



# OTHER PRODUCTS

## Special products for different application's needs.

In addition to the wide variety of incremental, absolute, and linear transducers, Eltra also provides tailored products and adaptation boards to meet the specific requirements of factory automation applications.

DOWNLOAD CATALOGUE



EC 34	incremental encoder for rack	276
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### MAIN FEATURES

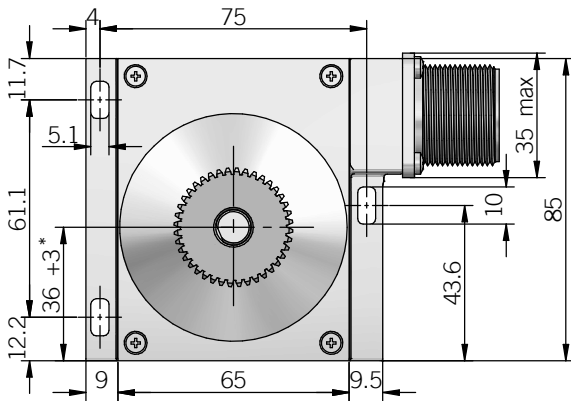
Rack and pinion encoder with automatic slack recovery. Compared to an incremental linear system, this type of encoder greatly simplifies linear measurements and overcomes measurement problems over long distances.

The encoder is inside a solid aluminium body and incorporate a preload system that allows automatic slack recovery between the rack and pinion.

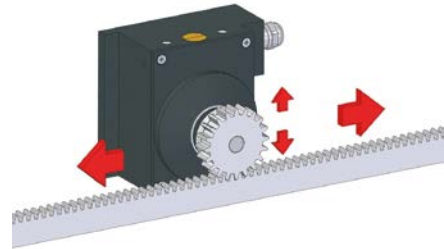
- 3 channel encoder (A / B / Z) up to 2500 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 220 kHz
- Cable or connector output



ORDERING CODE	EC	34A	500	S	5/28	P	10	M	.162	+XXX
<b>SERIES</b> encoder for rack EC										
<b>MODEL</b> flange 34A										
<b>RESOLUTION</b> ppr 100 ... 2500 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>OUTPUT TYPE</b> cable (standard length 1,5 m) P preferred cable lengths 2 / 3 / 5 / 10 m, to be added after output type MIL plug connector M JIS-C-5432 IP40 plug connector J										
<b>SOCKET</b> socket not included .162 to be reported only with connector output (eg. M.162), for socket see Accessories										
<b>VARIANT</b> custom version XXX										

**34A**


\* can be adjusted to 37.5 ± 1.5 mm



for cogged wheel please refer to Accessories  
dimensions in mm

**ELECTRICAL SPECIFICATIONS**

<b>Resolution</b>	from 100 to 2500 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>Power draw without load</b>	0,8 W 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>	220 kHz
<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<sub>d</sub>)<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 installation conductors section 0,22 mm <sup>2</sup> / AWG 24 bending radius min 60 mm
<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

**RESOLUTIONS**

100 - **200** - 300 - 360 - 400 - **500** - 512 - 600 - 720 - **1000** - 1024 - 1200 - 1440 - **2000** - 2048 - 2500

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

**MECHANICAL SPECIFICATIONS**

<b>Shaft diameter</b>	ø 10 mm
<b>Enclosure rating</b>	IP 64 (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>Starting torque (at +20°C / +68°F)</b>	< 0,06 Nm (8,50 Ozin)
<b>Housing material</b>	painted aluminum
<b>Shaft material</b>	stainless steel
<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° ... +70°C (-4° ... +158°F)
<b>Storage temperature<sup>6</sup></b>	-25° ... +70°C (-4° ... +158°F)
<b>Weight</b>	700 g (24,69 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

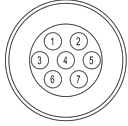
<sup>5</sup> measured on the transducer flange

<sup>6</sup> condensation not allowed

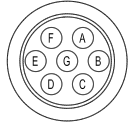
**CONNECTIONS**

Function	Cable C / P	Cable L / RS	7 pin J C / P	7 pin J L / RS no Zero	7 pin M C / P	7 pin M L / RS no Zero	10 pin J L / RS with Zero	10 pin M L / RS 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

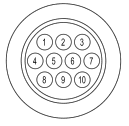
J connector (7 pin)  
JIS-C-5432 IP40 Size 16  
front view



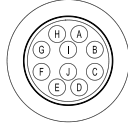
M connector (7 pin)  
Amphenol MS3102-E-16-S  
front view



J connector (10 pin)  
JIS-C-5432 IP40 Size 16  
front view



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



### MAIN FEATURES

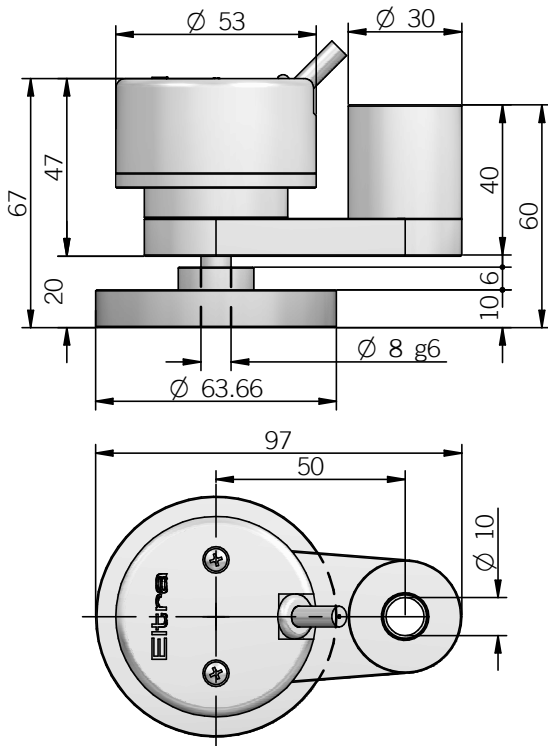
Series of measuring wheels designed for specific industrial applications where it is necessary to measure a linear movement (i.e. continuous sheet cutting machines for wood, textiles, glass, etc.). The body is made entirely of aluminium and is mounted by means of an oscillating arm pivoted on the shaft. The weight of the metric wheel maintains a stable contact with the material, allowing accurate measurement of both length and speed. The wheel surface can be in cross-knurled aluminium, special anti-oil or anti-slip rubber.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 105 kHz
- Compact size
- Cable output, connectors available at cable end



ORDERING CODE	RH200	A	500	S	5/28	P	8	X	3	PR	.XXX
<b>MODEL</b> 200 mm measuring wheel	RH200										
<b>WHEEL SURFACE</b> smooth knurled rubberized without wheel /	A B C /										
<b>RESOLUTION</b> ppr from refer to the available pulses list	50 to 1024										
<b>ZERO PULSE</b> without zero pulse with zero pulse	S Z										
<b>POWER SUPPLY</b> (with L electrical interface) 5 V DC 5 ... 28 V DC	5 5/28										
<b>ELECTRICAL INTERFACE</b> NPN open collector push-pull line driver power supply 5/28 V DC - output RS-422	C P L RS										
<b>SHAFT DIAMETER</b> mm	8										
<b>ENCLOSURE RATING</b> IP	54 X										
<b>MAX ROTATION SPEED</b> rpm	3000 3										
<b>OUTPUT TYPE</b> cable (standard length 0,5 m) preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5)	PR										
<b>VARIANT</b> custom version	XXX										

RH200



dimensions in mm

ELECTRICAL SPECIFICATIONS

<b>Resolution</b>	from 50 to 1024 ppr
<b>Power supply</b> <sup>1</sup>	5 = 4,5 ... 5,5 V DC 5/28 = 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 / RS = 20 mA / channel
<b>Electrical interface</b> <sup>2</sup>	NPN open collector (AEC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEC-7272 or similar) 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>Index signal</b>	90°e (gated A&B)
<b>Mean time to dangerous failure (MTTF)<sup>3</sup> according to EN ISO 13849-1</b>	244 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 installation conductors section 0,22 mm <sup>2</sup> / AWG 24 bending radius min 60 mm
<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

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

RESOLUTIONS

50\* - **100** - 200 - 250 - 400 - **500** - 512 - **1000** - **1024**

\*available without zero pulse

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

MECHANICAL SPECIFICATIONS

<b>Shaft diameter</b>	ø 8 mm
<b>Enclosure rating</b>	IP 54 (IEC 60529)
<b>Max rotation speed</b>	3000 rpm
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Starting torque (at +20°C / +68°F)</b>	< 0,01 Nm (1,42 Ozin)
<b>Bearing stage material</b>	aluminum
<b>Housing material</b>	PA66 glass fiber reinforced
<b>Shaft material</b>	stainless steel
<b>Support material</b>	aluminum
<b>Wheel material</b>	aluminum
<b>Surface material</b>	Smooth / Knurled = aluminium Rubberized = Nitrile NBR 80 ± 5 Shore A
<b>Bearings</b>	n.2 ball bearings
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Operating temperature</b> <sup>4, 5</sup>	-10° ... +70°C (+14° ... +158°F)
<b>Storage temperature</b> <sup>5</sup>	-25° ... +70°C (-13° ... +158°F)
<b>Encoder + support weight</b>	250 g (8,82 oz)
<b>Wheel weight</b>	90 g (3,17 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> measured on the transducer flange

<sup>5</sup> condensation not allowed

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OTHER INDEX

# RL - RM 500 A / B / C

## MEASURING WHEELS

### MAIN FEATURES

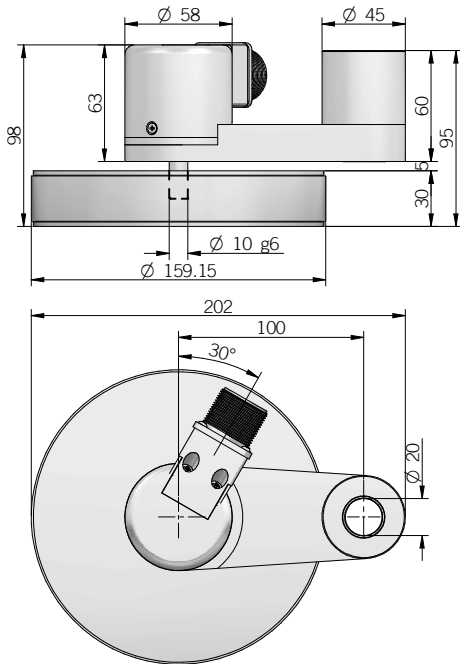
Series of measuring wheels designed for specific industrial applications where it is necessary to measure a linear movement (i.e. continuous sheet cutting machines for wood, textiles, glass, etc.). The body is made entirely of aluminium and is mounted by means of an oscillating arm pivoted on the shaft. The weight of the metric wheel maintains a stable contact with the material, allowing accurate measurement of both length and speed. The wheel surface can be in cross-knurled aluminium, special anti-oil or anti-slip rubber.

- 3 channel encoder (A / B / Z) up to 10000 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 500 kHz
- Model RM with internal coupling
- Cable or connector output

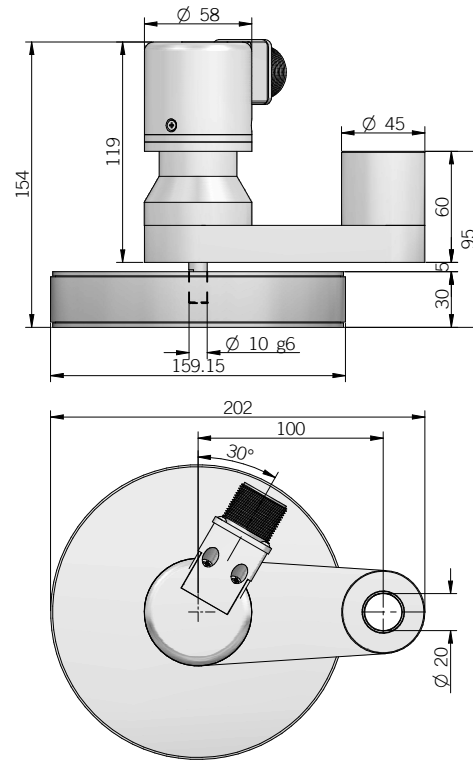


ORDERING CODE	RL500	A	500	S	5/28	P	10	X	3	M	R	.162	+XXX
<b>MODEL</b> 500 mm measuring wheel - RL series <a href="#">RL500</a> 500 mm measuring wheel - RM series <a href="#">RM500</a>													
<b>WHEEL SURFACE</b> smooth <a href="#">A</a> knurled <a href="#">B</a> rubberized <a href="#">C</a> without wheel /													
<b>RESOLUTION</b> (mod. RL) ppr from <a href="#">10</a> to <a href="#">2500</a> (mod. RM) ppr from <a href="#">1</a> to <a href="#">10000</a> refer to the available pulses list													
<b>ZERO PULSE</b> without zero pulse <a href="#">S</a> with zero pulse <a href="#">Z</a>													
<b>POWER SUPPLY</b> (with L electrical interface) 5 V DC <a href="#">5</a> 5 ... 28 V DC <a href="#">5/28</a>													
<b>ELECTRICAL INTERFACE</b> NPN open collector <a href="#">C</a> push-pull <a href="#">P</a> line driver <a href="#">L</a> power supply 5/28 V DC - output RS-422 <a href="#">RS</a>													
<b>SHAFT DIAMETER</b> mm <a href="#">10</a>													
<b>ENCLOSURE RATING</b> IP 64 <a href="#">X</a> IP 66 <a href="#">S</a>													
<b>MAX ROTATION SPEED</b> 3000 rpm <a href="#">3</a>													
<b>OUTPUT TYPE</b> cable (standard length 1,5 m) <a href="#">P</a> preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) MIL plug connector <a href="#">M</a> JIS-C-5432 IP40 plug connector <a href="#">J</a> M12 plug connector <a href="#">M12</a> M23 plug connector <a href="#">H</a> M16 IP40 plug connector <a href="#">C</a>													
<b>DIRECTION TYPE</b> axial <a href="#">A</a> radial <a href="#">R</a>													
<b>SOCKET</b> socket not included <a href="#">.162</a> to be reported only with connector output (eg. M12R.162), for socket see Accessories													
<b>VARIANT</b> custom version <a href="#">XXX</a>													

**RL500**



**RM500**



dimensions in mm

**ELECTRICAL SPECIFICATIONS**

<b>Resolution</b>	from 1 to 10000 ppr
<b>Power supply</b> <sup>1</sup>	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
<b>Power draw without load</b>	0,8 W max
<b>Max load current</b>	C / P = 50 mA / channel L / RS = 20 mA / channel
<b>Electrical interface</b> <sup>2</sup>	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)</b> <sup>3</sup> according to EN ISO 13849-1	200 years
<b>Mission time (Tm)</b> <sup>3</sup>	20 years
<b>Diagnostic coverage (DC)</b> <sup>3</sup>	0%
<b>Cable type</b>	shielded - fixed installation conductors section 0,22 mm <sup>2</sup> / AWG 24 bending radius min 60 mm
<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

**RL SERIES RESOLUTIONS**

10 - 20 - 50 - **100** - 150 - 200 - 250 - 300 - **360** - 400 - **500** - **512** - 600 - 720 - **1000** - **1024** - 1200 - 1440 - **2000** - **2048** - 2500

**RM SERIES RESOLUTIONS**

1 - 2 - 4 - 5 - 10 - 15 - 16 - 20 - 25 - 30 - 32 - 40 - 50 - 60 - 70 - 80 - 90 - **100** - 120 - 128 - 150 - 200 - 240 - 250 - 256 - 300 - **360** - 400 - 480 - **500** - **512** - **600** - 625 - **720** - 750 - 800 - 900 - **1000** - **1024** - 1200 - 1250 - 1440 - 1500 - 1600 - 1800 - **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

**MECHANICAL SPECIFICATIONS**

<b>Shaft diameter</b>	ø 10 mm
<b>Enclosure rating</b> IEC 60529	X = IP 64 S = IP 66
<b>Max rotation speed</b>	3000 rpm
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Starting torque</b> (at +20°C / +68°F)	< 0,03 Nm (4,25 Ozin) with X enclosure rating < 0,06 Nm (8,50 Ozin) with S enclosure rating
<b>Bearing stage material</b>	aluminum
<b>Housing material</b>	PA66 glass fiber reinforced
<b>Shaft material</b>	stainless steel
<b>Support material</b>	aluminum
<b>Wheel material</b>	aluminum
<b>Surface material</b>	Smooth / Knurled = aluminium Rubberized = PUR 50 ± 7 Shore A
<b>Bearings</b>	n.2 ball bearings n.2 ball bearings on support (mod. RM)
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Operating temperature</b> <sup>4,5</sup>	-10° ... +70°C (+14° ... +158°F)
<b>Storage temperature</b> <sup>5</sup>	-25° ... +70°C (-13° ... +158°F)
<b>Encoder + support weight</b>	1000 g (35,27 oz)
<b>Wheel weight</b>	mod. A/B 900 g (31,75 oz) mod.C with rubber belt 850g (30 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> measured on the transducer flange

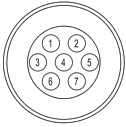
<sup>5</sup> condensation not allowed



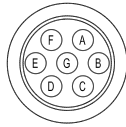
CONNECTIONS

Function	Cable C / P	Cable L / RS	7 pin J C / P	7 pin J L / RS no Zero	7 pin M C / P	7 pin M L / RS no Zero	10 pin J L / RS with Zero	10 pin M L / RS with Zero	5 pin M12 C / P	8 pin M12 L / RS	12 pin H	5 pin C C / P	8 pin C L / RS
+V DC	red	red	6	4	F	D	4 - 5	D - E	2	7	12	5	7
0 V	black	black	1	6	A	F	6	F	4	1	10	1	8
A+	green	green	3	1	C	A	1	A	3	6	5	2	1
A-	/	brown or grey	/	3	/	C	7	G	/	5	6	/	2
B+	yellow	yellow	5	2	E	B	2	B	1	4	8	4	3
B-	/	orange	/	5	/	E	8	H	/	3	1	/	4
Z+	blue	blue	4	/	D	/	3	C	5	2	3	3	5
Z-	/	white	/	/	/	/	9	I	/	8	4	/	6
⏏	shield	shield	7	7	G	G	10	J	/	/	9	/	/

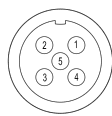
J connector (7 pin)  
JIS-C-5432 IP40 Size 16  
front view



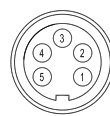
M connector (7 pin)  
Amphenol MS3102-E-16-S  
front view



M12 connector (5 pin)  
M12 A coded  
front view



C connector (5 pin)  
Amphenol C091 M16 IP40  
front view



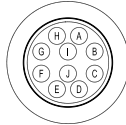
H connector (12 pin) - M23 CCW  
Hummel 7.410.000000 - 7.002.912.603  
front view



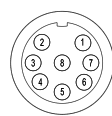
J connector (10 pin)  
JIS-C-5432 IP40 Size 16  
front view



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



M12 connector (8 pin)  
M12 A coded  
front view



C connector (8 pin)  
Amphenol C091 IP40 IEC 60130-9  
front view



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# EP A ROTARY POTENTIOMETER

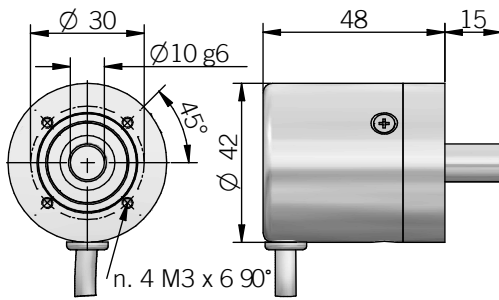
### MAIN FEATURES

Encoder with potentiometric output signal.  
The rotary potentiometer is mounted in a robust housing and is supported by two ball bearings.  
This ensures excellent life, speed and accuracy.

- Singleturn or multiturn models available
- Cable output, connectors available at cable end
- Mounting by flange



ORDERING CODE	EP	A	103/10	P	R	.XXX
<b>SERIES</b> rotary potentiometer EP						
<b>MODEL</b> fixing flange screw holes ø 30 mm A						
<b>RESISTIVE VALUE</b> 1k ohm / 1 turn 102/1 5k ohm / 1 turn 502/1 10k ohm / 1 turn 103/1 5k ohm / 3 turns 502/3 10k ohm / 3 turns 103/3 1k ohm / 10 turns 102/10 5k ohm / 10 turns 502/10 10k ohm / 10 turns 103/10						
<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)						
<b>DIRECTION TYPE</b> axial A radial R						
<b>VARIANT</b> custom version XXX						

**A**


recommended mating shaft tolerance H7  
dimensions in mm

### GENERAL SPECIFICATION

Model	Resistive value (Ohm)	Mechanical rotation	Electrical rotation	Element technology	Tolerance	Linearity	Minimum resistance (Ohm)	Power rating (70 °C)	Life (shaft revolutions)	Vibration
102/1	1 k	320 ± 5°	same as mech	conductive plastic	10 %	±1 %	0,2 %	1 W	10'000'000	15 G, 10 ... 150 Hz
102/10	1 k	3600 +10° -0°	same as mech	wirewound	5 %	±0,25 %	1	2 W	1'000'000	15 G, 10 ... 2000 Hz
502/1	5 k	320 ± 5°	same as mech	conductive plastic	10 %	±1 %	0,2 %	1 W	10'000'000	15 G, 10 ... 150 Hz
502/3	5 k	1080 +10° -0°	same as mech	wirewound	5 %	±0,25 %	1	1 W	300'000	15 G, 10 ... 2000 Hz
502/10	5 k	3600 +10° -0°	same as mech	wirewound	5 %	±0,25 %	1	2 W	1'000'000	15 G, 10 ... 2000 Hz
103/1	10 k	300 ± 5°	270 ± 10°	cermet	10 %	±5 %	4	1 W	50'000	10 G, 10 ... 150 Hz
103/3	10 k	1080 +10° -0°	same as mech	wirewound	5 %	±0,25 %	1	1 W	300'000	15 G, 10 ... 2000 Hz
103/10	10 k	3600 +10° -0°	same as mech	wirewound	5 %	±0,25 %	1	2 W	1'000'000	15 G, 10 ... 2000 Hz

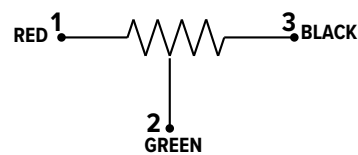
### MECHANICAL SPECIFICATIONS

Shaft diameter	ø 10 mm
Enclosure rating	IP 54 (IEC 60529)
Shock	50 G, 11 ms
Vibration	see table
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	PA 66 glass fiber reinforced
Bearings	n.2 ball bearings
Limit stop	automatic clutch (no stop)
Cable type	shielded - fixed installation conductors section 0,22 mm <sup>2</sup> /AWG 24 bending radius min 60 mm
Operating temperature <sup>1,2</sup>	0° ... +80°C (+32° ... +176°F)
Storage temperature <sup>2</sup>	-25° ... +85°C (-13° ... +185°F)
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

<sup>1</sup> measured on the transducer flange

<sup>2</sup> condensation not allowed

### ELECTRICAL CONNECTIONS



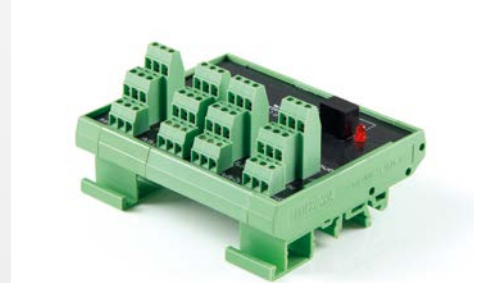
### MAIN FEATURES

This board is used when it is necessary to adapt the electronic characteristics of the encoder to those of the control. **The main functions of the EMB / EMBO are to split the output signal and to adapt the output stages.** For example, with the EMB an encoder with a 5 V DC output can be connected to a control that only accepts 24 V DC inputs. Or an encoder can be connected to a control with the same power supply but different electronics. It can solve a wide range of problems: check the ordering code for more information.

The board can support up to two different voltages and must be supplied through connector X4, using the higher voltage. It is also possible to obtain up to 8 outputs from the same input by mounting several boards on a single support, in order to drastically reduce the wiring.

In this case, the ordering code includes information about all the outputs.

For example, a board with one 5 V DC NPN input and eight 5 V DC line driver outputs has the following ordering code **EMB5N5L5L5L5L5L5L5L**.



ORDERING CODE	EMB	*O	5	L	8/24	P	8/24	P	.2V	.XXX
<b>SERIES</b> signal splitter <b>EMB</b>										
<b>INPUT OPTION</b> * add for optically isolated input <b>O</b>										
<b>INPUT VOLTAGE X1 CONNECTOR</b> 5 V DC <b>5</b> (mod. EMB) 8 ... 24 V DC <b>8/24</b> (mod. EMBO) 24 V DC <b>24</b>										
<b>INPUT ELECTRONICS X1 CONNECTOR</b> (mod. EMB) NPN <b>N</b> (mod. EMB) NPN open collector <b>C</b> push-pull <b>P</b> line driver <b>L</b> (mod. EMB) PNP <b>R</b>										
<b>OUTPUT VOLTAGE (OUT1) X2 CONNECTOR</b> 5 V DC <b>5</b> (mod. EMB) 8 ... 24 V DC <b>8/24</b> (mod. EMBO) 24 V DC <b>24</b>										
<b>OUTPUT ELECTRONICS (OUT1) X2 CONNECTOR</b> (mod. EMB) NPN <b>N</b> (mod. EMB) NPN open collector <b>C</b> push-pull <b>P</b> line driver <b>L</b>										
<b>OUTPUT VOLTAGE (OUT2) X3 CONNECTOR</b> 5 V DC <b>5</b> (mod. EMB) 8 ... 24 V DC <b>8/24</b> (mod. EMBO) 24 V DC <b>24</b>										
<b>OUTPUT ELECTRONICS (OUT2) X3 CONNECTOR</b> (mod. EMB) NPN <b>N</b> (mod. EMB) NPN open collector <b>C</b> push-pull <b>P</b> line driver <b>L</b>										
<b>VERSION</b> version 2. <b>.2V</b>										
<b>VARIANT</b> custom version <b>.XXX</b>										

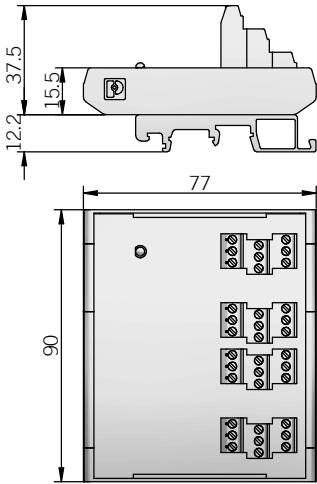
The following example may better illustrate a typical EMB application: an encoder with a 5 V DC RS-422 output must be connected to both a 24 V DC push-pull input and an instrument with a 5 V DC RS-422 input. Ordering code will be: **EMB5L8/24P5L** where

- EMB5L indicates 5 V DC line driver input on X1 connector
- EMB5L8/24P indicates 24 V DC push-pull output on X2 connector
- EMB5L8/24P5L indicates 5 V DC line driver output on X3 connector

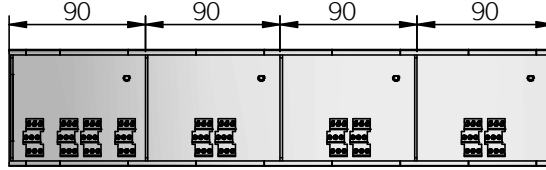
Power supply of this board is 24 V DC, because it is the highest used value, and it will be supplied through X4 connector.

**EMB**

**Single implementation**


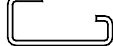


**Multiple implementation  
(4 modules / 8 outputs max)**



dimensions in mm

ELECTRICAL SPECIFICATIONS	
<b>Power supply<sup>1</sup></b>	5 = 4,5 ... 5,5 V DC 8/24 = 7,6 ... 30 V DC (reverse polarity protection) 24 = 22,8 ... 25,2 V DC (reverse polarity protection)
<b>Current consumption without load on X4</b>	70 mA max
<b>Supply current on X1 (for sensor power supply)</b>	100 mA max
<b>Max current consumption</b>	$I_{max} = 280 + 960 + 100 = 1340$ mA considering: 4 x EMB = $70 \times 4 = 280$ mA 3 x 8 outputs (40mA each) = 960 mA 1 x input sensor supply current = 100 mA
<b>Electrical interface<sup>2</sup> (input)</b>	N / C / P / 8/24L / R = window comparator with hysteresis 5L = RS-422 (26LS32 or similar)
<b>Electrical interface<sup>2</sup> (output)</b>	NPN / NPN open coll. (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272 or similar) 5L = line driver RS-422 (AELT-5000 or similar)
<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

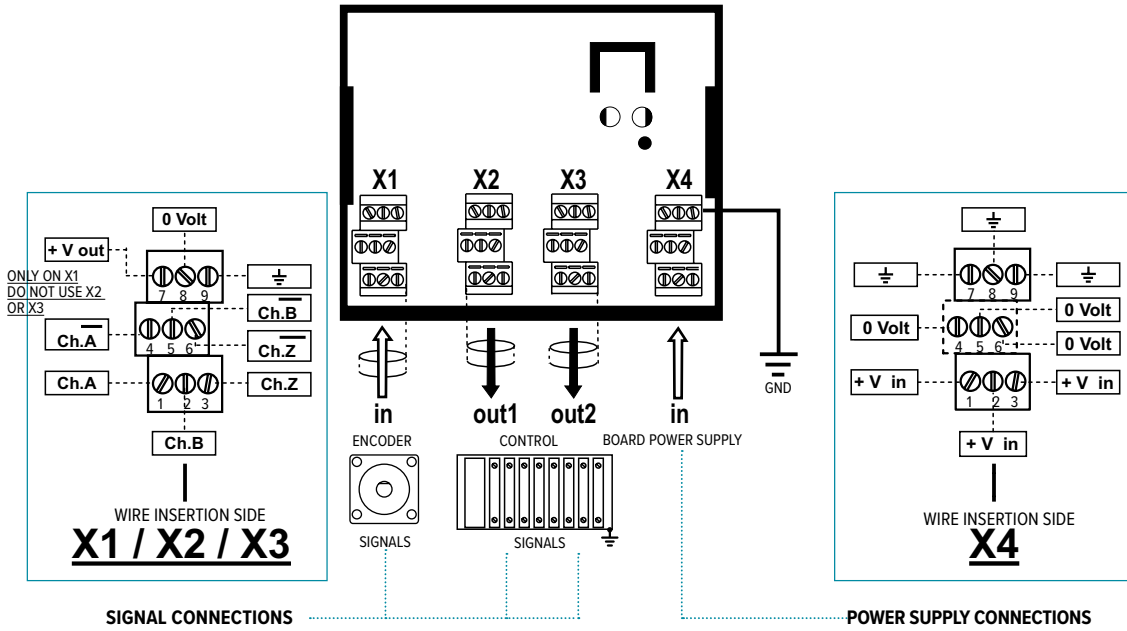
MECHANICAL SPECIFICATIONS	
<b>Enclosure rating</b>	IP00
<b>Operating temperature<sup>3,4</sup></b>	-20° ... +85°C (-4° ... +185°F)
<b>Storage temperature<sup>4</sup></b>	-20° ... +85°C (-4° ... +185°F)
<b>Mounting type</b>	  DIN 46277-3 rail (Omega)      DIN 46277-2 rail (Omega)
<b>Weight</b>	150 g (5,29 oz) (1 module)

<sup>1</sup> as measured at the terminal board without cable influences  
<sup>2</sup> for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section  
<sup>3</sup> measured on rack  
<sup>4</sup> condensation not allowed

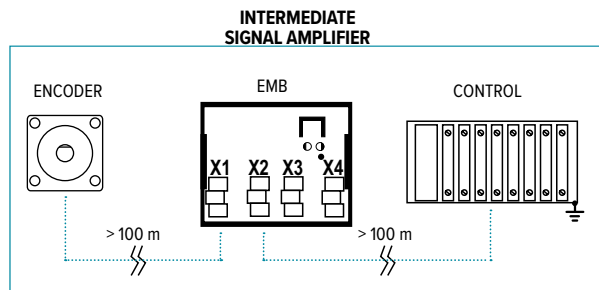
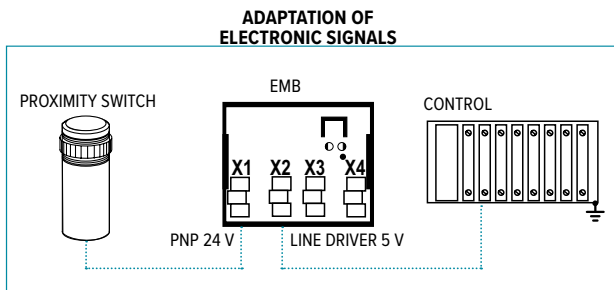
X1 INPUT ELECTRONIC SPECIFICATIONS		
Input type	Max load current (mA per channel)	Max input frequency (kHz)*
5P (TTL compatible)	15	100
5L (RS-422 compatible)	40	200
8/24P (push pull)	20	100
8/24L (line driver HTL)	20	100
8/24N (NPN)	20	10
8/24C (NPN open)	20	10
8/24R (PNP)	20	10

\* depending on length and cable specs

TERMINAL BOARD CONNECTIONS



APPLICATION EXAMPLES





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