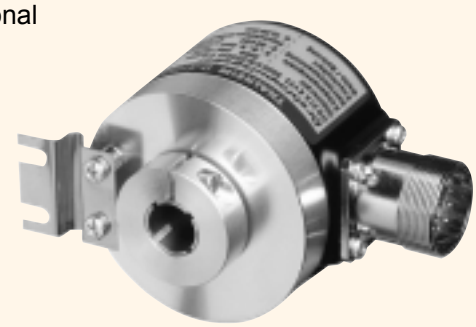
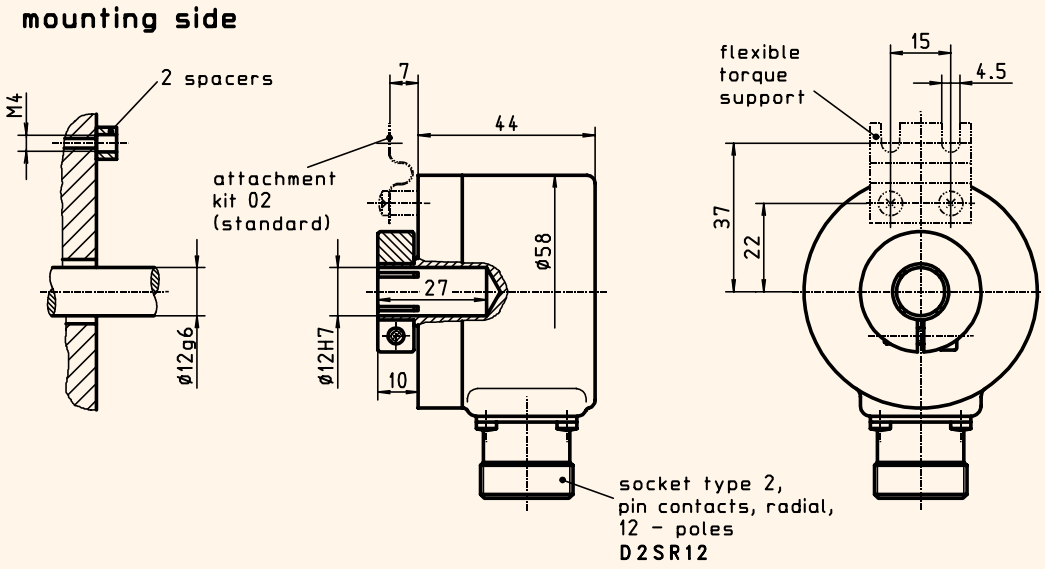
Incremental Encoder with hollow shaft
ITD 21 A 4 Y22

Qualities:

- High-class hollow shaft incremental encoder
- **Number of pulses**, up to **6000** pulses per revolution
- Mounting at torque support
- TTL- or HTL-output signals
- Socket radial
- Hollow shaft going through optional





ITD 21 A 4 Y22 **drawing-no.: 029 - 1 Y22**

Mechanical data:

Housing			light-alloy metal, black, powder coated	
Design style		***A 4***	A 4	
Attachment kit		***02***	02 (standard)	(ref. datasheet *"Attachment kit's ..."*)
Protective class		***IP65***	IP 65	*according to DIN 40 050, IEC 529*
Construction principle			LED with glas slotdisc	
max. revolution (mechanical)	n_{max}		≤ 8000 rpm	(observe frequency limit)
Admissible motor-shaft play	axial		≤ 0.25 mm	
	radial		≤ 0.1 mm	
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*
Hollow shaft diameter	d		12 mm	
Weight			approx. 300 g	

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Electrical data:

• Number of pulses	*Z*	***XXXX***	1000 to 6000 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		***D2SR12***	socket type 2, pin contacts, radial; 12-poles	
• 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)
• Operating temperature range	***E***	0 °C to + 100 °C	

Accessories:

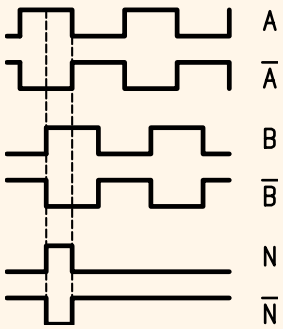
Connector, for version ***D2S..12***	***S2BG12***	connector type 2, bush contacts, straight, 12-poles

Connection table:

PIN-no.		***signals***
PIN 5	=	A
PIN 6	=	A inverted
PIN 8	=	B
PIN 1	=	B inverted
PIN 3	=	N
PIN 4	=	N inverted
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:

NI



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

Ordering example:

ITD 21	A 4	Y22	2500	H	NI	D2SR12	S	12	IP65	02
Incremental encoder *ITD 21*	**Design style** *A 4*	**Mechanical variante** *Y22 = look at the drawing*	**Number of pulses** *2500 pulses / revolution*	**Execution of electronic** *U_B = 8-30 VDC HTL-output*	**Output signals** *A-, B-, N-track + inverting*	**Type of connection** *socket type 2, pin contacts, radial, 12-poles*	**Operating temperature** *0 °C to +70 °C*	**Hollow shaft diameter** *12 mm*	**Protective class** *IP 65*	**Attachment kit variante** *02*