

## Features

- Push switch option
- Compact, rugged design
- High reliability
- Metal bushing/shaft

## Applications

Level control, tuning and timer settings in:

- Audio-visual equipment
- Consumer electric appliances
- Radios
- Musical instrumentation
- Communications equipment

# EC11 Series - 12 mm Incremental Encoder

### Electrical Characteristics

Output .....	2-bit quadrature code
Closed Circuit Resistance .....	3 ohms maximum
Contact Rating .....	1 mA @ 5 VDC
Insulation Resistance .....	100 megohms @ 250 VDC
Dielectric Withstanding Voltage Sea Level .....	300 VAC minimum
Electrical Travel .....	Continuous
Contact Bounce (15 RPM) .....	5.0 ms maximum**
RPM (Operating) .....	60 maximum**

### Environmental Characteristics

Operating Temperature Range .....	-30 °C to +70 °C (-22 °F to +158 °F)
Storage Temperature Range .....	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity .....	MIL-STD-202, Method 103B, Condition B
Vibration .....	30 G
Contact Bounce .....	10~55~10 Hz / 1 min. / Amplitude 1.5 mm
Shock .....	100 G
Rotational Life .....	30,000 cycles minimum
Switch Life .....	20,000 cycles minimum
IP Rating .....	IP 40

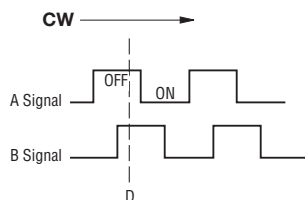
### Mechanical Characteristics

Mechanical Angle .....	360 ° continuous
Torque	
Running .....	50 to 200 gf.cm (0.68 to 2.7 oz.-in.)
Mounting .....	10.2 kgf.cm (8.83 lb.-in.) maximum
Shaft Side Load (Static) .....	2.04 kgf (4.5 lbs.) minimum
Weight .....	5 gm (0.17 oz.) maximum
Terminals .....	Printed circuit board terminals
Soldering Condition	
Wave Soldering .....	Sn95.5/Ag2.8/Cu0.7 solder with no-clean flux: 260 °C max. for 3-5 seconds
Hand Soldering .....	Not recommended
Hardware .....	One flat washer and one mounting nut supplied with each encoder

### Switch Characteristics

Switch Type .....	Contact Push ON Momentary SPST
Power Rating (Resistive Load) .....	10 mA at 5 V DC
Switch Travel .....	0.5 ± 0.2 mm
Switch Actuation Force .....	610 ± 306 gf (8.47 ± 4.24 oz.-in.)

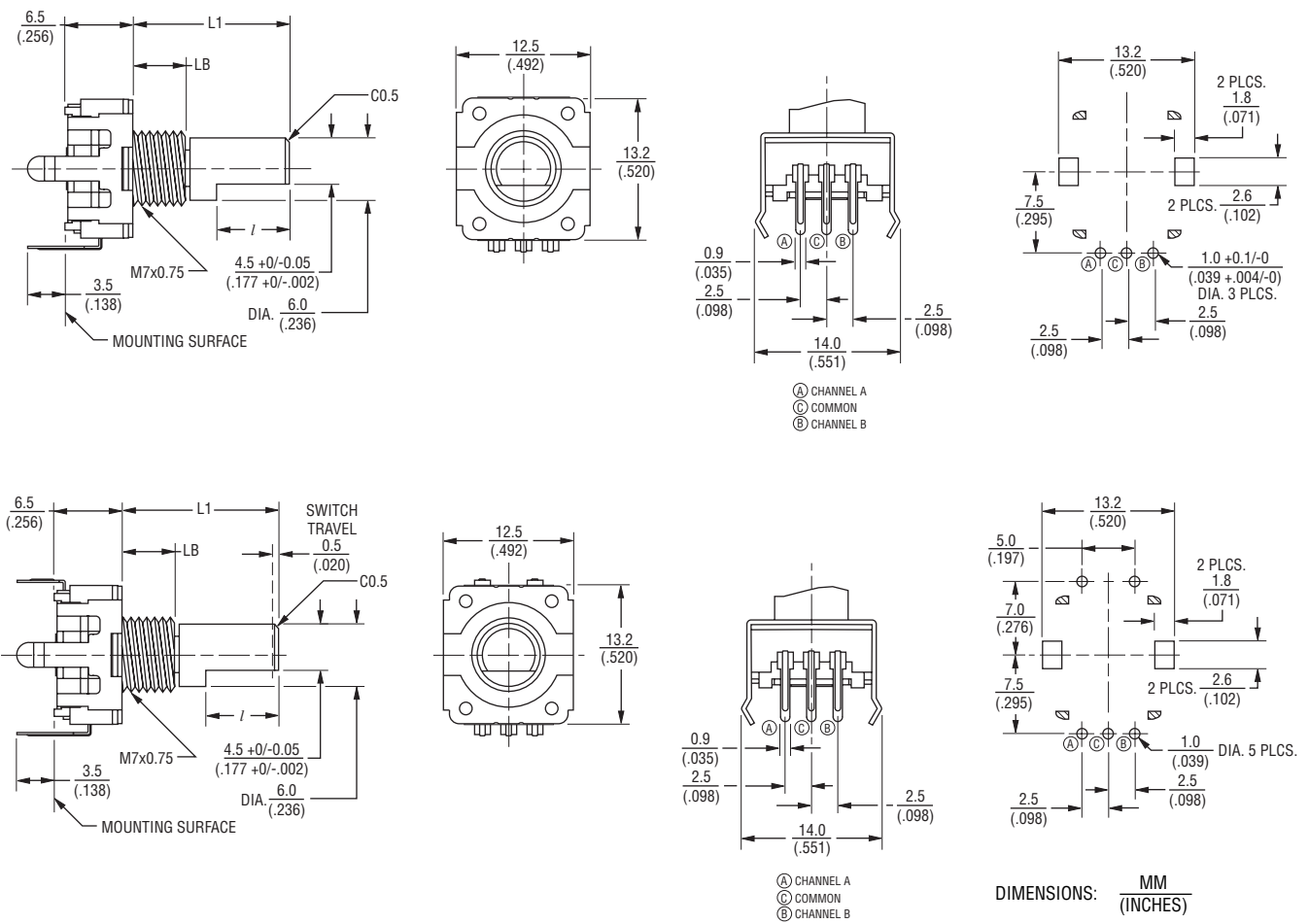
### Quadrature Output Table





# EC11 Series - 12 mm Incremental Encoder

## Product Dimensions

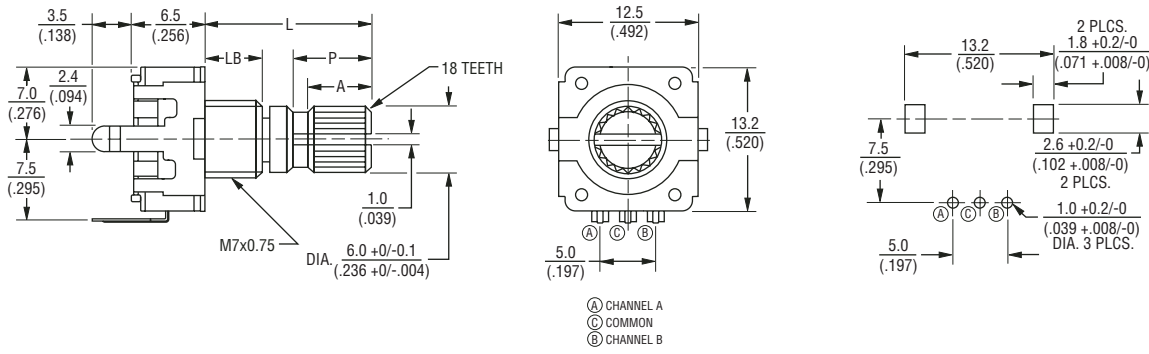


L1	LB	l
$\frac{15}{(.591)}$	$\frac{5.0}{(.197)}$	$\frac{7.0}{(.276)}$
$\frac{20}{(.787)}$	$\frac{7.0}{(.276)}$	$\frac{10.0}{(.394)}$
$\frac{25}{(.984)}$	$\frac{7.0}{(.276)}$	$\frac{12.0}{(.472)}$
$\frac{30}{(1.181)}$	$\frac{7.0}{(.276)}$	$\frac{12.0}{(.472)}$

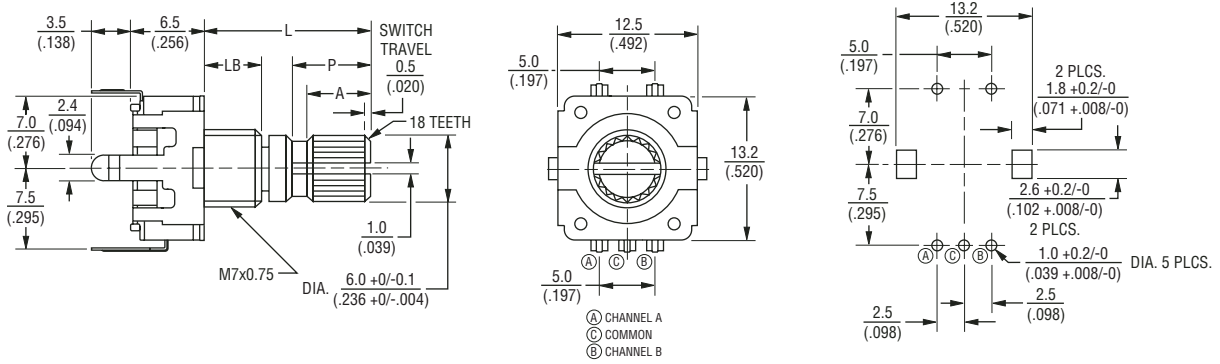


# EC11 Series - 12 mm Incremental Encoder

## Product Dimensions



L	LB	P	A
15 (.591)	5.0 (.197)	7.0 (.276)	6.0 (.236)
20 (.787)	7.0 (.276)	7.0 (.276)	6.0 (.236)
30 (1.181)	7.0 (.276)	16.0 (.630)	12.0 (.472)



L	LB	P	A
15 (.591)	5.0 (.197)	7.0 (.276)	6.0 (.236)
20 (.787)	7.0 (.276)	7.0 (.276)	6.0 (.236)

DIMENSIONS:  $\frac{MM}{(INCHES)}$