

### MAIN FEATURES

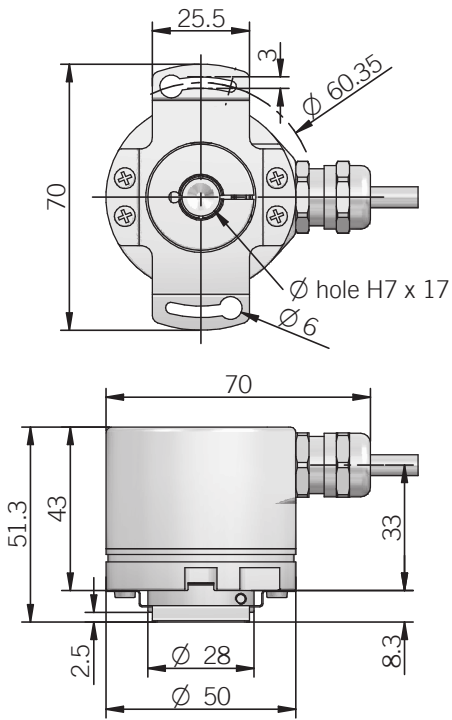
Singleturn absolute magnetic encoder size 50 mm with blind hollow shaft

- Resolution 12 bit
- Power supply up to +28 V DC with analogue (voltage or current) electrical interface
- Code reset for easy setup
- Cable or M12 output, other connectors available on cable end
- Sturdy construction (separated chambers)
- Blind hollow shaft diameter up to 15 mm
- IP 67 enclosure rating
- Mounting by stator coupling or torque pin

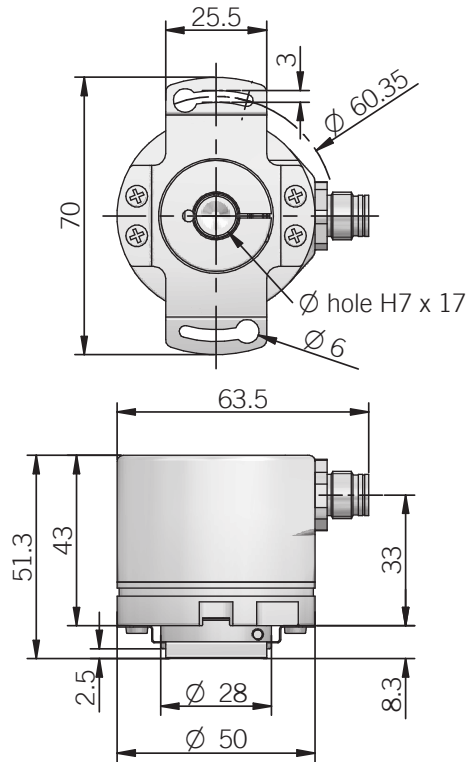


ORDERING CODE	EML	50F	360	X	12/28	V	05	X	15	X	3	M12	R	.162	+XXX
<b>SERIES</b> magnetic singleturn absolute encoder <b>EML</b>															
<b>MODEL</b> blind hollow shaft with stator coupling <b>50F</b> blind hollow shaft with torque pin <b>50G</b>															
<b>ACTIVE ANGLE</b> degrees <b>360</b> degrees <b>270</b> degrees <b>180</b> degrees <b>90</b>															
<b>OPTION</b> to be reported if not used <b>X</b> reset with external input <b>ZE</b>															
<b>POWER SUPPLY</b> 12 ... 28 V DC <b>12/28</b>															
<b>ELECTRICAL INTERFACE</b> voltage <b>V</b> current <b>I</b>															
<b>OUTPUT RANGE</b> 0 ... 5 V <b>05</b> 0 ... 10 V <b>010</b> 0 ... 20 mA <b>020</b> 4 ... 20 mA <b>420</b>															
<b>OPTIONS</b> to be reported with voltage output / 3 wires current output <b>X</b> 4 wires current output <b>Q</b>															
<b>BORE DIAMETER</b> mm <b>14</b> mm <b>15</b> diameters 5 / 6 / 8 / 10 / 12 mm with optional shaft adapter, see Accessories															
<b>ENCLOSURE RATING</b> IP 65 <b>X</b> IP 67 <b>S</b>															
<b>MAX ROTATION SPEED</b> 3000 rpm <b>3</b>															
<b>OUTPUT TYPE</b> cable (standard length 0,5 m) <b>P</b> preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) M12 male connector <b>M12</b> female connector included, without female please add 162 as variant code															
<b>DIRECTION TYPE</b> axial <b>A</b> radial <b>R</b>															
<b>MATING CONNECTOR</b> mating connector not included <b>.162</b> to be reported only with connector output (eg. M12R.162), for mating connector see Accessories															
<b>VARIANT</b> custom version <b>XXX</b>															

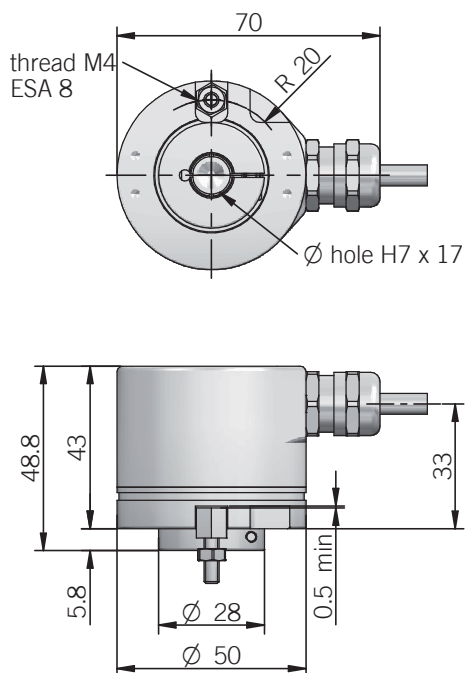
**50 F**  
radial cable output



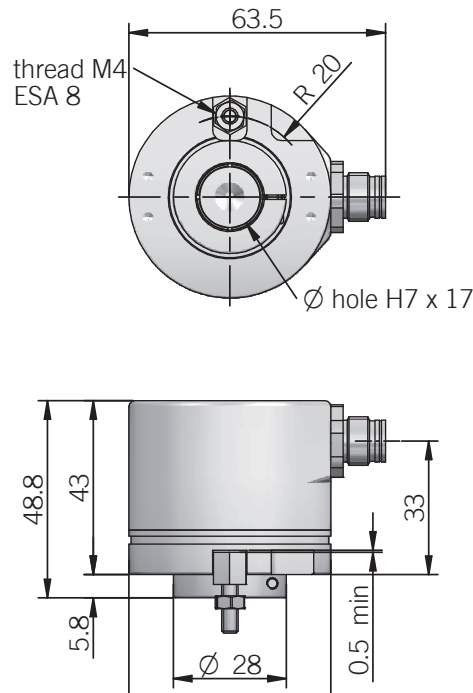
**50 F**  
radial M12 output



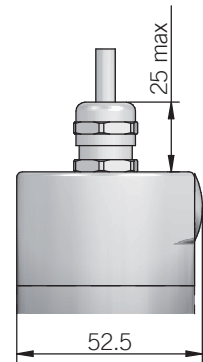
**50 G**  
radial cable output



**50 G**  
radial M12 output



**Axial output**



torque pin is included in model G, for mounting instruction please refer to product installation notes

recommended mating shaft tolerance g6  
dimensions in mm

**ELECTRICAL SPECIFICATIONS**

<b>Resolution</b>	12 bit
<b>Output DAC resolution</b>	12 bit
<b>Active angle</b>	90 ... 360 mechanical degrees
<b>Power supply<sup>1</sup></b>	11,4 ... 29,4 V DC (reverse polarity protection)
<b>Current consumption without load</b>	40 mA max
<b>Electrical interface<sup>2</sup></b>	voltage (0 ... 5 V / 0 ... 10 V) current (0 ... 20 mA / 4 ... 20 mA)
<b>Auxiliary inputs (U/D - RESET)</b>	active high (+V DC) connect to 0 V if not used / RESET tmin 150 ms
<b>Load</b>	$R_{min} = 1 \text{ k}\Omega$ (voltage output) $R_{max} = (V_{DC} - 2) / 0.02$ (current output)
<b>Output update frequency</b>	100 kHz
<b>Signal pattern</b>	decreasing clockwise (shaft view)
<b>Start-up time</b>	150 ms
<b>Linearity error</b>	< 1 %
<b>Electromagnetic compatibility</b>	according to 2014/30/EU directive
<b>RoHS</b>	according to 2011/65/EU directive
<b>UL / CSA</b>	certificate n. E212495

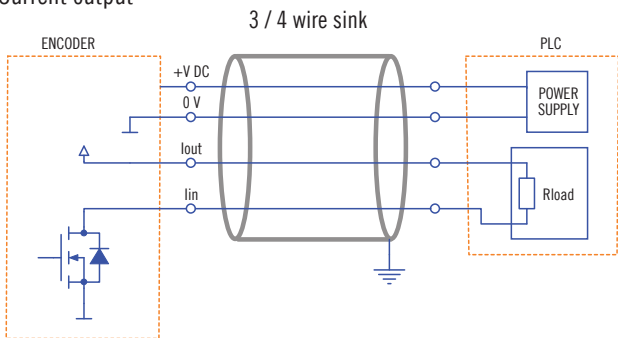
<sup>1</sup> as measured at the transducer without cable influences  
<sup>2</sup> for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section  
<sup>3</sup> maximum load for static usage  
<sup>4</sup> measured on the transducer flange  
<sup>5</sup> condensation not allowed

**MECHANICAL SPECIFICATIONS**

<b>Bore diameter</b>	$\varnothing 14 / 15 \text{ mm}$ $\varnothing 5 / 6^* / 8^* / 10^* / 12^* \text{ mm}$ * with optional shaft adapter, please refer to Accessories
<b>Enclosure rating</b>	X = IP 65 (IEC 60529) S = IP 67 (IEC 60529)
<b>Max rotation speed</b>	3000 rpm continuous
<b>Max shaft load<sup>3</sup></b>	30 N axial / 50 N radial
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	20 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Moment of inertia</b>	$4 \times 10^{-6} \text{ kgm}^2$ ( $95 \times 10^{-6} \text{ lbf}^2$ )
<b>Starting torque (at +20°C / +68°F)</b>	< 0,03 Nm (4,25 Ozin)
<b>Bearing stage material</b>	EN-AW 2011 aluminum
<b>Shaft material</b>	1.4305 / AISI 303 stainless steel
<b>Shaft adapter material</b>	CuSn12 / CC483K bronze
<b>Housing material</b>	EN-AW 2011 aluminum
<b>Bearings</b>	n.2 ball bearings
<b>Bearings life</b>	$10^9$ revolutions
<b>Operating temperature<sup>4,5</sup></b>	-25° ... +85°C (-13° ... +185°F)
<b>Storage temperature<sup>5</sup></b>	-25° ... +85°C (-13° ... +185°F)
<b>Fixing torque for collar clamping</b>	1 Nm (142 Ozin) recommended
<b>Weight</b>	200 g (7,05 oz)

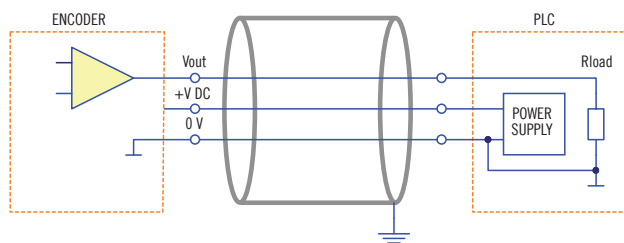
**ELECTRICAL INTERFACE**

**Current output**



with 3 wires interface  $I_{out}$  is internally connected to +V DC  
 where  $R_{LOAD \text{ max}} = (V_{DC} - 2) / 0.02$

**Voltage output**



where  $R_{LOAD \text{ min}} = 1 \text{ k}\Omega$

**CONNECTIONS**

Function	Cable (voltage)	Cable (current)	5 pin M12	8 pin M12*
+ V DC	red	red	2	8
0 V	black	black	4	5
Vout	green	/	3	/
Iin	/	yellow	3	3
Iout	/	green	/	2
U / D	blue	blue	5	7
RESET	white	white	1	1
⊥	shield	shield	housing	housing

\* with Q current output

M12 connector (5 pin) M12 A coded solder side view FV      M12 connector (8 pin) M12 A coded solder side view FV



**SIGNAL PATTERN (decreasing CW)**

