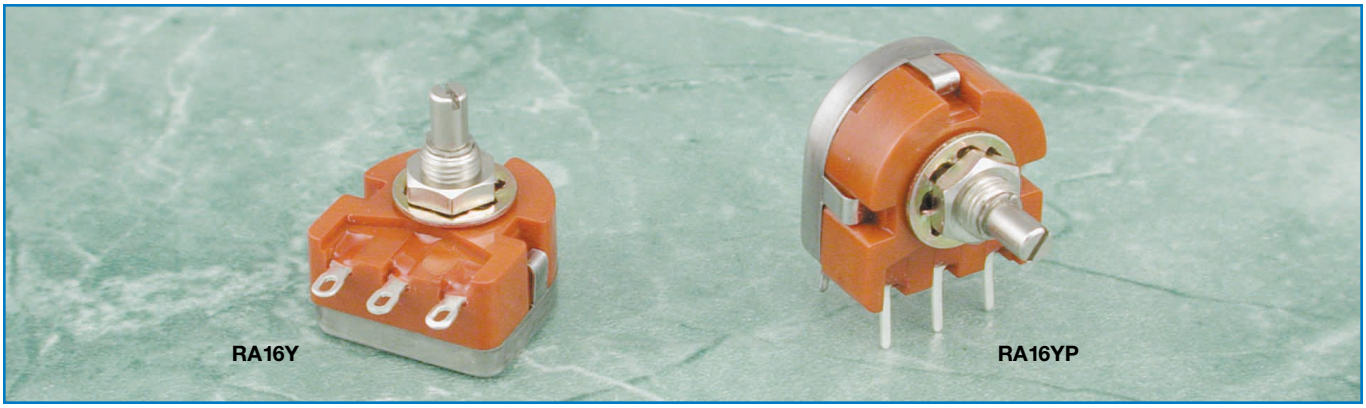
RA16 Series

TOCOS® PANEL CONTROLS

16mm Diameter, Single-Turn, Wirewound Industrial Panel Controls



Features

■ 16mm diameter, single-turn industrial panel controls ■ Wirewound element ■ Single unit, single shaft
■ Linear taper ■ Metal shaft and bushing ■ Shaft lock models available ■ Panel and PCB mounting styles
■ 3mm diameter shafts in slot, flat or round end styles ■ Standard 10mm or 15mm shaft length
■ Lug or right angle mount pin terminals ■ Low operating temperature option of −10°C or −30°C, up to +100°C

Specifications

Electrical

Standard Resistance Range . . . . . 10Ω to 10kΩ

Resistance Tolerance . . . . . ±10% standard (±5%, ±2% or ±1% special order)

End Resistance . . . . . R < 500Ω = 1Ω max. R ≧ 500Ω = 0.2% max.

Resistance Taper . . . . . B = linear

Power Rating . . . . . 0.5 watt at +40°C

Insulation Resistance . . . . . 100MΩ minimum at 500VDC

Dielectric Strength . . . . . 500VAC, 1 minute

Theoretical Resolution

Resistance (Ω)	Resolution (%)	Resistance (Ω)	Resolution (%)
10	0.95	500	0.28
20	0.76	1,000	0.30
50	0.58	2,000	0.23
100	0.45	5,000	0.16
200	0.39	10,000	0.14

Mechanical

Mechanical Travel . . . . . 290°±5°

Shaft Torque . . . . . 20.4 to 153 gf•cm (0.283 to 2.121 oz•in)

Stop Strength . . . . . 3.06 kgf•cm (42.42 oz•in) max.

Mounting Nut Torque . . . . . 10.2 kgf•cm (141.4 oz•in) max.

Solderability . . . . . 235°C, 3 seconds

Marking . . . . . Model type, taper, resistance code, shaft type, terminal identification, date code

Environmental

Temperature Range . . . . . Y = −10°C to +100°C or X = −30°C to +100°C

Temperature Characteristics . . . . . +85°C, 5 hours without load ΔT/R ≦±5%

Low Temperature Exposure . . . . . −10°C (Y), −30°C (X) 1 hour without load ΔT/R ≦±3%

Load Life . . . . . +40°C, 1,000 hours with rated load ΔT/R ≦±3%

Moisture and Load Life . . . . . +40°C, 90-95%RH, 500 hours with 1/10 rated load ΔT/R ≦±5%

Vibration . . . . . 10-55Hz, 1.5mm amplitude, 2 directions, 2 hours each ΔT/R ≦±1%

Soldering Heat Resistance . . . . . 350°C, 3.5 seconds; 260°C, 5 seconds (PCB units) ΔT/R ≦±2%

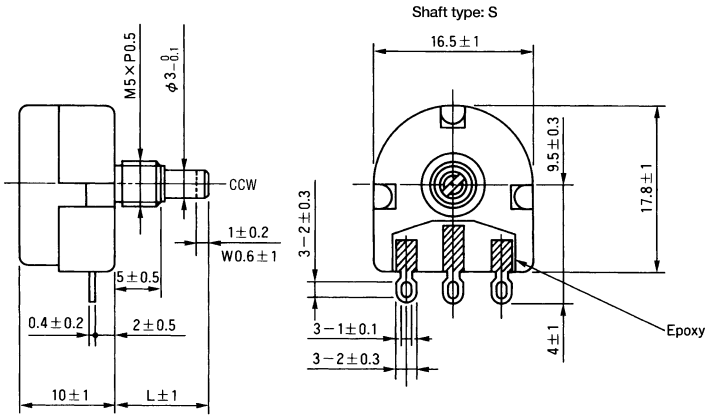
Rotational Life . . . . 15,000 cycles (500 cycles for shaft lock models only) with 1/2 rated load ΔT/R ≦±3%

R = Total Resistance Value; ΔT/R = Total Resistance Change

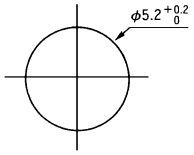
Unit: mm

RA16Y & RA16X

Panel Mount, Single Unit, Single Shaft
Right Angle Ear-Lug Terminals, 3-Lug Inline Pattern

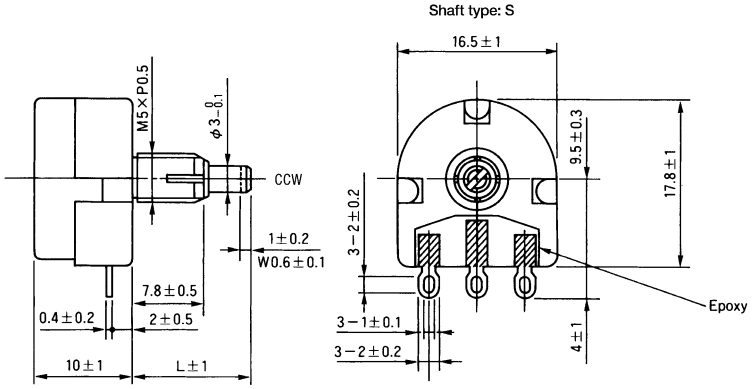


Recommended Panel Mounting Hole

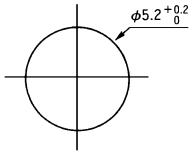


RA16YL

Panel Mount, Single Unit, Single Shaft with Shaft Lock
Right Angle Ear-Lug Terminals, 3-Lug Inline Pattern

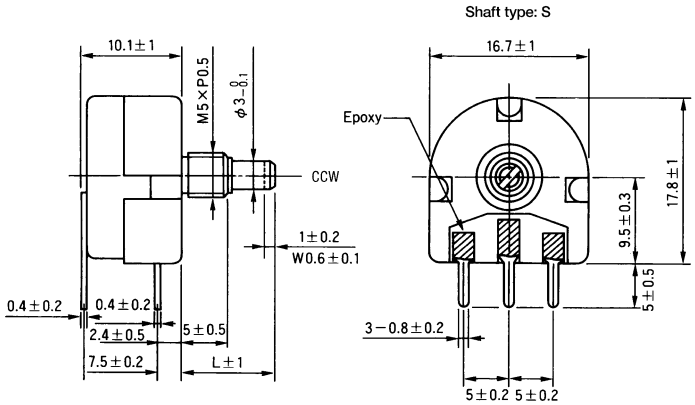


Recommended Panel Mounting Hole

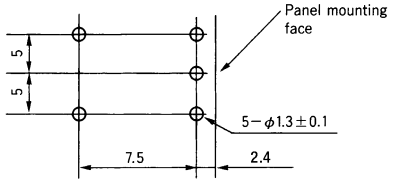


RA16YP & RA16XP

PCB Mount, Single Unit, Single Shaft
Right Angle Mount Pin Terminals, 3-Pin Inline Pattern, 2-Pin Rear Support Bracket



Recommended PCB Mounting Holes

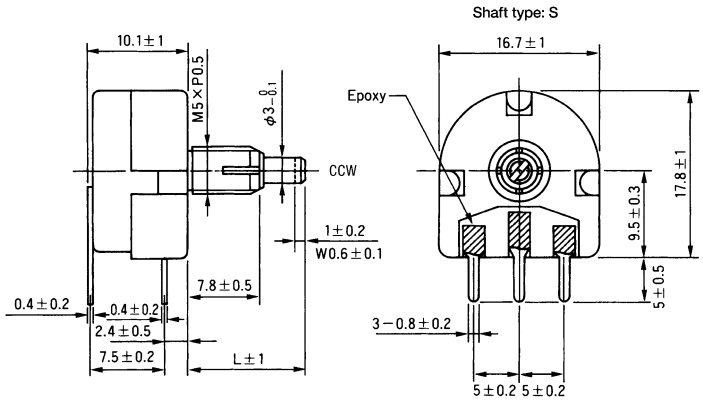


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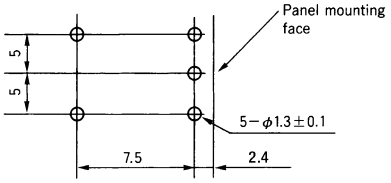
RA16YPL

PCB Mount, Single Unit, Single Shaft with Shaft Lock
Right Angle Mount Pin Terminals, 3-Pin Inline Pattern, 2-Pin Rear Support Bracket

Unit: mm



Recommended PCB Mounting Holes



RA16 Series Part Numbering System

RA 16 Y L 10 S B 103 K

NOTE: FMS = From Mounting Surface

Resistance Tolerance: K = ±10% (standard).
J = ±5% (special order).
G = ±2% (special order).
F = ±1% (special order).

Resistance Code: Expressed in ohms. A three digit code where the first two digits are significant figures, and the third digit indicates the number of zeros that follow these figures (i.e., 100 = 10Ω; 101 = 100Ω; 102 = 1,000Ω; 103 = 10,000Ω; 105 = 1,000,000Ω). *See table for standard resistance values.*

Resistance Taper: B = Linear.

Shaft End Style: S = Slotted.
F = Flatted.
R = Round.

Standard Shaft Length: 10 = 10mm FMS.
15 = 15mm FMS.
Up to 30mm shaft length available (special order).

Style: Blank = Panel Mount, Single Unit, Single Shaft, Right Angle Ear-Lug Terminals, 3-Lug Inline Pattern.
L = Panel Mount, Single Unit, Single Shaft with Shaft Lock, Right Angle Ear-Lug Terminals, 3-Lug Inline Pattern.
P = PCB Mount, Single Unit, Single Shaft, Right Angle Mount Pin Terminals, 3-Pin Inline Pattern, 2-Pin Rear Support Bracket.
PL = PCB Mount, Single Unit, Single Shaft with Shaft Lock, Right Angle Mount Pin Terminals, 3-Pin Inline Pattern, 2-Pin Rear Support Bracket.

Operating Temperature Range: Y = −10°C to +100°C.
X = −30°C to +100°C.

Size: 16 = 16mm Diameter.

TOCOS Series Name: RA = Wirewound Element.

Standard Resistance Values and Part Numbering Codes

Standard Nominal Total Resistance Values and Part Numbering Codes

Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code	Resistance (Ω)	Code
10	100	100	101	1,000	102	10,000	103
20	200	200	201	2,000	202		
50	500	500	501	5,000	502		

Refer to Shaft End Styles Specifications and Hardware Specifications for details and availability.
For additional information, refer to Guidelines and Precautions for Using Panel Controls.

TOCOS AMERICA, INC.
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