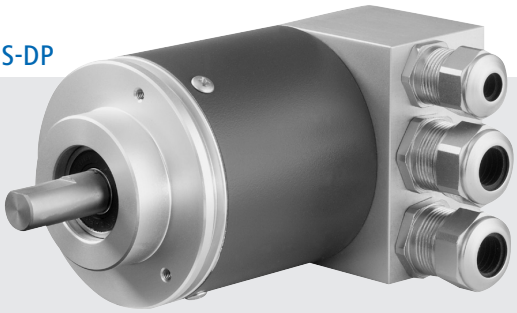
Baumer Thalheim

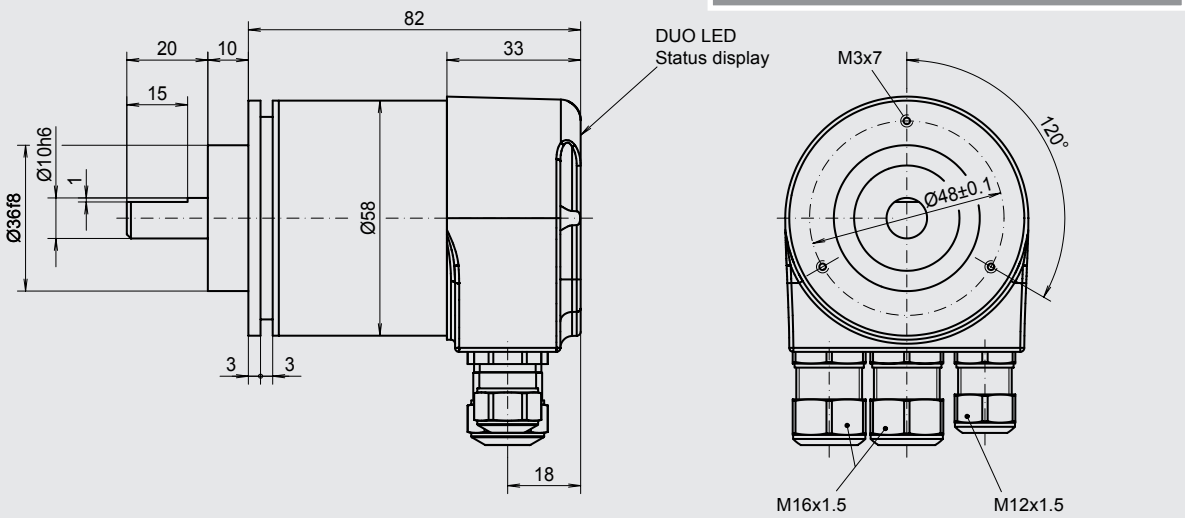
ATD 2B B14 Y 4

Absolute encoder
with shaft PROFIBUS-DP



Features

- Robust single- resp. multiturn-absolute encoder
- Programmable resolution: max. 8192 steps/revolution max. 65 536 shaft turns (only multiturn)
- Centering seat Ø36 mm, mounting punch circle Ø48 mm
- programmable operating value
- programmable preset value
- Bus cover detachable



drawing-no.: 028- 7 Y 4

Mechanical data

Design		B14		**B14**
Material	housing flange/bus cover	steel, black aluminium, unpainted		
Protection		IP 65	according to DIN EN 60 529	**IP65**
Construction principle		LED with glass slot disc electronical count with buffer (multiturn)		
max. revolution (mechanical) (electrical)		n_{max} ≤ 10 000 min^{-1} n_{max} ≤ 6000 min^{-1}		
Permissible shaft load	axial radial	≤ 20 N ≤ 40 N	 (at shaft end)	
Starting torque		≤ 0.015 Nm		
Vibration	16... 2000 Hz	≤ 200 m/s^2	according to DIN IEC 60 068, part 2 - 6	
Shock	6 ms	≤ 2000 m/s^2	according to DIN IEC 60 068, part 2 - 27	
Moment of inertia (rotor)		$2x10^{-6}$ kgm^2		
Shaft diameter	d	10 mm		**10**
Weight		approx. 600 g		

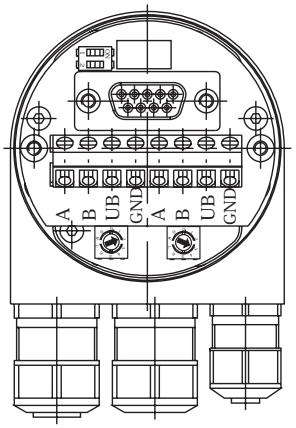
Electrical data

Steps per revolution		**programmable to** max. 8192 (13 Bit) steps per revolution	**XX**
Number of turns	only by multiturn	**programmable to** max. 65 536 (16 Bit) shaft turns	**YY**
Output code		Binary-code	
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}	≤ 100 mA (at 24 VDC)	
Baud rate		9.6 kBaud to 12 MBaud (depending on cable length)	
Type of connection		detachable bus cover with 2 x M16, 1 x M12	**M16/12**
Operating temperature range		-20 °C to +85 °C	**S**
Permissible relativ humidity		≤ 90 % (condensation not permitted)	
Address		adjustable with rotary switch (factory setting 00)	
Rotating direction		clockwise (cw) when the shaft is viewed from the front (programmable)	
Electrical connection		The electrical connection and the bus cover may not be attached or removed under voltage.	

Profibus-DP features

Bus-protocol		Profibus-DP	**PB**
Profibus features		PNO Class 1 and 2	**PN**
Preset-value		The preset value changes the encoder output position value to a predefined position. The offset value between absolute encoder zero-point and mechanical zero-point will be saved in the absolute encoder.	
Parameter	Direction of rotating	With the operating parameter the rotating direction for which the output code is to increase or decrease can be parameterized.	
	Scaling function	The steps per revolution and the total revolution can be parameterized.	
Diagnostic messages		The encoder supports the following error messages: position error, parameter error, lithium cell voltage at lower limit (multiturn).	

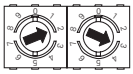
View inside bus cover



Settings of terminating resistors

both switchers:
ON = last user
OFF = user X

Settings of user address



Address can be set with rotary switch.
Example: User address 23

Connection table

A	Negative serial data line, pair 1 and 2
B	Positive serial data line, pair 1 and 2
U_B	Supply voltage 10 - 30 VDC
GND	Ground contact for U_B

Terminals with the same designation are internally interconnected and function-identically. These internal clamp-connexions UB-UB / GND-GND may be loaded with max. 1 A (A and B are each isolated for 12 MBaud operation with an inductivity of 100 nH.

Ordering example:

ATD 2B	B14	Y 4	13/16	PB	PN	M16/12	S	10	IP65	
Absolute encoder *ATD 2B*	Design *B14*	Mechanical variant *Y 4 = look at the drawing*	Steps/rev. / no. of turns *8192 (13 Bit) steps/rev. 65 536 (16 Bit) rev.*	Data transmission *PROFIBUS-DP*	Parameter setting *according to PNO Class 2*	Type of connection *bus cover with 2xM16, 1xM12*	Operating temperature range *-20 °C to +85 °C*	Shaft diameter *10 mm*	Protection *IP65*	Attachment kit variant

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