Absolute encoders - analogue

Hollow shaft ø10 to ø14 mm

Optical singleturn encoders with analogue output

ATD2AH00

ATD2AH00 with hollow shaft

Features

- **Analog signals**
- **14 bit singleturn**
- **Internal self-diagnostic**
- **Voltage output or current output**
- **Factory-set adjustable angle (0° - 360°)**
- **Detachable cable – tangential outlet**
- **Easy signal processing**

Technical data - electrical ratings

Voltage supply	12...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤50 mA (24 VDC)
Interface analog	IS (current output, 4...20 mA) IE (current output, 0...20 mA) US (voltage output, 0...10 VDC) UE (voltage output, -10...+10 VDC) UT (voltage output, 0...5 VDC) UR (voltage output, -5...5 VDC)
Function	Singleturn
Measuring range	90°, 180°, 360°
Load resistance	≥1 kΩ (recommended 10 kΩ) / voltage output ≤500 Ω (recommended 470 Ω) / current output
Resolution	14 bit
Sensing method	Optical
Updating values	≤130 µs
Code sequence	CW: ascending values with clockwise sense of rotation (looking at mounting surface)
Output circuit	Voltage output (short-circuit proof) Current output (short-circuit proof)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 55011

Technical data - mechanical design

Dimensions (flange)	ø58 mm
Shaft	ø10 mm hollow shaft ø12 mm hollow shaft ø14 mm hollow shaft
Protection DIN EN 60529	IP 65
Operating speed	≤6000 rpm (mechanical) ≤6000 rpm (electric)
Starting torque	≤0.01 Nm
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	-20...+85 °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 10 g, 55-2000 Hz DIN EN 60068-2-27 Shock 30 g, 11 ms
Weight approx.	150 g
Connection	Board connector, 8-pin
Motor shaft tolerance	0.25 mm axial 0.1 mm radial

ATD2AH00

Part number

ATD2AH00			S21SG8	S		IP65

Protection
IP65 IP 65

Hollow shaft
10 Hollow shaft ø10 mm
12 Hollow shaft ø12 mm
14 Hollow shaft ø14 mm

Operating temperature
S -20...+85 °C

Connection
S21SG8 Board connector type 21, pin contacts, straight, 8-pin

Interface
IS Current output, standard, 4...20 mA
IE Current output, extended, 0...20 mA
US Voltage output, standard, 0...+10 VDC
UE Voltage output, extended, -10...+10 VDC
UT Voltage output, TTL, 0...+5 VDC
UR Voltage output, reduced, -5...+5 VDC

Resolution
360A 360° mech. angle of rotation, alternating (singleturn)
180A 180° mech. angle of rotation, alternating (singleturn)
180H 180° mech. angle of rotation, High (singleturn)
180L 180° mech. angle of rotation, Low (Singleturn)

Additional Adjustment on demand

Accessories

Connectors and cables

11072169	Connection cable with wire end sleeves (UL/ CSA) L = 1 m
11079089	Connection cable with rear mount socket M23, 12-poles L = 1 m
11079111	Connection cable with D-SUB connector, 9-poles L = 1 m
11079113	Connection cable with coupling M12, 8-poles L = 1 m

Mounting accessories

11066080	Mounting kit 002
11066083	Mounting kit 006
11073114	Mounting kit 019
11073119	Mounting kit 021
11069239	Mounting kit 092

Further connection cable lengths see accessories.

Absolute encoders - analogue

Hollow shaft ø10 to ø14 mm

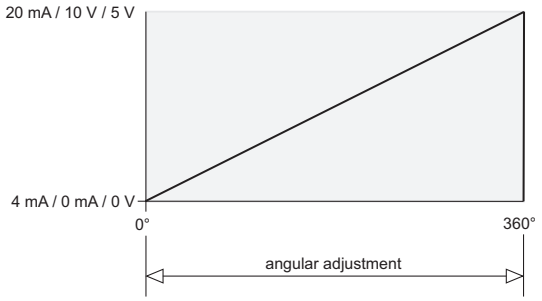
Optical singleturn encoders with analogue output

ATD2AH00

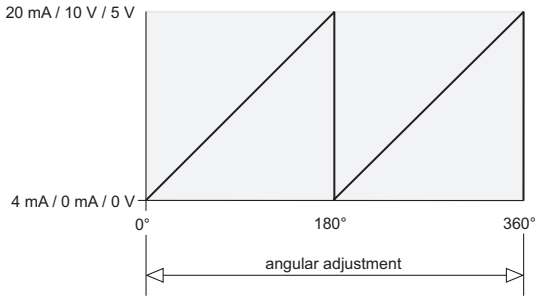
Output signals

Unipolar Output
(IS-/IE-/US-/UT-version)

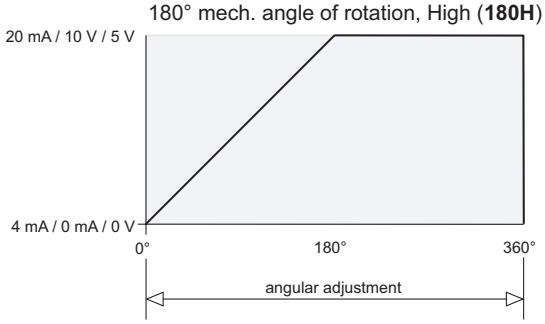
360° mech. angle of rotation, alternating (**360A**)



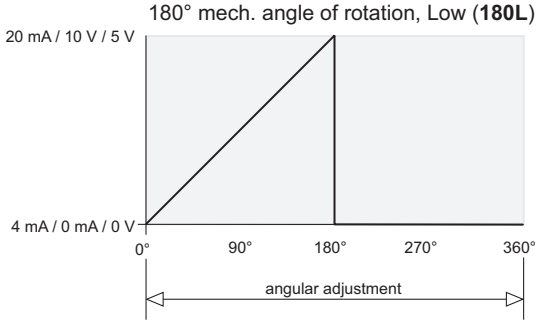
180° mech. angle of rotation, alternating (**180A**)



180° mech. angle of rotation, High (**180H**)

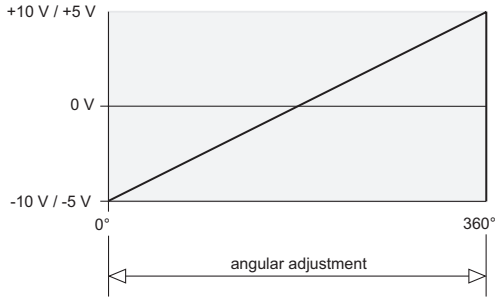


180° mech. angle of rotation, Low (**180L**)

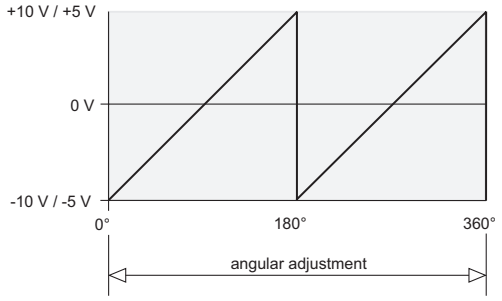


Bipolar Output
(UE-/UR-version)

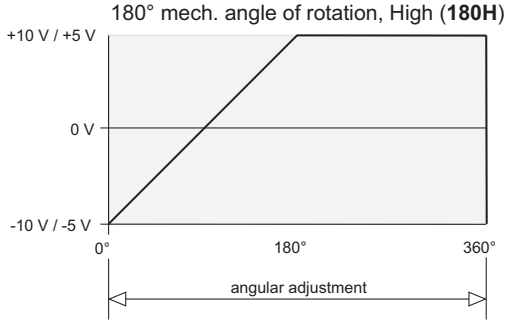
360° mech. angle of rotation, alternating (**360A**)



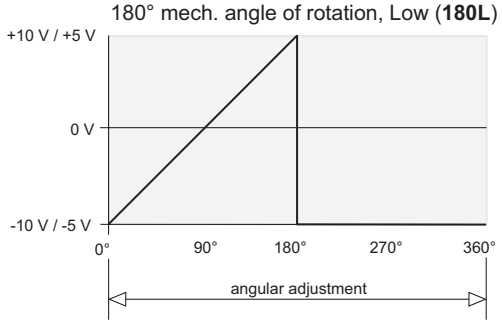
180° mech. angle of rotation, alternating (**180A**)



180° mech. angle of rotation, High (**180H**)



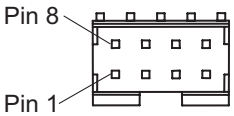
180° mech. angle of rotation, Low (**180L**)



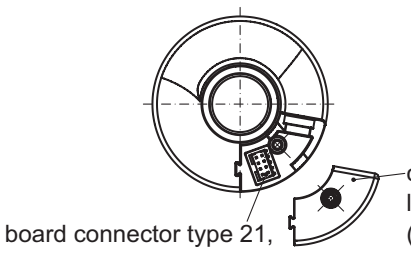
ATD2AH00

Terminal significance	
+UB	Encoder supply voltage.
−UB	Negative encoder supply voltage −12 to −26 VDC (only at UE-/UR-version).
GND	Encoder ground connection relating to UB.
U_{OUT}	Voltage output increasing at clockwise rotation when looking at the mounting side.
I_{OUT}	Current output increasing at clockwise rotation when looking at the mounting side.
GND_{OUT}	Reference voltage for analogue output.
Reset	Reset input for setting zero position value at any desired point within the entire resolution. The resetting process is triggered by apply of UB.
V/$\overline{R}$	V/$\overline{R}$ counting direction input. This input is standard on High. V/$\overline{R}$ means increasing values with clockwise shaft rotation when looking at the mounting side. V/$\overline{R}$-Low means decreasing values with clockwise shaft rotation when looking at the mounting side.
$\overline{Error}$	Diagnostic output (Open Collector with internal 10 kΩ pullup-resistor). The output is low-active, that means if no fault submitted, the output is +UB.

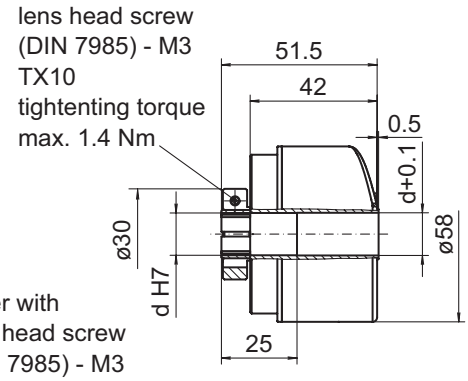
Terminal assignment	
Connector	Assignment
Pin 1	+UB
Pin 2	GND
Pin 3	U_{OUT} resp. I_{OUT}
Pin 4	GND_{OUT}
Pin 5	– / −UB (only at UE-/UR-version)
Pin 6	V/$\overline{R}$
Pin 7	$\overline{error}$
Pin 8	reset



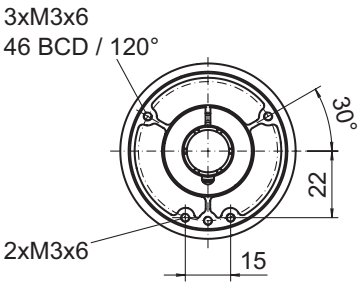
Dimensions



board connector type 21,
pin contacts, straight,
8-pin
S21SG8



cover with
lens head screw
(DIN 7985) - M3
TX10
tightening torque
max. 0.5 Nm



Mounting option for mounting kits of
the ITD 2. - series.