

Incremental encoders

With through hollow shaft

100...5000 pulses per revolution

EIL580-T - Option 6301



EIL580-T Option 6301 with through hollow shaft

Features

- Size $\varnothing 58$ mm
- Precise optical sensing
- Output signal level TTL or HTL
- Through hollow shaft, $\varnothing 8...15$ mm
- Connection radial or tangential
- Pulses per revolution up to 5000
- High protection up to IP 67
- High resistance to shock and vibrations
- Option 6301, hybrid ball bearings for protection against shaft currents

Technical data - electrical ratings

Voltage supply	5 VDC ± 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	≤ 70 mA
Pulses per revolution	100...5000
Phase shift	$90^\circ \pm 10^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width $90^\circ \pm 10$ %
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
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)	$\varnothing 58$ mm
Shaft type	$\varnothing 8...15$ 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)
Materials	Housing: aluminium die-cast Flange: aluminium
Operating temperature	-40...+85 °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

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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)
10164705	Connector M23, 12-pin
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

11066081	Torque arm, 1-arm, bolt circle ø82 mm, mounting M4 (mounting kit 003)
11066083	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M4/M5 (mounting kit 006)
11073119	Torque arm, 1-arm, bolt circle ø65.5...281 mm, mounting M4, can be cut to length (mounting kit 021)
11067367	Torque arm, 1-arm, bolt circle ø74...94 mm, mounting M6 (mounting kit 028)
11113210	Torque arm, 1-arm, bolt circle ø63...94 mm, mounting M4 (mounting kit 047)
11129153	Torque arm, 1-arm open, bolt circle ø82...108 mm, mounting M4 (mounting kit 200)
11100198	Stator coupling, 2-armed, bolt circle ø63 mm, mounting M3 (mounting kit 046)
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

Mounting accessories

11094675	Clamping ring 17/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...15 mm for clamping at A side
11123483	Clamping ring 16/31/ 8 M3 8.8 for EIL580 hollow shaft ø12...14 mm for clamping at B side
11116921	Insulating sleeve ø10 mm/ø12 mm/25 mm long
11116923	Insulating sleeve ø12 mm/ø14 mm/25 mm long

Incremental encoders

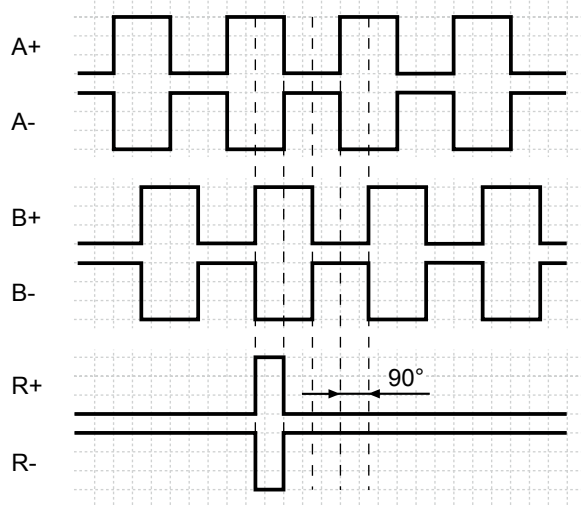
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Output signals

Clockwise rotating direction when looking at 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	$\geq U_B - 3$ V
Output level Low	≤ 1.5 V
Load	≤ 20 mA

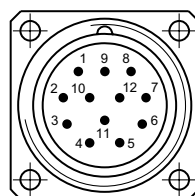
Terminal assignment

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

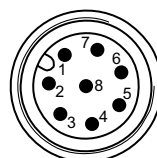
Screen: Connected to housing

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

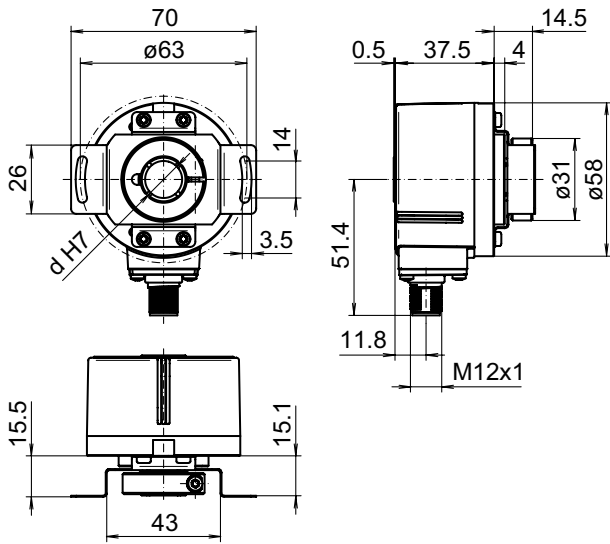
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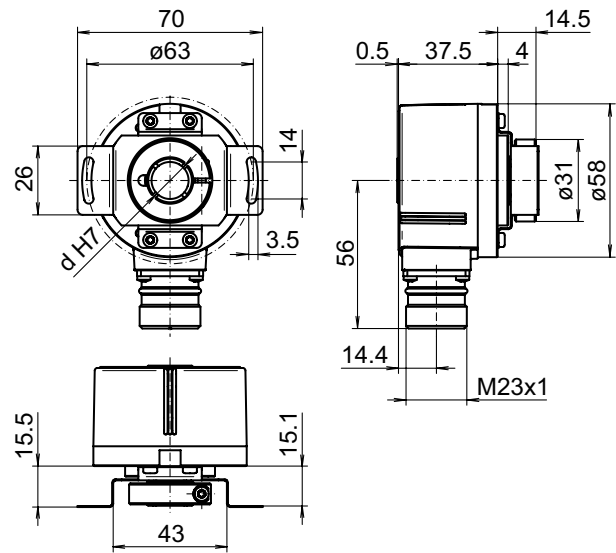
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Dimensions

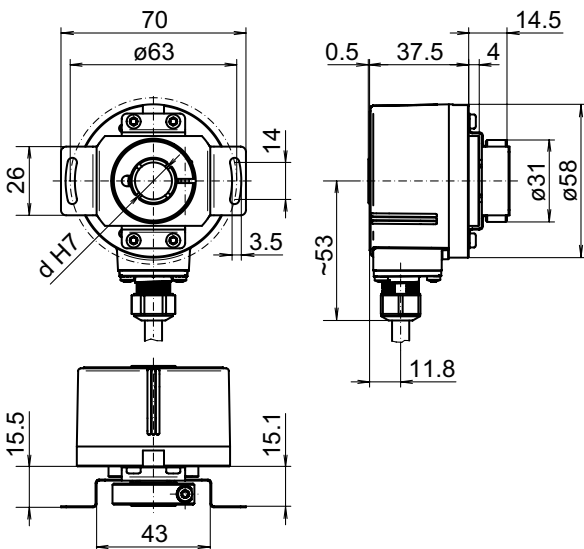
Clamping ring at A-side:
Through hollow shaft, flange connector M12 radial



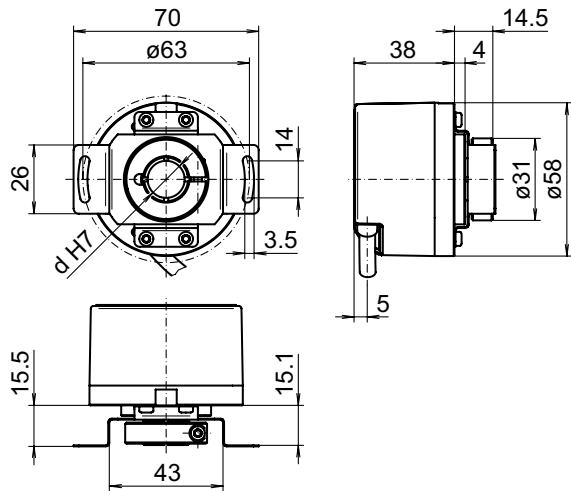
Clamping ring at A-side:
Through hollow shaft, flange connector M23 radial



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



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



Incremental encoders

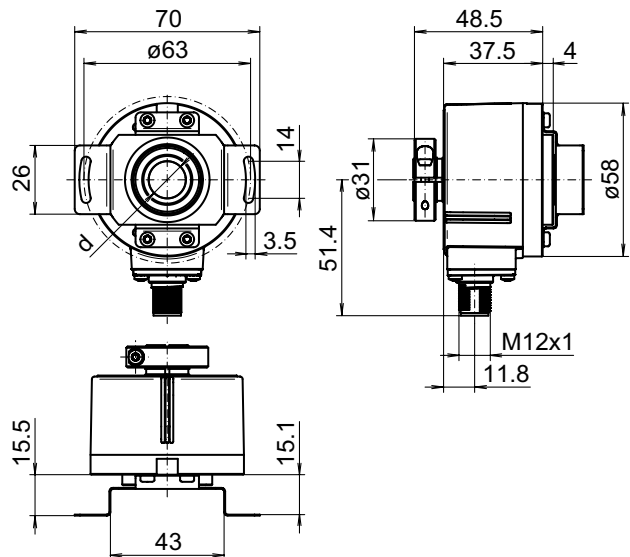
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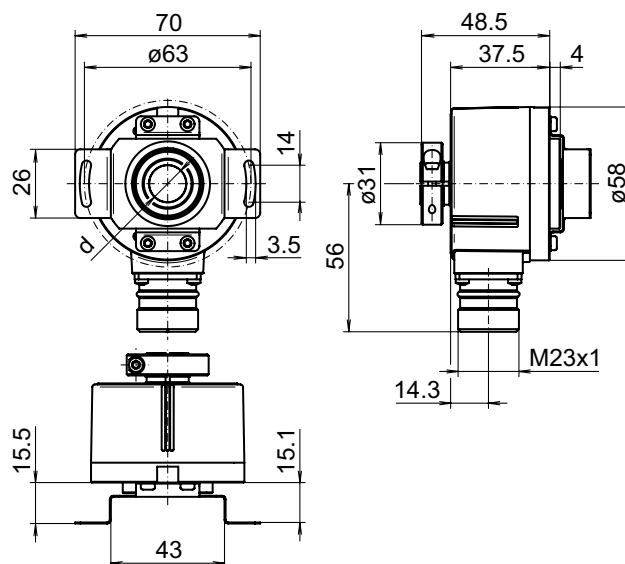
Dimensions

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



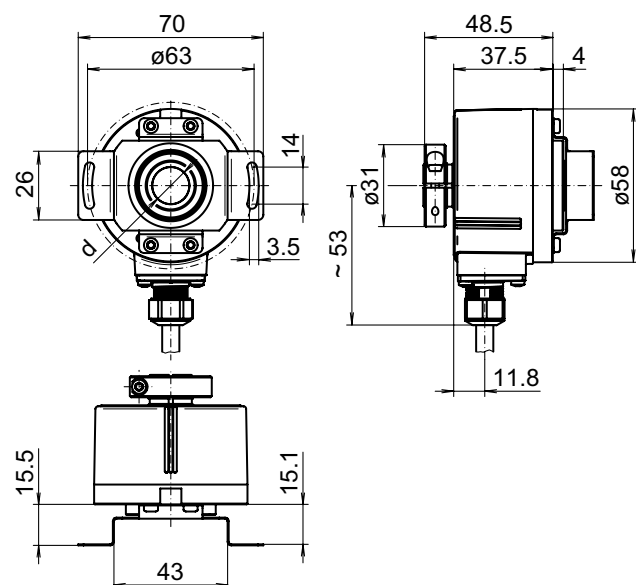
d H7: $\varnothing 10$, $\varnothing 12$, $\varnothing 14$
d G7: $\varnothing 3/8''$ ($\varnothing 9.52$), $\varnothing 1/2''$ ($\varnothing 12.7$)

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



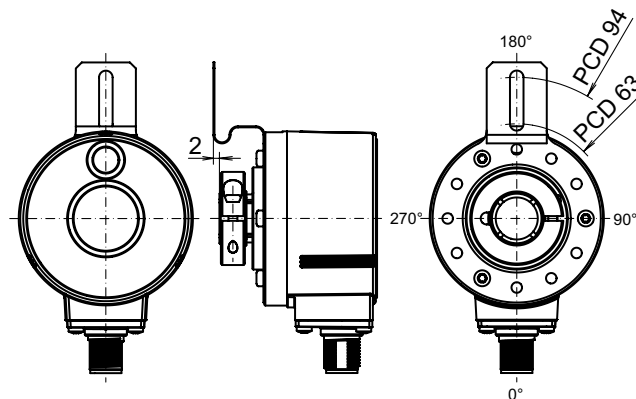
d H7: $\varnothing 10$, $\varnothing 12$, $\varnothing 14$
d G7: $\varnothing 3/8''$ ($\varnothing 9.52$), $\varnothing 1/2''$ ($\varnothing 12.7$)

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



d H7: $\varnothing 10$, $\varnothing 12$, $\varnothing 14$
d G7: $\varnothing 3/8''$ ($\varnothing 9.52$), $\varnothing 1/2''$ ($\varnothing 12.7$)

Flange version M:
Mounting position torque support



Subject to modification in technic and design. Errors and omissions excepted.

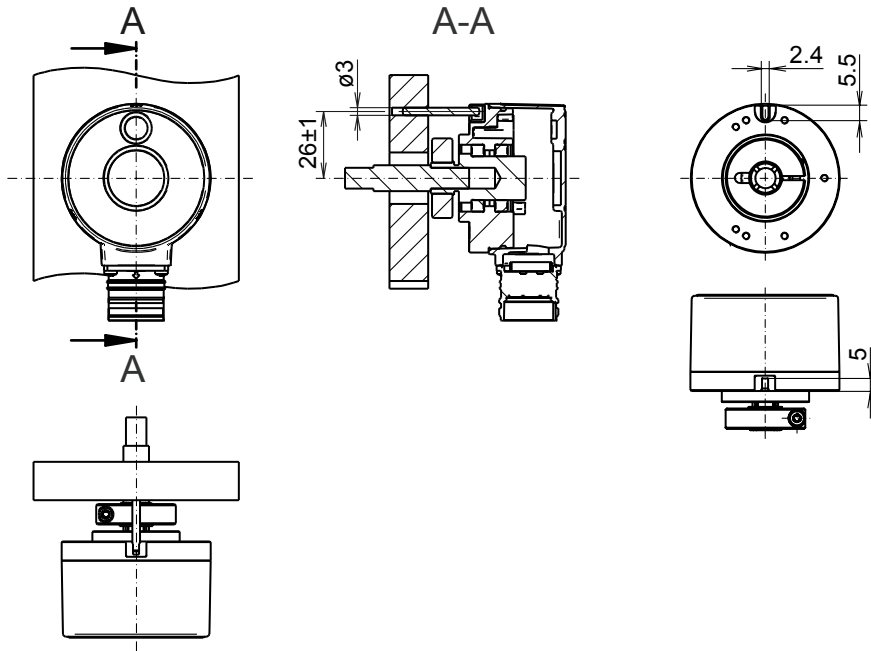
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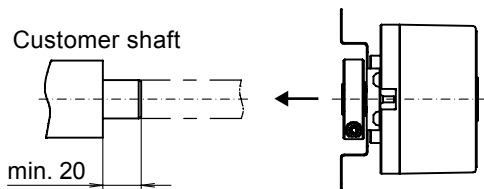
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Dimensions

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

