

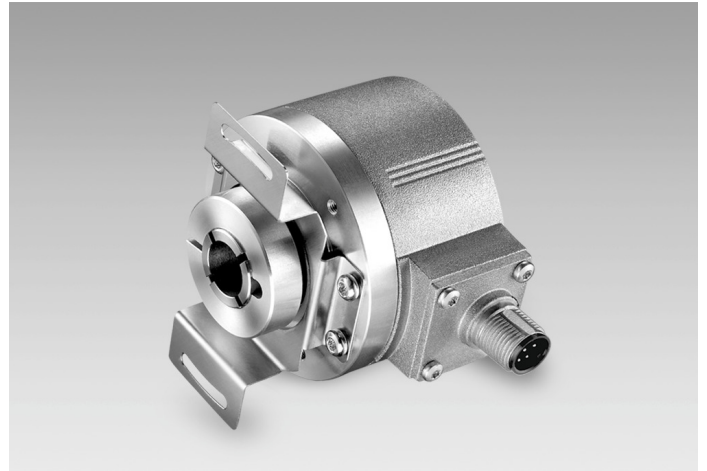
EIL580P-B

With blind hollow shaft

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

Overview

- Size ø58 mm
- Precise optical sensing (interpolated)
- Output signal level programmable (TTL or HTL)
- Blind hollow shaft, ø8...15 mm
- 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 | ø8...15 mm (blind hollow shaft) ø9.52 mm (blind hollow shaft) ø12.7 mm (blind hollow shaft) |
| Protection EN 60529 | IP 65 (without shaft seal) IP 67 (with shaft seal) |
| Operating speed | ≤6000 rpm (+20 °C, IP 67) ≤8000 rpm (+20 °C, IP 65) |
| Starting torque | ≤0,02 Nm (+20 °C, IP 65) ≤0,025 Nm (+20 °C, IP 67) |
| Material | Housing: aluminium die-cast Flange: aluminium |
| 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 250 g, 6 ms |
| Connection | Flange connector M12, 8-pin Flange connector M23, 12-pin Cable |
| Weight approx. | 300 g |

EIL580P-B

With blind hollow shaft

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

Terminal assignment

Flange connector M23, 12-pin / cable

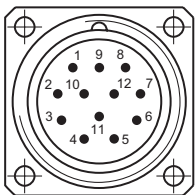
| Pin | Core color | Assignment |
|-----|------------|---------------------|
| 1 | pink | B- |
| 2 | — | — |
| 3 | blue | R+ |
| 4 | red | R- |
| 5 | green | A+ |
| 6 | yellow | A- |
| 7 | — | R-Set ¹⁾ |
| 8 | grey | B+ |
| 9 | — | — |
| 10 | white | GND |
| 11 | — | — |
| 12 | brown | UB |

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.

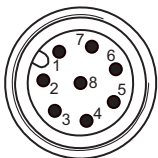
R-Set = UB ≥ 200 ms



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

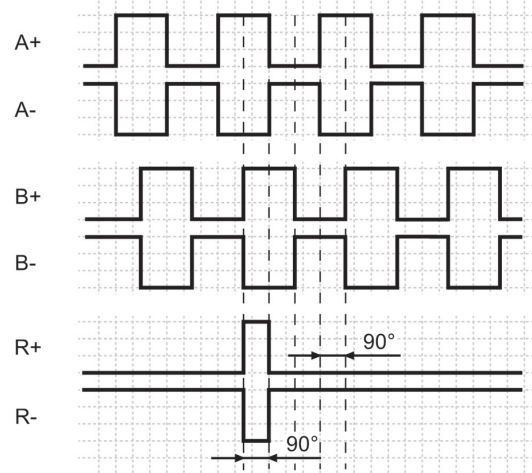
Flange connector M12, 8-pin

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

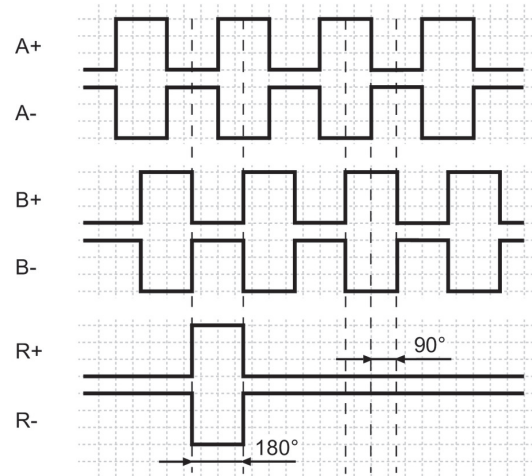


Output signals

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 |

EIL580P-B

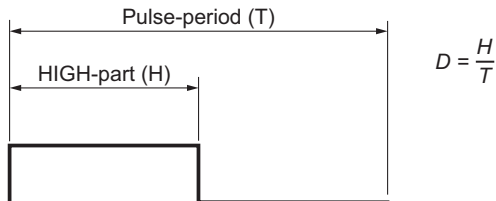
With blind hollow shaft

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

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.



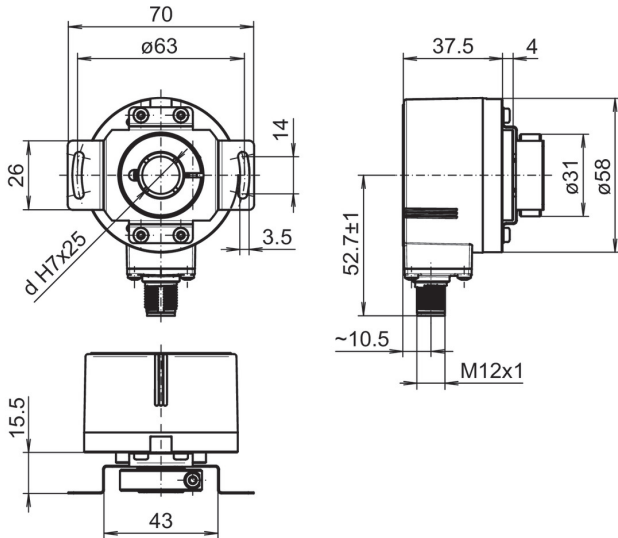
| Programmed pulse number | Scan ratio (D) (maximum) | Jitter (+/-) (maximum) |
|-------------------------|--|------------------------|
| 1...1023 | 45...55 % | 5% |
| 1024, 2048 | 45...55 % | 5% |
| 1025...5000 | 40...60 % | 10% |
| 8192, 16384 | 35...85 % | 15% |
| 5001...10000 | 22...78 % | 28% |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

EIL580P-B

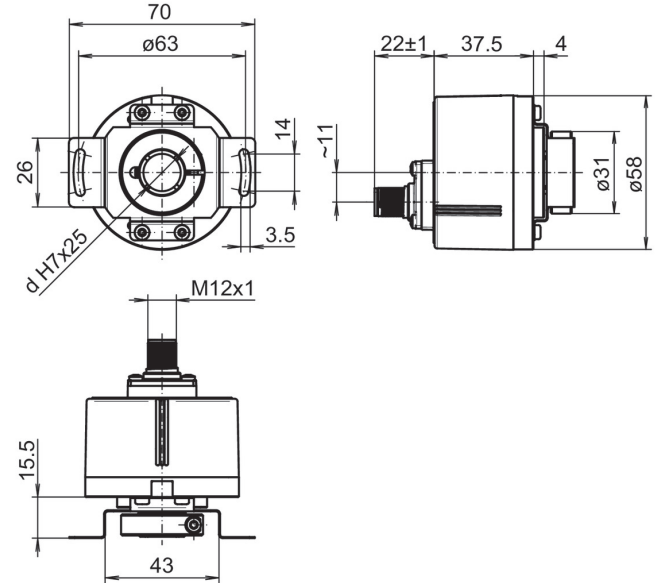
With blind hollow shaft

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

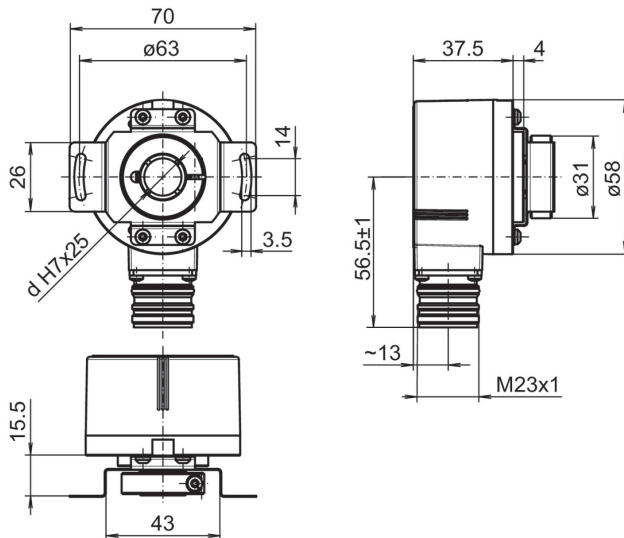
Dimensions



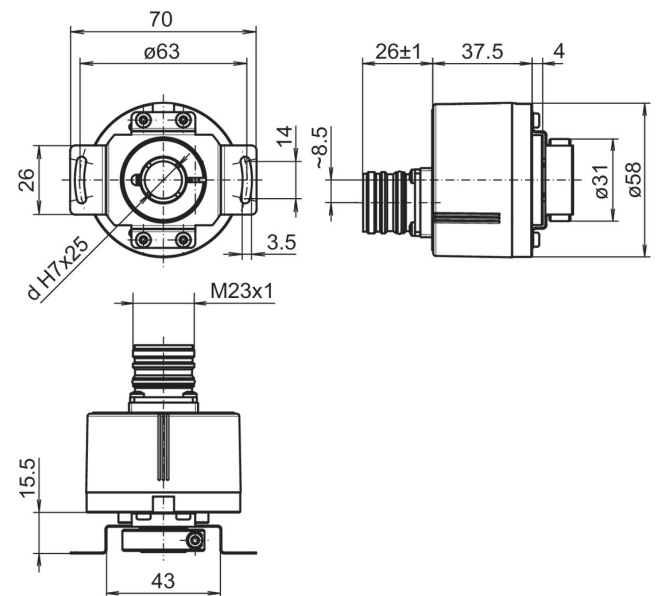
Clamping ring at A-side: Blind hollow shaft, flange connector M12 radial



Clamping ring at A-side: Blind hollow shaft, flange connector M12 axial



Clamping ring at A-side: Blind hollow shaft, flange connector M23 radial



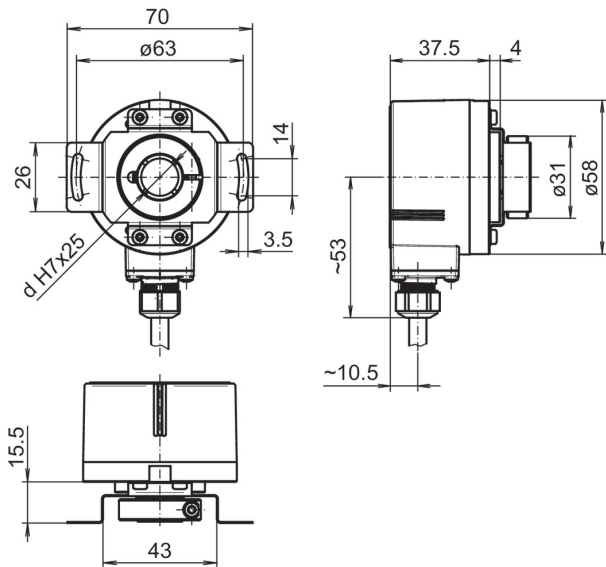
Clamping ring at A-side: Blind hollow shaft, flange connector M23 axial

EIL580P-B

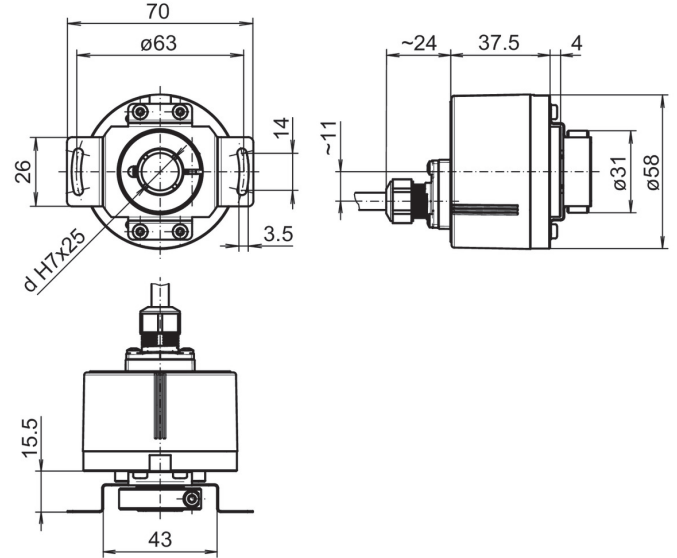
With blind hollow shaft

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

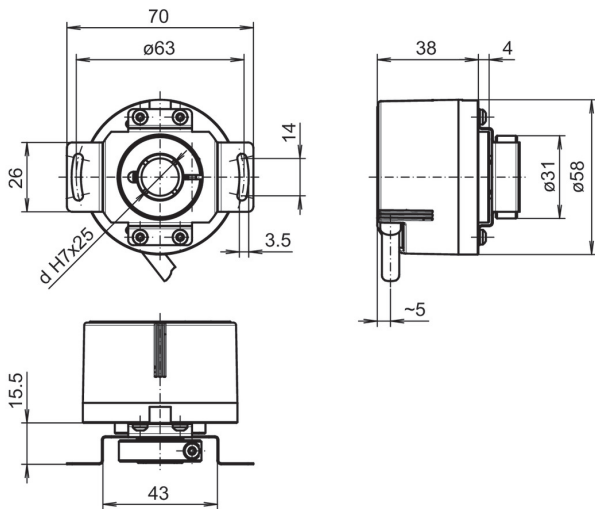
Dimensions



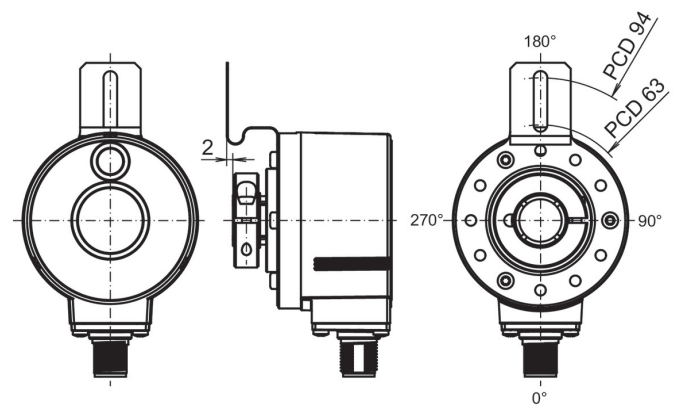
Clamping ring at A-side: Blind hollow shaft, cable radial



Clamping ring at A-side: Blind hollow shaft, cable axial



Clamping ring at A-side: Blind hollow shaft, cable tangential



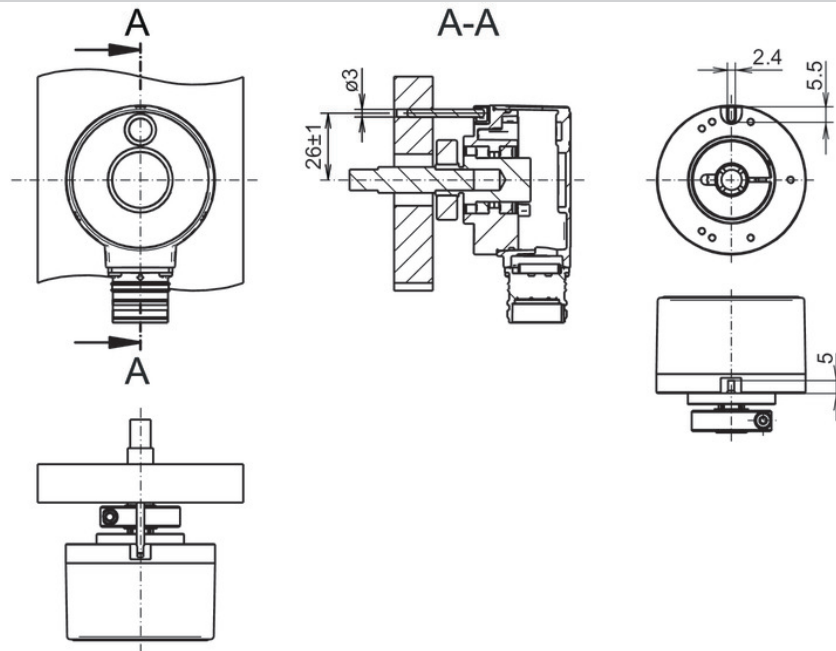
Flange version M: Mounting position torque support

EIL580P-B

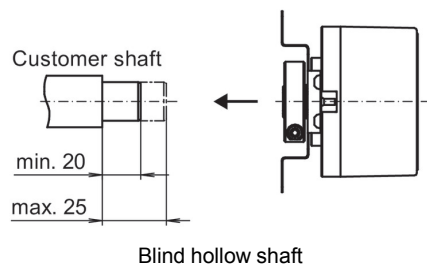
With blind hollow shaft

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

Dimensions



Flange version P: Pin torque support, axial, clamping ring at A-side



Blind hollow shaft

EIL580P-B

With blind hollow shaft

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

Ordering reference

| | EIL580P | - | B | # | ## | . | # | ## | # | . | 01024 | B |
|--|---------|---|---|---|----|---|---|----|---|---|-------|---|
| Product | EIL580P | | | | | | | | | | | |
| Shaft type | | | | | | | | | | | | |
| Blind hollow shaft | | | B | | | | | | | | | |
| Flange (Hollow shaft) | | | | | | | | | | | | |
| Without stator coupling | | | | N | | | | | | | | |
| With stator coupling, 1-armed, hole circle ø63...94 mm, M4, mounting position 180° | | | | M | | | | | | | | |
| With stator coupling ø63 mm | | | | T | | | | | | | | |
| Pin torque support 3 mm, axial/radial | | | | P | | | | | | | | |
| Blind hollow shaft | | | | | | | | | | | | |
| ø8 mm, clamping ring, A-side | | | | | 08 | | | | | | | |
| ø3/8" (ø9.52 mm), clamping ring, A-side | | | | | U3 | | | | | | | |
| ø10 mm, clamping ring, A-side | | | | | 10 | | | | | | | |
| ø12 mm, clamping ring, A-side | | | | | 12 | | | | | | | |
| ø1/2" (ø12.7 mm), clamping ring, A-side | | | | | U4 | | | | | | | |
| ø14 mm, clamping ring, A-side | | | | | 14 | | | | | | | |
| ø15 mm, clamping ring, A-side | | | | | 15 | | | | | | | |
| 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)

EIL580P-B

With blind hollow shaft

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

Accessories

Mounting accessories

| | |
|----------|---|
| 11066083 | Mounting kit 006 |
| 11073119 | Mounting kit 021 |
| 11067367 | Mounting kit 028 |
| 11100198 | Mounting kit 046 |
| 11113210 | Mounting kit 047 |
| 11124300 | Mounting kit 048 |
| 11155325 | Mounting kit 099 |
| 11106627 | Fan cover clip 8 mm |
| 11094674 | Clamping ring 12/31/ 8 M3 8.8 for EIL580 hollow shaft $\varnothing 8...10$ mm for clamping at A or B side |
| 11094675 | Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft $\varnothing 12...15$ mm for clamping at A side |
| 11116921 | Insulating sleeve $\varnothing 10$ mm/ $\varnothing 12$ mm/25 mm long |
| 11116923 | Insulating sleeve $\varnothing 12$ mm/ $\varnothing 14$ mm/25 mm long |

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 | Female connector M23, 12-pin, CW |
| 11212849 | Female connector M23, 12-pin, CW, with cable 1 m - EIL580P |
| 11212870 | Female connector M23, 12-pin, CW, with cable 2 m - EIL580P |
| 11212871 | Female connector M23, 12-pin, CW, with cable 5 m - EIL580P |
| 11212872 | Female connector M23, 12-pin, CW, with cable 10 m - EIL580P |

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 |