EN580E.ML-SU - SSI

Solid shaft with synchro flange

Optical multiturn encoders 13 bit ST / 12 bit MT

Overview

- Absolute encoder multiturn
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 12 bit
- Synchro flange
- Maximum resistant against magnetic fields
- High connection flexibility thanks to flexible M12 and flylead connector M23

Technical data

Technical data - electrical ratings

Voltage supply	8...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes
Consumption w/o load	≤80 mA (24 VDC)
Interface	SSI
Function	Multiturn
Steps per revolution	8192 / 13 bit
Number of revolutions	4096 / 12 bit
Absolute accuracy	±0.03 °
Sensing method	Optical
Code	Gray or binary
Code sequence	CW: ascending values with clockwise sense of rotation (looking at flange)
Input signals	SSI clock Zero setting input Counting direction
Output stages	SSI data: Linedriver RS422
Output signals	SSI data
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-4
Approval	UL-Listing: E217823

Technical data - mechanical design

Size (flange)	ø58 mm
Shaft type	ø6 x 10 mm, solid shaft with flat
Flange	Synchro flange
Protection EN 60529	IP 54 (flange side) IP 65 (housing side)
Operating speed	≤6000 rpm (+25 °C)
Starting acceleration	≤1000 U/s²
Starting torque	≤0.02 Nm
Admitted shaft load	≤40 N axial ≤80 N radial
Material	Housing: aluminium Shaft: stainless steel
Operating temperature	-25...+85 °C (see general information)
Relative humidity	95 % non-condensing
Resistance	EN 60068-2-6 Vibration ±4 mm - 10-61 Hz, 30 g - 61-2000 Hz EN 60068-2-27 Shock 100 g, 6 ms
Weight approx.	400 g
Connection	Connector M12, 8-pin, flexible Flange connector M23, 12-pin Flylead connector M23, 12-pin, tangential, length 300 mm

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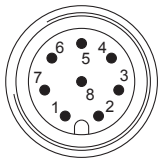
General information

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

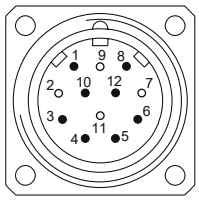
Connector M12, 8-pin

Pin	Assignment
1	0 V
2	+Vs
3	Clock+
4	Clock-
5	Data+
6	Data-
7	SET
8	DIR



Flange socket M23, 12-pin, male contact, CCW

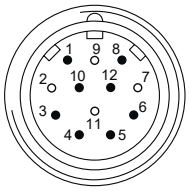
Pin	Assignment
1	Data-
2	–
3	SET
4	DIR
5	Clock+
6	Clock-
7	–
8	Data+
9	–
10	0 V
11	–
12	+Vs



Terminal assignment

Flylead connector M23, 12-pin, male contacts, CCW

Pin	Assignment
1	Data-
2	–
3	SET
4	DIR
5	Clock+
6	Clock-
7	–
8	Data+
9	–
10	0 V
11	–
12	+Vs
Screen: connected to housing	



Terminal significance

SET	Zero setting input. Input for zero setting at any position. The zero setting operation is triggered by a high pulse and has to be in line with the selected direction of rotation (DIR). Impulse duration >100 ms. Connect to 0 V after zero setting for maximum interference immunity.
DIR	Counting direction input. This input is standard on high. DIR-High means ascending output data with clockwise shaft rotation when looking at flange. DIR-Low means ascending values with counterclockwise shaft rotation when looking at flange. For maximum interference immunity connect to +Vs respectively 0 V depending on counting direction.

Trigger level

SSI	Circuit
SSI-Clock	RS422 with terminating resistor 120 Ω
SSI-Data	RS422

Control inputs	Input circuit
Input level High	>0.7 +Vs
Input level Low	<0.3 +Vs
Input resistance	10 kΩ

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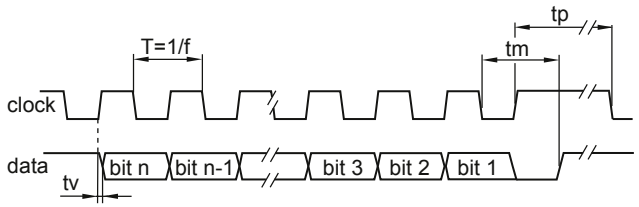
Data transfer



Clock frequency f	80…2000 kHz
Delay time tv	70 ns (RL = 120 Ohm)
Monoflop time tm	16 … 24 µs + T/2
Clock interval tp	30 µs

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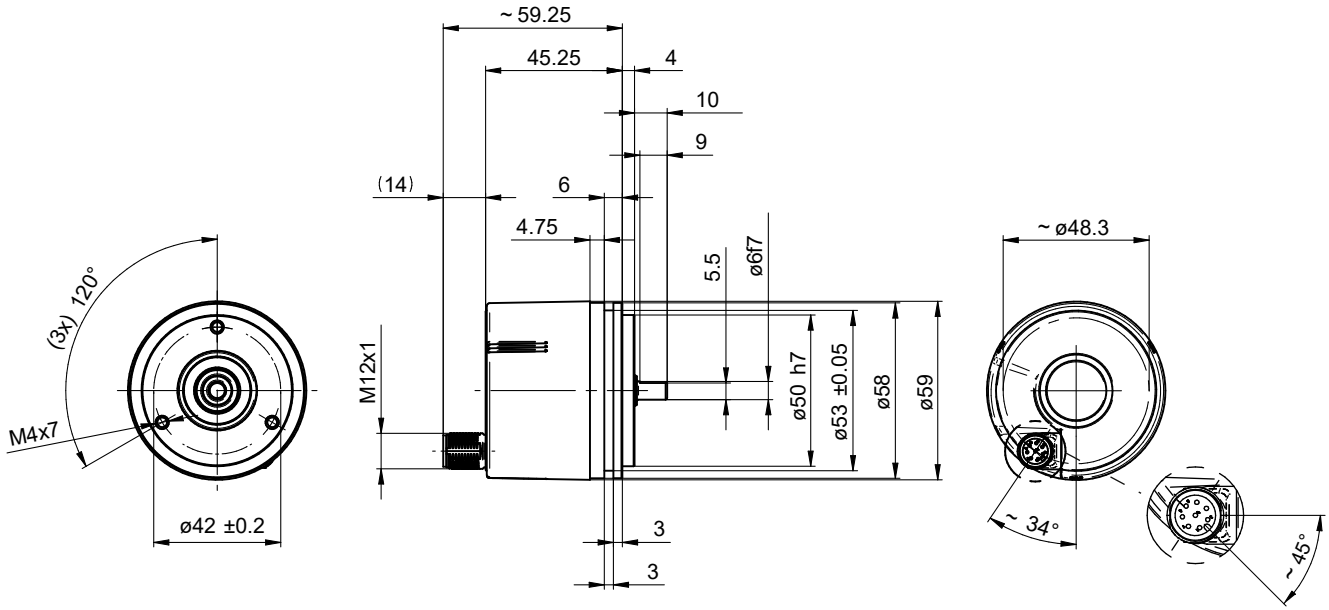
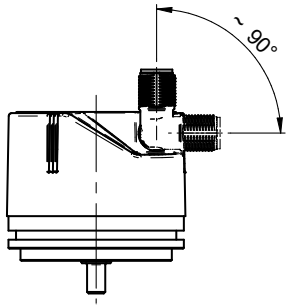
Dimensions



Synchro flange, connector M12



Synchro flange, flexible connector M12

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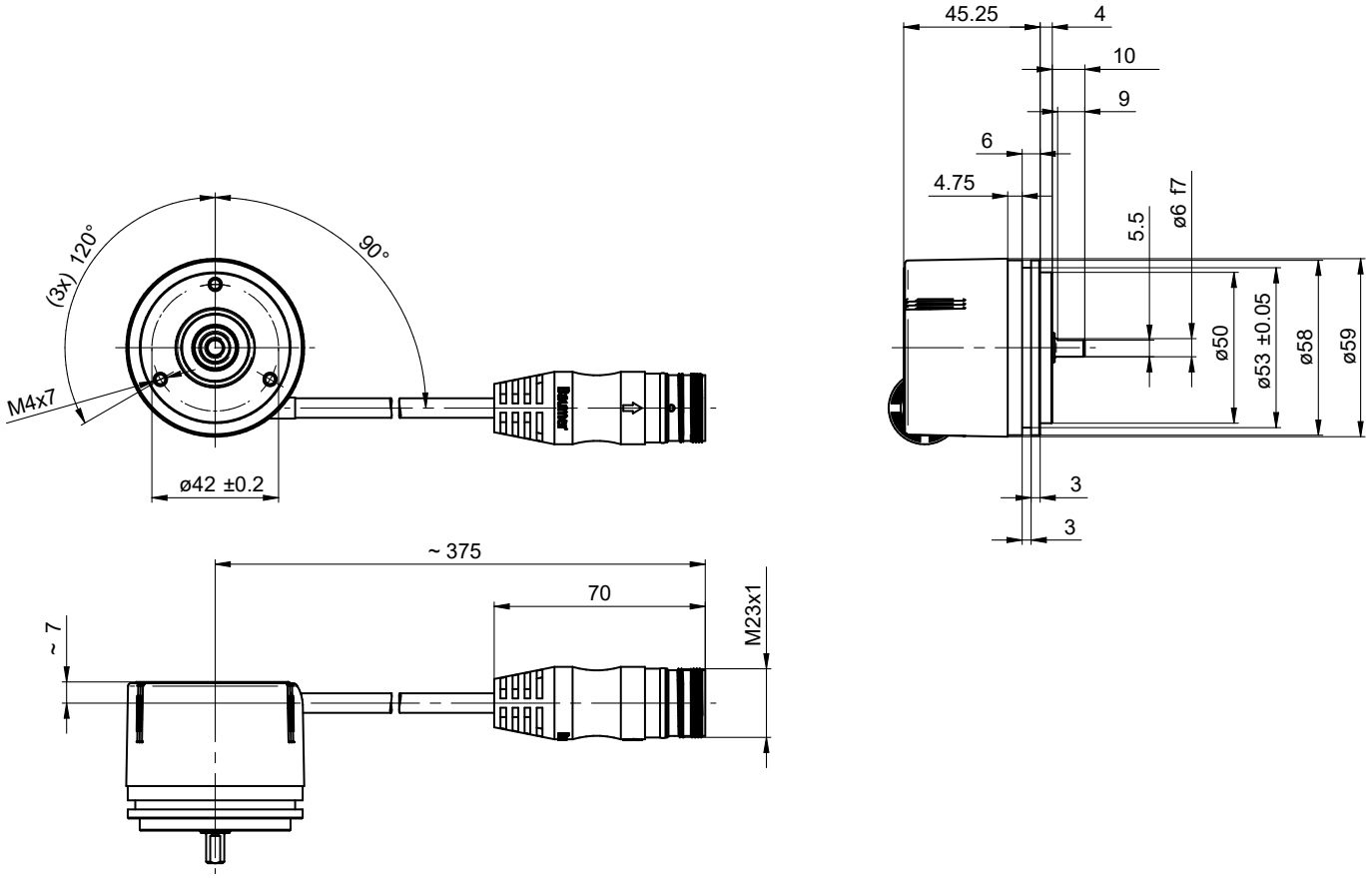
Dimensions



Synchro flange, flylead connector M23

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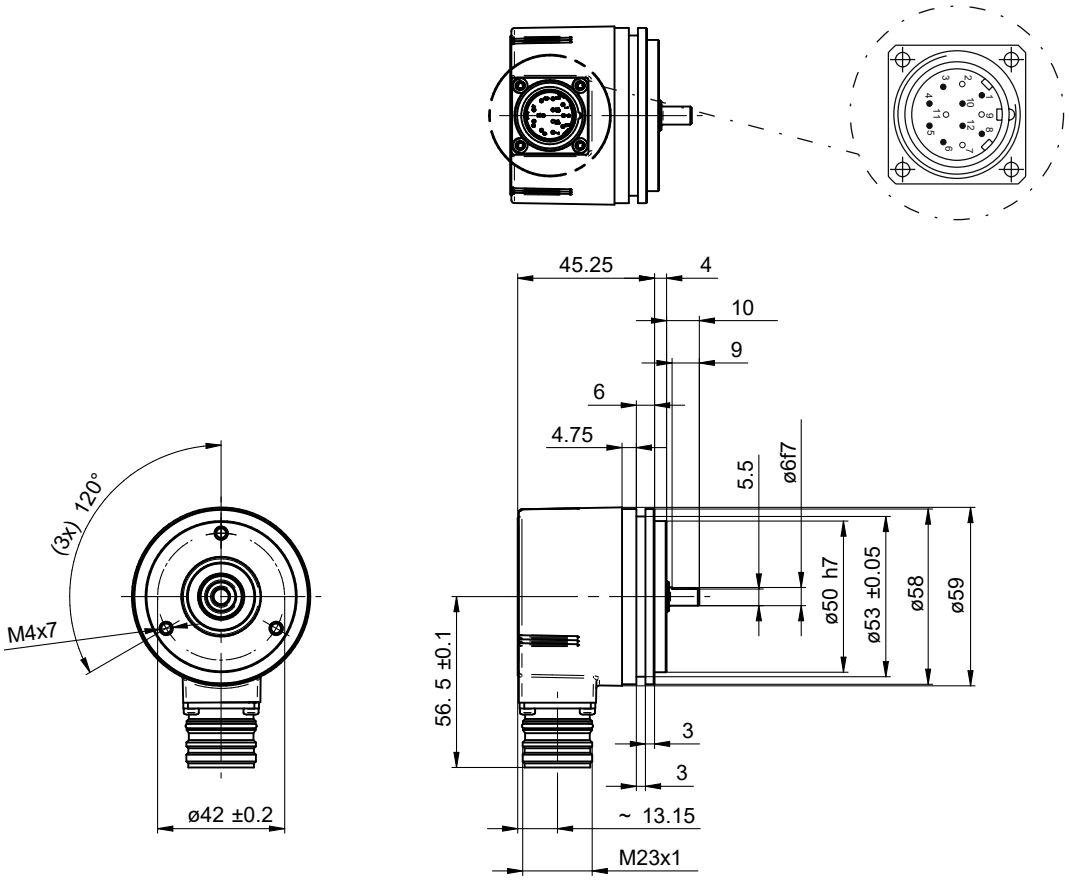
Dimensions



Synchro flange, flange socket M23

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Ordering reference

	EN	580	E	.	M	L	-	S	U	06	.	G	##	##	.	13	12	0	.	H
Product																				
Encoder	EN																			
Series																				
580		580																		
Focus																				
Essential			E																	
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								
Connection																				
Connector moveable, M12, 8-pin, male contacts, CCW (A-cod)													A1							
Flange socket radial, M23, 12-pin, male contacts, CCW													B1							
Flylead connector, M23, 12-pin, male contacts, CCW, tangential, 0.3 m													E1							
Voltage supply / interface																				
8...30 VDC, SSI binary														1B						
8...30 VDC, SSI gray														1G						
Resolution Singleturn																				
13 Bit																13				
Resolution Multiturn																				
12 Bit																	12			
Resolution supplement																				
No option																		0		
Operating temperature																				
-25...+85 °C																				H

Accessories

Mounting accessories	
11050507	Bellows coupling (D1=06 / D2=10)
11065922	Coupling CPS25 (L=19, D1=10 / D2=06)
11065916	Coupling CPS25 (L=19, D1=06 / D2=06)
10141132	Spring washer coupling (D1=6 / D2=10)
10141131	Spring washer coupling (D1=6 / D2=6)
11069333	Coupling CPS37 (L=24, D1=06 / D2=06)
11069337	Coupling CPS37 (L=24, D1=10 / D2=06)
11065545	Set of eccentric fixings type A
10117667	Mounting adaptor
10117668	Set of eccentric fixings for mounting clamp (10117667)