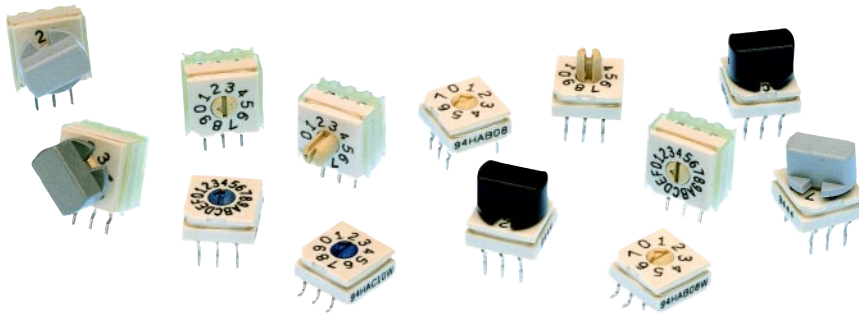


**SERIES 94H**  
Binary Coded



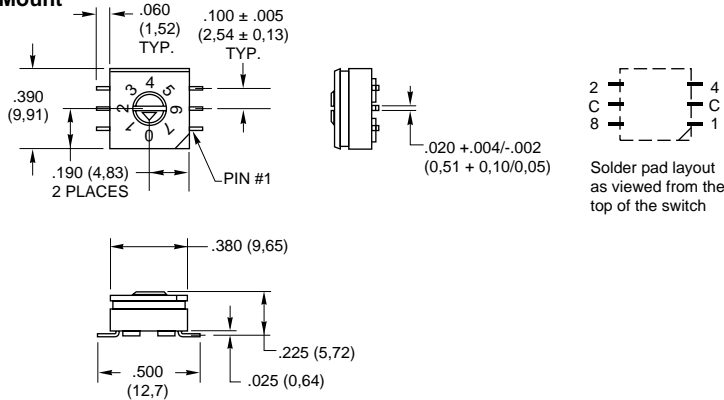
**FEATURES**

- Sealed Construction; No Tape Seal Required
- Surface Mount or Thru-Hole Style
- Tube or Tape and Reel Packaging
- Octal, BCD, and Hexadecimal Code
- In Standard or Complement
- Standard and Right Angle Mount
- Flush or Extended Actuators
- Gold-Plated Contacts

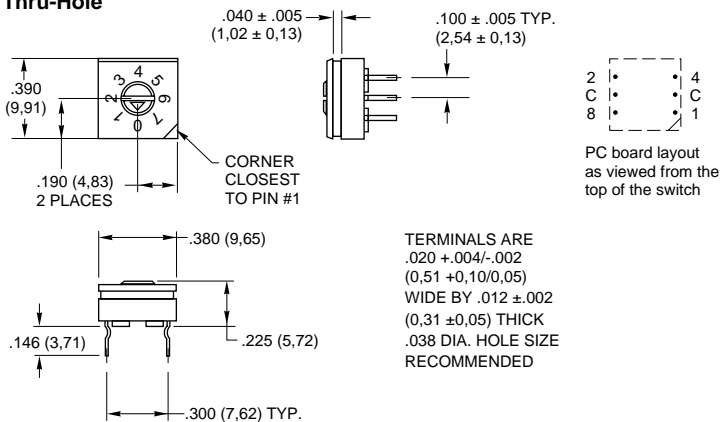
**DIMENSIONS** In inches (and millimeters)

Tolerances are  $\pm .010$  inches unless specified otherwise.

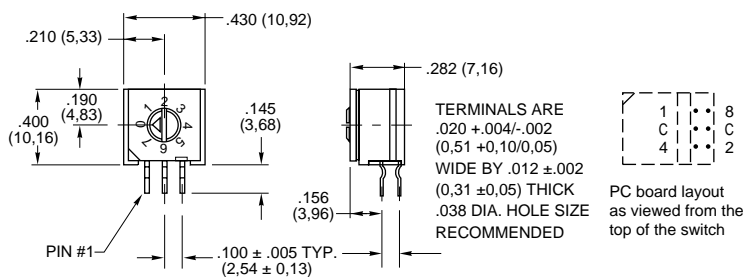
**Surface Mount**



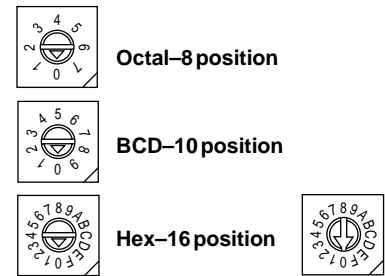
**Standard Thru-Hole**



**Right Angle Thru-Hole**

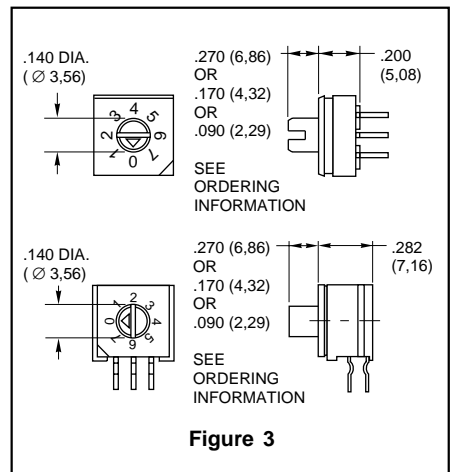


**ACTUATOR STYLES**



All actuation types are available in octal (8), binary coded decimal (10), or hexadecimal (16) codes; with either standard or complement output. Standard code outputs have natural color rotors; complements in a contrasting color.

**EXTENDED ACTUATOR TYPES**



## SERIES 94R

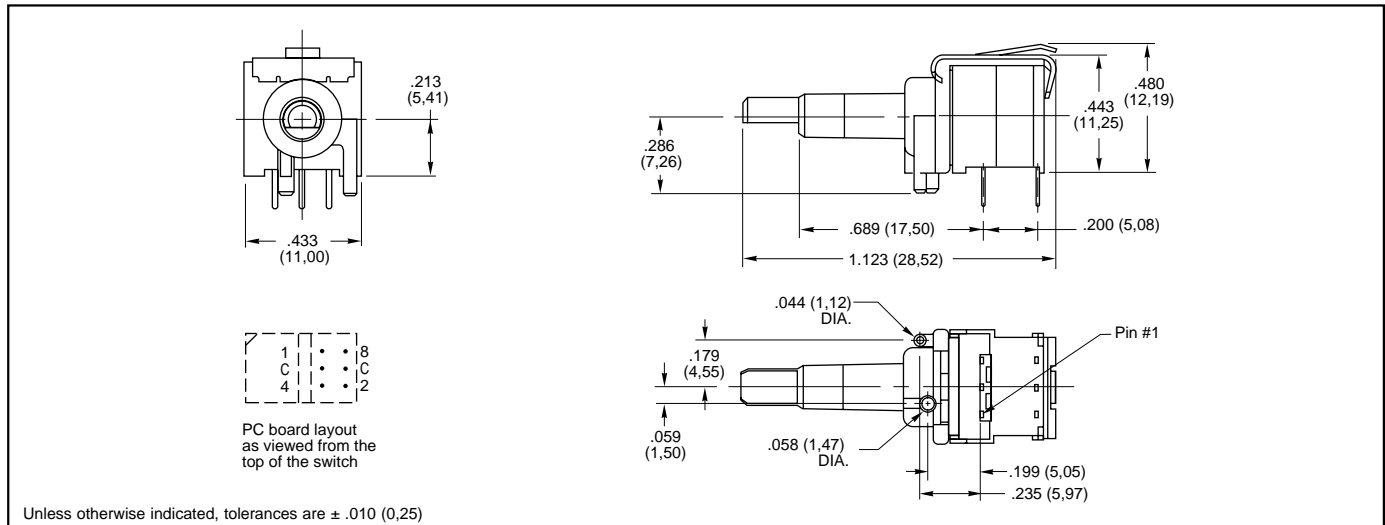
Economical, Binary Coded

### FEATURES

- 10,000 Cycles of Operation
- Gold-Plated Contacts
- Sealed Contact System
- Right Angle Mount
- Octal, BCD & Hexadecimal Codes
- Standard or Complement



### DIMENSIONS In inches (and millimeters)



### SPECIFICATIONS: Series 94H and 94R

#### Electrical Ratings

**Make-and-break Current Rating:** 30 mA at 30 Vdc for 10,000 cycles of operation.

**Carrying Current Rating:** 100 mA at 50 Vdc

**Contact Resistance:** 50 mohms maximum initially (measured at 10 mA, 50 mVdc). 150 mohms maximum after life.

**Insulation Resistance:** (measured at 100 Vdc across open switch contacts) Initial: 5000 Mohms minimum. After Life: 1000 Mohms minimum.

**Dielectric Strength:** (measured across open switch contacts) Initial: 500 Vac RMS minimum. After Life: 250 Vac RMS

#### Mechanical Ratings

**Mechanical Life:** 10,000 cycles of operation. One cycle is a rotation through all positions and a complete return through all positions.

**Mechanical Shock:** 1000g's, 0.5mS, half sine per MIL-STD-202F, Method 213, Test Condition E.

**Vibration Resistance:** 10-2000 Hz at 15G or 0.060" double amplitude per MIL-STD-202F, Method 204, Test Condition B.

**Operational Torque:** 2 to 6 inch-ounces initially and 1.2 inch-ounces minimum after life.

#### Environmental Ratings

**Operating Temperature Range:** -40° to +85°C.

**Storage Temperature Range:** -40° to +85°C.

**Moisture Resistance:** 240 hours with temperature cycling and polarization. Passes insulation resistance and dielectric strength per MIL-STD-202F, Method 106 following exposure.

#### Materials and Finishes

**Rotor and Switch Body:** Plastic (UL94V-O)

**Contact Material:** Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.

**Shorting Member:** Copper alloy plated. 30 microinches minimum gold over 50 microinches minimum nickel.

**Terminals:** Copper alloy plated. 100 microinches minimum 90/10 tin lead solder over 50 microinches minimum nickel.

**Internal O-ring:** Rubber BUNA-N

#### Soldering Information

**Soldering Temperature:** 250° C for 10 seconds maximum.

**Cleaning:** Acceptable solutions include 1-1-1 Trichlorethane, Freon (TF, TE, or TMS), Isopropyl Alcohol and detergent (140°F maximum). Solutions which are not recommended include Acetone, Methylene Chloride, and Freon TMC.

### CODE & TRUTH TABLES:

Series 94H and 94R

Standard Output	CODE OUTPUT				CODE OUTPUT				Complement Output	
	0	1	2	4	8	1	2	4		8
0										
1	●					●	●	●	●	
2		●					●	●	●	
3	●	●						●	●	
4			●					●	●	
5	●			●					●	
6	●	●							●	
7		●	●						●	
8				●					●	
9	●				●					●
A	●	●							●	
B	●		●						●	
C				●					●	
D	●				●					●
E	●	●							●	
F	●	●	●						●	

Dot indicates terminal to common connection. All switches are continuous rotation.

Octal and Octal Complement outputs are 0 thru 7 positions.

BCD and BCD Complement outputs are 0 thru 9 positions.

Hexadecimal and Hexadecimal Complement outputs are 0 thru F positions.

Standard codes have natural color rotors; complements have rotors in a contrasting color.

**ORDERING INFORMATION: Series 94H**

**Series**  
**Actuator Style:** A = Flush, Figure 1  
 B = .270, Figure 3 (see page B-22)  
 C = .170, Figure 3 (see page B-22)  
 E = .090, Figure 3 (see page B-22)  
 F = Flush, Figure 2

**Code:** B = Standard, C = Complementary

**Packaging:** R = Tape and Reel, (Surface Mount Only)  
 Blank = Tube\*

**Terminal Style:** RA = Right Angle, Thru-Hole  
 W = Surface Mount  
 Blank = Thru-Hole

**Number of Positions:** 08 = Octal, 8 Position  
 10 = BCD, 10 Position  
 16 = Hex, 16 Position

\* 27 Pieces per tube for surface mount and thru-hole, 24 pieces per tube for right angle switches.

**ORDERING INFORMATION: Series 94R**

Continuous Rotation Versions			
Code	No. of Positions	Standard Code Part Number	Complement Part Number
Octal	8	94RB08C	94RC08C
BCD	10	94RB10C	94RC10C
Hexadecimal	16	94RB16C	94RC16C
Rotational Stop Versions*			
Code	No. of Positions	Standard Code Part Number	Complement Part Number
Hexadecimal	16	94RB16F	94RC16F

\* Consult Grayhill for 8 or 10 position

**SERIES 94 High Temperature Knobs: For Shaft Extensions**

Slotted knobs show switch markings. Contact Grayhill for other knob material/ marking color combinations and geometrics.

\* Use only with Actuator Type B or C

**ORDERING INFORMATION: Series 94 High Temperature Knobs\***

Knob Style and Height	Knob Color	Arrow Color	Part Number
1A	Gray	N/A	947706-001
5A	Gray	Black	947706-005
1B	Black	N/A	947705-001
1B	Gray	N/A	947705-012
2B	Gray	White	947705-004
3B	Gray	Black	947705-017
4B	Gray	Black	947705-018
1B	Natural	N/A	947705-009
4B	Black	White	947705-010
5B	Gray	Black	947705-019

\*Ordered as a separate item.

**TAPE AND REEL PACKAGING: Series 94H**

Meets requirements of EIA 481-2.

13 INCH DIAMETER REEL

CONDUCTIVE PLASTIC EMBOSSED TAPE

16mm

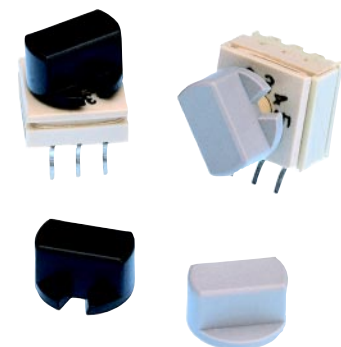
PIN #1 CHAMFER

24mm

DIRECTION OF FEED

Each reel contains the following number of switches with a 15.35 inch (390 mm) minimum leader and a 6.30 inch (160 mm) minimum trailer.

**Quantities per Actuator Style:**  
 94H: A = 750  
 B = 150  
 C = 200  
 D = 300  
 E = 750



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

DIP Switches