

**MAIN FEATURES**

Explosion proof encoder for applications within explosive and hazardous areas.

- 3 channel encoder (A / B / Z) up to 10000 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 500 kHz output frequency
- 10 mm solid shaft diameter
- Mounting by synchronous or centering square flange

**EX CLASSIFICATION**

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

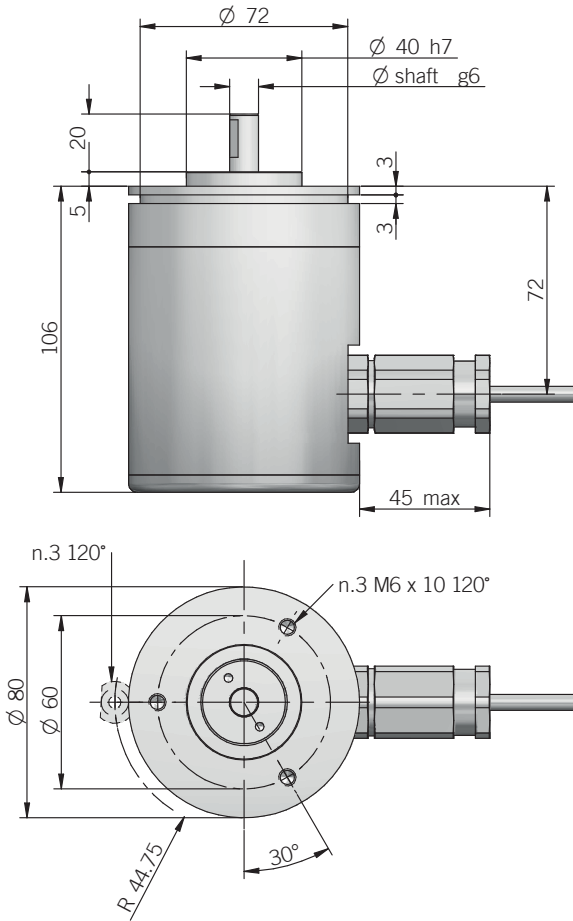
- EN IEC 60079-0:2018
- EN 60079-1:2014
- EN 60079-31:2014

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



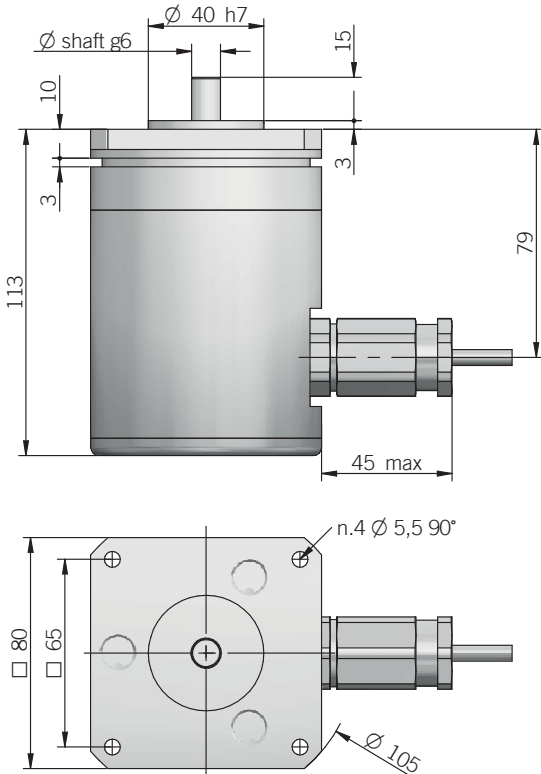
ORDERING CODE	EX	80A	500	S	5/28	P	10	X	3	PR	.XXX
<b>SERIES</b> explosion proof encoder series EX											
<b>MODEL</b> synchronous flange ø 40 mm 80A centering square flange ø 40 mm 80D											
<b>RESOLUTION</b> ppr from 100 to 10000 refer to the available pulses list											
<b>ZERO PULSE</b> without zero pulse S with zero pulse Z											
<b>POWER SUPPLY</b> (with L electrical interface) 5 V DC 5 5 ... 28 V DC 5/28											
<b>ELECTRICAL INTERFACE</b> NPN open collector C push-pull P line driver L power supply 5/28 V DC - output RS-422 RS											
<b>SHAFT DIAMETER</b> mm 10											
<b>ENCLOSURE RATING</b> IP 65 X											
<b>MAX ROTATION SPEED</b> 3000 rpm 3											
<b>OUTPUT TYPE</b> radial cable (standard length 1,5 m) PR preferred cable lengths 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)											
<b>VARIANT</b> custom version XXX											

80A



fixing clamps not included, please refer to the Accessories

80D



recommended mating shaft tolerance H7  
dimensions in mm

ELECTRICAL SPECIFICATIONS

<b>Resolution</b>	from 100 to 10000 ppr
<b>Power supply<sup>1</sup></b>	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
<b>Current consumption without load</b>	80 mA max
<b>Max load current</b>	C / P = 50 mA / channel L / RS = 20 mA / channel
<b>Electrical interface<sup>2</sup></b>	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272 or similar) line driver RS-422 (AELT-5000 or similar)
<b>Max output frequency</b>	250 kHz up to 6000 ppr / 500 kHz from 7200 ppr
<b>Counting direction</b>	A leads B clockwise (shaft view)
<b>Index signal</b>	180°e (gated A)
<b>Mean time to dangerous failure (MTTF)<sup>3</sup> according to EN ISO 13849-1</b>	263 years
<b>Mission time (Tm)<sup>3</sup></b>	20 years
<b>Diagnostic coverage (DC)<sup>3</sup></b>	0%
<b>Cable type</b>	shielded - fixed or flexible installation conductors section min 0,14 mm <sup>2</sup> / AWG 26 bending radius min 35 mm (fixed) / min 60 mm (flexible)
<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>	ø 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 x 10 <sup>-6</sup> kgm <sup>2</sup> (36 x 10 <sup>-6</sup> 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>	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>	-20° ... +50°C (-4° ... +122°F)
<b>Storage temperature<sup>6</sup></b>	-20° ... +70°C (-4° ... +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

RESOLUTIONS

100 - 200 - 360 - 400 - 500 - 1000 - 1024 - 1440 - 2000 - 2048 - 2500 - 3000 - 3600 - 4000 - 4096 - 5000 - 6000 - 7200 - 8000 - 8192 - 9000 - 10000

please directly contact our offices for other pulses, preferred resolutions in bold

## 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 C / P	Cable L / RS
+V DC	brown	brown
0 V	gray	gray
A+	green	green
A-	/	red
B+	yellow	yellow
B-	/	pink
Z+	white	blue
Z-	/	white
⏏	shield	shield

