

EN580E.ML-SC - SSI

Solid shaft with clamping flange

Optical multiturn encoders 13 bit ST / 12 bit MT

Overview

- Absolute encoder multiturn
- Optical sensing method
- Resolution: singleturn 13 bit, multiturn 12 bit
- Clamping 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	ø10 x 20 mm, solid shaft with flat
Flange	Clamping flange
Protection EN 60529	IP 54 (flange side) IP 65 (housing side)
Operating speed	≤6000 rpm (+25 °C)
Starting acceleration	≤1000 U/s ²
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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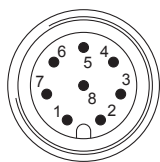
General information

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

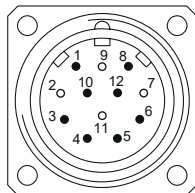
Connector M12, 8-pin

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

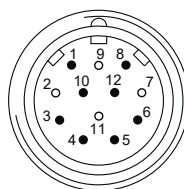


Terminal assignment

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

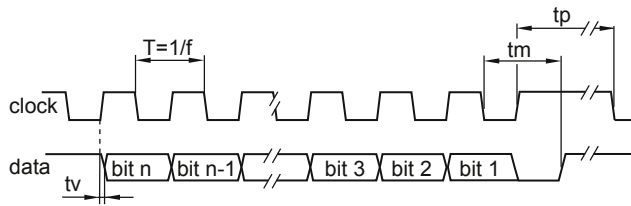
Control inputs	Input circuit
Input level High	>0.7 UB
Input level Low	<0.3 UB
Input resistance	10 kΩ

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Data transfer



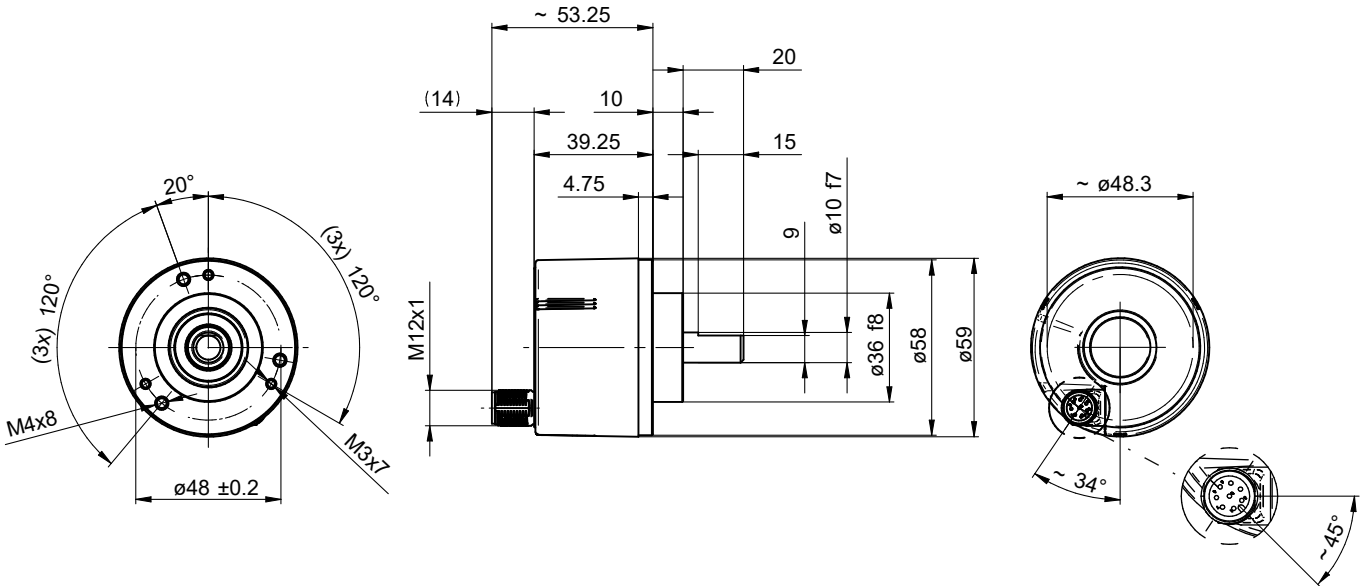
Clock frequency f	80...2000 kHz
Delay time t_v	70 ns (RL = 120 Ohm)
Monoflop time t_m	16 ... 24 μ s + T/2
Clock interval t_p	30 μ s

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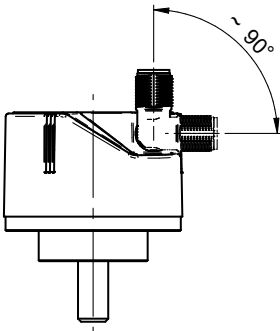
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Dimensions



Clamping flange, connector M12



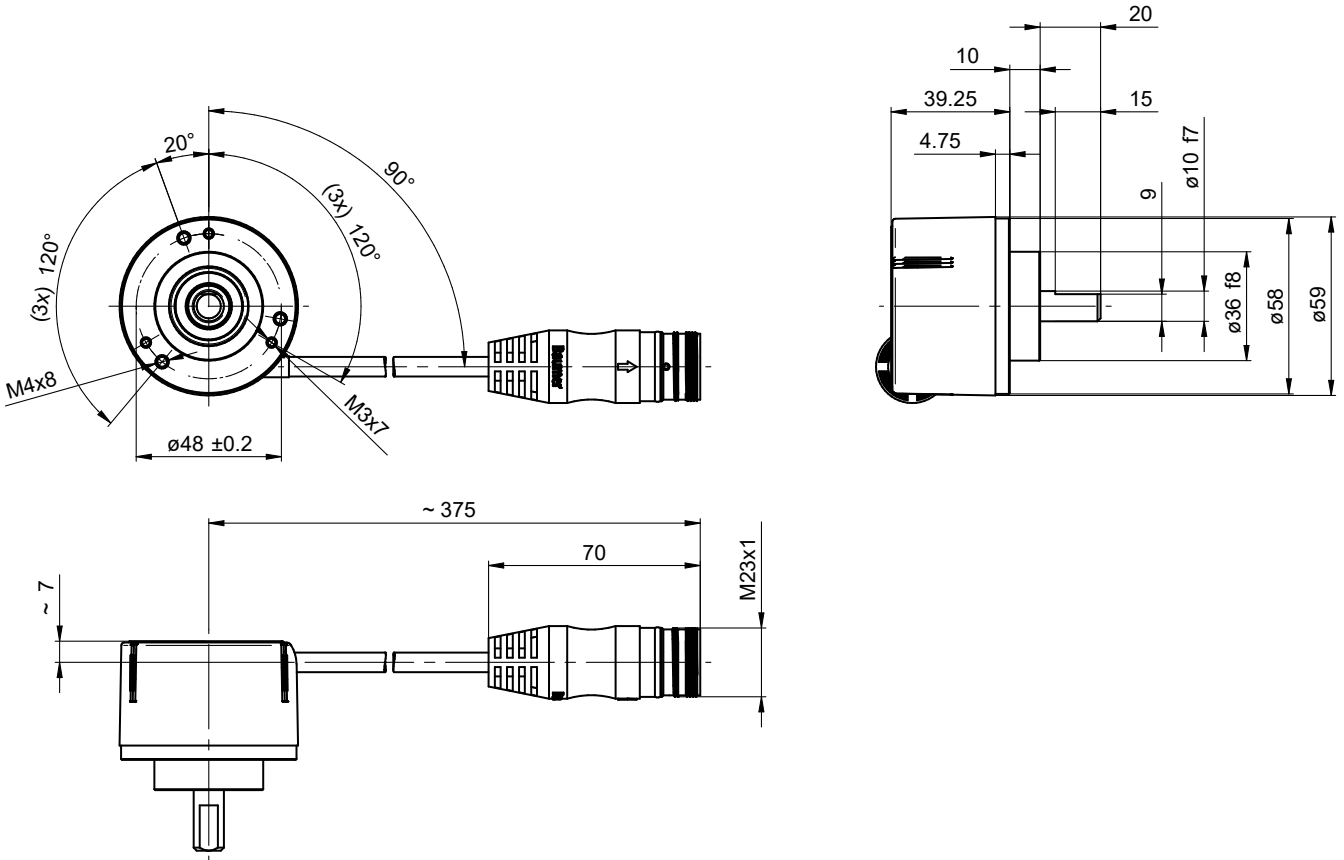
Clamping flange, flexible connector M12

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Dimensions



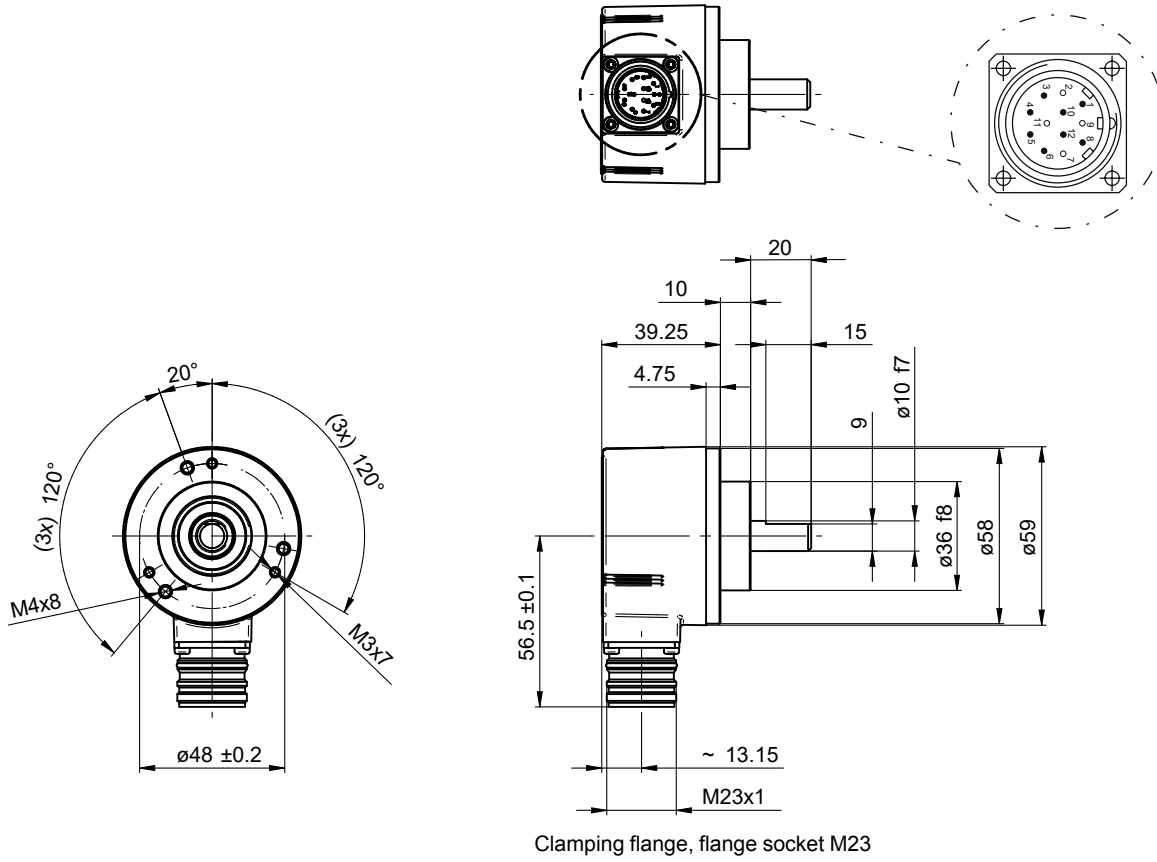
Clamping flange, flylead connector M23

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Dimensions



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Ordering reference

	EN	580	E	.	M	L	-	S	C	10	.	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)	Clamping flange, centering collar ø36 x 10 mm, pitch circle diameter 48 mm - 3xM3/3xM4								C											
Shaft	ø10 x 20 mm, with flat									10										
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

11101781	Double loops coupling (D1=10 / D2=10)
11050507	Bellows coupling (D1=06 / D2=10)
11065923	Coupling CPS25 (L=19, D1=10 / D2=10)
11065922	Coupling CPS25 (L=19, D1=10 / D2=06)
10141132	Spring washer coupling (D1=6 / D2=10)
10141133	Spring washer coupling (D1=10 / D2=10)
11069337	Coupling CPS37 (L=24, D1=10 / D2=06)
11069340	Coupling CPS37 (L=24, D1=10 / D2=10)
11053277	Bellows coupling (D1=10 / D2=10)
11101893	Spring encoder arm
10125051	Mounting adaptor