

**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:

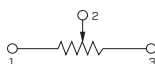
A = Logarithmic  
 B = Linear  
 C = Reverse Logarithmic

Number of Sections:

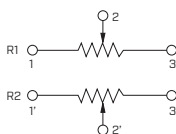
1 = Single  
 2 = Dual  
 3 = With Switch

## SCHEMATIC/TAPERS

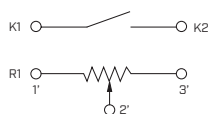
## Single



## Double

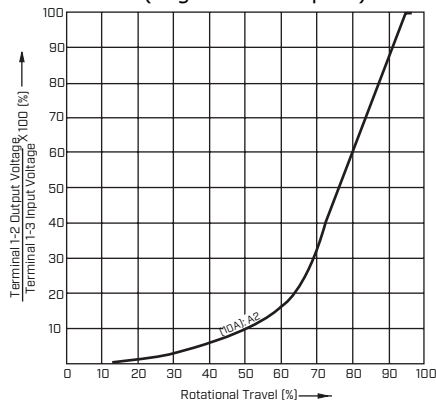


## With Switch

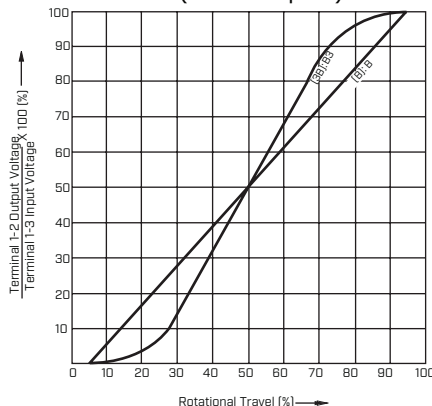


| Resistance Table         |      |
|--------------------------|------|
| Resistance (K $\Omega$ ) | Code |
| 1                        | 01   |
| 2                        | 02   |
| 5                        | 05   |
| 10                       | 10   |
| 20                       | 20   |
| 25        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

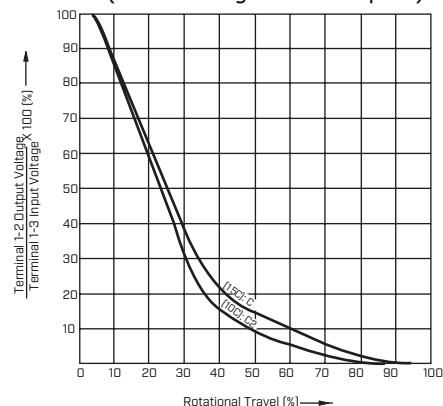
## A (Logarithmic Tapers)



## 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.

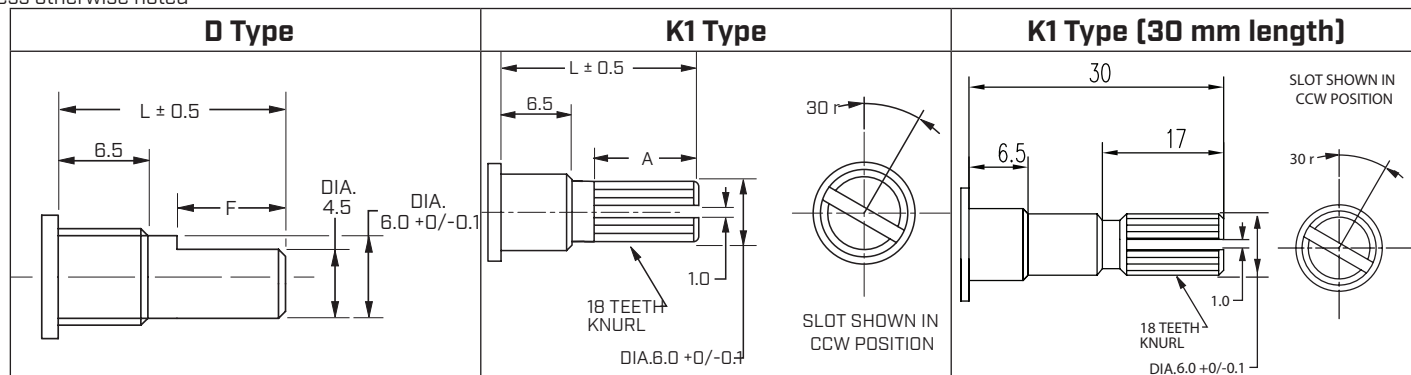
## SHAFT TYPES

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   |

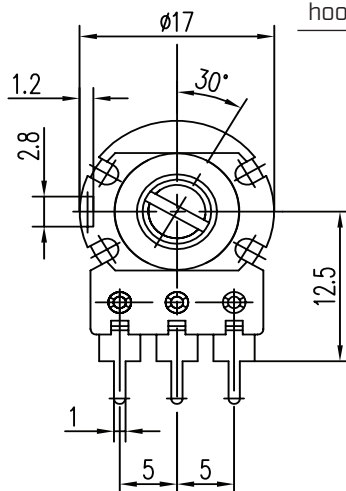
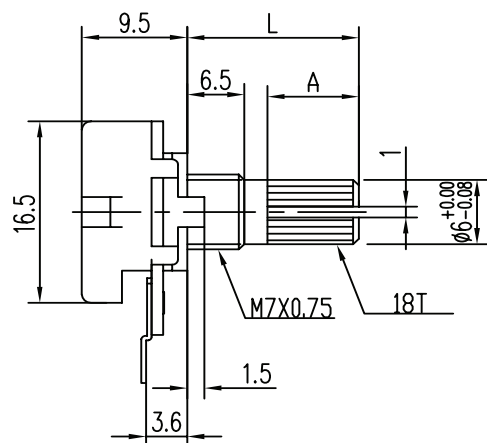
## MECHANICAL DRAWING (SINGLE SECTION, A TERMINAL CONFIGURATION)

units: mm

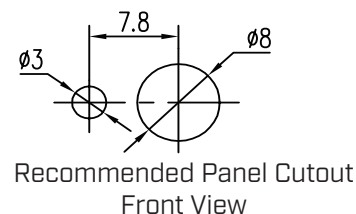
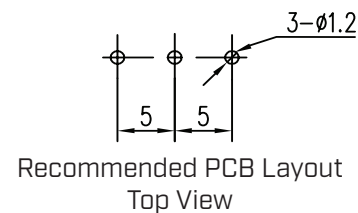
tolerance:

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unless otherwise noted



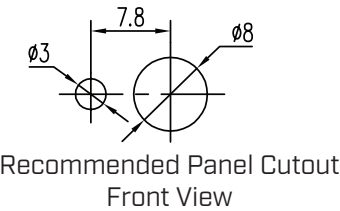
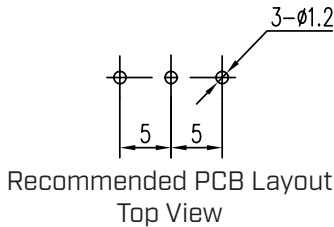
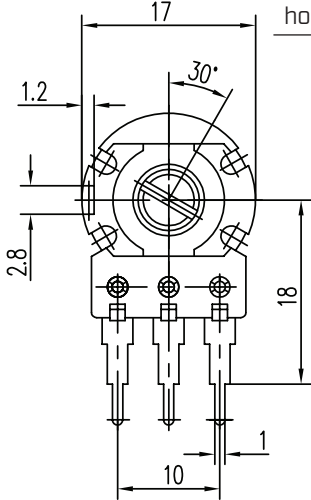
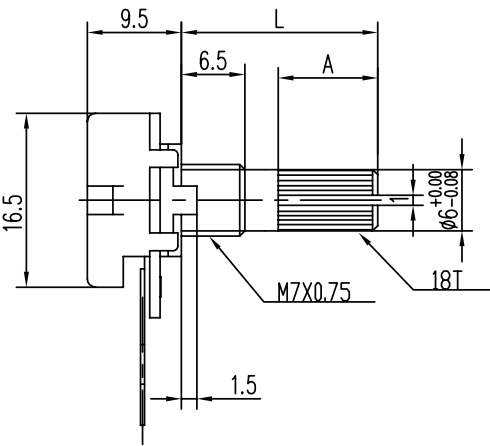
| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | PDM (UL94HB)      |               |
| reed          | zinc              | 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:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
unless otherwise noted

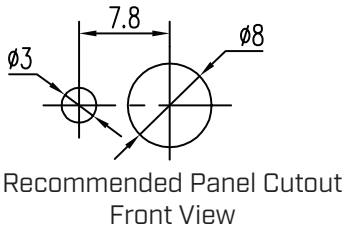
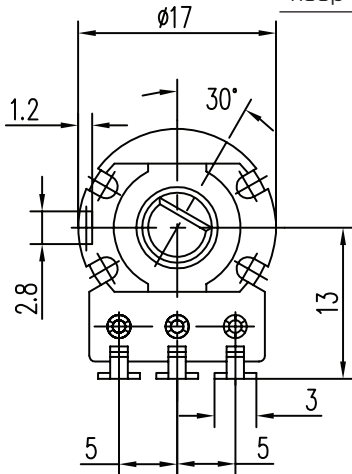
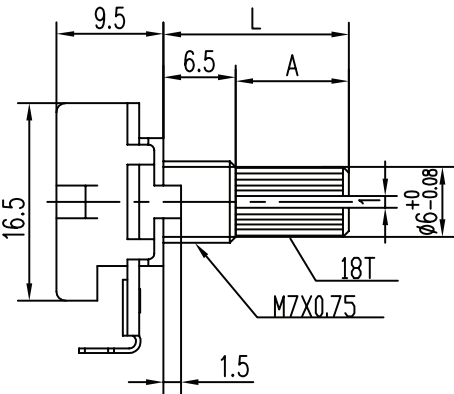
| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc        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



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

units: mm

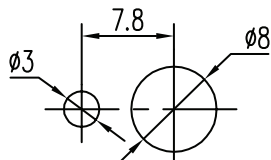
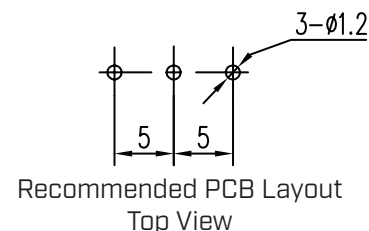
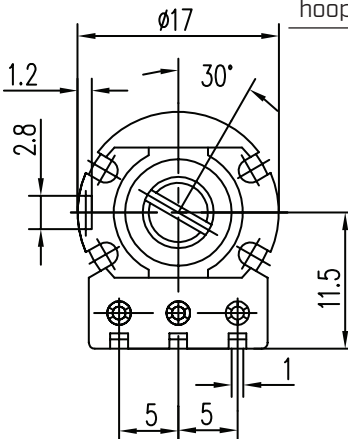
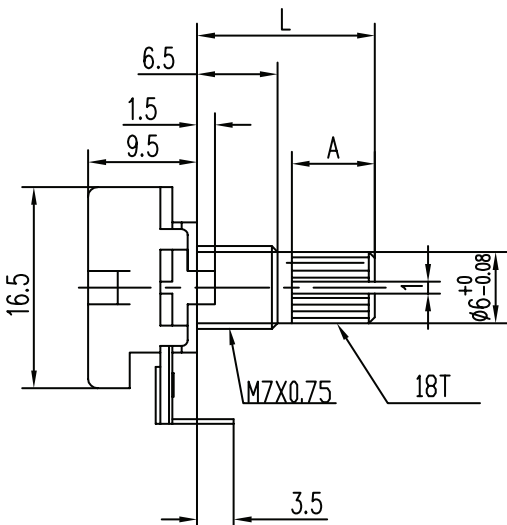
tolerance:

$X \leq 10.00$ :  $\pm 0.30$  mm

10.00<X≤30.00: ±0.50 mm

30.00<X≤100.00: ±1.0 mm

unless otherwise noted



### Recommended Panel Cutout Front View

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

units: mm

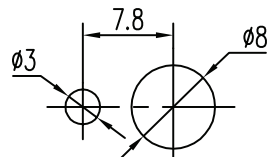
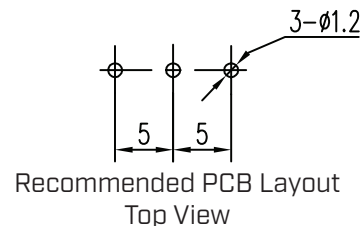
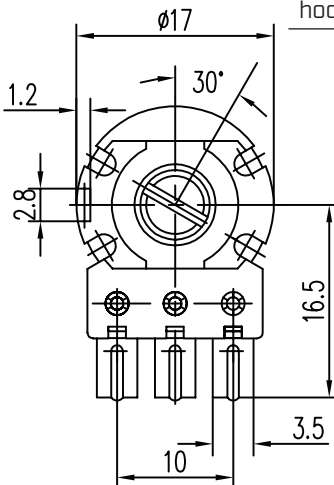
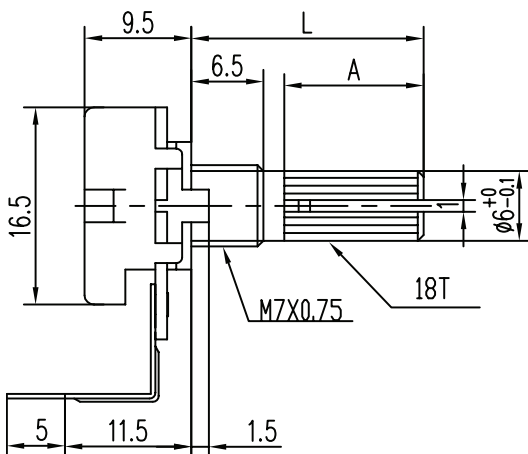
tolerance:

 $X \leq 10.00: \pm 0.30 \text{ mm}$ 

10.00<X≤30.00: ±0.50 mm

30.00<X≤100.00: ±1.0 mm

unless otherwise noted



### Recommended Panel Cutout Front View

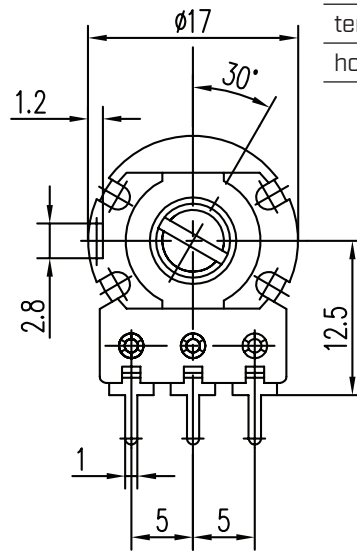
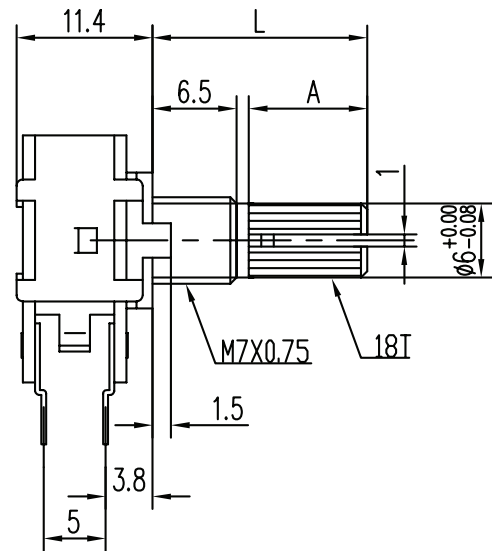
## MECHANICAL DRAWING (DUAL SECTION, A TERMINAL CONFIGURATION)

units: mm

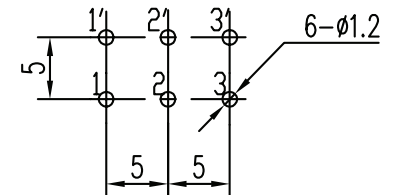
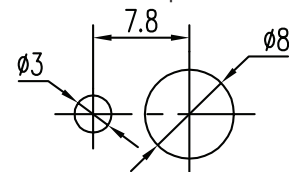
tolerance:

 $X \leq 10.00$ :  $\pm 0.30$  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

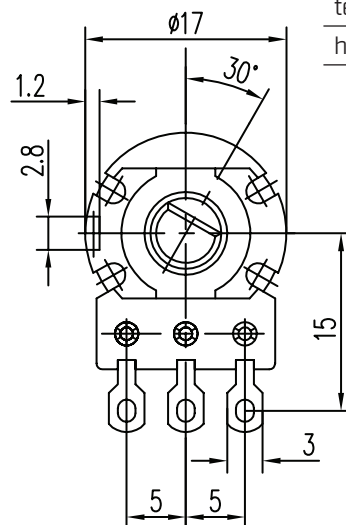
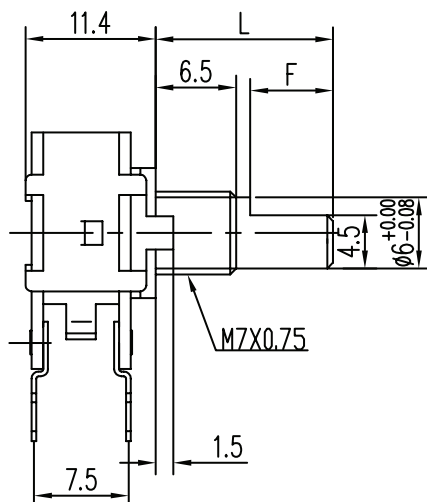
## MECHANICAL DRAWING (DUAL SECTION, C TERMINAL CONFIGURATION)

units: mm

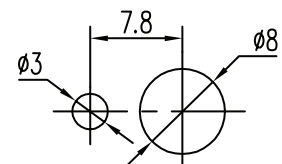
tolerance:

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

unless otherwise noted

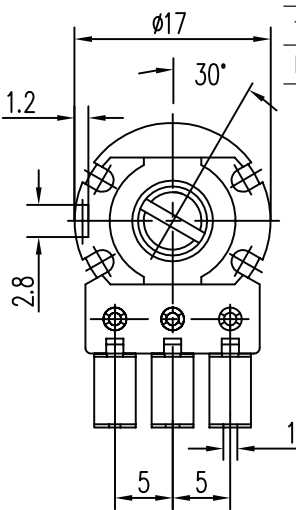
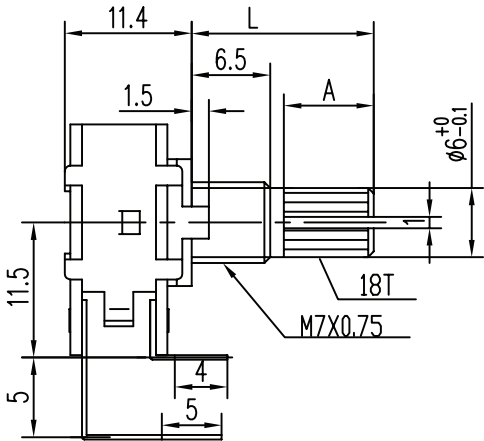


| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc        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

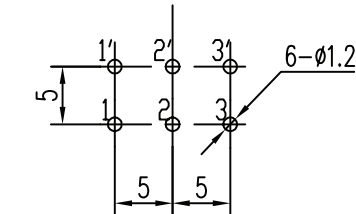
Recommended Panel Cutout  
Front View

MECHANICAL DRAWING (DUAL SECTION, E TERMINAL CONFIGURATION)

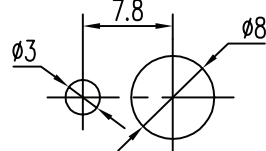
units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
10.00<X≤30.00: ±0.50 mm  
30.00<X≤100.00: ±1.0 mm  
unless otherwise noted



| 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          |



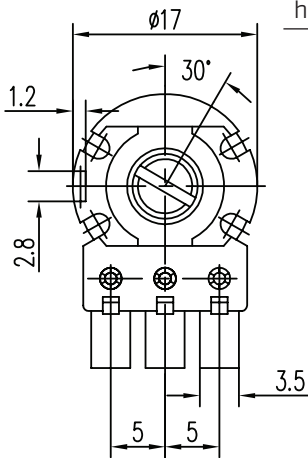
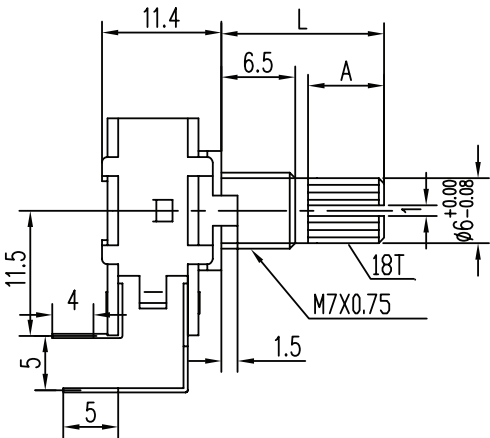
Recommended PCB Layout  
Top View



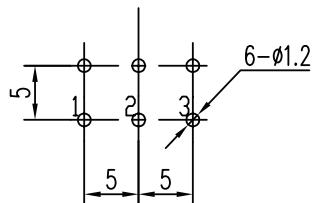
Recommended Panel Cutout  
Front View

MECHANICAL DRAWING (DUAL SECTION, F TERMINAL CONFIGURATION)

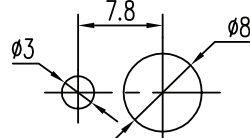
units: mm  
tolerance:  
X≤10.00: ±0.30 mm  
10.00<X≤30.00: ±0.50 mm  
30.00<X≤100.00: ±1.0 mm  
unless otherwise noted



| 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          |



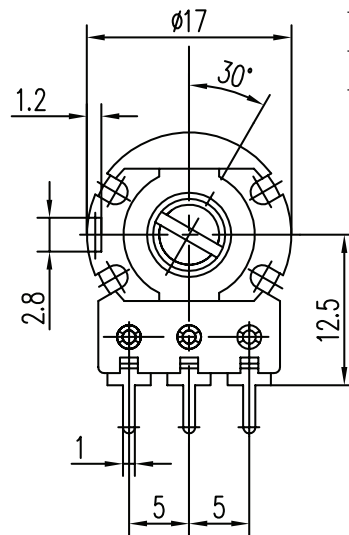
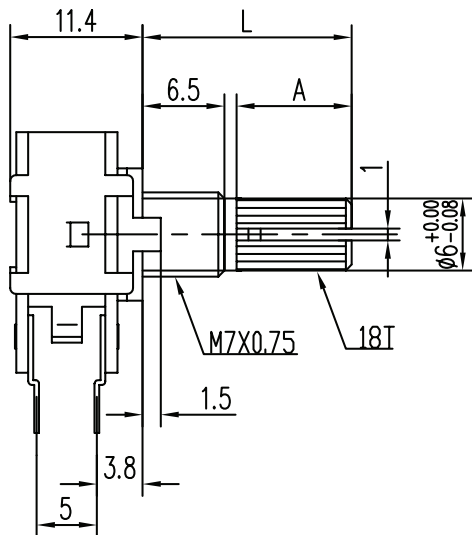
Recommended PCB Layout  
Top View



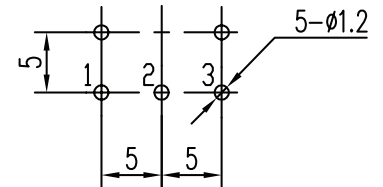
Recommended Panel Cutout  
Front View

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

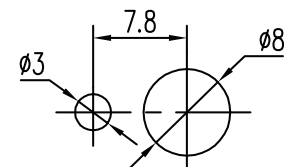
units: mm  
 tolerance:  
 $X \leq 10.00$ :  $\pm 0.30$  mm  
 $10.00 < X \leq 30.00$ :  $\pm 0.50$  mm  
 $30.00 < X \leq 100.00$ :  $\pm 1.0$  mm  
 unless otherwise noted



| 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

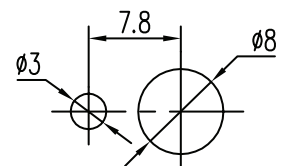
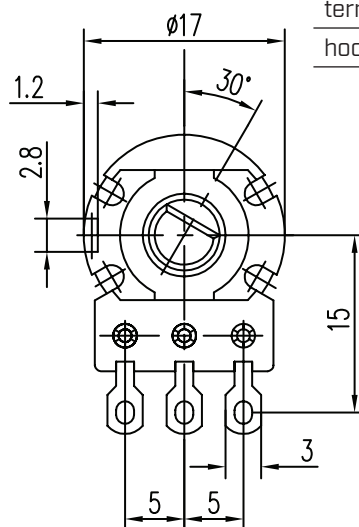
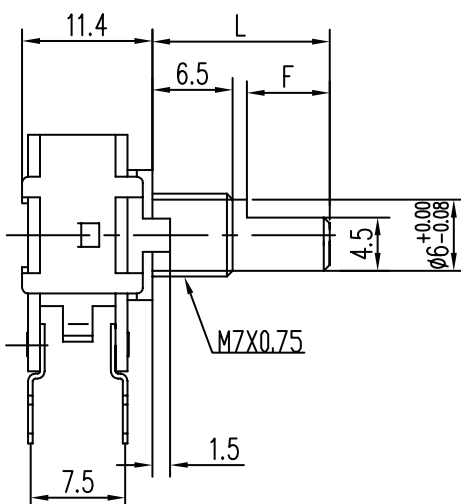


Recommended Panel Cutout  
Front View

## 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

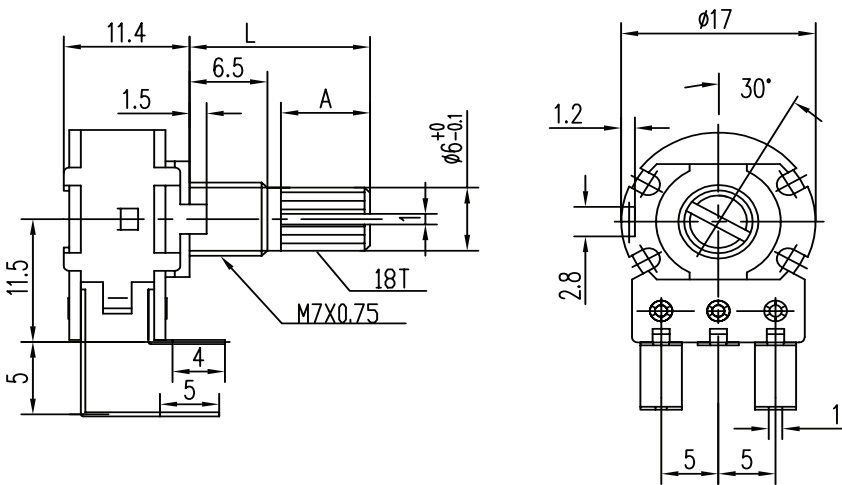
| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc        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



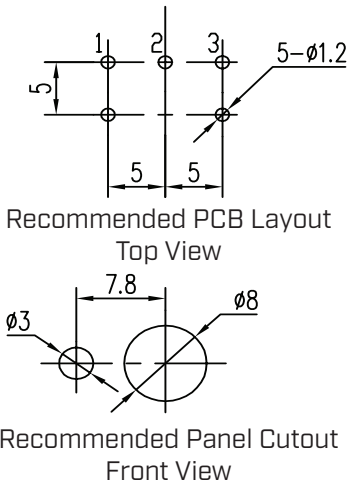
Recommended Panel Cutout  
Front View

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

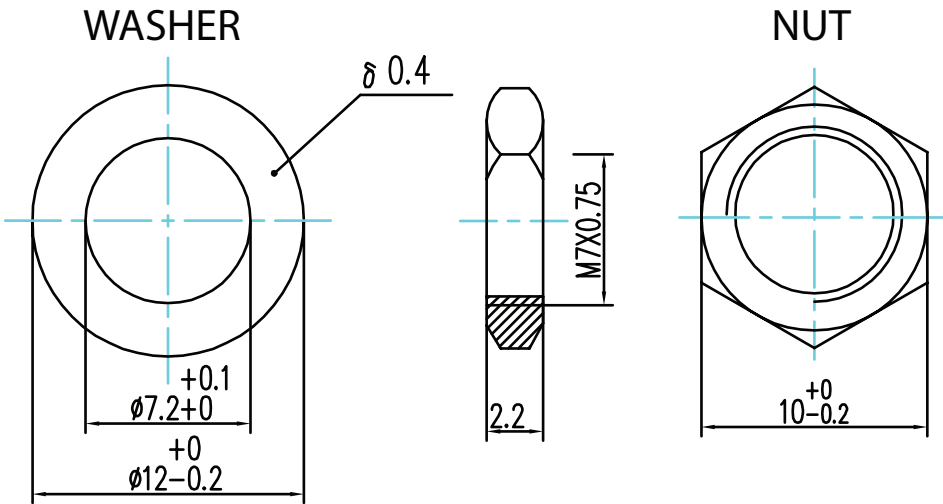


| DESCRIPTION   | MATERIAL          | PLATING/COLOR |
|---------------|-------------------|---------------|
| shaft         | zinc alloy        |               |
| bushing       | zinc alloy        |               |
| driving plate | POM [UL94HB]      |               |
| reed          | zinc        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

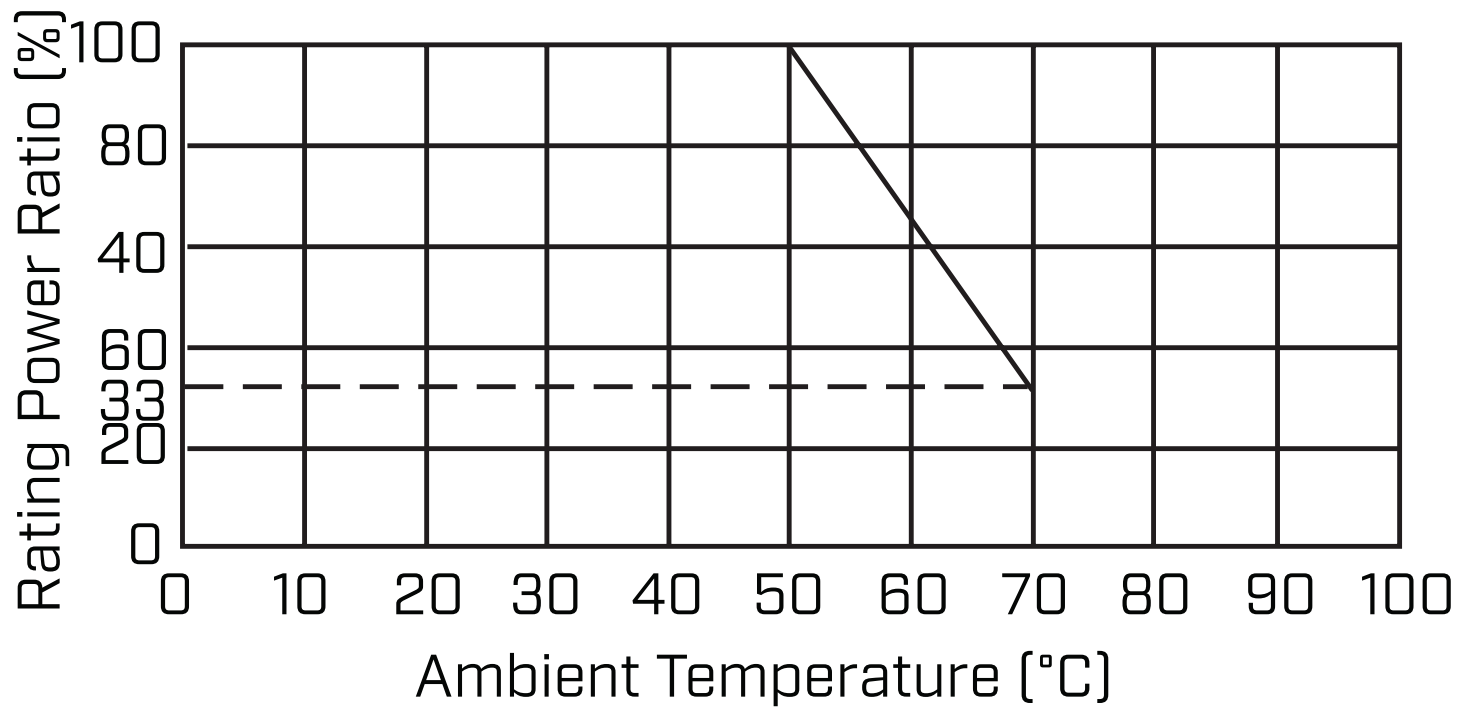


MOUNTING HARDWARE

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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CUI Devices products are not authorized or warranted for use as critical components in equipment that requires an extremely high level of reliability. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

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