

EIL580P-SC

Solid shaft with clamping flange

1...65536 pulses per revolution programmable (interpolated system)

Overview

- Size ø58 mm
- Precise optical sensing (interpolated)
- Output signal level programmable (TTL or HTL)
- Clamping 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

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 |
| Duty cycle | 45...55 % typical at 1024, 2048 ppr (further see table Duty cycle) |
| Reference signal | Zero pulse 90° or 180° |
| Sensing method | Optical |
| Output frequency | ≤300 kHz (TTL) ≤160 kHz (HTL) |
| Output signals | A+, B+, R+, A-, B-, R- |
| Output stages | TTL/RS422 HTL/push-pull |
| Programmable parameters | Output level TTL/HTL Pulse number 1...65536 Zero pulse width 90°/180° Zero pulse position Signal sequence |
| Interference immunity | EN 61000-6-2 |
| Emitted interference | EN 61000-6-3 |
| Approval | UL 508 / CSA 22.2 |

Technical data - mechanical design

| | |
|-----------------------|---|
| Size (flange) | ø58 mm |
| Shaft type | ø10 x 20 mm, solid shaft with flat ø3/8" x 4/5" (ø9.525 x 20.32 mm), solid shaft with flat |
| Admitted shaft load | ≤40 N axial ≤80 N radial |
| Flange | Clamping flange |
| Protection EN 60529 | IP 65 (without shaft seal) IP 67 (with shaft seal) |
| Operating speed | ≤6000 rpm (+20 °C, IP 67) ≤12000 rpm (+20 °C, IP 65) |
| Starting torque | ≤0.015 Nm (+20 °C, IP 65) ≤0.02 Nm (+20 °C, IP 67) |
| Material | Housing: aluminium die-cast Flange: aluminium Solid shaft: stainless steel |
| Operating temperature | -40...+100 °C |
| Relative humidity | 90 % non-condensing |
| Resistance | EN 60068-2-6 Vibration 30 g, 10-2000 Hz 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 |

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Terminal assignment

Flange connector M23, 12-pin / cable

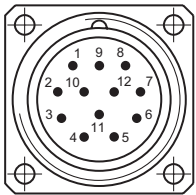
| Pin | Core color | Assignment |
|-----|------------|---------------------|
| 1 | pink | B- |
| 2 | – | – |
| 3 | blue | R+ |
| 4 | red | R- |
| 5 | green | A+ |
| 6 | yellow | A- |
| 7 | – | R-Set ¹⁾ |
| 8 | grey | B+ |
| 9 | – | – |
| 10 | white | GND |
| 11 | – | – |
| 12 | brown | UB |

Screen: Connected to housing

Cable data: PUR, [4x2x0,14 mm²], bending radius >45,8 mm, outer diameter 6.1 mm

¹⁾The R-Set input is used to set the reference pulse (zero pulse) on the current shaft position.

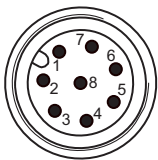
R-Set = UB ≥ 200 ms



Flange connector M23, pin contacts, 12-pin, counterclockwise (CCW)

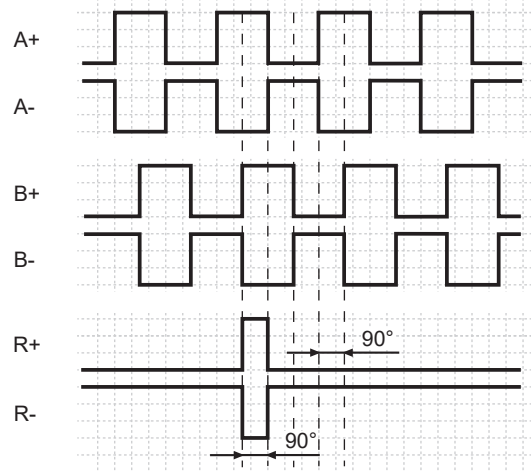
Flange connector M12, 8-pin

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

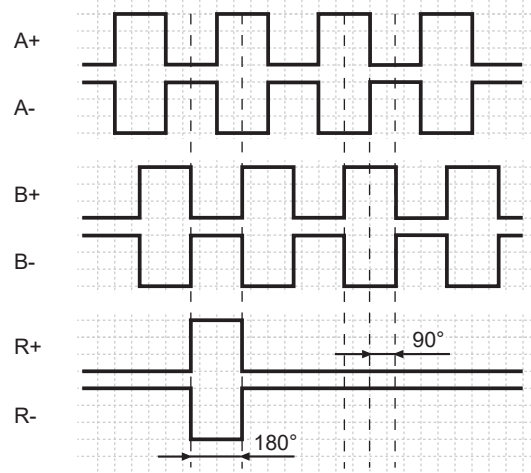


Output signals

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 |

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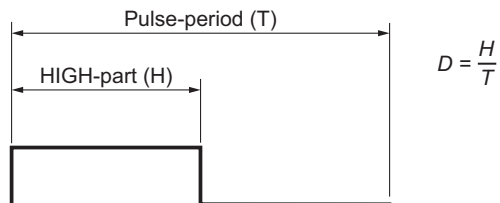
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Duty cycle

The duty cycle (D) is defined as the time ratio between the HIGH pulse duration (H) and the pulse period (T).

System-induced and depending on the pulse number, the measured values may vary which has an impact on speed and position acquisition. Binary pulse numbers are recommended for speed feedback.



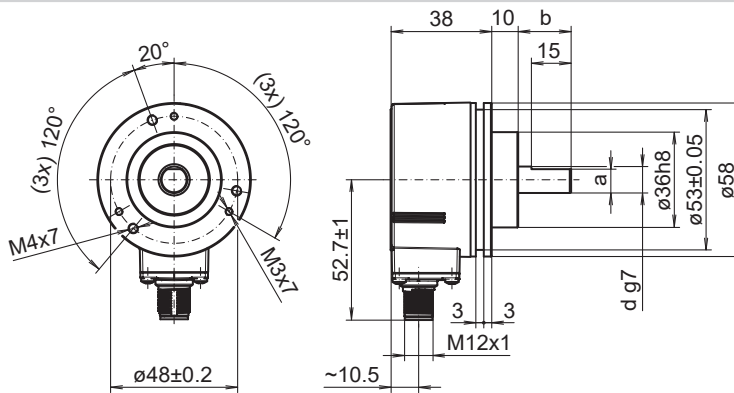
| Programmed pulse number | Scan ratio (D) (maximum) | Jitter (+/-) (maximum) |
|-------------------------|--|------------------------|
| 1...1023 | 45...55 % | 5% |
| 1024, 2048 | 45...55 % | 5% |
| 1025...5000 | 40...60 % | 10% |
| 8192, 16384 | 35...85 % | 15% |
| 5001...10000 | 22...78 % | 28% |
| 32768 | 25...75 % | 25% |
| 65536 | 15...85 % | 35% |
| all other | Jitter[%]=(programmed pulse number -10000)*0,0007%+28% | |

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Solid shaft with clamping flange

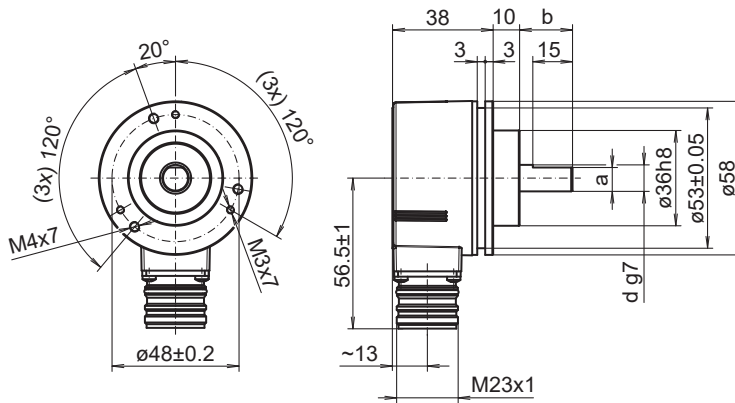
1...65536 pulses per revolution programmable (interpolated system)

Dimensions



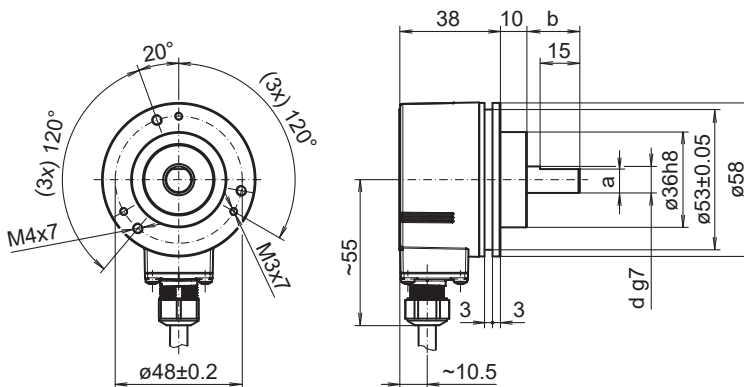
Clamping flange, flange connector M12, radial

| 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

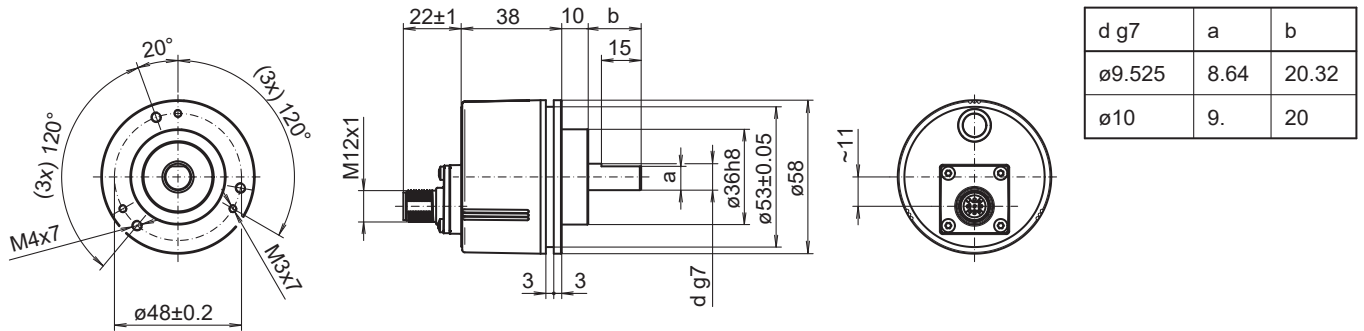
| d g7 | a | b |
|--------|------|-------|
| ø9.525 | 8.64 | 20.32 |
| ø10 | 9. | 20 |

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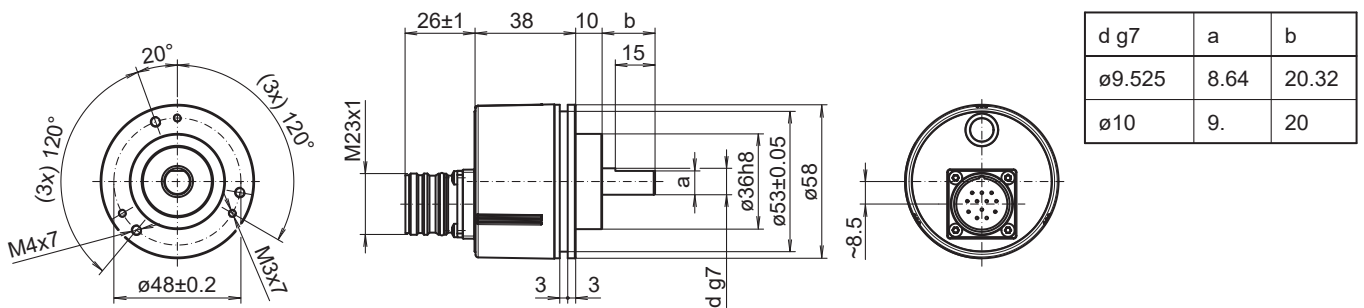
Solid shaft with clamping flange

1...65536 pulses per revolution programmable (interpolated system)

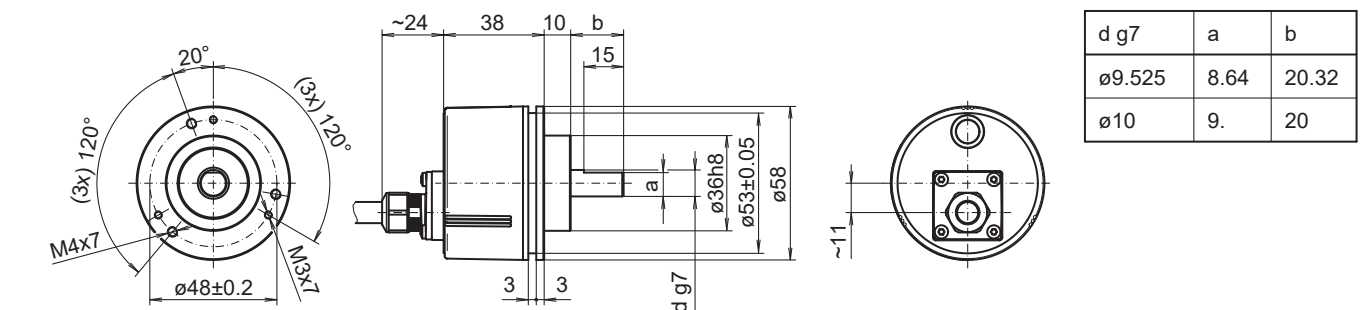
Dimensions



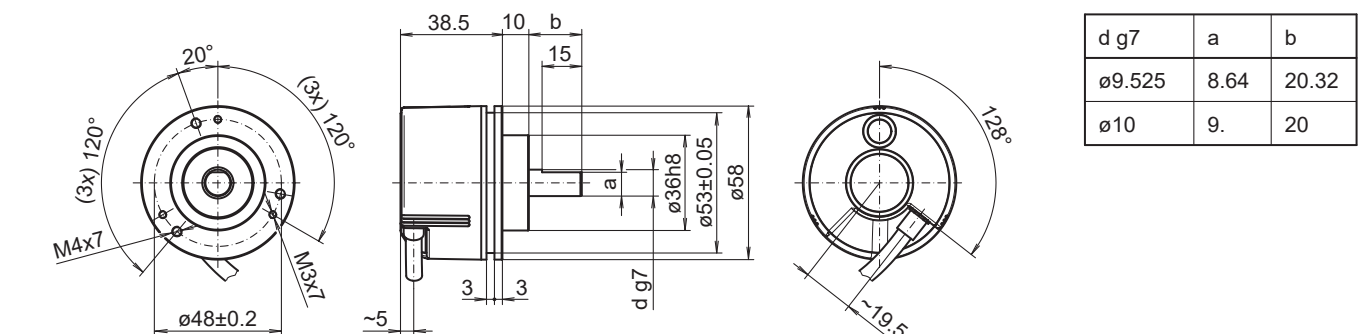
Clamping flange, flange connector M12, axial



Clamping flange, flange connector M23, axial



Clamping flange, cable, axial



Clamping flange, cable, tangential

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Ordering reference

| | | | | | | | | | | | | | |
|--------------------------------|---|----------|----------|----------|-----------|----------|----------|-----------|----------|----------|--------------|----------|----------|
| | EIL580P | - | S | C | ## | . | # | ## | # | . | 01024 | . | B |
| Product | EIL580P | | | | | | | | | | | | |
| Shaft type | Solid shaft | | | S | | | | | | | | | |
| Flange (shaft) | Clamping flange, centering collar $\varnothing 36 \times 10$ mm, pitch circle diameter 48 mm - 3xM3/3xM4 | | | C | | | | | | | | | |
| Shaft | $\varnothing 3/8 \times 4/5$ ($\varnothing 9.525 \times 20.32$ mm), with flat | | | | U3 | | | | | | | | |
| | $\varnothing 10 \times 20$ mm, with flat | | | | 10 | | | | | | | | |
| Protection class | IP 65 | | | | | | | | | | | | 5 |
| | IP 67 | | | | | | | | | | | | 7 |
| Connection | Cable radial, 1 m | | | | | | | | | | | | R |
| | Cable radial, 2 m | | | | | | | | | | | | L |
| | Flange socket radial, M23, 12-pin, male contacts, CCW | | | | | | | | | | | | F |
| | Flange socket radial, M12, 8-pin, male contacts, CCW | | | | | | | | | | | | B |
| | Cable axial, 1 m | | | | | | | | | | | | T |
| | Cable axial, 2 m | | | | | | | | | | | | U |
| | Flange socket axial, M23, 12-pin, male contacts, CCW | | | | | | | | | | | | D |
| | Flange socket axial, M12, 8-pin, male contacts, CCW | | | | | | | | | | | | A |
| | Cable tangential, 1 m | | | | | | | | | | | | P |
| | Cable tangential, 2 m | | | | | | | | | | | | Q |
| Voltage supply / output | 4,75...30 VDC, TTL/RS422 6 channel (Vout=5V) | | | | | | | | | | | | F |
| | 4,75...30 VDC, HTL/push pull, 6 channel (Vout=Vin) | | | | | | | | | | | | Q |
| Pulses programmable | 1...65536 programmable (factory setting: 1024) | | | | | | | | | | | | 01024 |
| Operating temperature | -40...+100 °C | | | | | | | | | | | | B |

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

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Accessories

Mounting accessories

| | |
|----------|--|
| 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) |
| 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 (D1=06 / D2=10) |
| 11101781 | Double loops coupling (D1=10 / D2=10) |
| 10125051 | Mounting adaptor |
| 11065545 | Set of eccentric fixings type A |
| 11101893 | Spring encoder arm |

Programming accessories

| | |
|----------|--|
| 11120657 | Handheld Programming Tool Z-PA-EI-H |
| 11120547 | PC Programming Tool Z-PA-EI-P |
| 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 (CW) / connector D-SUB, 0.2 m |
| 11119723 | Connection cable connector M23 (CW) / connector D-SUB, 1 m |