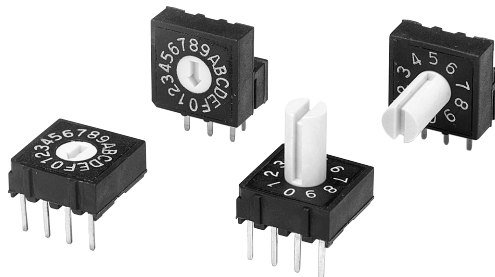


# Rotary DIP Switch A6R/A6RV

## Low-Cost Rotary DIP Switches

- Series includes top-actuated, side-actuated, flat, and extended-shaft models.
- The rotor has an O-ring sealed construction that prevents the ingress of dirt and dust.
- Two different types of terminal arrangements are available for each model to allow flexibility of circuit design.
- RoHS Compliant.



## Ordering Information

### List of Models

				Type	Top-actuated, flat	Top-actuated, extended shaft	Side-actuated, flat	Side-actuated, extended shaft
				Appearance				
Number of positions	Quantity per stick	Terminal arrangement	Output code					
10	48	4 × 1	Real code	<b>A6R-101RF</b>	<b>A6R-101RS</b>	<b>A6RV-101RF</b>	<b>A6RV-101RS</b>	
		3 × 3	Real code	<b>A6R-102RF</b>	<b>A6R-102RS</b>	<b>A6RV-102RF</b>	<b>A6RV-102RS</b>	
16	48	4 × 1	Real code	<b>A6R-161RF</b>	<b>A6R-161RS</b>	<b>A6RV-161RF</b>	<b>A6RV-161RS</b>	
		3 × 3	Real code	<b>A6R-162RF</b>	<b>A6R-162RS</b>	<b>A6RV-162RF</b>	<b>A6RV-162RS</b>	

Note: Switches are delivered in units of 48. Order in multiples of 48.

## Specifications

### Ratings/Characteristics

<b>Rating</b>	25 mA at 24 VDC
<b>Ambient operating temperature</b>	-25° to 80° C (with no icing or condensation)
<b>Ambient operating humidity</b>	35% to 95%
<b>Insulation resistance</b>	100 MΩ min. (at 250 VDC)
<b>Contact resistance</b>	200 mΩ max. (initial value)
<b>Dielectric strength</b>	250 VAC for 1 minute between terminals of the same polarity
<b>Vibration resistance</b>	Malfunction: 10 to 55 Hz, 1.5-mm double amplitude
<b>Shock resistance</b>	Malfunction: Approx. 300 m/s <sup>2</sup>
<b>Electrical life expectancy</b>	5,000 steps min.
<b>Operating torque</b>	1.96 × 10 <sup>-2</sup> N·m max.
<b>Weight</b>	4×1, top-actuated: 0.64 g 3×3, top-actuated: 0.62 g 4×1, side-actuated: 0.8 g 3×3, side-actuated: 0.83 g (Add 0.13 g for the extended-shaft version of each model.)

### Output Codes

#### 10-position Models

Position	Code			
	1	2	4	8
0				
1	ON			
2		ON		
3	ON	ON		
4			ON	
5	ON		ON	
6		ON	ON	
7	ON	ON	ON	
8				ON
9	ON			ON

#### 16-position Models

Position	Code			
	1	2	4	8
0				
1	ON			
2		ON		
3	ON	ON		
4			ON	
5	ON		ON	
6		ON	ON	
7	ON	ON	ON	
8				ON
9	ON			ON
A		ON		ON
B	ON	ON		ON
C			ON	ON
D	ON		ON	ON
E		ON	ON	ON
F	ON	ON	ON	ON

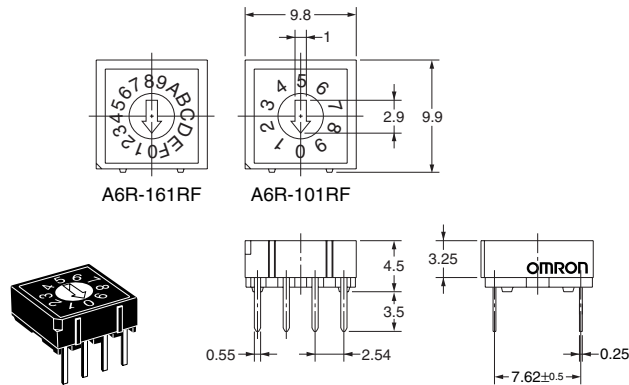
Note: "ON" indicates that the internal switch is ON.

# Dimensions

Unit: mm

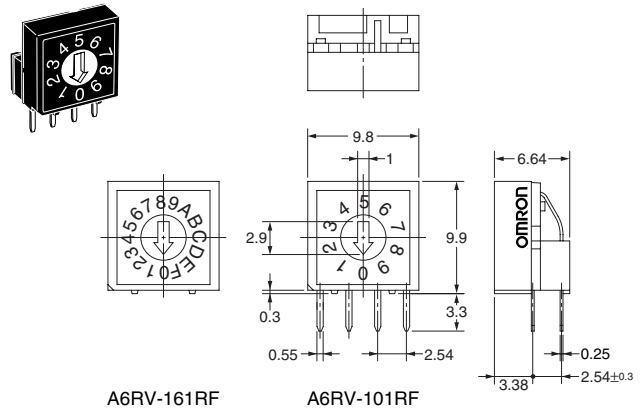
## Top-Actuated Flat Models with 4x1 Terminal Arrangement

A6R-101RF  
A6R-161RF



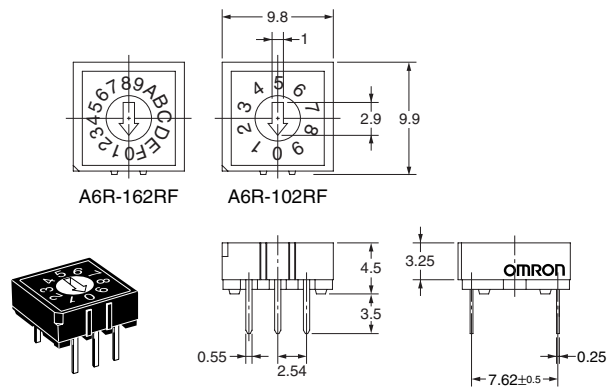
## Side-Actuated Flat Models with 4x1 Terminal Arrangement

A6RV-101RF  
A6RV-161RF



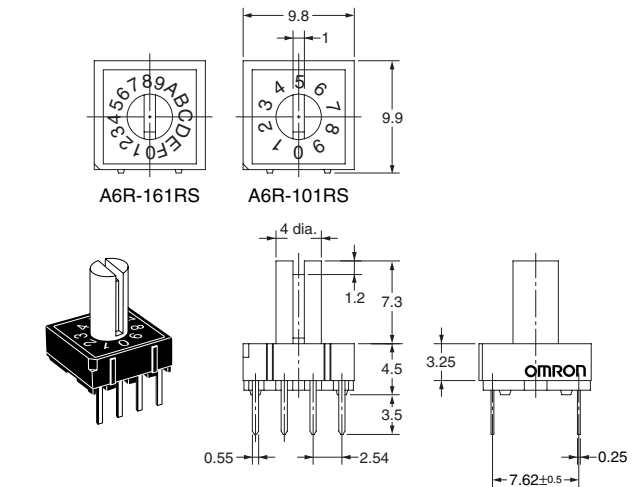
## Top-Actuated Flat Models with 3x3 Terminal Arrangement

A6R-102RF  
A6R-162RF



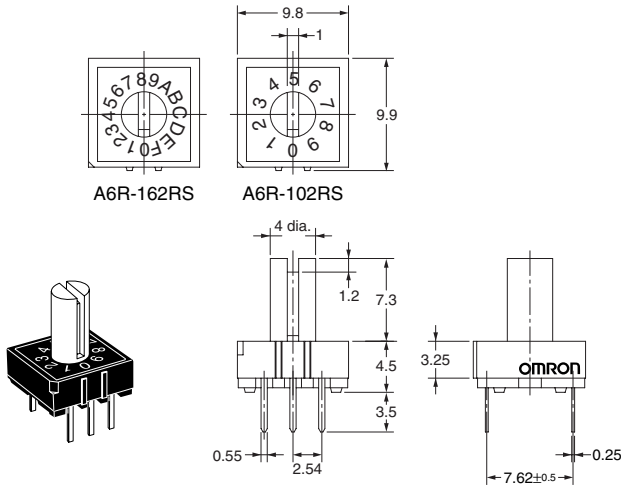
## Top-Actuated Extended-Shaft Models with 4x1 Terminal Arrangement

A6R-101RS  
A6R-161RS



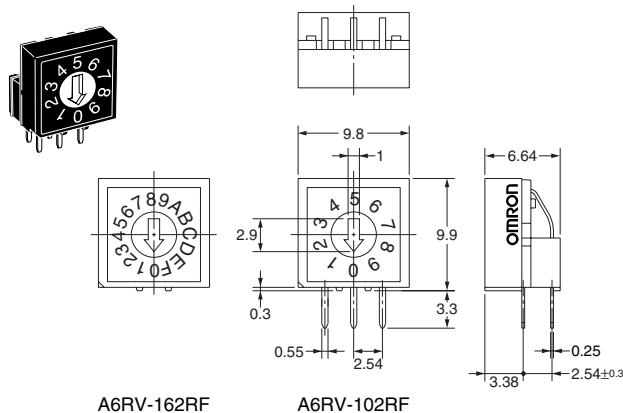
**Top-Actuated Extended-Shaft Models with 3x3 Terminal Arrangement**

**A6R-102RS  
A6R-162RS**



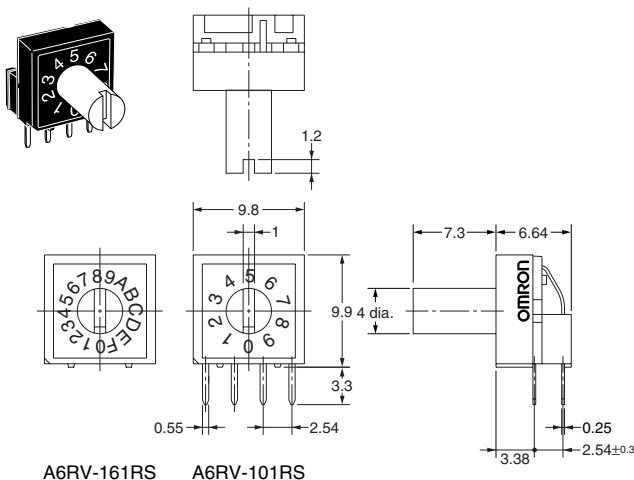
**Side-Actuated Flat Models with 3x3 Terminal Arrangement**

**A6RV-102RF  
A6RV-162RF**



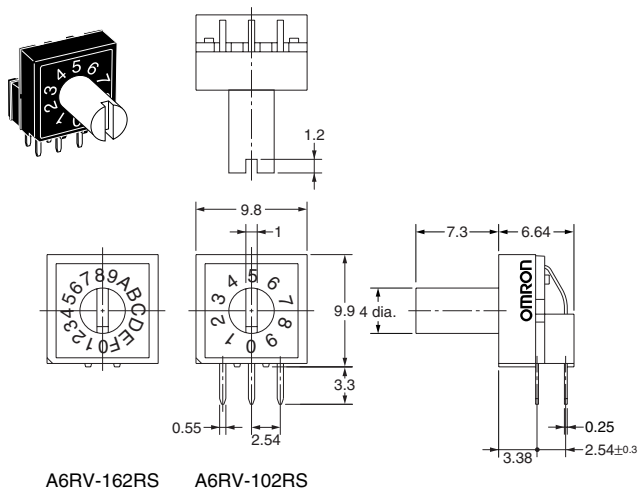
**Side-Actuated Extended-Shaft Models with 4x1 Terminal Arrangement**

**A6RV-101RS  
A6RV-161RS**



**Side-Actuated Extended-Shaft Models with 3x3 Terminal Arrangement**

**A6RV-102RS  
A6RV-162RS**

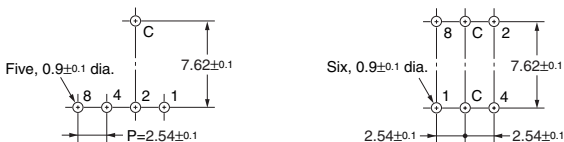


**Note:** A tolerance of  $\pm 0.4$  mm applies to the above dimensions unless otherwise specified.

**PCB Cutout Dimensions**

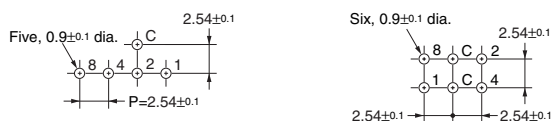
**Top-Actuated Models**

4x1 Terminal Arrange-      3x3 Terminal Arrange-



**Side-Actuated Models**

4x1 Terminal Arrange-      3x3 Terminal Arrange-



# Precautions

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## ■ Cautions

### Circuit Design

Use the switch within the rated voltage and current ranges, or the switch may have a shortened life expectancy, radiate heat, or burn out. Use circuit constants that ensure operation within the rated ranges. This particularly applies to the instantaneous voltages and currents when switching.

The reliability and lifetime of the switch may vary with the type of load and other conditions. It is recommended that the switch is used in actual applications only after correct operation is confirmed under the conditions in which it will be used.

### Mounting

Usually, the switch is set to 0. Do not change this setting throughout the mounting and soldering procedures.

### Soldering

Observe the following conditions when soldering the switch.

#### **Automatic Soldering Bath (Flow Soldering Bath)**

Soldering temperature: 260° C max.

Soldering time: 5 s max. for a 1.6-mm thick, single-side PCB

Confirm in advance that flux will not bubble up onto the side of the PCB to which the switch is mounted. Depending on the type, the flux may have an adverse effect on the switch if it enters the switch interior.

### **Manual Soldering**

Soldering temperature: 350° C at the tip of the soldering iron.

Soldering time: 3 s max. for a 1.6-mm thick, single-side PCB

Before soldering the switch on a PCB, make sure that there is no unnecessary space between the switch and PCB.

Before soldering the switch on a multilayer PCB, carry out a test to confirm that soldering can be performed properly. The switch may be deformed by the soldering heat on the pattern or land of the multilayer PCB.

Do not solder the switch more than twice including rectification soldering. An interval of five minutes is required between the first and second soldering.

### Washing

The switch cannot be washed.

Wipe dirt off the switch surface using alcohol.

### Handling

Do not apply excessive operating force to the switch, or the switch may be damaged or deformed, thus causing the switch mechanism to malfunction as a result. Apply an operating force not exceeding 200% of the maximum rated operating force to the switch.

Set the switch with a flat-blade screwdriver that fits into the screwdriver groove. Using a flat-blade screwdriver of inappropriate dimensions, or using a tool other than a flat-blade screwdriver may cause damage to the groove, and it may become impossible to operate the switch.

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To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

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