

**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.

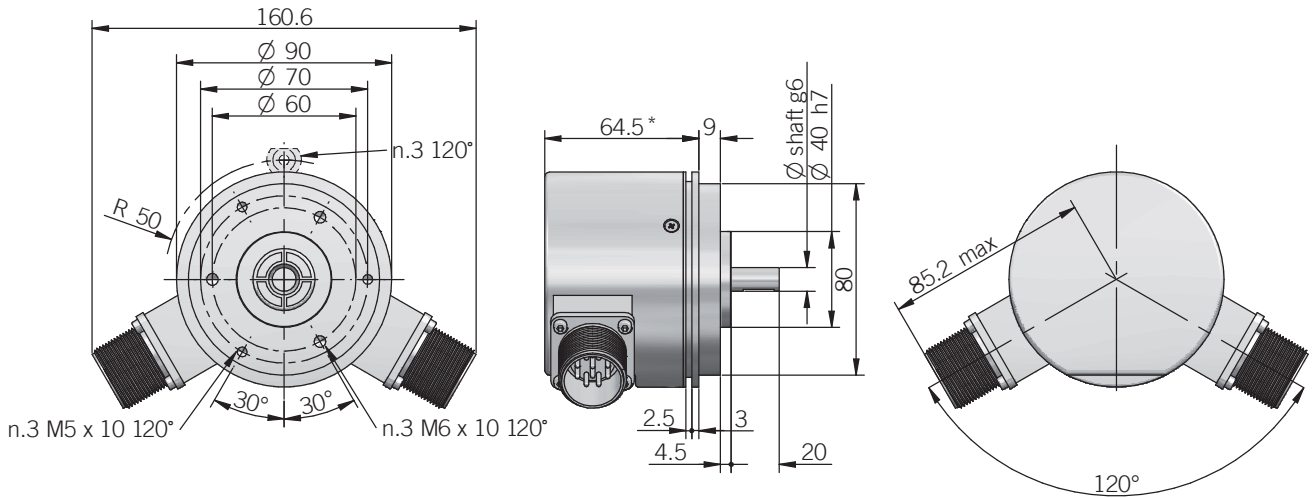
- 3 channel encoder (A / B / Z) up to 2048 ppr
- Redundancy encoder with double output and / or double resolutions
- Power supply up to +24 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Solid shaft diameter up to 11 mm
- Mounting by synchronous or REO-444 flange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



ORDERING CODE	EH	90A	500	S	8/24	P	1000	Z	8/24	P	8	X	6	M	R	.162	+XXX	+2000	
<b>SERIES</b>		incremental encoder series EH																	
<b>MODEL</b>		synchronous flange ø 40 mm 90A flange REO-444 115A flange REO-444 with centrifugal relay 115R																	
<b>RESOLUTION</b>		ppr from 200 to 2048 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 8 ... 24 V DC 8/24																	
<b>ELECTRICAL INTERFACE</b>		NPN open collector C push-pull P line driver L																	
<b>RESOLUTION</b>																			
<b>ZERO PULSE</b>																			
<b>POWER SUPPLY</b>																			
<b>ELECTRICAL INTERFACE</b>																			
<b>SHAFT DIAMETER</b>		(mod. 90A) mm 8 (mod. 90A) (3/8") mm 9,52 mm 10 (mod. 115A - 115R) mm 11																	
<b>ENCLOSURE RATING</b>		IP 54 X (mod. 90) IP 66 S																	
<b>MAX ROTATION SPEED</b>		(IP 66) 3000 rpm 3 (IP 54) 6000 rpm 6																	
<b>OUTPUT TYPE</b>		cable (standard length 1,5 m) P preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) MIL male connector M JIS-C-5432 male connector J																	
<b>DIRECTION TYPE</b>		axial A radial R																	
<b>MATING CONNECTOR</b>		mating connector not included .162 to be reported only with connector output (eg. MR.162), for mating connector see Accessories																	
<b>VARIANT</b>		custom version +XXX																	
<b>RELAY INTERVENTION SPEED</b>		(mod. 115R) from 600 to 4300 for other speeds please contact our offices directly																	

To be indicated in the models 90A - 115A for double electronics and double resolution. See examples:  
 Double resolution and double electronics: EH90A1024Z5L-2048Z8/24L10X...  
 Double resolution and same electronics: EH90A1024-2048Z5L10X...  
 Same resolution and double electronics: EH90A1024Z5L-Z8/24L10X...

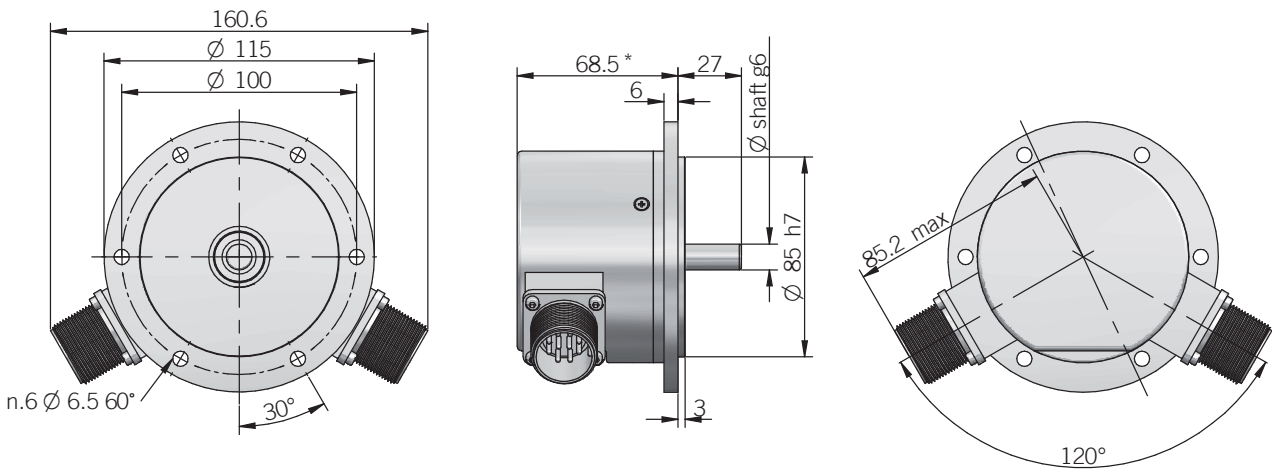
**90 A with double output / resolution**



fixing clamps not included, please refer to the Accessories

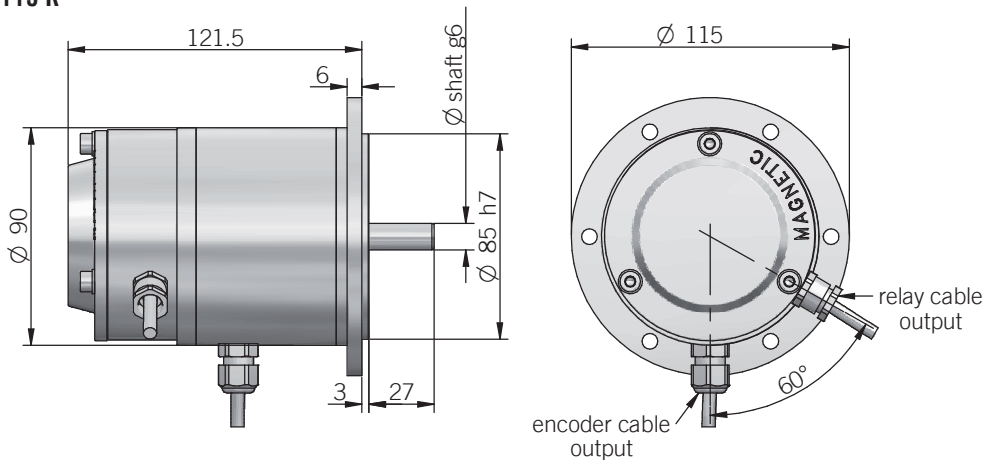
\* with double resolution + 3.5mm

**115 A with double output / resolution**



\* with double resolution + 3.5mm

**115 R**



recommended mating shaft tolerance H7  
dimensions in mm

ELECTRICAL SPECIFICATIONS	
<b>Resolution</b>	from 200 to 2048 ppr
<b>Power supply<sup>1</sup></b>	5 = 4,5 ... 5,5 V DC 8/24 = 4,5 ... 30 V DC (reverse polarity protection)
<b>Current consumption without load</b>	100 mA max
<b>Max load current</b>	C / P = 50 mA / channel L = 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) line driver RS-422 (AELT-5000 or similar)
<b>Max output frequency</b>	105 kHz
<b>Counting direction</b>	A leads B clockwise (shaft view)
<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

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

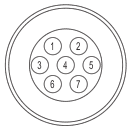
RELAY CHARACTERISTICS	
<b>Intervention speed</b>	from 600 to 4300 rpm
<b>Accuracy</b>	± 3 %
<b>Contact capacity</b>	2 A / 250 V AC 3,3 A / 125 V AC
<b>Type of contact</b>	Normally Closed (NC)

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

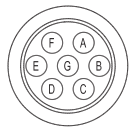
MECHANICAL SPECIFICATIONS	
<b>Shaft diameter</b>	∅ 8 / 9,52 (3/8") / 10 / 11 mm
<b>Enclosure rating</b>	X = IP 54 (IEC 60529) S = IP 66 (IEC 60529)
<b>Max rotation speed</b>	IP 54 - 6000 rpm IP 66 - 3000 rpm
<b>Max shaft load<sup>3</sup></b>	200 N axial / radial
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Moment of inertia</b>	3,5 x 10 <sup>-6</sup> kgm <sup>2</sup> (83 x 10 <sup>-6</sup> lbft <sup>2</sup> )
<b>Starting torque (at +20°C / +68°F)</b>	< 0,02 Nm (2,8 OzIn) IP 54 < 0,06 Nm (8,5 OzIn) IP 66
<b>Bearing stage material</b>	EN-AW 2011 aluminum
<b>Shaft material</b>	1.4305 / AISI 303 stainless steel
<b>Housing material</b>	painted aluminum
<b>Bearings</b>	n.2 ball bearings
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Operating temperature<sup>4, 5</sup></b>	-10° ... +60°C (+14° ... +140°F)
<b>Storage temperature<sup>5</sup></b>	-25° ... +70°C (-13° ... +158°F)
<b>Weight</b>	750 g (26,46 oz) 1050 g (37,04 oz) with relay

<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

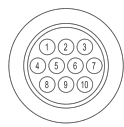
J connector (7 pin)  
JIS-C-5432 Size 16  
solder side view FV



M connector (7 pin)  
Amphenol MS3102-E-16-S  
solder side view FV



J connector (10 pin)  
JIS-C-5432 Size 16  
solder side view FV



M connector (10 pin)  
Amphenol MS3102-E-18-1  
solder side view FV

