

EN580C.ML-B - CANopen®

Blind hollow shaft

Optical multiturn encoders up to 21 bit ST / 16 bit MT

Overview

- Encoder multiturn / bus cover
- Optical sensing method
- Resolution: singleturn 21 bit (default: 13 bit), multiturn 16 bit (default: 16 bit)
- Total resolution up to 31 bit
- Blind hollow shaft
- Interface: CANopen®
- Internal continuity check with diagnostic information by bus
- Maximum resistant against magnetic fields
- Gear factor adjustable via numerator / denominator
- Dynamic PDO-mapping



Picture similar

Technical data

Technical data - electrical ratings

Voltage supply	8...30 VDC
Reverse polarity protection	Yes
Consumption w/o load	≤100 mA (24 VDC)
Initializing time typ.	180 ms after power on
Interface	CANopen®
Function	Multiturn
Profile conformity	CANopen® CiA 301 V4.2.0
Node-ID	Adjustable via rotary switches in bus cover or interface
Steps per revolution	≤2097152 / 21 bit
Number of revolutions	≤65536 / 16 bit
Absolute accuracy	±0.01 °
Sensing method	Optical
Code	Binary
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Programmable parameters	Steps per revolution Number of revolutions Preset Scaling Rotating direction Gear factor
Diagnostic function	Position or parameter error Multiturn sensing Operating hour counter
Status indicator	DUO-LED integrated in bus cover
Approval	UL approval / E217823

Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø12 mm (blind hollow shaft) ø14 mm (blind hollow shaft)
Protection EN 60529	IP 54 (without shaft seal) IP 65 / IP 67 (with shaft seal)
Operating speed	≤6000 rpm (+25 °C)
Starting acceleration	≤1000 U/s ²
Starting torque	≤0.02 Nm (+25 °C, IP 54) ≤0.04 Nm (+25 °C, IP 65 / IP 67)
Motor shaft tolerance	± 0.2 mm (axial offset) ≤ 0.1 mm (radial offset) ≤ 0.1 mm (concentricity)
Material	Housing: aluminium Flange: aluminium Bus cover: zinc die-cast Shaft: stainless steel
Operating temperature	-25...+85 °C (see general information) -40...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration ±0.75 mm - 10-58 Hz, 10 g - 58-2000 Hz EN 60068-2-27 Shock 200 g, 3 ms
Weight approx.	550 g
Connection	Cable gland Connector 2xM12
Instruction	Resonance frequency with stator coupling (11721627): 450...600 Hz

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General information

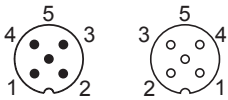
Self-heating correlated to installation and ambient conditions as well as to electronics and supply voltage must be considered for precise thermal dimensioning. Operating the encoder close to the maximum limits requires measuring the real prevailing temperature at the encoder flange.

Terminal assignment

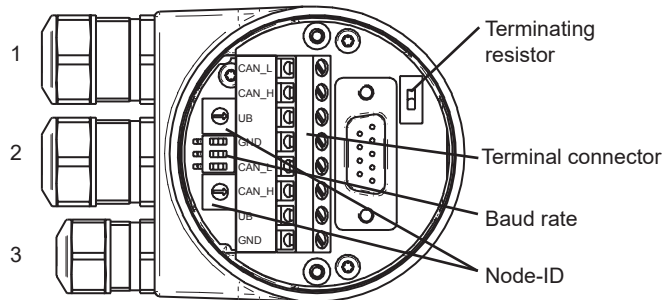
Connector M12 (male / female), 5-pin, A-coded

Pin	Signals	Description
1	GND	Ground connection relating to UB
2	UB	Voltage supply
3	GND	Ground connection relating to UB
4	CAN_H	CAN bus signal (dominant High)
5	CAN_L	CAN bus signal (dominant Low)

Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.



View inside bus cover



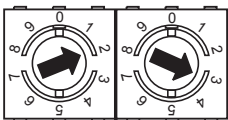
Cable: 1, 2 = \varnothing 8-10 mm (-40-85 °C) / \varnothing 5-9 mm (-25-85 °C)
Cable: 3 = \varnothing 4.5-6 mm (-40-85 °C) / \varnothing 3-6 mm (-25-85 °C)

Terminating resistor



ON = final user
OFF = user X
Default: OFF

Node-ID



Defined by rotary switch (Node-ID 01 to 99). If a higher node ID is required use the CANopen configuration.

If the rotary switch is set to 00, the Node-ID and the baud rate can be configured via the CANopen objects 2101h (Node-ID) and 2100h (baud rate).

Example: 23
Default: 00

Baud rate



Baud rate	Dip switch position			
	1	2	3	
10 kBit/s*	OFF	OFF	OFF	
20 kBit/s*	OFF	OFF	ON	
50 kBit/s	OFF	ON	OFF	
125 kBit/s	OFF	ON	ON	
250 kBit/s	ON	OFF	OFF	(default)
500 kBit/s	ON	OFF	ON	
800 kBit/s	ON	ON	OFF	
1 MBit/s	ON	ON	ON	

Note:

The baud rate 100 kBit/s can only be configured via CANopen object (2100h).

* not supported

CANopen® features

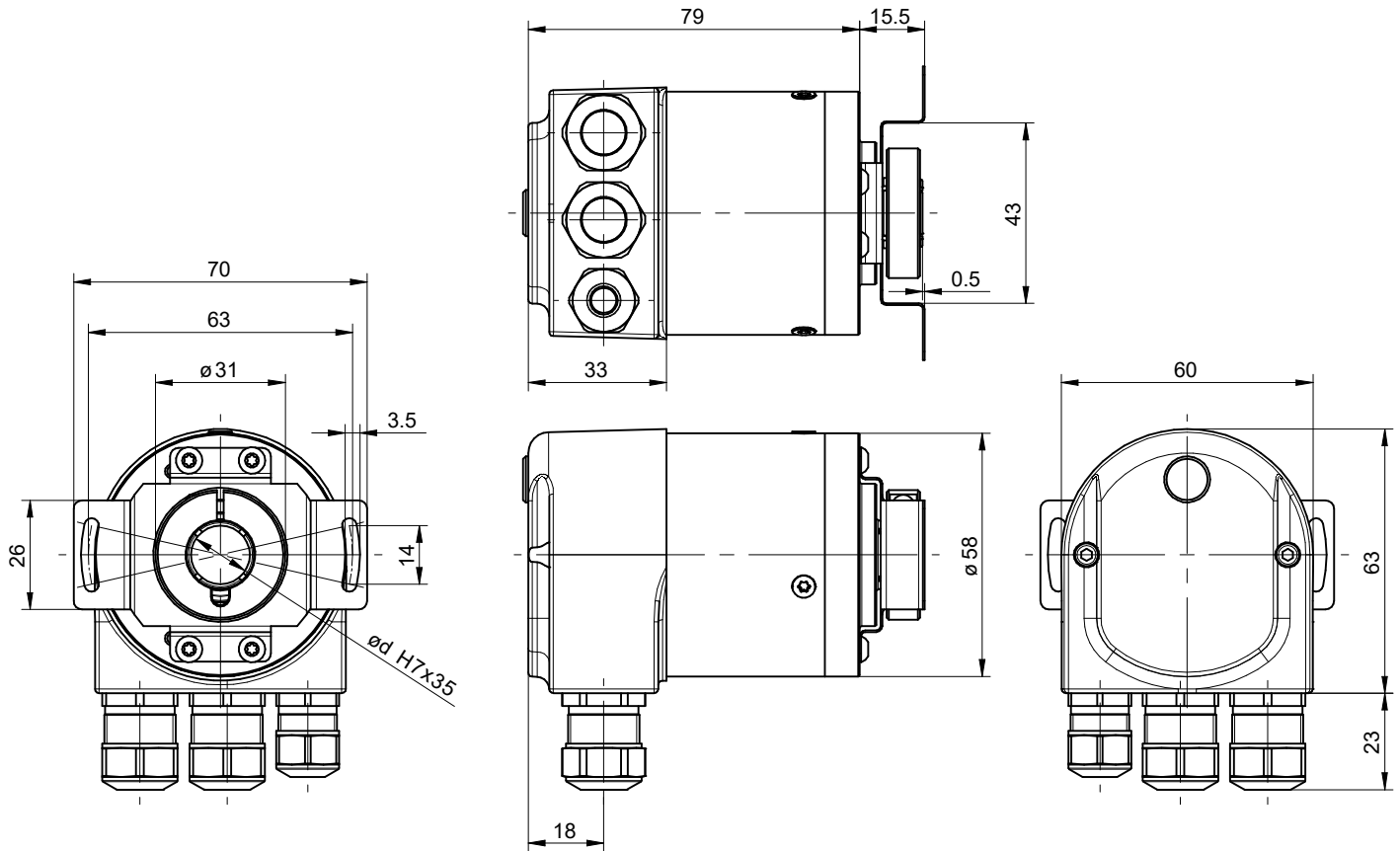
Operating modes	Timer-driven (Event-Time) Synchronously triggered (Sync)
Node Monitoring	Heartbeat Node guarding
Programmable parameters	Scaling Rotating direction Electronic gear function (adjustable via numerator / denominator) MUR (Measuring Units per Revolution) TMR (Total Measuring Range) Speed configuration Operating modes
Diagnosis	Multiturm sensing Position error Battery level
Functions	Electronic gear function Dynamic PDO mapping Preset value LED status

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Dimensions



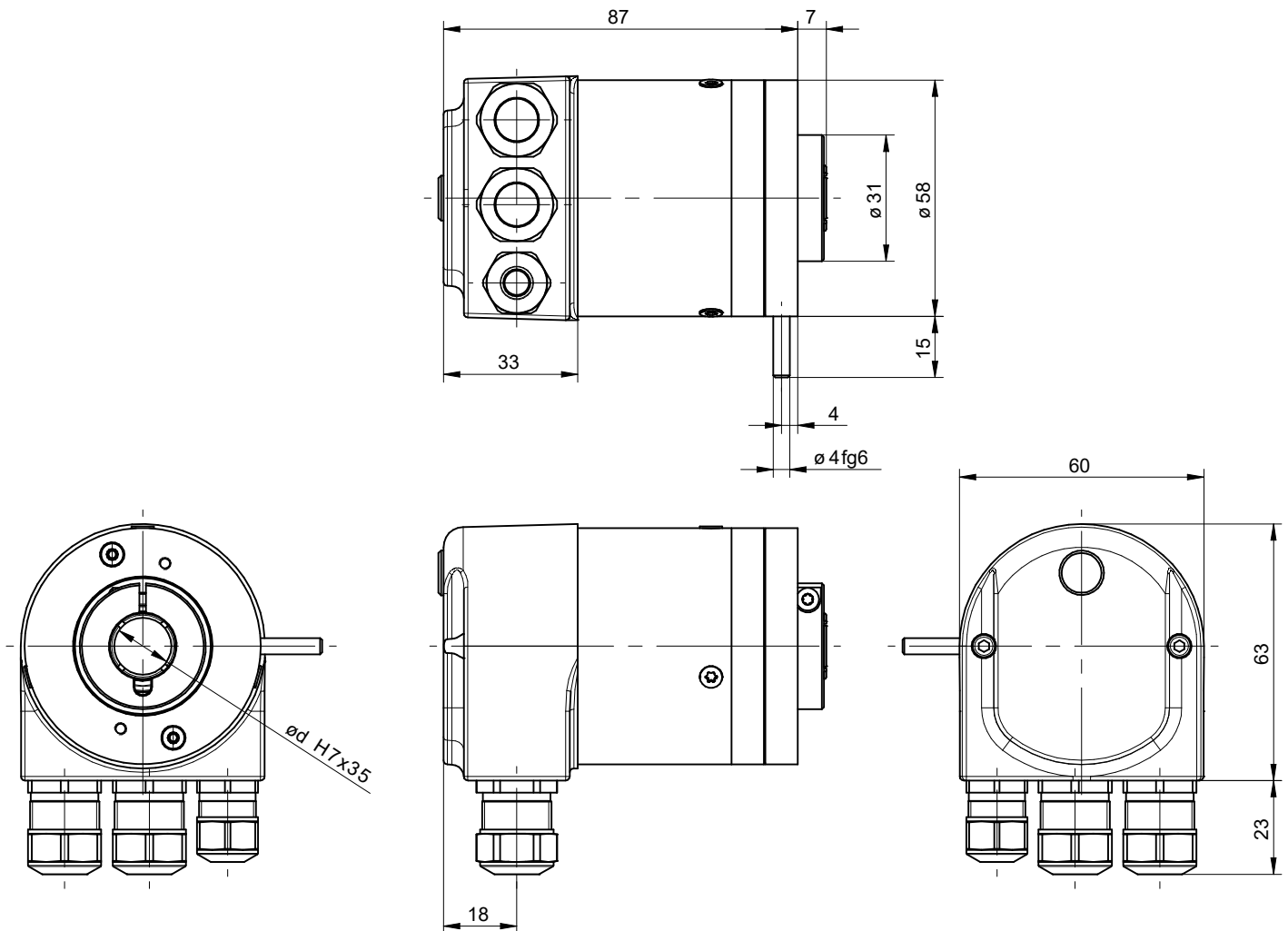
EN580C.ML-B - cable gland, stator coupling

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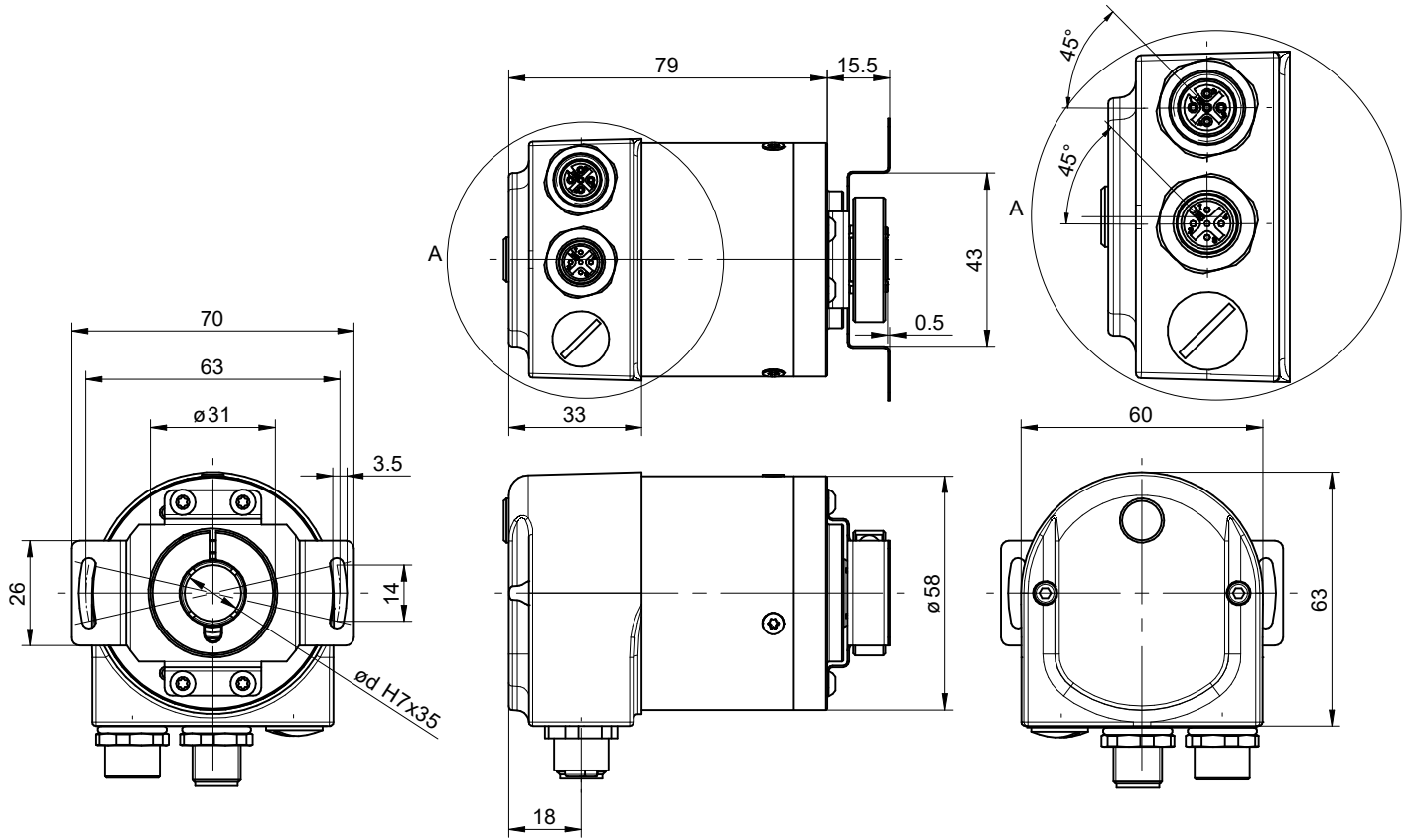
EN580C.ML-B - cable gland, option MTQ003: torque pin

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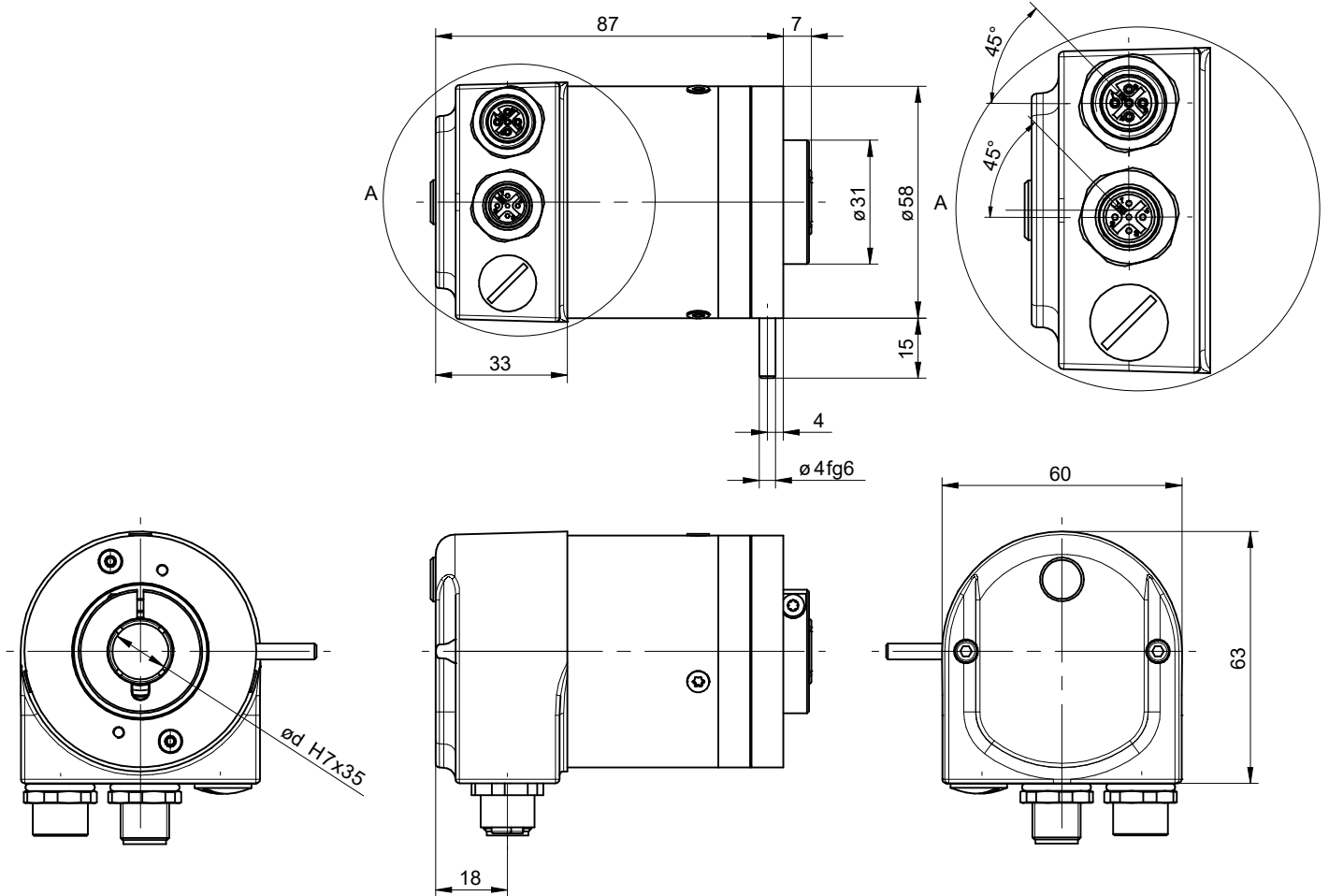
EN580C.ML-B - 2xM12, Stator coupling

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EN580C.ML-B - 2xM12, option MTQ003: torque pin

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Ordering reference

	EN	580	C	.	M	L	-	B	N	##	.	#	##	C1	.	21	16	0	.	#
Product	EN																			
Encoder	EN																			
Series		580																		
580		580																		
Focus			C																	
Bus cover			C																	
Function					M															
Multiturn					M															
Sensing						L														
Optical						L														
Shaft type								B												
Blind hollow shaft								B												
Flange (Hollow shaft)									N											
Without stator coupling									N											
Blind hollow shaft																				
ø12 mm, clamping ring, A-side										12										
ø14 mm, clamping ring, A-side										14										
Protection class																				
Flange: IP 54, Housing: IP 65														G						
IP 65, IP 67														H						
Connection																				
Bus cover, 3x cable gland														H2						
Bus cover, 2xM12 radial														H3						
Voltage supply / interface																				
8...30 VDC, CANopen (DS 406)														C1						
Resolution Singleturn																				
21 Bit																				21
Resolution Multiturn																				
16 Bit																				16
Resolution supplement																				
No option																				0
Operating temperature																				
-40...+85 °C																				A
-25...+85 °C																				H

Accessories

Mounting accessories

10139345	Torque support by rubber buffer for encoders with 15 mm pin (Z 119.041)
11721627	Stator coupling, 2-armed (mounting kit 207)