

**SERIES:** PTN16 | **DESCRIPTION:** ROTARY POTENTIOMETER**FEATURES**

- single and dual section control
- carbon element
- center detent option
- D-cut or knurled shaft options

**SPECIFICATIONS**

| parameter                     | conditions/description                       | min | typ      | max     | units      |
|-------------------------------|----------------------------------------------|-----|----------|---------|------------|
| maximum operating voltage     |                                              |     |          | 200     | Vdc        |
| power rating                  | at 70°C                                      |     |          | 0.125   | W          |
| taper                         | linear, logarithmic, and reverse logarithmic |     |          |         |            |
| standard resistance range     | see Resistance Table                         | 1.0 |          | 1,000   | k $\Omega$ |
| standard resistance tolerance |                                              |     | $\pm 20$ |         | %          |
| residual resistance           |                                              |     |          | $\pm 1$ | %          |
| sliding noise                 |                                              |     |          | 6       | mV         |
| operating temperature         |                                              | -10 |          | 75      | °C         |
| hand soldering                | for 3 seconds max                            |     |          | 260     | °C         |
| RoHS                          | yes                                          |     |          |         |            |

**MECHANICAL**

| parameter         | conditions/description                        | min | typ    | max | units  |
|-------------------|-----------------------------------------------|-----|--------|-----|--------|
| mechanical angle  |                                               | 295 | 300    | 305 | °      |
| rotational torque |                                               | 10  |        | 150 | gf-cm  |
| detent torque     |                                               | 20  |        | 200 | gf-cm  |
| stop strength     |                                               | 4   |        |     | kg-cm  |
| rotational life   |                                               |     | 10,000 |     | cycles |
| weight            | single section models: weight varies by model | 5   | 7      | 9   | g      |
|                   | double section models: weight varies by model | 6   | 8      | 10  | g      |
|                   | switch section models: weight varies by model | 6   | 8      | 10  | g      |

## PART NUMBER KEY

**PTN16 - X XXX X XX XX X X**

Base Number

Terminal Configuration:

A= Vertical, 12.5 mm terminals  
 B= Vertical, 18 mm terminals Height  
 C= Vertical 15 mm solder tabs  
 D= Horizontal, rear facing solder tabs  
 E= Horizontal, front facing terminals  
 F= Horizontal, rear facing terminals

Resistance:

01 = 1 k $\Omega$   
 02 = 2 k $\Omega$   
 05 = 5 k $\Omega$   
 10 = 10 k $\Omega$   
 20 = 20 k $\Omega$   
 25 = 25 k $\Omega$   
 50 = 50 k $\Omega$   
 100 = 100 k $\Omega$   
 200 = 200 k $\Omega$   
 500 = 500 k $\Omega$   
 11 = 1 M $\Omega$   
 22 = 2 M $\Omega$

Detent:

1 = No Detent  
 2 = Center Detent

Shaft Length:

15 = 15 mm  
 20 = 20 mm  
 25 = 25 mm  
 30 = 30 mm

Shaft Style:

D = D-Cut  
 K1 = Metal knurled 18 tooth

Resistance Taper:

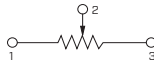
A = Logarithmic  
 B = Linear  
 C = Reverse Logarithmic

Number of Sections:

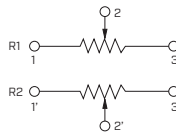
1 = Single  
 2 = Dual  
 3 = With Switch

## SCHEMATIC/TAPERS

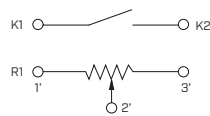
### Single



### Double



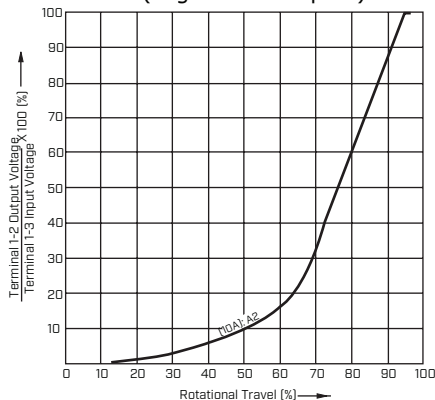
### With Switch



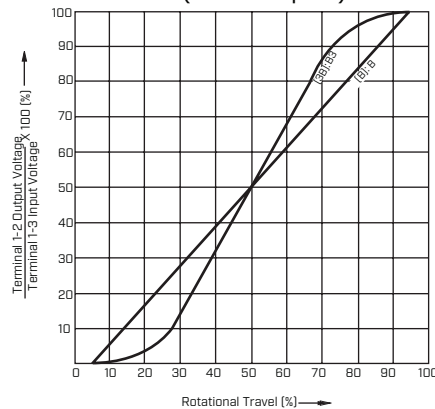
Resistance Table

| Resistance (K $\Omega$ ) | Code |
|--------------------------|------|
| 1                        | 01   |
| 2                        | 02   |
| 5                        | 05   |
| 10                       | 10   |
| 20                       | 20   |
| 25                       | 25   |
| 50                       | 50   |
| 100                      | 100  |
| 200                      | 200  |
| 500                      | 500  |
| 1,000                    | 11   |
| 2,000                    | 22   |

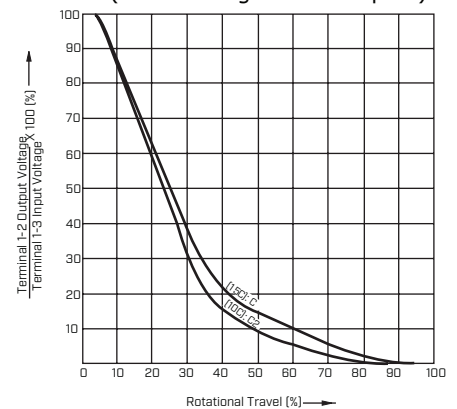
A (Logarithmic Tapers)



B (Linear Tapers)



C (Reverse Logarithmic Tapers)



Note:

1. Taper B3 only available on model PTN16-A20115K1B2.
2. Taper C only available on model PTN16-D100115K1C1.

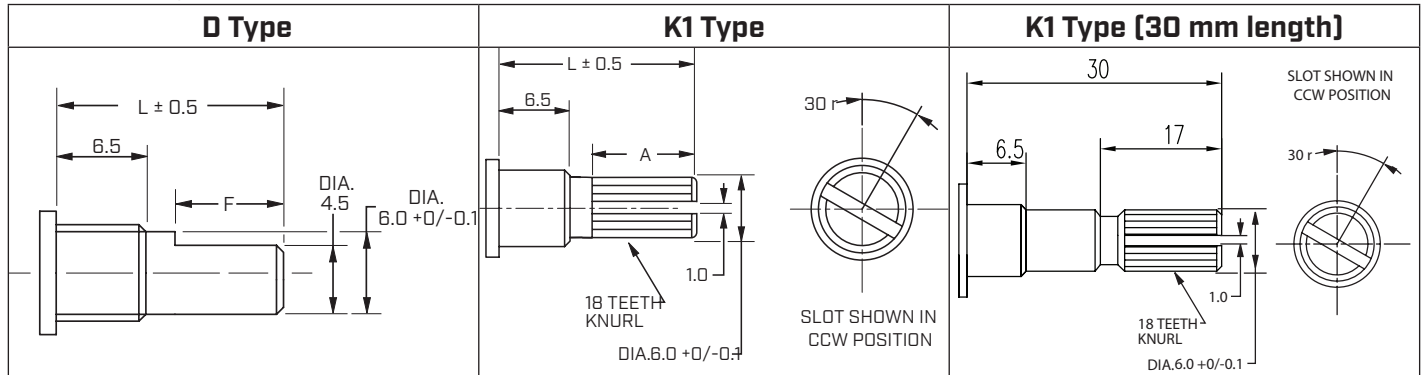
## SHAFT TYPES

units: mm

tolerance:

 $X \leq 10.00$ :  $\pm 0.30$  mm $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm

unless otherwise noted



|   | 15D | 20D | 25D | 30D |
|---|-----|-----|-----|-----|
| L | 15  | 20  | 25  | 30  |
| F | 7   | 12  | 12  | 12  |

|   | 15K1 | 20K1 | 25K1 | 30K1 |
|---|------|------|------|------|
| L | 15   | 20   | 25   | 30   |
| A | 6.5  | 11.5 | 17   | 17   |

## MECHANICAL DRAWING (SINGLE SECTION, A TERMINAL CONFIGURATION)

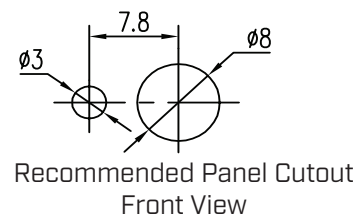
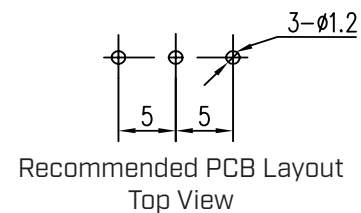
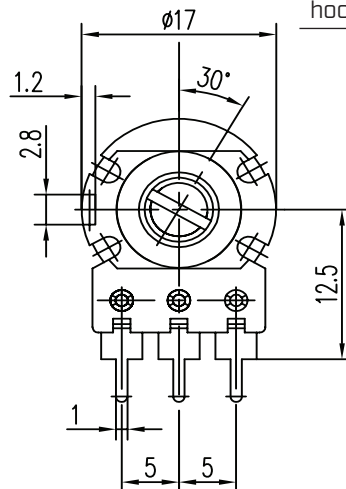
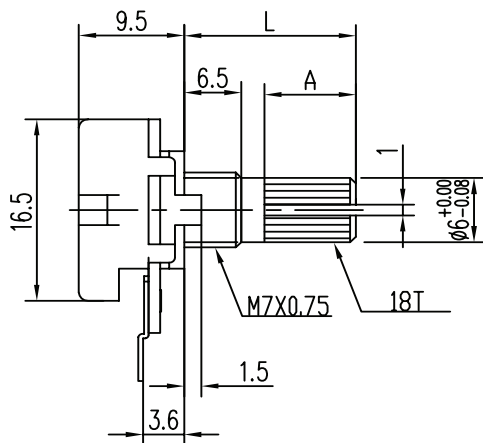
units: mm

tolerance:

 $X \leq 10.00$ :  $\pm 0.30$  mm $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm

unless otherwise noted

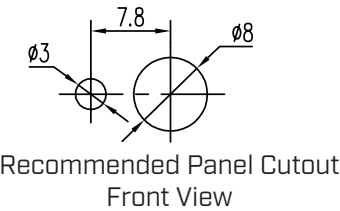
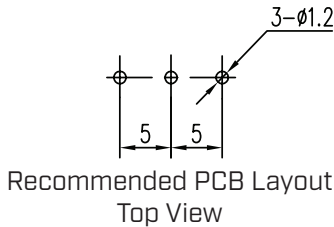
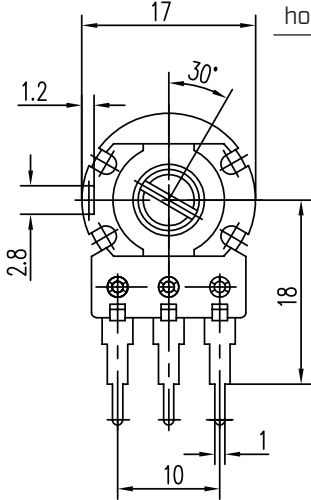
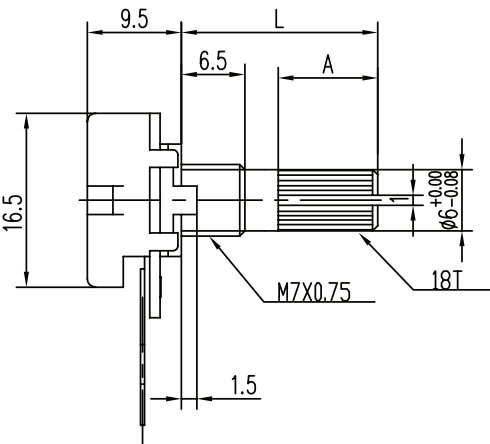
| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM (UL94HB)      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 (UL94HB)      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



MECHANICAL DRAWING (SINGLE SECTION, B TERMINAL CONFIGURATION)

units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
10.00<X≤30.00: ±0.50 mm  
30.00<X≤100.00: ±1.0 mm  
unless otherwise noted

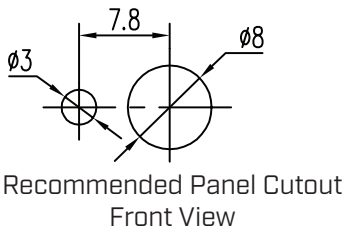
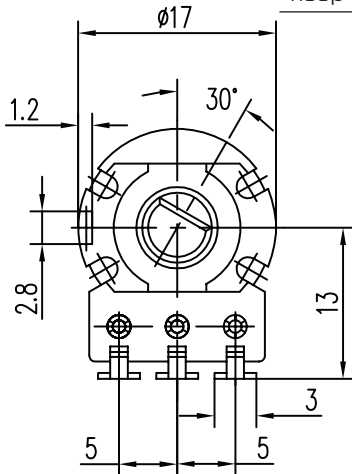
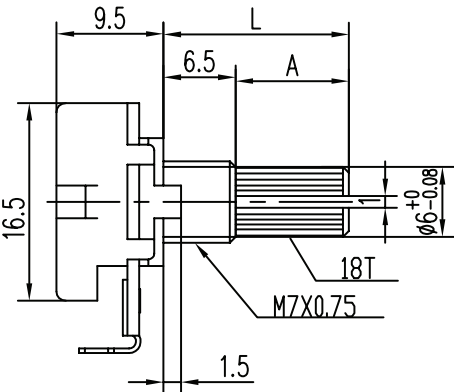
| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



MECHANICAL DRAWING (SINGLE SECTION, D TERMINAL CONFIGURATION)

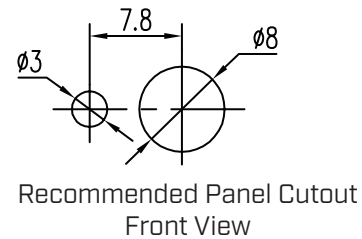
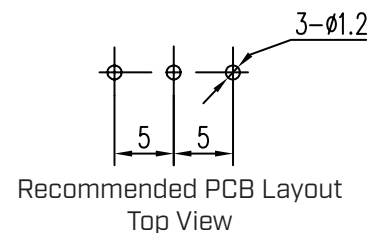
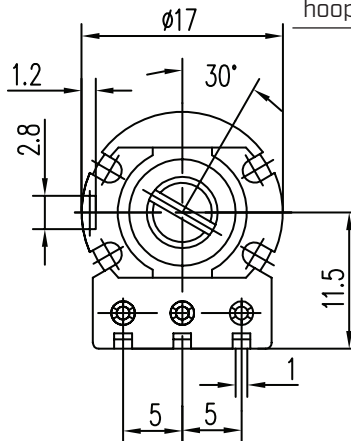
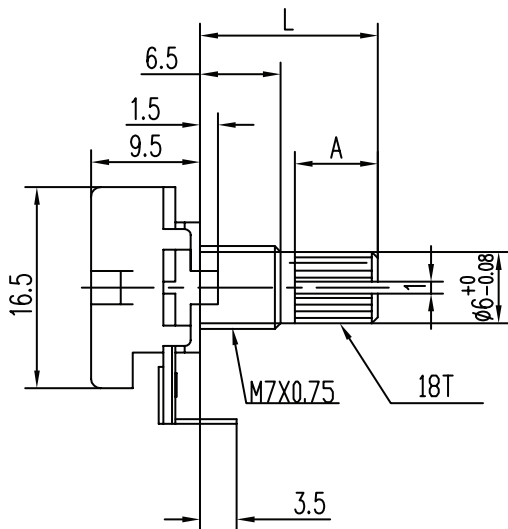
units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
10.00<X≤30.00: ±0.50 mm  
30.00<X≤100.00: ±1.0 mm  
unless otherwise noted

| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



## MECHANICAL DRAWING (SINGLE SECTION, E TERMINAL CONFIGURATION)

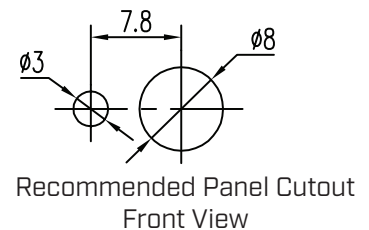
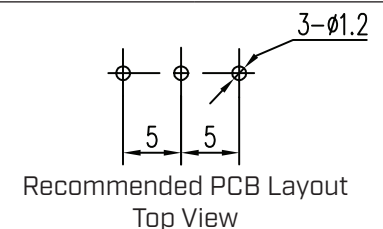
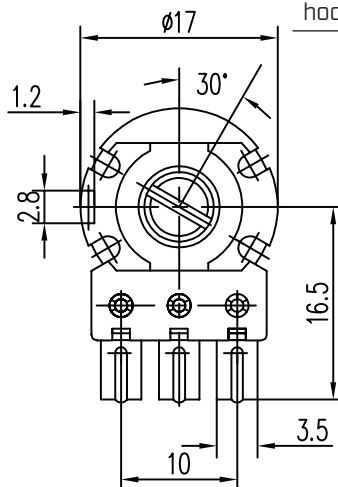
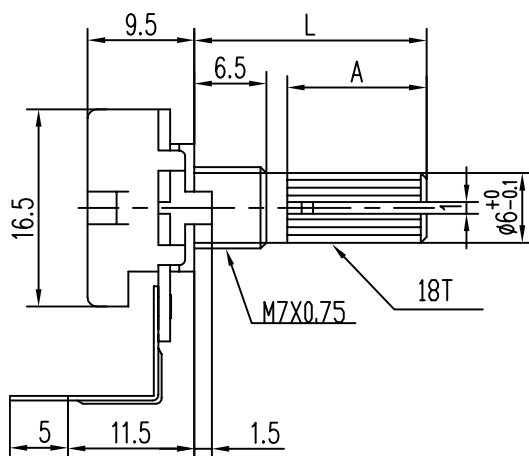
units: mm  
tolerance:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |

## MECHANICAL DRAWING (SINGLE SECTION, F TERMINAL CONFIGURATION)

units: mm  
tolerance:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |

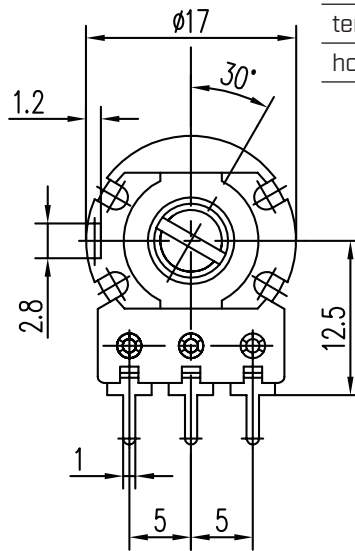
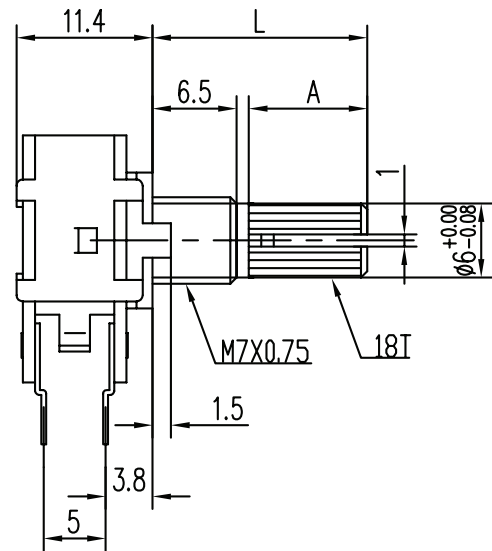
## MECHANICAL DRAWING (DUAL SECTION, A TERMINAL CONFIGURATION)

units: mm

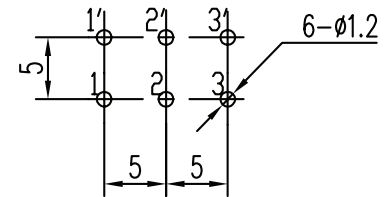
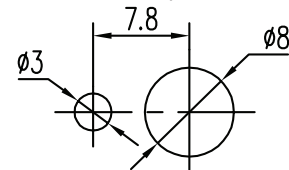
tolerance:

 $X \leq 10.00$ :  $\pm 0.30$  mm $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm

unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |

Recommended PCB Layout  
Top ViewRecommended Panel Cutout  
Front View

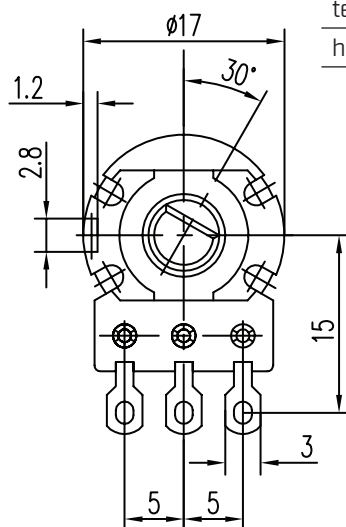
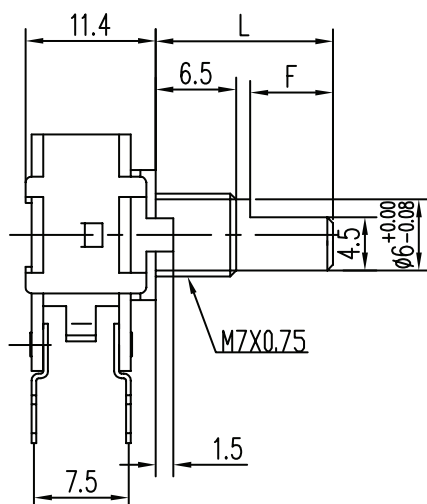
## MECHANICAL DRAWING (DUAL SECTION, C TERMINAL CONFIGURATION)

units: mm

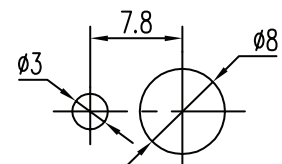
tolerance:

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unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |

Recommended Panel Cutout  
Front View

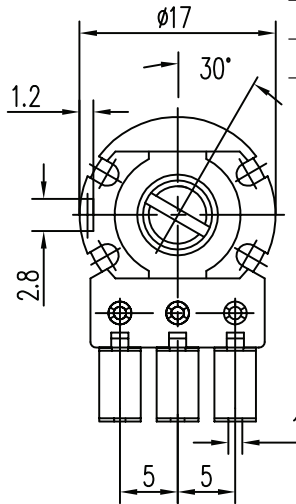
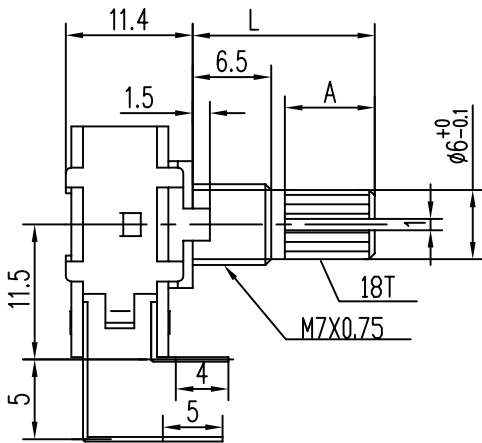
## MECHANICAL DRAWING (DUAL SECTION, E TERMINAL CONFIGURATION)

units: mm

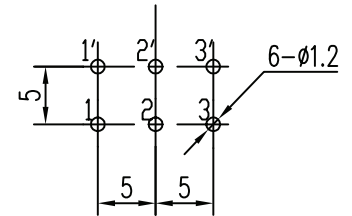
tolerance:

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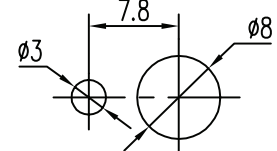
unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



Recommended PCB Layout  
Top View



Recommended Panel Cutout  
Front View

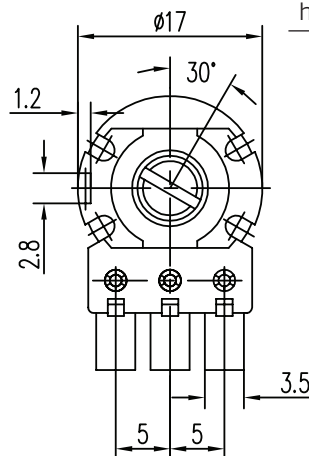
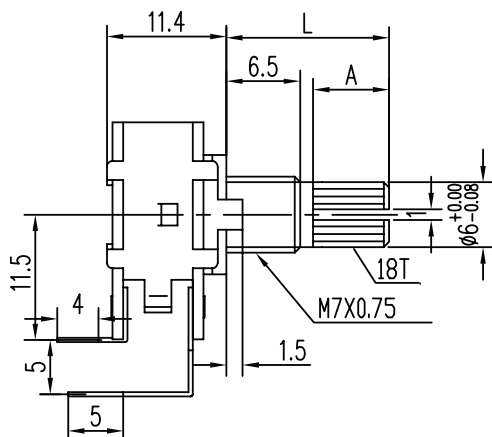
## MECHANICAL DRAWING (DUAL SECTION, F TERMINAL CONFIGURATION)

units: mm

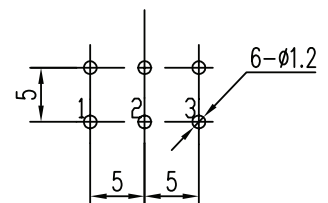
tolerance:

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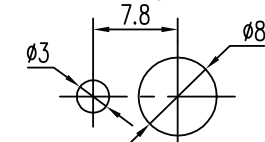
unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



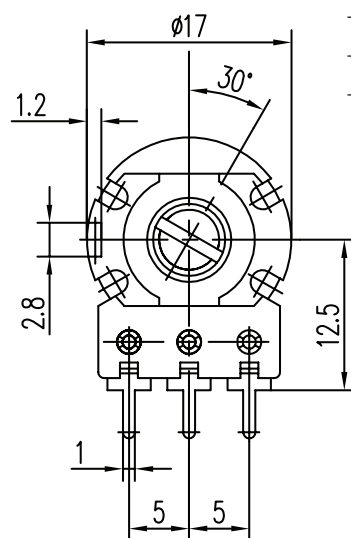
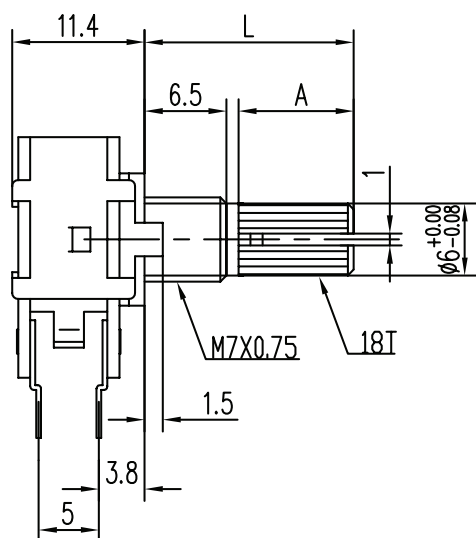
Recommended PCB Layout  
Top View



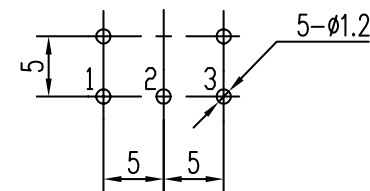
Recommended Panel Cutout  
Front View

## MECHANICAL DRAWING (SWITCH SECTION, A TERMINAL CONFIGURATION)

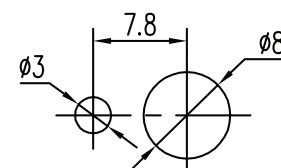
units: mm  
 tolerance:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
 unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



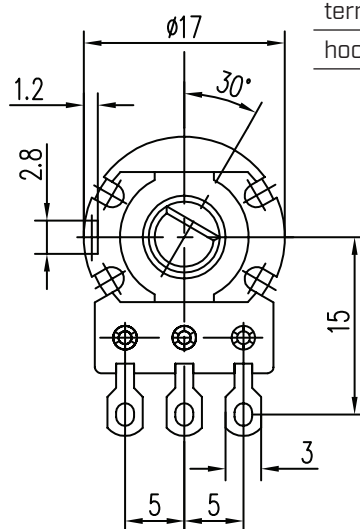
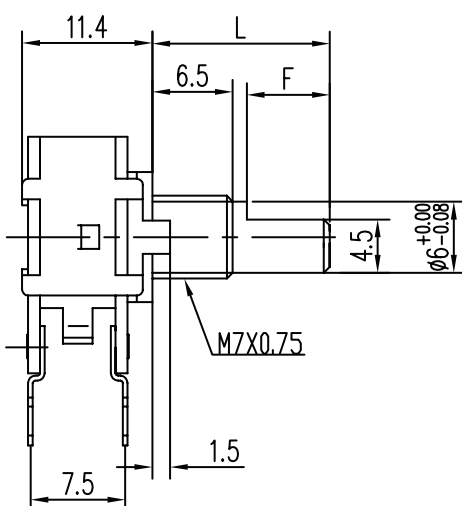
Recommended PCB Layout  
Top View



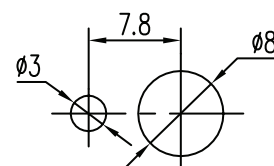
Recommended Panel Cutout  
Front View

## MECHANICAL DRAWING (SWITCH SECTION, C TERMINAL CONFIGURATION)

units: mm  
 tolerance:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
 unless otherwise noted



| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |



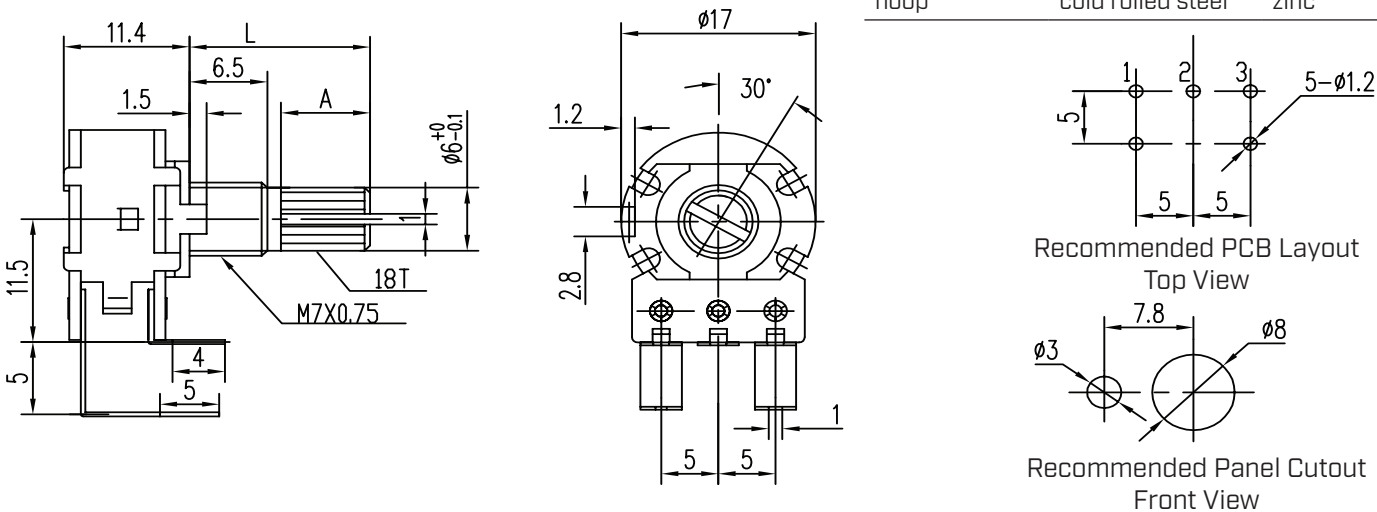
Recommended Panel Cutout  
Front View



MECHANICAL DRAWING (SWITCH SECTION, E TERMINAL CONFIGURATION)

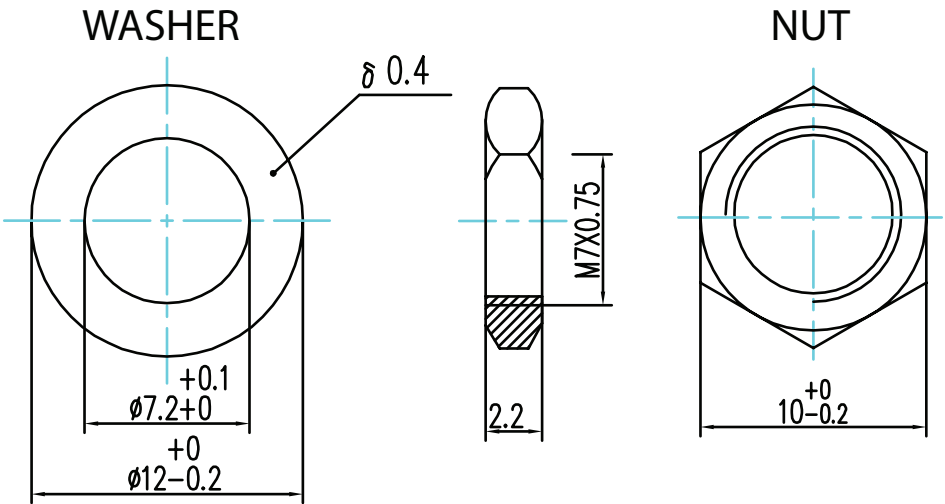
units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
10.00<X≤30.00: ±0.50 mm  
30.00<X≤100.00: ±1.0 mm  
unless otherwise noted

| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc              | cupronickel   |
| carbon plate  | FR4 [UL94HB]      |               |
| terminals     | cold rolled steel | tin           |
| hoop          | cold rolled steel | zinc          |

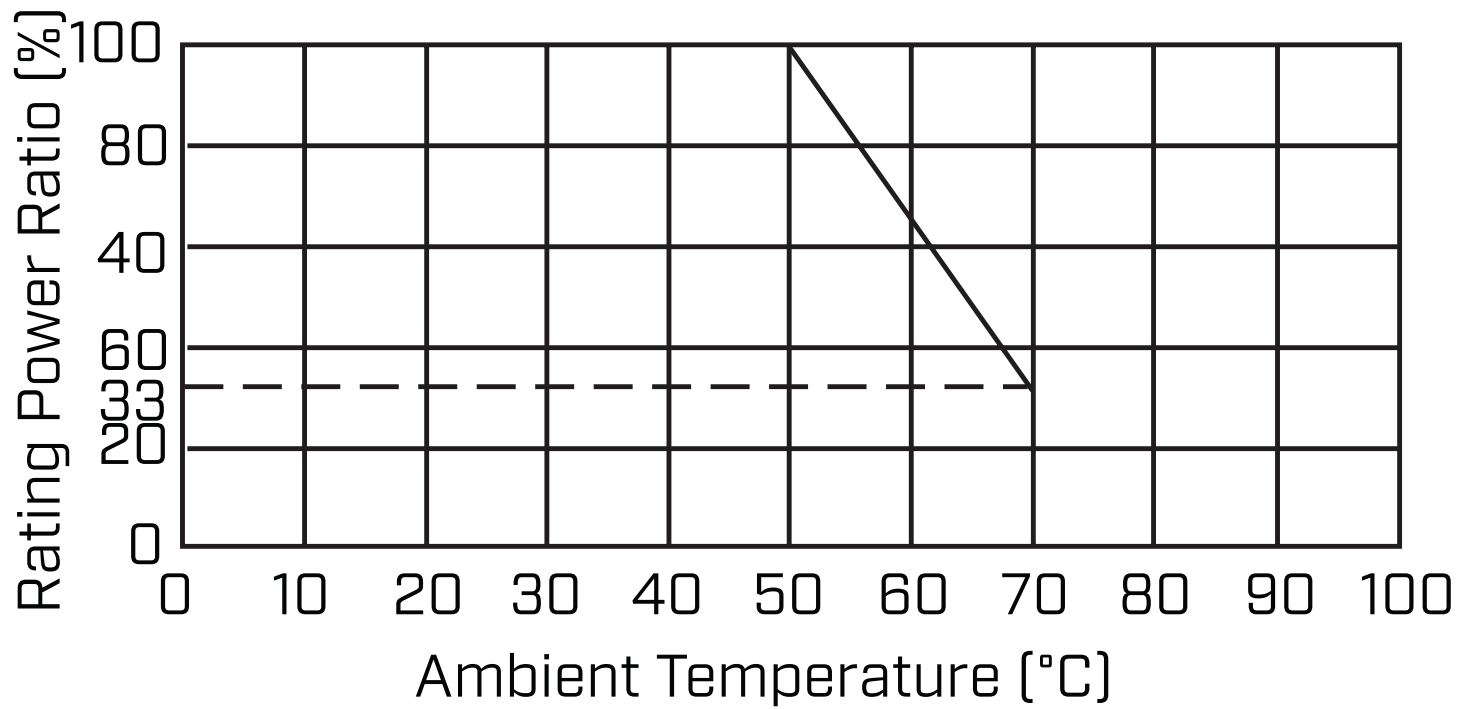


MOUNTING HARDWARE

units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
unless otherwise noted



## POWER DERATING CURVE



REVISION HISTORY

| rev. | description          | date       |
|------|----------------------|------------|
| 1.0  | initial release      | 05/16/2023 |
| 1.01 | updated taper detail | 01/15/2024 |

The revision history provided is for informational purposes only and is believed to be accurate.



CUI Devices offers a one (1) year limited warranty. Complete warranty information is listed on our website.

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