

MAIN FEATURES

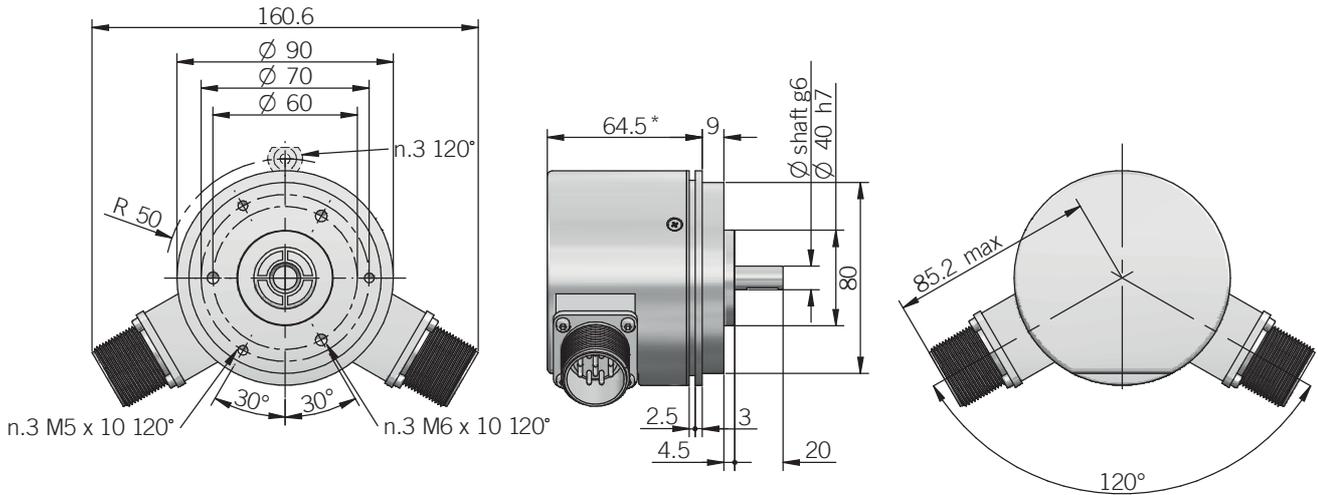
Encoder series for harsh environments with high mechanical resistance requirements.
Model 90 can be mounted by flanges or fixing clamps; model 115 has a tachometer generator REO-444 type compatible plug with optional centrifugal relay.

- 3 channel encoder (A / B / Z) up to 2048 ppr
- Redundancy encoder with double output and / or double resolutions
- Power supply up to +24 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Solid shaft diameter up to 11 mm
- Mounting by synchronous or REO-444 flange
- Model 115R available with centrifugal relay



ORDERING CODE	EH	90A	500	S	5/30	P	1000	Z	5/30	P	8	X	6	M	R	.162	+XXX	+2000	
SERIES		incremental encoder series EH																	
MODEL		synchronous flange ø 40 mm 90A flange REO-444 115A flange REO-444 with centrifugal relay 115R																	
RESOLUTION		ppr from 200 to 2048 refer to the available pulses 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 5/30 V DC - output RS-422 RS																	
RESOLUTION																			
ZERO PULSE																			
POWER SUPPLY																			
ELECTRICAL INTERFACE																			
SHAFT DIAMETER		(mod. 90A) mm 8 (mod. 90A) (3/8") mm 9,52 mm 10 (mod. 115A - 115R) mm 11																	
ENCLOSURE RATING		IP 54 X (mod. 90) IP 66 S																	
MAX ROTATION SPEED		(IP 66) 3000 rpm 3 (IP 54) 6000 rpm 6																	
OUTPUT TYPE		cable (standard length 1,5 m) P preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) MIL plug connector M JIS-C-5432 plug connector J																	
DIRECTION TYPE		axial A radial R																	
SOCKET		socket not included .162 to be reported only with connector output (eg. MR.162), for socket see Accessories																	
VARIANT		custom version +XXX																	
RELAY INTERVENTION SPEED		(mod. 115R) from 600 to 4300 for other speeds please contact our offices directly																	
<p>To be indicated in the models 90A - 115A for double electronics and double resolution. With different double resolution please add 250 as variant, see examples:</p> <p>Double different resolution and double electronics: EH90A1024Z5L-2048Z5/30L10X250 Double different resolution and same electronics: EH90A1024-2048Z5L10X250 Same resolution and double electronics: EH90A1024Z5L-Z5/30L10X ...</p>																			

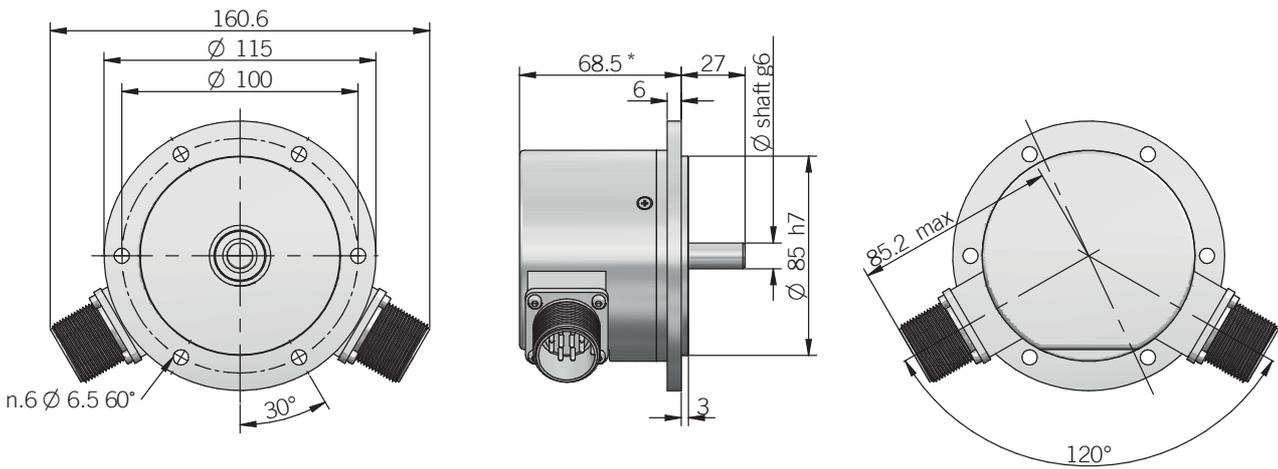
90A WITH DOUBLE OUTPUT / RESOLUTION



fixing clamps not included, please refer to the Accessories

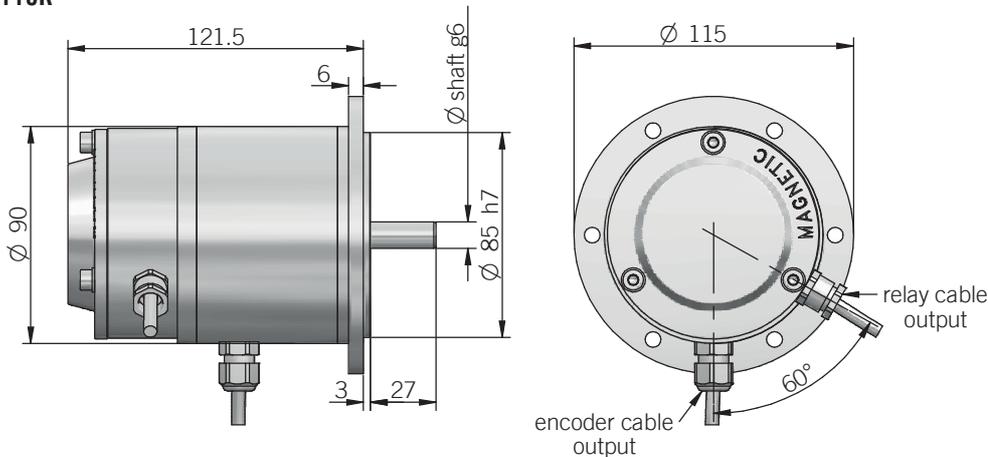
* with double resolution + 3.5mm

115A WITH DOUBLE OUTPUT / RESOLUTION



* with double resolution + 3.5mm

115R



recommended mating shaft tolerance H7
dimensions in mm

ELECTRICAL SPECIFICATIONS	
Resolution	from 200 to 2048 ppr
Power supply¹	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	100 mA max
Max load current	C / P = 50 mA / channel L = 20 mA / channel
Electrical interface²	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	105 kHz
Counting direction	A leads B clockwise (shaft view)
Index signal	90°e (gated A&B)
Mean time to dangerous failure (MTTF)_d³ according to EN ISO 13849-1	244 years / encoder
Mission time (Tm)³	20 years
Diagnostic coverage (DC)³	0%
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

RELAY CHARACTERISTICS	
Intervention speed	from 600 to 4300 rpm
Accuracy	± 3 %
Contact capacity	2 A / 250 V AC 3,3 A / 125 V AC
Type of contact	Normally Closed (NC)

MECHANICAL SPECIFICATIONS	
Shaft diameter	ø 8 / 9,52 (3/8") / 10 / 11 mm
Enclosure rating IEC 60529	X = IP 54 S = IP 66
Max rotation speed	6000 rpm with X enclosure rating 3000 rpm with S enclosure rating
Max shaft load⁴	200 N (45 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	3,5 x 10 ⁻⁶ kgm ² (83 x 10 ⁻⁶ lbf ²)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,8 Ozin) with X enclosure rating < 0,06 Nm (8,5 Ozin) with S enclosure rating
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	painted aluminum
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{5,6}	-10° ... +60°C (+14° ... +140°F)
Storage temperature⁶	-25° ... +70°C (-13° ... +158°F)
Weight	750 g (26,46 oz) 1050 g (37,04 oz) with relay

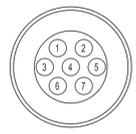
¹ as measured at the transducer without cable influences
² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
³ this product is not a safety component, for further details refer to TECHNICAL BASICS section
⁴ maximum load for static usage
⁵ measured on the transducer flange
⁶ condensation not allowed

RESOLUTIONS
200 - 250 - 500 - 512 - 1000 - 1024 - 2000 - 2048
please directly contact our offices for other pulses, preferred resolutions in bold

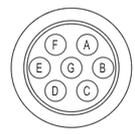
CONNECTIONS

Function	Cable C / P	Cable L	7 pin J C / P	7 pin J L no Zero	7 pin M C / P	7 pin M L / RS no Zero	10 pin J L with Zero	10 pin M L with Zero
+V DC	red	red	6	4	F	D	4 - 5	D - E
0 V	black	black	1	6	A	F	6	F
A+	green	green	3	1	C	A	1	A
A-	/	brown or grey	/	3	/	C	7	G
B+	yellow	yellow	5	2	E	B	2	B
B-	/	orange	/	5	/	E	8	H
Z+	blue	blue	4	/	D	/	3	C
Z-	/	white	/	/	/	/	9	I
⊥	shield	shield	7	7	G	G	10	J

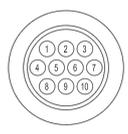
J connector (7 pin)
JIS-C-5432 Size 16
front view



M connector (7 pin)
Amphenol MS3102-E-16-S
front view



J connector (10 pin)
JIS-C-5432 Size 16
front view



M connector (10 pin)
Amphenol MS3102-E-18-1
front view

