

## SERIES 25L

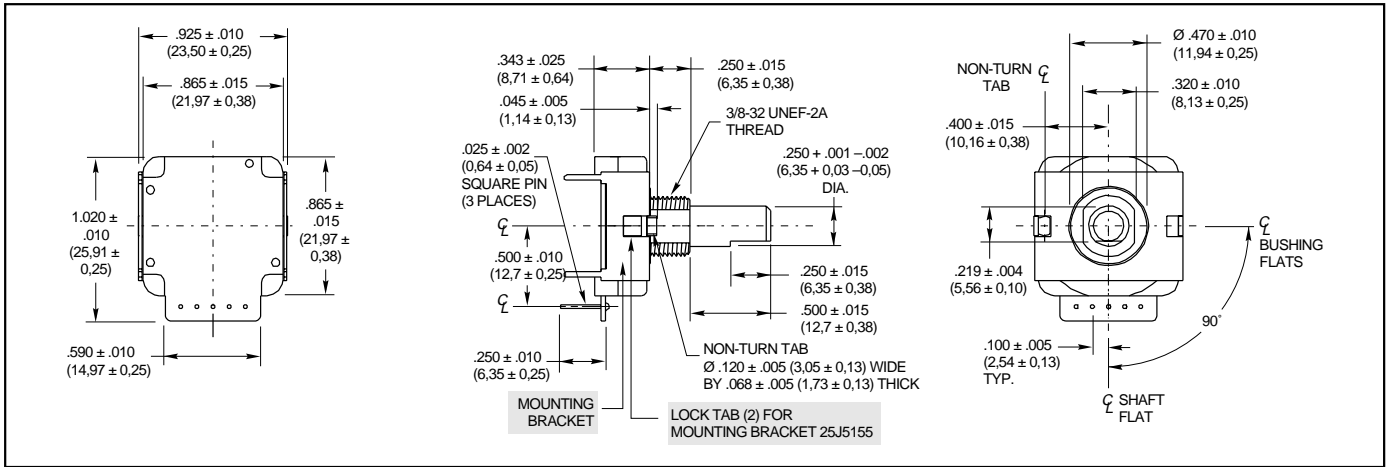
Hex, Gray and Quadrature Code

### 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	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				•

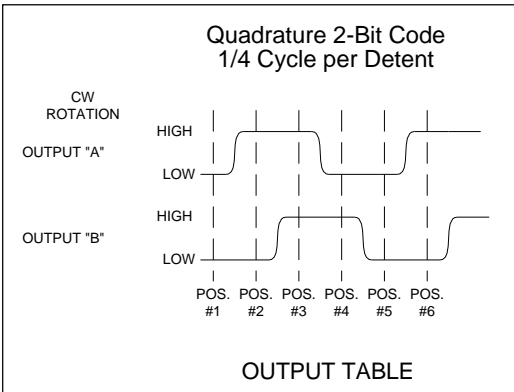
• Indicates closed circuit; blank indicates open circuit.

Clockwise Rotation					
4-Bit Binary Code Hexadecimal-16 Position					
Switch Position	Code Position	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.

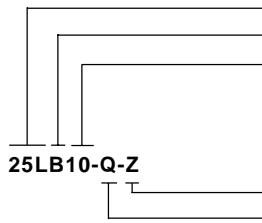
**Mechanical Ratings**

**Rotational Torque:** 2 to 6 in-oz  
**Operating Temperature Range:** -65 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; PC, perpendicular to shaft.  
**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, CDA #725, solder plate over nickel  
**Output Board:** FR-4, copper/nickel-plated  
**Mounting Hardware:** Brass, cadmium-plated hex nut  
**Mounting Bracket:** Stainless Steel, tin-plated

**ORDERING INFORMATION**



25LB10-Q-Z

\* Cadmium free

**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, see page E-39.

Available from your local Grayhill Distributor. For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

Optical and Mechanical Encoders