

# Absolute encoders - SSI

Shaft  $\varnothing 10$  mm with clamping flange

Optical single- or multiturn encoders max. 14 bit ST / 24 bit MT

## ATD 2S B14 Y23



ATD 2S B14 Y23 with clamping flange

### Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	$\leq 70$ mA (24 VDC)
Interface	SSI
Function	Singleturn Multiturn
Steps per turn	$\leq 16384$ / 14 bit
Number of turns	$\leq 16777216$ / 24 bit
Incremental output	2048 pulses A90°B (optional) 2048 pulses (sin/cos)
Offset sine/cosine amplitude	$\leq 1$ V <sub>ss</sub> at Z0 (120 Ohms)
Overlying constant share	$\leq 2.5$ V
Sensing method	Optical
Code	Gray or binary
Code sequence	CW: ascending values with clockwise sense of rotation (looking at mounting surface)
Inputs	SSI clock Reset input Control signals UP/DOWN and zero
Output circuit	SSI data: linedriver RS485 Diagnostic output: error
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 55011
Diagnostic function	Self-diagnosis

### Features

- Encoder single- or multiturn / SSI
- Optical sensing
- Resolution: max. singleturn 14 bit, multiturn 24 bit
- Centering alignment  $\varnothing 36$  mm, mounting screw hole circle  $\varnothing 48$  mm
- Self-diagnostic
- Electronic zero point adjustment
- Flange socket radial

### Optional

- Incremental signals

### Technical data - mechanical design

Dimensions (flange)	$\varnothing 58$ mm
Shaft	$\varnothing 10$ mm (clamping flange)
Flange	Clamping flange
Protection DIN EN 60529	IP 65
Operating speed	$\leq 8000$ rpm (mechanical) $\leq 8000$ rpm (electric)
Starting torque	$\leq 0.012$ Nm
Shaft loading	$\leq 20$ N axial $\leq 40$ N radial
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 200 g, 6 ms
Weight approx.	380 g
Connection	Connector M23 type 2, 12-pin Connector M23 type 2, 17-pin



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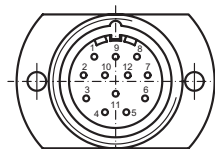
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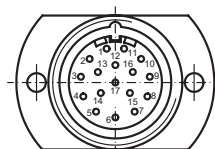
Terminal significance	
UB	Encoder supply voltage.
GND	Encoder ground connection relating to UB.
Data+	Positive, serial data output of differential linedriver.
Data-	Negative, serial data output of differential-linedriver.
Clock+	Positive SSI clock input. Clock+ together with clock- forms a current loop. A current of approx. 7 mA towards clock+ input means logic 1 in positive logic.
Clock-	Negative SSI clock input. Clock- together with clock+ forms a current loop. A current of approx. 7 mA towards clock- input means logic 0 in positive logic.
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.
$V/\bar{R}$	$V/\bar{R}$ counting direction input. This input is standard on High. $V/\bar{R}$ means increasing values with clockwise shaft rotation when looking at the mounting side. $V/\bar{R}$ -Low means decreasing values with clockwise shaft rotation when looking at the mounting side.
Error	Diagnostic output (Open Collector with internal 10 k $\Omega$ pullup-resistor). The output is high-active, that means if no fault submitted, the output is to GND interconnected.

Terminal assignment	
<b>ATD 2S B14 Y23</b>	
Connector	Assignment
Pin 1	clock-
Pin 2	clock+
Pin 3	data+
Pin 4	data-
Pin 5	–
Pin 6	–
Pin 7	reset
Pin 8	$V/\bar{R}$
Pin 9	–
Pin 10	error
Pin 11	UB
Pin 12	GND



### ATD 2S B14 Y23 with incremental output signals

Connector	Assignment
Pin 1	clock-
Pin 2	clock+
Pin 3	data+
Pin 4	data-
Pin 5	–
Pin 6	–
Pin 7	reset
Pin 8	$V/\bar{R}$
Pin 9	–
Pin 10	error
Pin 11	UB
Pin 12	GND
Pin 13	–
Pin 14	track A+
Pin 15	track A-
Pin 16	track B+
Pin 17	track B-



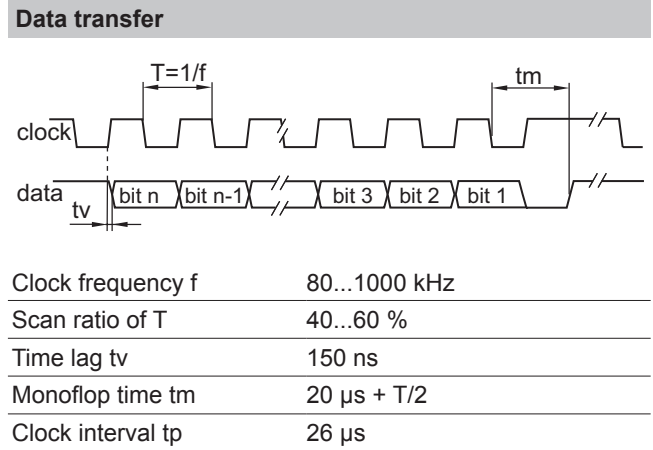
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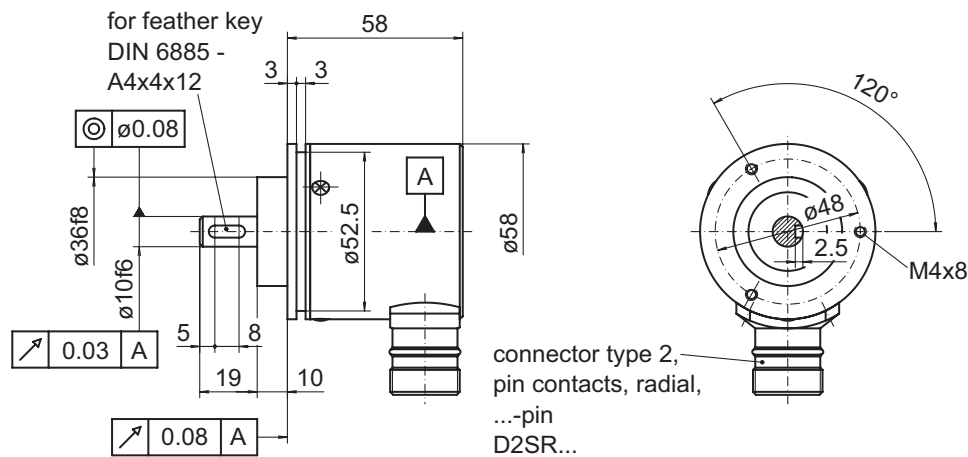
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Trigger level	
<b>SSI</b>	<b>Circuit</b>
SSI-Clock	Optocoupler
SSI-Data	Linedriver RS485
<b>Control input</b>	
Input level High	$\geq 0,7 U_B$
Input level Low	$\leq 0,3 U_B$
Input resistance	10 k $\Omega$
<b>Diagnostic outputs</b>	
Output level	Open Collector with internal 10 k $\Omega$ PullUp-resistance
<b>Incremental outputs</b>	
<b>Line Driver</b> short-circuit proof	
Output level High	$\geq U_B - 3 V$
Output level Low	$\leq 0,5 V$
Load	$\leq 30$ mA
<b>Outputs</b>	
<b>Sine / Cosine</b>	
Output level	1 V <sub>PP</sub> at Z <sub>0</sub> = 120 $\Omega$



#### Dimensions



028- 7 Y23