EAL 58 F - 63 F / G ANALOGUE

BLIND HOLLOW SHAFT SINGLETURN ABSOLUTE ENCODER

MAIN FEATURES

Industry standard singleturn absolute encoders for factory automation applications.

- Optical sensing technology (OptoASIC)
- Programmable measuring range via teach-in function (external inputs or cover button)
- Power supply up to +30 VDC with analogue (voltage or current) electrical interface
- Cable or M12 connector output
- Blind hollow shaft up to 15 mm
- Mounting by stator coupling, torque stop slot or torque pin

ORDERING CODE

EAL	58F	16B	12/30	V	05	X	15	X	M12	R	.162	+XXX

SERIES
analogue singleturn absolute encoder EAL

MODEL
blind hollow shaft with stator coupling 58F
blind hollow shaft with torque stop slot 63F
blind hollow shaft with torque pin 63G

OUTPUT DAC RESOLUTION
16 bit 16B

POWER SUPPLY
12 ... 30 V DC 12/30

ELECTRICAL INTERFACE
voltage V
current I

OUTPUT RANGE
0 ... 5 V 05
0 ... 10 V 010
0 ... 20 mA 020
4 ... 20 mA 420

OPTIONS
to be reported with voltage output / 3 wires current output X
4 wires current output Q

BORE DIAMETER
mm 14
mm 15
diameters 6 / 8 / 9,52 (3/8") / 10 / 11 / 12 mm with optional shaft adapter, see Accessories

ENCLOSURE RATING
IP 65 shaft side / IP67 cover side X
IP 67 S

OUTPUT TYPE
cable (standard length 1,5 m) P
preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5)
M12 plug connector M12

DIRECTION TYPE
radial R

SOCKET
socket not included .162
to be reported only with connector output (eg. M12R.162), for socket see Accessories

VARIANT
custom version XXX

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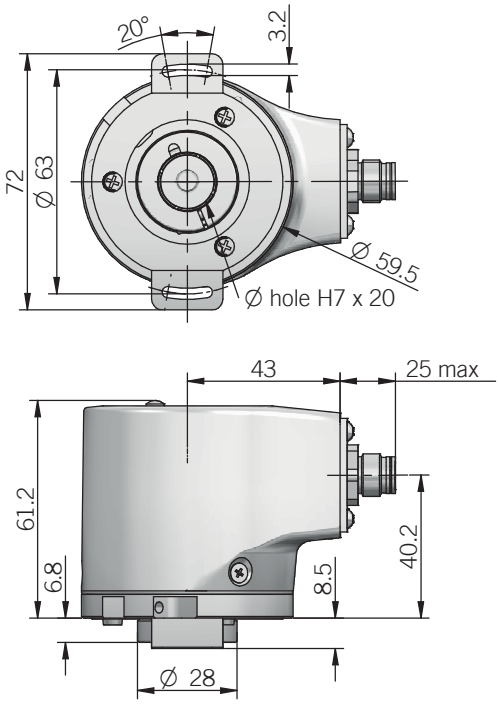
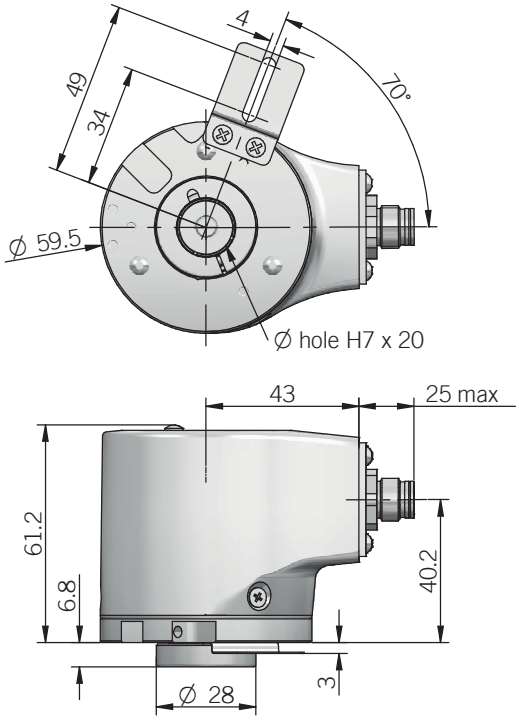
58F

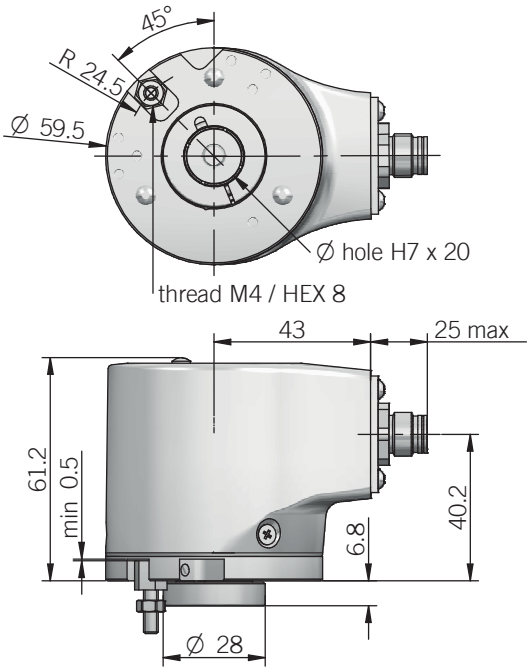


63F



for torque pin please refer to Accessories

63 G



torque pin is included
recommended mating shaft tolerance g6
dimensions in mm

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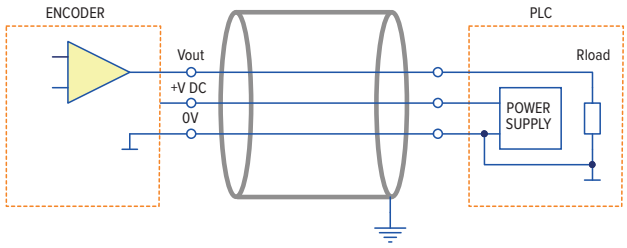
ELECTRICAL SPECIFICATIONS

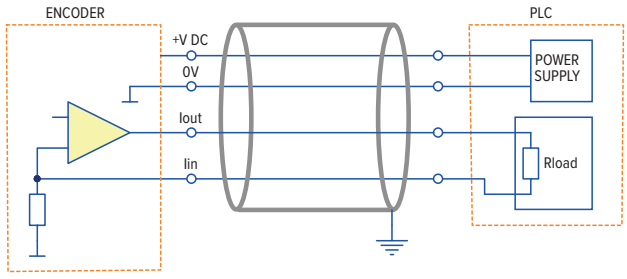
Resolution	16 bit
Output DAC resolution	16 bit
Minimum angle	22,5°
Power supply[1]	11,4 ... 30 V DC (reverse polarity protection)
Power draw without load	< 1 W
Electrical interface[2]	voltage (0 ... 5 V / 0 ... 10 V) current (0 ... 20 mA / 4 ... 20 mA)
Auxiliary inputs (BEGIN - END)	active high (+V DC) connect to 0 V if not used / t_{min} 150 ms
Load	Rmin= 1 kΩ (voltage output) Rmax= (V DC - 2) / 0,02 (current output)
Output update frequency	16 kHz
Signal pattern	auto teaching according to commissioning
Start-up time	700 ms
Linearity error	± 0,069°
Mean time to dangerous failure ($MTTF_d$)[3] **according to EN ISO 13849-1**	215 years
Mission time (Tm)[3]	20 years
Diagnostic coverage (DC)[3]	0%
Cable type	shielded - fixed installation conductors section 0,22 mm² / AWG 24 bending radius min 60 mm
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

ELECTRICAL INTERFACE

VOLTAGE OUTPUT



CURRENT OUTPUT



3 / 4 wire source
with 3 wires interface Iin is internally connected to 0V

MECHANICAL SPECIFICATIONS

Bore diameter	ø 14 / 15 mm ø 6* / 8* / 9,52 (3/8")* / 10* / 11* / 12* mm * with optional shaft adapter, please refer to Accessories
Enclosure rating IEC 60529	X = IP 65 shaft side / IP67 cover side S = IP 67
Max rotation speed	see table
Max shaft load[4]	200 N (45 lbs) axial / 60 N (13,49 lbs) radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	5 x 10^{-6} kgm² (119 x 10^{-6} lbft²)
Starting torque (at +20°C / +68°F)	< 0,03 Nm (4,25 Ozin)
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	painted aluminium
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[5, 6]	-20° ... +85°C (-4° ... +185°F)
Storage temperature[6]	-20° ... +85°C (-4° ... +185°F)
Weight	approx 350 g (12,35 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] this product is not a safety component, for further details refer to TECHNICAL BASICS section
[4] maximum load for static usage
[5] measured on the transducer flange
[6] condensation not allowed

ROTATION SPEED / TEMPERATURE TABLE

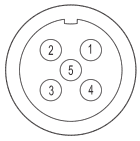
	Temperature °C (°F)	Max speed (rpm)	Max continuous speed (rpm)
IP65	up to +70 (+158)	9000	6000
	+70 ... +85 (+158 ... +185)	6000	3000
IP67	up to +70 (+158)	8000	4000
	+70 ... +85 (+158 ... +185)	4000	2000

CONNECTIONS

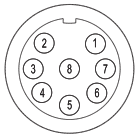
Function	Cable	5 pin M12	8 pin M12*
+ V DC	red	2	2
0 V	black	3	3
Vout / Iout	green	1	1
Iin	yellow	/	6
BEGIN	white	4	4
END	brown or grey	5	5
⏚	shield	housing	housing

* with Q current ouput

M12 connector (5 pin)
M12 A coded
front view



M12 connector (8 pin)
M12 A coded
front view



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