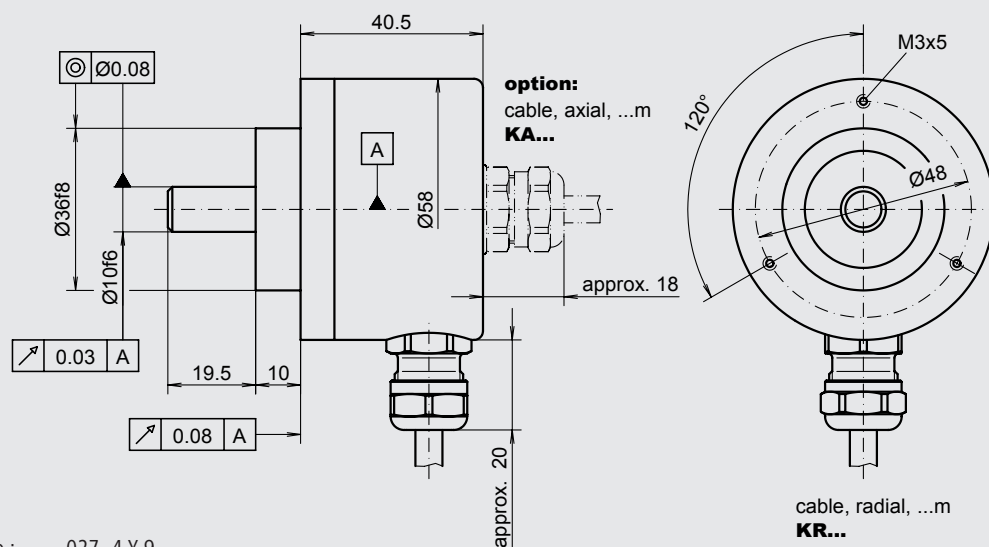


### Incremental encoder with shaft



#### Features

- Robust incremental encoder for industrial use
- Number of pulses up to 6000 pulses/rev.
- Centering seat Ø36 mm, mounting punch circle Ø48 mm
- TTL- or HTL- output signals
- Cable outlet radial or axial
- Connector version optional



drawing-no.: 027- 4 Y 9

### Mechanical data

Design	B14	B14
Housing	aluminium, black, powder coated	
Protection	IP 65	according to DIN EN 60 529 IP65
Construction principle	LED with glass slotdisc	
max. revolution (mechanical)	$n_{max} \leq 12\,000 \text{ min}^{-1}$	(observe limit frequency)
Permissible shaft load	axial $\leq 40 \text{ N}$ radial $\leq 60 \text{ N}$	(at shaft end)
Starting torque	at 20 °C $\leq 1 \text{ Ncm}$	
Vibration	55... 2000 Hz $\leq 100 \text{ m/s}^2$	according to DIN IEC 60 068, part 2 - 6
Shock	11 ms $\leq 300 \text{ m/s}^2$	according to DIN IEC 60 068, part 2 - 27
Shaft diameter	d 10 mm	10
Weight	approx. 340 g	

## Electrical data

Number of pulses	Z	1000 to 6000 pulses/rev.	XXXX
Electronic version (output signals)	TTL	Line driver-output stage, supply voltage: $U_B = 5 \text{ VDC} \pm 5\%$ (polarity protected), output amplitude: $U_{LOW} \leq 0.5 \text{ V}$ , $U_{HIGH} \geq 2.5 \text{ V}$	T
	HTL	Push pull-output stage (short-circuit proof), supply voltage: $U_B = 8 - 30 \text{ VDC}$ (polarity protected), output amplitude: $U_{LOW} \leq 1.5 \text{ V}$ , $U_{HIGH} \geq U_B - 3 \text{ V}$	H
Output signals	A, B, N + Inv.	2 square wave pulse trains, electr. phase shifted $90^\circ$ + zero pulse, electr. length $90^\circ$ + signal inverting	NI
Limit frequency	$f_G$	TTL 300 kHz HTL 160 kHz	
Output load current	$I_{Load}$	TTL $\leq 70 \text{ mA}$ HTL $\leq 70 \text{ mA}$	
Current consumption (no-load)	$I_{max}$	$\leq 100 \text{ mA}$	
Permissible cable length		$\leq 100 \text{ m}$ (Baumer Thalheim cable)	
Type of connection		cable, radial, 1.0 m (standard length)	KR1
Operating temperature range		$0^\circ \text{C}$ to $+70^\circ \text{C}$	S
Permissible relative humidity		$\leq 90\%$ (condensation not permitted)	

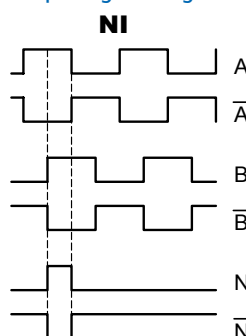
## Options

Electronic version		TTL-output signals, Line driver-output stage, supply voltage: $U_B = 8 - 30 \text{ VDC}$ (polarity protected)	R
Type of connection	cable	cable, axial, ... m	KA...
	connector	performed at cable, (ref. data sheet »Type of performed cables«)	...
Operating temperature range		$0^\circ \text{C}$ to $+100^\circ \text{C}$	E

## Connection table

wire color	signals
brown	A
green	A inv.
grey	B
pink	B inv.
red	N
black	N inv.
brown 0.5 mm <sup>2</sup>	+ $U_B$
white 0.5 mm <sup>2</sup>	0 V
blue	+ $U_{Sensor}$
white	0 $V_{Sensor}$
transparent	shielding/housing

## Output signal diagram



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

## Ordering example:

<b>ITD 21</b> Incremental encoder ITD 21	<b>B14</b> Design B14	<b>Y 9</b> Mechanical variant Y 9 = look at the drawing	<b>2048</b> Number of pulses 2048 pulses/revolution	<b>H</b> Electronic version $U_B = 8 - 30 \text{ VDC HTL}$	<b>NI</b> Output signals A-, B-, N- track + inv.	<b>KR1</b> Type of connection cable, radial, 1 m	<b>S</b> Operating temperature range $0^\circ \text{C}$ to $+70^\circ \text{C}$	<b>10</b> Shaft diameter 10 mm	<b>IP65</b> Protection IP65	Attachment kit variant
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