

# Incremental encoders

## Solid shaft with clamping or synchro flange

### 100...5000 pulses per revolution

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



EIL580 with clamping flange

#### 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 - 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	$90^\circ \pm 10^\circ$
Scan ratio	40...60 %
Reference signal	Zero pulse, width $90^\circ \pm 10\%$
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

#### Technical data - mechanical design

Size (flange)	$\varnothing$ 58 mm
Admitted shaft load	$\leq$ 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 flat (clamping flange) $\varnothing$ 3/8" x 4/5" ( $\varnothing$ 9.525 x 20.32 mm), solid shaft with flat
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#### EIL580 - synchro flange

Shaft type	$\varnothing$ 6 x 10 mm, solid shaft with flat (synchro flange)
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#### Part number

#### Clamping flange

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

Pulse number - see table

Voltage supply / output stages

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

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

- U3  $\varnothing 3/8" \times 4/5"$  ( $\varnothing 9.525 \times 20.32$  mm), with flat
- 10  $\varnothing 10 \times 20$  mm, with flat**

Flange

- C Clamping flange, centering collar  $\varnothing 36$  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

# Incremental encoders

Solid shaft with clamping or synchro flange

100...5000 pulses per revolution

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

## Part number

### Synchro flange

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

Pulse number - see table

Voltage supply / output stages

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

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 flat

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

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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=6 / D2=10 (Z 121.C01)
10141133	Spring washer coupling D1=10 / D2=10 (Z 121.C03)
11034138	Spring washer coupling D1=10 / D2=16 (Z 121.C04)
11034140	Spring washer coupling D1=10 / D2=14 (Z 121.C06)
11034141	Spring washer coupling D1=10 / D2=12 (Z 121.C07)
11050507	Bellows coupling aluminium/stainless steel D1=06 / D2=10
11101781	Double loops coupling D1=10 / D2=10

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

10125051	Mounting adaptor for encoders with clamping flange (M3) (Z 119.017)
11065545	Set of eccentric fixings type A
11101893	Tether arm

##### Mounting accessories for EIL580 - 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=6 / D2=6 (Z 121.C02)
10141132	Spring washer coupling D1=6 / D2=10 (Z 121.C01)
11034139	Spring washer coupling D1=6 / D2=16 (Z 121.C05)
11050507	Bellows coupling aluminium/stainless steel D1=06 / D2=10
10117667	Mounting adaptor for encoders with synchro flange (Z 119.015)
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

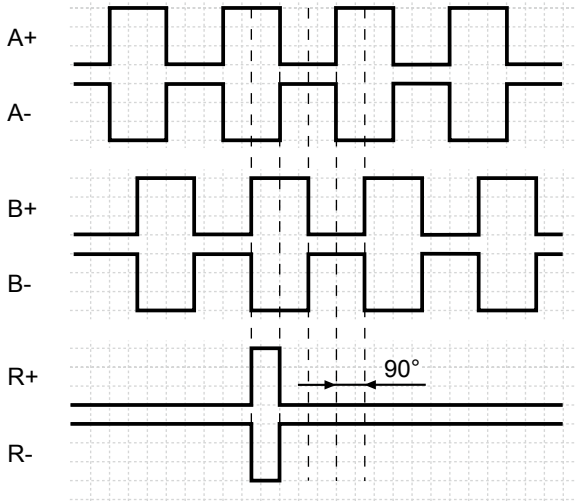
Solid shaft with clamping or synchro flange

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	$\leq 20 \text{ mA}$

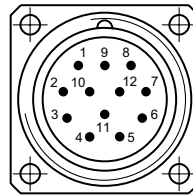
### Terminal assignment

#### 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

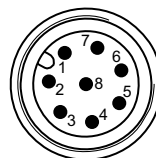
Screen: Connected to housing

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

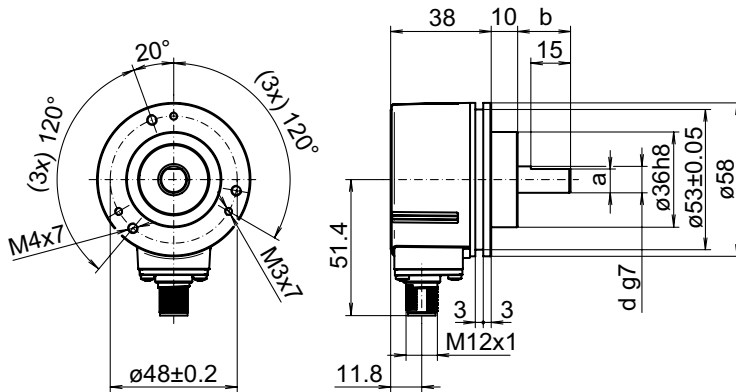
## Solid shaft with clamping or synchro flange

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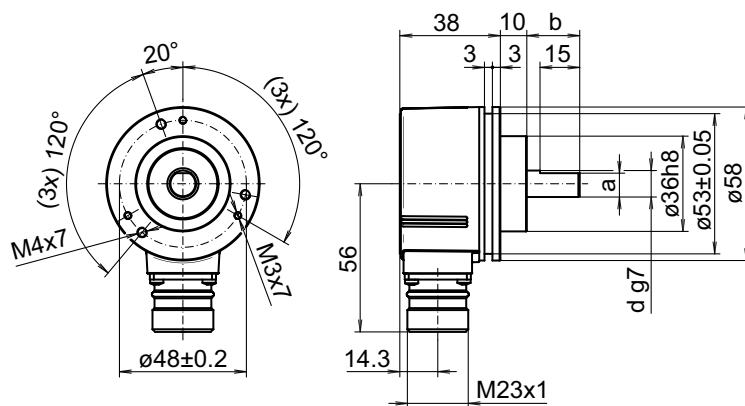
#### Dimensions

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



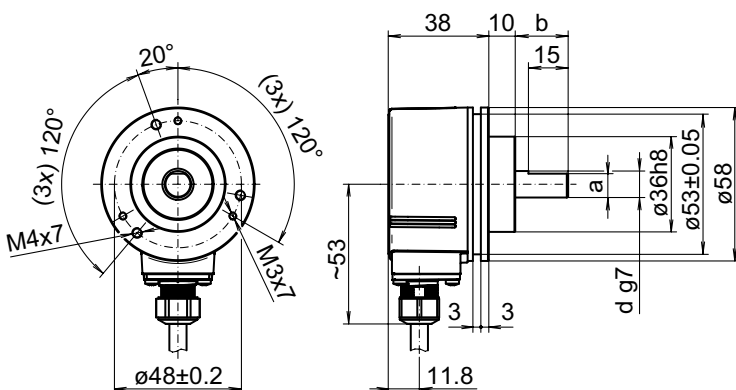
d g7	a	b
ø9.525	8.64	20.32
ø10	9.	20

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



d g7	a	b
ø9.525	8.64	20.32
ø10	9.	20

##### Clamping flange, cable radial



d g7	a	b
ø9.525	8.64	20.32
ø10	9.	20

# Incremental encoders

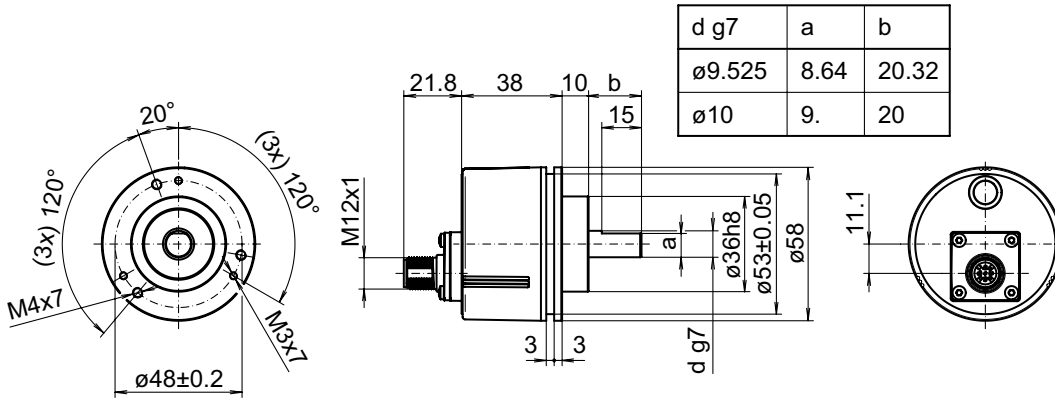
Solid shaft with clamping or synchro flange

100...5000 pulses per revolution

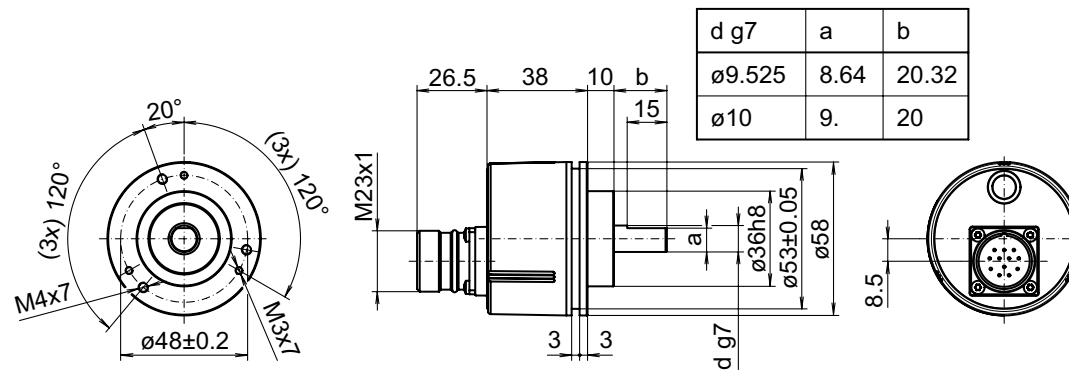
## EIL580 - solid shaft - *OptoPulse*<sup>®</sup>

### Dimensions

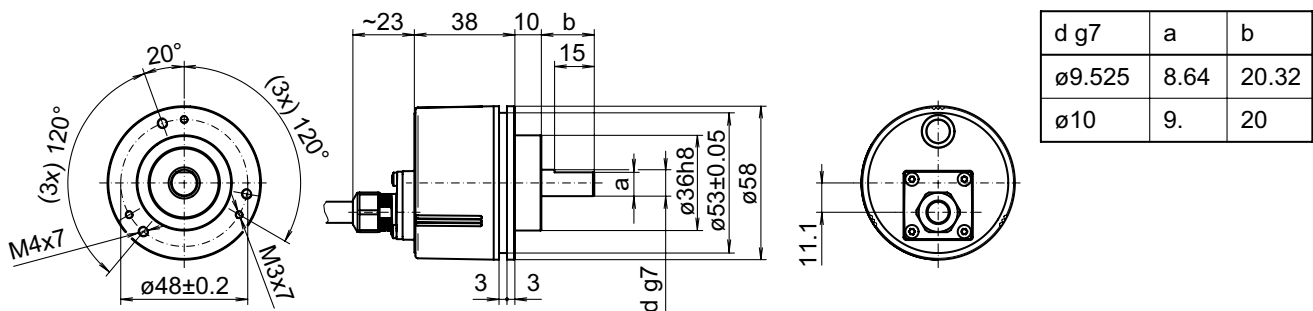
Clamping flange, flange connector M12, axial



Clamping flange, flange connector M23, axial



Clamping flange, cable axial



# Incremental encoders

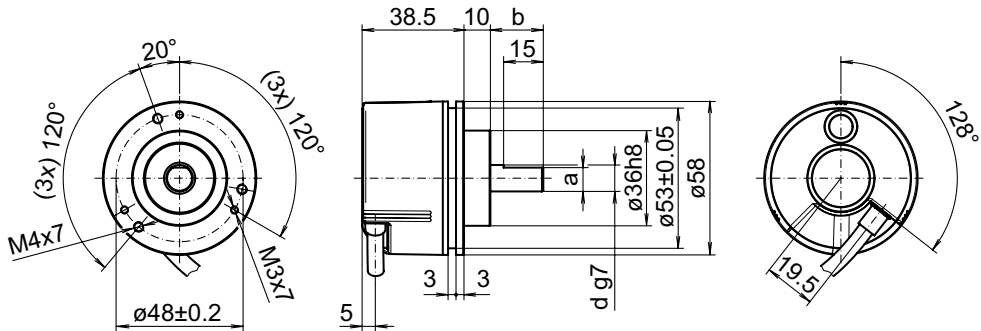
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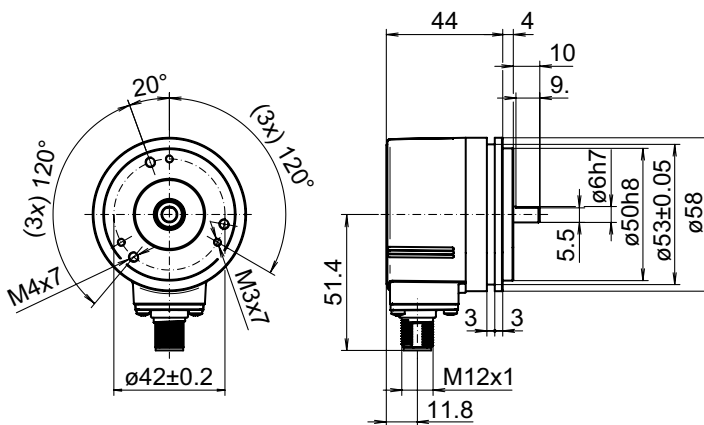
#### Dimensions

##### Clamping flange, cable tangential

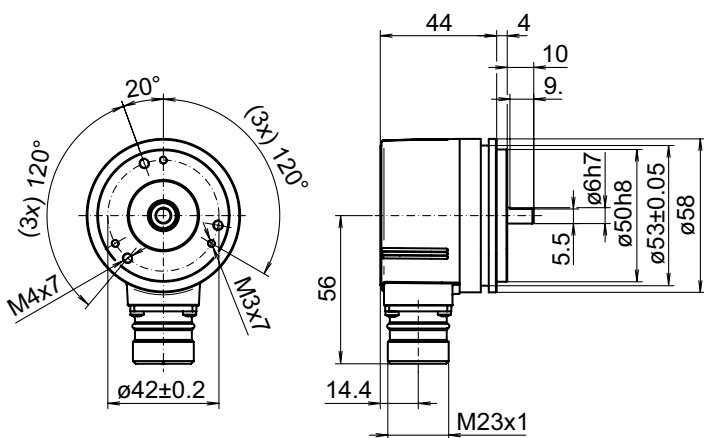


d g7	a	b
ø9.525	8.64	20.32
ø10	9.	20

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



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







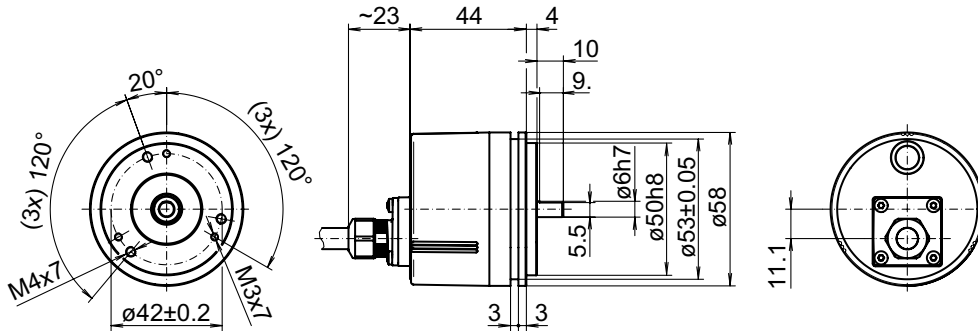
# Incremental encoders

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## Dimensions

### Synchro flange, cable axial



### Synchro flange, cable tangential

