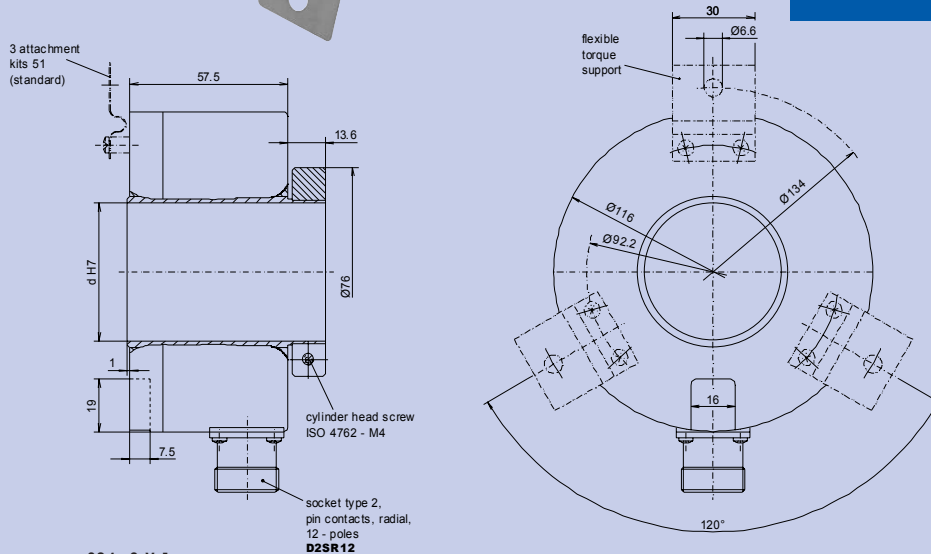


Features

- Hollow shaft absolute encoder in single- resp. multiturn version
- **Resolution:**
max. 8.192 steps/revolution
max. 4.096 shaft turns
(only by multiturn)
- Mounting at torque support
- Interface version SSI
(synchronous serial interface)
- Self-diagnosis
- Electronical preset setting
- Connector version



Drawing-no.: 034- 9 Y 1



Mechanical data

Design style	A 4		A 4
Material	housing	light-alloy metal, unpainted	
	flange	light-alloy metal, unpainted	
Protective class	IP 54		according to DIN EN 60 529
Construction principle	LED with slotdisc Electronical count with buffer (multiturn)		
max. revolution	mechanical	$n_{max} \leq 2.000 \text{ rpm}$	
	electrical	$n_{max} \leq 6.000 \text{ rpm}$	
Permissible motor-shaft play	axial	$\leq 0.25 \text{ mm}$	(at shaft end)
	radial	$\leq 0.1 \text{ mm}$	
Starting torque	at 20° C $\leq 15 \text{ Ncm}$		
Vibration	16... 2.000 Hz	$\leq 100 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-6
Shock	6 ms	$\leq 2.000 \text{ m/s}^2$	according to DIN IEC 60 068, part 2-27
Moment of inertia (rotor)	1100x10 ⁻⁶ kgm ²		
Hollow shaft diameter	d	50 mm	(standard), 50.8 mm possible
Weight	approx. 1200 g		

Electrical data

Steps per revolution	Single-/Multiturn	up to max. 8.192 (13 Bit) steps per revolution	XX
Number of turns	Multiturn	up to max. 4.096 (12 Bit) shaft turns	YY
Execution of electronic	serial	output stage: SSI (synchronous serial interface)	SS
Output code (programmable)		Gray-Code (factory setting) Binär-Code	GR BI
Accuracy		± 0.025 Grad at 400 kHz ± 0.05 Grad at 800 kHz	
Supply voltage	U_B	10-30 VDC (poling error safe)	
Input current (without 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 k Ω to U_B ; zeroing input 10 k Ω to GND SSI: optocoupler inputs for electrical isolation	
Outputs		level high $\geq U_B - 3.5$ 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_T	62.5 kHz to 1,5 MHz	
Monoflop time		20 μs	
Pulse pause		min. 25 μs	
Frequency limit	f_G	800 kHz	
Type of connection		socket type 2, pin contacts, radial, 12-poles	D2SR12
Operating temperature range		-20 °C to +85 °C	S
Permissible relativ 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

Contact description

PIN	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 \overline{DV} output. In addition, the power supply of the multiturn 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 style A 4	Y 1 Mechanical variante Y 1 = look at the drawing	13/12 Steps / rev. / No. of turns 8.192 (13 Bit) steps/rev. 4.096 (12 Bit) rev.	SS Execution of electronic SSI (synchronous serial)	GR Output code Gray-Code	D2SR12 Type of connection socket type 2, pin contacts, radial, 12-poles	S Operating temperature -20 °C to +85 °C	50 Shaft diameter 50 mm	IP54 Protective class IP54	51 Attachment kit variante 51
---	-----------------------------------	--	---	--	---------------------------------------	---	---	--------------------------------------	---	--