

# Incremental encoders

## Solid shaft with clamping or synchro flange

### 100...5000 pulses per revolution

#### EIL580 - solid shaft - *OptoPulse*<sup>®</sup>



EIL580 with clamping flange

#### Technical data - electrical ratings

Voltage supply	5 VDC $\pm$ 5 % 8...30 VDC 4.75...30 VDC
Reverse polarity protection	Yes
Short-circuit proof	Yes (HTL) Yes (TTL, max. 1 s and 1 signal)
Consumption w/o load	$\leq$ 70 mA
Pulses per revolution	100...5000
Phase shift	90° $\pm$ 10°
Scan ratio	40...60 %
Reference signal	Zero pulse, width 90° $\pm$ 10 %
Sensing method	Optical
Output frequency	$\leq$ 300 kHz (TTL) $\leq$ 160 kHz (HTL)
Output signals	A+, B+, R+, A-, B-, R-
Output stages	TTL/RS422 HTL/push-pull
Interference immunity	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3
Approval	UL 508 / CSA 22.2

#### Features

- Size  $\varnothing$ 58 mm
- Precise optical sensing
- Output signal level TTL or HTL
- Clamping or synchro flange
- Connection axial, radial or tangential
- Pulses per revolution up to 5000
- High protection up to IP 67
- High resistance to shock and vibrations

#### Technical data - mechanical design

Size (flange)	$\varnothing$ 58 mm
Shaft loading	$\leq$ 40 N axial $\leq$ 80 N radial
Protection DIN EN 60529	IP 65 (without shaft seal), IP 67 (with shaft seal)
Operating speed	$\leq$ 6000 rpm (+20 °C, IP 67) $\leq$ 12000 rpm (+20 °C, IP 65)
Starting torque	$\leq$ 0.015 Nm (+20 °C, IP 65) $\leq$ 0.02 Nm (+20 °C, IP 67)
Materials	Housing: aluminium die-cast Flange: aluminium Solid shaft: stainless steel
Operating temperature	-40...+85 °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN EN 60068-2-27 Shock 300 g, 6 ms
Connection	Flange connector M12, 8-pin Flange connector M23, 12-pin Cable
Weight approx.	300 g

#### EIL580 - clamping flange

Shaft type	$\varnothing$ 10 x 20 mm, solid shaft with edge (clamping flange)
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#### EIL580 - synchro flange

Shaft type	$\varnothing$ 6 x 10 mm, solid shaft with flat edge (synchro flange)
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**EIL580 - solid shaft - OptoPulse®**

#### Part number

#### Clamping flange

EIL580-S **C** **10** . . . . . **A**

Pulse number - see table

Voltage supply / output stages

- E 5 VDC, TTL/RS422, 6 channels**
- H 8...30 VDC, TTL/RS422, 6 channels
- N 8...30 VDC, HTL/push-pull, 6 channels**
- Q 4.75...30 VDC, HTL/push-pull, 6 channels

Connection

- R Cable radial, 1 m**
- L Cable radial, 2 m
- F Flange connector M23, 12-pin, radial, male, ccw**
- B Flange connector M12, 8-pin, radial, male, ccw
- T Cable axial, 1 m
- U Cable axial, 2 m
- D Flange connector M23, 12-pin, axial, male, ccw
- A Flange connector M12, 8-pin, axial, male, ccw
- P Cable tangential, 1 m
- Q Cable tangential, 2 m

Protection

- 5 IP 65**
- 7 IP 67

Specification solid shaft

10 ø10 x 20 mm, with edge

Flange

C Clamping flange, centering collar ø36 mm, M3/M4

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

Pulse number					Stock items	
100	300	720	1250	2500	EIL580-SC10.5FE.01024.A	EIL580-SC10.5FE.02048.A
120	<b>360</b>	800	1440	3000	EIL580-SC10.5FN.01024.A	EIL580-SC10.5FN.02048.A
150	400	900	1500	<b>3600</b>	Numerous stock items in single quantity will be supplied within 24 hours respectively one day ex works.	
200	500	<b>1000</b>	1800	4000		
250	512	<b>1024</b>	2000	<b>4096</b>		
<b>256</b>	600	1200	<b>2048</b>	5000		

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Solid shaft with clamping or synchro flange

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## Part number

### Synchro flange

EIL580-S **Y** **06** . . . . . **.A**

Pulse number - see table

Voltage supply / output stages

- E 5 VDC, TTL/RS422, 6 channels**
- H 8...30 VDC, TTL/RS422, 6 channels
- N 8...30 VDC, HTL/push-pull, 6 channels**
- Q 4.75...30 VDC, HTL/push-pull, 6 channels

Connection

- R Cable radial, 1 m**
- L Cable radial, 2 m
- F Flange connector M23, 12-pin, radial, male, ccw**
- B Flange connector M12, 8-pin, radial, male, ccw
- T Cable axial, 1 m
- U Cable axial, 2 m
- D Flange connector M23, 12-pin, axial, male, ccw
- A Flange connector M12, 8-pin, axial, male, ccw
- P Cable tangential, 1 m
- Q Cable tangential, 2 m

Protection

- 5 IP 65**
- 7 IP 67

Specification solid shaft

06 ø6 x 10 mm, with edge

Flange

Y Synchro flange, flute ø53 mm, M3/M4

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

### Pulse number

100	300	720	1250	2500
120	<b>360</b>	800	1440	3000
150	400	900	1500	<b>3600</b>
200	500	<b>1000</b>	1800	4000
250	512	<b>1024</b>	2000	<b>4096</b>
<b>256</b>	600	1200	<b>2048</b>	5000

### Stock items

EIL580-SY06.5FE.01024.A	EIL580-SY06.5FE.02048.A
EIL580-SY06.5FN.01024.A	EIL580-SY06.5FN.02048.A

Numerous stock items in single quantity will be supplied within 24 hours respectively one day ex works.

# Incremental encoders

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#### Accessories

##### Connectors and cables

10127844	Connection cable 2 m shielded with female connector M12, 8-pin, straight (ESG 34FH0200G)
10129332	Connection cable 5 m shielded with female connector M12, 8-pin, straight (ESG 34FH0500G)
10129333	Connection cable 10 m shielded with female connector M12, 8-pin, straight (ESG 34FH1000G)
11053961	Connection cable 2 m shielded with female connector M12, 8-pin, angled (ESW 33FH0200G)
11053962	Connection cable 5 m shielded with female connector M12, 8-pin, angled (ESW 33FH0500G)
10170054	Connection cable 10 m shielded with female connector M12, 8-pin, angled (ESW 33FH1000G)
10164705	Connector M23, 12-pin
11095302	Connection cable 1 m shielded with female connector M23, 12-pin
11100408	Connection cable 2 m shielded with female connector M23, 12-pin
11100430	Connection cable 5 m shielded with female connector M23, 12-pin
11100431	Connection cable 10 m shielded with female connector M23, 12-pin

##### Mounting accessories for EIL580 - clamping flange

11065915	Coupling CPS25 L=19 d1=04/d2=10
11065918	Coupling CPS25 L=19 d1=07/d2=10
11065920	Coupling CPS25 L=19 d1=08/d2=10
11065921	Coupling CPS25 L=19 d1=09/d2=10
11065922	Coupling CPS25 L=19 d1=10/d2=06
11065923	Coupling CPS25 L=19 d1=10/d2=10
11065924	Coupling CPS25 L=19 d1=10/d2=11
11065925	Coupling CPS25 L=19 d1=10/d2=12
10141132	Spring washer coupling D1=06 / D2=10
10141133	Spring washer coupling D1=10 / D2=10
11034138	Spring washer coupling D1=10 / D2=16
11034140	Spring washer coupling D1=10 / D2=14
11034141	Spring washer coupling D1=10 / D2=12
11050507	Bellows coupling aluminium/stainless steel D1=06 / D2=10
11101781	Double loops coupling D1=10 / D2=10
10125051	Mounting adaptor for encoders with clamping flange
11065545	Set of eccentric fixings type A

##### Mounting accessories for EIL580 - clamping flange

11101893	Tether arm
<b>Mounting accessories for EIL580 - synchro flange</b>	
11065916	Coupling CPS25 L=19 d1=06/d2=06
11065917	Coupling CPS25 L=19 d1=06/d2=08
11065922	Coupling CPS25 L=19 d1=10/d2=06
11065926	Coupling CPS25 L=19 d1=11/d2=06
11065928	Coupling CPS25 L=19 d1=12/d2=06
10141131	Spring washer coupling D1=06 / D2=06
10141132	Spring washer coupling D1=06 / D2=10
11034139	Spring washer coupling D1=06 / D2=16
11050507	Bellows coupling aluminium/stainless steel D1=06 / D2=10
10117667	Mounting adaptor for encoders with synchro flange
10117668	Set of eccentric fixings for mounting clamp (10117667): 3x eccentric fixings, screws and nuts
11065545	Set of eccentric fixings type A
10158124	Bearing flange for encoders with synchro flange (Z 119.035)

Matching measuring wheels available as accessories, see under "measuring wheels" (MR).

# Incremental encoders

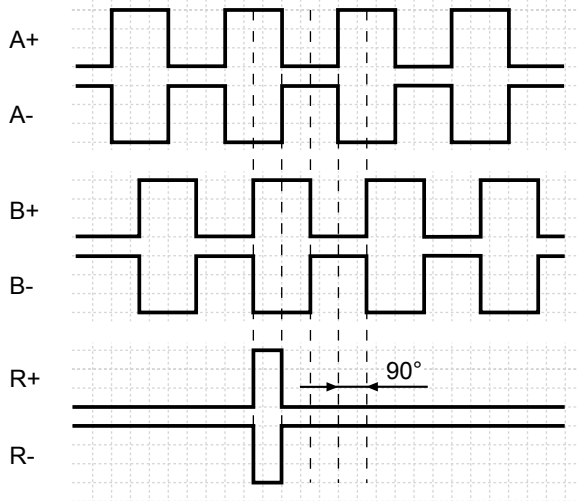
Solid shaft with clamping or synchro flange

100...5000 pulses per revolution

## EIL580 - solid shaft - OptoPulse®

### Output signals

Clockwise rotating direction when looking at flange.



### Trigger level

Outputs	TTL/RS422
Output level High	$\geq 2.5 \text{ V}$
Output level Low	$\leq 0.5 \text{ V}$
Load	$\leq 20 \text{ mA}$

Outputs	HTL/Push-pull
Output level High	$\geq U_B - 3 \text{ V}$
Output level Low	$\leq 1.5 \text{ V}$
Load	$\leq 20 \text{ mA}$

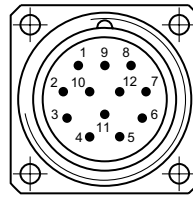
### Terminal assignment

#### Flange connector M23, 12-pin / cable

Pin	Core color	Assignment
1	pink	B-
2	–	–
3	blue	R+
4	red	R-
5	green	A+
6	yellow	A-
7	–	–
8	grey	B+
9	–	–
10	white	GND
11	–	–
12	brown	UB

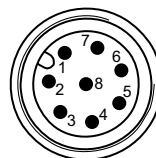
Screen: Connected to housing

Cable data: PVC, 4x2x0.14 mm<sup>2</sup>, bending radius >32.5 mm  
Outer diameter 6.5 mm



#### Flange connector M12, 8-pin

Pin	Assignment
1	GND
2	UB
3	A+
4	A-
5	B+
6	B-
7	R+
8	R-



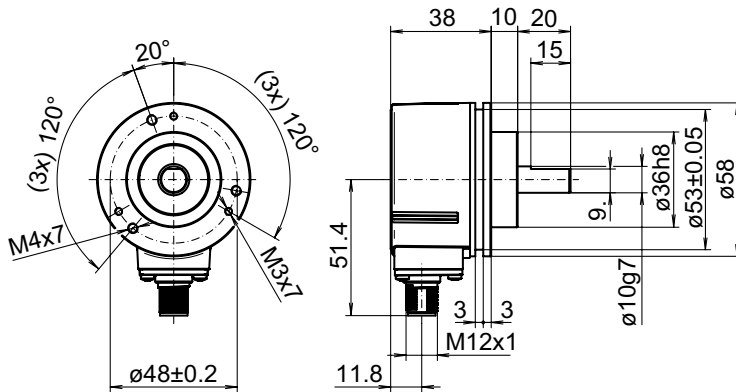
# Incremental encoders

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100...5000 pulses per revolution

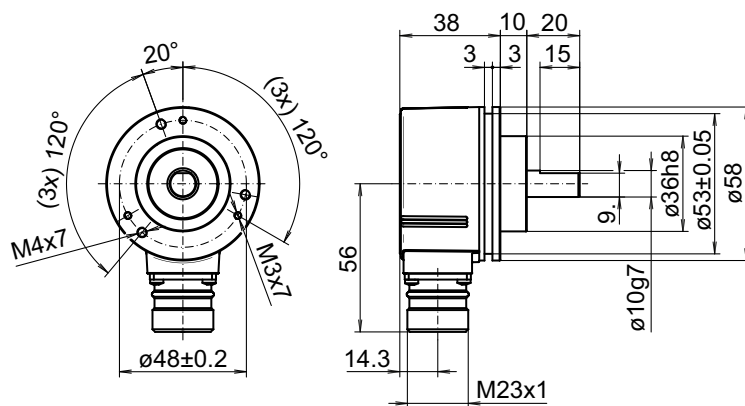
EIL580 - solid shaft - *OptoPulse*®

## Dimensions

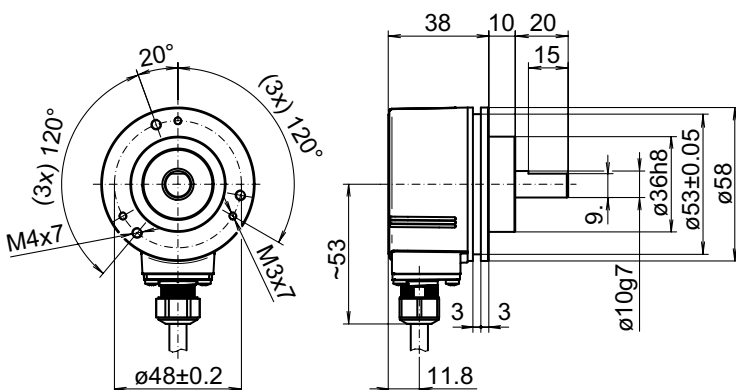
### Clamping flange, flange connector M12, radial



### Clamping flange, flange connector M23, radial



### Clamping flange, cable radial



# Incremental encoders

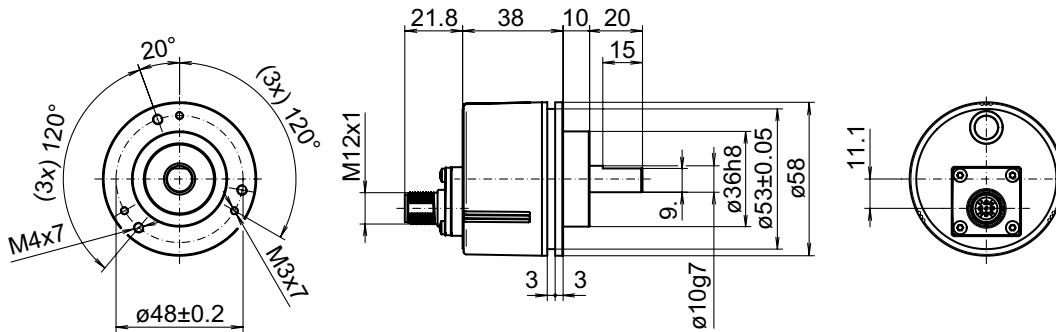
Solid shaft with clamping or synchro flange

100...5000 pulses per revolution

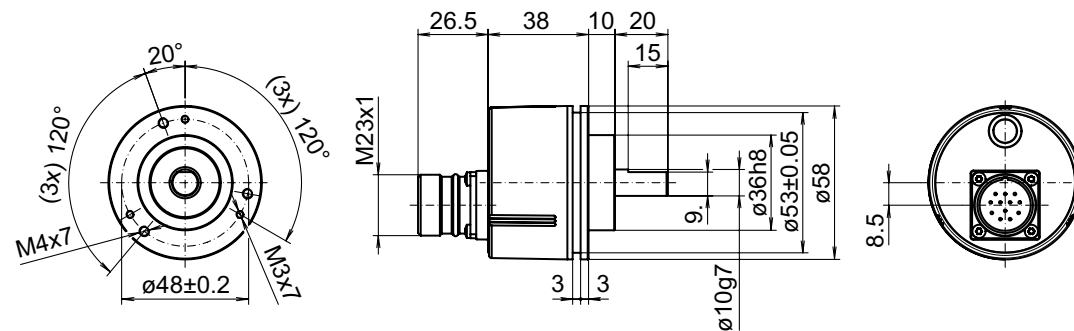
EIL580 - solid shaft - *OptoPulse*<sup>®</sup>

## Dimensions

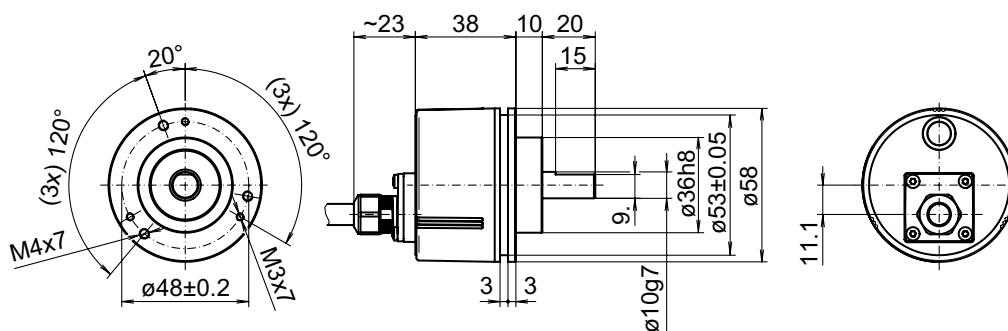
Clamping flange, flange connector M12, axial



Clamping flange, flange connector M23, axial



Clamping flange, cable axial



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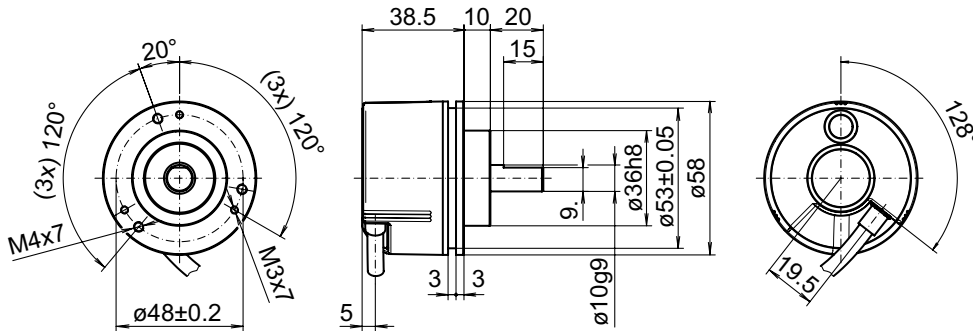
## Solid shaft with clamping or synchro flange

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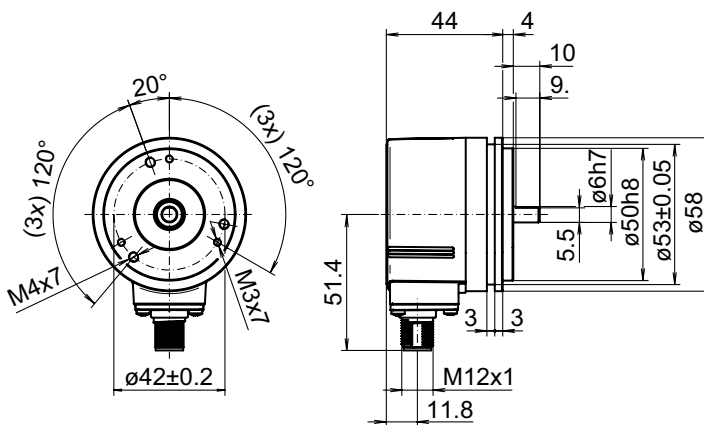
EIL580 - solid shaft - *OptoPulse®*

#### Dimensions

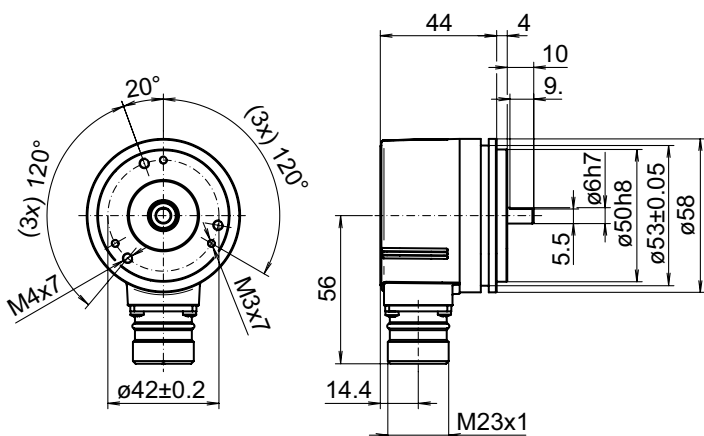
##### Clamping flange, cable tangential



##### Synchro flange, flange connector M12, radial



##### Synchro flange, flange connector M23, radial





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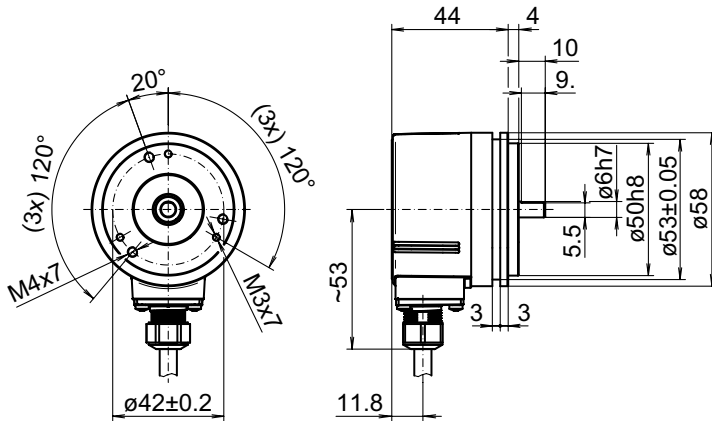
Solid shaft with clamping or synchro flange

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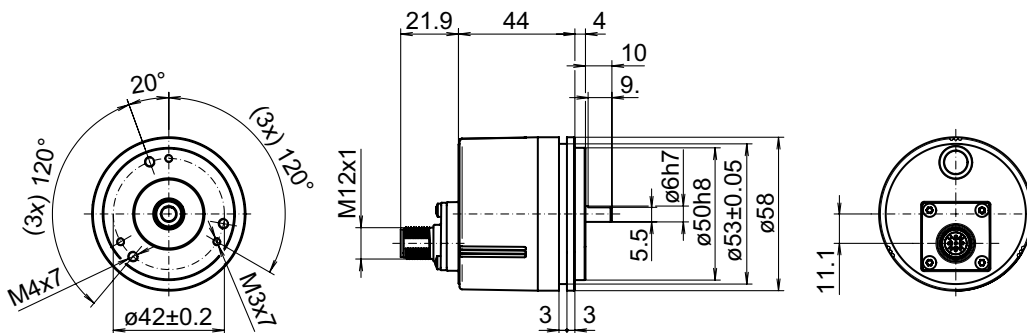
## EIL580 - solid shaft - *OptoPulse*<sup>®</sup>

### Dimensions

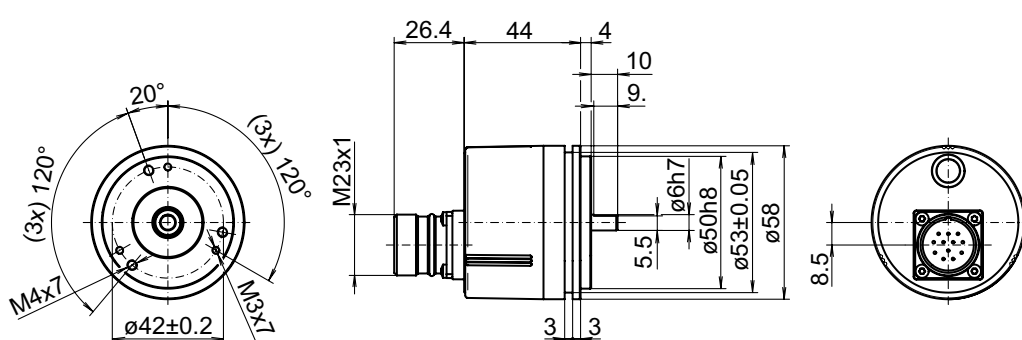
#### Synchro flange, cable radial



#### Synchro flange, flange connector M12, axial



#### Synchro flange, flange connector M23, axial



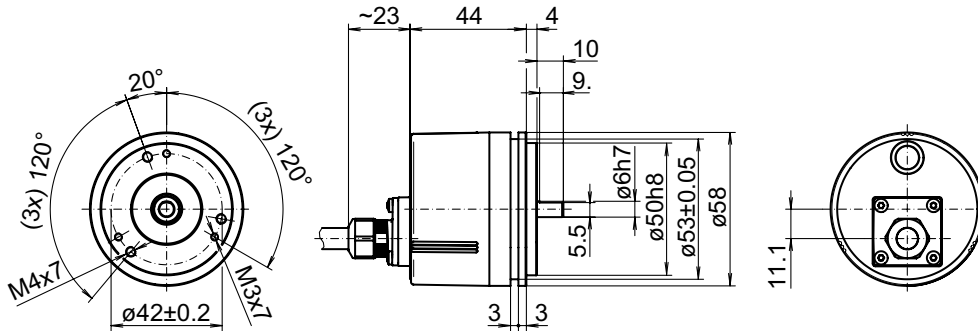
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## Dimensions

### Synchro flange, cable axial



### Synchro flange, cable tangential

