

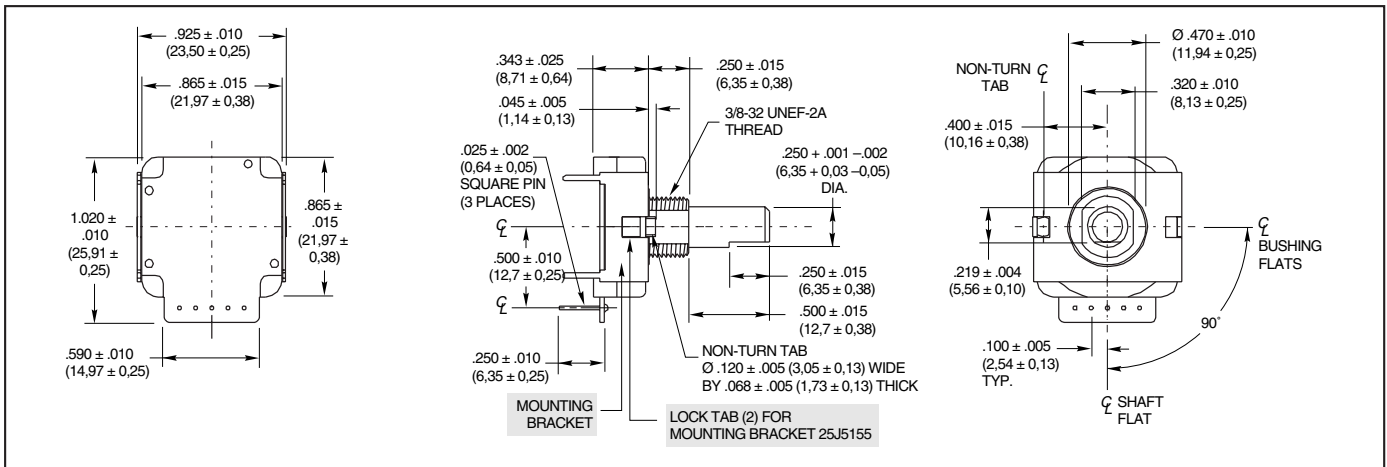
## SERIES 25L Hex, Gray and Quadrature Code

### FEATURES

- Price Competitive to Similar Designs
- Quality Construction and Contact Materials
- Multiple Code and Indexing Choices
- 100,000 Life Cycles
- Less than 1.0" Square
- Manufactured to ISO 9001 Standards



### DIMENSIONS in inches (and millimeters)



Optical and Mechanical Encoders

### TRUTH TABLES

Clockwise Rotation					
4-Bit Gray Code-16 Position					
Switch Position	Code Position	Output			
		1	2	4	8
1	0				
2	1	•			
3	2		•		
4	3			•	
5	4				•
6	5	•	•		
7	6		•		
8	7			•	
9	8				•
10	9	•			
11	10		•		
12	11			•	
13	12				•
14	13	•			
15	14		•		
16	15			•	

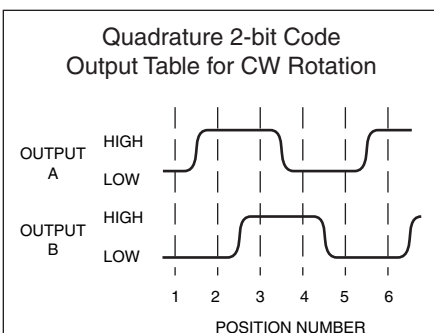
• Indicates closed circuit; blank indicates open circuit.

Clockwise Rotation					
4-Bit Binary Code Hexadecimal-16 Position					
Switch Position	Code Position	Output			
		1	2	4	8
1	0				
2	1	•			
3	2		•		
4	3	•	•		
5	4			•	
6	5	•			
7	6		•		
8	7	•	•		
9	8				•
10	9	•			
11	10		•		
12	11	•			
13	12			•	
14	13	•			
15	14		•		
16	15	•	•		

• Indicates closed circuit; blank indicates open circuit.

Clockwise Rotation		
Quadrature 2-Bit Code 1/4 Cycle per Detent		
Switch Position	"A" Output	"B" Output
1		
2	•	
3		•
4	•	
5		•
6	•	
7		•
8	•	
9		•
10	•	
11		•
12	•	
13		•
14	•	
15		•
16	•	
17		•
18	•	
19		•
20	•	
21		•
22	•	
23		•
24	•	
25		•
26	•	
27		•
28	•	
29		•
30	•	
31		•
32	•	
33		•
34	•	
35		•
36	•	

• Indicates closed circuit; blank indicates open circuit. Code repeats every 4 positions.



**SPECIFICATIONS**

**Electrical Ratings**

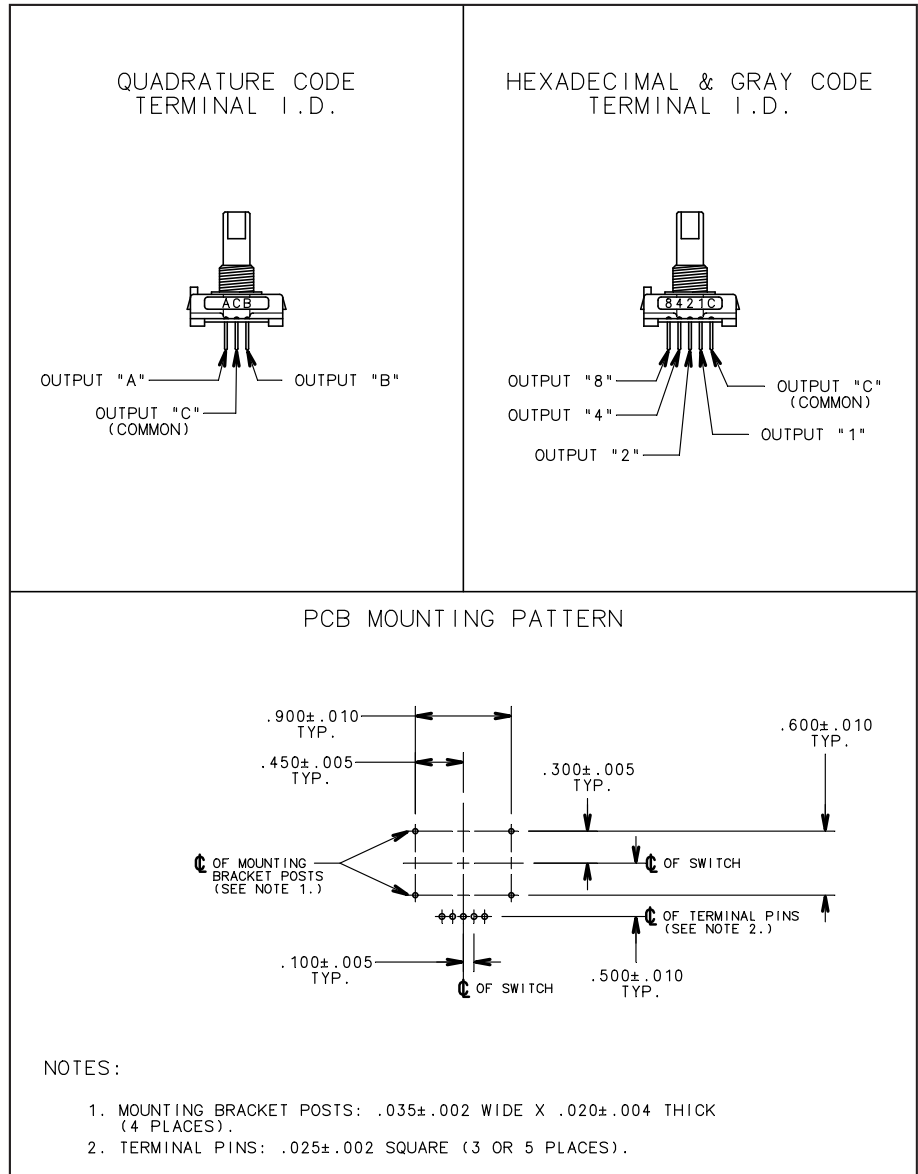
**Switching Loads:** 1.5 mA at 115 Vac, resistive; 150 mA at 14 Vdc, resistive  
**Current Carrying Capacity:** 250 mA maximum at 28 Vdc, resistive load  
**Contact Resistance:** 75 mΩ, typical  
**Insulation Resistance:** 1000 mΩ minimum between terminals  
**Voltage Breakdown:** 1000 Vac minimum between terminals  
**Life Expectancy:** 100,000 cycles of operation at rated loads. One cycle of operation is a rotation through all of the active positions and a return to the starting position.

**Mechanical Ratings**

**Rotational Torque:** 2 to 6 in-oz  
**Operating Temperature Range:** -40 C° to +85 C°  
**Storage Temperature Range:** -65 C° to +85 C°  
**Continuous Rotation:** All standard switches are continuous rotation. Desired stop locations supplied upon request.  
**Anti-Rotation Device:** Integral non-turn tab, flatted bushing, .375" diameter, .320 double "D" across flats.  
**Termination:** Standard is PC style, parallel to shaft, facing rear. Options include PC, parallel to shaft, facing front.  
**Panel Mounting Torque:** 10 in-lbs maximum

**Materials and Finishes**

**Bushing/Housing and Shaft/Rotor:** Reinforced thermoplastic  
**Detent Ball:** Stainless steel, nickel-plated  
**Detent Spring:** Tinned music wire  
**Contacts:** Beryllium copper, gold plate over nickel  
**Terminals:** Copper alloy, #725, 100% tin plate over nickel plate  
**Output Board:** FR-4, copper/nickel-plated  
**Mounting Nut:** Brass, tin/zinc-plated hex nut  
**Mounting Bracket:** Stainless Steel, tin-plated



Optical and Mechanical Encoders

**ORDERING INFORMATION**

**Series:** 25L = Economical, single deck encoder  
**Housing Color:** B = Black housing; R = Red housing  
**Angle of Throw:** 10 = 10°, 36 positions; 11 = 11.25°, 32 positions; 15 = 15°, 24 positions; 18 = 18°, 20 positions; 22 = 22.5°, 16 positions; 30 = 30°, 12 positions; 45 = 45°, 8 positions  
**Mounting Bracket:** Z = with bracket, Blank = no bracket  
**Code Output:** H = Hexadecimal available only in 22.5°  
 G = Gray available only in 22.5°  
 Q = Quadrature (2-bit)

Custom materials, styles, color and markings are available. Custom knobs available.

**Available from your local Grayhill Distributor.** For prices and discounts, contact a local Sales Office, an authorized Distributor or Grayhill.  
**For Custom codes. Termination, Torque, Angles of Throw, call Grayhill for more information.**

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