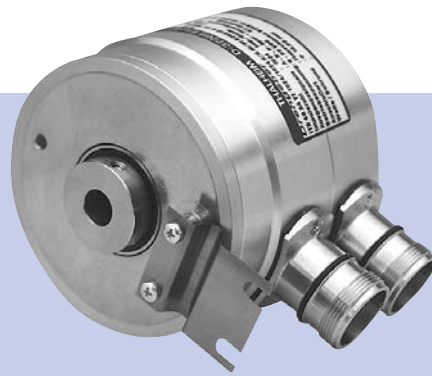


Redundant incremental encoder *with hollow shaft*

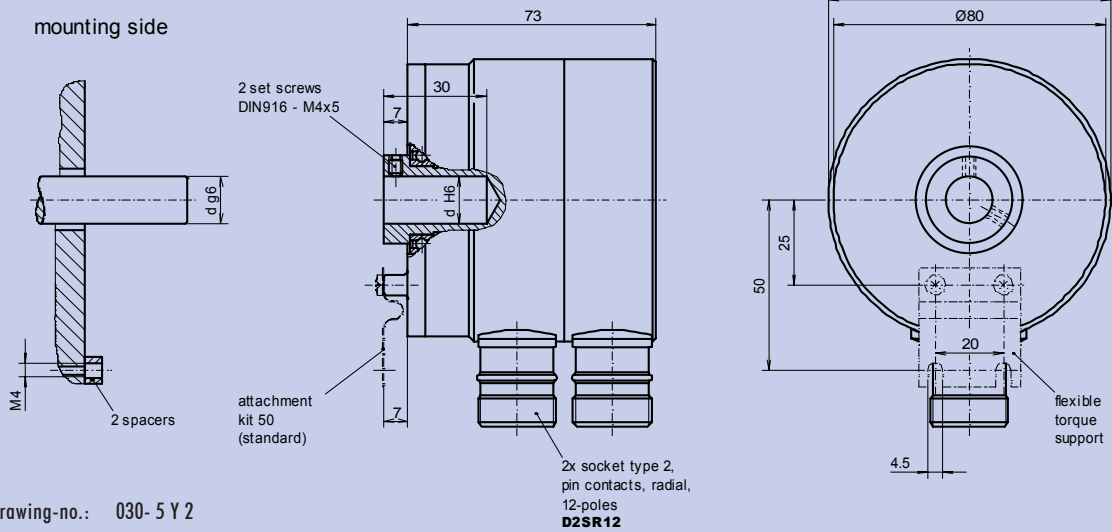
ITD 48 A 4 Y 2

Features

- Incremental encoder in redundant version
- **Number of pulses** up to **1.024** pulses/rev.
- Mounting at torque support
- TTL- or HTL- output signals
- socket radial



mounting side



Drawing-no.: 030- 5 Y 2

Mechanical data

Design style	A 4	A 4
Attachment kit	50	standard, (ref. datasheet »Attachment kit's ...«) 50
Housing	light-alloy metal, unpainted	
Protective class	IP 65	according to DIN EN 60 529 IP65
Construction principle	OPSIC with slotdisc	
max. revolution (mechanical)	$n_{max} \leq 8.000 \text{ rpm}$	(observe frequency limit)
Permissible motor-shaft play	axial $\leq 0.25 \text{ mm}$ radial $\leq 0.1 \text{ mm}$	
Vibration	55... 2.000 Hz $\leq 100 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-6
Shock	11 ms $\leq 1.000 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-27
Hollow shaft diameter	d 15 mm	(standard), 10 mm to 16 mm possible 15
Weight	approx. 1000 g	

Electrical data

Number of pulses	Z	100, 180, 200, 360, 400, 500, 512, 720, 1.000, 1.024 pulses/revolution	XXXX
Execution of electronic (output signals)	TTL	Line driver-output stage, supply voltage: $U_B = 5 \text{ VDC} \pm 5\%$ (poling error safe) output amplitude: $U_{\text{LOW}} \leq 0.5 \text{ V}$, $U_{\text{HIGH}} \geq 2.5 \text{ V}$	T
	HTL	Push pull-output stage (shortening proof), supply voltage: $U_B = 8\text{-}30 \text{ VDC}$ (poling error safe) output amplitude: $U_{\text{LOW}} \leq 1.5 \text{ V}$, $U_{\text{HIGH}} \geq U_B - 3 \text{ V}$	H
Output signals	A, B + Inv.	2 square wave pulse trains, electr. phase shifted $90^\circ \pm 10^\circ$ + signal inverting *	BI
Pulse ratio		pulse : pause = 1 : 1, $\pm 10\%$ at 30 kHz	
Flankensteilheit		$\geq 15 \text{ V}/\mu\text{s}$	
Frequency limit	f_G	120 kHz	
Output load current	I_{Load}	$\leq 70 \text{ mA}$	
Input current (without load)	I_{max}	$\leq 100 \text{ mA}$	
Permissible cable length		$\leq 100 \text{ m}$ (Thalheim-cable)	
Type of connection		socket type 2, pin contacts, radial, 12-poles	D2SR12
Operating temperature range		-20°C to $+70^\circ \text{C}$	S
Permissible relativ humidity		$\leq 90\%$ (condensation not permitted)	

Options

Execution of electronic		TTL-output signals, Line driver-output stage supply voltage: $U_B = 8\text{-}30 \text{ VDC}$ (poling error safe)	R
Output signals	A, B, N + Inv.	2 square wave pulse trains + zero pulse, electr. length $90^\circ \pm 9^\circ$ + signal inverting *	NI
Operating temperature range		-20°C to $+100^\circ \text{C}$	E

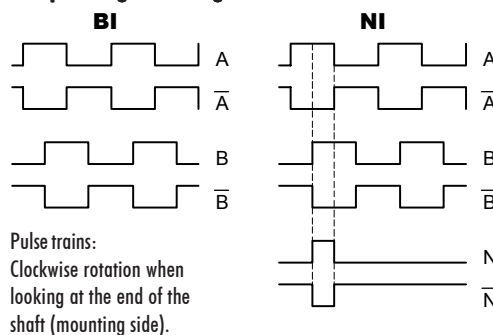
Accessories

Connector, for version D2SR12	connector type 2, bush contacts, straight, 12-poles	S2BG12
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Connection table

PIN-no.	signals
PIN 5	A
PIN 6	A inv.
PIN 8	B
PIN 1	B inv.
PIN 3	N
PIN 4	N inv.
PIN 12	+ U_B
PIN 10	0 V
PIN 2	+ U_{Sensor}
PIN 11	0 V _{Sensor}
PIN 7	NC
PIN 9	shilding/housing

Output signal diagram



Ordering example:

ITD 48 Incremental encoder ITD 48	A 4 Design style A 4	Y 2 Mechanical variante Y 2 = look at the drawing	1024/1024 Number of pulses 1.024 pulses/revolution	H/H Execution of electronic $U_B = 8\text{-}30 \text{ VDC HTL}$	BI/BI Output signals A-, B-track + inv.	D2SR12 Type of connection socket type 2, pin contacts, radial, 12-poles	S Operating temperature -20°C to $+70^\circ \text{C}$	15 Hollow shaft diameter 15 mm	IP65 Protective class IP65	50 Attachment kit variante 50
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* ref. output signal diagram