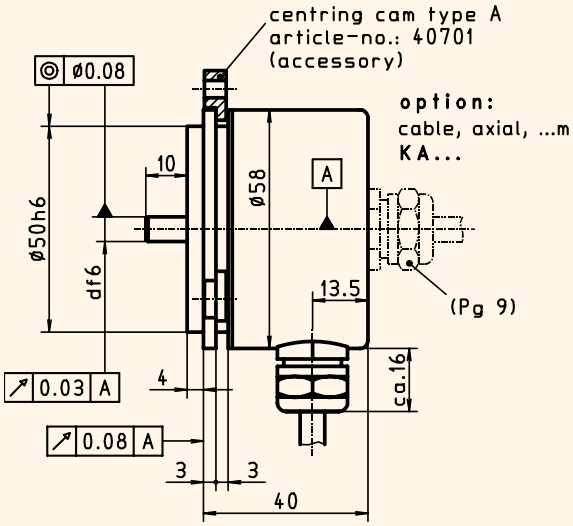
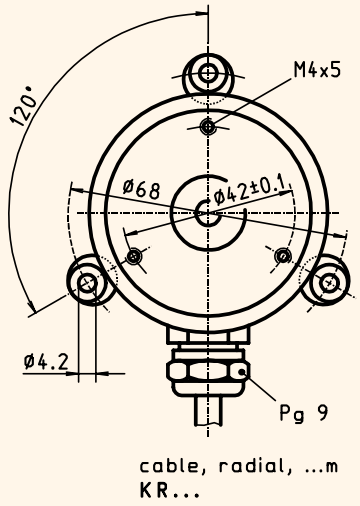
Incremental Encoder with shaft
ITD 21 B14

Qualities :

- High-class incremental encoder for industrial use
- **Number of pulses**, up to **10000** pulses per revolution
- Centering seat ø 50, mounting punch circle ø 68
- TTL- or HTL-output signals
- Cable outlet radial or axial
- Connector versions optional





ITD 21 B14 **drawing-no.: 027 - 4**

Mechanical data:

Housing		light-alloy metal, black, powder coated	
Design style	***B14***	B14	
Protective class	***IP65***	IP 65	*according to DIN 40 050, IEC 529*
Construction principle		LED with glas slotdisc	
max. revolution (mechanical)	n_{max}	≤ 12000 rpm	(observe frequency limit)
Admissible shaft load	axial	≤ 10 N	
	radial	≤ 20 N	(at shaft end)
Starting torque	at 20 ° C	≤ 1 Ncm	
Vibration	55... 2000 Hz	≤ 100 m/s²	*according to DIN IEC 68, part 2-6*
Shock	11 ms	≤ 300 m/s²	*according to DIN IEC 68, part 2-27*
Moment of inertia (rotor)		approx. 15 gcm²	
Shaft diameter	d	6 mm	
Weight		approx. 450 g	

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Electrical data:

• Number of pulses	*Z*	***XXXX***	1000 to 10000 pulses per revolution	
• Execution of electronic	*TTL*	***T***	TTL-output signals	*line driver-output stage*
			supply voltage:	U_B = 5 VDC ± 5 % (poling error safe)
			output amplitude:	$U_{LOW} \leq$ 0.5 V $U_{HIGH} \geq$ 2.5 V
	HTL	***H***	HTL-output signals	*push pull-output stage* (shortening proof)
			supply voltage:	U_B = 8 - 30 VDC (poling error safe)
			output amplitude:	$U_{LOW} \leq$ 1.5 V $U_{HIGH} \geq U_B$ - 3 V
• Output signals	*A, B, N + Inv.*	***NI***	2 square-wave pulse trains phase shifted by 90° (± 10°) electr. + zero pulse, 90° electr. lenght + inverting *(refere to* output signals-*diagram)*	
Pulse ratio			pulse : pause = 1 : 1	± 10 % at 30 kHz
Flank steepness			≥ 15 V/□s	
Frequency limit	f_G		***TTL*** 300 kHz	***HTL*** 160 kHz
Output load current	I_{Load}		***TTL*** ≤ 70 mA	***HTL*** ≤ 70 mA
Input current	I_{max}		≤ 100 mA	(without load)
Permissible cable length			≤ 100 m	(Thalheim-cable)
• Type of connection		***KR1***	cable, radial, 1.0 m	(standard length)
• Operating temperature range		***S***	0 °C to + 70 °C	

Options:

• Execution of electronic		***R***	TTL-output signals	*line driver-output stage*
			supply voltage:	U_B = 8 - 30 VDC (poling error safe)
• Type of connection	cable	***KA...***	cable; axial; ... m	
	connector	***D2SA12***	socket type 2, pin contacts, axia, 12-poles	
	connector	***D2SR12***	socket type 2, pin contacts, radial, 12-poles	
	connector	***...***	performed at cable (ref. data sheet ***Type of performed cables***)	
• Operating temperature range		***E***	0 °C to + 100 °C	

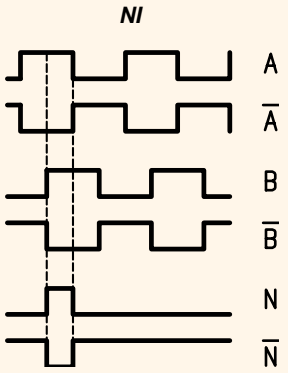
Accessories:

Connector, for version ***D2S..12***	***S2BG12***	connector type 2, bush contacts, straight, 12-poles
centring cam-set type A (3 pcs.)		article-no.: 40701-3

Connection table:

wire color	*PIN-no.*		*signals*
brown	PIN 5	=	A
green	PIN 6	=	A inverted
grey	PIN 8	=	B
pink	PIN 1	=	B inverted
red	PIN 3	=	N
black	PIN 4	=	N inverted
brown 0.5 mm²	PIN 12	=	+ U_B
white 0.5 mm²	PIN 10	=	0 V
blue	PIN 2	=	+ U_{sensor}
white	PIN 11	=	0 V_{sensor}
	PIN 7	=	NC
transparent	PIN 9	=	shilding/housing

Output signal diagram:



Pulse trains:
Clockwise rotation when looking at the end of the shaft. (mounting side)

Ordering example:

ITD 21	B14		2048	H	NI	KR1	S	6	IP65	
Incremental encoder *ITD 21*	**Design style** *B14*	**Mechanical variante** *Y... = look at the drawing*	**Number of pulses** *2048 pulses / revolution*	**Execution of electronic** *U_B = 8-30 VDC HTL-output*	**Output signals** *A-, B-, N-track + inverting*	**Type of connection** *cable, radial, 1 m*	**Operating temperature** *0 °C to +70 °C*	**Shaft diameter** *6 mm*	**Protective class** *IP 65*	**Attachment kit variante**