256	720	1440	3600	
300	800	1500	4000	

\* Pulse numbers are interpolated.

**Accessories**

**Connectors and cables**

11072169	Connection cable with FCI, 8-pin / wire end sleeves (UL/CSA), 1 m
11079112	Connection cable with crimp contacts (UL/CSA), 0.2 m

**Mounting accessories**

11073114	Torque arm, 3-armed, bolt circle $\varnothing 76$ mm, mounting M3 (mounting kit 019)
11073115	Cone spreader shaft $\varnothing 10$ mm
11073116	Cone spreader shaft $\varnothing 10$ mm V1
11073117	Cone spreader shaft $\varnothing 14$ mm

Further connection cable lengths see accessories.



# Incremental encoders

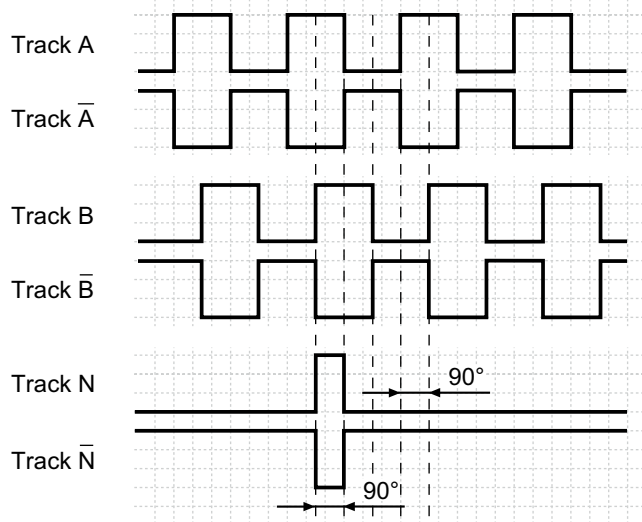
Through hollow shaft  $\varnothing 14$  mm  
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## ITD21H01

### Output signals

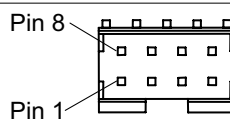
Clockwise rotation when looking at the mounting side.

NI-Output signals



### Terminal assignment

Connector	Assignment
Pin 1	UB
Pin 2	GND
Pin 3	Track A
Pin 4	Track A inv.
Pin 5	Track B
Pin 6	Track B inv.
Pin 7	Track N
Pin 8	Track N inv.



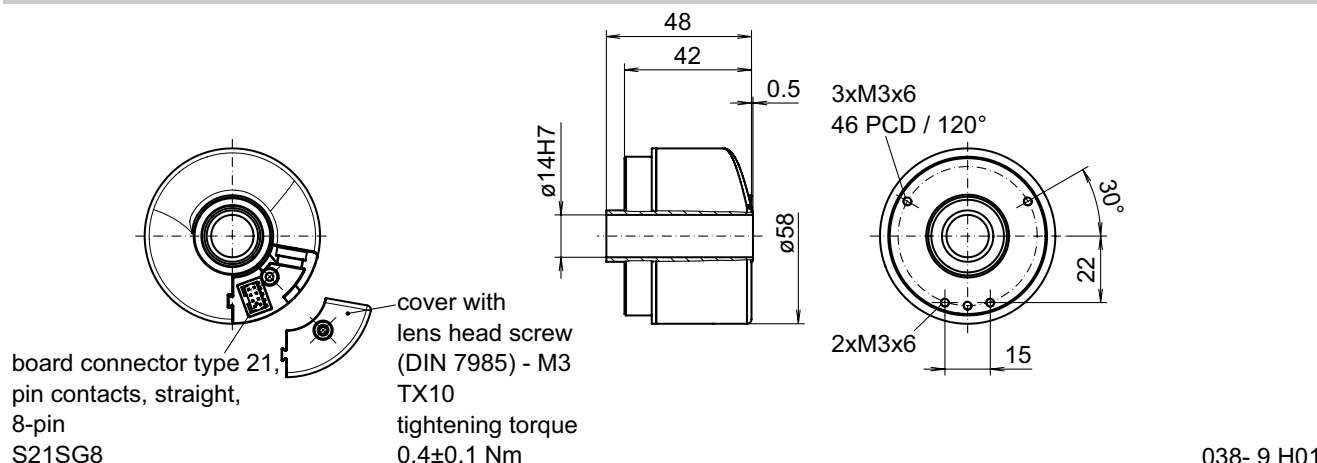
### Trigger level

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



038- 9 H01



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