

Incremental encoders

With blind or through hollow shaft

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

EIL580P - hollow shaft - OptoPulse®



EIL580P with blind hollow shaft

Features

- Size ø58 mm
- Precise optical sensing (interpolated)
- Output signal level programmable (TTL or HTL)
- Blind or through 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 - 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
Approval	UL 508 / CSA 22.2

Technical data - mechanical design

Size (flange)	ø58 mm
Motor shaft tolerance	±0.2 mm axial ±0.03 mm radial
Protection DIN EN 60529	IP 65 (without shaft seal), IP 67 (with shaft seal)
Materials	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

EIL580P - blind hollow shaft

Shaft type	ø8...15 mm (blind hollow shaft)
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)

EIL580P - through hollow shaft

Shaft type	ø8...15 mm (through hollow shaft)
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)

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Part number

Blind hollow shaft

EIL580P- **B** . . . **F** . **01024** . **B**

Operating temperature
B -40...+100 °C

Pulses programmable
01024 1...65536 programmable (factory setting: 1024)

Voltage supply / output stages
F 4.75...30 VDC, TTL/RS422, 6 channel (Vout = 5 VDC) - Factory setting
HTL/push-pull 6 channel (Vout = Vin) - programmable by customer

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 hollow shaft

08 ø8 mm, clamping ring at A side	U4 ø1/2" (12.7 mm), clamping ring at A side
U3 ø3/8" (9,52 mm), clamping ring at A side	14 ø14 mm, clamping ring at A side
10 ø10 mm, clamping ring at A side	15 ø15 mm, clamping ring at A side
12 ø12 mm, clamping ring at A side	

Flange

N Without stator coupling
M With stator coupling 1-armed, hole circle ø63...94 mm, M4, mounting position 180°
T With stator coupling ø63 mm
P Torque pin 3 mm, axial/radial

Shaft type

B Blind hollow shaft

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

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

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Part number

Through hollow shaft

EIL580P- T . . . F . 01024 . B

Operating temperature
B -40...+100 °C

Pulses programmable
01024 1...65536 programmable (factory setting: 1024)

Voltage supply / output stages
F 4.75...30 VDC, TTL/RS422, 6 channel (Vout = 5 VDC) - Factory setting
HTL/push-pull 6 channel (Vout = Vin) - programmable by customer

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
P Cable tangential, 1 m
Q Cable tangential, 2 m

Protection

5 **IP 65**
7 IP 67

Specification hollow shaft

08 ø8 mm, clamping ring at A side	15 ø15 mm, clamping ring at A side
U3 ø3/8" (9,52 mm), clamping ring at A side	V3 ø3/8" (9,52 mm), clamping ring at B side
10 ø10 mm, clamping ring at A side	B0 ø10 mm, clamping ring at B side
12 ø12 mm, clamping ring at A side	B2 ø12 mm, clamping ring at B side
U4 ø1/2" (12.7 mm), clamping ring at A side	V4 ø1/2" (12.7 mm), clamping ring at B side
14 ø14 mm, clamping ring at A side	B4 ø14 mm, clamping ring at B side

Flange

N Without stator coupling
M With stator coupling 1-armed, hole circle ø63...94 mm, M4, mounting position 180°
T With stator coupling ø63 mm
P Torque pin 3 mm, axial/radial

Shaft type

T Through hollow shaft

Printed in **bold** = standard items (up to the quantity of 10 will be supplied within 5 working days).

(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		Accessories	
Connectors and cables		11155325	Mounting plate, 1-arm, pitch circle diameter ø95 mm, mounting M6, isolated, rigid, suitable for Baumer torque arm size M6 (DMS 6) (mounting kit 099)
10127844	Connection cable 2 m shielded with female connector M12, 8-pin, straight (ESG 34FH0200G)	11129153	Torque arm, 1-arm open, bolt circle ø82...108 mm, mounting M4 (mounting kit 200)
10129332	Connection cable 5 m shielded with female connector M12, 8-pin, straight (ESG 34FH0500G)	11100198	Stator coupling, 2-armed, bolt circle ø63 mm, mounting M3 (mounting kit 046)
10129333	Connection cable 10 m shielded with female connector M12, 8-pin, straight (ESG 34FH1000G)	11106627	Fan cover clip 8 mm
11053961	Connection cable 2 m shielded with female connector M12, 8-pin, angled (ESW 33FH0200G)	11094674	Clamping ring 12/31/ 8 M3 8.8 for EIL580 hollow shaft ø8...10 mm for clamping at A or B side
11053962	Connection cable 5 m shielded with female connector M12, 8-pin, angled (ESW 33FH0500G)	11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side
10170054	Connection cable 10 m shielded with female connector M12, 8-pin, angled (ESW 33FH1000G)	11116921	Insulating sleeve ø10 mm/ø12 mm/25 mm long
10164705	Connector M23, 12-pin	11116923	Insulating sleeve ø12 mm/ø14 mm/25 mm long
11095302	Connection cable 1 m shielded with female connector M23, 12-pin	Mounting accessories for EIL580P - through hollow shaft	
11100408	Connection cable 2 m shielded with female connector M23, 12-pin	11066081	Torque arm, 1-arm, bolt circle ø82 mm, mounting M4 (mounting kit 003)
11100430	Connection cable 5 m shielded with female connector M23, 12-pin	11066083	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M4/M5 (mounting kit 006)
11100431	Connection cable 10 m shielded with female connector M23, 12-pin	11073119	Torque arm, 1-arm, bolt circle ø65.5...281 mm, mounting M4, can be cut to length (mounting kit 021)
11119280	Connection cable connector M12 / connector D-SUB, 0.2 m	11067367	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M6 (mounting kit 028)
11119720	Connection cable connector M12 / connector D-SUB, 1 m	11113210	Torque arm, 1-arm, bolt circle ø63...94 mm, mounting M4 (mounting kit 047)
11119257	Connection cable connector M23 / connector D-SUB, 0.2 m (S2BG12/K4SG9)	11155325	Mounting plate, 1-arm, pitch circle diameter ø95 mm, mounting M6, isolated, rigid, suitable for Baumer torque arm size M6 (DMS 6) (mounting kit 099)
11119723	Connection cable connector M23 / connector D-SUB, 1 m (S2BG12/K4SG9)	11129153	Torque arm, 1-arm open, bolt circle ø82...108 mm, mounting M4 (mounting kit 200)
Mounting accessories for EIL580P - blind hollow shaft		11100198	Stator coupling, 2-armed, bolt circle ø63 mm, mounting M3 (mounting kit 046)
11066081	Torque arm, 1-arm, bolt circle ø82 mm, mounting M4 (mounting kit 003)	11106627	Fan cover clip 8 mm
11066083	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M4/M5 (mounting kit 006)	11094674	Clamping ring 12/31/ 8 M3 8.8 for EIL580 hollow shaft ø8...10 mm for clamping at A or B side
11073119	Torque arm, 1-arm, bolt circle ø65.5...281 mm, mounting M4, can be cut to length (mounting kit 021)	11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side
11067367	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M6 (mounting kit 028)	11123483	Clamping ring 16/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...14 mm for clamping at B side
11113210	Torque arm, 1-arm, bolt circle ø63...94 mm, mounting M4 (mounting kit 047)		

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Accessories

11116921	Insulating sleeve ø10 mm/ø12 mm/25 mm long
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11116923	Insulating sleeve ø12 mm/ø14 mm/25 mm long
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Programming accessories

11120657	Handheld Programming Tool Z-PA-EI-H
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11120547	PC Programming Tool Z-PA-EI-P
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Incremental encoders

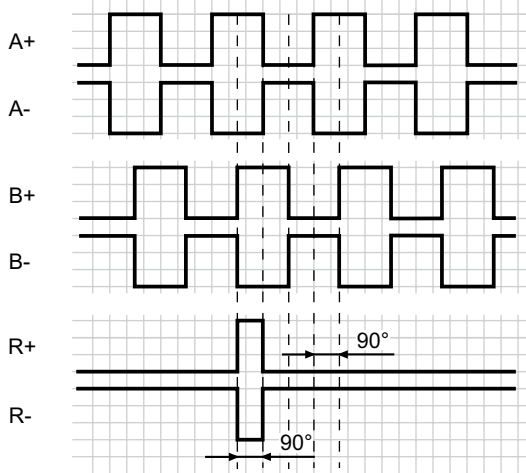
With blind or through hollow shaft

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

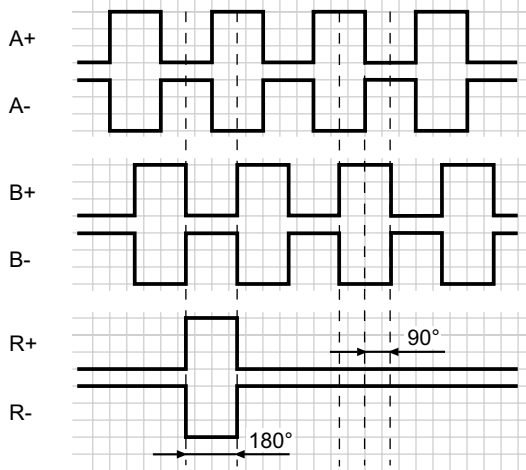
EIL580P - hollow shaft - *OptoPulse®*

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	$\geq 2.5 \text{ V}$
Output level Low	$\leq 0.5 \text{ V}$
Load	$\leq 20 \text{ mA}$

Outputs	HTL/Push-pull
Output level High	$\geq \text{UB} - 3 \text{ V}$
Output level Low	$\leq 1.5 \text{ V}$
Load	$\leq 20 \text{ mA}$

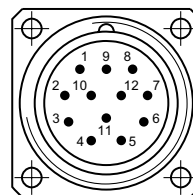
Terminal assignment

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	—	R-Set ¹⁾
8	grey	B+
9	—	—
10	white	GND
11	—	—
12	brown	UB

Screen: Connected to housing

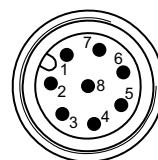
Cable data: PUR, [4x2x0,14 mm²], bending radius
>45,8 mm, outer diameter 6.1 mm



¹⁾ The R-Set input is used to set the reference pulse (zero pulse) on the current shaft position.
R-Set = UB $\geq 200 \text{ ms}$

Flange connector M12, 8-pin

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



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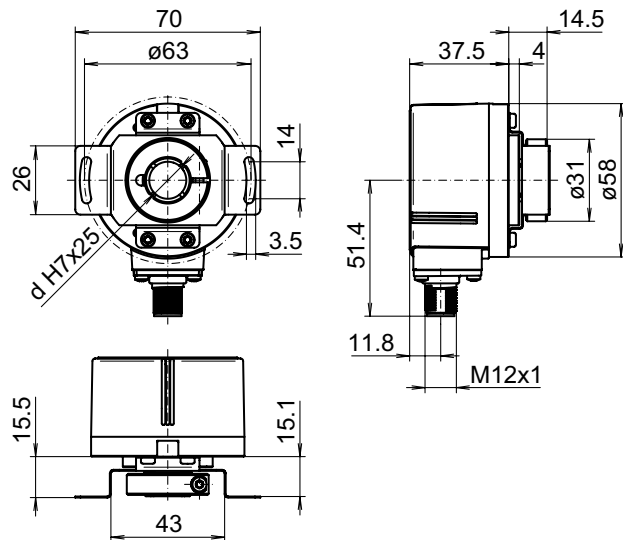
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EIL580P - hollow shaft - *OptoPulse®*

Dimensions

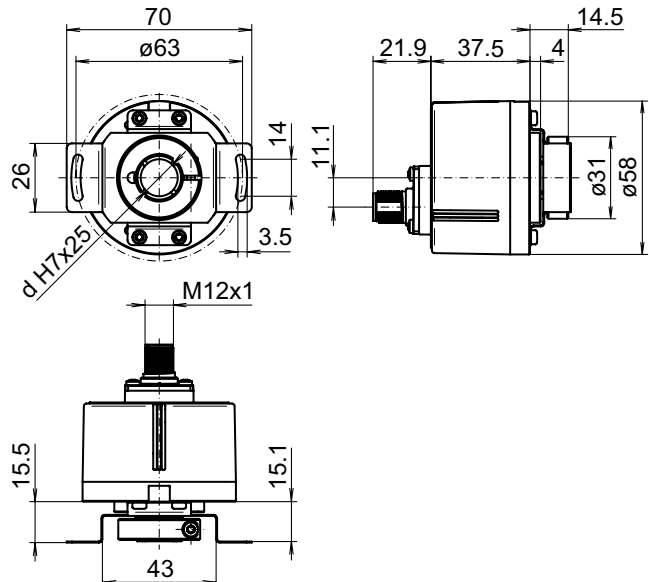
Clamping ring at A-side:

Blind hollow shaft, flange connector M12 radial



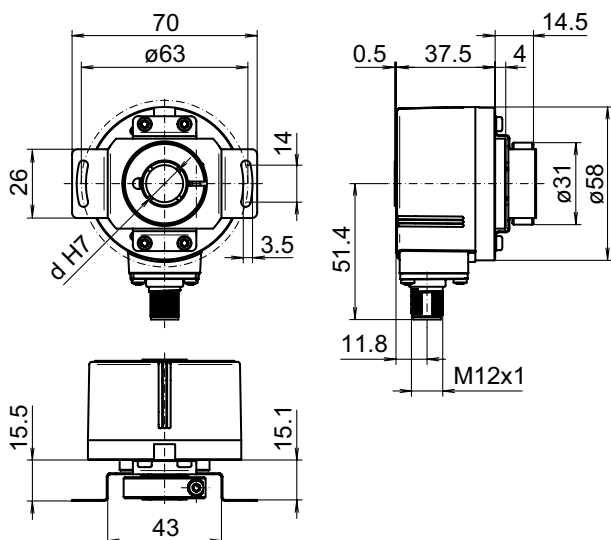
Clamping ring at A-side:

Blind hollow shaft, flange connector M12 axial



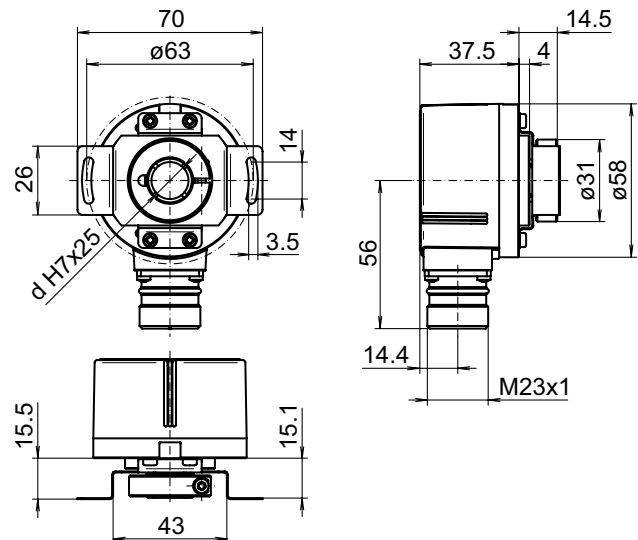
Clamping ring at A-side:

Through hollow shaft, flange connector M12 radial



Clamping ring at A-side:

Blind hollow shaft, flange connector M23 radial



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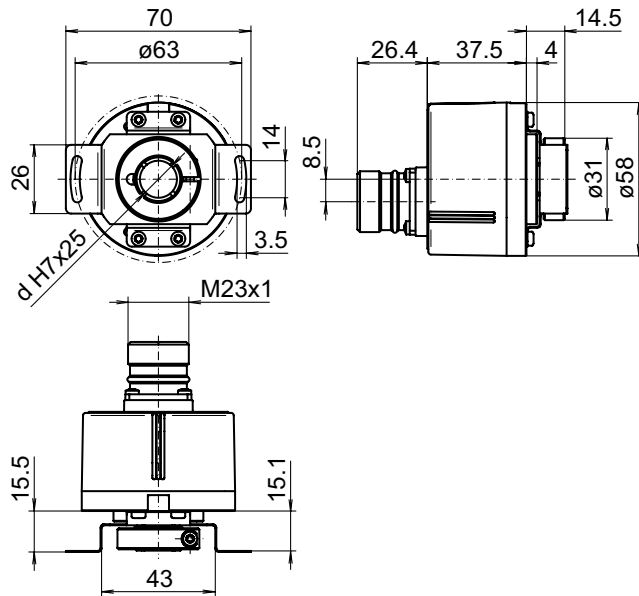
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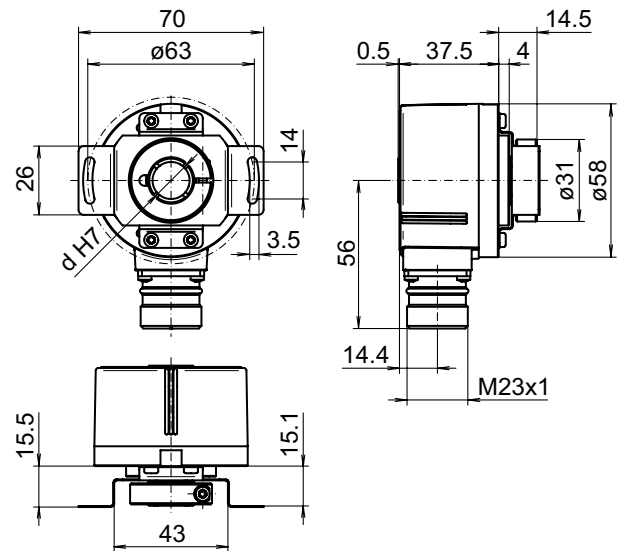
Clamping ring at A-side:

Blind hollow shaft, flange connector M23 axial



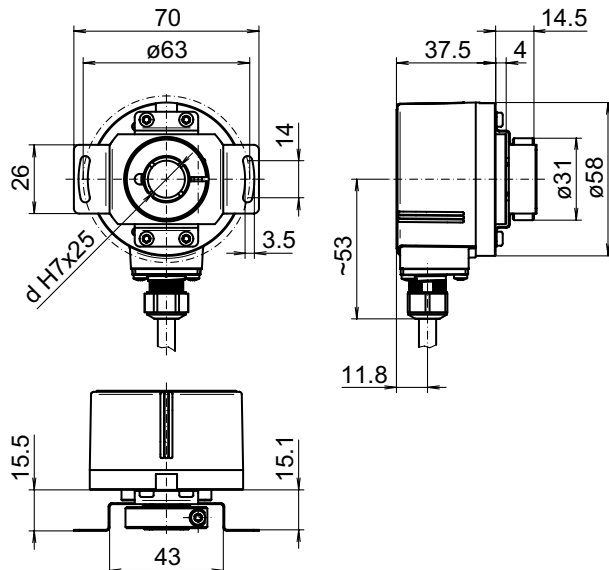
Clamping ring at A-side:

Through hollow shaft, flange connector M23 radial



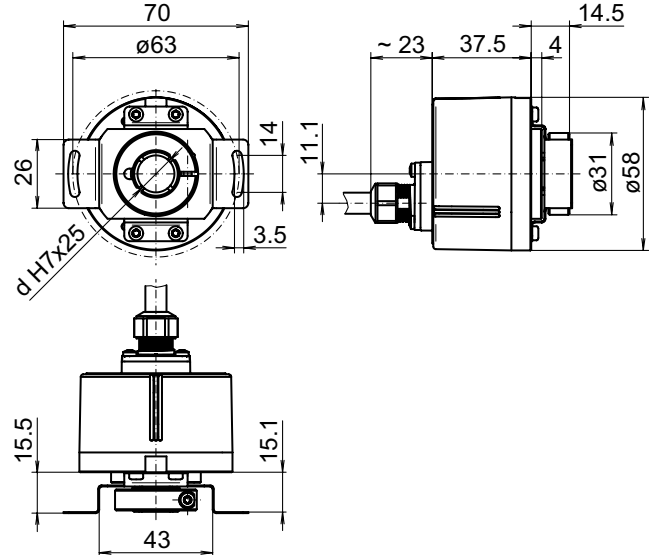
Clamping ring at A-side:

Blind hollow shaft, cable radial



Clamping ring at A-side:

Blind hollow shaft, cable axial



Incremental encoders

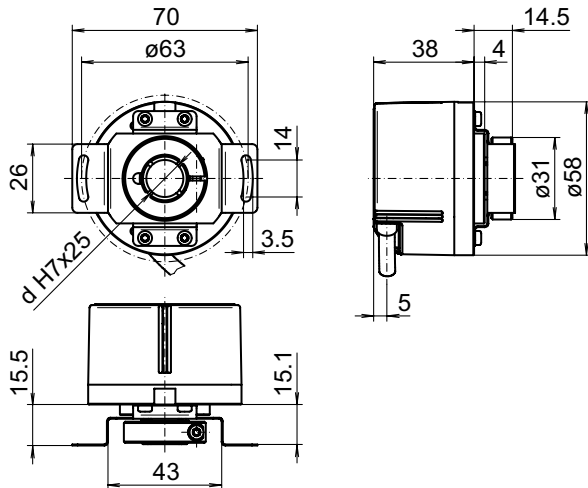
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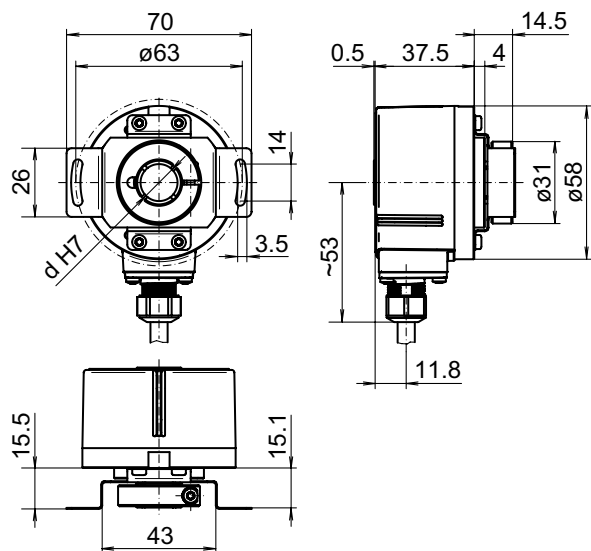
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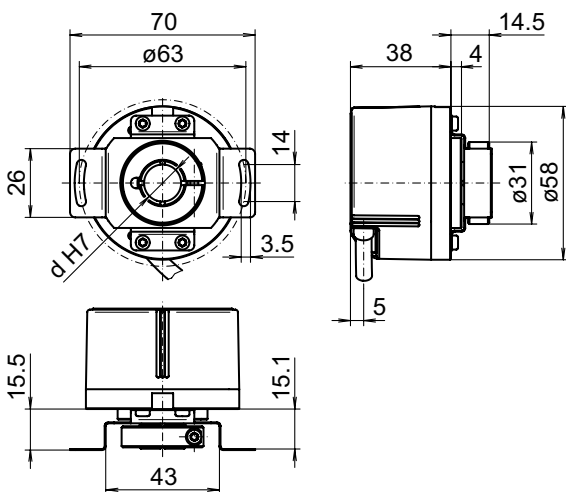
Clamping ring at A-side:
Blind hollow shaft, cable tangential



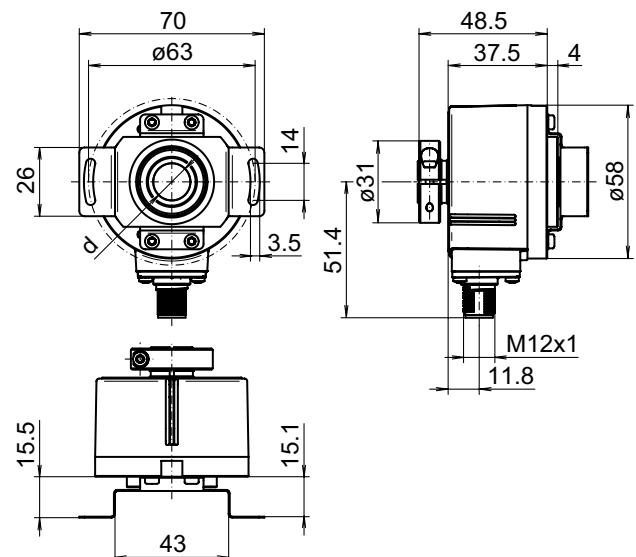
Clamping ring at A-side:
Through hollow shaft, cable radial



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



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



d H7: $\varnothing 10$, $\varnothing 12$, $\varnothing 14$

d G7: $\varnothing 3/8$ " ($\varnothing 9.52$), $\varnothing 1/2$ " ($\varnothing 12.7$)

Incremental encoders

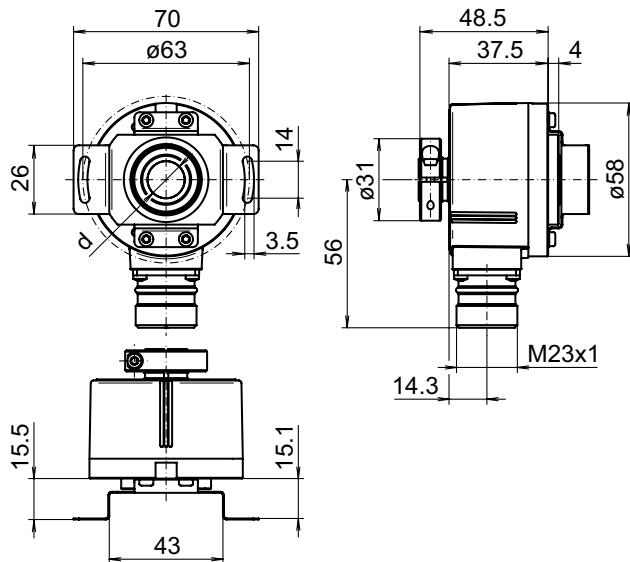
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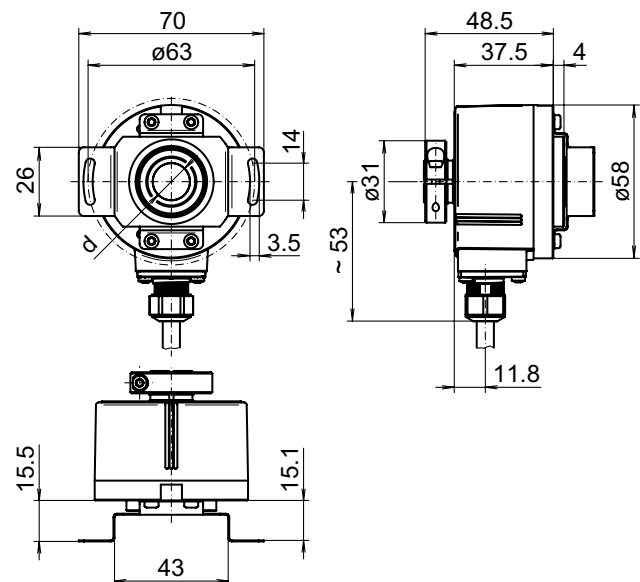
Dimensions

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



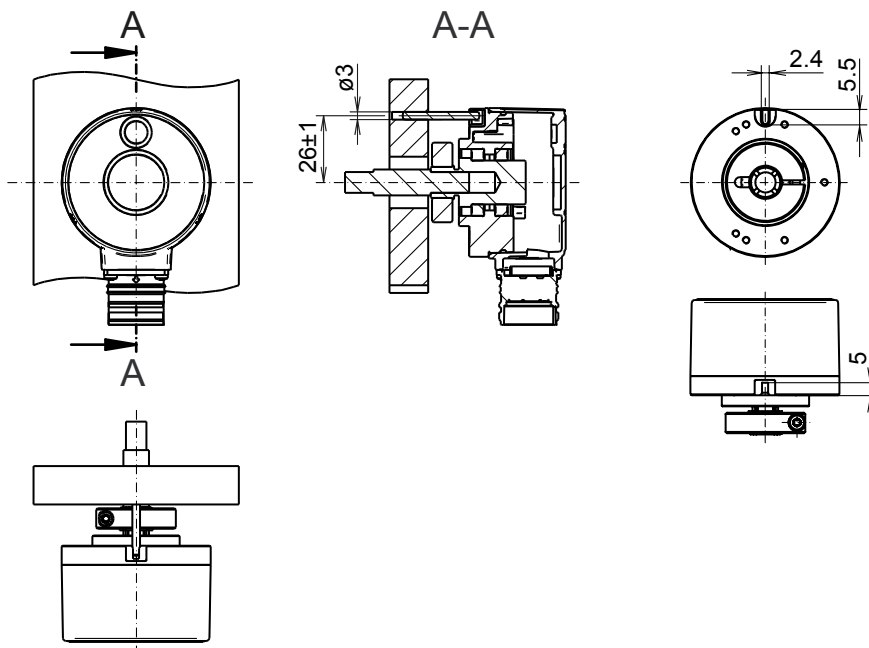
d H7: ø10, ø12, ø14
d G7: ø3/8" (ø9.52), ø1/2" (ø12.7)

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



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

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



Incremental encoders

With blind or through hollow shaft

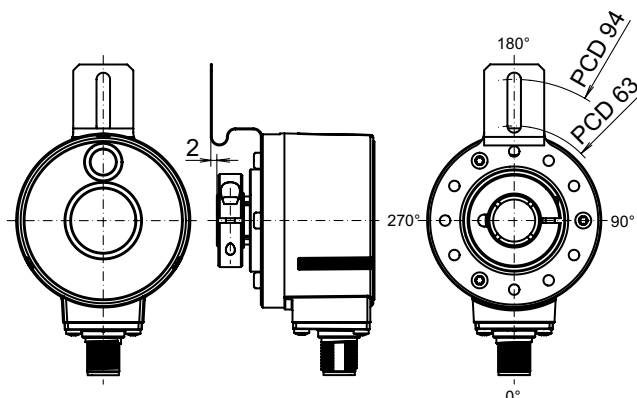
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Dimensions

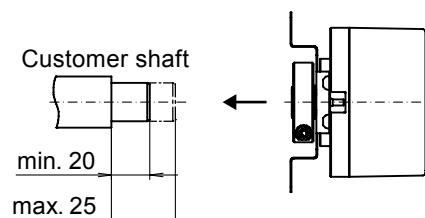
Flange version M:

Mounting position torque support



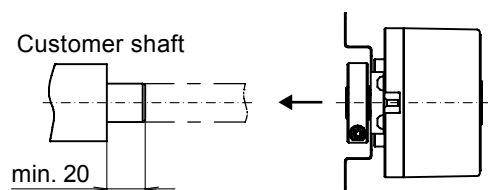
Clamping ring at A-side:

Blind hollow shaft



Clamping ring at A-side:

Through hollow shaft



Clamping ring at B-side:

Through hollow shaft

