# **Rotary Switches Product Selection Guide**

Rotary							
Series	Α	RTA	М	R	F	Н	RW
Switch Type	Multi-pole/ Multi-position	Multi-pole/ Multi-position	Half-inch	Rota-slide	Rota-slide	Power Rota-slide	Subminiature Rotary SMT
Miniature		•			•		•
Low Profile					•		•
Screwdriver Slot	•	•		•	•		
Illumination							
Power						•	
Maximum Current	2.5 Amps	150 mA	6 Amps	5 Amps	4 Amps	12 Amps	0.1 A 10mA
Poles	1-4	1-4	1 & 2	1 & 2	1 & 2	1 & 2	1
Indexing	30°, 45°, 90°		30° & 36°	36°	45° & 90°	45° & 90°	36° & 45°
Splashproof	•		•				
Sealed			F option				
Non-shorting/ Shorting Contacts	•		•				
Panel Mount Op	tions	•					
Front Mount							
Rear Mount	•	•	•	•	•	•	
PCB Mount Opti	ons	1					
Vertical	•	•	•	•	•		•
Terminations							
Solder Lug	•	•	•	•	•	•	
Wire Lead				•	•	•	
Quick Connect							
PC	•	•	•	•	•		
Page No.	K-3	K-8	K-13	K–18	K-21	K-25	K-28



#### 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; 350 mA @ 125 V DC (UL/CSA). Carry - 5 AMPS continuous. See page K-6 for additional ratings.

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

CONTACT RESISTANCE: Below 20 m  $\Omega$  typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts. INSULATION RESISTANCE: 10  $^9$   $\Omega$  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.

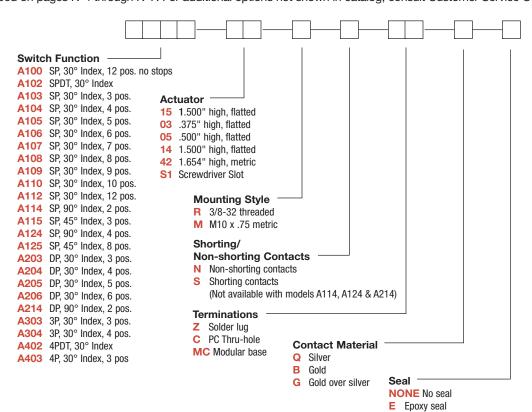
STATIONARY CONTACTS & TERMINALS: Q contact material: Brass, silver plated. See page K-6 for additional contact materials.

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.





K

Rotary



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

Splashproof bushing seal Epoxy & splashproof bushing seal

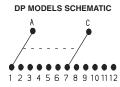
# 1-4 Pole Rotary Switches

## SWITCH FUNCTION

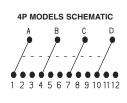
30° INDEXING					
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS		
	A100	12 Position No Stops	A,1-12		
	A102	SPDT	A,1,2*		
	A103	3 Position	A,1-3*		
	A104	4 Position	A,1-4*		
	A105	5 Position	A,1-5*		
SP	A106	6 Position	A,1-6*		
	A107	7 Position	A,1-7		
	A108	8 Position	A,1-8		
	A109	9 Position	A,1-9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

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								10		

SD MODELS SCHEMATIC



3P MODELS SCHEMATIC					
С					
_ /					
/•••					
9 10 11 12					



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

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

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

#### TERMINAL NUMBERS

**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 **c N**us with all options when ordered with 'G' or 'Q' contact material, see page K-6.



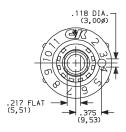
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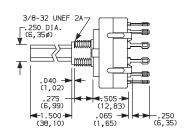
Terminal numbers molded on bottom of housing.

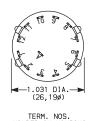


4P MODELS SP MODELS (omit terminals B, C & D) DP MODELS (omit terminals B & D)

3P MODELS









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



Projection

























NOTE: Actuators shown in position 1, fully CCW.

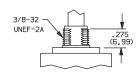
### **MOUNTING STYLE**

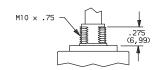
3/8-32 THREAD

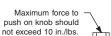
M10 x .75 METRIC

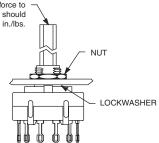




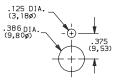






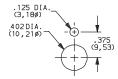


PANEL MOUNTING



3/8 IN. BUSHING

PANEL MOUNTING



METRIC BUSHING

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

NON-SHORTING CONTACTS (break-before-make)

SHORTING CONTACTS (make-before-break)

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



Third Angle Projection

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



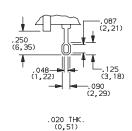
www.ck-components.com

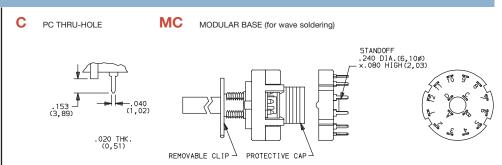
# A Series

# 1-4 Pole Rotary Switches

## TERMINATIONS ---

Z SOLDER LUG





**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.

# 

# CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING			
Q	SILVER <sup>2</sup>	POWER	SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS.		
В	GOLD <sup>1</sup>	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX		
G	GOLD OVER SILVER <sup>3</sup>	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or SWITCH-2.5 AMPS @ 125 V AC; 350 mA @ 125 V DC (UL/CSA). CARRY-5 AMPS CONTINUOUS.		

<sup>\*</sup> 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.

2 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 c with all options when ordered with 'G' or 'Q' contact material.

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





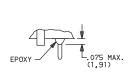
## FUNCTION ----

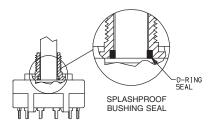












#### Setting Stops on A112 and A125 Models

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**

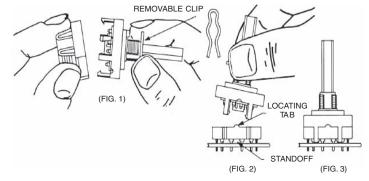
- 1. Insert switch base only into PC board.
- 2. Do not bend terminals.
- 3. Wave soldering recommended at 500F solder temperature.
- 4. Hand solder at 500F, 10 sec. max./terminal.

#### **Switch Assembly**

- 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)

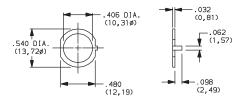
#### Cleaning

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



### **AVAILABLE HARDWARE**

Stop ring



PART NO. 767B00201

Material: Brass Finish: Nickel plated



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

Silver	Gold
BBM	BBM
5 VA	0.5 VA
150 mA	20 mA
5 A	1 A
60 V	25 V
$<$ 150 m $\Omega$	$<$ 150 m $\Omega$
500 V r	500 V r
10° O	10° Ω
	10,000
< 5 ms	< 5 ms
	BBM 5 VA 150 mA 5 A 60 V < 150 mΩ 500 V r 10° Ω 10,000

#### **Mechanical Data**

MAX. NO. OF BANKS: 1.

OPERATING TORQUE: 5 Ncm±20%.

END STOP TORQUE: < 60 Ncm.

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.

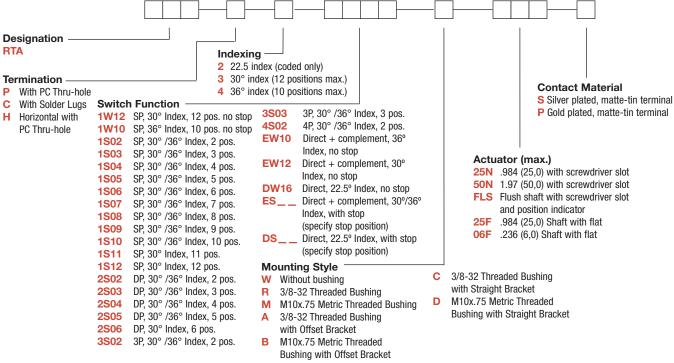
#### **Environmental Data**

OPERATING TEMPERATURE:  $-20^{\circ}$ C to +  $70^{\circ}$ C  $-20^{\circ}$ C to +  $70^{\circ}$ C STORAGE TEMPERATURE:  $-40^{\circ}$ C to +  $85^{\circ}$ C  $-40^{\circ}$ C to +  $85^{\circ}$ 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**

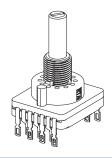
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-9 thru K-12. For additional options not shown in catalog, consult Customer Service Center.





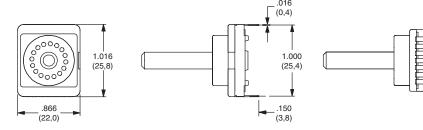
#### 7-0-0-0-0-0 **DESIGNATION**

#### **RTA**



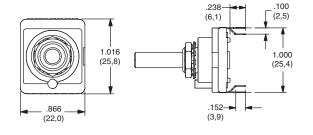
#### **TERMINATION**

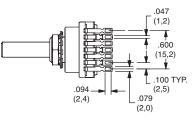
WITH PC PINS





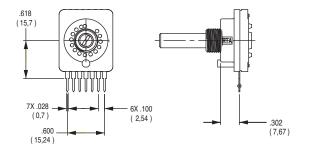
C WITH SOLDER LUGS







Н Horizontal with PC Thru-hole



Note: "H" termination only available with the following options: 1. With A or B mounting styles

- 2. 36° degree indexing3. Up to 5 positions max

.028 TYP. (0,7)

600

(15,2)

.100 TYP.

- INDEXING === 7------
- 22.5 index, 16 positions max.
- 30 index, 12 positions max.
- 36 index, 10 positions max.

Both commons must be connected by user to ground.



Third Angle

Dimensions are shown: Inch (mm)

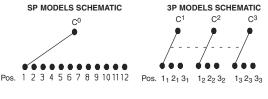


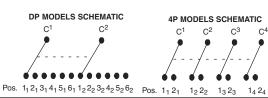
# RTA Series

# 1-4 Poles Coded Rotary Switches

## SWITCH FUNCTION ----

NO. POLES	MODEL NO.	SWITCH FUNCTION	INDEX
	1W12	12 Positions No Stop	30°
	1W10	10 Positions No Stop	36°
	1S02	2 Positions	30°/36°
	1803	3 Positions	30°/36°
	1S05	5 Positions	30°/36°
SP	1806	6 Positions	30°/36°
	1808	8 Positions	30°/36°
	1809	9 Positions	30°/36°
	1S10	10 Positions	30°/36°
	1S11	11 Positions	30°
	1S12	12 Positions	30°





MODEL NO.	SWITCH FUNCTION	INDEX			
EW10	Direct + complement, No stop	36°			
EW12	Direct + complement, No stop	30°			
DW16	Direct, No stop	22.5°			
ES	Direct + complement, with stop (specify stop position)	30° & 36°			
DS	Direct, with stop (specify stop position)	22.5°			

NO. POLES	MODEL NO.	SWITCH FUNCTION	INDEX
	2W05	5 Positions No Stop	30°/36°
	2W06	6 Positions No Stop	30°
	2S02	2 Positions	30°/36°
DD.	2S03	3 Positions	30°/36°
DP	2S04	4 Positions	30°/36°
	2805	5 Positions	30°/36°
	2806	6 Positions	30°
3P	3\$02	2 Positions	30°/36°
3P	3\$03	3 Positions	30°/36°
4P	4802	2 Positions	30°/36°

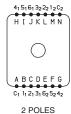
22.5°	30°	36°																	
Term.	Term.	Term.	Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
E,J	M,N	L,N	С	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
F,I	н	D	1		•		•		•		•		•		•		•		•
D,K	D	В	2			•	•			•	•			•	•			•	•
A,N	Α	I	4					•	•	•	•					•	•	•	•
В	J	J	8									•	•	•	•	•	•	•	•
_	С	К	1	•		•		•		•		•		•		•		•	
-	К	Н	2	•	•			•	•			•	•			•	•		
_	В	Α	4	•	•	•	•					•	•	•	•				
_	I	С	8	•	•	•	•	•	•	•	•								

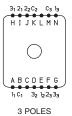
# Indexing Option Code 2, 22.5 INDEXING ANGLE PCB LAYOUT

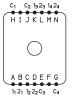
#### **Indexing Option Code 3, 30 INDEXING ANGLE PCB LAYOUT**



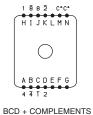








4 POLES



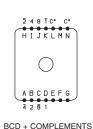
Indexing Option Code 4, 36 INDEXING ANGLE PCB LAYOUT











**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.

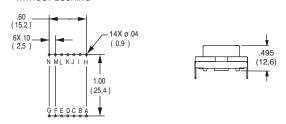


Third Angle Projection



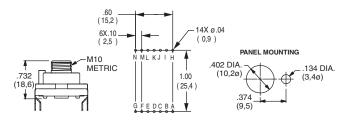
#### -----**MOUNTING STYLE**

### WITHOUT BUSHING



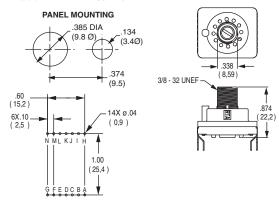
Note: W mounting style not available with H termination.

M10 x .75 MERTIC THREADED BUSHING



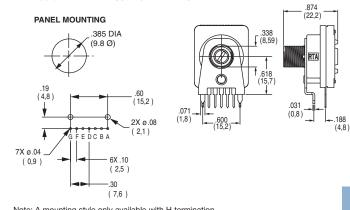
Note: M mounting style not available with H termination.

#### 3/8-32 THREADED BUSHING



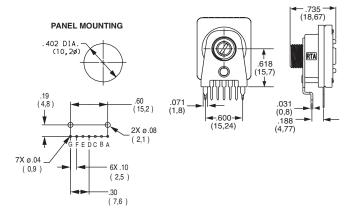
Note: R mounting style not available with H termination.

3/8-32 THREADED BUSHING WITH BRACKET



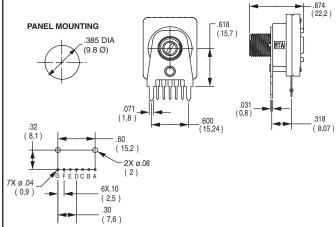
Note: A mounting style only available with H termination

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

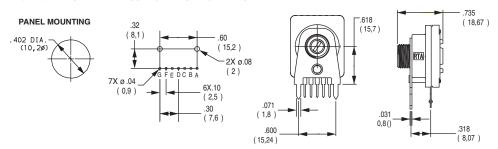


Note: B mounting style only available with H termination.

3/8-32 THREADED BUSHING WITH STRAIGHT BRACKET



D M10 x .75 METRIC THREADED BUSHING WITH STRAIGHT BRACKET







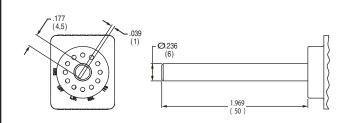
**RTA Series** 

1-4 Poles Coded Rotary Switches

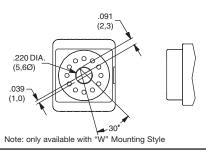
ACTUATOR ---

50N 1.97 (50,0) WITH SCREWDRIVER SLOT

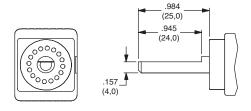
70



FLS FLUSH SHAFT WITH SCREWDRIVER SLOT AND POSITION INDICATOR

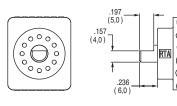


25F .984 (25,0) SHAFT WITH FLAT



Note: only available with "W" Mounting Style

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



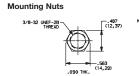
Note: only available with "W" Mounting Style

CONTACT MATERIAL

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

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

## **AVAILABLE HARDWARE**



PART NO. 472706201 Standard

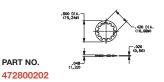


PART NO. 495100201 Metric



Stop pins

PART NO. Y200300200P Lockwasher



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



# 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 m $\Omega$  typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE:  $10^{10} \Omega$  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.

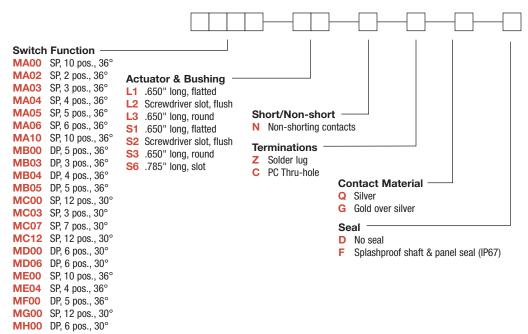
STOP PIN: Stainless steel.

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-18. For additional options not shown in catalog, consult Customer Service Center.

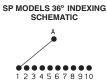


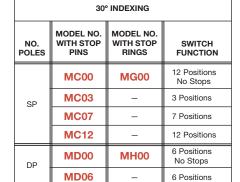


# **M** Series **Half-inch Rotary Switches**

#### **SWITCH FUNCTION**

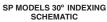
36° INDEXING						
NO. POLES	MODEL NO. WITH STOP PINS	MODEL NO. WITH STOP RINGS	SWITCH FUNCTION			
	MA00	ME00	10 Positions No Stops			
	MA02	_	2 Positions			
SP	MA03	_	3 Positions			
	MA04	ME04	4 Positions			
	MA05	_	5 Positions			
	MA06	_	6 Positions			
	MA10	_	10 Positions			
	MB00	MF00	5 Positions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



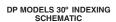


DP MODELS 36° INDEXING SCHEMATIC





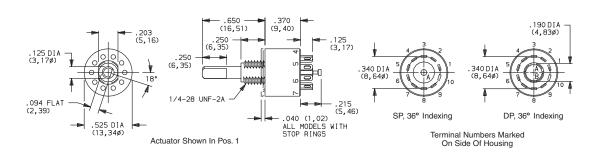




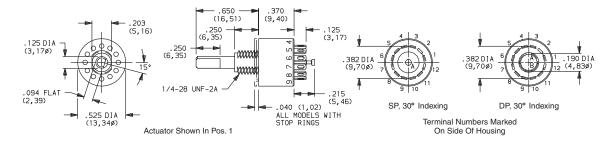


All models chairs with all options when ordered with S1-SB stainless steel actuator options.

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".



Part number shown: MA00L1NZQD

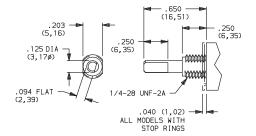


Part number shown: MC00L1NZQD

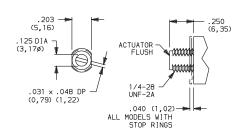




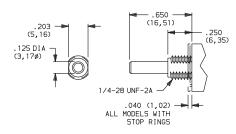
# .650" LONG, FLATTED



SCREWDRIVER SLOT, FLUSH



#### L3 .650" LONG, ROUND



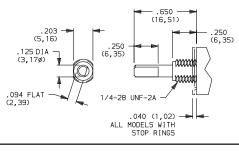
All actuators shown in pos. 1

## **ACTUATOR (STAINLESS STEEL)**

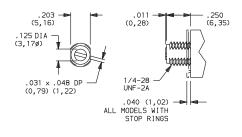
**ACTUATOR (ZINC ALLOY)** 



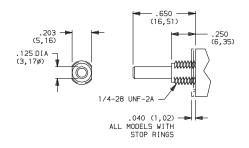
.650" LONG, FLATTED



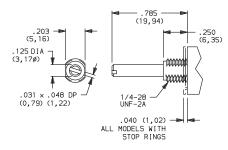
S2 SCREWDRIVER SLOT, FLUSH



**S**3 .650" LONG, ROUND



**S6** .785" LONG, SLOT



All actuators shown in pos. 1

All models when ordered with stainless steel actuators.





# M Series Half-inch Rotary Switches

### SHORTING/NON-SHORTING CONTACTS ---

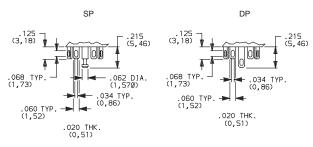
N

NON-SHORTING CONTACTS

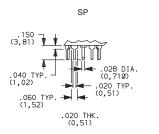
Break-before-make

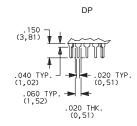
## TERMINATIONS ----

Z SOLDER LUG

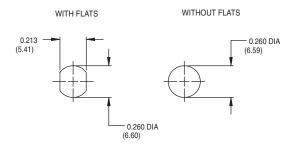


C PC THRU-HOLE

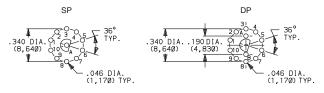




#### PANEL MOUNTING

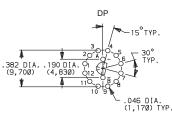


PC MOUNTING 36° INDEXING





.046 DIA. (1.170) TYP.



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

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".

**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.

Actuators and schematics shown in pos. 1.

## CONTACT MATERIAL

OPTION CODE	CONTACT MATERIAL	TERMINAL PLATING		RATING
Q	SILVER 1, 2	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.

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

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

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





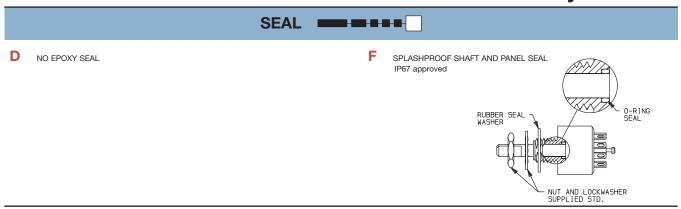
<sup>&</sup>lt;sup>1</sup> MOVABLE CONTACTS: Non-shorting: Copper alloy, silver plated. Shorting: Zinc alloy, silver plated.

 $<sup>^{\</sup>rm 2}$  STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

<sup>&</sup>lt;sup>3</sup> MOVABLE CONTACTS: Non-shorting: Copper alloy, with gold plate over nickel plate, over silver plate. Shorting: Zinc alloy, with gold plate

<sup>&</sup>lt;sup>4</sup> STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate over silver plate.

# M Series Half-inch Rotary Switches



#### **Setting Stops With Stop Pins**

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

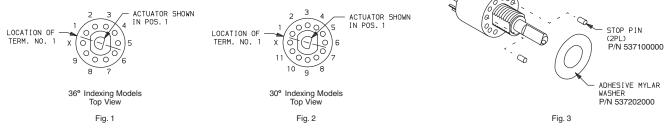
The number of switch positions or stops are adjustable by means of stop pins provided with each switch. Switches are normally shipped with stop pins and hardware in bulk, not installed. Without stop pins, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when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



#### **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.

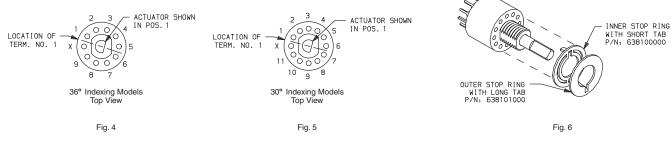
To set stops refer to figures 4 & 5. Orient switch so that terminal no. 1 is as shown. Turn actuator to pos. 1 using flats on bushing and terminal no. 1 as reference. See figure 6 and install inner stop ring with short tab in hole designated 'X'. <u>Install outer stop ring with long tab</u> in hole number 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.





#### Features/Benefits

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

#### Typical Applications

- Ceiling fans
- Industrial equipment
- Portable tools



Models Available

#### **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-36 for additional ratings.

ELECTRICAL LIFE: 10,000 make-and-break cycles at full load. CONTACT RESISTANCE: Below 10 m  $\Omega$  typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE:  $10^9 \ \Omega$  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-36 for additional contact materials. CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

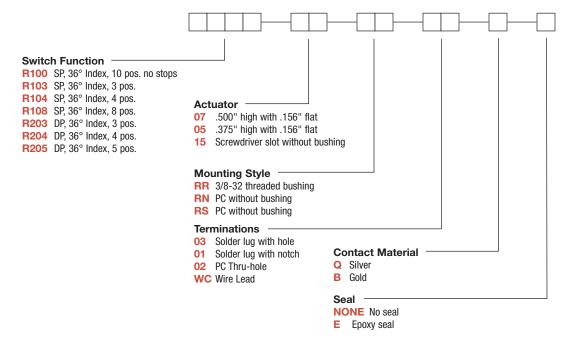
TERMINAL SEAL: Epoxy.

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 Custome 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.



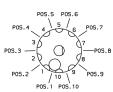






SP MODELS 36° INDEXING						
NO. POLES			TERMINALS			
SP	R100	10 Position No Stops	All Terminals			
	R103	3 Position	10-1-2-3			
	R104	4 Position	10-1-2-3-4			
	R108	8 Position	10-1-2-3-4-5-6-7-8			

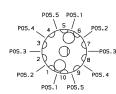
SP	MODELS	36°	INDEXING			
SCHEMATIC						



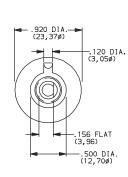
DP MODELS 36° INDEXING						
NO. POLES	MODEL SWITCH FUNCTION		TERMINALS			
	R203	3 Position	10-1-2-3,5-6-7-8			
DP	R204	4 Position	All Terminals			
	R205	5 Position	All Terminals			

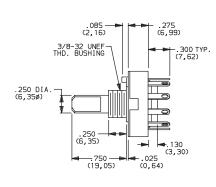
All models c with all options when ordered with 'Q' contact material.

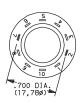
# DP MODELS 36° INDEXING SCHEMATIC



**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**

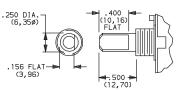
.500" HIGH WITH .156" FLAT

05

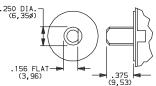
.375" HIGH WITH .156" FLAT

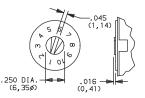
15

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.

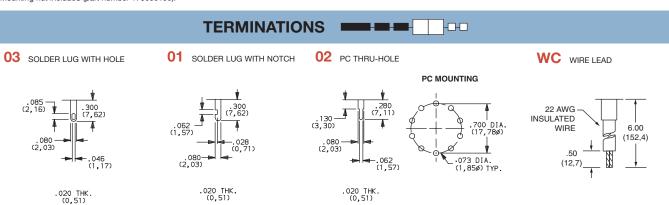




# **R Series ROTA-SLIDE® Rotary Switches**

# **MOUNTING STYLE RR** RN RS PC SCREWDRIVER SLOT WITHOUT BUSHING 3/8-32 THREADED BUSHING PC WITHOUT BUSHING PANEL MOUNTING Position numbers and characters are molded on housing.

Mounting nut included (part number 175000100).



# CONTACT MATERIAL

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

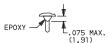
<sup>\*</sup> Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

 $^1$  CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.  $^2$  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 calls with all options when ordered with 'Q' contact material.

**SEAL** NONE NO SEAL **EPOXY SEAL** 





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

Third Angle



# 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



Models Available

### **Typical Applications**

- Small appliances
- Testing fixtures
- Safety equipment



#### **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  $\Omega$  typ. initial @

2-4 V DC, 100 mA, for both silver and gold plated contacts.

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

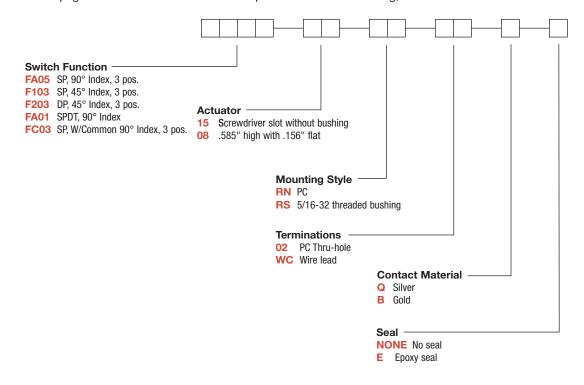
TERMINAL SEAL: Epoxy.

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 Custome 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.





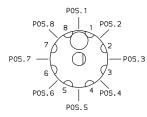
# F Series

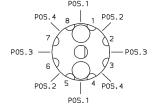
# Miniature ROTA-SLIDE® Rotary Switches

### SWITCH FUNCTION -----

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

#### 45° INDEXING SCHEMATICS





F1XX MODELS

F2XX MODELS

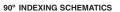
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

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

P05.2

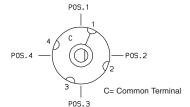
F1XX, F2XX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

#### 90° INDEXING MODEL SWITCH NO. POLES **TERMINALS FA01** SPDT 8-1-3 **FA05** 3 Position 8-1-3-5 SP WITH FC03 3 Position C-1,C-2,C-3 COMMON





FA01 MODEL



FA05 MODEL

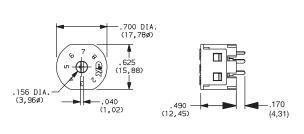
FCXX MODEL

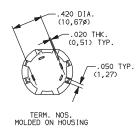
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

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

FCXX models: Common terminal is present.

**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

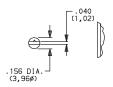




# F Series Miniature ROTA-SLIDE® Rotary Switches

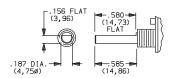
## ACTUATOR —————————

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 ---

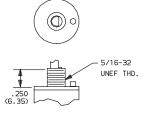
RN PC





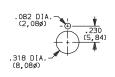
PC mount, no bushing, position numbers molded standard. Shown with '15' actuator; not available with '08' actuator or FCXX models.

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.

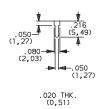
PANEL MOUNTING



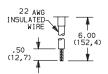
5/16 IN. BUSHING

### TERMINATIONS -





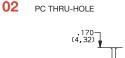
WC WIRE LEAD



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



F1XX, F2XX & FAXX Models



.050

.020 THK.

**FCXX Models** 





# **F** Series Miniature ROTA-SLIDE® Rotary Switches

## CONTACT MATERIAL

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

<sup>\*</sup> 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).

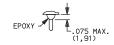
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

All models

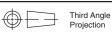


with all options when ordered with 'Q' contact material.

SEAL ----NONE NO SEAL EPOXY SEAL



Not available on FCXX models.





# 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**



### r**Al**°us

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

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

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

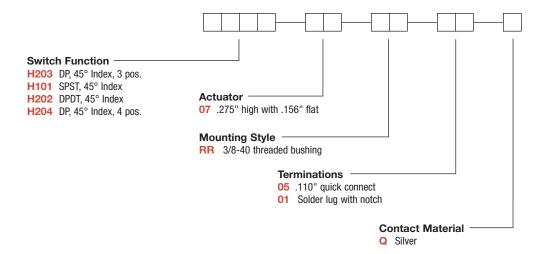
CONTACTS & TERMINALS: Copper, silver plated. CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

TERMINAL SEAL: Epoxy.

#### **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.







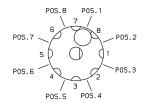
## **SWITCH FUNCTION**

|--|--|--|--|--|--|

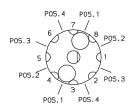
	SP MODELS 45° INDEXING						
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS				
SP	H101	SPST	8-1				

DP MODELS 45° INDEXING					
NO. POLES			TERMINALS		
DP	H202	DPDT	7-8-1, 3-4-5		
	H203	3 Position	All Terminals		
	H204	4 Position	All Terminals		

# SP MODELS 45° INDEXING SCHEMATIC



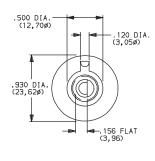
# DP MODELS 45° INDEXING SCHEMATIC

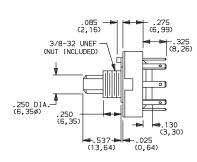


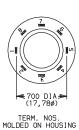
NOTE: Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.



with all options.





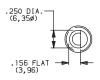


Part number shown: H10107RR05Q

## **ACTUATOR**



07 .275" HIGH WITH .156" FLAT



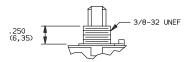


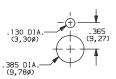


Third Angle

3/8-32 THREADED BUSHING







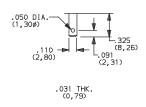
Mounting nut included (part number 175000100).

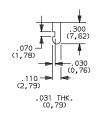
## TERMINATIONS -

05

SOLDER LUG WITH HOLE

SOLDER LUG WITH NOTCH





Not available on models with 90° indexing.

## CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL		RATING
Q	SILVER 1	POWER	12 AMPS @ 125 V AC; 6 AMPS @ 250 V AC; 1 AMP @ 125 V DC.

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

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

All models call with all options.





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

# 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

PART NUMBER	PACKAGING
RW-108 NS RT	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 m $\Omega$  max. INSULATION RESISTANCE: 10M  $\Omega$  min. DIELECTRIC STRENGTH: 100V (50-60 Hz).

TWIST FORCE: 150  $\pm$  100 gf

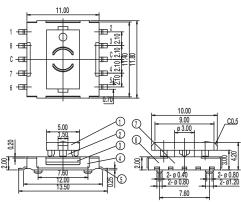
OPERATING TEMPERATURE: -20°C to 70°C

#### **Materials**

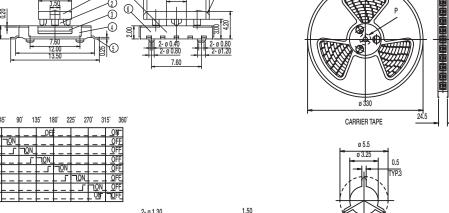
KNOB: PA (UL 94V-0).

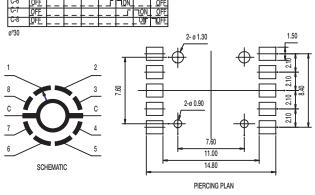
COVER: SUS

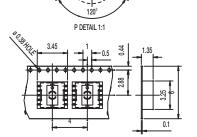
HOUSING: PA (UL94V-0) TERMINAL: Silver plated.



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









# RW Series Sub-miniature Rotary Switches

## **Specifications**

CONTACT ARRANGEMENT: 1 Pole, 10 Position

CONTACT RATING: 10 mA @ 5 V DC. ELECTRICAL LIFE: 7,000 cycles.

INITIAL CONTACT RESISTANCE: 200 m $\Omega$  max. INSULATION RESISTANCE: 250M  $\Omega$  min. DIELECTRIC STRENGTH: 250 VAC (50-60 Hz).

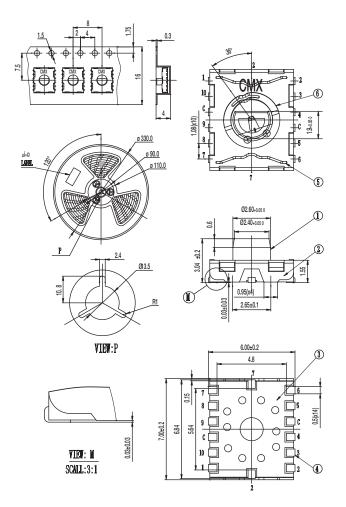
TWIST FORCE:  $90 \pm 15$  gf

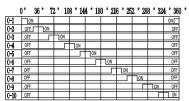
OPERATING TEMPERATURE: -30°C to 80°C

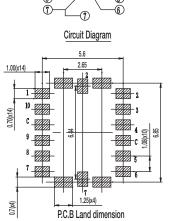
#### **Materials**

KNOB: PA (UL 94V-0). COVER: Silver plated. HOUSING: LCP (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.









PART NUMBER

**RW-1106-NS RT** 

PACKAGING

2,000 pieces

per reel