

### MAIN FEATURES

Explosion proof encoder for applications within hazardous areas.

- Optical sensor technology (OptoASIC + gears)
- Resolution up to 27 bit (13 bit single turn (8192 ppr) + 14 bit multiturn (16384 turns))
- Power supply up to +28 V DC with SSI as electrical interface
- Cable output
- Solid shaft diameter up to 10 mm
- Mounting with synchronous or centering square flange

### EX CLASSIFICATION

It has been assured with EC-TYPE Examination Certificate CESI 04 ATEX 082 that the EAMX 80 comply with essential health and safety requirements according to

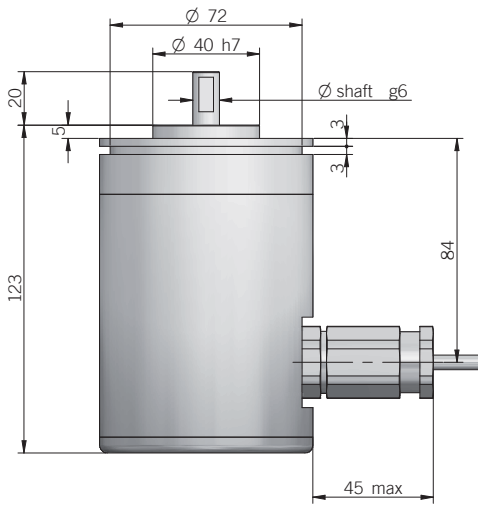
- EN IEC 60079-0:2018
- EN 60079-1:2014
- EN 60079-31:2014

The UE declaration is available on [www.eltra.it](http://www.eltra.it)



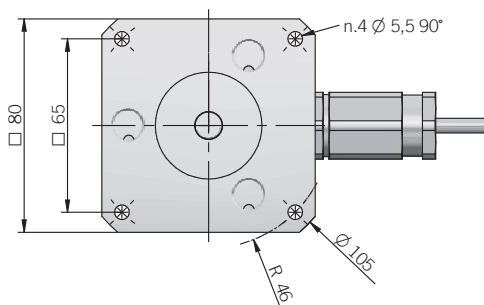
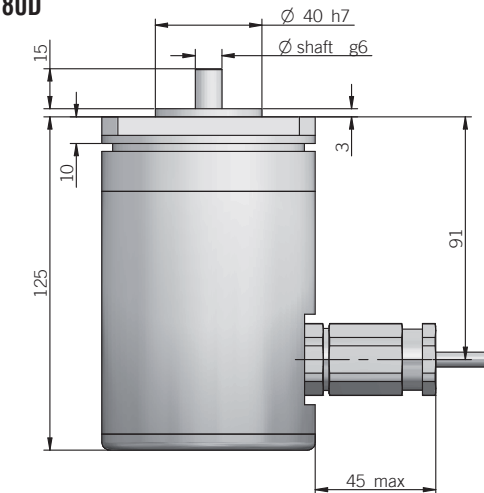
ORDERING CODE	EAMX	80A	4096 / 4096	G	8/28	S	X	X	10	X	3	PR	.XXX
<b>SERIES</b> multiturn absolute explosion proof encoder	<b>EAMX</b>												
<b>MODEL</b> synchronous flange ø 40 mm centering square flange ø 40 mm		<b>80A</b> <b>80D</b>											
<b>MULTITURN RESOLUTION</b> (powers of 2) turns from 2 to			<b>16384</b>										
<b>SINGLETURN RESOLUTION</b> ppr			<b>4096 / 8192</b>										
<b>CODE TYPE</b> binary gray				<b>B</b> <b>G</b>									
<b>POWER SUPPLY</b> 8 ... 28 V DC					<b>8/28</b>								
<b>ELECTRICAL INTERFACE</b> Serial Synchronous Interface - SSI						<b>S</b>							
<b>LOGIC</b> to be reported							<b>X</b>						
<b>OPTION</b> to be reported								<b>X</b>					
<b>SHAFT DIAMETER</b> mm									<b>10</b>				
<b>ENCLOSURE RATING</b> IP 65										<b>X</b>			
<b>MAX ROTATION SPEED</b> 3000 rpm											<b>3</b>		
<b>OUTPUT TYPE</b> radial cable (standard length 1,5 m) preferred cable lengths 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)												<b>PR</b>	
<b>VARIANT</b> custom version													<b>XXX</b>

80A



fixing clamps not included, please refer to Accessories

80D



recommended mating shaft tolerance H7  
dimensions in mm

ELECTRICAL SPECIFICATIONS

<b>Multiturn resolution</b>	from 2 to 16384 turns
<b>Singleturn resolution</b>	4096 / 8192 ppr
<b>Power supply<sup>1</sup></b>	7,6 ... 29,4 V DC (reverse polarity protection)
<b>Current consumption without load</b>	100 mA
<b>Electrical interface<sup>2</sup></b>	RS-422 compatible
<b>Auxiliary inputs (U/D - RESET)</b>	active high (+V DC) connect to 0 V if not used / RESET tmin 150 ms
<b>Clock frequency</b>	100 kHz ... 1 MHz
<b>SSI monostable time (Tm)</b>	18 $\mu$ s
<b>SSI pause time (Tp)</b>	> 35 $\mu$ s
<b>SSI frame</b>	MSB ... LSB 13 bit data length
<b>Counting direction</b>	decreasing clockwise (shaft view)
<b>Start-up time</b>	700 ms
<b>Accuracy</b>	$\pm 1/2$ LSB
<b>Mean time to dangerous failure (MTTF<sub>d</sub>)<sup>3</sup> according to EN ISO 13849-1</b>	71 years
<b>Mission time (Tm)<sup>3</sup></b>	20 years
<b>Diagnostic coverage (DC)<sup>3</sup></b>	0%
<b>Electromagnetic compatibility</b>	according to 2014/30/EU directive
<b>RoHS</b>	according to 2011/65/EU directive
<b>UL / CSA</b>	file n. E212495

MECHANICAL SPECIFICATIONS

<b>Shaft diameter</b>	$\varnothing 10$ mm
<b>Enclosure rating</b>	IP 65 (IEC 60529)
<b>Max rotation speed</b>	3000 rpm
<b>Max shaft load<sup>4</sup></b>	200 N (45 lbs) axial / radial
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Moment of inertia</b>	$1,5 \times 10^{-6}$ kgm <sup>2</sup> ( $36 \times 10^{-6}$ lbf <sup>2</sup> )
<b>Starting torque (at +20°C / +68°F)</b>	< 0,06 Nm (8,50 Ozin)
<b>Bearing stage material</b>	anodized aluminum
<b>Shaft material</b>	1.4305 / AISI 303 stainless steel
<b>Housing material</b>	anodized aluminum
<b>Bearings</b>	n.2 ball bearings
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Operating temperature<sup>5, 6</sup></b>	0° ... +50°C (+32° ... +122°F)
<b>Storage temperature<sup>6</sup></b>	-15° ... +70°C (+5° ... +158°F)
<b>Weight</b>	1200 g (42,33 oz)

<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> this product is not a safety component, for further details refer to TECHNICAL BASICS section

<sup>4</sup> maximum load for static usage

<sup>5</sup> measured on the transducer flange

<sup>6</sup> condensation not allowed

## EPL MARKING



**II 2GD**  
**Ex db IIC T6 Gb**  
**Ex tb IIIC T85°C Db**  
**IP 65**

**II 2GD**

II: group II: different than mines

2: category 2: high level of protection

GD: areas containing gas (G) and dust (D)

**Ex db IIC T6 Gb**

Ex db: flameproof enclosure for explosive atmospheres with gases, vapours and mists

IIC: group of gas IIC

T6: max surface temperature +85°C of the device for atmospheres with gas

Gb: product with a high level of protection

**Ex tb IIIC T85°C Db**

Ex tb: flameproof enclosure safety type

IIIC: group of dust combustibles IIIC

T85°C: max surface temperature +85°C of the device in the presence of dust

Db: product with a high level of protection

## CONNECTIONS

Function	Cable
+ V DC	red
0 V	grey
DATA +	green
DATA -	brown
CLOCK +	yellow
CLOCK -	pink
U / D	blue
	shield

