

## 20mm Diameter, Single-Turn, Carbon Industrial Panel Controls



### Features

- 20mm diameter, single-turn industrial panel controls
- Carbon film element
- Single unit, single shaft
- Linear or audio tapers
- Metal shaft and bushing
- Optional shaft lock models available
- 6mm diameter metal shafts in slot, flat or round end styles
- Standard 10mm, 15mm or 20mm shaft length
- Panel or PC board mounting styles
- Rear exit lug or pin terminals
- Wide standard resistance range

### Specifications

#### Electrical

**Standard Resistance Range** ..... B = 100Ω to 2MΩ  
 A, C = 2kΩ to 2MΩ

**Resistance Tolerance** ..... ±10% standard

**End Resistance** ..... 3Ω max.

**Resistance Taper** .... B = linear; A = CW audio (logarithm);  
 C = CCW audio (logarithm)

**Peak Noise (C.R.V.)** ..... 3% or 3Ω, whichever is greater

**Power Rating** ..... B = 0.25 watt; A, C = 0.125 watt  
 at +40°C, 0 watt at +85°C

**Maximum Input Voltage** ..... 250VDC or power rating,  
 whichever is smaller

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

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

**Adjustment Travel** ..... 230° ± 10°

#### Mechanical

**Mechanical Travel** ..... 260° ± 10°

**Shaft Torque** ..... 50 to 300 gf·cm (0.693 to 4.159 oz·in)

**Stop Strength** ..... 6 kgf·cm (83.176 oz·in) max.

**Mounting Nut Torque** ..... 15 kgf·cm (207.94 oz·in) max.

**Solderability** ..... 235°C, 5 seconds

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

#### Environmental

**Temperature Range** ..... -10°C to +85°C

**Temperature Characteristics** ..... +80°C, 5 hours  
 without load  
 R < 10kΩ → ΔT/R ≤ ±6%  
 10kΩ ≤ R < 1MΩ → ΔT/R ≤ ±10%  
 R ≥ 1MΩ → ΔT/R ≤ ±15%

**Load Life** ..... +40°C, 90 minutes on, 30 minutes off,  
 1,000 hours with rated load  
 ΔT/R ≤ ±10%

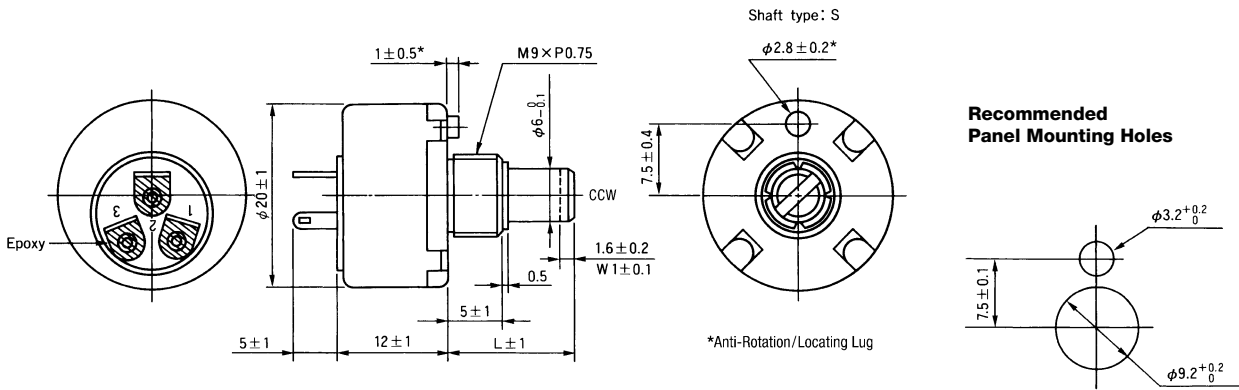
**Moisture and Load Life** ..... +40°C, 90-95% RH,  
 90 minutes on, 30 minutes off,  
 500 hours with rated load  
 R < 100kΩ → ΔT/R ≤ -10% ~ +15%  
 R ≥ 100kΩ → ΔT/R ≤ -10% ~ +20%

**Soldering Heat Resistance** ..... 350°C, 3 seconds  
 ΔT/R ≤ ±2%

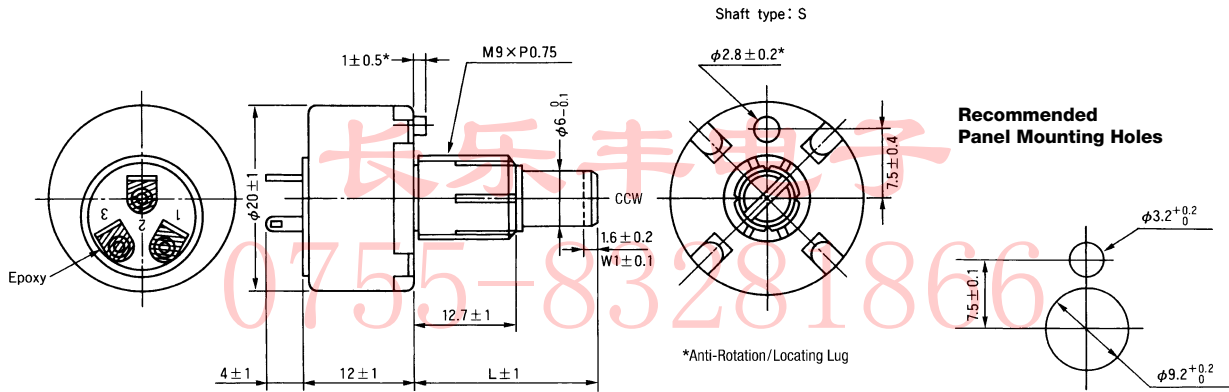
**Rotational Life** ..... 15,000 cycles without load  
 ΔT/R ≤ ±7%

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

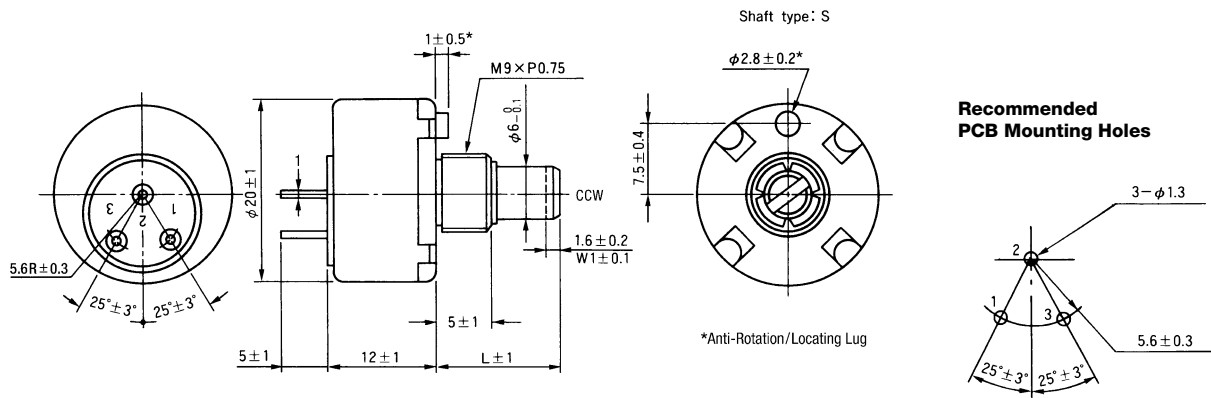
**RV20YN**  
**Panel Mount, Single Unit, Single Shaft**  
**Rear Exit Vertical Lug Terminals, 3-Lug Triangular Pattern**



**RV20YL**  
**Panel Mount, Single Unit, Single Shaft with Shaft Lock**  
**Rear Exit Vertical Lug Terminals, 3-Lug Triangular Pattern**



**RV20YP1**  
**PCB Mount, Single Unit, Single Shaft**  
**Rear Exit Vertical Mount Pin Terminals, 3-Pin Triangular Pattern**



**RV 20 Y N 20 S B 103 K**

NOTE: FMS = From Mounting Surface

- ➔ **Resistance Tolerance: K** = ±10% (standard).
- ➔ **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.  
**A** = CW Audio (logarithm).  
**C** = CCW Audio (logarithm).
- ➔ **Shaft End Style: S** = Slotted.  
**F** = Flatted.  
**R** = Round.
- ➔ **Standard Shaft Length: 10** = 10mm FMS.  
**15** = 15mm FMS.  
**20** = 20mm FMS.  
 Up to 30mm shaft length available (special order).
- ➔ **Style: N** = Panel Mount, Single Unit, Single Shaft, Rear Exit Vertical Lug Terminals, 3-Lug Triangular Pattern.  
**L** = Panel Mount, Single Unit, Single Shaft with Shaft Lock, Rear Exit Vertical Lug Terminals, 3-Lug Triangular Pattern.  
**P1** = PCB Mount, Single Unit, Single Shaft, Rear Exit Vertical Mount Pin Terminals, 3-Pin Triangular Pattern.
- ➔ **Operating Temperature Range: Y** = -10°C to +85°C.
- ➔ **Size: 20** = 20mm Diameter.
- ➔ **TOCOS Series Name: RV** = Carbon Film 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	Resistance (Ω)	Code
100	101	1,000	102	10,000	103	100,000	104	1,000,000	105
200	201	2,000	202	20,000	203	200,000	204	2,000,000	205
500	501	5,000	502	50,000	503	500,000	504		

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.