

EAML 58 B / C - 63 A / D / E ANALOGUE

SOLID SHAFT MULTITURN ABSOLUTE ENCODER

MAIN FEATURES

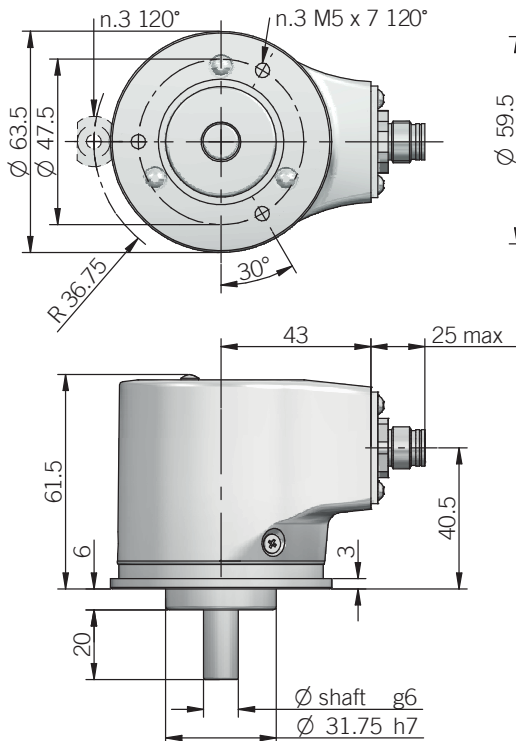
Industry standard multiturn absolute encoder for factory automation applications.

- Optical sensor technology (OptoASIC + Energy Harvesting)
- 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
- Solid shaft diameter up to 10 mm
- Mounting by synchronous, clamping or centering 2,5" square flange



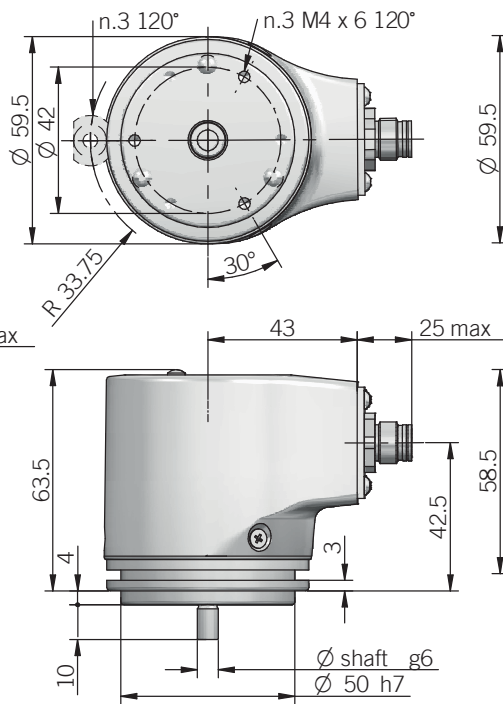
| ORDERING CODE | EAML | 63A | 16B | 12/30 | V | 05 | X | 10 | X | M12 | R | .162 | +XXX |
|---|--|-----|-----|-------|---|----|---|----|---|-----|---|------|------|
| SERIES analogue multiturn absolute encoder | EAML | | | | | | | | | | | | |
| MODEL synchronous flange ø 31.75 mm synchronous flange ø 50 mm clamping flange ø 36 mm centering square flange ø 31.75 mm centering square flange ø 50 mm | 63A 58B 58C 63D 63E | | | | | | | | | | | | |
| OUTPUT DAC RESOLUTION 16 bit | 16B | | | | | | | | | | | | |
| POWER SUPPLY 12 ... 30 V DC | 12/30 | | | | | | | | | | | | |
| ELECTRICAL INTERFACE voltage current | V I | | | | | | | | | | | | |
| OUTPUT RANGE 0 ... 5 V 0 ... 10 V 0 ... 20 mA 4 ... 20 mA | 05 010 020 420 | | | | | | | | | | | | |
| OPTIONS to be reported with voltage output / 3 wires current output 4 wires current output | X Q | | | | | | | | | | | | |
| SHAFT DIAMETER (mod. 58 B) mm (mod. 63 A / D) 3/8" - mm (mod. 58 C - 63 A / D / E) mm | 6 9,52 10 | | | | | | | | | | | | |
| ENCLOSURE RATING IP 65 shaft side / IP67 cover side IP 67 | X S | | | | | | | | | | | | |
| OUTPUT TYPE cable (standard length 1,5 m) preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) M12 plug connector | P M12 | | | | | | | | | | | | |
| DIRECTION TYPE radial | R | | | | | | | | | | | | |
| SOCKET socket not included to be reported only with connector output (eg. M12R.162), for socket see Accessories | .162 | | | | | | | | | | | | |
| VARIANT custom version | XXX | | | | | | | | | | | | |

63A



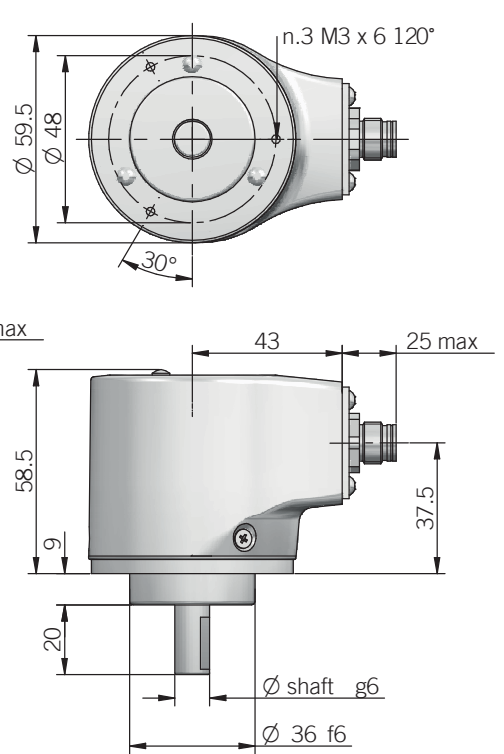
for fixing clamps please refer to Accessories

58B

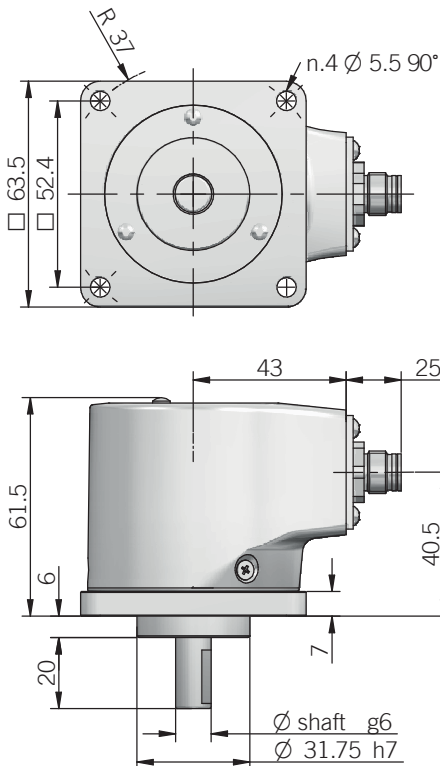


for fixing clamps please refer to Accessories

58C

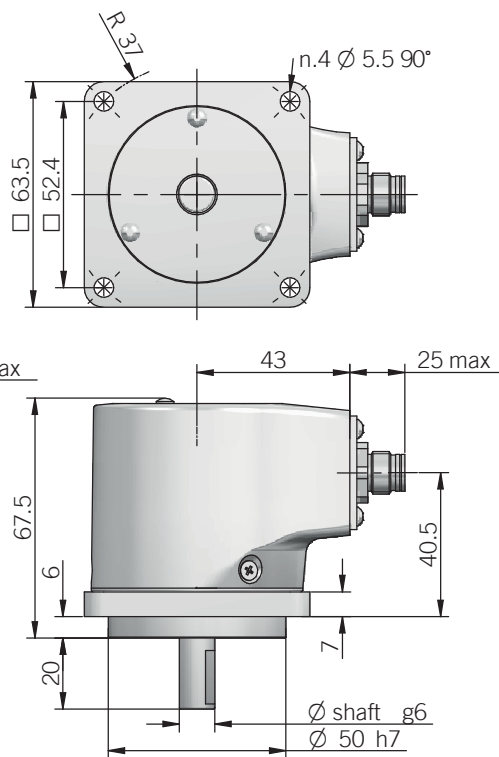


63D



recommended mating shaft tolerance H7
dimensions in mm

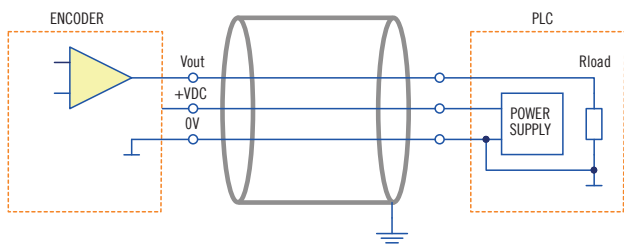
63E



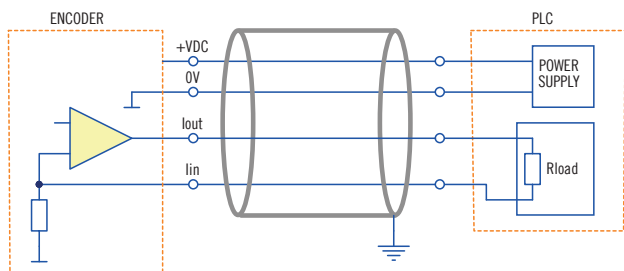
| ELECTRICAL SPECIFICATIONS | |
|---|---|
| Multiturn resolution | 16 bit max |
| Singleturn resolution | 16 bit max |
| Output DAC resolution | 16 bit |
| Minimum angle | 22,5° |
| Power supply ¹ | 11,4 ... 30 V DC (reverse polarity protection) |
| Power draw without load | < 1 W |
| Electrical interface 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 0V if not used / t_{min} 150 ms |
| Load | $R_{min} = 1 \text{ k}\Omega$ (voltage output) $R_{max} = (V \text{ DC} - 2) / 0,02$ (current output) |
| Output update frequency | 16 kHz |
| Signal pattern | auto teaching according to commissioning |
| Start-up time | 700 ms |
| Linearity error | $\pm 0,069^\circ$ |
| Mean time to dangerous failure (MTTF) _d ³ according to EN ISO 13849-1 | 186 years |
| Mission time (Tm) ³ | 20 years |
| Diagnostic coverage (DC) ³ | 0% |
| Cable type | shielded - fixed installation conductors section 0,22 mm ² / 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 | |
|---------------------------------------|--|
| Shaft diameter | $\varnothing 6 / 9,52 (3/8") / 10 \text{ mm}$ |
| 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 / 70 N (15,74 lbs) radial |
| Shock | 50 G, 11 ms (IEC 60068-2-27) |
| Vibration | 10 G, 10 ... 2000 Hz (IEC 60068-2-6) |
| Moment of inertia | $1,5 \times 10^{-6} \text{ kgm}^2 (36 \times 10^{-6} \text{ lbf}^2)$ |
| 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

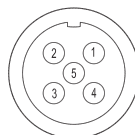
| Temperature °C (°F) | Max speed (rpm) | Max continuous speed (rpm) |
|-----------------------------|-----------------|----------------------------|
| up to +70 (+158) | 10000 | 8000 |
| +70 ... +85 (+158 ... +185) | 8000 | 5000 |

CONNECTIONS

| Function | Cable | 5 pin M12 | 8 pin M12* |
|-------------------------------------|---------------|-----------|------------|
| + V DC | red | 2 | 2 |
| 0 V | black | 3 | 3 |
| V _{out} / I _{out} | green | 1 | 1 |
| I _{in} | yellow | / | 6 |
| BEGIN | white | 4 | 4 |
| END | brown or grey | 5 | 5 |
| ⊕ | shield | housing | housing |

* with Q current output

M12 connector (5 pin)
M12 A coded
front view



M12 connector (8 pin)
M12 A coded
front view

