

# Series 270 Data Sheet Rotary Potentiometer

# Industrial 16mm Diameter Carbon Composition Rotary Potentiometer

#### **Features**

- Versatile Mounting Styles
  - Bushing
  - Twist or Bend Tab
  - Snap-in PC Bracket
  - PC Terminal
- · Single, Tandem, or Concentric Units
- Power Switch Available
- Panel Seal Available
- Wide Resistance Range
- Low Noise
- RoHS compliant



#### **Electrical and Mechanical Specifications**

#### **Resistance Range**

500 ohms through 2 Megohms, linear 5K ohms through 200K ohms, audio

#### **Resistance Tolerance**

±30%, ±20%, ±10%

#### **Power Rating**

1/4 watts @ 55°C (Resistance up to 100K ohms) 1/5 watts @ 55°C (Resistance above 100K ohms)

#### **Dielectric Strength**

750 VAC for 1 minute

#### **Maximum Operating Voltage**

500 VDC

#### **Insulation Resistance**

100 Megohms minimum @ 250 VDC

#### **Angle of Rotation**

Total Rotation (Potentiometer and Switch)

Without Switch: 300° With Switch: 315°

Effective Electrical Angle (Potentiometer)

Without Switch: 300° With Switch: 290°

#### **Rotational Torque**

36-360 gf-cm

#### **Stop Strength**

5.76 kgf-cm minimum

#### **Push-Pull Strength of Shaft**

10 kg for 10 seconds

#### **Rotational life**

10K cycles

#### Operating temperature

-10°C to +70°C

#### Solder Heat Resistance

260°C for 5 seconds

#### **Mounting Information**

- Bushing
- Twist Tab
- Bend Tab
- Snap-in PC Bracket
- PC Terminal

#### **Electrical and Mechanical Specifications**

#### **Shaft and Bushing Information**

#### Metal Shaft and Bushing

Single or Dual Section Potentiometer with One Shaft

Shaft Diameter		Bushing Diameter		
inch	mm	mm inch		
.125	3.20	1/4" – 32UNEF-2A	M7 X .75P	
.156	4.00	1/4" – 32UNEF-2A	M7 X .75P	
.187	4.70	3/8" – 32UNEF-2A	M7 X .75P	
.236	6.00	3/8" – 32UNEF-2A	M8 X .75P	
.250	6.35	3/8" – 32UNEF-2A	M9 X .75P	

#### Concentric Tandem Potentiometer with Two Shafts

Outer Shaft Diameter		Inner Shaft Diameter		Bushing Diameter	
inch	mm	inch	mm	inch	mm
.236	6.00	.156	4.0	3/8" – 32UNEF-2A	M8 X.75P
.250	6.35	.125	3.2	3/8" – 32UNEF-2A	M9 X.75P

#### Molded Shaft and Bushing

Single Section Potentiometer with One Shaft

Shaft Diameter		Bushing Diameter		
inch	mm	inch	mm	
.156	4.00	1/4" – 32UNEF-2A	M7 X .75P	
.187	4.70	3/8" – 32UNEF-2A	M7 X .75P	
.236	6.00	3/8" – 32UNEF-2A	M8 X .75P	
.250	6.35	3/8" – 32UNEF-2A	M9 X .75P	

#### Shaft with Twist Tab, Bend Tab, Snap-in PC Bracket, or PC Terminal

All metal or molded shaft diameters can be used except .187"(4.7mm), which can be used with snap-in PC bracket only.

#### **Terminal Information**

#### Standard:

- T: Solder lug formed 90° to the rear on single section and formed 60° on multi-section.
- X: PC terminals standard .438" (11.1mm) from center line of control to PC board, straight terminals extend .156" (4.0mm) into PC board.
- U: PC terminals formed 90° forward toward mounting surface. Terminals extend .187" (4.7mm) beyond mounting surface.
- V: PC terminals formed 90° to the rear, away from panel mounting. Terminals extend .442" (11.2mm) from mounting surface.

#### Special:

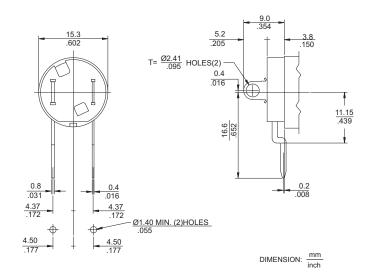
- T: Solder lug perpendicular to shaft. Or, solder lug formed 60° to the rear.
- W: Wire wrap terminals .156" (4.0mm) terminal extension beyond base, formed  $60^{\circ}$  to the rear.

#### **Electrical and Mechanical Specifications**

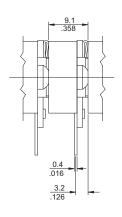
#### **Optional Power Switches (All SPST)**

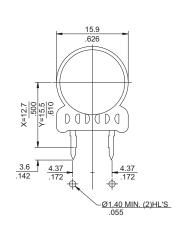
SERIES	TYPE	ELECTRICAL RATING
		5A @ 20 VDC
057	Rotary	3A @ 125 VAC (UL approved)

Switch Actuating Angle -25° Switch Actuating Torque - 2 to 10 in. oz. (144 to 720gf-cm)



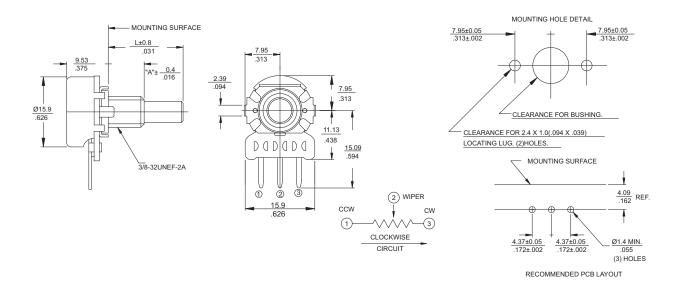
SERIES	TYPE	ELECTRICAL RATING
DEMI	Push On-Pull Off	3A @ 20 VDC
DEMI	Momentary Contact Push On	3A @ 20 VDC





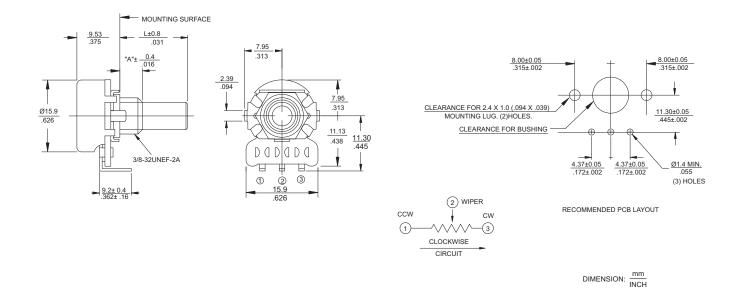
 ${\color{red} {\sf DIMENSION:}} \ \frac{{\color{blue} {\sf mm}}}{{\color{blue} {\sf inch}}}$ 

#### 270X Metal Shaft, Bushing Mount, Printed Circuit "X" Type Terminals

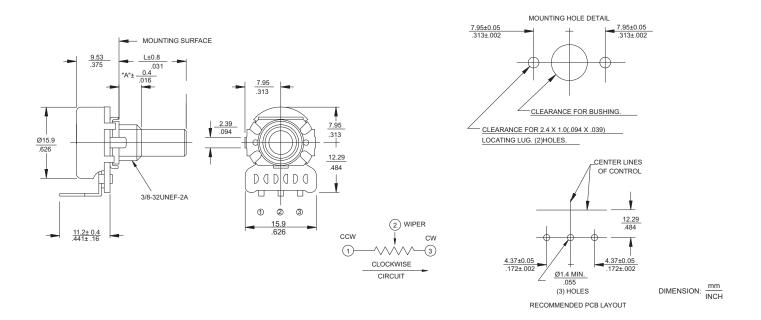


DIMENSION:  $\frac{mm}{INCH}$ 

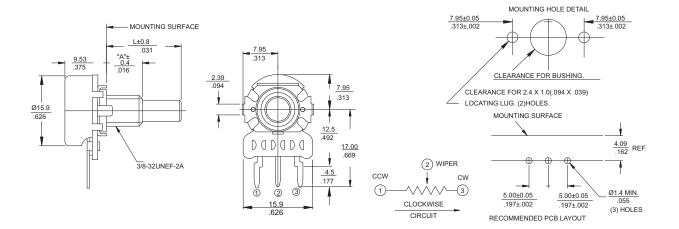
#### 270U Metal Shaft, Bushing Mount, Printed Circuit "U" Type Terminals



#### 270V Metal Shaft, Bushing Mount, Printed Circuit "V" Type Terminals

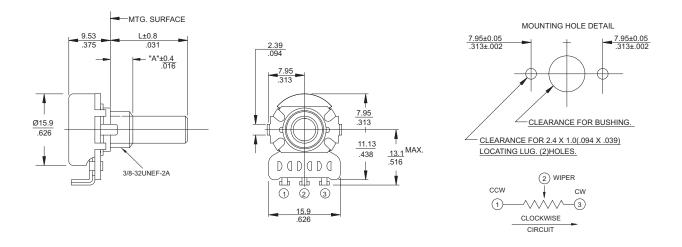


#### 275X Metal Shaft, Bushing Mount, Printed Circuit "X" Type Terminals



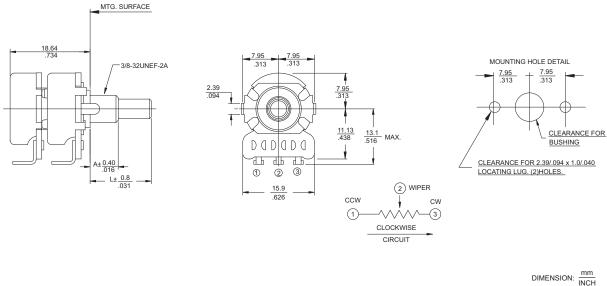
DIMENSION:  $\frac{mm}{INCH}$ 

#### 270T Metal Shaft, Bushing Mount, Solder Lug "T" Type Terminals

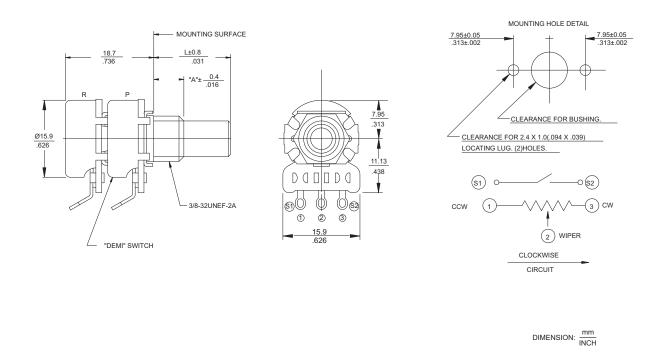


DIMENSION:  $\frac{mm}{inch}$ 

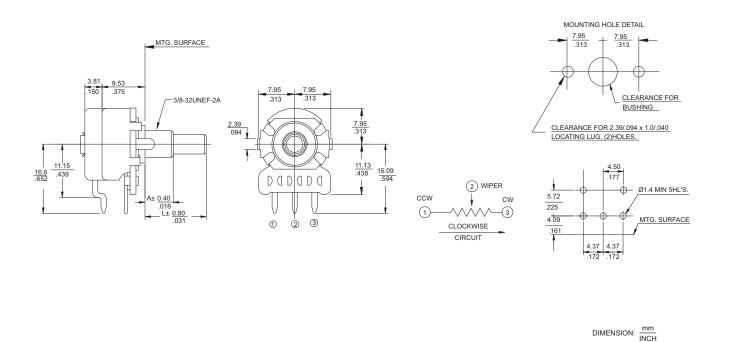
#### 270T-2 Dual Section, Metal Shaft, Bushing Mount, Solder Lug "T" Type Terminals



### **270T-DEMIT** Metal Shaft, Bushing Mount, Solder Lug "T" Type Terminals, DEMI Switch.

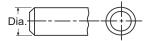


## **270X-057X** Metal Shaft, Bushing Mount, Printed Circuit "X" Type Terminals, Rotary 057 Switch



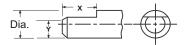
#### **Shaft Diameter and Trim**

ROUND



Туре	Diameter	
А	.125" (3.18 mm)	
R	.156" (3.96 mm)	
G	.187" (4.75 mm)	
Х	.236" (6.00 mm)	
Р	.250" (6.35 mm)	

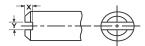




Type	Diameter	×	V	
Туре	Diameter	^	Y	
В	.125" (3.18 mm)	.250" (6.35 mm)	.109" (2.77 mm)	
D	.250" (6.35 mm)	.375" (9.52 mm)	.156" (3.96 mm)	
Н	.187" (4.75 mm)	.250" (6.35 mm)	.156" (3.96 mm)	
F	.156" (3.96 mm)	.250" (6.35 mm)	.109" (2.77 mm)	
L	.236" (6.00 mm)	.472" (12.0mm)	.177" (4.50 mm)	
V*	.187" (4.75 mm)	.313" (7.95 mm)	.156" (3.96 mm)	
W**	.236" (6.00 mm)	.472" (12.0 mm)	.177" (4.50 mm)	

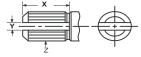
\*Molded Shaft, FMS .875" (22.2 mm), not available with switch \*\*Molded Shaft, FMS .984" (25.0 mm), with rotary switch only





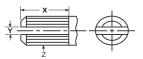
Туре	Diameter	X	Y
С	.125" (3.18 mm)	.047" (1.19 mm)	.039" (1.00 mm)
S	.156" (3.96 mm)	.047" (1.19 mm)	.039" (1.00 mm)
J	.187" (4.75 mm)	.047" (1.19 mm)	.039" (1.00 mm)
М	.236" (6.00 mm)	.047" (1.19 mm)	.039" (1.00 mm)
Е	.250" (6.35 mm)	.047" (1.19 mm)	.039" (1.00 mm)

KNURLED & SLOTTED (Metal Shaft)



Туре	Diameter	X	Υ	Z
N	.236" (6.00 mm)	.342" (8.70 mm)	.039" (1.00 mm)	18 Teeth
Т	.250" (6.35 mm)	.279" (7.10 mm)	.062" (1.57 mm)	24 Teeth

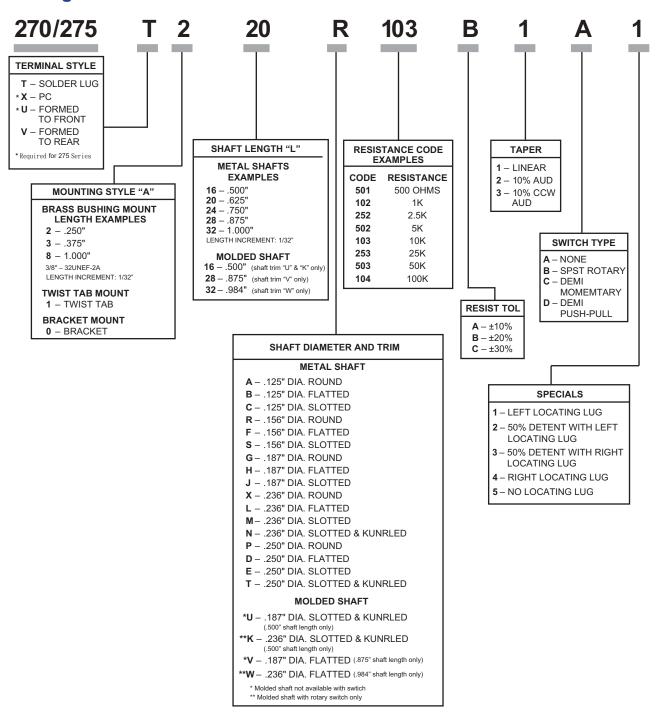
KNURLED & SLOTTED (Molded Shaft)



Туре	Diameter	Х	Y	Z
U*	.187" (4.75 mm)	.062" (1.57 mm)	.046" (1.17 mm)	18 Teeth
K**	.236" (6.00 mm)	.200" (5.08 mm)	.046" (1.17 mm)	18 Teeth

<sup>\*</sup>Molded Shaft, FMS .500" (12.7 mm), not available with switch \*\*Molded Shaft, FMS .500" (12.7 mm), with rotary switch only

#### **Ordering Information**



#### Note

Consult CTS for custom or not listed features including shaft, bushing, longer life cycles, solderable cover, anti-static design, etc.