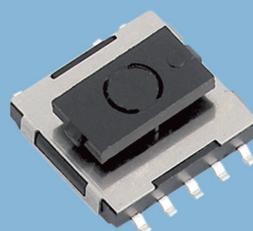
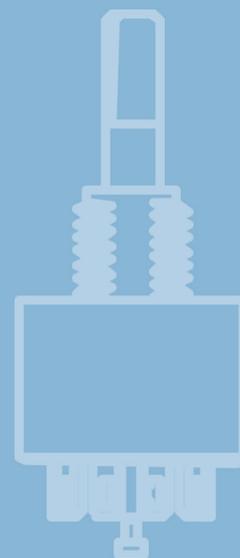
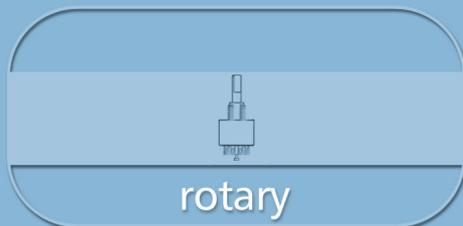


audio  
automotive  
aerospace  
communication devices  
consumer appliances  
consumer electronics  
datacom  
data storage  
handheld devices  
industrial  
industrial equipment  
instrumentation  
medical  
military  
mobile phones  
portable tools  
pumps & motors  
security alarms  
telecom  
test equipment  
thermostatic controls



# rotary

# Rotary Switches

## Product Selection Guide

| Rotary                                |  |  |  |  |  |  |  |  |  |
|---------------------------------------|---|---|---|---|---|---|---|--|---|
| Series                                | A   | RTA   | M   | R   | F   | H   | RW  | RM   | ENC   |
| Switch Type                           | Multi-pole/<br>Multi-position   | Multi-pole/<br>Multi-position   | Half-inch   | Rota-slide  | Rota-slide  | Power<br>Rota-slide   | Subminiature<br>Rotary SMT  | Subminiature<br>Rotary   | Optical<br>Encoder  |
| Miniature                             |   |   |   |   | •   |   | •   | •  |   |
| Low Profile                           |   |   |   |   | •   |   | •   |  |   |
| Screwdriver<br>Slot                   | •   | •   | •   | •   | •   |   |   | •  | •   |
| Power                                 |   |   |   |   |   | •   |   |  |   |
| Maximum<br>Current                    | 2.5 Amps  | 5A/ 1A  | 6 Amps  | 5 Amps  | 4 Amps  | 12 Amps   | 0.1 A<br>10mA   | 0.5 Amps   | 30 mA   |
| Poles                                 | 1-4   | 1-4<br>(except 3)   | 1 & 2   | 1 & 2   | 1 & 2   | 1 & 2   | 1   | 1  | 1   |
| Indexing                              | 30°, 45°, 90°   | 22.5°, 30°<br>36°   | 30° & 36°   | 36°   | 45° & 90°   | 45° & 90°   | 36° & 45°   | 45°  |   |
| Splashproof                           | •   |   | •   |   |   |   |   |  |   |
| Sealed                                |   |   | •<br>F option   |   |   |   |   |  |   |
| Non-shorting/<br>Shorting<br>Contacts | •   |   |   |   |   |   |   |  |   |
| Panel Mount Options                   |   |   |   |   |   |   |   |  |   |
| Front Mount                           |   |   |   |   |   |   |   |  |   |
| Rear Mount                            | •   | •   | •   | •   | •   | •   |   |  |   |
| PCB Mount Options                     |   |   |   |   |   |   |   |  |   |
| Vertical                              | •   | •   | •   | •   | •   |   | •   |  |   |
| Terminations                          |   |   |   |   |   |   |   |  |   |
| Solder Lug                            | •   | •   | •   | •   | •   | •   |   |  |   |
| Wire Lead                             |   |   |   | •   | •   | •   |   |  |   |
| Quick<br>Connect                      |   |   |   |   |   | •   |   |  |   |
| PC                                    | •   | •   | •   | •   | •   |   | •   | •  |   |
| Page No .                             | K-3   | K-8   | K-13  | K-18  | K-21  | K-25  | K-28  | K-30   | K-33  |



K

Rotary

# A Series 1-4 Pole Rotary Switches

## Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Shorting & non-shorting contacts
- Panel and PCB mounting
- RoHS Compliant



Models Available

## Typical Applications

- Automotive
- Major and small appliances
- Industrial equipment



## Specifications

CONTACT RATING: Q contact material: Switch - 2.5 AMPS @ 125 V AC; 1 AMP @ 250 V AC; 350 mA @ 125 V DC (UL/CSA). Carry - 5 AMPS continuous. See page K-6 for additional ratings.

ELECTRICAL LIFE: Up to 15,000 make-and-break cycles at full load up to 300,000 detent operations.

CONTACT RESISTANCE: Below 20 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

Operating and storage temp: -30° to 85°C

OPERATING & STORAGE TEMPERATURE: -30°C to 85°C

**NOTE:** Any models supplied with Q, B or G contact material are RoHS compliant.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Materials

HOUSING & BUSHING: Glass filled 6/6 nylon (UL 94V-0).

ACTUATOR: Glass filled 6/6 nylon (UL 94V-0).

MOVABLE CONTACTS: Q contact material: Coin silver, silver plated. See page K-6 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: Q contact material: Brass, silver plated. See page K-6 for additional contact materials.

HARDWARE: Nut - zinc, nickel plated. Lockwasher — steel, bright zinc plated. Stop Ring - brass, nickel plated.

TERMINAL SEAL: Epoxy.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-4 through K-7. For additional options not shown in catalog, consult Customer Service Center.

**Switch Function**

- A100** SP, 30° Index, 12 pos. no stops
- A102** SPDT, 30° Index
- A103** SP, 30° Index, 3 pos.
- A104** SP, 30° Index, 4 pos.
- A105** SP, 30° Index, 5 pos.
- A106** SP, 30° Index, 6 pos.
- A107** SP, 30° Index, 7 pos.
- A108** SP, 30° Index, 8 pos.
- A109** SP, 30° Index, 9 pos.
- A110** SP, 30° Index, 10 pos.
- A112** SP, 30° Index, 12 pos.
- A114** SP, 90° Index, 2 pos.
- A115** SP, 45° Index, 3 pos.
- A124** SP, 90° Index, 4 pos.
- A125** SP, 45° Index, 8 pos.
- A203** DP, 30° Index, 3 pos.
- A204** DP, 30° Index, 4 pos.
- A205** DP, 30° Index, 5 pos.
- A206** DP, 30° Index, 6 pos.
- A214** DP, 90° Index, 2 pos.
- A303** 3P, 30° Index, 3 pos.
- A304** 3P, 30° Index, 4 pos.
- A402** 4PDT, 30° Index
- A403** 4P, 30° Index, 3 pos

**Actuator**

- 15** 1.500" high, flatted
- 03** .375" high, flatted
- 05** .500" high, flatted
- 14** 1.500" high, flatted
- 42** 1.654" high, metric
- S1** Screwdriver Slot

**Mounting Style**

- R** 3/8-32 threaded
- M** M10 x .75 metric

**Shorting/Non-shorting Contacts**

- N** Non-shorting contacts
- S** Shorting contacts  
(Not available with models A114, A124 & A214)

**Terminations**

- Z** Solder lug
- C** PC Thru-hole
- MC** Modular base

**Contact Material**

- Q** Silver
- B** Gold
- G** Gold over silver

**Seal**

- NONE** No seal
- E** Epoxy seal
- F** Splashproof bushing seal
- K** Epoxy & splashproof bushing seal



K

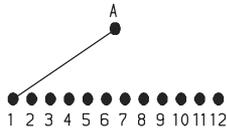
Rotary

# A Series 1-4 Pole Rotary Switches

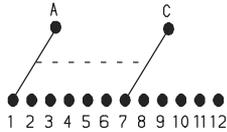
## SWITCH FUNCTION

| 30° INDEXING |             |                      |                    |
|--------------|-------------|----------------------|--------------------|
| NO. POLES    | MODEL NO.   | SWITCH FUNCTION      | TERMINALS          |
| SP           | A100        | 12 Position No Stops | A,1-12             |
|              | A102        | SPDT                 | A,1,2*             |
|              | A103        | 3 Position           | A,1-3*             |
|              | A104        | 4 Position           | A,1-4*             |
|              | A105        | 5 Position           | A,1-5*             |
|              | A106        | 6 Position           | A,1-6*             |
|              | A107        | 7 Position           | A,1-7              |
|              | A108        | 8 Position           | A,1-8              |
|              | A109        | 9 Position           | A,1-9              |
|              | A110        | 10 Position          | A,1-10             |
| A112         | 12 Position | A,1-12               |                    |
| DP           | A203        | 3 Position           | A,C,1-3,7-9        |
|              | A204        | 4 Position           | A,C,1-4,7-10       |
|              | A205        | 5 Position           | A,C,1-5,7-11       |
|              | A206        | 6 Position           | A,C,1-12           |
| 3P           | A303        | 3 Position           | A,B,C,1-3,5-7,9-11 |
|              | A304        | 4 Position           | A,B,C,1-12         |

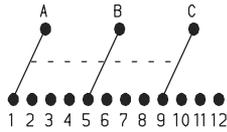
SP MODELS SCHEMATIC



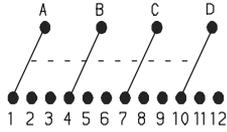
DP MODELS SCHEMATIC



3P MODELS SCHEMATIC



4P MODELS SCHEMATIC

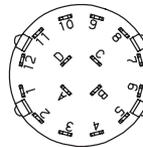


| 30° INDEXING |           |                 |                           |
|--------------|-----------|-----------------|---------------------------|
| NO. POLES    | MODEL NO. | SWITCH FUNCTION | TERMINALS                 |
| 4P           | A402      | 4PDT            | A,B,C,D,1,2,4,5,7,8,10,11 |
|              | A403      | 3 Position      | All Terminals             |

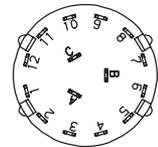
| 45° INDEXING |           |                 |                     |
|--------------|-----------|-----------------|---------------------|
| NO. POLES    | MODEL NO. | SWITCH FUNCTION | TERMINALS           |
| SP           | A115      | 3 Position      | A,1,2,4*            |
|              | A125      | 8 Position      | A,1,2,4,5,7,8,10,11 |

| 90° INDEXING |           |                 |              |
|--------------|-----------|-----------------|--------------|
| NO. POLES    | MODEL NO. | SWITCH FUNCTION | TERMINALS    |
| SP           | A114      | 2 Position      | A,1,4*       |
|              | A124      | 4 Position      | A,1,4,7,10   |
| DP           | A214      | 2 Position      | A,C,1,4,7,10 |

TERMINAL NUMBERS



Terminal numbers molded on bottom of housing.

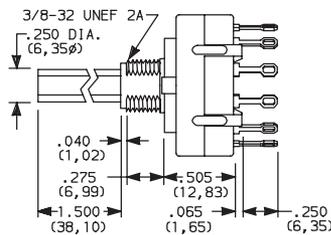
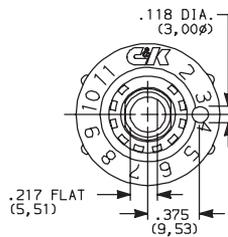


3P MODELS

4P MODELS  
SP MODELS (omit terminals B, C & D)  
DP MODELS (omit terminals B & D)

**NOTE:** \* These models with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch.

All models  with all options when ordered with 'G' or 'Q' contact material, see page K-6.



TERM. NOS. MOLDED ON HOUSING



Third Angle Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# A Series 1-4 Pole Rotary Switches

## ACTUATOR

**15** 1.500" HIGH

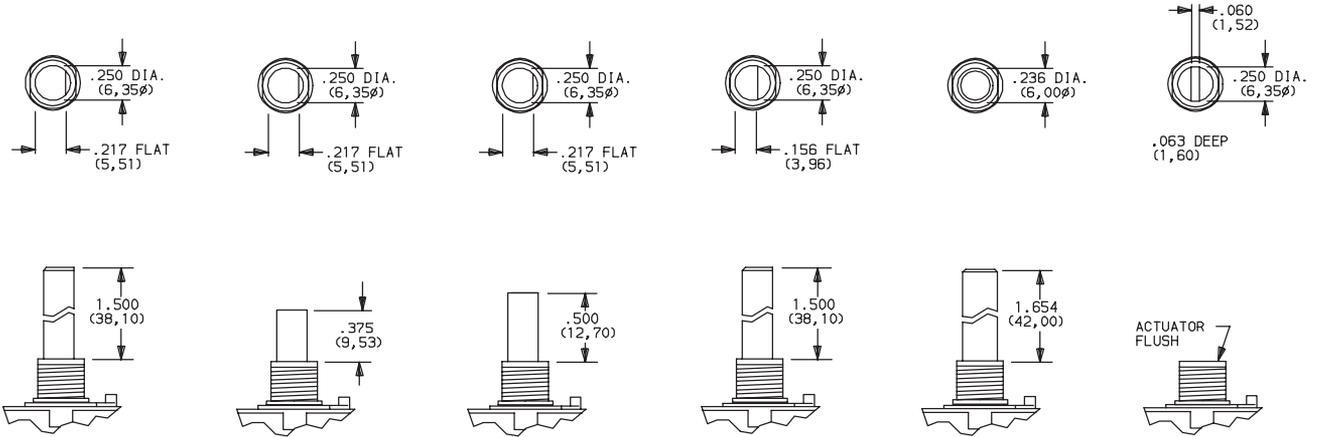
**03** .375" HIGH

**05** .500" HIGH

**14** 1.500" HIGH

**42** 1.654" METRIC

**S1** SCREWDRIIVER SLOT

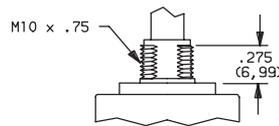
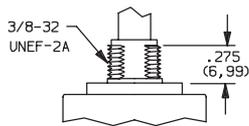


NOTE: Actuators shown in position 1, fully CCW.

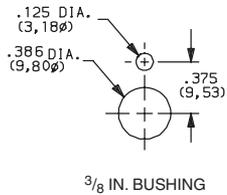
## MOUNTING STYLE

**R** 3/8-32 THREAD

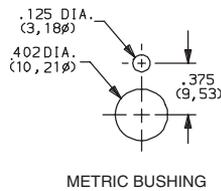
**M** M10 x .75 METRIC



### PANEL MOUNTING

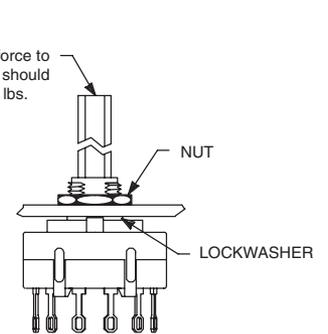


### PANEL MOUNTING



### TYPICAL INSTALLATION

Maximum force to push on knob should not exceed 10 lbs.



Install switch with stop ring (if used) and lockwasher in back of panel. Tighten hex nut from front of panel.

On PC mounted switches, use hex nut and lockwasher to hold stop ring in place.

Actuation torque: 8-16 oz./in.  
Maximum torque: 30 oz./in.

## SHORTING/NON-SHORTING CONTACTS

**N** NON-SHORTING CONTACTS (break-before-make)

**S** SHORTING CONTACTS (make-before-break)

NOTE: 'S' shorting contacts are not available with A114, A124 and A214 models.

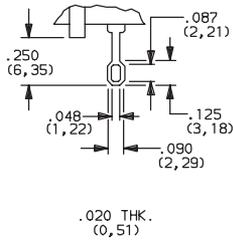


Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

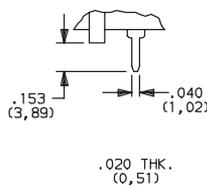
# A Series 1-4 Pole Rotary Switches

## TERMINATIONS

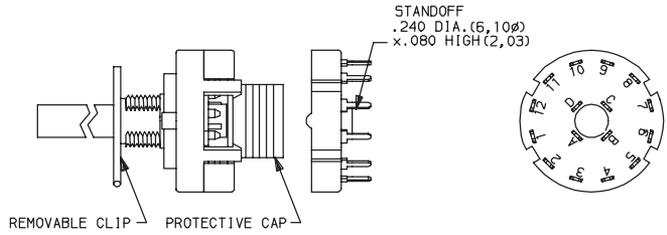
### Z SOLDER LUG



### C PC THRU-HOLE

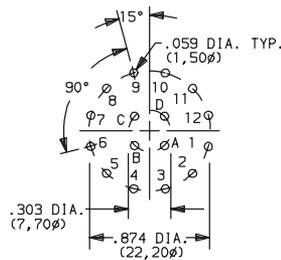


### MC MODULAR BASE (for wave soldering)

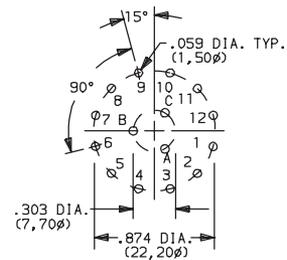


**NOTE:** Switches with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch. Solder and clean switch base on PC board with other components, then snap on housing/actuator assembly. See page K-7 for installation instructions.

### PC MOUNTING



4P MODEL  
SP MODEL (omit terminals B, C & D)  
DP MODEL (omit terminals B & D)



3P MODEL

## CONTACT MATERIAL

| Option Code | Contact & Terminal Material   | Typical Usage                   | Rating   | Cycles |
|-------------|-------------------------------|---------------------------------|--|--------|
| Q           | Silver <sup>2</sup>           | Power                           | SWITCH – 2.5 AMPS @ 125 VAC; 1 AMP @ 250 VAC (UL/CSA)<br>CARRY – 5 AMPS CONTINUOUS | 6,000  |
|             |                               |                                 | SWITCH – 350 mA @ 125 VDC (UL/CSA)<br>CARRY – 5 AMPS CONTINUOUS                    | 15,000 |
| B           | Gold <sup>1</sup>             | Low level/ Dry circuit          | 0.4 VA MAX. @ 20 V AC OR DC MAX  | 15,000 |
| G           | Gold over silver <sup>3</sup> | Low level/ Dry circuit or power | 0.4 VA MAX. @ 20 V AC OR DC MAX  | 15,000 |
|             |                               |                                 | SWITCH – 350 mA @ 125 VDC (UL/CSA)<br>CARRY – 5 AMPS CONTINUOUS                    | 15,000 |
|             |                               |                                 | SWITCH – 2.5 AMPS @ 125 VAC; 1 AMP @ 250 VAC (UL/CSA)<br>CARRY – 5 AMPS CONTINUOUS | 6,000  |

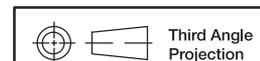
\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

- <sup>1</sup> MOVABLE CONTACTS: Copper alloy, with gold plate over nickel plate.  
STATIONARY CONTACTS & TERMINALS: Brass, with gold plate over nickel plate.  
<sup>2</sup> MOVABLE CONTACTS: Coin silver, silver plated.  
STATIONARY CONTACTS & TERMINALS: Brass, silver plated (standard with all termination options).  
<sup>3</sup> MOVABLE CONTACTS: Coin silver, with gold plate over nickel plate over silver plate.  
STATIONARY CONTACTS & TERMINALS: Brass, with gold plate over nickel plate over silver plate.

**NOTE:** Any models supplied with Q, B or G contact material are RoHS compliant.

All models  with all options when ordered with 'G' or 'Q' contact material.

**NOTE:** 'G' contact material is equivalent to both 'B' and 'Q' contact materials.



Third Angle Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# A Series 1-4 Pole Rotary Switches

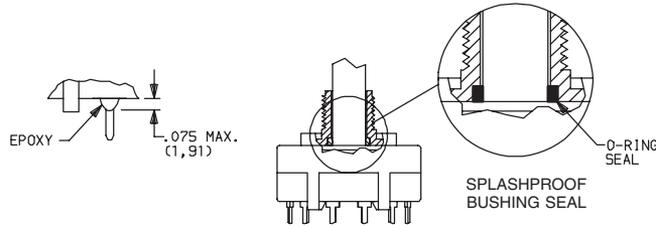
## FUNCTION

**NONE** NO SEAL

**E** EPOXY SEAL

**F** SPLASHPROOF BUSHING SEAL

**K** EPOXY & SPLASHPROOF BUSHING SEAL



### Setting Stops on A112 and A125 Models

The number of switch positions is adjustable on A112 and A125 models only by means of a stop ring provided with each switch. The number of positions is pre-set on all other models and the stop ring is factory installed.

To set stops: Turn shaft fully counter-clockwise and insert stop ring tab in desired hole. Install lockwasher and nut to retain stop ring for both PC and panel mounting. Switch without stop ring has 12 positions.

### Soldering, Cleaning and Assembly Instructions for 'MC' Termination Option

#### Soldering

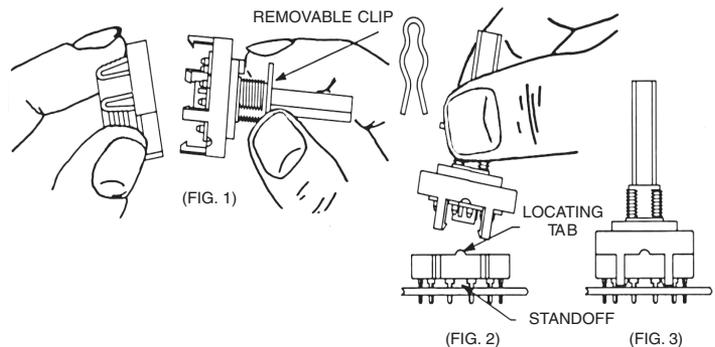
1. Insert switch base only into PC board.
2. Do not bend terminals.
3. Wave soldering recommended at 500F solder temperature.
4. Hand solder at 500F, 10 sec. max./terminal.

#### Cleaning

1. Flux clean using vapor degreaser and forced rinse or triple bath method.
2. Do not allow switch base to 'trap' fluids.
3. Freon TMC, TF or Methylene Chloride give excellent results.

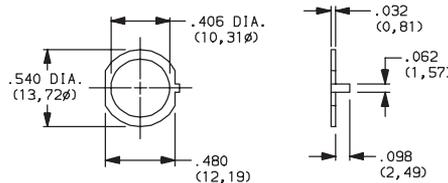
#### Switch Assembly

1. Hold housing/shaft assembly by housing. Remove protective cap by squeezing tabs and discard. (FIG. 1)
2. Do not push on switch shaft. Detent mechanism will come apart.
3. While holding switch housing, align locating tab on base with notch on housing and engage 4 housing latches in slots on base. (FIG. 2)
4. Push firmly on housing until latches snap in place.
5. Remove clip from shaft and discard. Assembly is complete. (FIG. 3)



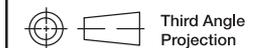
## AVAILABLE HARDWARE

### Stop ring



**PART NO.**  
**767B00201**

Material: Brass  
Finish: Nickel plated



Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# RTA Series 1-4 Poles Coded Rotary Switches



## Features/Benefits

- PCB or hand soldering versions
- Bushing mounting
- Multiple poles
- Decimal and hexadecimal codes
- Screwdriver slot or extended actuator
- RoHS Compliant

## Typical Applications

- Appliances
- Electronic alarm systems
- Medical
- Building automation
- HVAC air conditioning

### Electrical Data

|   | Silver            | Gold              |
|---|-------------------|-------------------|
| SWITCHING MODE:   | BBM               | BBM               |
| MAX. SWITCHING POWER  | 5 VA              | 0.5 VA            |
| MAX. SWITCHING CURRENT:   | 150 mA            | 20 mA             |
| MAX. CARRYING CURRENT:  | 5 A               | 1 A               |
| NOMINAL VOLTAGE AT 50 Hz  | 60 V              | 25 V              |
| CONTACT RESISTANCE:   | < 150 mΩ          | < 150 mΩ          |
| DIELECTRIC STRENGTH AT 50 Hz<br>BETWEEN CONTACTS AND<br>GROUND TERMINALS:     | 500 V r           | 500 V r           |
| INSULATION RESISTANCE BETWEEN<br>CONTACTS OR CONTACTS<br>AND FRAME (500 V ⇒): | 10 <sup>9</sup> Ω | 10 <sup>9</sup> Ω |
| NO. OF OPERATIONS:  | 10,000            | 10,000            |
| BOUNCE:   | < 5 ms            | < 5 ms            |

### Mechanical Data

MAX. NO. OF BANKS: 1.  
 OPERATING TORQUE: 5 Ncm±20%.  
 END STOP TORQUE: 50 Ncm. minimum  
 STOP: With/without or adjustable  
 MOUNTING: By fixed index 9.5 mm (0.374) of center, for bushing mount only

### Materials

BUSHING/HOUSING: PETP Thermoplastic  
 STATIONARY CONTACTS & TERMINALS: Nickel Plated Brass with additional plating of Gold or Silver.  
 ROTOR: Gold or Silver plated Brass or PCB.  
 CODING PLATE: PA thermoplastic  
 ACTUATOR: Polysulfon thermoplastic  
 HARDWARE: Stop pin: Aluminum. Ball & Spring: Stainless steel.  
 Washer: PA. Nut: Brass.

### Environmental Data

OPERATING TEMPERATURE: -20°C to + 70°C    -20°C to + 70°C  
 STORAGE TEMPERATURE: -40°C to + 85°C    -40°C to + 85°C

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

### Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-9 thru K-12. For additional options not shown in catalog, consult Customer Service Center.

**Designation**  
**RTA**

**Termination**  
**P** With PC Thru-hole  
**H** Horizontal with PC Thru-hole

**Switch Function**

|             |                                |
|-------------|--------------------------------|
| <b>1W12</b> | SP, 30° Index, 12 pos. no stop |
| <b>1W10</b> | SP, 36° Index, 10 pos. no stop |
| <b>1S02</b> | SP, 30° /36° Index, 2 pos.     |
| <b>1S03</b> | SP, 30° /36° Index, 3 pos.     |
| <b>1S04</b> | SP, 30° /36° Index, 4 pos.     |
| <b>1S05</b> | SP, 30° /36° Index, 5 pos.     |
| <b>1S06</b> | SP, 30° /36° Index, 6 pos.     |
| <b>1S07</b> | SP, 30° /36° Index, 7 pos.     |
| <b>1S08</b> | SP, 30° /36° Index, 8 pos.     |
| <b>1S09</b> | SP, 30° /36° Index, 9 pos.     |
| <b>1S10</b> | SP, 30° /36° Index, 10 pos.    |
| <b>1S11</b> | SP, 30° Index, 11 pos.         |
| <b>1S12</b> | SP, 30° Index, 12 pos.         |
| <b>2S02</b> | DP, 30° /36° Index, 2 pos.     |
| <b>2S03</b> | DP, 30° /36° Index, 3 pos.     |
| <b>2S04</b> | DP, 30° /36° Index, 4 pos.     |
| <b>2S05</b> | DP, 30° /36° Index, 5 pos.     |
| <b>2S06</b> | DP, 30° Index, 6 pos.          |

**Indexing**

**3** 30° index (12 positions max.)  
**4** 36° index (10 positions max.)

**Mounting Style**

|          |   |
|----------|---|
| <b>W</b> | Without bushing                                       |
| <b>R</b> | 3/8-32 Threaded Bushing                               |
| <b>M</b> | M10x.75 Metric Threaded Bushing                       |
| <b>A</b> | 3/8-32 Threaded Bushing with Offset Bracket           |
| <b>B</b> | M10x.75 Metric Threaded Bushing with Offset Bracket   |
| <b>C</b> | 3/8-32 Threaded Bushing with Straight Bracket         |
| <b>D</b> | M10x.75 Metric Threaded Bushing with Straight Bracket |

**Contact Material**

**S** Silver plated, matte-tin terminal  
**P** Gold plated, matte-tin terminal

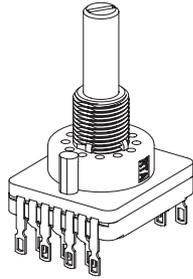
**Actuator (max.)**

**25N** .984 (25,0) with screwdriver slot  
**50N** 1.97 (50,0) with screwdriver slot  
**FLS** Flush shaft with screwdriver slot and position indicator  
**25F** .984 (25,0) Shaft with flat  
**06F** .236 (6,0) Shaft with flat

# RTA Series 1-4 Poles Coded Rotary Switches

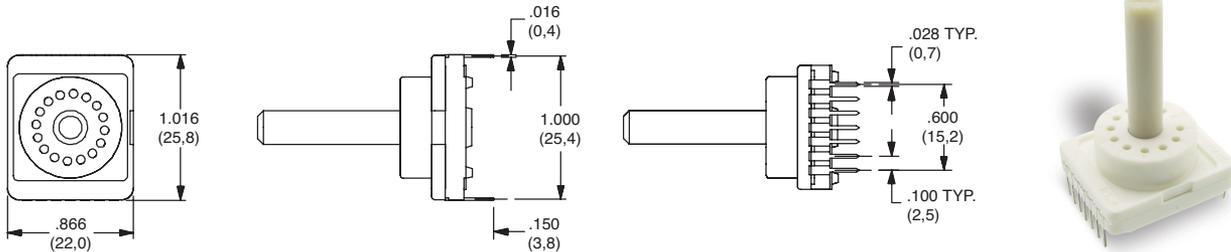
## DESIGNATION

### RTA

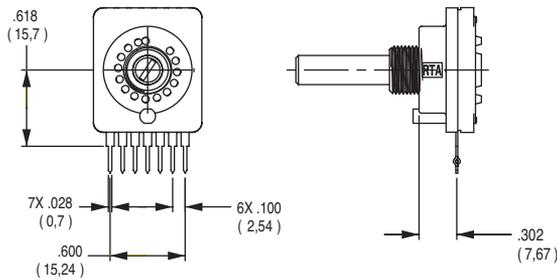


## TERMINATION

### P WITH PC PINS



### H Horizontal with PC Thru-hole



Note: "H" termination only available with the following options:  
 1. With A or B mounting styles  
 2. 36° degree indexing  
 3. Up to 5 positions max

## INDEXING

**3** 30 index, 12 positions max.

**4** 36 index, 10 positions max.

Both commons must be connected by user to ground.



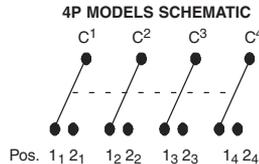
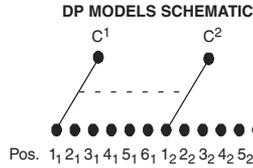
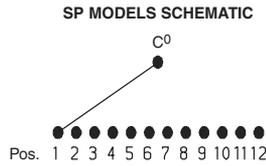
K

Rotary

# RTA Series 1-4 Poles Coded Rotary Switches

## SWITCH FUNCTION

| NO. POLES | MODEL NO.   | SWITCH FUNCTION         | INDEX   |
|-----------|-------------|-------------------------|---------|
| SP        | <b>1W12</b> | 12 Positions<br>No Stop | 30°     |
|           | <b>1W10</b> | 10 Positions<br>No Stop | 36°     |
|           | <b>1S02</b> | 2 Positions             | 30°/36° |
|           | <b>1S03</b> | 3 Positions             | 30°/36° |
|           | <b>1S05</b> | 5 Positions             | 30°/36° |
|           | <b>1S06</b> | 6 Positions             | 30°/36° |
|           | <b>1S08</b> | 8 Positions             | 30°/36° |
|           | <b>1S09</b> | 9 Positions             | 30°/36° |
|           | <b>1S10</b> | 10 Positions            | 30°/36° |
|           | <b>1S11</b> | 11 Positions            | 30°     |
|           | <b>1S12</b> | 12 Positions            | 30°     |

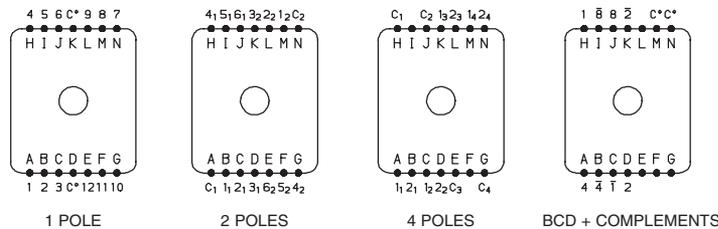


| NO. POLES | MODEL NO.   | SWITCH FUNCTION        | INDEX   |
|-----------|-------------|------------------------|---------|
| DP        | <b>2W05</b> | 5 Positions<br>No Stop | 30°/36° |
|           | <b>2W06</b> | 6 Positions<br>No Stop | 30°     |
|           | <b>2S02</b> | 2 Positions            | 30°/36° |
|           | <b>2S03</b> | 3 Positions            | 30°/36° |
|           | <b>2S04</b> | 4 Positions            | 30°/36° |
|           | <b>2S05</b> | 5 Positions            | 30°/36° |
| 4P        | <b>4S02</b> | 2 Positions            | 30°/36° |

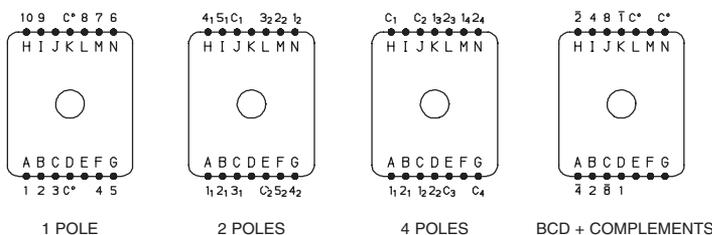
| MODEL NO.   | SWITCH FUNCTION  | INDEX     |
|-------------|--|-----------|
| <b>EW10</b> | Direct + complement, No stop                           | 36°       |
| <b>EW12</b> | Direct + complement, No stop                           | 30°       |
| <b>ES__</b> | Direct + complement, with stop (specify stop position) | 30° & 36° |

| 30°   | 36°   | Pos. |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |
|-------|-------|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|
| Term. | Term. |      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
| M,N   | L,N   | C    | • | • | • | • | • | • | • | • | • | •  | •  | •  | •  | •  | •  | •  |
| H     | D     | 1    |   | • |   | • |   | • |   | • |   | •  |    | •  |    | •  |    | •  |
| D     | B     | 2    |   |   | • | • |   |   |   | • | • |    |    | •  | •  |    |    | •  |
| A     | I     | 4    |   |   |   |   | • | • | • | • |   |    |    | •  | •  | •  | •  |    |
| J     | J     | 8    |   |   |   |   |   |   |   |   | • | •  | •  | •  | •  | •  | •  | •  |
| C     | K     | 1    | • |   | • |   | • |   | • |   | • |    | •  |    | •  |    | •  |    |
| K     | H     | 2    | • | • |   |   |   | • | • |   |   | •  | •  |    |    | •  | •  |    |
| B     | A     | 4    | • | • | • | • |   |   |   |   | • | •  | •  | •  |    |    |    |    |
| I     | C     | 8    | • | • | • | • | • | • | • | • |   |    |    |    |    |    |    |    |

### Indexing Option Code 3, 30 INDEXING ANGLE PCB LAYOUT

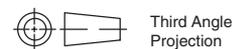


### Indexing Option Code 4, 36 INDEXING ANGLE PCB LAYOUT



**NOTE:** Layout view from component side.

Common terminals that are in locations A-G are not connected to common terminals that are in locations H-N. For 7-12 position output customer must tie these commons together.



Third Angle Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

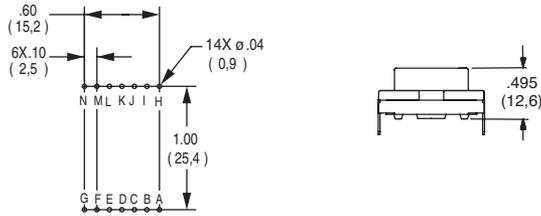


16 May 22

# RTA Series 1-4 Poles Coded Rotary Switches

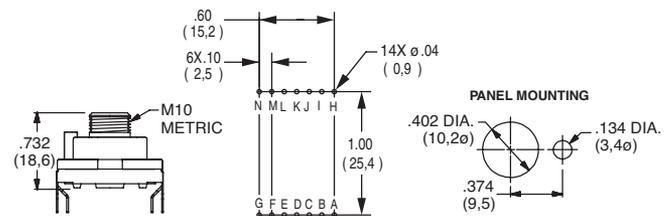
## MOUNTING STYLE

### W WITHOUT BUSHING



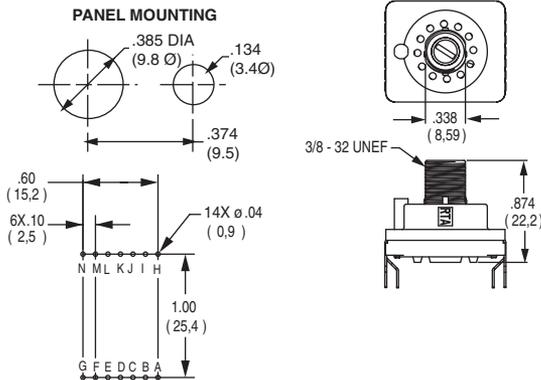
Note: W mounting style not available with H termination.

### M M10 x .75 METRIC THREADED BUSHING



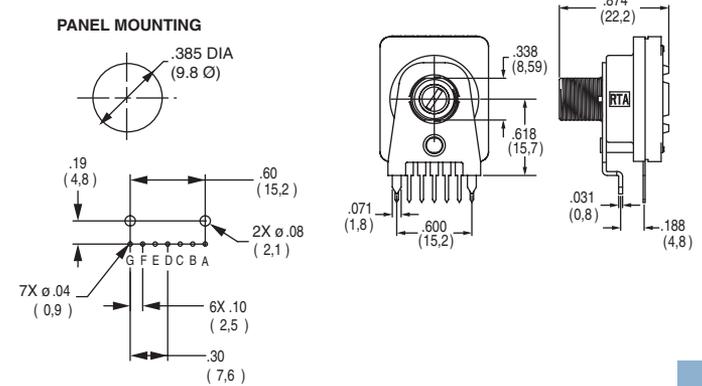
Note: M mounting style not available with H termination.

### R 3/8-32 THREADED BUSHING



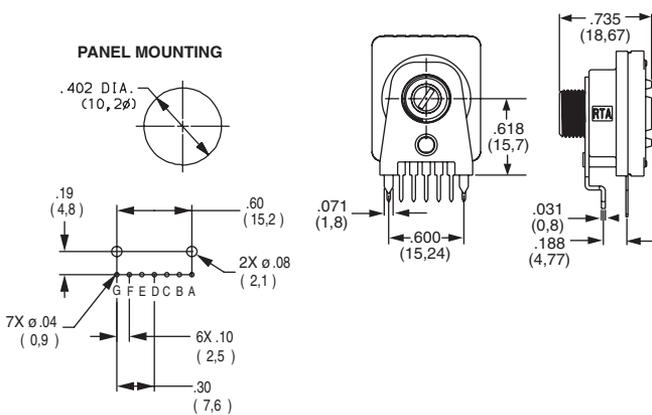
Note: R mounting style not available with H termination.

### A 3/8-32 THREADED BUSHING WITH BRACKET



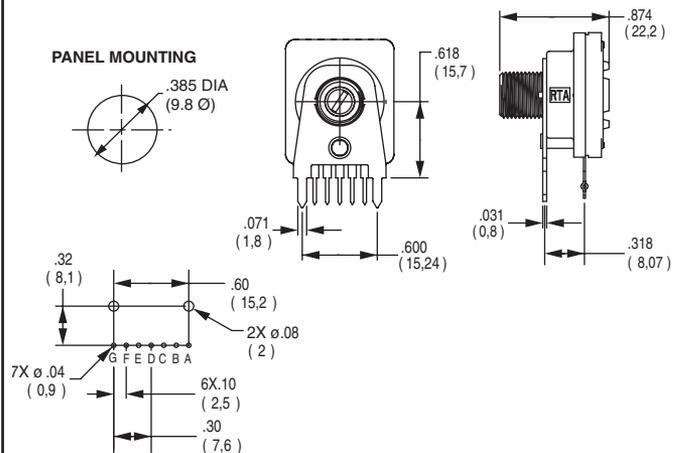
Note: A mounting style only available with H termination.

### B M10 x .75 METRIC THREADED BUSHING WITH BRACKET

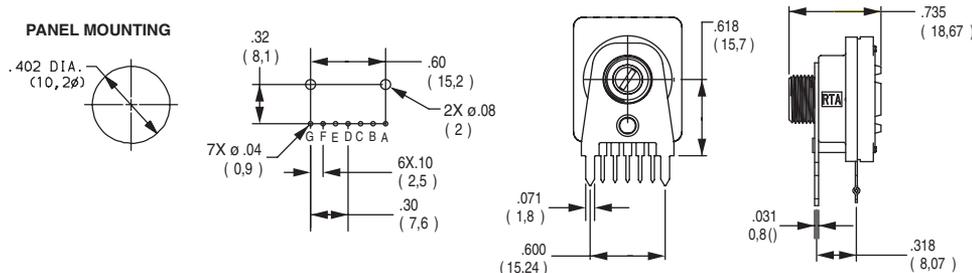


Note: B mounting style only available with H termination.

### C 3/8-32 THREADED BUSHING WITH STRAIGHT BRACKET



### D M10 x .75 METRIC THREADED BUSHING WITH STRAIGHT BRACKET



Third Angle  
Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change



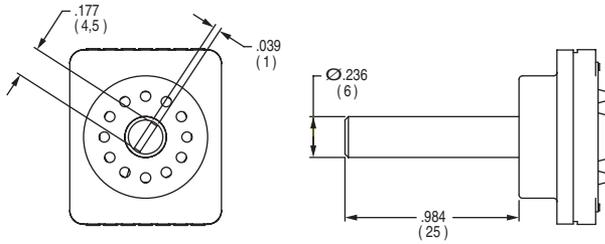
K

Rotary

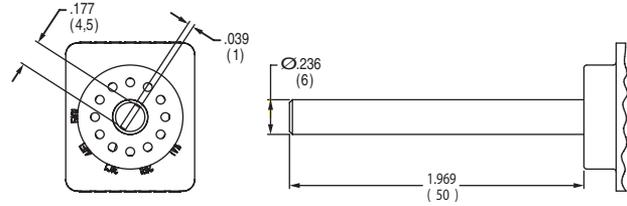
# RTA Series 1-4 Poles Coded Rotary Switches

## ACTUATOR

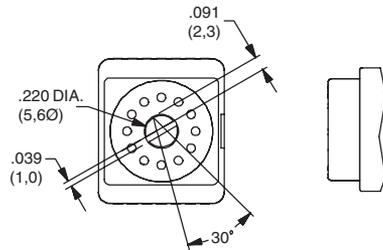
**25N** .984 (25,0) WITH SCREWDRIVER SLOT



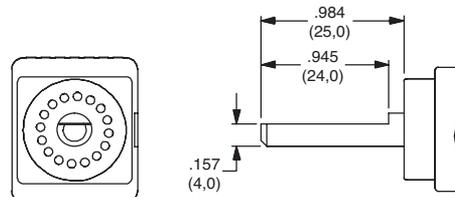
**50N** 1.97 (50,0) WITH SCREWDRIVER SLOT



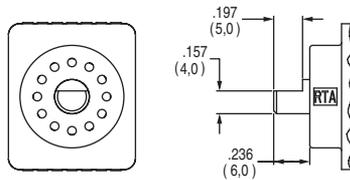
**FLS** FLUSH SHAFT WITH SCREWDRIVER SLOT AND POSITION INDICATOR



**25F** .984 (25,0) SHAFT WITH FLAT



**06F** .236 (6,0) SHAFT WITH FLAT



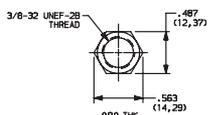
## CONTACT MATERIAL

| OPTION CODE | CONTACT AND TERMINAL MATERIAL | RATING                         |  |
|-------------|-------------------------------|--------------------------------|--|
| <b>S</b>    | SILVER                        | LOW LEVEL/DRY CIRCUIT          | SWITCH: 150 mA MAXIMUM, 60 V NOMINAL.<br>POWER: 5 VA MAXIMUM. CARRY-5 AMPS MAXIMUM.  |
| <b>P</b>    | GOLD                          | LOW LEVEL/DRY CIRCUIT OR POWER | SWITCH: 20 mA MAXIMUM, 25 V NOMINAL.<br>POWER: 0.5 VA MAXIMUM. CARRY: 1 AMP MAXIMUM. |

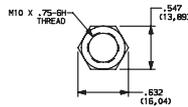
\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

## AVAILABLE HARDWARE

### Mounting Nuts



**PART NO.**  
**472706201**  
Standard



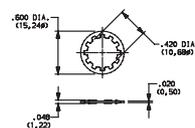
**PART NO.**  
**205D00201CH**  
Metric

### Stop pins



**PART NO.**  
**Y200300200PCH**

### Lockwasher



**PART NO.**  
**472800A47CH**

NOTE: Additional nuts and lockwashers available separately, see section "Technical Data and Additional Hardware".



Third Angle Projection  
Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# M Series Half-inch Rotary Switches

## Features/Benefits

- Multi-pole and multi-positions
- Panel and PCB mounting
- Stainless steel actuator
- Non-shorting contacts
- RoHS Compliant
- IP67 (F option only)

## Typical Applications

- Test equipment
- Industrial equipment
- Medical equipment



Models Available

## Specifications

CONTACT RATING: Q contact material: Carry-6 AMPS continuous. Switch-250 mA max. @ 125 V AC or 28 DC. Non-shorting contacts standard. See page K-16 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at 150 mA, 125 V AC or 28 DC.

CONTACT RESISTANCE: Below 20 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>10</sup> Ω min.

DIELECTRIC STRENGTH: 600 Vrms min. @ sea level.

OPERATING & STORAGE TEMPERATURE: -30°C to 85°C.

OPERATING TORQUE: 4-7 ounces-inches typ. initial.

SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9 (1 hour steam aging).

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Materials

HOUSING AND BUSHING: Zinc alloy, bright zinc plated, with clear chromate finish.

ACTUATOR: Zinc alloy, nickel plated or stainless steel.

BASE: Diallylphthalate (DAP) or melamine phenolic, with insert molded terminals.

ROTOR: Glass filled polyester (UL 94V-0).

MOVABLE CONTACTS:

Non-shorting: Q contact material: Copper alloy, silver plated. See page K-16 for additional contact materials.

STATIONARY CONTACT & ALL TERMINALS: Q contact material: Copper alloy, silver plated. All terminals insert molded. All terminals present regardless of number of switch positions. See page K-16 for additional contact materials.

CONTACT SPRING: Music wire, phosphate coated.

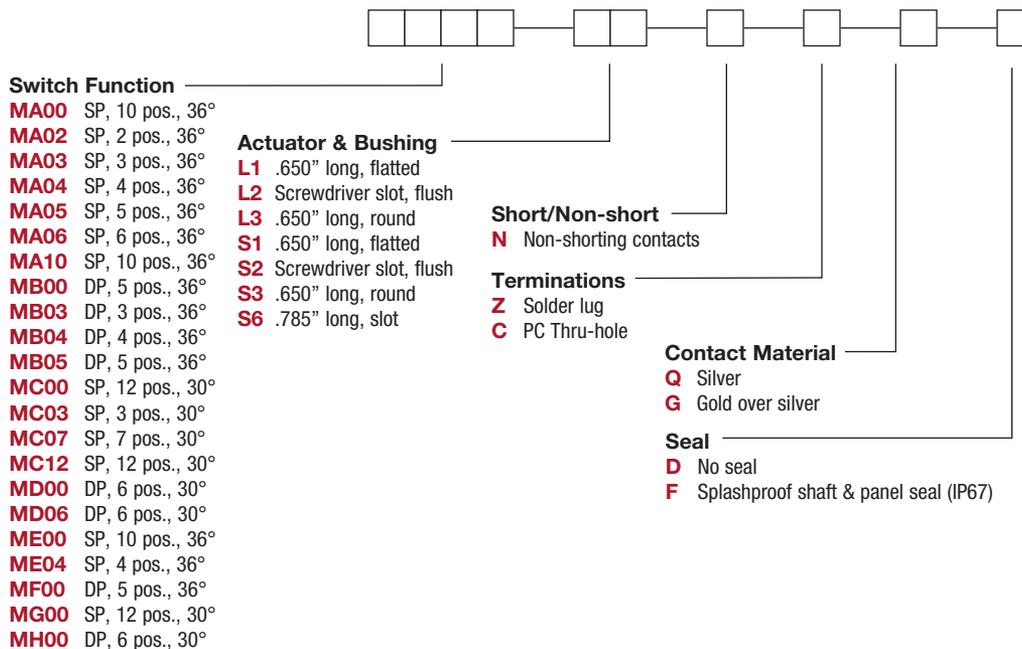
STOP PIN: Stainless steel.

STOP RING: Brass.

HARDWARE: Nut: Brass, nickel plated; Lockwasher: Steel, nickel plated.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-14 thru K-17. For additional options not shown in catalog, consult Customer Service Center.

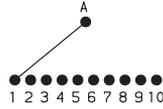


# M Series Half-inch Rotary Switches

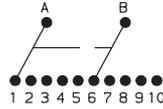
## SWITCH FUNCTION

| 36° INDEXING |                          |                           |                          |
|--------------|--------------------------|---------------------------|--------------------------|
| NO. POLES    | MODEL NO. WITH STOP PINS | MODEL NO. WITH STOP RINGS | SWITCH FUNCTION          |
| SP           | <b>MA00</b>              | <b>ME00</b>               | 10 Positions<br>No Stops |
|              | <b>MA02</b>              | —                         | 2 Positions              |
|              | <b>MA03</b>              | —                         | 3 Positions              |
|              | <b>MA04</b>              | <b>ME04</b>               | 4 Positions              |
|              | <b>MA05</b>              | —                         | 5 Positions              |
|              | <b>MA06</b>              | —                         | 6 Positions              |
|              | <b>MA10</b>              | —                         | 10 Positions             |
| DP           | <b>MB00</b>              | <b>MF00</b>               | 5 Positions<br>No Stops  |
|              | <b>MB03</b>              | —                         | 3 Positions              |
|              | <b>MB04</b>              | —                         | 4 Positions              |
|              | <b>MB05</b>              | —                         | 5 Positions              |

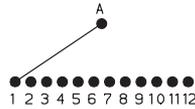
SP MODELS 36° INDEXING SCHEMATIC



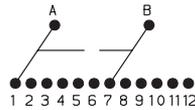
DP MODELS 36° INDEXING SCHEMATIC



SP MODELS 30° INDEXING SCHEMATIC



DP MODELS 30° INDEXING SCHEMATIC



| 30° INDEXING |                          |                           |                          |
|--------------|--------------------------|---------------------------|--------------------------|
| NO. POLES    | MODEL NO. WITH STOP PINS | MODEL NO. WITH STOP RINGS | SWITCH FUNCTION          |
| SP           | <b>MC00</b>              | <b>MG00</b>               | 12 Positions<br>No Stops |
|              | <b>MC03</b>              | —                         | 3 Positions              |
|              | <b>MC07</b>              | —                         | 7 Positions              |
| DP           | <b>MD00</b>              | <b>MH00</b>               | 6 Positions<br>No Stops  |
|              | <b>MD06</b>              | —                         | 6 Positions              |

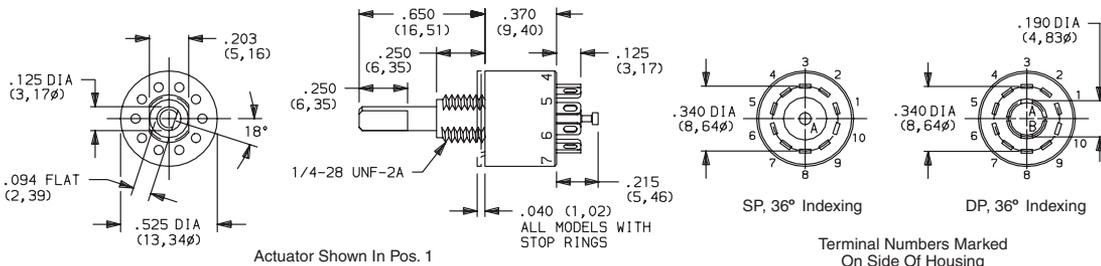


K

Rotary

All models with all options when ordered with S1-S6 stainless steel actuator options.

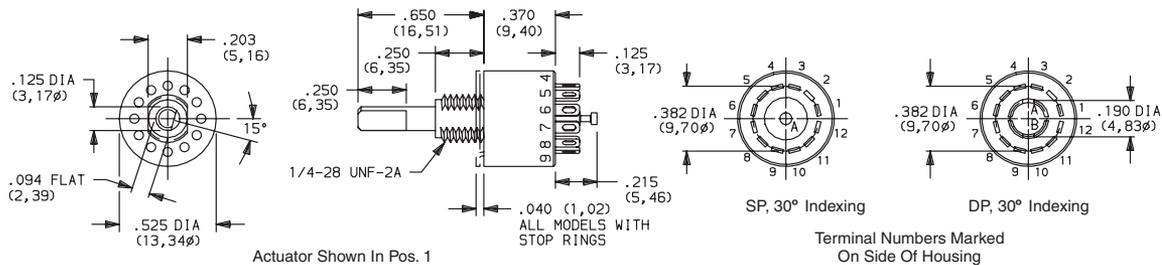
**NOTE:** Number of positions or stops preset at factory (NOTE: MX00 models have full 360 rotation with no stops. Stop pins or stop rings supplied for user-selectable stops, see above). All terminals present regardless of number of switch positions. Hardware is available separately, see section "Technical Data and Additional Hardware".



Actuator Shown In Pos. 1

Terminal Numbers Marked On Side Of Housing

Part number shown: MA00L1NZQD



Actuator Shown In Pos. 1

Terminal Numbers Marked On Side Of Housing

Part number shown: MC00L1NZQD



Third Angle Projection

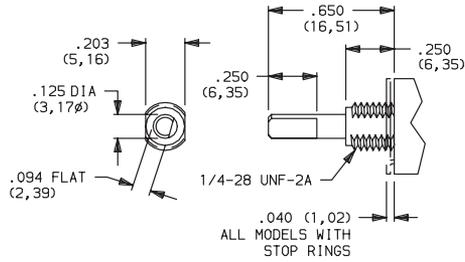
Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change



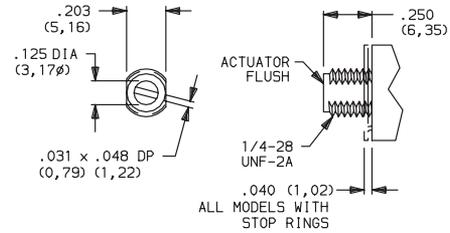
# M Series Half-inch Rotary Switches

## ACTUATOR (ZINC ALLOY)

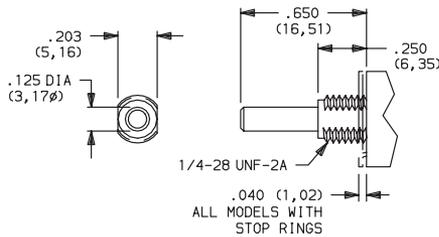
**L1** .650" LONG, FLATTED



**L2** SCREWDRIVER SLOT, FLUSH



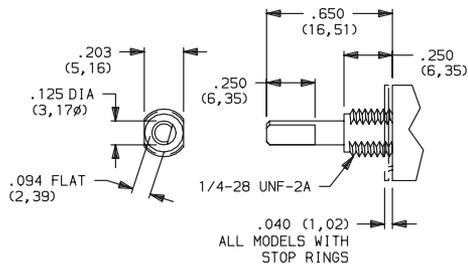
**L3** .650" LONG, ROUND



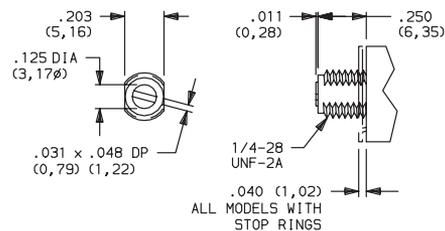
All actuators shown in pos. 1

## ACTUATOR (STAINLESS STEEL)

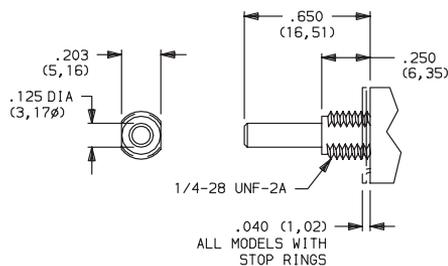
**S1** .650" LONG, FLATTED



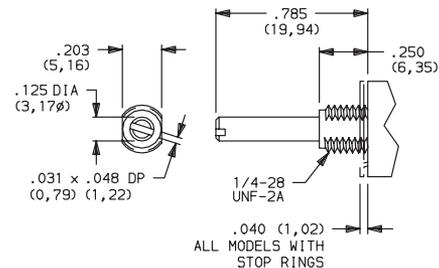
**S2** SCREWDRIVER SLOT, FLUSH



**S3** .650" LONG, ROUND



**S6** .785" LONG, SLOT



All actuators shown in pos. 1

All models  when ordered with stainless steel actuators.



Third Angle  
Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# M Series Half-inch Rotary Switches

## SHORTING/NON-SHORTING CONTACTS



### N NON-SHORTING CONTACTS

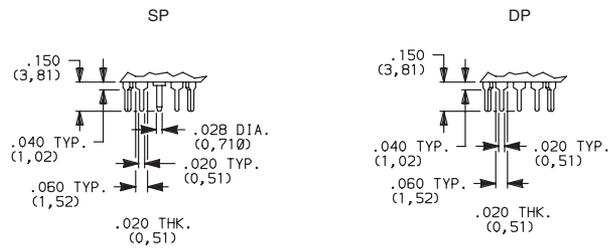
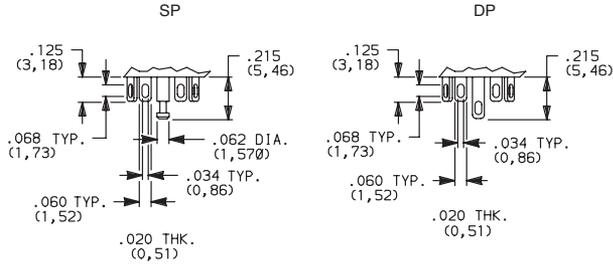
Break-before-make

## TERMINATIONS



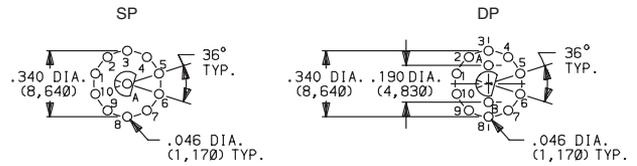
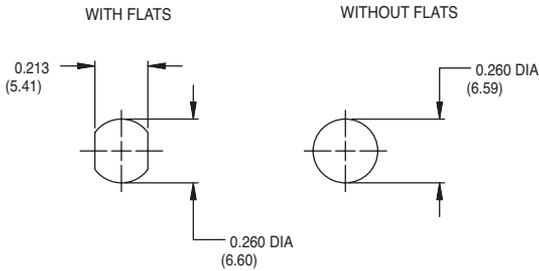
### Z SOLDER LUG

### C PC THRU-HOLE

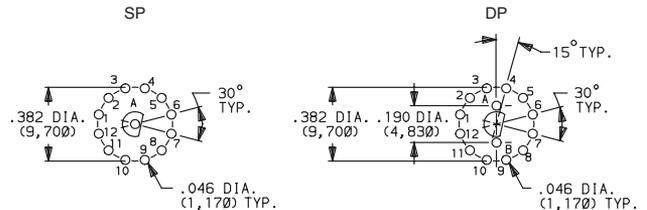


### PANEL MOUNTING

### PC MOUNTING 36° INDEXING



### PC MOUNTING 30° INDEXING



Actuators and schematics shown in pos. 1.

Hardware: All models, one mounting nut and lockwasher supplied standard. MA00 thru MD00 models: two stop pins and adhesive mylar washer supplied. ME00 thru MH00 models: two stop rings supplied. Hardware is available separately, see section "Technical Data and Additional Hardware".

\* Will withstand 12 in. - lbs of torque with no distortion.

**NOTE:** Q contact material standard. Terminal numbers marked on side of housing. All terminals insert molded. All terminals present regardless of number of switch positions.

## CONTACT MATERIAL



| OPTION CODE | CONTACT MATERIAL                | TERMINAL PLATING    | RATING                         |  |
|-------------|---------------------------------|---------------------|--------------------------------|--|
|             |                                 |                     | POWER                          | CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC.                                      |
| Q           | SILVER <sup>1,2</sup>           | SILVER <sup>2</sup> | POWER                          | CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC.                                      |
| G           | GOLD OVER SILVER <sup>3,4</sup> | GOLD <sup>4</sup>   | LOW LEVEL/DRY CIRCUIT OR POWER | 0.4 VA MAX. @ 20 V AC or DC MAX. or, CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC. |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

1 MOVABLE CONTACTS: Non-shorting: Copper alloy, silver plated.

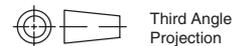
2 STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

3 MOVABLE CONTACTS: Non-shorting: Copper alloy, with gold plate over nickel plate, over silver plate.

4 STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate over silver plate.

**NOTE:** Any models supplied with Q, G contact material are RoHS compliant.

All models  us when ordered with S1-S6 stainless steel actuator options.



Third Angle Projection

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



K

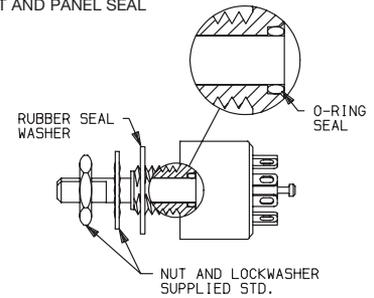
Rotary

# M Series Half-inch Rotary Switches

SEAL 

**D** NO EPOXY SEAL

**F** SPLASHPROOF SHAFT AND PANEL SEAL  
IP67 approved



## Setting Stops With Stop Pins

**MA00, MB00, MC00 & MD00 Models Only:**

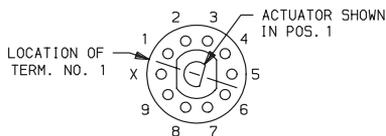
The number of switch positions or stops are adjustable by means of stop pins provided with each switch. Switches are normally shipped with stop pins and hardware in bulk, not installed. Without stop pins, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when actuated 180° or more.

To set stops, refer to figures 1 & 2. Orient switch so that terminal no. 1 is as shown. Turn actuator to position 1, using flats on bushing and terminal no. 1 as reference. Install CCW stop pin in hole designated 'X'. Install second stop pin in hole number corresponding to the number of positions desired. Note that two pole models will begin to repeat when actuated 180° or more. To retain stop pins, use adhesive mylar washer included; see figure 3.

All models except MX00 models have number of switch positions or stops pre-set at factory and are not adjustable.

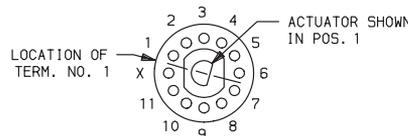
### Hardware:

Two stop pins, mounting nut, and lockwasher supplied standard.



36° Indexing Models  
Top View

Fig. 1



30° Indexing Models  
Top View

Fig. 2

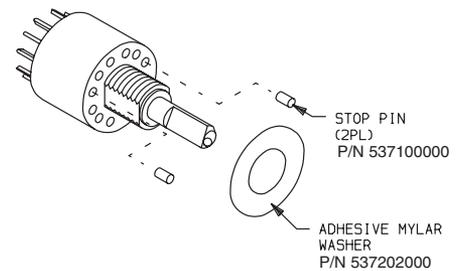


Fig. 3

## Setting Stops With Stop Rings

**ME00, MF00, MG00 & MH00 Models Only:**

The number of switch positions or stops are adjustable by means of stop rings provided with each switch. These models are normally shipped with stop rings and hardware in bulk, not installed. Without stop rings, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when actuated 180° or more.

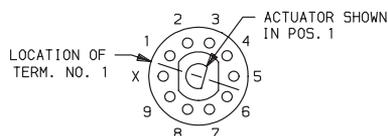
To set stops refer to figures 4 & 5. Orient switch so that terminal no. 1 is as shown. Turn actuator to pos. 1 using flats on bushing and terminal no. 1 as reference. See figure 6 and install inner stop ring with short tab in hole designated 'X'. Install outer stop ring with long tab in hole number corresponding to the number of positions desired. Note that all two pole models begin to repeat when actuated 180° or more. Use mounting nut and lockwasher to retain stop rings.

**All MEXX, MFXX, MGXX & MHXX Models (Except MX00 models):**

Number of switch positions or stops are preset at factory, but are user adjustable.

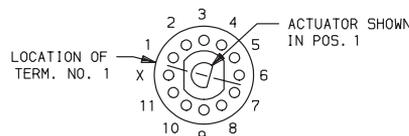
### Hardware:

Two stop rings, mounting nut and lockwasher supplied standard.



36° Indexing Models  
Top View

Fig. 4



30° Indexing Models  
Top View

Fig. 5

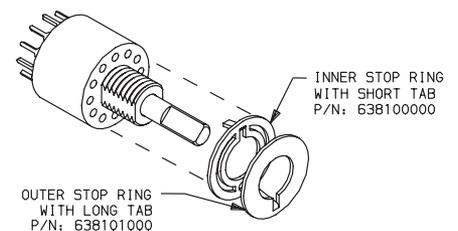


Fig. 6

# R Series ROTA-SLIDE® Rotary Switches



Models Available

## Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Panel and PCB mounting
- Enclosed
- RoHS Compliant

## Typical Applications

- Ceiling fans
- Industrial equipment
- Portable tools

## Specifications

CONTACT RATING: Q contact material: 5 AMPS @ 125 V AC; 2.5 AMPS @ 250 V AC; 0.5 AMP @ 125 V DC; 1/8 HP @ 125 and 250 VAC (UL/CSA).  
See page K-20 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 36°-one contact models, 10 position max.; two contact models, 5 position max.

OPERATING & STORAGE TEMPERATURE: -30°C to 95°C

## Materials

HOUSING & BUSHING: 6/6 nylon (UL 94V-2).

ACTUATOR: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Q contact material: Copper, silver plated.  
See page K-20 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

TERMINAL SEAL: Epoxy.

**NOTE:** Any models supplied with Q or B contact material are RoHS compliant.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-19 and K-20. For additional options not shown in catalog, consult Customer Service Center.



K

Rotary

### Switch Function

- R100** SP, 36° Index, 10 pos. no stops
- R103** SP, 36° Index, 3 pos.
- R104** SP, 36° Index, 4 pos.
- R108** SP, 36° Index, 8 pos.
- R203** DP, 36° Index, 3 pos.
- R204** DP, 36° Index, 4 pos.
- R205** DP, 36° Index, 5 pos.

### Actuator

- 07** .500" high with .156" flat
- 05** .375" high with .156" flat
- 15** Screwdriver slot without bushing

### Mounting Style

- RR** 3/8-32 threaded bushing
- RN** PC without bushing
- RS** PC without bushing

### Terminations

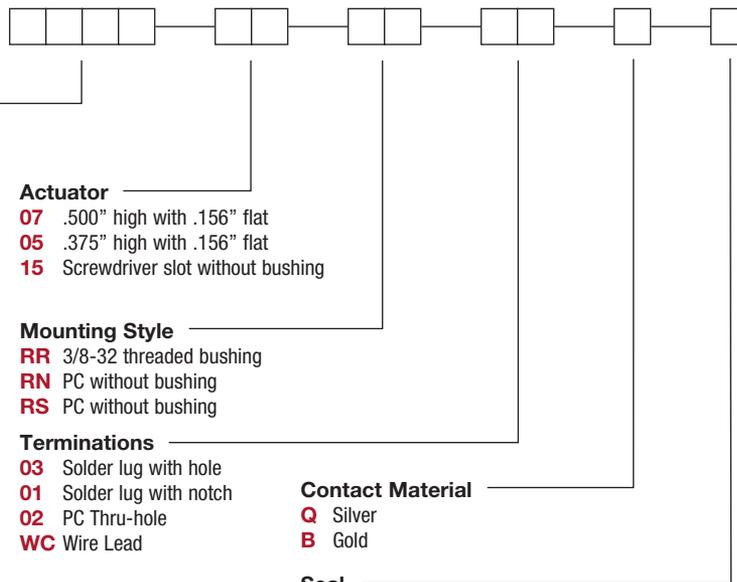
- 03** Solder lug with hole
- 01** Solder lug with notch
- 02** PC Thru-hole
- WC** Wire Lead

### Contact Material

- Q** Silver
- B** Gold

### Seal

- NONE** No seal
- E** Epoxy seal



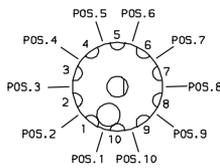
# R Series ROTA-SLIDE® Rotary Switches

## SWITCH FUNCTION



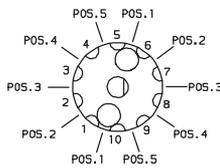
| SP MODELS 36° INDEXING |             |                         |                    |
|------------------------|-------------|-------------------------|--------------------|
| NO. POLES              | MODEL NO.   | SWITCH FUNCTION         | TERMINALS          |
| SP                     | <b>R100</b> | 10 Position<br>No Stops | All Terminals      |
|                        | <b>R103</b> | 3 Position              | 10-1-2-3           |
|                        | <b>R104</b> | 4 Position              | 10-1-2-3-4         |
|                        | <b>R108</b> | 8 Position              | 10-1-2-3-4-5-6-7-8 |

### SP MODELS 36° INDEXING SCHEMATIC



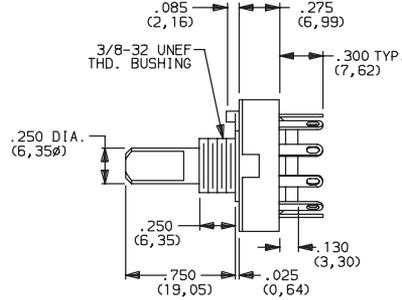
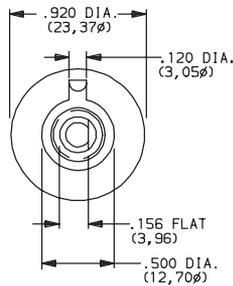
| DP MODELS 36° INDEXING |             |                 |                  |
|------------------------|-------------|-----------------|------------------|
| NO. POLES              | MODEL NO.   | SWITCH FUNCTION | TERMINALS        |
| DP                     | <b>R203</b> | 3 Position      | 10-1-2-3-5-6-7-8 |
|                        | <b>R204</b> | 4 Position      | All Terminals    |
|                        | <b>R205</b> | 5 Position      | All Terminals    |

### DP MODELS 36° INDEXING SCHEMATIC



All models  with all options when ordered with 'Q' contact material.

**NOTE:** Break-before-make contacts. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.



TERM. NOS.  
MOLDED ON HOUSING

Part number show: R10007RR03Q

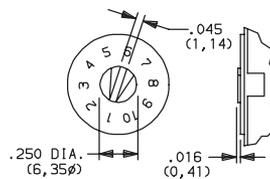
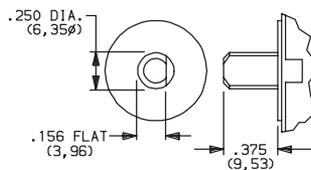
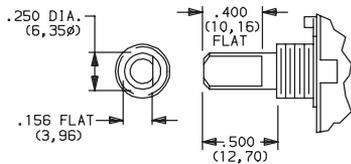
## ACTUATOR



**07** .50019" HIGH WITH .156" FLAT

**05** .375"19 HIGH WITH .156" FLAT

**15** SCREWDRIVER SLOT



Shown with 'RR' mounting style.  
For mounting styles without bushing,  
add .250 (6,35) to actuator length.

Shown with 'RN' mounting style.

Arrow on actuator marked red (std.).  
Shown with 'RS' mounting style.



Third Angle  
Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

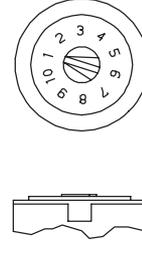
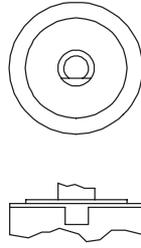
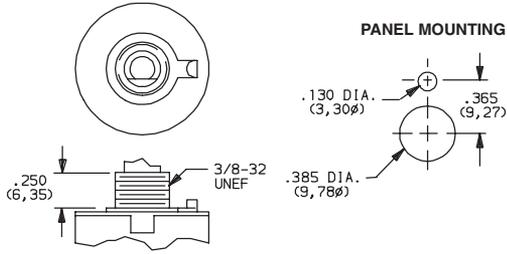
# R Series ROTA-SLIDE® Rotary Switches

## MOUNTING STYLE

**RR** 3/8-32 THREADED BUSHING

**RN** PC WITHOUT BUSHING

**RS** PC SCREWDRIVER SLOT WITHOUT BUSHING



Position numbers and characters are molded on housing.

Mounting nut included (part number 17500100).

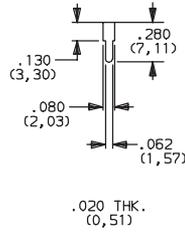
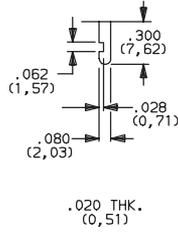
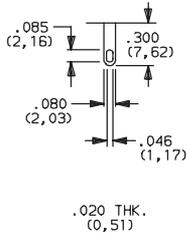
## TERMINATIONS

**03** SOLDER LUG WITH HOLE

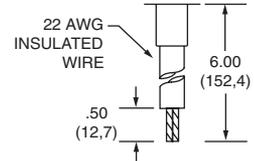
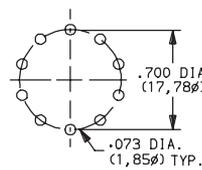
**01** SOLDER LUG WITH NOTCH

**02** PC THRU-HOLE

**WC** WIRE LEAD



### PC MOUNTING



## CONTACT MATERIAL

| OPTION CODE | CONTACT AND TERMINAL MATERIAL | RATING                |  |
|-------------|-------------------------------|-----------------------|--|
|             |                               |                       |  |
| <b>Q</b>    | SILVER <sup>2</sup>           | POWER                 | 5 AMPS @ 125 V AC; 2.5 AMPS @ 250 V AC;<br>0.5 AMP @ 125 V DC (UL/CSA); 1/8 HP @ 125 and 250 VAC (UL/CSA). |
| <b>B</b>    | GOLD <sup>1</sup>             | LOW LEVEL/DRY CIRCUIT | 0.4 VA MAX. @ 20 V AC or DC MAX.   |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

<sup>1</sup> CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

<sup>2</sup> CONTACTS & TERMINALS: Copper, silver plated. (Standard with all termination options.)

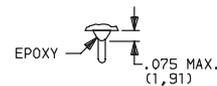
**NOTE:** Any models supplied with Q, B or G contact material are RoHS compliant.

All models  with all options when ordered with 'Q' contact material.

## SEAL

**NONE** NO SEAL

**E** EPOXY SEAL



Third Angle Projection

Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



K

Rotary

# F Series Miniature ROTA-SLIDE® Rotary Switches

## Features/Benefits

- Multi-pole and multi-position
- Panel and PCB mounting
- Positive detent
- Value added capability
- RoHS Compliant

## Typical Applications

- Small appliances
- Testing fixtures
- Safety equipment



Models Available

## Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page K-24 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

CONTACT RESISTANCE: Below 10 m Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10<sup>9</sup> Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 45° or 90° -one contact models; two contact models, 4 pos. max. Models with common terminal -90°, 4 pos. max.

OPERATING & STORAGE TEMPERATURE: -30°C to 65°C

## Materials

HOUSING & BUSHING: 6/6 Nylon (UL 94V-2).

ACTUATOR: 6/6 nylon (UL 94V-2).

CONTACTS: Q contact material: Copper, silver plated. See page K-24 for additional contact materials.

TERMINALS: Q contact material: Copper, silver plated. See page K-24 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Brass, nickel plated.

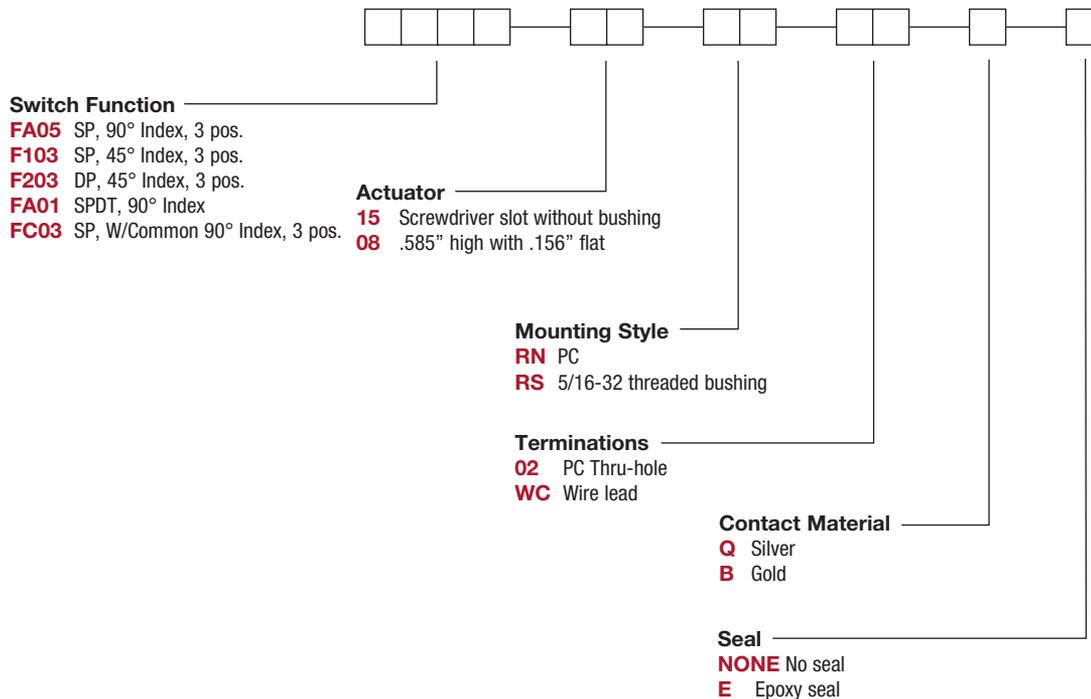
TERMINAL SEAL: Epoxy.

**NOTE:** Any models supplied with Q or B contact material are RoHS compliant.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-22 thru K-24. For additional options not shown in catalog, consult Customer Service Center.



K

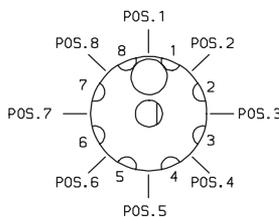
Rotary

# F Series Miniature ROTA-SLIDE® Rotary Switches

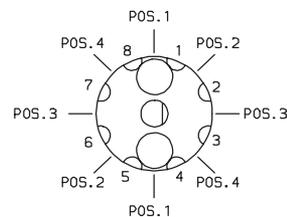
## SWITCH FUNCTION

| 45° INDEXING |             |                 |               |
|--------------|-------------|-----------------|---------------|
| NO. POLES    | MODEL NO.   | SWITCH FUNCTION | TERMINALS     |
| SP           | <b>F103</b> | 3 Position      | 8-1-2-3*      |
| DP           | <b>F203</b> | 3 Position      | All Terminals |

### 45° INDEXING SCHEMATICS



F1XX MODELS



F2XX MODELS

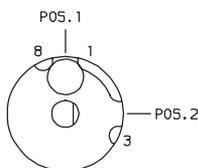
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

**NOTE:** \*Switches with '02' PC terminations have additional terminal no. 5 as switch support only. This terminal is not connected electrically inside switch.

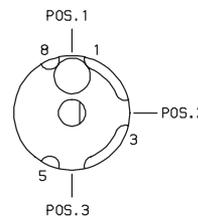
F1XX, F2XX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

| 90° INDEXING   |             |                 |             |
|----------------|-------------|-----------------|-------------|
| NO. POLES      | MODEL NO.   | SWITCH FUNCTION | TERMINALS   |
| SP             | <b>FA01</b> | SPDT            | 8-1-3       |
|                | <b>FA05</b> | 3 Position      | 8-1-3-5     |
| SP WITH COMMON | <b>FC03</b> | 3 Position      | C-1,C-2,C-3 |

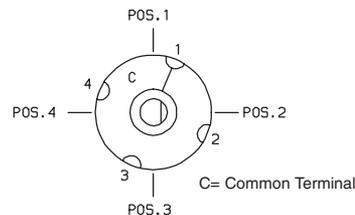
### 90° INDEXING SCHEMATICS



FA01 MODEL



FA05 MODEL



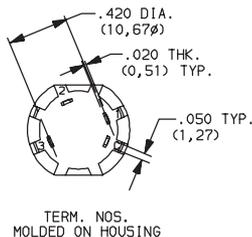
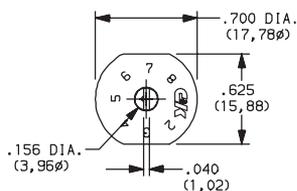
FCXX MODEL

Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

FCXX models: Common terminal is present.

FAXX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

**NOTE:** \*Switches with '02' PC terminations have additional terminal no. 5 as switch support only. This terminal is not connected electrically inside switch.



Part number show: FC0315RN02Q



Dimensions are shown: Inch (mm)

Specifications and dimensions subject to change



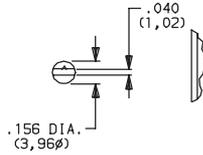
K

Rotary

# F Series Miniature ROTA-SLIDE® Rotary Switches

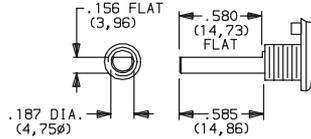
## ACTUATOR

**15** SCREWDRIVER SLOT WITHOUT BUSHING



Shown with 'RN' mounting style; not available with 'RS' mounting style or FCXX models.

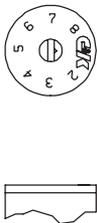
**08** .585" HIGH WITH .156" FLA



Must be ordered with 'RS' mounting style.

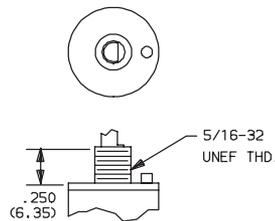
## MOUNTING STYLE

**RN** PC



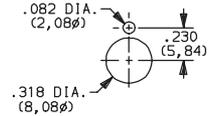
PC mount, no bushing, position numbers molded standard. Shown with '15' actuator; not available with '08' actuator or FCXX models.

**RS** 5/16-32 THREADED BUSHING



Panel mount, with 5/16 in.-32 threaded bushing. Mounting nut (P/N 175020201) included. Must be ordered with '08' actuator option.

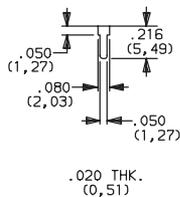
PANEL MOUNTING



5/16 IN. BUSHING

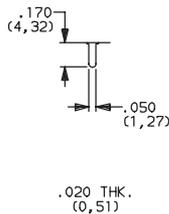
## TERMINATIONS

**02** PC THRU-HOLE



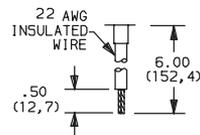
**F1XX, F2XX & FAXX Models**

**02** PC THRU-HOLE



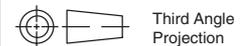
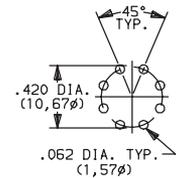
**FCXX Models**

**WC** WIRE LEAD



Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

PC MOUNTING



Third Angle Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# F Series Miniature ROTA-SLIDE® Rotary Switches

## CONTACT MATERIAL

| OPTION CODE | CONTACT AND TERMINAL MATERIAL | RATING                |   |
|-------------|-------------------------------|-----------------------|---|
|             |                               |                       |   |
| <b>Q</b>    | SILVER <sup>2</sup>           | POWER                 | 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). |
| <b>B</b>    | GOLD <sup>1</sup>             | LOW LEVEL/DRY CIRCUIT | 0.4 VA MAX. @ 20 V AC or DC MAX.                          |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

<sup>1</sup> CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

<sup>2</sup> CONTACTS & TERMINALS: Copper, silver plated (standard with all termination options).

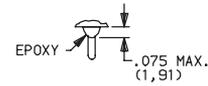
**NOTE:** Any models supplied with Q or B contact material are RoHS compliant.

All models  with all options when ordered with 'Q' contact material.

## SEAL

**NONE** NO SEAL

**E** EPOXY SEAL



Not available on FCXX models.



K

Rotary

# H Series Power ROTA-SLIDE® Rotary Switches

## Features/Benefits

- Multi-pole and multi-position
- Positive detent
- Power switching up to 12 AMPS
- Value added capability
- RoHS Compliant

## Typical Applications

- Small appliances
- Industrial equipment
- Elevators



Models Available

## Specifications

CONTACT RATING: 12 Amps @ 125 V AC; 6 AMPS @ 250 V AC;  
1 AMP @ 125 V DC (UL/CSA).

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load.

INSULATION RESISTANCE:  $10^9 \Omega$  min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

INDEXING: 45°-one contact models, 8 positions max.; two contact models, 4 positions max.

OPERATING & STORAGE TEMPERATURE: -30°C to 95°C

## Materials

HOUSING & BUSHING: 6/6 nylon (UL 94V-2).

ACTUATOR: 6/6 nylon (UL 94V-2).

CONTACTS & TERMINALS: Copper, silver plated.

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

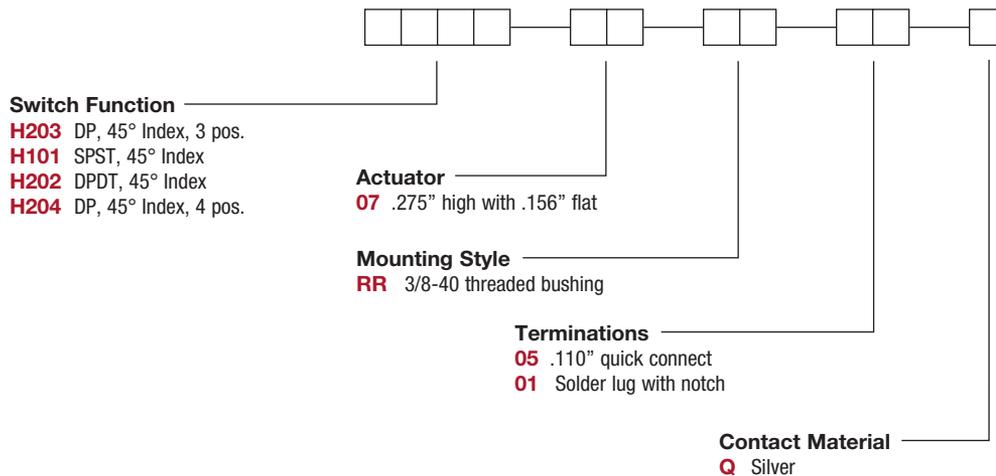
TERMINAL SEAL: Epoxy.

**NOTE:** Any models supplied with Q, B or G contact material are RoHS compliant.

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-26 thru K-27. For additional options not shown in catalog, consult Customer Service Center.



K

Rotary

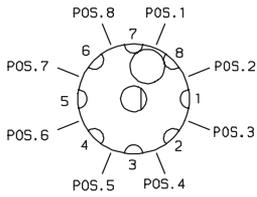
# H Series Power ROTA-SLIDE® Rotary Switches

## SWITCH FUNCTION

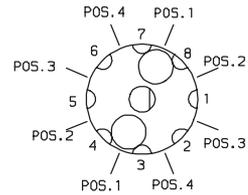
| SP MODELS 45° INDEXING |             |                 |           |
|------------------------|-------------|-----------------|-----------|
| NO. POLES              | MODEL NO.   | SWITCH FUNCTION | TERMINALS |
| SP                     | <b>H101</b> | SPST            | 8-1       |

| DP MODELS 45° INDEXING |             |                 |               |
|------------------------|-------------|-----------------|---------------|
| NO. POLES              | MODEL NO.   | SWITCH FUNCTION | TERMINALS     |
| DP                     | <b>H202</b> | DPDT            | 7-8-1, 3-4-5  |
|                        | <b>H203</b> | 3 Position      | All Terminals |
|                        | <b>H204</b> | 4 Position      | All Terminals |

SP MODELS 45° INDEXING SCHEMATIC

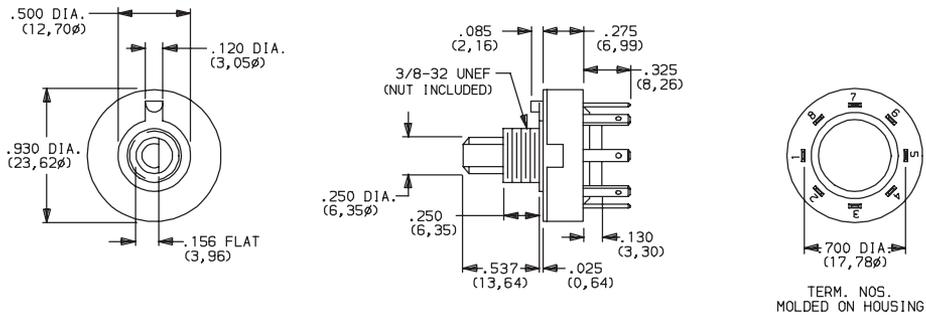


DP MODELS 45° INDEXING SCHEMATIC



NOTE: Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

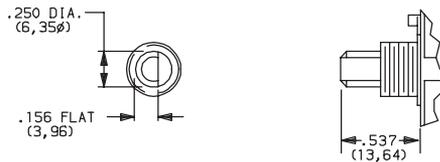
All models with all options.



Part number shown: H10107RR05Q

## ACTUATOR

**07** .275" HIGH WITH .156" FLAT



Third Angle Projection

Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change



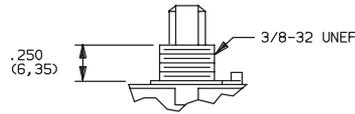
K

Rotary

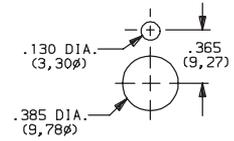
# H Series Power ROTA-SLIDE® Rotary Switches

## MOUNTING STYLE

**RR** 3/8-32 THREADED BUSHING



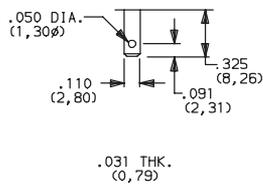
PANEL MOUNTING



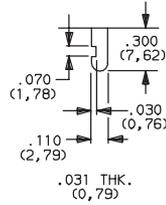
Mounting nut included (part number 925C00000).

## TERMINATIONS

**05** SOLDER LUG WITH HOLE



**01** SOLDER LUG WITH NOTCH



Not available on models with 90° indexing.

## CONTACT MATERIAL

| OPTION CODE | CONTACT AND TERMINAL MATERIAL | RATING |  |
|-------------|-------------------------------|--------|--|
|             |                               | POWER  | 12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC. |
| <b>Q</b>    | SILVER <sup>1</sup>           |        |  |

\* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

<sup>1</sup> CONTACTS & TERMINALS: Copper, silver plated.

**NOTE:** Any models supplied with Q contact material are RoHS compliant.

All models  with all options.



K

Rotary



Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

# RW Series Sub-miniature Rotary Switches



## Features/Benefits

- 8 and 10 positions
- SMT version
- Subminiature design

## Typical Applications

- Digital cameras
- Audio & visual equipment
- Consumer electronics
- Selector dial interface

## How To Order

Part number list is shown below. For individual part details, please refer to the following pages.

| Part Number<br>(Part Description) | Product Details                        |
|-----------------------------------|--|
| RW-108 NS RT                      | 8 Position Subminiature Rotary Switch  |
| RW-1106-NS RT                     | 10 Position Subminiature Rotary Switch |

| PART NUMBER         | PACKAGING           |
|---------------------|---------------------|
| <b>RW-108 NS RT</b> | 800 pieces per reel |



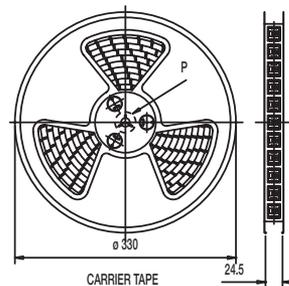
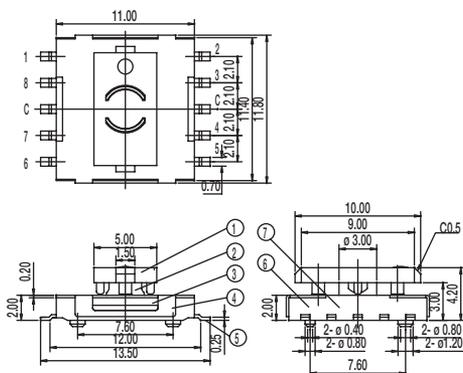
## Specifications

CONTACT ARRANGEMENT: 1 Pole 8 Position  
 CONTACT RATING: 0.1 A @ 16 V DC.  
 ELECTRICAL LIFE: 10,000 cycles.  
 INITIAL CONTACT RESISTANCE: 100 mΩ max.  
 INSULATION RESISTANCE: 10M Ω min.  
 DIELECTRIC STRENGTH: 100V (50-60 Hz).  
 TWIST FORCE: 150 ± 100 gf  
 OPERATING TEMPERATURE: -20°C to 70°C

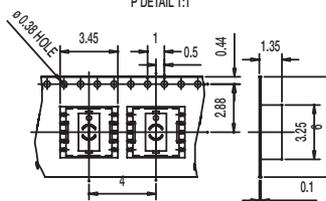
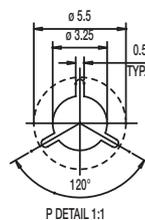
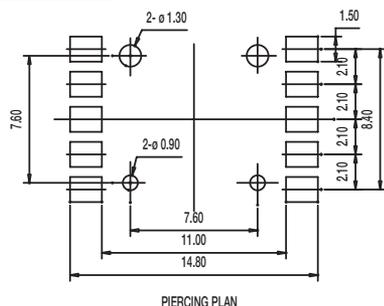
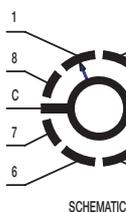
## Materials

KNOB: PA (UL 94V-0).  
 COVER: SUS  
 HOUSING: PA (UL94V-0)  
 TERMINAL: Silver plated

**NOTE:** Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.



|     | 0°  | 45° | 90° | 135° | 180° | 225° | 270° | 315° | 360° |
|-----|-----|-----|-----|------|------|------|------|------|------|
| C-1 | ION | ION | OFF | ---  | ---  | ---  | ---  | ---  | OFF  |
| C-2 | OFF | ION | --- | ---  | ---  | ---  | ---  | ---  | OFF  |
| C-3 | OFF | --- | ION | ---  | ---  | ---  | ---  | ---  | OFF  |
| C-4 | OFF | --- | --- | ION  | ---  | ---  | ---  | ---  | OFF  |
| C-5 | OFF | --- | --- | ---  | ION  | ---  | ---  | ---  | OFF  |
| C-6 | OFF | --- | --- | ---  | ---  | ION  | ---  | ---  | OFF  |
| C-7 | OFF | --- | --- | ---  | ---  | ---  | ION  | ---  | OFF  |
| C-8 | OFF | --- | --- | ---  | ---  | ---  | ---  | ION  | OFF  |





# RM Series Subminiature Rotary Switches



## Features/Benefits

- Subminiature design saves space
- Screwdriver slot or extended shaft
- Positive detent
- RoHS compliant

## Typical Applications

- Audio & visual equipment
- Consumer electronics
- Telecom equipment

## Specifications

CONTACT RATING: 0.5A 24 V DC; 0.2A 48 V DC  
 OPERATING LIFE: 2,000 cycles  
 INSULATION RESISTANCE: 100 M  $\Omega$  min. 500 V DC  
 DIELECTRIC STRENGTH: 500 V AC for 1 minute  
 OPERATING FORCE: 270  $\pm$  100 gf cm  
 OPERATING TEMPERATURE: -40°C to 85°C

## Materials

COVER: PA66  
 BASE: PA6T  
 ACTUATOR: PA66  
 CONTACTS & TERMINALS: Brass with gold plate over nickel plate  
 SPRING: Brass

**NOTE:** Specifications and materials listed above are for switches with standard options.  
 For information on specific and custom switches, consult Customer Service Center.

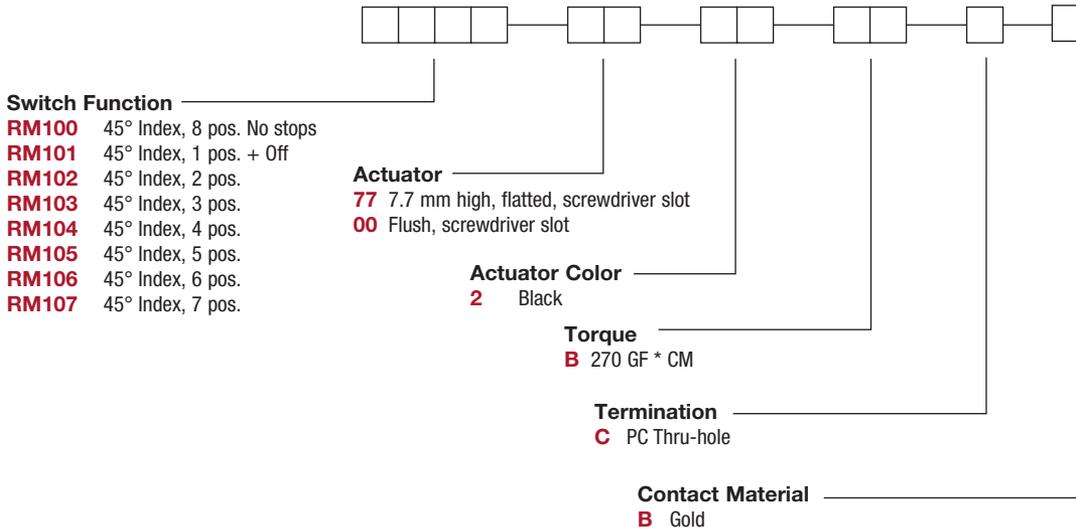


K

Rotary

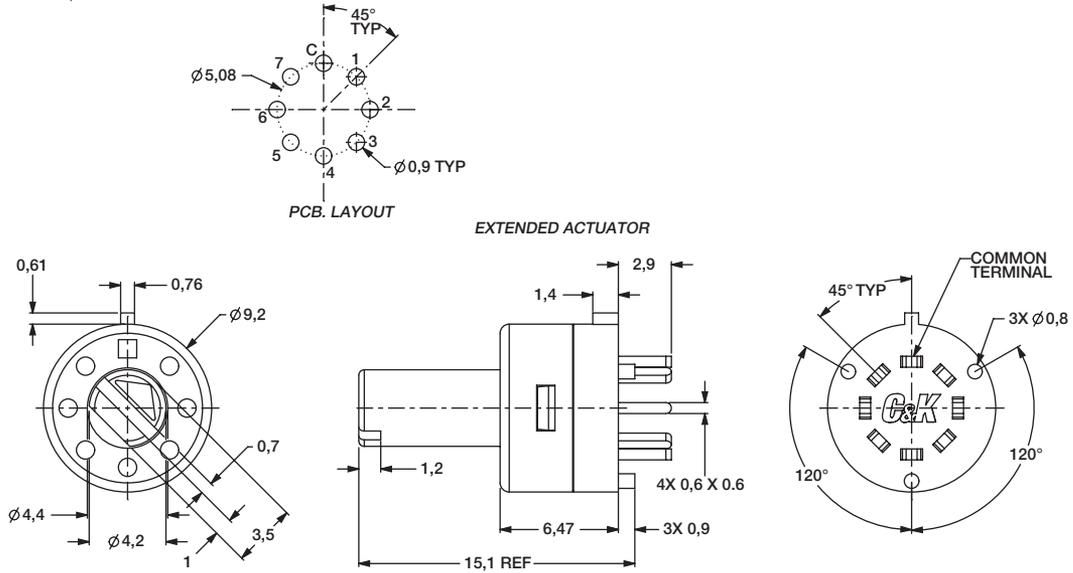
## Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-30 thru K-32. For additional options not shown in catalog, consult Customer Service Center.

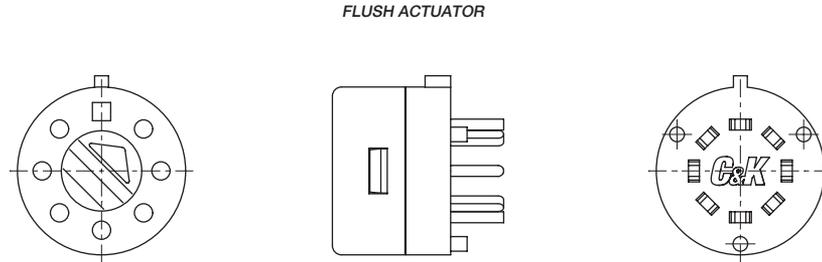


# RM Series Subminiature Rotary Switches

**77** 7.7 MM HIGH, FLATTED, SCREWDRIVER SLOT

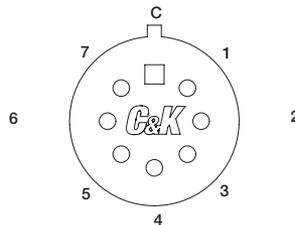


**00** FLUSH, SCREWDRIVER SLOT



| ELECTRICAL SCHEMATIC - RM SERIES SWITCHES |                    |                     |                     |                      |                      |                      |                      |                      |
|---|--------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| SWITCH FUNCTION                           | TRAVEL POSITION 0° | TRAVEL POSITION 45° | TRAVEL POSITION 90° | TRAVEL POSITION 135° | TRAVEL POSITION 180° | TRAVEL POSITION 225° | TRAVEL POSITION 270° | TRAVEL POSITION 315° |
| RM100                                     | C-C(OFF)           | C-1                 | C-2                 | C-3                  | C-4                  | C-5                  | C-6                  | C-7                  |
| RM101                                     | C-C(OFF)           | X                   | X                   | X                    | X                    | X                    | X                    | C-7                  |
| RM102                                     | X                  | C-1                 | C-2                 | X                    | X                    | X                    | X                    | X                    |
| RM103                                     | X                  | C-1                 | C-2                 | C-3                  | X                    | X                    | X                    | X                    |
| RM104                                     | X                  | C-1                 | C-2                 | C-3                  | C-4                  | X                    | X                    | X                    |
| RM105                                     | X                  | C-1                 | C-2                 | C-3                  | C-4                  | C-5                  | X                    | X                    |
| RM106                                     | X                  | C-1                 | C-2                 | C-3                  | C-4                  | C-5                  | C-6                  | X                    |
| RM107                                     | X                  | C-1                 | C-2                 | C-3                  | C-4                  | C-5                  | C-6                  | C-7                  |

TERMINAL ID NUMBERS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT MARKED ON BOTTOM OF THE SWITCH



EXTERIOR KEY TAB SHOWN IDENTIFIES "C" (COMMON TERMINAL)



# ENC Series Optical Encoder

**NEW**



## Features/Benefits

- Clear detent/haptic feel
- Two channel, 2-bit code output
- Quadrature (Incremental type)
- Integrated pushbutton
- Panel mount with screw thread
- Cable and connector termination

## Typical Applications

- Automotive interior control
- Industrial equipment
- Test & Instrumentation
- Medical equipment

## Specifications

### ROTARY

#### ELECTRICAL & MECHANICAL

OPERATING VOLTAGE: DC 5 ± 0.25V, 30mA max.

OUTPUT VOLTAGE: Logic high > 3V DC

Logic low < 1V DC

ROTATIONAL TORQUE: 265 gf-cm initially

MECHANICAL LIFE: 300K cycles

### PUSHBUTTON

#### ELECTRICAL & MECHANICAL

OPERATING VOLTAGE: DC 5V, 10mA

INITIAL CONTACT RESISTANCE: 10 ohm max.

ACTUATION FORCE: 600 ± 20% gf

SHAFT TRAVEL: 0.74 ± 0.2mm

CONTACT BOUNCE: < 4ms make, < 10ms break

MECHANICAL LIFE: 300K cycles

## Environmental Data

OPERATING TEMPERATURE: -40°C to +90°C

OPERATING RELATIVE HUMIDITY: ≤ 96% RH, +40°C

STORAGE TEMPERATURE: -40°C to +90°C

## Materials

ACTUATOR: Zinc Alloy

HOUSING FRAME: Zinc Alloy

DETENT ROTOR: POM, HB

DETENT SPRING: SUS

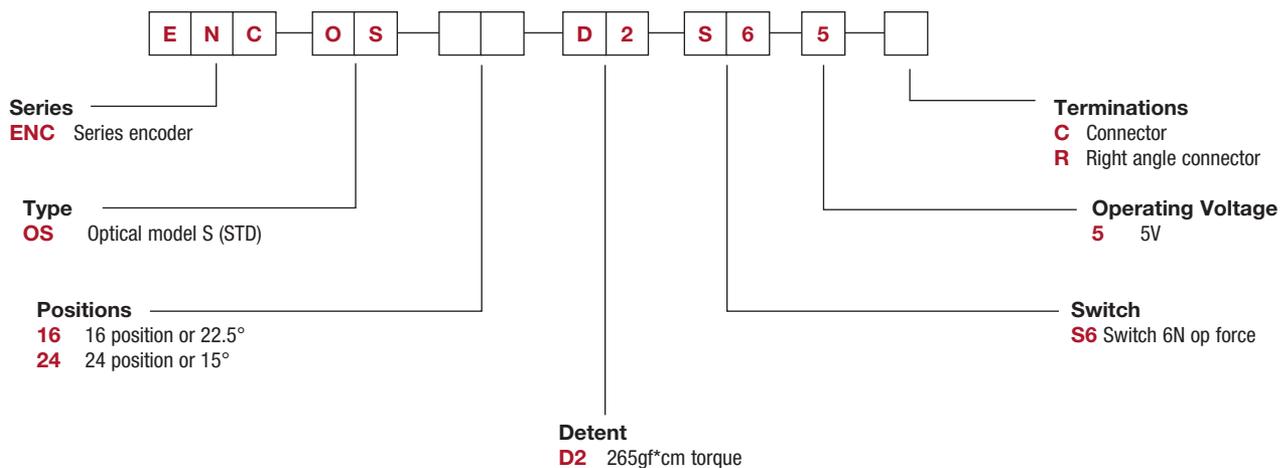
HOUSING UPPER: PA66, V0

HOUSING LOWER: POM, HB

PUSHBUTTON DOME: SUS

## Build-A-Switch

Product specifications and technical information listed above are for standard offer on Optical Encoder. For special options and custom request, please contact your sales representative.



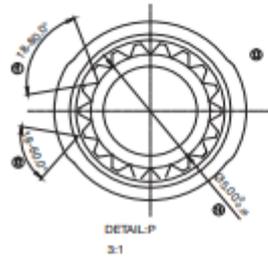
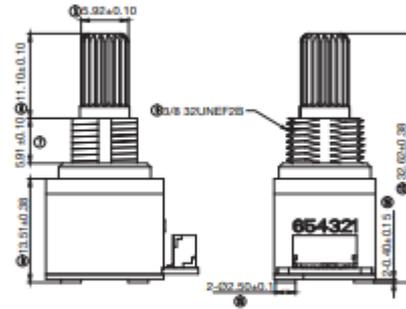
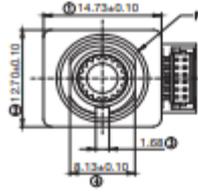
K

Rotary

# ENC Series Optical Encoder

**NEW**

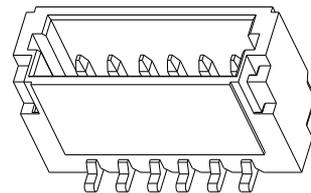
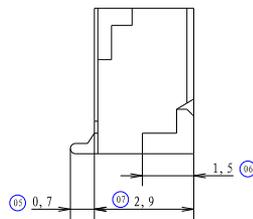
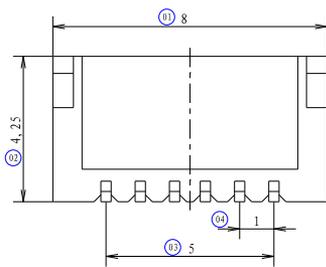
| PART NUMBER          | PACKAGING |
|----------------------|-----------|
| <b>ENCOS16D2S65C</b> | Tray      |



K

Rotary

## Header Socket

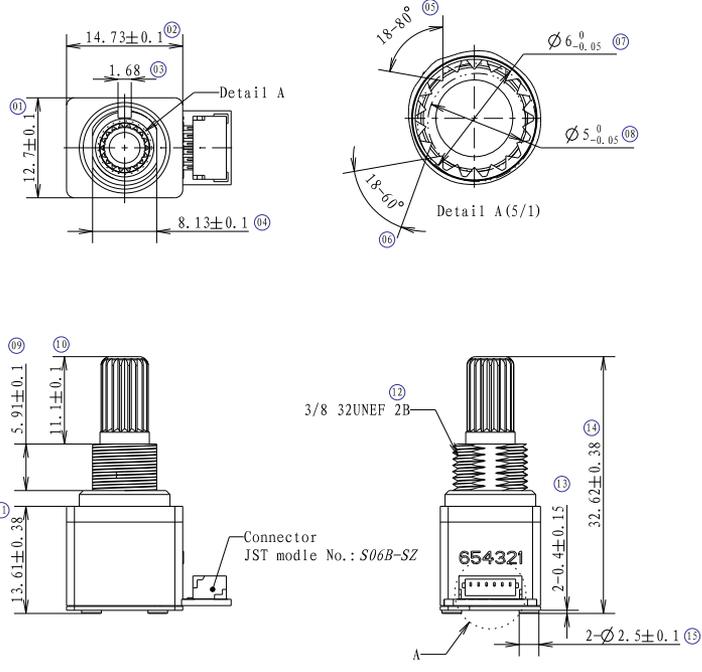


\* Note: Recommended connector is JST 06SR-3S

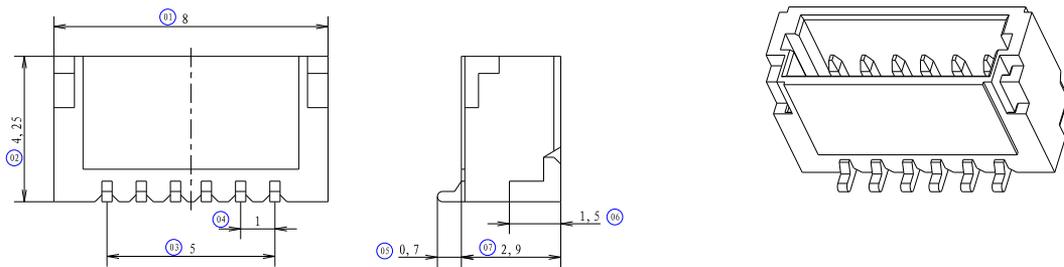
**NEW**

# ENC Series Optical Encoder

| PART NUMBER          | PACKAGING |
|----------------------|-----------|
| <b>ENCOS24D2S65R</b> | Tray      |



## Header Socket



\* Note: Recommended connector is JST 06SR-3S



**K**

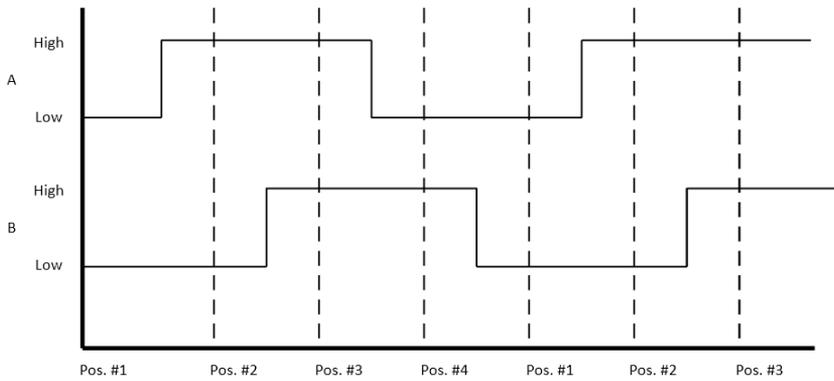
**Rotary**

**OPERATING CHARACTERISTICS**

**Output Logic Levels & Voltage by Position**

| Position | Output A    |         | Output B    |         |
|----------|-------------|---------|-------------|---------|
|          | Logic Level | Voltage | Logic Level | Voltage |
| 1        | Low         | <1.0    | Low         | <1.0    |
| 2        | High        | >3.0    | Low         | <1.0    |
| 3        | High        | >3.0    | High        | >3.0    |
| 4        | Low         | <1.0    | High        | >3.0    |

\* Note: Regardless of the number of detents, the outputs repeat every four positions.



Rotary

**Pinout Order & Function**

| Pin | Function      |
|-----|---------------|
| 1   | Ground        |
| 2   | Pushbutton    |
| 3   | Pushbutton    |
| 4   | Output B      |
| 5   | Output A      |
| 6   | Power (5V DC) |

