Absolute encoders

EN580C.ML-SU - CANopen®

Solid shaft with synchro flange

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
- Synchro flange
- 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

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Size (flange)	ø58 mm
Shaft type	ø6 x 10 mm, solid shaft with flat
Flange	Synchro flange
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/s²
Starting torque	≤0.02 Nm (+25 °C, IP 54) ≤0.04 Nm (+25 °C, IP 65 / IP 67)
Admitted shaft load	≤40 N axial ≤80 N radial
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

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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.
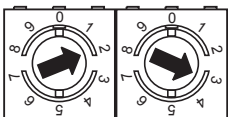

View inside bus cover

Terminating resistor

Terminal connector

Baud rate
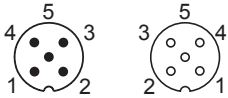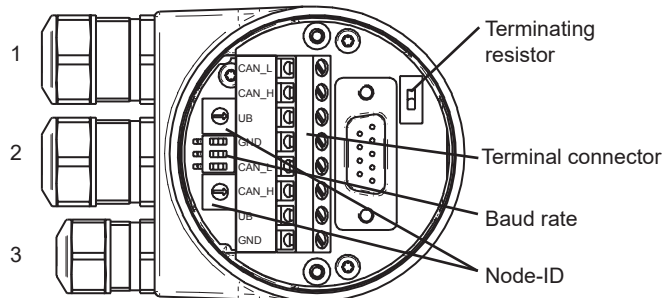
Node-ID

Cable: 1, 2 = ø8-10 mm (-40-85 °C) / ø5-9 mm (-25-85 °C)
Cable: 3 = ø4.5-6 mm (-40-85 °C) / ø3-6 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).
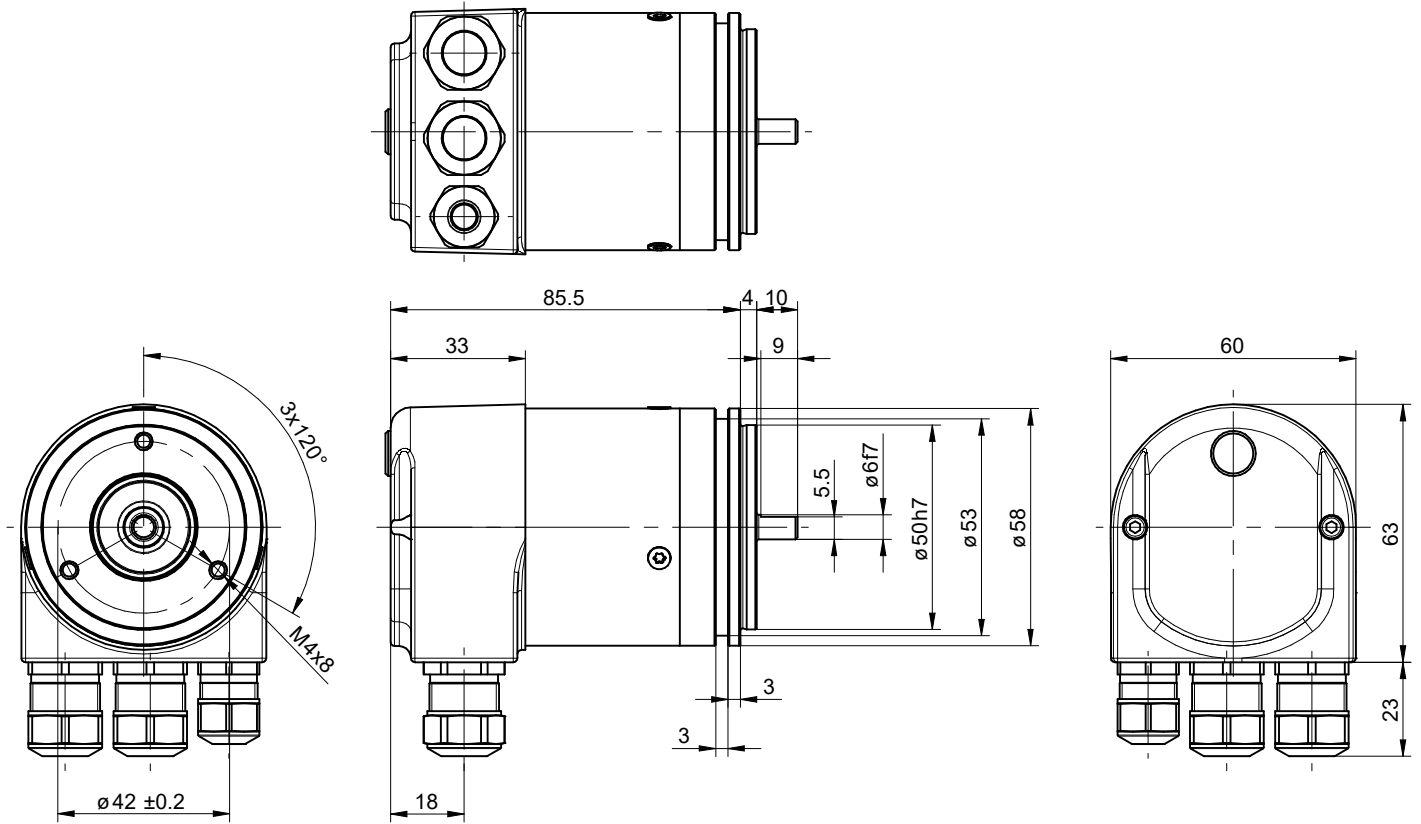
* not supported

CANopen® features

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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	Multiturn sensing Position error Battery level
Functions	Electronic gear function Dynamic PDO mapping Preset value LED status

Dimensions

EN580C.ML-SU - cable gland

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Dimensions
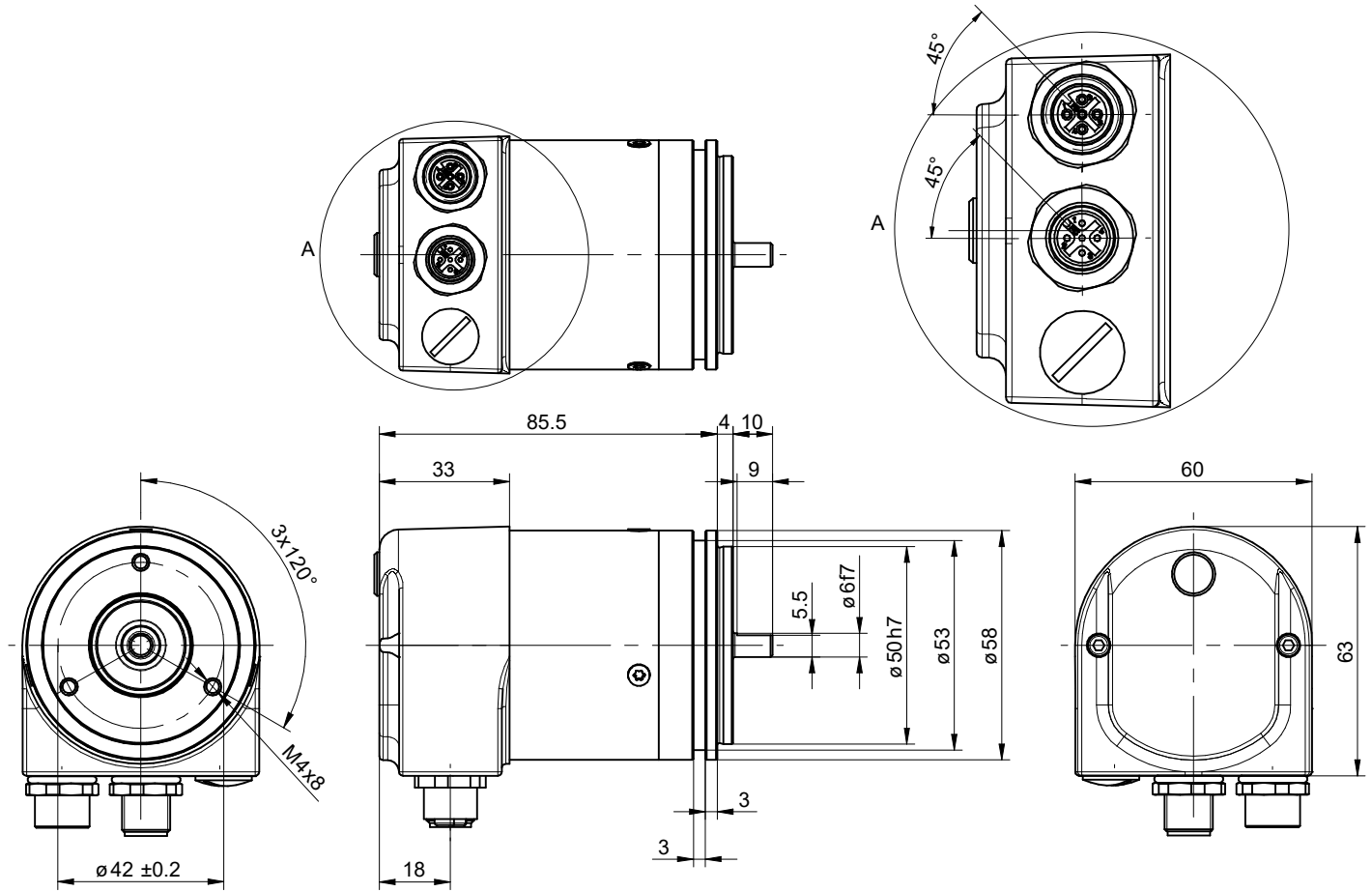
EN580C.ML-SU - connector M12

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Ordering reference

	EN	580	C	.	M	L	-	S	U	06	.	#	##	C1	.	21	16	0	.	#
Product																				
Encoder	EN																			
Series																				
580		580																		
Focus																				
Bus cover			C																	
Function																				
Multiturn					M															
Sensing																				
Optical						L														
Shaft type																				
Solid shaft								S												
Flange (shaft)																				
Synchro flange, centering collar ø50 x 4 mm, groove ø53 mm, pitch circle, diameter ø42 - 3xM4									U											
Shaft																				
ø6 x 10 mm, with flat										06										
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																				
-25...+85 °C																				H
-40...+85 °C																				A

Accessories

Mounting accessories

11065545	Set of eccentric fixings type A
10117667	Mounting adaptor
10117668	Set of eccentric fixings for mounting clamp (10117667)
10158124	Bearing flange for encoders with synchro flange (Z 119.035)
10141132	Spring washer coupling (D1=6 / D2=10)

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