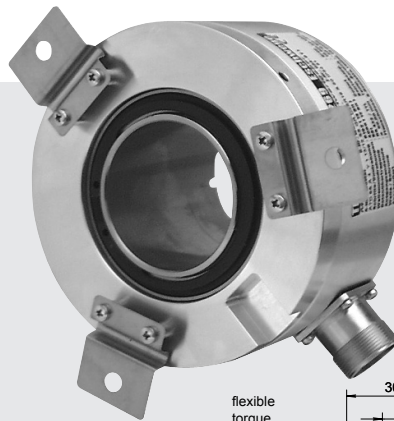
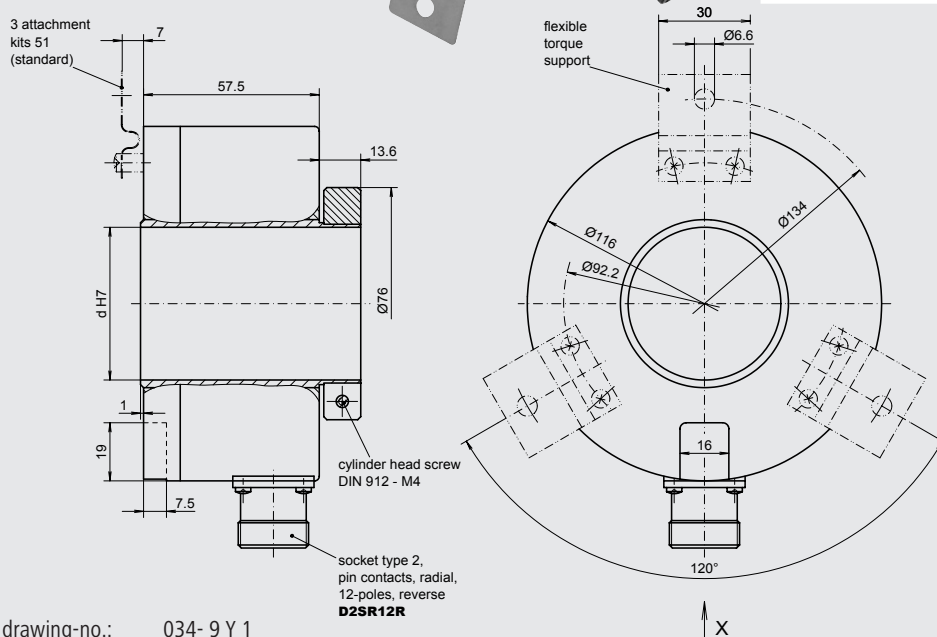


Absolute encoder with hollow shaft SSI



Features

- Hollow shaft absolute encoder in single- resp. multiturn version
- Resolution:
max. 8192 steps/revolution
max. 4096 shaft turns
(only multiturn)
- Mounting at torque support
- Interface version SSI
(synchronous serial interface)
- Self-diagnosis
- Electronical preset setting
- Connector version



drawing-no.: 034- 9 Y 1

SSI

Mechanical data

Design	A 4	A 4
Material	housing aluminium, unpainted flange aluminium, unpainted	
Protection	IP 54	according to DIN EN 60 529 IP54
Construction principle	LED with glass slot disc electronical count with buffer (multiturn)	
max. revolution (mechanical) (electrical)	$n_{max} \leq 2000 \text{ min}^{-1}$ $n_{max} \leq 6000 \text{ min}^{-1}$	
Permissible motor-shaft play	axial $\leq 0.25 \text{ mm}$ radial $\leq 0.1 \text{ mm}$	(at shaft end)
Starting torque	at 20 °C $\leq 15 \text{ Ncm}$	
Vibration	16... 2000 Hz $\leq 100 \text{ m/s}^2$	according to DIN IEC 60 068, part 2 - 6
Shock	6 ms $\leq 2000 \text{ m/s}^2$	according to DIN IEC 60 068, part 2 - 27
Moment of inertia (rotor)	$1100 \times 10^{-6} \text{ kgm}^2$	
Hollow shaft diameter	d 50 mm	(standard), 50.8 mm possible 50
Weight	approx. 1200 g	

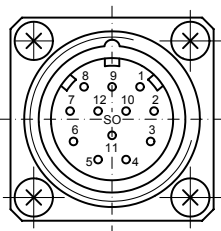
Electrical data

Steps per revolution	up to max. 8192 (13 Bit) steps per revolution	XX
Number of turns	only by multitrans up to max. 4096 (12 Bit) shaft turns	YY
Electronic version	serial output stage: SSI (synchronous serial interface)	SS
Output code (programmable)	Gray-Code (factory setting) Binary-Code	GR BI
Accuracy	± 0.025 Degree at 400 kHz ± 0.05 Degree at 800 kHz	
Supply voltage	U _B 10 - 30 VDC (polarity protected)	
Current consumption (no-load)	I _{max} ≤ 50 mA (at 24 VDC)	
Inputs	control signal: V/R, Preset-IN level high > 0.7 U _B level low < 0.3 U _B connection: V/R-input with 10 kΩ to U _B ; zeroing input with 10 kΩ to GND SSI: optocoupler input for electrical isolation	
Outputs	level high ≥ U _B - 3.5 V (at I = -20 mA) level low ≤ 0.5 V (at I = 20 mA) all special outputs with short-circuit proof push-pull output stage.	
Clock frequency	f _r 62.5 kHz to 1.5 MHz	
Monoflop time	20 μs	
Pulse pause	min. 25 μs	
Limit frequency	f _o 800 kHz	
Type of connection	socket type 2, pin contacts, radial, 12-poles, reverse	D2SR12R
Operating temperature range	-20 °C to +85 °C	S
Permissible relative humidity	≤ 90 % (condensation not permitted)	

Connection table

PIN-no.	signals
PIN 1	U _B
PIN 2	GND
PIN 3	Pulse +
PIN 4	Data +
PIN 5	Zero
PIN 6	Data -
PIN 7	Pulse -
PIN 8	DATAVALID
PIN 9	V/R
PIN 10	DATAVALID MT
PIN 11	NC
PIN 12	NC

X 2:1



Specification of connections

PIN	signals	Explanation
1	U _B	Encoder power supply connection.
2	GND	Encoder ground connection. The voltage drawn to GND is U _B .
5	Zero	Zero setting input for setting a zero point at any desired point within the entire resolution. The zeroing process is triggered by a high pulse (pulse duration ≥ 100 ms) and must take place after the rotating direction selection (V/R). For max. interference immunity, the input must be connected to GND after zeroing.
8/10	DATAVALID / DATAVALID MT	Diagnosis output \overline{DV} and $\overline{DV MT}$ jumps in data word, e. g. due to defective LED or photoreceiver are displayed via the DV output. In addition, the power supply of the multitrans encoder unit is monitored and the $\overline{DV MT}$ output is set when a specified voltage level is dropped below. Both outputs are Low-active, i. e. are switched trough to GND in the case of an error.
9	V/R	Up/Down-counting direction input. When not connected, this input is on High. V/R-High means increasing output data with a clockwise shaft rotating direction when looking at the flange. V/R-Low means increasing values with a counter-clockwise shaft rotating direction when looking at the flange.

Ordering example:

ATD 6S Absolute encoder ATD 6S	A 4 Design A 4	Y 1 Mechanical variant Y 1 = 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	D2SR12R Type of connection socket type 2, pin contacts, radial, 12-poles, reverse	S Operating temperature range -20 °C to +85 °C	50 Hollow shaft diameter 50 mm	IP54 Protection IP54	51 Attachment kit variant 51
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Baumer Thalheim GmbH & Co. KG

Hessenring 17, D-37269 Eschwege, Germany

Phone: +49 (0)5651 9239-0 · Fax: +49 (0)5651 9239-80 · www.baumerthalheim.com