EMA SERIES
STAND ALONE ENCODER

FEATURES

- Quadrature output (Channel A, Channel B, Index)
- Several resolutions available
- Low inertia: 5.19×10^{-8} kg·m^2
- Interfaces directly with Magtrol controllers
- Mountable to a Magtrol PT 25 Base Plate

Fig. 1: EMA Series Stand Alone Encoder

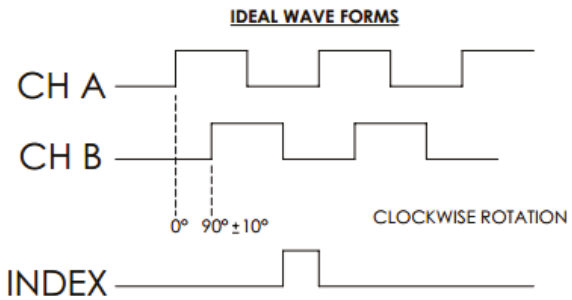
DESCRIPTION

Magtrol's EMA Series Stand Alone Encoder provides a square wave output on two channels for up/down counting or free-run motor speed measurement applications. Each channel outputs the specified pulses per revolution of the encoder shaft, and is 90° phase-shifted in order to determine direction when used with the appropriate counter/timer DAQ board.

The device incorporates an infrared optical switch and disk assembled into a rugged aluminum housing. The encoder is supplied with an 8 mm rectangular key for easy alignment to a Magtrol PT 25 Base Plate.

OPERATING PRINCIPLES

A quadrature encoded signal consists of two square-waves, A and B, which are offset from each other by 90°. The direction of rotation can then be inferred from the order in which the two sensors detect each radial line. If A leads B by 90° (as shown in the figure to the right), the shaft is rotating clockwise. If A lags B by 90°, the shaft is rotating counterclockwise. The rate of either square-wave depends on the rotational speed of the shaft.



DIMENSIONS

	IN	MM
width	4.528	115
depth	1.969	50
height	3.543	90

Note: Width and depth are base dimensions.

Detailed dimension drawings can be found on Magtrol's web site. Solid 3D models are also available by contacting Magtrol.

SPECIFICATIONS

RATINGS

Maximum Mechanical Speed	35 000 rpm
Maximum Drag Torque @ 1,000 rpm	.353 mN·m
Inertia	5.19×10^{-8} kg·m^2

ELECTRICAL CONNECTIONS a)

OUTPUT FUNCTION	PIN# D-SUB 15M CONNECTOR
Channel B	2
+5 Volts	7
Common	9
Channel A	11
Index	12

a) D-SUB 15 cable (P/N 88M368) must be ordered separately.

ORDERING INFORMATION

MODEL	STOCK CODE	DESCRIPTION	READABLE SPEED a) [rpm]
EMA-0050-C	007980	ENCODER MODULE ASSY, 50 PPR	35 000 b)
EMA-0096-C	007981	ENCODER MODULE ASSY, 96 PPR	
EMA-0100-C	007982	ENCODER MODULE ASSY, 100 PPR	
EMA-0192-C	007983	ENCODER MODULE ASSY, 192 PPR	
EMA-0200-C	007984	ENCODER MODULE ASSY, 200 PPR	
EMA-0250-C	007985	ENCODER MODULE ASSY, 250 PPR	
EMA-0256-C	007986	ENCODER MODULE ASSY, 256 PPR	
EMA-0360-C	007987	ENCODER MODULE ASSY, 360 PPR	
EMA-0400-C	007988	ENCODER MODULE ASSY, 400 PPR	
EMA-0500-C	007989	ENCODER MODULE ASSY, 500 PPR	
EMA-0512-C	007990	ENCODER MODULE ASSY, 512 PPR	
EMA-0720-C	007991	ENCODER MODULE ASSY, 720 PPR	25 000
EMA-0900-C	007992	ENCODER MODULE ASSY, 900 PPR	20 000
EMA-1000-C	007993	ENCODER MODULE ASSY, 1 000 PPR	18 000
EMA-1024-C	007994	ENCODER MODULE ASSY, 1 024 PPR	18 000
EMA-1250-C	007995	ENCODER MODULE ASSY, 1 250 PPR	14 000

a) Confirm instrumentation can read developed frequencies.

b) Limited by maximum mechanical speed.

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