EMI 30 E / H

SOLID SHAFT MAGNETIC INCREMENTAL ENCODER

MAIN FEATURES

Miniaturised ø 30 mm encoder series for use in small devices.
Recommended when a minimum size is required while still offering excellent performance.

- Innovative proprietary magnetic ASIC
- 3 channel encoder (A / B / Z) up to 20000 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 800 kHz
- Cable output, connectors available at cable end
- Solid shaft diameter up to 6 mm
- Mounting by clamping or threaded flange

ORDERING CODE	EMI	30E	100	S	5/30	C	4	X	X	P	A	. XXX

SERIES
incremental encoder series EMI

MODEL
clamping flange ø 15 mm 30E
M18 threaded flange 30H

RESOLUTION
ppr from 1 to 20000
please refer to the preferred resolutions list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
(with L electrical interface) 5 V DC 5
5 ... 30 V DC 5/30

ELECTRICAL INTERFACE
NPN open collector C
push-pull P
line driver L
power supply 5/28 V DC - output RS-422 RS

SHAFT DIAMETER
(mod. E) mm 4
mm 6

ENCLOSURE RATING
IP 54 X

OPTION
to be reported X

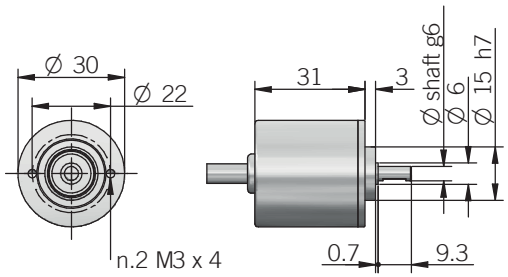
OUTPUT TYPE
cable (standard length 0,5 m) P
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5)

DIRECTION TYPE
axial A
radial R

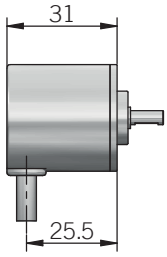
VARIANT
custom version XXX

eltra.it@broadcom.com

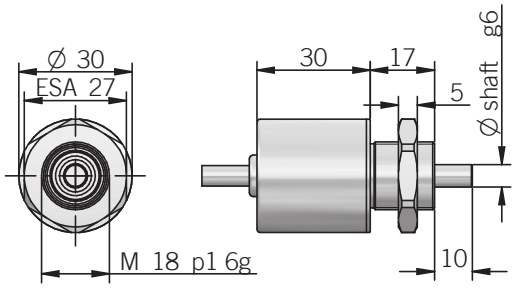
30E AXIAL CABLE OUTPUT



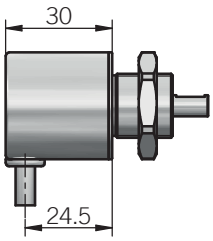
30E RADIAL CABLE OUTPUT



30H AXIAL CABLE OUTPUT



30H RADIAL CABLE OUTPUT



recommended mating shaft tolerance H7
dimensions in mm

CONNECTIONS

Function	Cable C / P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 20000 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	0,8 W max
Max load current	C / P = 50 mA / channel L / RS = 20 mA / channel
Electrical interface[2]	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)
Max output frequency	800 kHz
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (gated A)
Startup time typical	20 ms
Accuracy	± 0,1° at +20°C (+68°F) ± 0,5° in the operating temperature range
Hysteresys	0,70° up to 256 ppr 0,35° from 257 ppr to 20000 ppr
Mean time to dangerous failure ($MTTF_d$)[3] **according to EN ISO 13849-1**	385 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

MECHANICAL SPECIFICATIONS

Shaft diameter	ø 4 / 6 mm
Enclosure rating	IP 54 (IEC 60529)
Max rotation speed	3000 rpm
Max shaft load[4]	5 N (1,12 lbs) axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,05 x 10^{-6} kgm^2 (1,2 x 10^{-6} $lbft^2$)
Starting torque (at +20°C / +68°F)	< 0,005 Nm (0,71 Ozin)
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[5,6]	-25° ... +85°C (-13°... +185°F)
Storage temperature[6]	-25°... +85°C (-13° ... +185°F)
Weight	70 g (2,47 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

PREFERRED RESOLUTIONS

1 - 2 - 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 - 30 - 40 - 50 - 60 - 80 - 90 - 100 - 125 - 128 - 200 - 250 - 256 - 360 - 400 - 500 - 512 - 720 - 1000 - 1024 - 1440 - 2000 - 2048 - 3600 - 4096 - 5000 - 7200 - 10000 - 14400 - 20000

please directly contact our offices for other pulses