

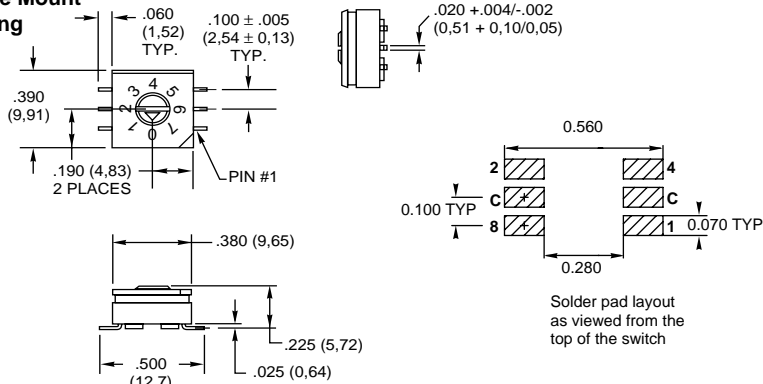
## SERIES 94H Binary Coded



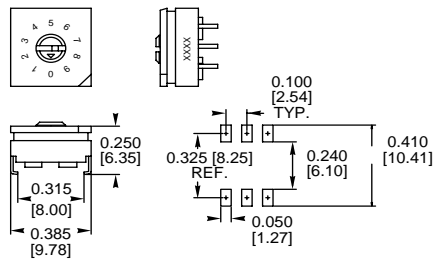
### DIMENSIONS In inches (and millimeters)

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

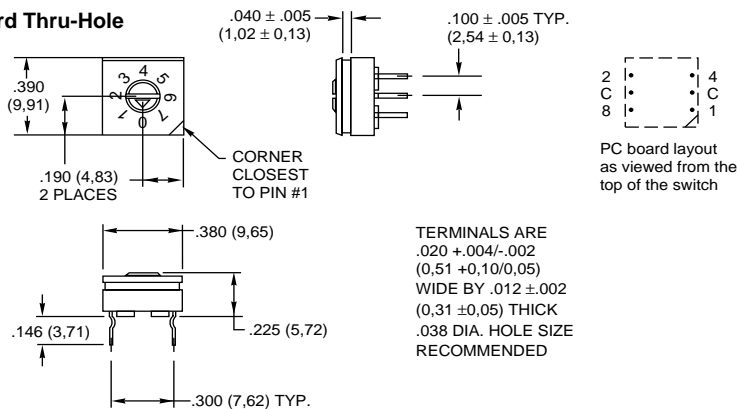
#### Surface Mount Gullwing



#### Surface Mount J-Lead



#### Standard Thru-Hole



### 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

### ACTUATOR STYLES



Octal-8 position



BCD-10 position



Hex-16 position



Figure 2  
"F" style rotor

Figure 1  
"A" style rotor

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

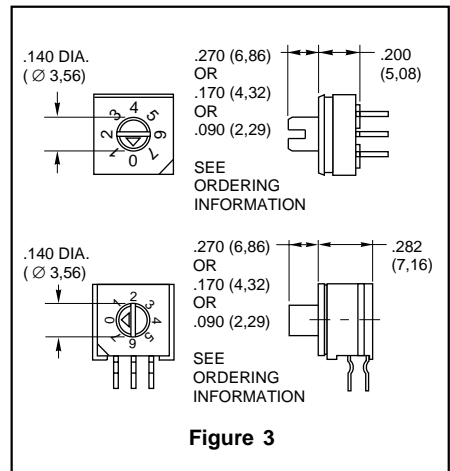
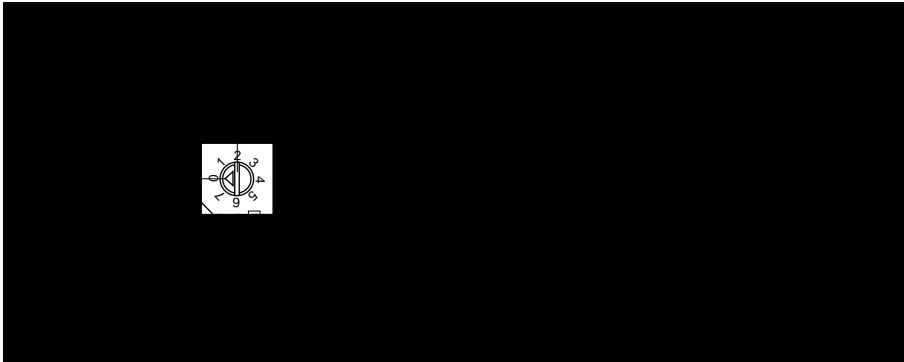


Figure 3

## DIMENSIONS In inches (and millimeters)



## ORDERING INFORMATION: Series 94H

**94HAB10WR**

**Series**  
**Actuator Style:** A = Flush, Figure 1  
 B = .270, Figure 3 (see page B-21)  
 C = .170, Figure 3 (see page B-21)  
 E = .090, Figure 3 (see page B-21)  
 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  
 J = J-Lead  
 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.

## 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.

94HA style	750 sw/reel
94HB style	150 sw/reel
94HC style	200 sw/reel
94HE style	300 sw/reel
94HF style	750 sw/reel



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

## SERIES 94R

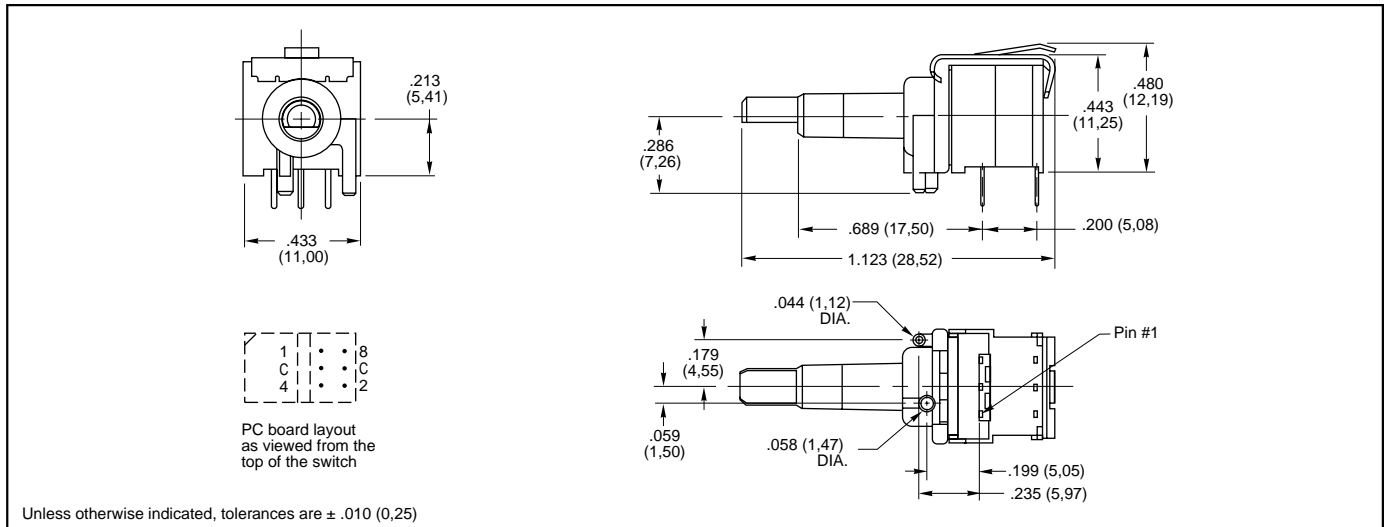
### Economical, Binary Coded

### 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
	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 94R**

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

\* Consult Grayhill for 8 or 10 position