

# Incremental encoders

## Solid shaft with clamping or synchro flange

1...65536 pulses per revolution programmable

### EIL580P - solid shaft - OptoPulse®



EIL580P with clamping flange

#### Technical data - electrical ratings

|                             |   |
|-----------------------------|---|
| Voltage supply              | 4.75...30 VDC   |
| Reverse polarity protection | Yes   |
| Short-circuit proof         | Yes   |
| Consumption w/o load        | ≤70 mA  |
| Initializing time           | ≤30 ms after power on   |
| Pulses per revolution       | 1...65536   |
| Scan ratio                  | 45...55 % typical at 2048 ppr   |
| Reference signal            | Zero pulse 90° or 180°  |
| Sensing method              | Optical   |
| Output frequency            | ≤300 kHz (TTL)<br>≤160 kHz (HTL)  |
| Output signals              | A+, B+, R+, A-, B-, R-  |
| Output stages               | TTL/RS422<br>HTL/push-pull  |
| Programmable parameters     | Output level TTL/HTL<br>Pulse number 1...65536<br>Zero pulse width 90°/180°<br>Zero pulse position<br>Signal sequence |
| Interference immunity       | DIN EN 61000-6-2  |
| Emitted interference        | DIN EN 61000-6-3  |
| Approval                    | UL 508 / CSA 22.2   |

#### Features

- Size ø58 mm
- Precise optical sensing
- Output signal level programmable (TTL or HTL)
- Clamping or synchro flange
- Connection axial, radial or tangential
- Pulses per revolution 1...65536, programmable
- High protection up to IP 67
- High resistance to shock and vibrations

#### Technical data - mechanical design

|                         |  |
|-------------------------|--|
| Size (flange)           | ø58 mm   |
| Admitted shaft load     | ≤40 N axial<br>≤80 N radial  |
| Protection DIN EN 60529 | IP 65 (without shaft seal),<br>IP 67 (with shaft seal)                                   |
| Operating speed         | ≤6000 rpm (+20 °C, IP 67)<br>≤12000 rpm (+20 °C, IP 65)                                  |
| Starting torque         | ≤0.015 Nm (+20 °C, IP 65)<br>≤0.02 Nm (+20 °C, IP 67)                                    |
| Materials               | Housing: aluminium die-cast<br>Flange: aluminium<br>Solid shaft: stainless steel         |
| Operating temperature   | -40...+100 °C  |
| Relative humidity       | 90 % non-condensing  |
| Resistance              | DIN EN 60068-2-6<br>Vibration 30 g, 10-2000 Hz<br>DIN EN 60068-2-27<br>Shock 300 g, 6 ms |
| Connection              | Flange connector M12, 8-pin<br>Flange connector M23, 12-pin<br>Cable                     |
| Weight approx.          | 300 g  |

#### EIL580P - clamping flange

|            |   |
|------------|---|
| Shaft type | ø10 x 20 mm, solid shaft with edge (clamping flange)<br>ø9.525 mm (3/8") x 20 mm, solid shaft with edge |
|------------|---|

#### EIL580P - synchro flange

|            |   |
|------------|---|
| Shaft type | ø6 x 10 mm, solid shaft with flat edge (synchro flange) |
|------------|---|



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#### Part number

#### Synchro flange

EIL580P-S **Y** **06** . **F** . **01024** . **B**

#### Operating temperature

B -40...+100 °C

#### Pulses programmable

01024 1...65536 programmable (factory setting: 1024)

#### Voltage supply / output stages

F 4.75...30 VDC, TTL/RS422, 6 channel (Vout = 5 VDC) - Factory setting  
HTL/push pull 6 channel (Vout = Vin) - programmable by customer

#### 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).

(Factory setting: 1024 ppr, Vout = 5 VDC TTL, signal sequence A leading B (CW), zero pulse 90° A&B high)

#### Stock items

EIL580P-SY06.5FF.01024.B | EIL580P-SY06.5RF.01024.B

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                          |
| 11119280 | Connection cable connector M12 / connector D-SUB, 0.2 m                                   |
| 11119720 | Connection cable connector M12 / connector D-SUB, 1 m                                     |
| 11119257 | Connection cable connector M23 / connector D-SUB, 0.2 m (S2BG12/K4SG9)                    |
| 11119723 | Connection cable connector M23 / connector D-SUB, 1 m (S2BG12/K4SG9)                      |

##### Mounting accessories for EIL580P - 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 |

##### Mounting accessories for EIL580P - clamping flange

|          |  |
|----------|--|
| 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                          |
| 11101893 | Tether arm   |

##### Mounting accessories for EIL580P - synchro flange

|          |   |
|----------|---|
| 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)                                   |

##### Programming accessories

|          |                                     |
|----------|-------------------------------------|
| 11120657 | Handheld Programming Tool Z-PA-EI-H |
| 11120547 | PC Programming Tool Z-PA-EI-P       |

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

# Incremental encoders

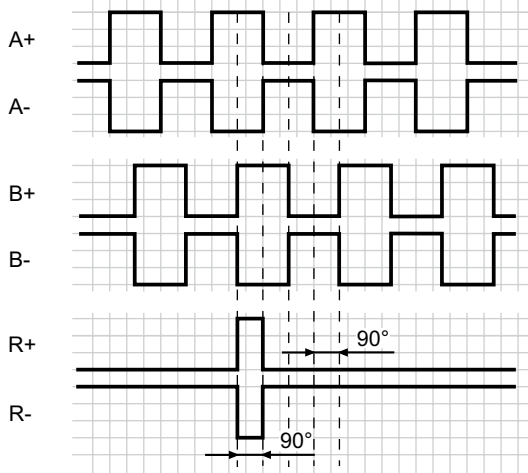
## Solid shaft with clamping or synchro flange

1...65536 pulses per revolution programmable

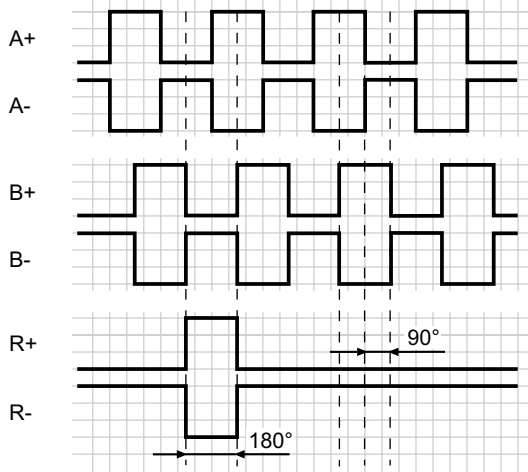
### EIL580P - solid shaft - OptoPulse®

#### Output signals

Zero pulse electrical 90° A&B high  
(Factory setting at clockwise rotation (CW)  
in view of the encoder flange)



Zero pulse electrical 180° B low  
(at clockwise rotation (CW)  
in view of the encoder flange)



#### Trigger level

| Outputs           | TTL/RS422 |
|-------------------|-----------|
| Output level High | ≥2.5 V    |
| Output level Low  | ≤0.5 V    |
| Load              | ≤20 mA    |

| Outputs           | HTL/Push-pull |
|-------------------|---------------|
| Output level High | ≥UB -3 V      |
| Output level Low  | ≤1.5 V        |
| Load              | ≤20 mA        |

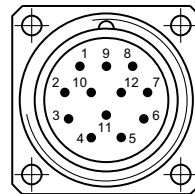
#### Terminal assignment

##### 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   | –          | R-Set <sup>1)</sup> |
| 8   | grey       | B+                  |
| 9   | –          | –                   |
| 10  | white      | GND                 |
| 11  | –          | –                   |
| 12  | brown      | UB                  |

Screen: Connected to housing

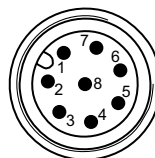
Cable data: PUR, [4x2x0,14 mm<sup>2</sup>], bending radius >45,8 mm, outer diameter 6.1 mm



<sup>1)</sup> The R-Set input is used to set the reference pulse (zero pulse) on the current shaft position.  
R-Set = UB ≥ 200 ms

##### 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

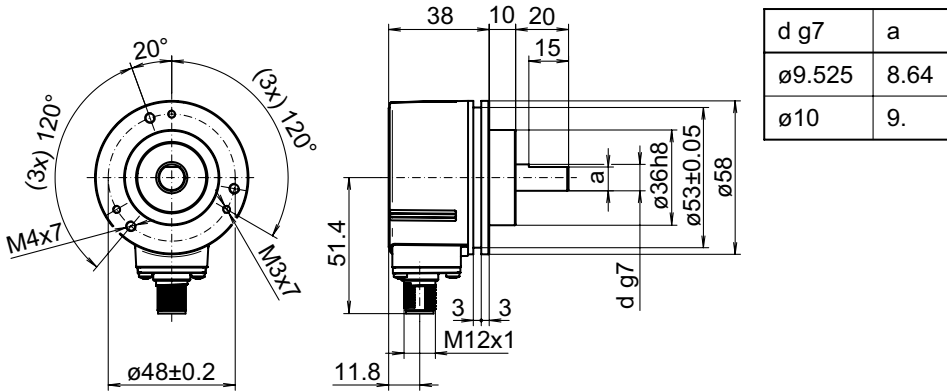
## Solid shaft with clamping or synchro flange

### 1...65536 pulses per revolution programmable

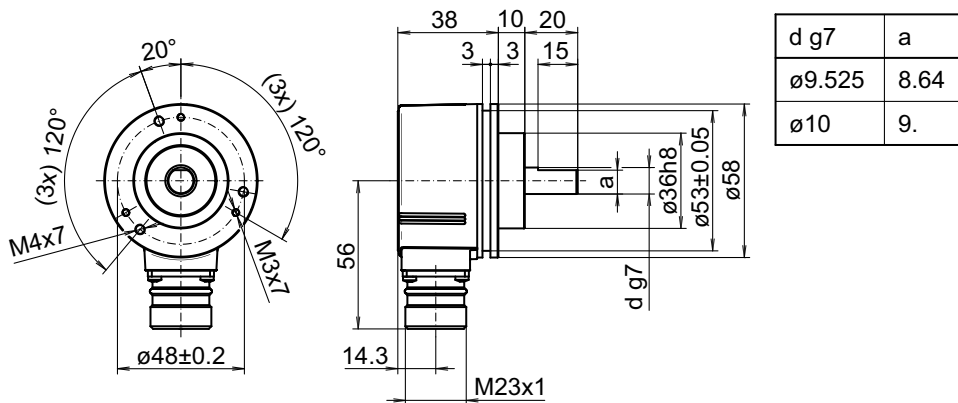
EIL580P - solid shaft - *OptoPulse*®

#### Dimensions

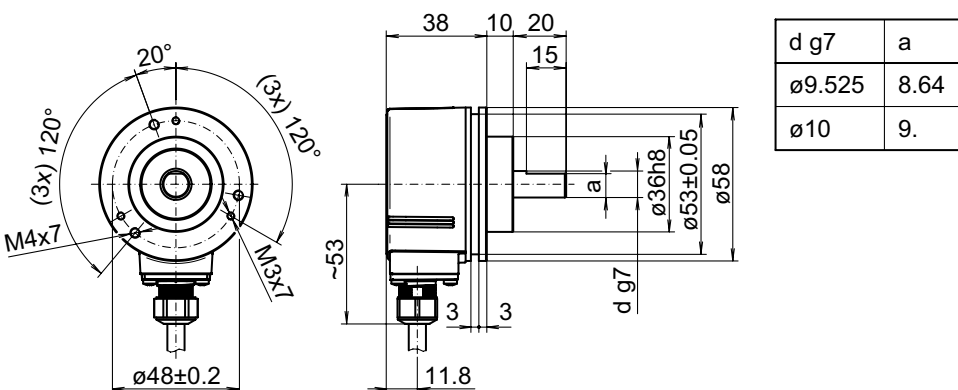
##### Clamping flange, flange connector M12, radial



##### Clamping flange, flange connector M23, radial



##### Clamping flange, cable radial



# Incremental encoders

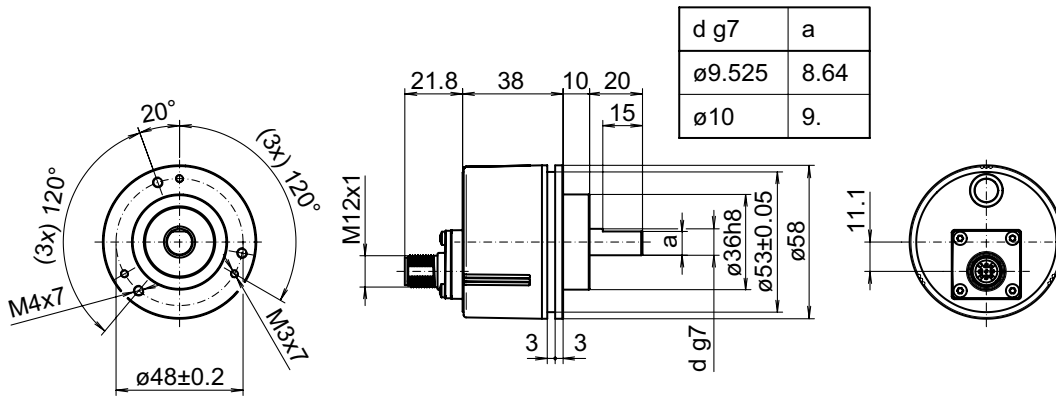
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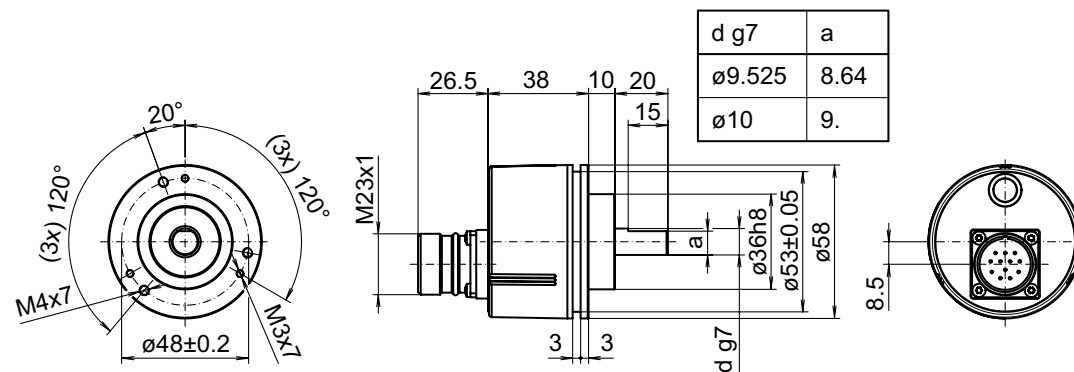
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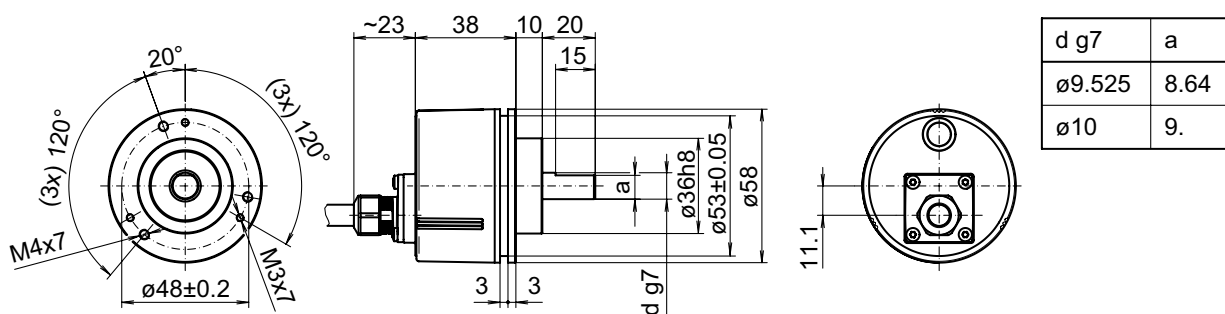
Clamping flange, flange connector M12, axial



Clamping flange, flange connector M23, axial



Clamping flange, cable axial



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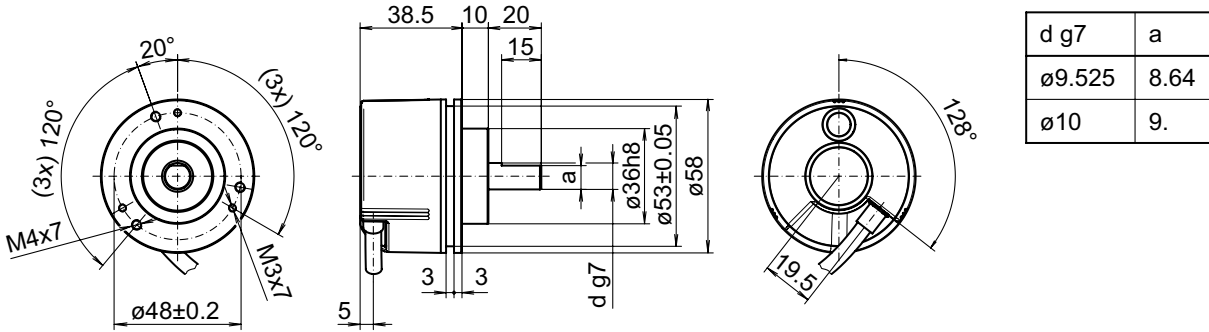
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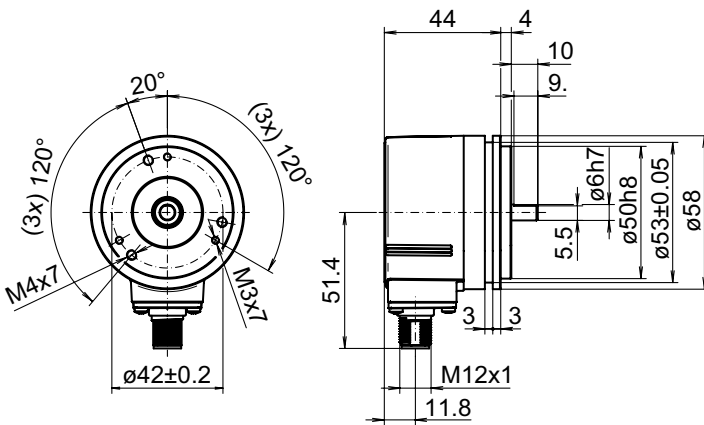
EIL580P - solid shaft - *OptoPulse®*

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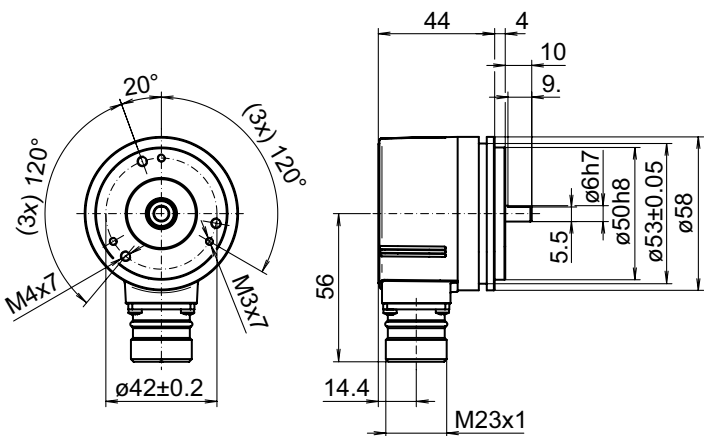
##### Clamping flange, cable tangential



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



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





# Incremental encoders

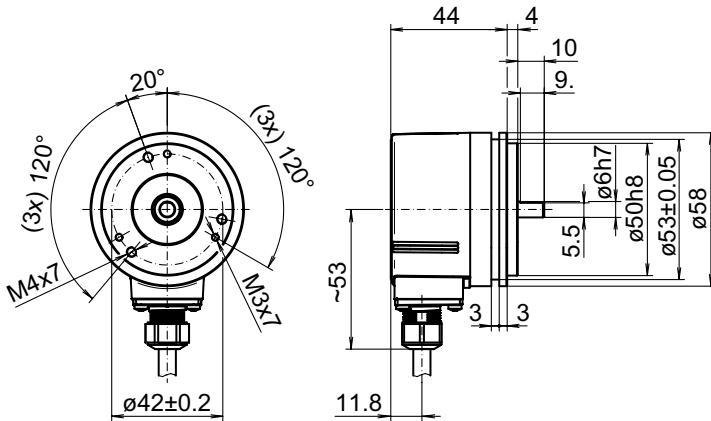
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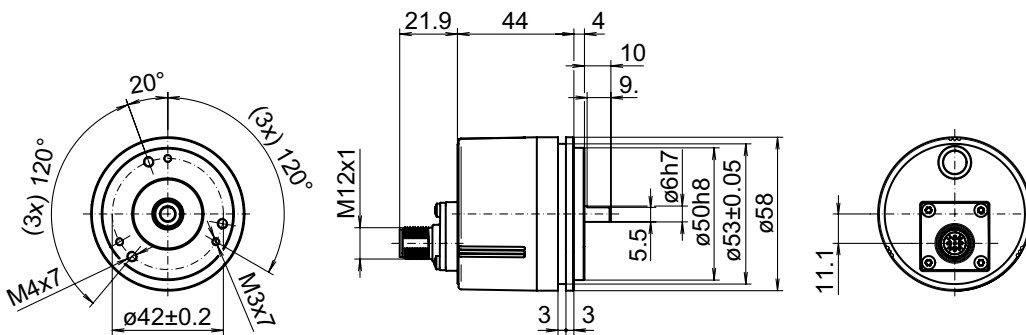
## EIL580P - solid shaft - OptoPulse®

### Dimensions

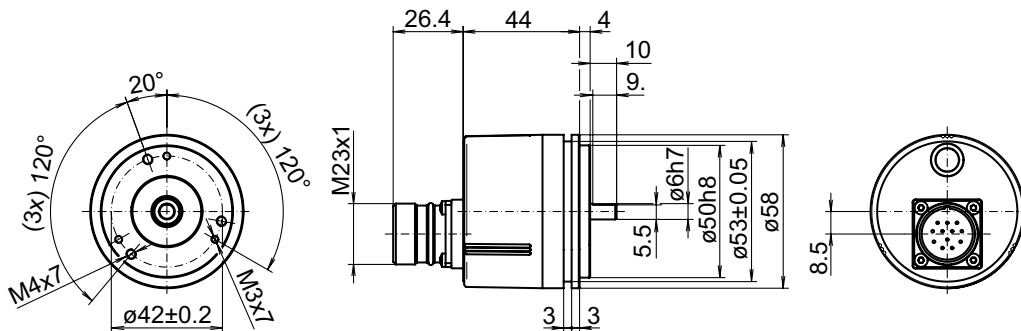
#### Synchro flange, cable radial



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



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



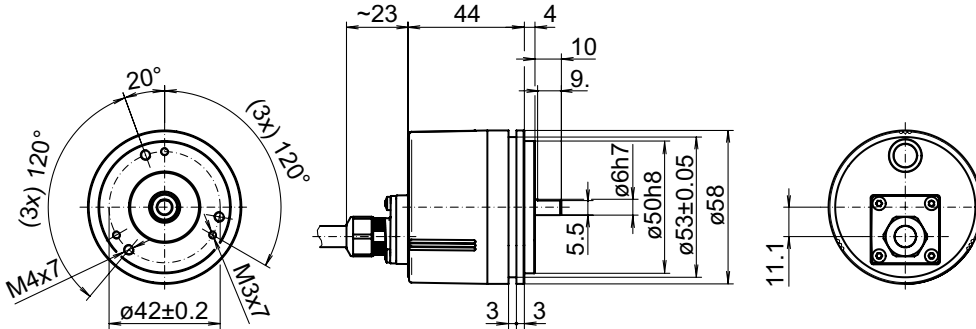
# Incremental encoders

Solid shaft with clamping or synchro flange  
 1...65536 pulses per revolution programmable

EIL580P - solid shaft - *OptoPulse*<sup>®</sup>

## Dimensions

### Synchro flange, cable axial



### Synchro flange, cable tangential

