

## MAIN FEATURES

EMA - EMS 38 series encoders are suitable for several applications like electric motors, marine industry, iron and steel industry, textile machines, wood-working, paper-working, glass working, marble-working machinery and, more generally, automation and process control fields.

Main characteristics:

- Compact dimensions
- High temperature resistant
- High resolution and accuracy
- High protection rating
- High operating speed
- Excellent mechanical sturdiness
- Very easy mounting



## ORDERING CODE

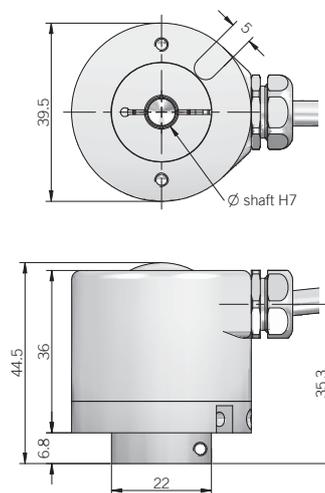
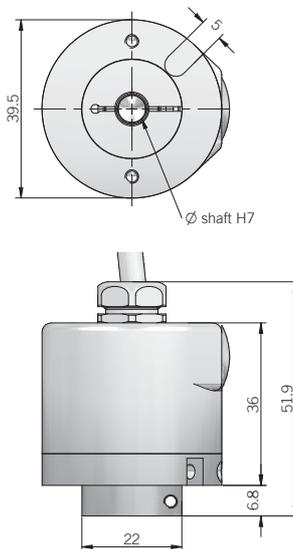
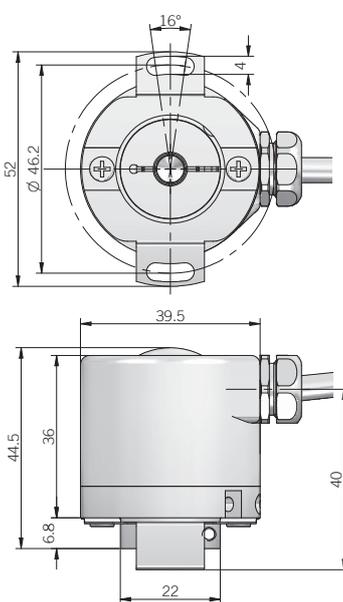
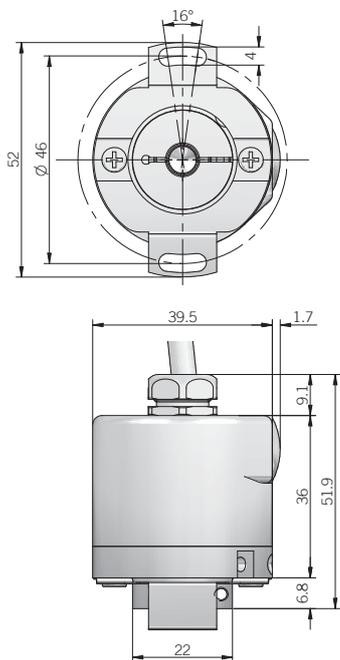
<b>EM</b>	<b>A</b>	<b>38</b>	<b>F</b>	<b>512</b>	<b>B</b>	<b>5</b>	<b>S</b>	<b>P</b>	<b>X</b>	<b>6</b>	<b>X</b>	<b>6</b>	<b>P</b>	<b>R</b>	<b>. XXX</b>
<b>SERIES</b> magnetic encoder <b>EM</b>	<b>TYPE</b> absolute <b>A</b> sinusoidal <b>S</b>	<b>SIZE</b> mm <b>38</b>	<b>FLANGE</b> front spring <b>F</b> flange with hollow for anti-rotation pin <b>G</b>	<b>RESOLUTION</b> (EMA series) (only powers of 2) ppr from 4 to 8192 (EMA series) ppr 40 / 80 / 100 / 160 / 200 / 320 / 400 / 500 / 800 / 1000 / 1600 / 2000 (EMS series) ppr 1 <i>please directly contact our offices for pulses availability</i>	<b>CODE</b> (EMA series) binary <b>B</b> (EMS series) unused option <b>X</b>	<b>POWER SUPPLY</b> 5 V DC <b>5</b> 8 ... 28 V DC <b>8/28</b>	<b>OUTPUT TYPE</b> (EMA series) SSI <b>S</b> (EMS series) sine - cosine line driver <b>L</b>	<b>OPTION</b> <b>X</b> unused option	<b>LOGIC</b> <b>P</b> positive (EMA series) <b>X</b> unused option (EMS series)	<b>VARIANT</b> <b>XXX</b> custom version	<b>OUTPUT DIRECTION</b> <b>A</b> axial <b>R</b> radial	<b>OUTPUT TYPE</b> <b>P</b> cable output with cable gland (standard length 0.5 m) <b>M12</b> M12 connector output (8-pin) (only axial output)	<b>MAX ROTATION SPEED</b> <b>3</b> 3000 rpm (only with S option) <b>6</b> 6000 rpm	<b>ENCLOSURE RATING</b> <b>X</b> IP 64 <b>S</b> IP 67 cover side / IP 65 shaft side	<b>BORE DIAMETER (MAGNET CARRIER)</b> <b>6</b> $\phi$ 6 mm <b>8</b> $\phi$ 8 mm <b>9</b> $\phi$ 9.52 mm (3/8") <b>10</b> $\phi$ 10 mm

**EMA - EMS 38 F**  
axial output

**EMA - EMS 38 F**  
radial output

**EMA - EMS 38 G**  
axial output

**EMA - EMS 38 G**  
radial output



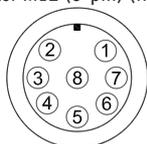
**Electrical specifications**

<b>Resolution</b>	up to 8192 ppr (EMA series) 1 ppr (EMS series)
<b>Current consumption without load</b>	100 mA max
<b>Max load current</b>	15 mA per channel (EMS)
<b>Power supply</b>	5 V DC $\pm 10\%$ 8 ... 28 V DC $\pm 5\%$
<b>Output types</b>	RS422 SSI (EMA series) sine - cosine (EMS series)
<b>Max output frequency</b>	1 MHz (EMA series) 1 KHz (EMS series)
<b>Monostable time (SSI)</b>	10 $\div$ 25 $\mu$ s
<b>Counting direction</b>	decreasing clockwise (shaft view)
<b>Accuracy</b>	$\pm 0.35^\circ$ max
<b>Electromagnetic compatibility</b>	IEC 61000-6-2 IEC 61000-6-3

**Connections for EMA series**

Function	Wire colour	Connector M12 (8-pin)
+ V dc	red	8
0 Volt	black	5
data +	green	3
data -	brown	2
clk +	yellow	4
clk -	orange or pink	6
$\perp$	shield	/

Connector M12 (8-pin) (front view)



**Mechanical specifications**

<b>Bore diameter</b>	6 / 8 / 9.52 / 10 mm
<b>Enclosure rating</b>	IP 64 IP 67 cover side / IP 65 shaft side
<b>Max rotation speed</b>	3000 rpm (only with S option) 6000 rpm
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 $\div$ 2000 Hz (IEC 60068-2-6)
<b>Body material</b>	aluminum UNI 9002/5
<b>Shaft material</b>	stainless steel UNI X10CrNiS1809
<b>Housing material</b>	aluminum UNI 9002/5
<b>Bearings</b>	2 ball bearings
<b>Bearings life</b>	10 <sup>9</sup> revolution
<b>Operating temperature</b>	-25° ... +100 °C
<b>Storage temperature</b>	-25° ... +85 °C
<b>Weight</b>	250 g

**Connections for EMS series**

Function	Wire colour	Connector M12 (8-pin)
+ V dc	red	8
0 Volt	black	5
sin +	green	3
sin -	brown	2
cos +	yellow	4
cos -	orange or pink	6
$\perp$	shield	/