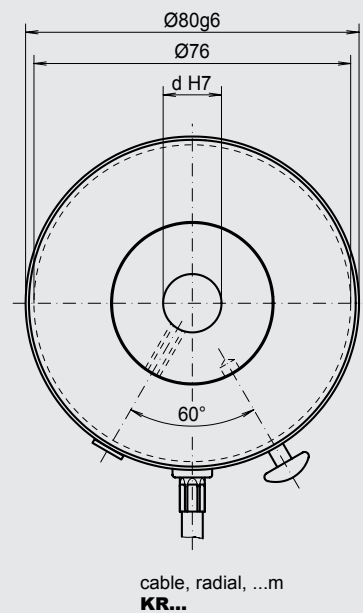
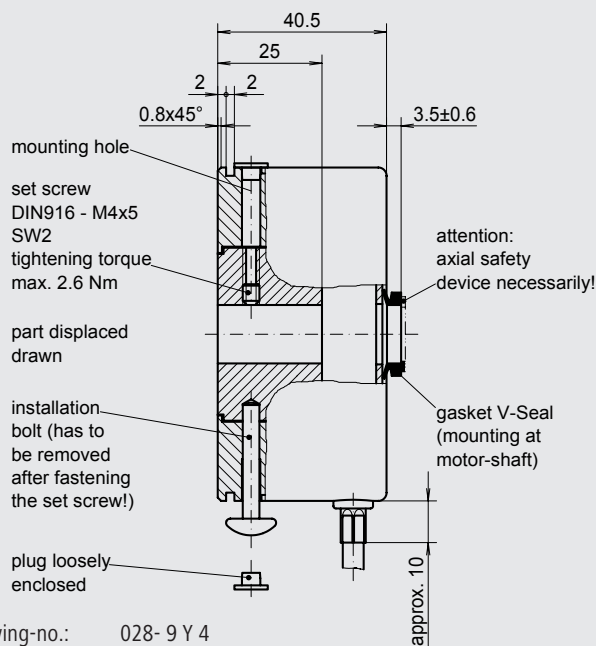


Incremental encoder without bearings



Features

- Low cost hollow shaft incremental encoder, without bearings
- Number of pulses up to 512 pulses/revolution
- TTL- or HTL- output signals
- Cable outlet radial



Mechanical data

Design	A 4	without bearings	A 4
Housing	aluminium, unpainted		
Protection	IP 44 at sealed mounting	according to DIN EN 60 529	IP44
Construction principle	OPSIC with slotdisc		
max. revolution (mechanical)	$n_{max} \leq 8000 \text{ min}^{-1}$	(observe limit frequency)	
Permissible motor-shaft play	axial $\leq 0.2 \text{ mm}$ radial $\leq 0.05 \text{ mm}$		
Vibration	55... 2000 Hz $\leq 100 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-6	
Shock	11 ms $\leq 1000 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-27	
Hollow shaft diameter	d 14 mm	(standard), 10 mm to 15 mm possible	14
Weight	approx. 370 g		

Electrical data

Number of pulses	Z	100, 200, 360, 500, 512 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: $U_B = 8\text{-}30 \text{ VDC}$ (polarity protected), output amplitude: $U_{LOW} \leq 1.5 \text{ V}$, $U_{HIGH} \geq U_B - 3 \text{ V}$	H
Output signals	A, B	2 square wave pulse trains, electr. phase shifted 90°	BX
Limit frequency	f_G	120 kHz	
Output load current	I_{load}	$\leq 70 \text{ mA}$	
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		$-20 \text{ }^\circ\text{C}$ to $+70 \text{ }^\circ\text{C}$	S
Permissible relative humidity		$\leq 90\%$ (condensation not permitted)	

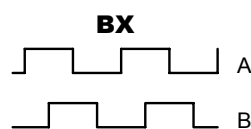
Options

Electronic version		TTL-output signals, Line driver-output stage supply voltage: $U_B = 8\text{-}30 \text{ VDC}$ (polarity protected)	R
Type of connection	connector	performed at cable, (ref. data sheet »Type of performed cables«)	...

Connection table

wire color	signals
green	A
grey	B
brown	+ U_B
white	0 V
transparent	shielding/housing

Output signal diagram



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

Ordering example:

Incremental encoder <i>ITD 45</i>	A 4 Design <i>A 4</i>	Y 4 Mechanical variant <i>Y 4 = look at the drawing</i>	100 Number of pulses <i>100 pulses/revolution</i>	H Electronic version <i>$U_B = 8\text{-}30 \text{ VDC HTL}$</i>	BX Output signals <i>A; B-track</i>	KR1 Type of connection <i>cable, radial, 1 m</i>	S Operating temperature range <i>$-20 \text{ }^\circ\text{C}$ to $+70 \text{ }^\circ\text{C}$</i>	14 Hollow shaft diameter <i>14 mm</i>	IP44 Protection <i>IP44</i>	Attachment kit variant
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