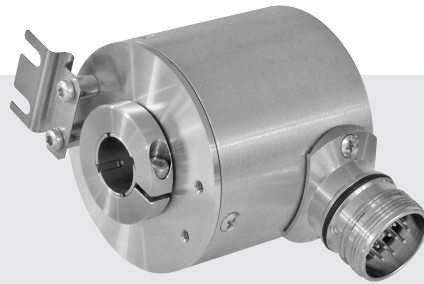
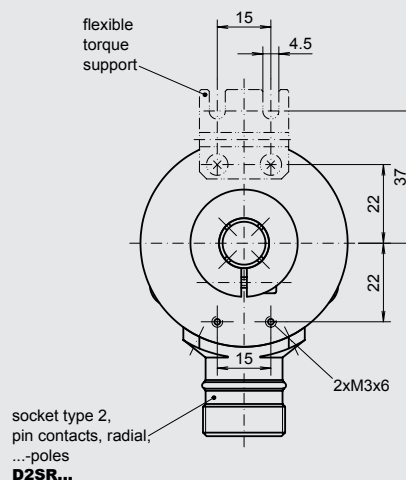
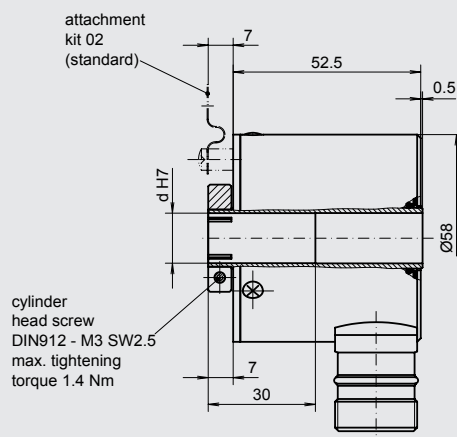


Absolute encoder with hollow shaft SSI



Features

- Hollow shaft absolute encoder in single- resp. multiturn-version
- Resolution:
max. 24 Bit (Multiturn)
max. 14 Bit (Singleturn)
- Mounting at torque support
- Specification of interface SSI (synchronous serial interface)
- Self-diagnosis
- Electronical preset setting
- Connector version
- optional incremental signals



drawing-no.: 028- 5 Y 7

SSI

Mechanical data

Design	A 4	A 4
Attachment kit	02	standard (s. data sheet »Attachment kit's«) 02
Housing	aluminium	
Protection	IP 65	according to DIN EN 60 529 IP65
Construction principle	LED with glass slotdisc Electronical count with buffer (multiturn)	
max. revolution (mechanical)	$n_{max} \leq 8000 \text{ min}^{-1}$	
Permissible motor-shaft play	axial $\leq 0.25 \text{ mm}$ radial $\leq 0.1 \text{ mm}$	at shaft end
Starting torque	at 20° C $\leq 2 \text{ Ncm}$	
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
Hollow shaft diameter	d 12 mm	(standard), 10 mm, 14 mm possible 12
Weight	approx. 325 g	

Electrical data

Steps per revolution		Factory-made programmable up to max. 16 384 (14 Bit) steps per revolution	XX
Number of turns	only by multiturn	Factory-made programmable up to max. 16 277 216 (24 Bit) shaft turns	YY
Electronic version	serial	SSI (synchronous serial interface)	SS
Output code (programmable)		Gray-Code (factory setting) Binary-Code	GR BI
Supply voltage	U_B	10 - 30 VDC (polarity protected)	
Current consumption (no-load)	I_{max}	≤ 70 mA (at 24 VDC)	
Inputs		control signal: V/\bar{R} , Reset SSI: optocoupler input for electrical isolation	
Outputs		level high $\geq U_B - 3.5$ V (at $I = -20$ mA) load high ≤ -20 mA Diagnostic output: error SSI: RS-485 (2-wires)	level low ≤ 0.5 V (at $I = 20$ mA) load low ≤ 20 mA
Clock frequency	f_r	80 kHz to 1 MHz	
Type of connection		socket type 2, pin contacts, radial, 12-poles socket type 2, pin contacts, radial, 17-poles (SSI + incremental signals)	D2SR12 D2SR17
Operating temperature range		-20 °C to +85 °C	S
Permissible relative humidity		≤ 90 % (condensation not permitted)	

Options

Incremental output signals	A, B	2 sine wave signal trains shifted by 90° electr., 2048 (4096 optional) periods/rev. output amplitude: 1 V _{PP} at $Z_0 = 120 \Omega$ (TTL- / HTL-level optional)	
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Connection table

SSI

PIN-no.	signals	PIN-no.	signals
PIN 1	clock -	PIN 7	reset
PIN 2	clock +	PIN 8	V/\bar{R}
PIN 3	data +	PIN 9	NC
PIN 4	data -	PIN 10	error
PIN 5	NC	PIN 11	+ U_B
PIN 6	NC	PIN 12	0 V

SSI + incremental signals

PIN-no.	signals	PIN-no.	signals
PIN 1	clock -	PIN 10	error
PIN 2	clock +	PIN 11	+ U_B
PIN 3	data +	PIN 12	0 V
PIN 4	data -	PIN 13	NC
PIN 5	NC	PIN 14	A +
PIN 6	NC	PIN 15	A -
PIN 7	reset	PIN 16	B +
PIN 8	V/\bar{R}	PIN 17	B -
PIN 9	NC		

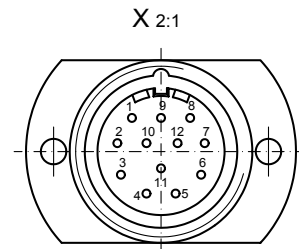
Specification of connections

PIN

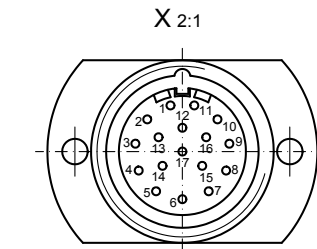
PIN	Explanation
7 reset	Reset input for setting zero position value at any desired point within the entire resolution. The resetting process is triggered by apply of + U_B .
8 V/\bar{R}	Up/down counting direction input: + U_B or NC = increasing code values with a clockwise shaft rotating direction when looking at the mounting side 0 V = decreasing code values with a clockwise shaft rotating direction when looking at the flange side
10 error	Diagnostic-output (open collector). The output is high-active, that means if no fault submitted, the output is to 0 V interconnected.

SSI

socket 12-poles



SSI + Incremental signals
socket 17-poles



Ordering example:

ATD 2S Absolute encoder ATD 2S	A 4 Design A 4	Y 7 Mechanical variant Y 7 = look at the drawing	13/12 Steps/rev. / no. of turns 8192 (13 Bit) steps/rev. 4096 (12 Bit) rev.	SS Electronic version SSI (synchronous serial interface)	GR Output code Gray-Code	D2SR12 Type of connection socket type 2, pin contacts, radial, 12-poles	S Operating temperature range -20 °C to +85 °C	12 Hollow shaft diameter 12 mm	IP65 Protection IP65	02 Attachment kit variant 02
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