



**BOURNS®**

## Features

- Incremental encoder / momentary push switch option
- Long operating life
- Sturdy construction
- Snap-in mount

## EPS - Digital Contacting Encoder With Momentary Switch Option

### Electrical Characteristics

Output .....	2-bit quadrature code, Channel A leads Channel B by 90° electrically turning clockwise (CW)
Closed Circuit Resistance .....	5 ohms maximum
Open Circuit Resistance .....	500 K ohms minimum
Contact Rating .....	10 milliamp @ 10 VDC or 0.1 watt maximum
Insulation Resistance (500 VDC) .....	1,000 megohms minimum
Dielectric Withstanding Voltage (MIL-STD-202 Method 301)	
Sea Level .....	1,000 VAC minimum
Electrical Travel .....	Continuous
Contact Bounce (15 RPM) .....	5 milliseconds maximum
RPM (Operating) .....	120 maximum
Encoder Switching Configuration (applies to detented version only) .....	Normally Open
Phase Tolerance (CH A to CH B) .....	90° ± 72°

### Environmental Characteristics

Operating Temperature Range .....	+1 °C to +85 °C (+34 °F to +185 °F)
Storage Temperature Range .....	-40 °C to +85 °C (-40 °F to +185 °F)
Humidity .....	MIL-STD-202, Method 103B, Condition B
Vibration .....	15 G
Contact Bounce .....	0.1 millisecond maximum
Shock .....	50 G
Contact Bounce .....	0.1 millisecond maximum
Rotational Life .....	200,000 shaft revolutions
Switch Life .....	100,000 cycles
IP Rating .....	IP 40

### Mechanical Characteristics

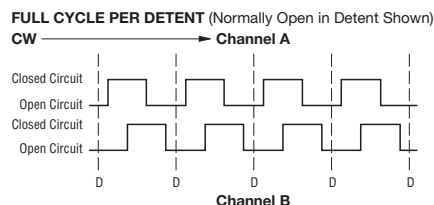
Mechanical Angle .....	360° Continuous
Running Torque .....	0.5 to 1.5 N-cm (0.75 to 2.25 oz.-in.)
Mounting Torque .....	56 to 79 N-cm (5-7 lb.-in.) maximum
Shaft Side Load (Static) .....	4.53 kg (10 lbs.) minimum
Weight .....	Approximately 21 gms. (0.75 oz.)
Terminals .....	Printed circuit board terminals
Soldering Condition .....	Recommended hand soldering using Sn95/Ag5 no clean solder, 0.025" wire diameter. Maximum temperature 399 °C (750 °F) for 3 seconds. No wash process to be used with no clean flux. Part can be wave soldered at 260 °C (500 °F) for 5 seconds, no wash process with no clean flux.
Marking .....	Manufacturer's name and part number, and date code
Hardware .....	One lockwasher and one mounting nut supplied with each encoder, except where noted in the part number.

### Switch Characteristics

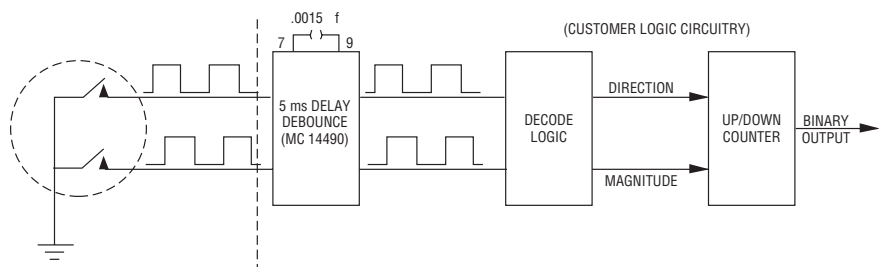
Switch Type .....	Push Momentary, SPST N.O.
Power Rating (Resistive Load) .....	10 milliamps @ 12 volts DC
Closed Switch Resistance .....	Less than 200 ohms @ 440 gram force on shaft
Switch Travel .....	2.25 ± 0.25 mm
Switch Actuation Force .....	370 ± 70 grams (5 ± 1 oz.-in.)

**Quadrature Output Table** - This table is intended to show available outputs as currently defined.

FULL CYCLE PER DETENT  
(Normally Open in Detent Shown)



RECOMMENDED INCREMENTAL CONTROL DIAGRAM  
FOR USE WITH A DEBOUNCE CIRCUIT



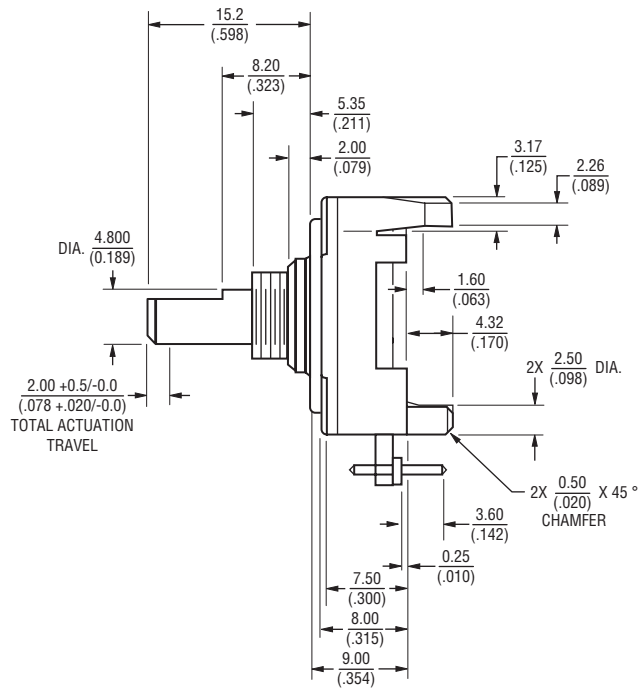
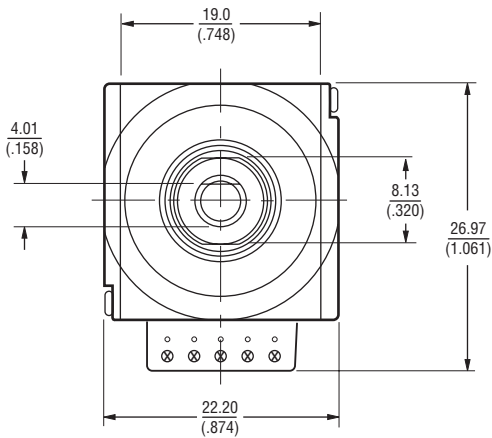
\*RoHS Directive 2002/95/EC Jan 27, 2003 including Annex.  
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications

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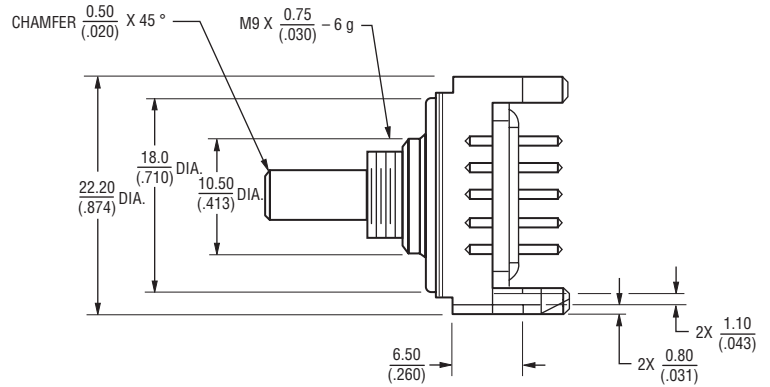
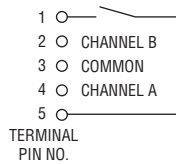
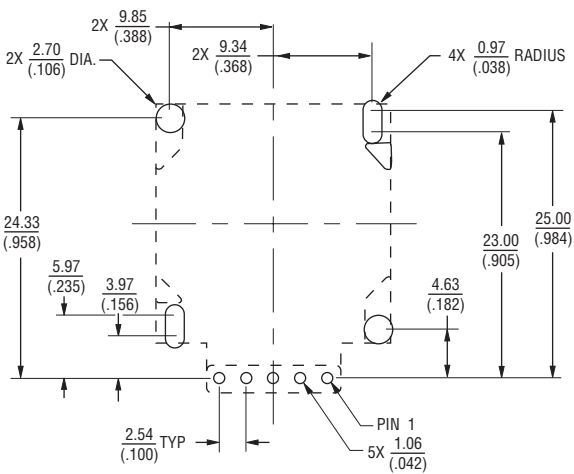
**BOURNS®**

## Product Dimensions

SNAP-IN MOUNTING - S style bushing / F style shaft



## PCB MOUNTING DIMENSIONS



DIMENSIONS:  $\frac{\text{MM}}{\text{(IN)}}$

TOLERANCES: EXCEPT WHERE NOTED  
 DECIMALS: .XX ±  $\frac{.51}{.020}$  .XXX ±  $\frac{.13}{.005}$

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How to Order

PART NUMBERING SYSTEM

**E P S 1 D - F 1 9 - A E 0 0 3 6 L**

Encoder with Switch Option

BUSHING CONFIGURATION	
Code	Description
S	9 mm flatted x 5.35 mm length Threaded M9 x 0.75

SWITCH OPTION	
Code	Description
1	Switch (Push Momentary)

ANTI-ROTATION LUG POSITION	
Code	Description
J	9:00 Position
D	None

SHAFT STYLE (See Outline Drawing for Details)	
Code	Description
F	Flatted (4.8 mm Dia.)

RoHS IDENTIFIER	
Code	Description
L	Compliant
Blank	Non-Compliant

PERFORMANCE CODE		
Code	Detents	Cycles/Rev.
E0006	0	6
E0009	0	9
E0012	0	12
E0024	0	24
E0036	0	36
D0024	24	24

HOUSING TERMINAL CONFIGURATION (X indicates "Equipped With")		
Features	Code	
	A	B
Terminal (Rear Mounting)	X	X
Mounting Hardware Included	X	

SHAFT LENGTH (FMS)		
Code	Description	Available Shaft Styles
19	Length (19/32)	F