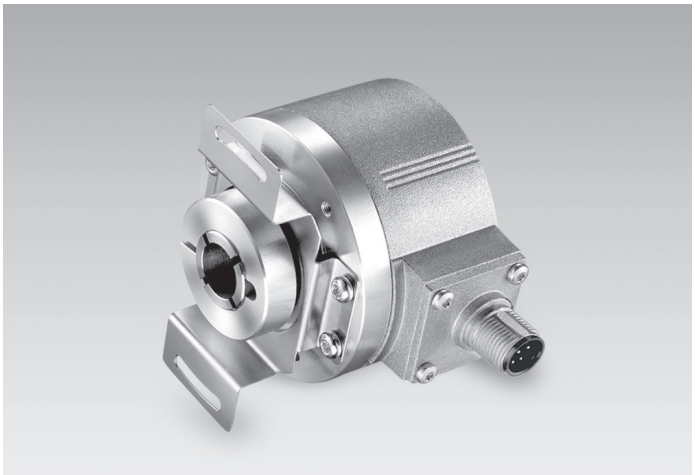
EIL580P-T

With through 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)
- Through hollow shaft, ø8…15 mm
- Connection 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	DIN EN 61000-6-2
Emitted interference	DIN EN 61000-6-3

Technical data - electrical ratings	
Approval	UL 508 / CSA 22.2
Technical data - mechanical design	
Size (flange)	ø58 mm
Shaft type	ø8...15 mm (through hollow shaft) ø9.52 mm (through hollow shaft) ø12.7 mm (through hollow shaft)
Protection DIN EN 60529	IP 65 (without shaft seal) IP 67 (with shaft seal)
Operating speed	≤3000 rpm (+20 °C, IP 67) ≤6000 rpm (+20 °C, IP 65)
Starting torque	≤0,025 Nm (+20 °C, IP 65) ≤0,03 Nm (+20 °C, IP 67)
Material	Housing: aluminium die-cast Flange: aluminium
Operating temperature	-40...+100 °C
Relative humidity	90 % non-condensing
Resistance	DIN EN 60068-2-6 Vibration 30 g, 10-2000 Hz DIN 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

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

With through hollow shaft

1…65536 pulses per revolution programmable (interpolated system)

Terminal assignment

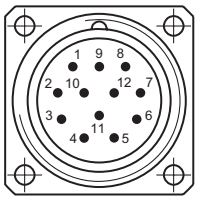
Flange connector M23, 12-pin / cable

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

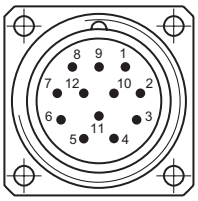
Screen: Connected to housing

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 M23, pin contacts, 12-pin, clockwise (CW)

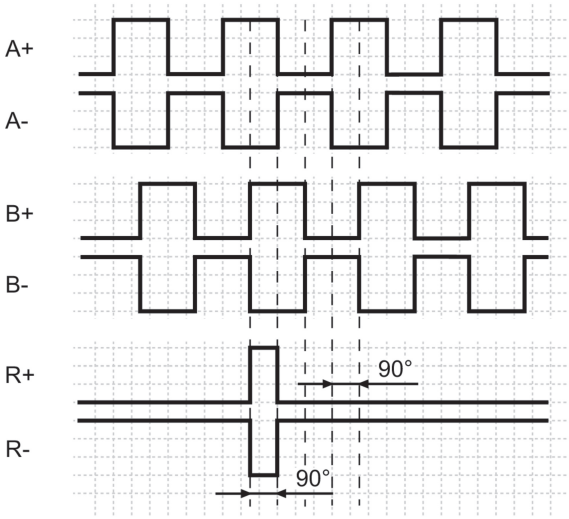
Flange connector M12, 8-pin

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

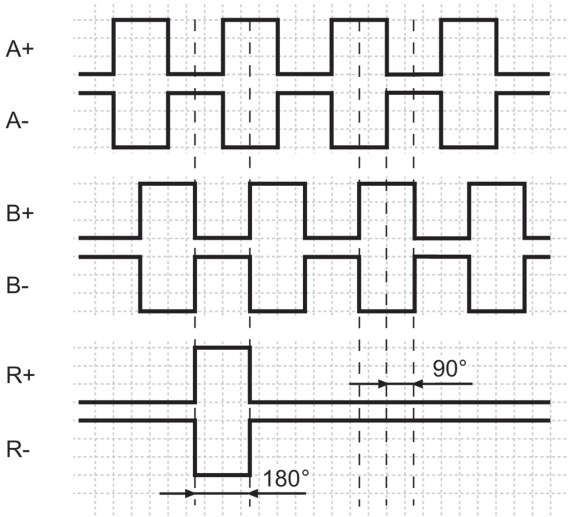


Output signals

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

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

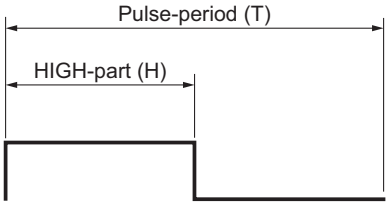
EIL580P-T

With through 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.



$$D = \frac{H}{T}$$

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%	

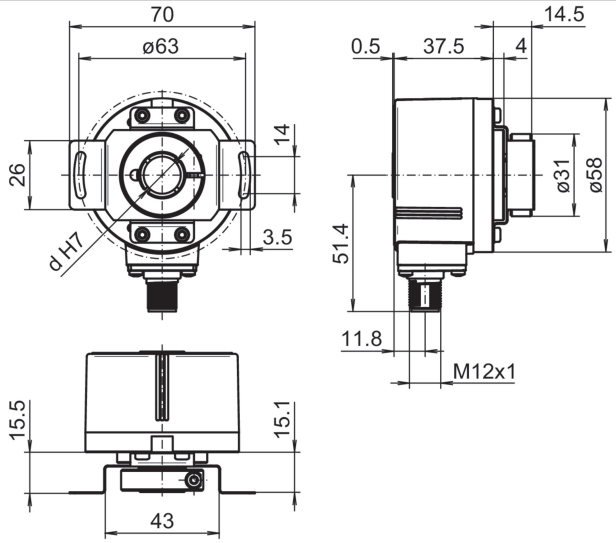
2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

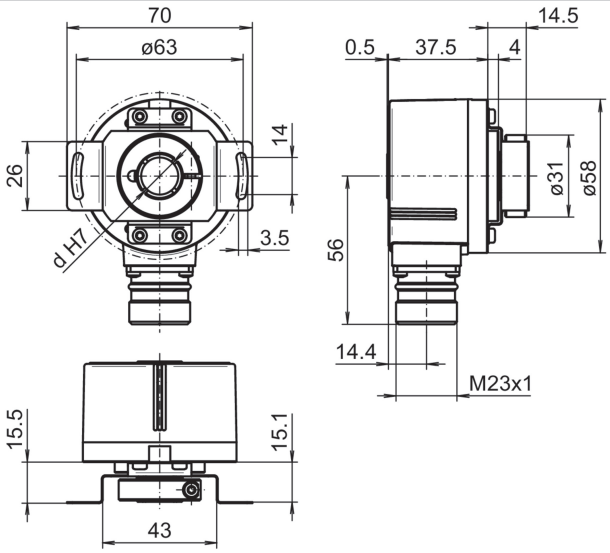
With through hollow shaft

1…65536 pulses per revolution programmable (interpolated system)

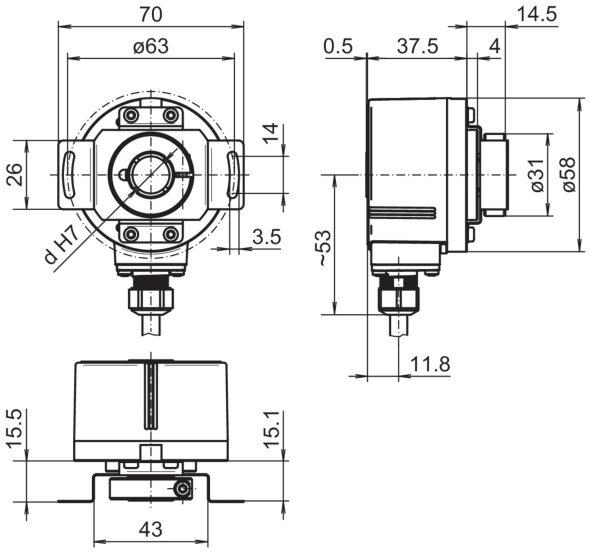
Dimensions



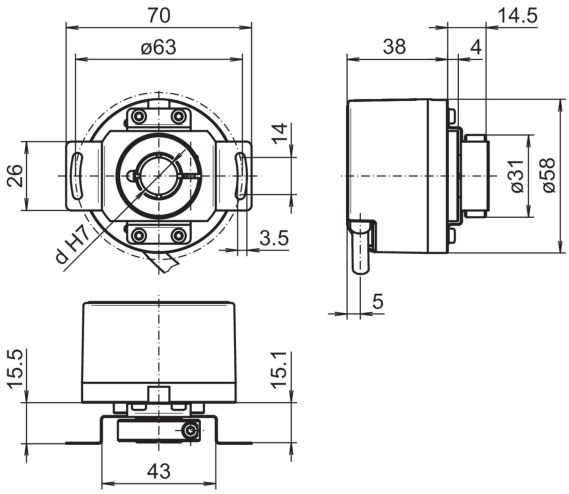
Clamping ring at A-side: Through hollow shaft, flange connector M12 radial



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



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



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

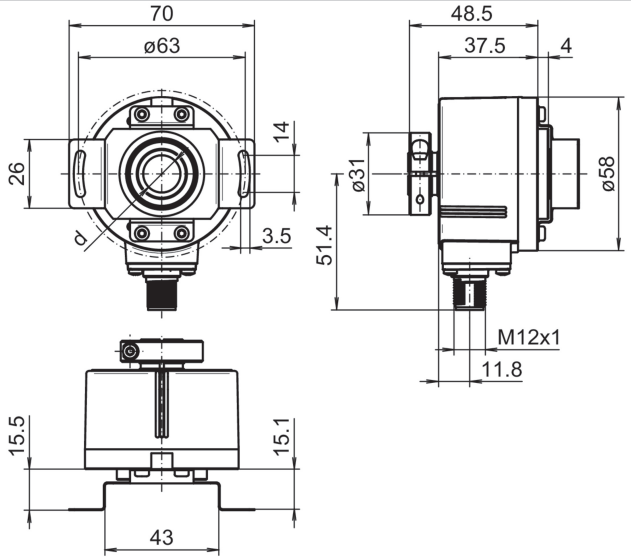
2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

With through hollow shaft

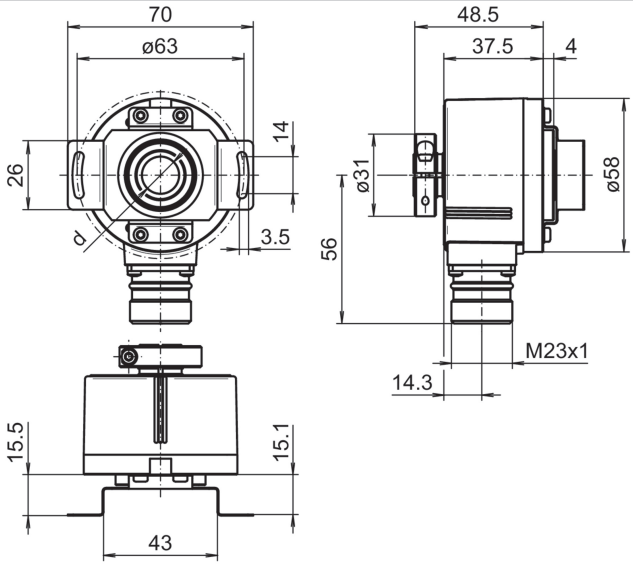
1…65536 pulses per revolution programmable (interpolated system)

Dimensions



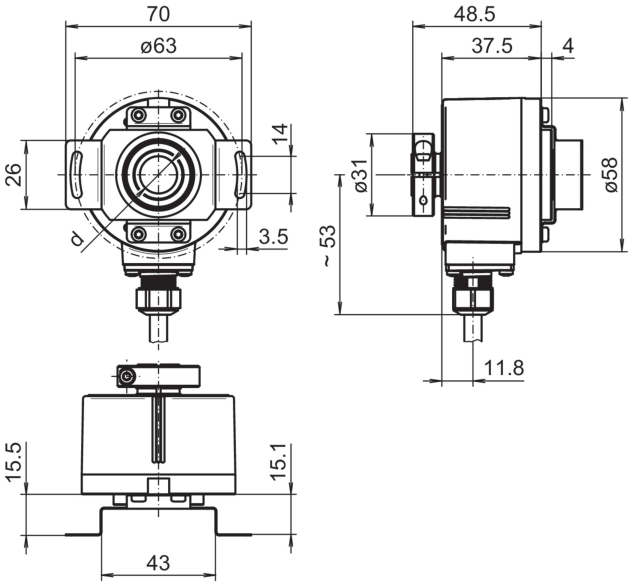
d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

Clamping ring at B-side: Through hollow shaft, flange connector M12 radial



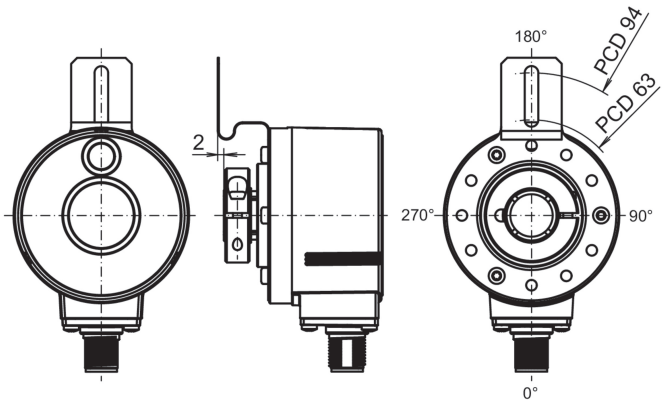
d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

Clamping ring at B-side: Through hollow shaft, flange connector M23 radial



d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

Clamping ring at B-side: Through hollow shaft, cable radial



Flange version M: Mounting position torque support

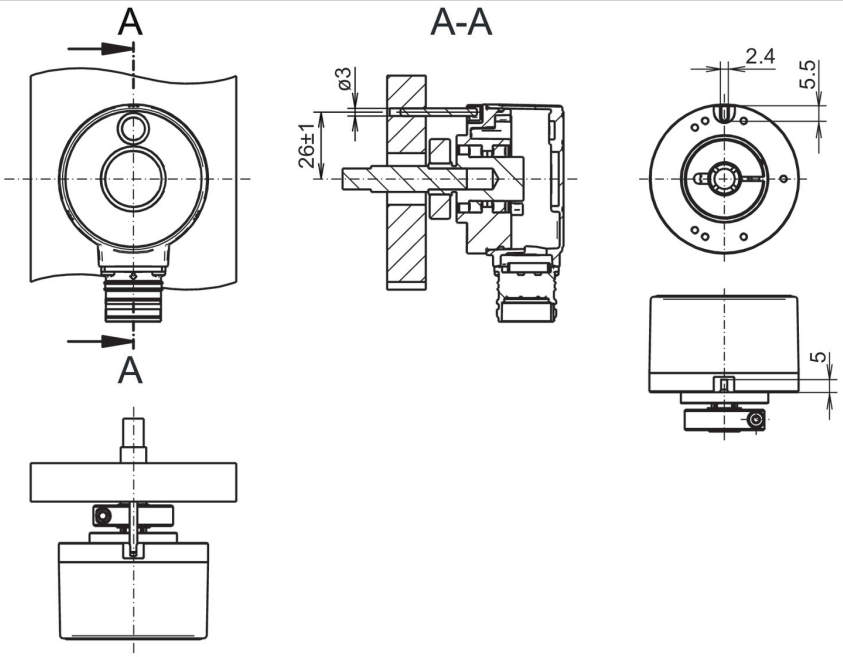
2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

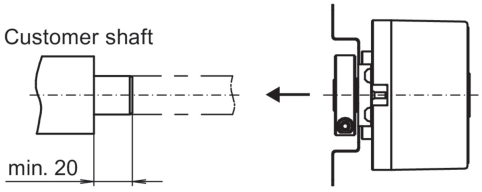
With through hollow shaft

1…65536 pulses per revolution programmable (interpolated system)

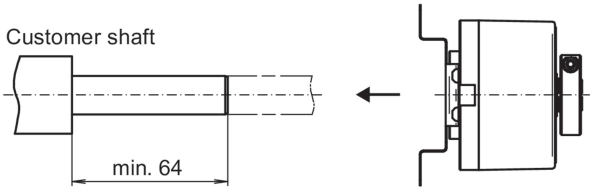
Dimensions



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



Clamping ring at A-side: Through hollow shaft



Clamping ring at B-side: Through hollow shaft

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

With through hollow shaft

1…65536 pulses per revolution programmable (interpolated system)

Ordering reference

	EIL580P	-	T	#	##	.	#	##	#	.	01024	.	B
Product													
	EIL580P												
Shaft type													
Through hollow shaft			T										
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									
Through 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								
ø3/8" (ø9.52 mm), clamping ring, B-side					V3								
ø10 mm, clamping ring, B-side					B0								
ø12 mm, clamping ring, B-side					B2								
ø1/2" (ø12.7 mm), clamping ring, B-side					V4								
ø14 mm, clamping ring, B-side					B4								
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(1)								F					
Flange socket radial, M12, 8-pin, male contacts, CCW								B					
Cable tangential, 1 m								P					
Cable tangential, 2 m								Q					
Flange socket radial, M23, 12-pin, male contacts, CW(2)								E					
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

(1) Use suitable connection cables and M23 connectors with clockwise direction (CW). You can find these in our accessories “Connectors and cables”.
(2) Use suitable connection cables and M23 connectors with counterclockwise direction (CCW). You can find these in our accessories “Connectors and cables”.

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

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

With through 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 ø8...10 mm for clamping at A or B side
11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side
11116921	Insulating sleeve ø10 mm/ø12 mm/25 mm long
11116923	Insulating sleeve ø12 mm/ø14 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
11074551	Female connector M23, 12-pin, CCW
11222564	Female connector M23, 12-pin, CCW, with cable 1 m - EIL580P
11222565	Female connector M23, 12-pin, CCW, with cable 2 m - EIL580P
11222566	Female connector M23, 12-pin, CCW, with cable 5 m - EIL580P
11222567	Female connector M23, 12-pin, CCW, with cable 10 m - EIL580P
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
11222569	Connection cable connector M23 (CCW) / connector D-SUB, 0.2 m
11222570	Connection cable connector M23 (CCW) / connector D-SUB, 1 m

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.

EIL580P-T

With through hollow shaft

1…65536 pulses per revolution programmable (interpolated system)

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

2020-04-28 The product features and technical data specified do not express or imply any warranty. Technical modifications subject to change.