

Incremental encoders

Solid shaft with clamping flange

100...5000 pulses per revolution

ExEIL580-SC



ExEIL580-SC 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° |
| Duty cycle | 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 flange
- Connection axial, radial or tangential
- Pulses per revolution up to 5000
- High resistance to shock and vibrations
- Option 0122, Explosion protection zone 22

Technical data - mechanical design

| | |
|-------------------------|--|
| Size (flange) | \varnothing 58 mm |
| Shaft type | \varnothing 10 x 20 mm, solid shaft with flat |
| Admitted shaft load | \leq 40 N axial \leq 80 N radial |
| Flange | Clamping flange |
| Protection DIN EN 60529 | IP 65 |
| Operating speed | \leq 12000 rpm (+20 °C) \leq 11000 rpm (+40 °C) \leq 8000 rpm (+60 °C) |
| Starting torque | \leq 0.015 Nm (+20 °C) |
| Materials | Housing: aluminium die-cast Flange: aluminium Solid shaft: stainless steel |
| Ambient temperature | -20...+60 °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 |
| Explosion protection | II 3 D Ex tc IIIC T135°C Dc X (dust): see special conditions "X" |
| Connection | Flange connector M12, 8-pin Flange connector M23, 12-pin Cable |
| Weight approx. | 300 g |

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Part number

ExEIL580-S **C** **10** **.** **5** **.** **.F/** **0122**

Option

0122 ATEX Zone 22

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 contacts, 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

Specification solid shaft

10 ø10 x 20 mm, with flat

Flange

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

Pulse number

| | | | | |
|-----|-----|------|------|------|
| 100 | 300 | 720 | 1250 | 2500 |
| 120 | 360 | 800 | 1440 | 3000 |
| 150 | 400 | 900 | 1500 | 3600 |
| 200 | 500 | 1000 | 1800 | 4000 |
| 250 | 512 | 1024 | 2000 | 4096 |
| 256 | 600 | 1200 | 2048 | 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) |
| 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

| | |
|----------|--|
| 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

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

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

Incremental encoders

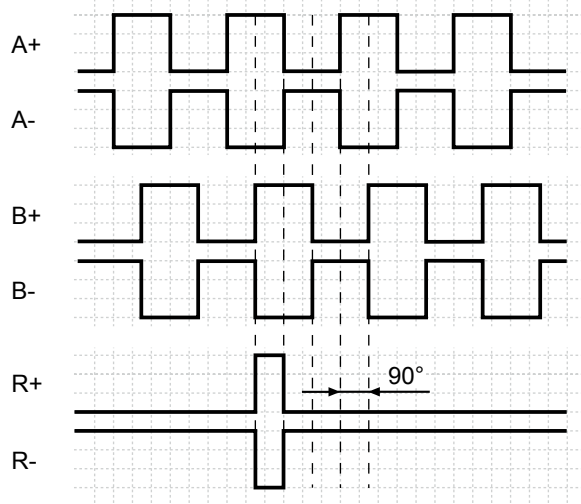
Solid shaft with clamping flange

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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 | $\leq 20 \text{ mA}$ |

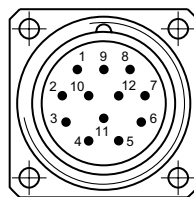
Terminal assignment

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 |

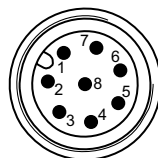
Screen: Connected to housing

Cable data: PVC, [4x2x0.14 mm²], 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

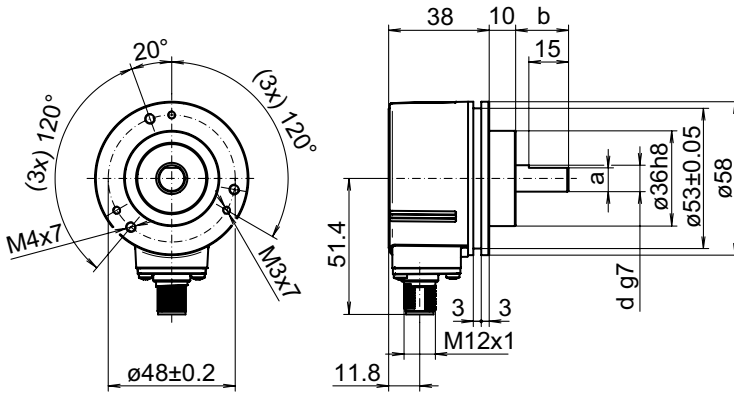
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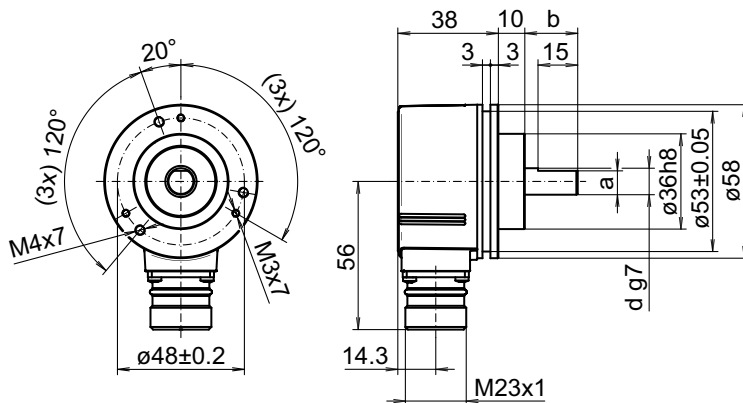
Dimensions

Flange connector M12, radial



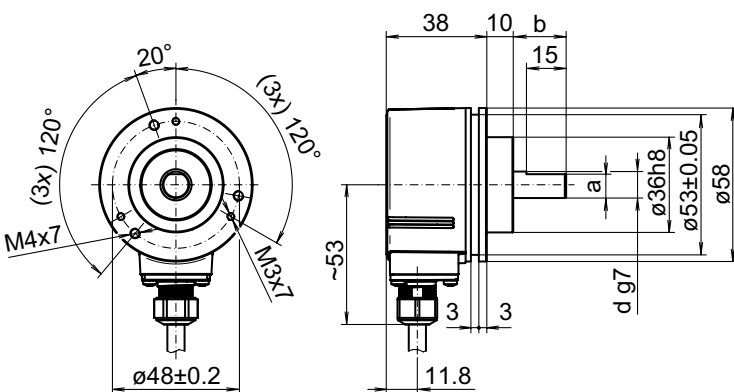
| d g7 | a | b |
|--------|------|-------|
| ø9.525 | 8.64 | 20.32 |
| ø10 | 9. | 20 |

Flange connector M23, radial



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

Cable, radial



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

Incremental encoders

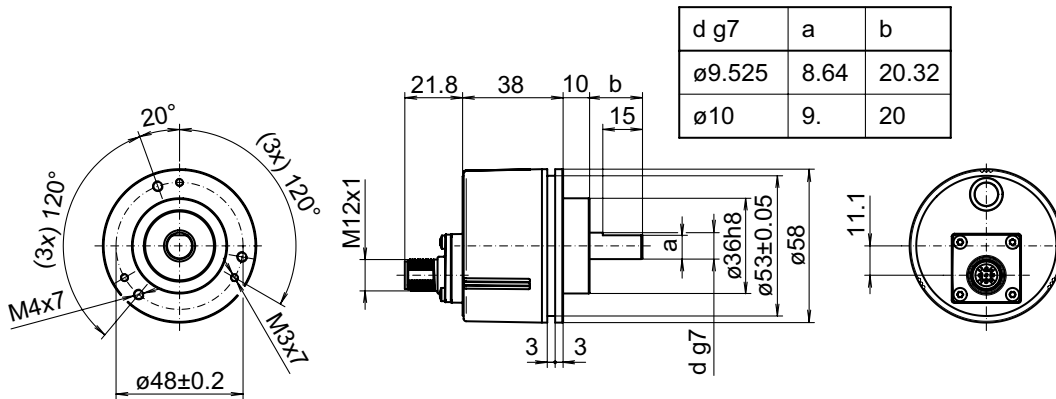
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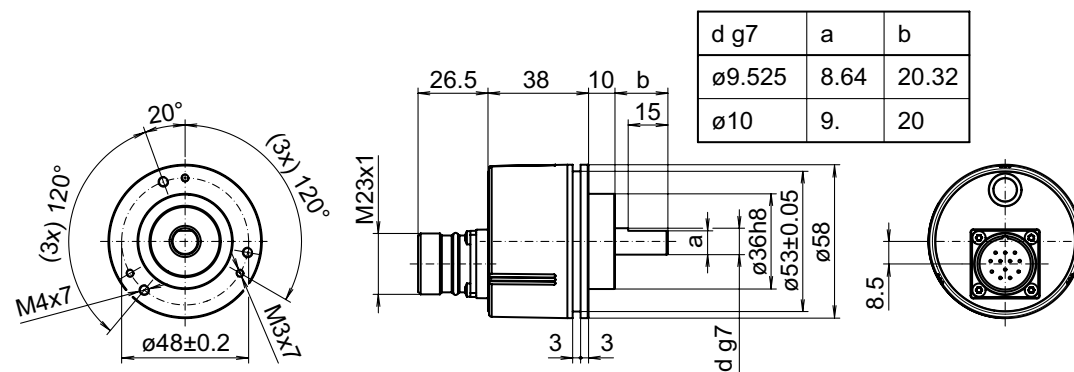
ExEIL580-SC

Dimensions

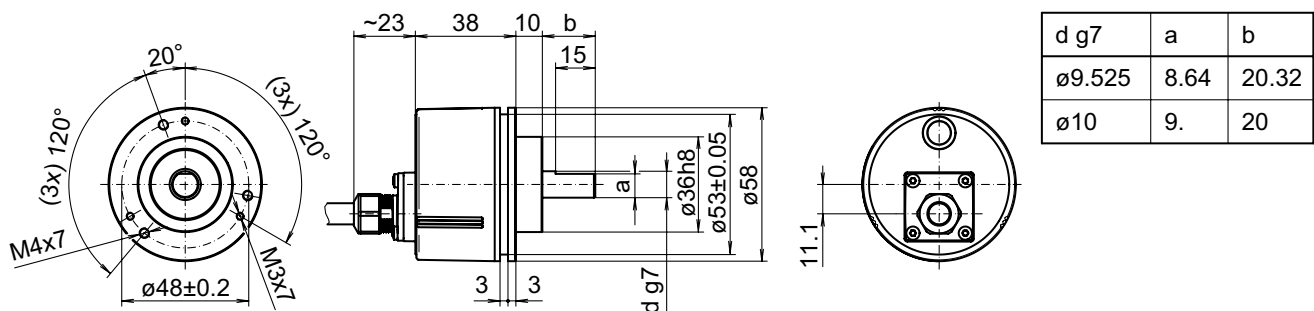
Flange connector M12, axial



Flange connector M23, axial



Cable, axial



Incremental encoders

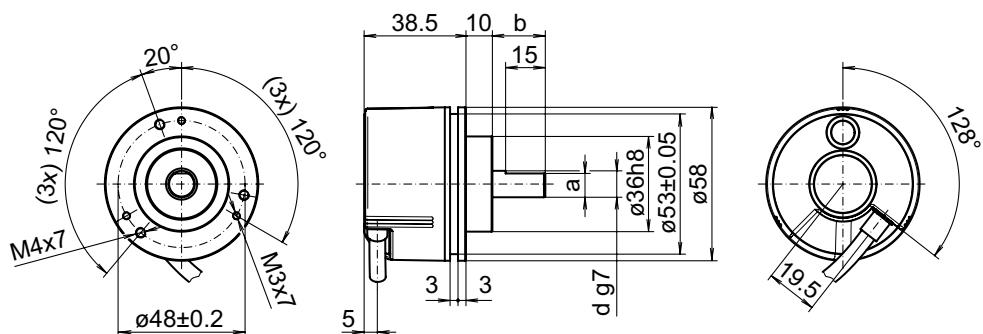
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Dimensions

Cable, tangential



| d g7 | a | b |
|---------------------|------|-------|
| $\varnothing 9.525$ | 8.64 | 20.32 |
| $\varnothing 10$ | 9. | 20 |

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Explosion protection

⊕ II 3 D Ex tc III C T135°C Dc X (dust)

General- and Special conditions „X“:

Only put the device into operation if ...

- all necessary precautions have been taken by the operator to make sure device and connector are fully protected against mechanical impacts or shocks in compliance with EN 60079-0, section 26.4.2 (Special conditions „X“).
- the connection is mechanically or electrically secured to prevent any interrupt while the contact is live (Special conditions „X“).
- it has been ensured the electrical connection of product variants with cable outlet or cable couplings is outside zone 22 (Special conditions „X“).
- it has been ensured the maximum operating speed in relation to the ambient temperature is within the specifications on the table „Maximum rotation speed below“ (Special conditions „X“).
- the specifications on the product label match the on-site conditions for use in hazardous areas (EX) (device group, category, zone, temperature class resp. maximum surface temperature).
- the specifications on the product label comply with the prevailing grid conditions.
- the device shows no visible trace of damage (resulting from transport or storage), and
- it has been ensured no explosive atmosphere, oils, acids, gases, vapors, radiation etc. are present during installation.

Observe standard EN 60079-14 for installation and commissioning.

Device operation must observe the installation and operating instructions. The intended use and application of the device comes under the relevant legislation as well as applicable directives and standards.

Maximum rotation speed

| | ambient temperature | rotation speed |
|----------------------|---------------------|----------------|
| solid shaft | 20 °C | ≤ 12000 rpm |
| | 40 °C | ≤ 11000 rpm |
| | 60 °C | ≤ 8000 rpm |
| through hollow shaft | 20 °C | ≤ 6000 rpm |
| | 40 °C | ≤ 4500 rpm |
| | 60 °C | ≤ 2500 rpm |
| blind hollow shaft | 20 °C | ≤ 8000 rpm |
| | 40 °C | ≤ 8000 rpm |
| | 60 °C | ≤ 5000 rpm |