

Absolute encoders - bus interfaces

Hollow shaft $\varnothing 20$ to $\varnothing 27$ mm

Optical multiturn encoders max. 17 bit ST / 16 bit MT, EtherCAT

ATD 4B A 4 Y11



ATD 4B A 4 Y11 with hollow shaft

Features

- Encoder single- or multiturn / EtherCAT
- Optical sensing
- Resolution: max. singleturn 17 bit, multiturn 16 bit
- Hollow shaft $\varnothing 20$ -27 mm
- Short cycle times up to 62.5 μ s
- Parametrizable by bus interface
- Self-diagnostic
- Electronic zero point adjustment

Technical data - electrical ratings

Voltage supply	10...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤ 150 mA (24 VDC)
Interface	EtherCAT
Function	Multiturn
Profile conformity	CANopen over EtherCAT
Operating mode	Full-Duplex Fast Ethernet physics (100 BASE-TX)
Steps per turn	≤ 131072 / 17 bit
Number of turns	≤ 65536 / 16 bit
Sensing method	Optical
Code sequence	CW: ascending values with clockwise sense of rotation (looking at mounting surface)
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 55011
Programmable parameters	Steps per revolution Total resolution Rotational direction CW/CCW Number of revolutions Operating modes
Diagnostic functions	Position or parameter error Temperature control Multiturn sensing Self-diagnosis
Status indicator	4-LED integrated in housing

Technical data - mechanical design

Dimensions (flange)	$\varnothing 80$ mm
Shaft	$\varnothing 20$ mm hollow shaft $\varnothing 22$ mm hollow shaft $\varnothing 25$ mm hollow shaft $\varnothing 27$ mm hollow shaft
Protection DIN EN 60529	IP 65
Operating speed	≤ 5000 rpm (mechanical) IP 54 ≤ 3000 rpm (mechanical) IP 65 ≤ 7000 rpm (electric)
Starting torque	≤ 0.02 Nm
Materials	Housing: aluminium Shaft: stainless steel
Operating temperature	$-20 \dots +85$ °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.	590 g
Connection	Connector M12, female D-coded, 4-pin Connector M12, A-coded, 4-pin
Motor shaft tolerance	0.25 mm axial 0.1 mm radial

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Part number

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	EC	M12	S		
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Protection

IP54 IP 54

IP65 IP 65

Hollow shaft

20 Hollow shaft ø20 mm clamping ring

22 Hollow shaft ø22 mm clamping ring

25 Hollow shaft ø25 mm clamping ring

27 Hollow shaft ø27 mm clamping ring

Operating temperature

S -20...+85 °C

3 x Connection
M12 connector M12

Interface

EC EtherCAT

Resolution

15/16 15/16 bit single-/multiturn

17/12 17/12 bit single-/multiturn

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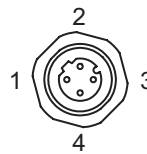
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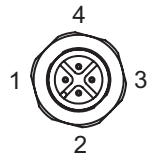
Terminal significance	
Bus-protocol	EtherCAT, (CANopen over EtherCAT)
Operation mode	Full-Duplex Ethernet physics (100 BASE-TX)
Communication	Modi: - Asynchron - Frame synchron - Distributed Clock synchron Cycle times: - min 62,5 μ s to max. 32 ms in Distributed Clock
Communication profile	compatible to CANopen according to DS 301
Device profile	according to DS 406
Diagnostic messages	position error, operating temperature overrun, battery, hardware error

Terminal assignment		
Connector	Assignment	Significance
Pin 1	TxD+	Transmission data+
Pin 2	RxD+	Receiving data+
Pin 3	TxD-	Transmission data-
Pin 4	RxD-	Receiving data-



Socket, 4-poles, bush contacts, M12 D-coded (IN / OUT)

Connector	Assignment	Significance
Pin 1	VDC	Supply voltage
Pin 2	–	Not assigned
Pin 3	GND	Ground
Pin 4	–	Not assigned



Socket, 4-poles, pin contacts, M12 A-coded (POWER)

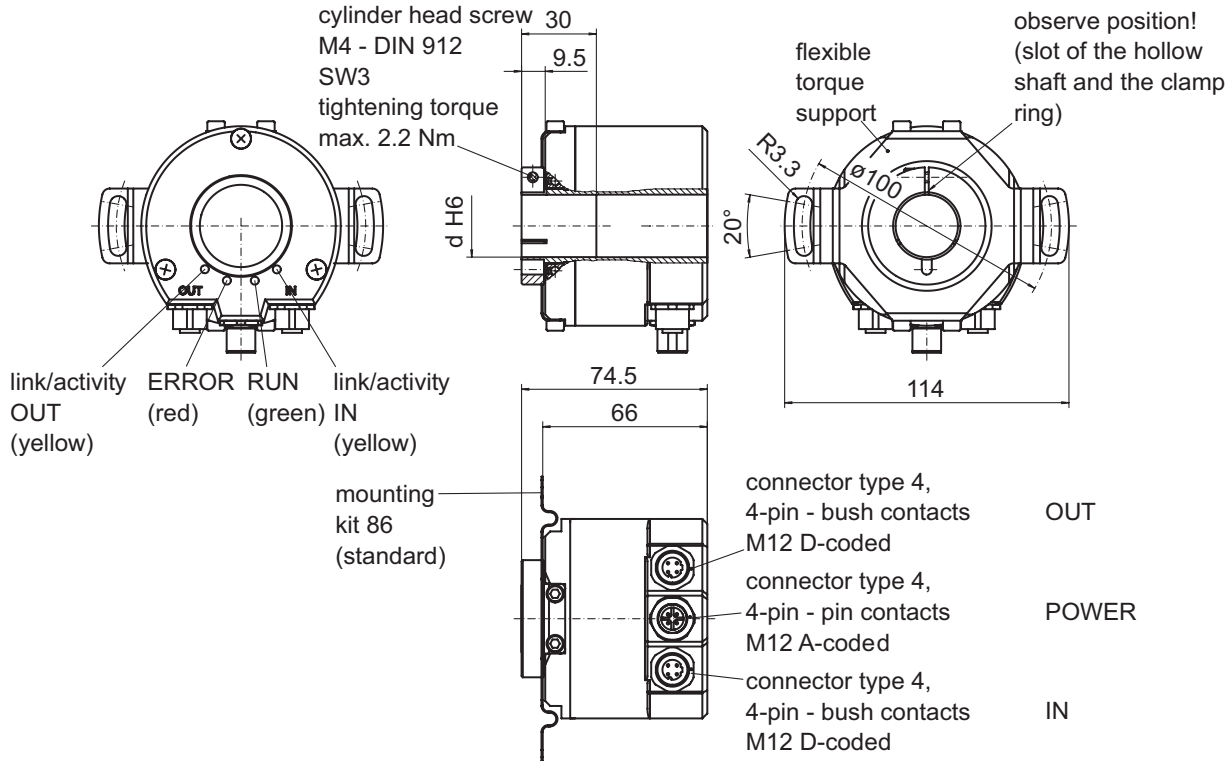
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Dimensions



034- 8 Y11