

Rotary Switches

Product Selection Guide

Series	A	RTA	M	RTBH	RTBV	R	F	H	P
Switch Type	Multi-pole/ Multi-position	Multi-pole/ Multi-position	Half-inch	Right-angle Sealed	Right-angle Sealed	Rota-slide	Rota-slide	Power Rota-slide	Key Switch
Miniature		•					•		
Low Profile							•		•
Screwdriver Slot	•	•		•	•	•	•		
Illumination									
Power								•	
Maximum Current	2.5 Amps	150 mA	6 Amps			5 Amps	4 Amps	12 Amps	4 Amps
Momentary									•
Poles	1-4	1-4	1 & 2			1 & 2	1 & 2	1 & 2	1 & 2
Indexing	30°, 45°, 90°		30° & 36°	15,22.5,36		36°	45° & 90°	45° & 90°	45° & 90°
Splashproof	•		•	•	•				
Sealed			• F option	•	•				
Non-shorting/ Shorting Contacts	•		•						
Panel Mount Options									
Front Mount									•
Rear Mount	•	•	•	•	•	•	•	•	
PCB Mount Options									
Vertical	•	•	•		•	•	•		•
Terminations									
Solder Lug	•	•	•			•	•	•	•
Wire Lead						•	•	•	•
Quick Connect									
PC	•	•	•	•	•	•	•		
Page No.	K-3	K-8	K-13	K-18	K-24	K-30	K-33	K-37	K-40



K

Rotary



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

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; 350 mA @ 125 V DC (UL/CSA). Carry - 5 AMPS continuous. See page L-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 Ω typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹ 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.

<p>Switch Function</p> <p>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</p>	<p>Actuator</p> <p>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</p>	<p>Mounting Style</p> <p>R 3/8-32 threaded M M10 x .75 metric</p>	<p>Shorting/ Non-shorting Contacts</p> <p>N Non-shorting contacts S Shorting contacts (Not available with models A114, A124 & A214)</p>	<p>Terminations</p> <p>Z Solder lug C PC Thru-hole MC Modular base</p>	<p>Contact Material</p> <p>Q Silver B Gold G Gold over silver</p>	<p>Seal</p> <p>NONE No seal E Epoxy seal F Splashproof bushing seal K Epoxy & splashproof bushing seal</p>
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Dimensions are shown: mm
Specifications and dimensions subject to change

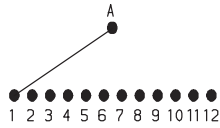


A Series 1-4 Pole Rotary Switches

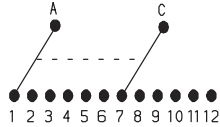
SWITCH FUNCTION

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

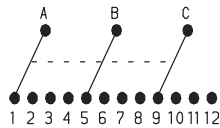
SP MODELS SCHEMATIC



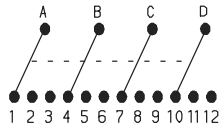
DP MODELS SCHEMATIC



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

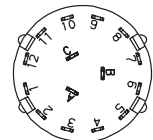
45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	A115	3 Position	A,1,2,4*
	A125	8 Position	A,1,2,4,5,7,8,10,11

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.

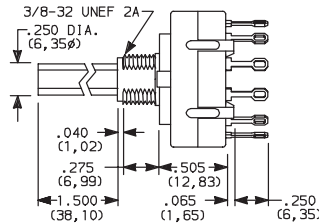
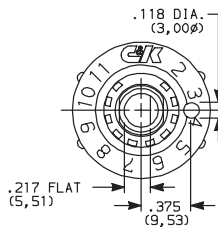


3P MODELS

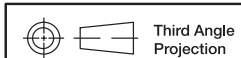
4P MODELS
SP MODELS (omit terminals B, C & D)
DP MODELS (omit terminals B & D)

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

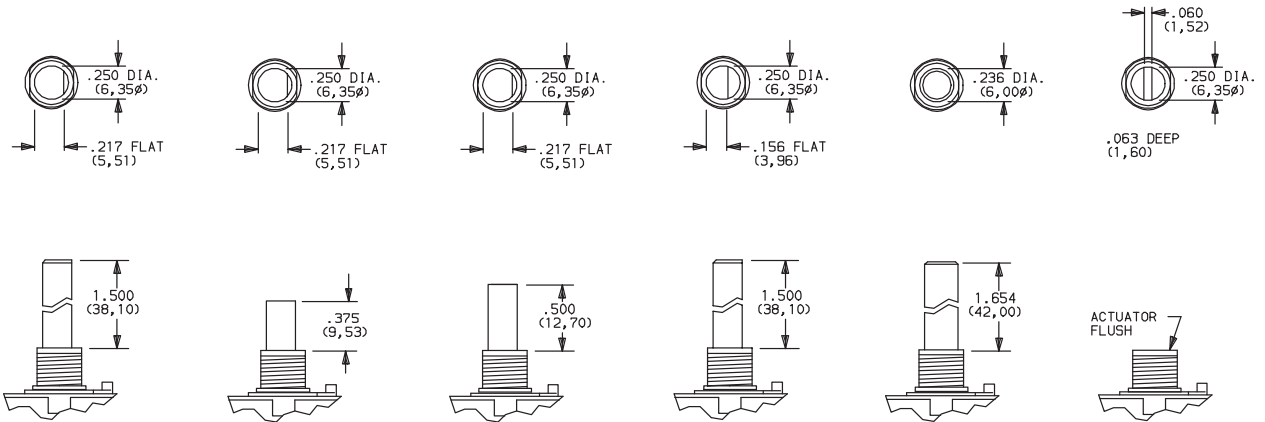
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

C&K

A Series 1-4 Pole Rotary Switches

ACTUATOR

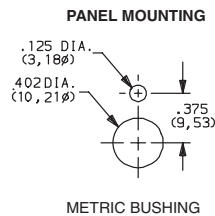
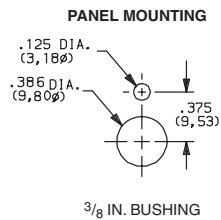
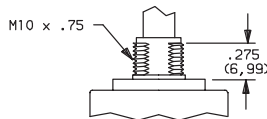
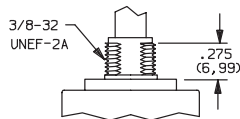
15 1.500" HIGH **03** .375" HIGH **05** .500" HIGH **14** 1.500" HIGH **42** 1.654" METRIC **S1** SCREWDRIVER SLOT



NOTE: Actuators shown in position 1, fully CCW.

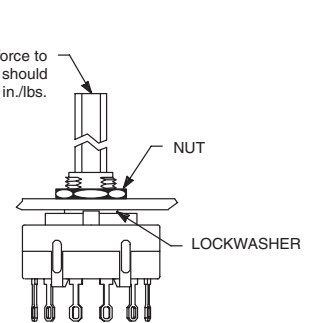
MOUNTING STYLE

R 3/8-32 THREAD **M** M10 x .75 METRIC



TYPICAL INSTALLATION

Maximum force to push on knob should not exceed 10 in./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.

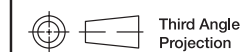
Actuation torque: 8-16 oz./in.
Maximum torque: 30 oz./in.

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: mm
Specifications and dimensions subject to change



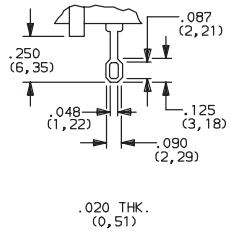
K

Rotary

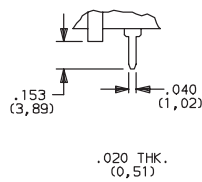
A Series 1-4 Pole Rotary Switches

TERMINATIONS

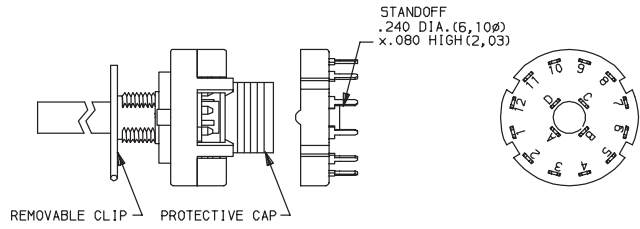
Z SOLDER LUG



C PC THRU-HOLE

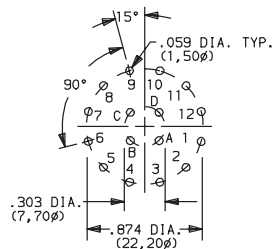


MC MODULAR BASE (for wave soldering)

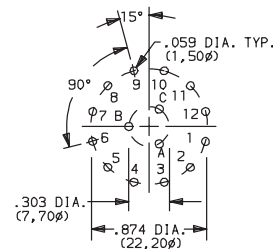


NOTE: Switches with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch. Solder and clean switch base on PC board with other components, then snap on housing/actuator assembly. See page K-7 for installation instructions.

PC MOUNTING



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



3P MODEL

CONTACT MATERIAL

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

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

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

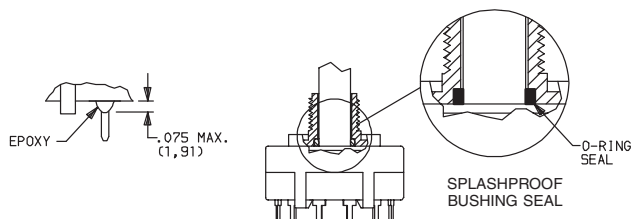
FUNCTION

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

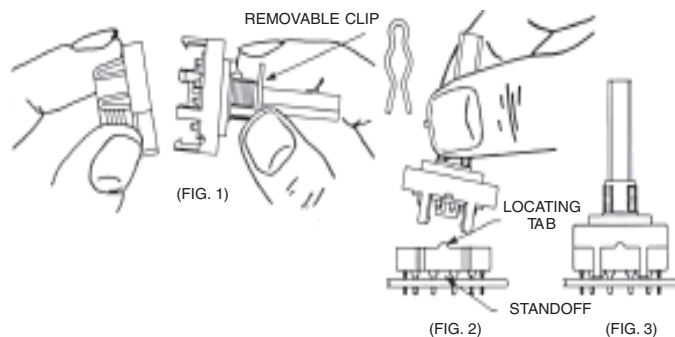
1. Insert switch base only into PC board.
2. Do not bend terminals.
3. Wave soldering recommended at 500F solder temperature.
4. Hand solder at 500F, 10 sec. max./terminal.

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.

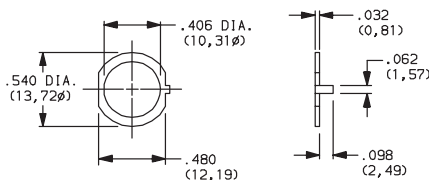
Switch Assembly

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)



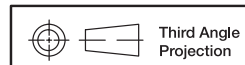
AVAILABLE HARDWARE

Stop ring



PART NO.
767B00201

Material: Brass
Finish: Nickel plated



Dimensions are shown: mm
Specifications and dimensions subject to change



Rotary

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 BETWEEN CONTACTS AND GROUND TERMINALS:	500 V r	500 V r
INSULATION RESISTANCE BETWEEN CONTACTS OR CONTACTS AND FRAME (500 V =):	10 ⁹ Ω	10 ⁹ 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: < 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°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
C With Solder Lugs
H Horizontal with PC Thru-hole

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

Indexing
2 22.5 index (coded only)
3 30° index (12 positions max.)
4 36° index (10 positions max.)

3S03 3P, 30° /36° Index, 3 pos.
4S02 4P, 30° /36° Index, 2 pos.
EW10 Direct + complement, 36° Index, no stop
EW12 Direct + complement, 30° Index, no stop
DW16 Direct, 22.5° Index, no stop
ES__ Direct + complement, 30°/36° Index, with stop (specify stop position)
DS__ Direct, 22.5° Index, with stop (specify stop position)

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

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



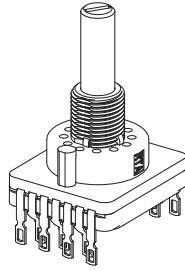
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

RTA Series 1-4 Poles Coded Rotary Switches

DESIGNATION



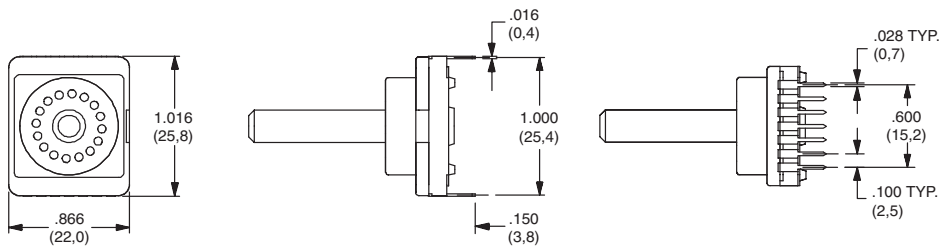
RTA



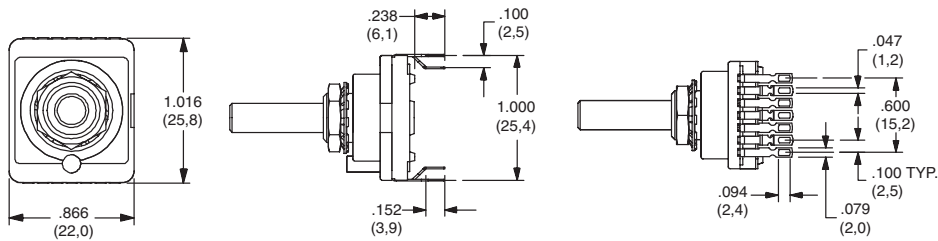
TERMINATION



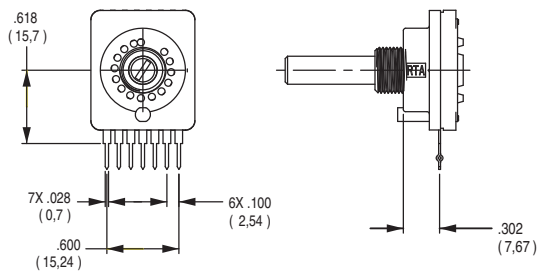
P WITH PC PINS



C WITH SOLDER LUGS



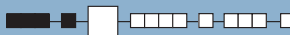
H Horizontal with PC Thru-hole



Note: "H" termination only available with the following options:

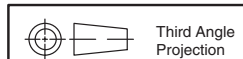
1. With A or B mounting styles
2. 36° degree indexing
3. Up to 5 positions max

INDEXING



- 2** 22.5 index, 16 positions max.
- 3** 30 index, 12 positions max.
- 4** 36 index, 10 positions max.

Both commons must be connected by user to ground.



Dimensions are shown: mm

Specifications and dimensions subject to change

www.ck-components.com



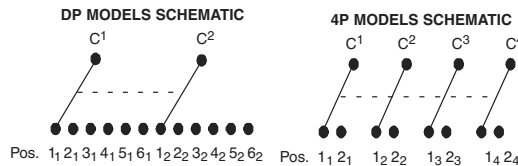
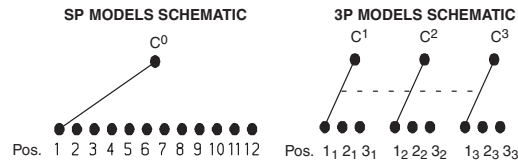
K

Rotary

RTA Series 1-4 Poles Coded Rotary Switches

SWITCH FUNCTION

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

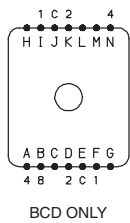


MODEL NO.	SWITCH FUNCTION	INDEX
EW10	Direct + complement, No stop	36°
EW12	Direct + complement, No stop	30°
DW16	Direct, No stop	22.5°
ES__	Direct + complement, with stop (specify stop position)	30° & 36°
DS__	Direct, with stop (specify stop position)	22.5°

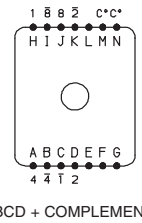
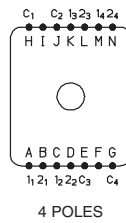
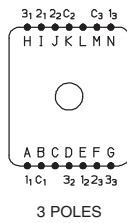
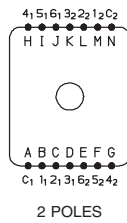
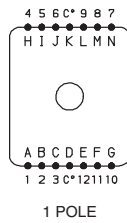
NO. POLES	MODEL NO.	SWITCH FUNCTION	INDEX
DP	2W05	5 Positions No Stop	30°/36°
	2W06	6 Positions No Stop	30°
	2S02	2 Positions	30°/36°
	2S03	3 Positions	30°/36°
	2S04	4 Positions	30°/36°
	2S05	5 Positions	30°/36°
	2S06	6 Positions	30°
	3P	3S02	2 Positions
	3S03	3 Positions	30°/36°
4P	4S02	2 Positions	30°/36°

22.5°	30°	36°	Pos.																
Term.	Term.	Term.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
E,J	M,N	L,N	C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
F,I	H	D	1		•		•			•			•						•
D,K	D	B	2			•	•				•			•	•				•
A,N	A	I	4					•	•	•	•					•	•	•	•
B	J	J	8									•	•	•	•	•	•	•	•
-	C	K	1	•		•		•		•		•		•		•		•	
-	K	H	2	•	•				•			•	•			•	•		
-	B	A	4	•	•	•	•					•	•	•					
-	I	C	8	•	•	•	•	•	•	•	•								

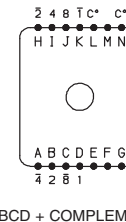
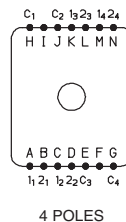
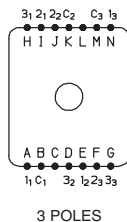
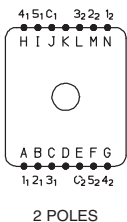
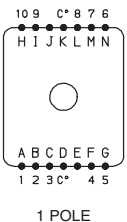
Indexing Option Code 2, 22.5 INDEXING ANGLE PCB LAYOUT



Indexing Option Code 3, 30 INDEXING ANGLE PCB LAYOUT

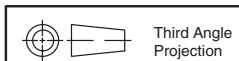


Indexing Option Code 4, 36 INDEXING ANGLE PCB LAYOUT



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

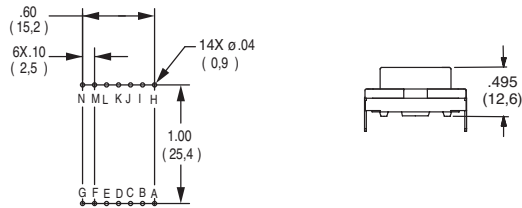


RTA Series 1-4 Poles Coded Rotary Switches

MOUNTING STYLE

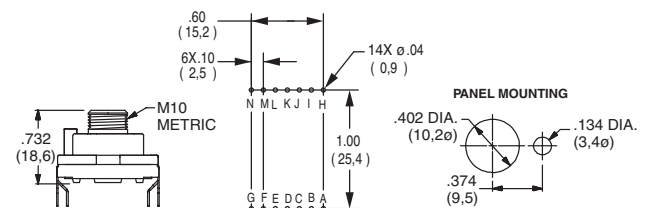


W WITHOUT BUSHING



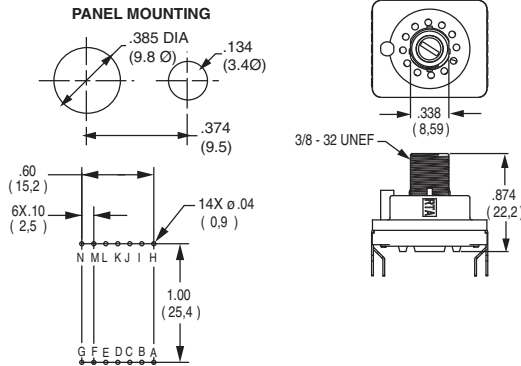
Note: W mounting style not available with H termination.

M M10 x .75 METRIC THREADED BUSHING



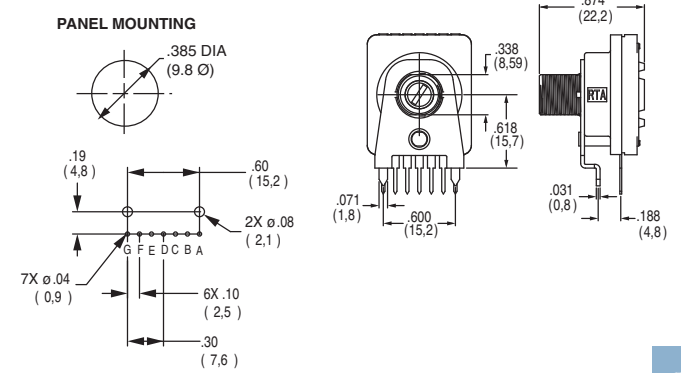
Note: M mounting style not available with H termination.

R 3/8-32 THREADED BUSHING



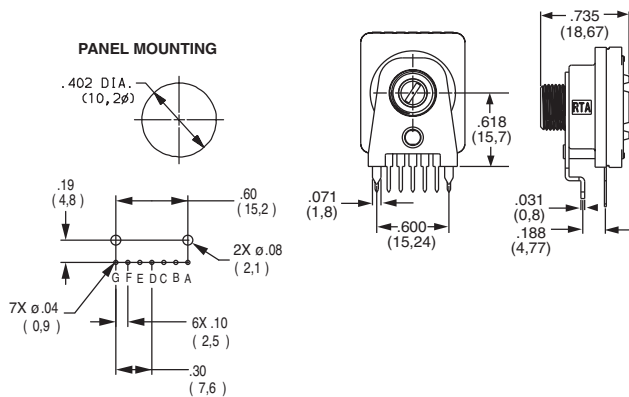
Note: R mounting style not available with H termination.

A 3/8-32 THREADED BUSHING WITH BRACKET



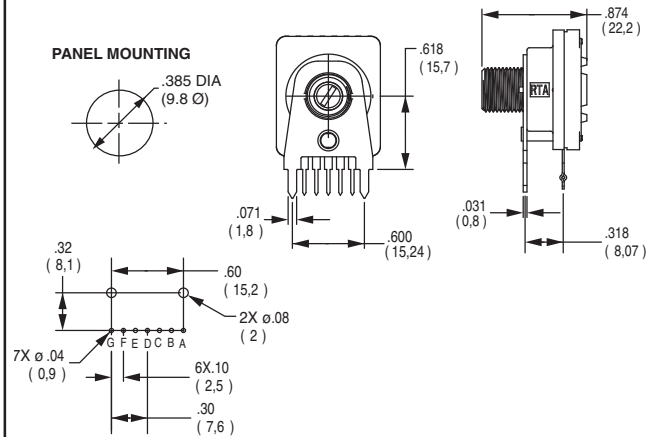
Note: A mounting style only available with H termination.

B M10 x .75 METRIC THREADED BUSHING WITH BRACKET

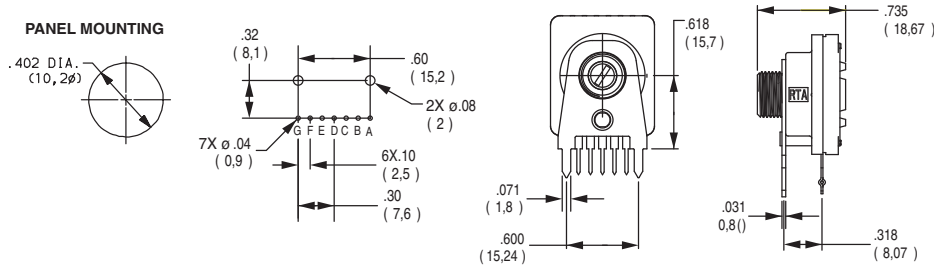


Note: B mounting style only available with H termination.

C 3/8-32 THREADED BUSHING WITH STRAIGHT BRACKET

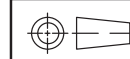


D M10 x .75 METRIC THREADED BUSHING WITH STRAIGHT BRACKET



K

Rotary



Third Angle
Projection

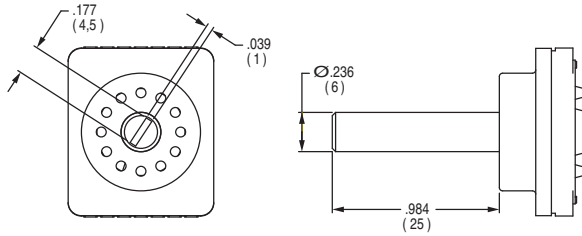
Dimensions are shown: mm
Specifications and dimensions subject to change



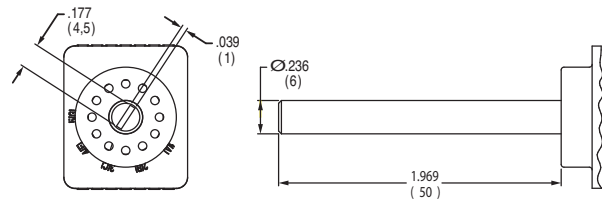
RTA Series 1-4 Poles Coded Rotary Switches

ACTUATOR

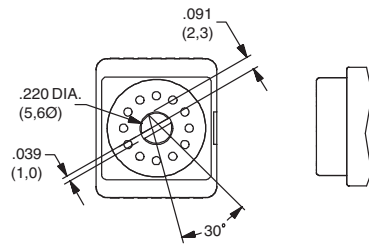
25N .984 (25,0) WITH SCREWDRIVER SLOT



50N 1.97 (50,0) WITH SCREWDRIVER SLOT

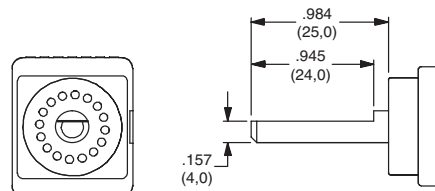


FLS FLUSH SHAFT WITH SCREWDRIVER SLOT AND POSITION INDICATOR



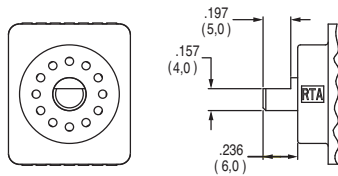
Note: only available with "W" Mounting Style

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

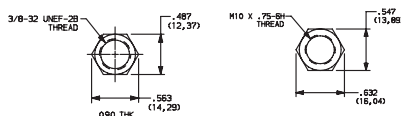
CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
		S	SILVER
P	GOLD	LOW LEVEL/DRY CIRCUIT OR POWER	SWITCH: 20 mA MAXIMUM, 25 V NOMINAL. 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

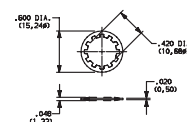
PART NO.
495100201
Metric

Stop pins



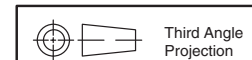
PART NO.
Y200300200P

Lockwasher



PART NO.
472800202

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



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



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 L-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: 10¹⁰ 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.

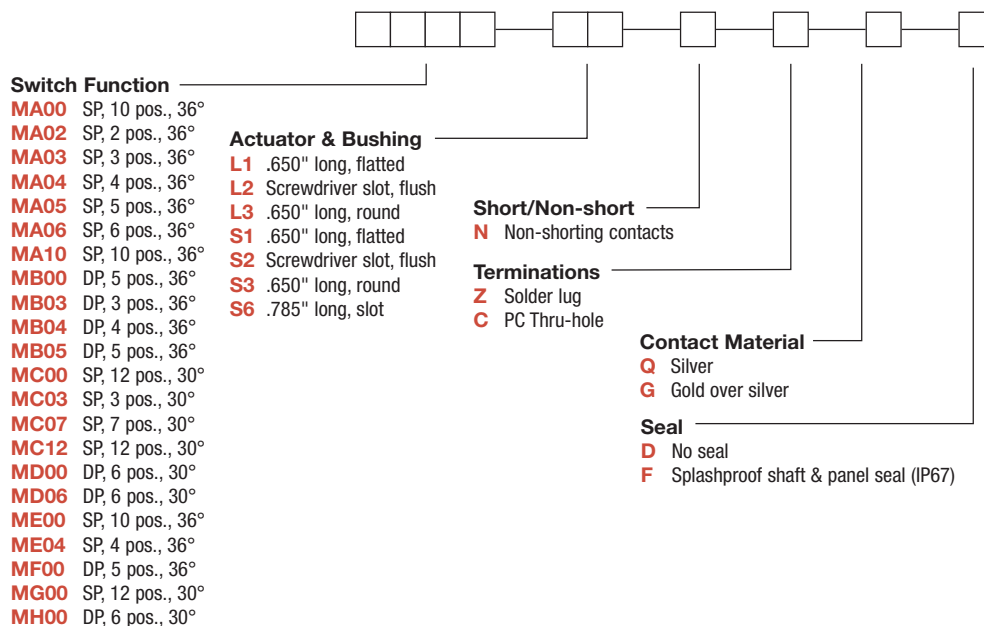
STOP PIN: Stainless steel.

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



Dimensions are shown: mm
Specifications and dimensions subject to change

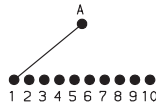


M Series Half-inch Rotary Switches

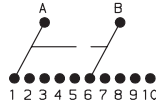
SWITCH FUNCTION

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

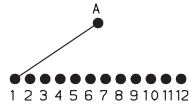
SP MODELS 36° INDEXING SCHEMATIC



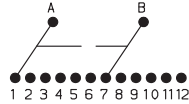
DP MODELS 36° INDEXING SCHEMATIC



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	MC00	MG00	12 Positions No Stops
	MC03	—	3 Positions
	MC07	—	7 Positions
	MC12	—	12 Positions
DP	MD00	MH00	6 Positions No Stops
	MD06	—	6 Positions

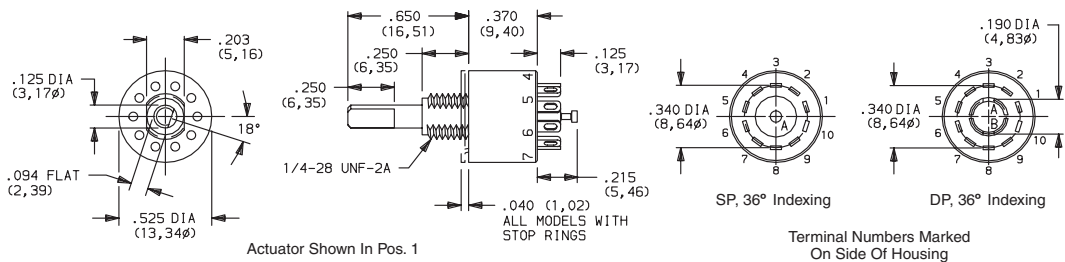


K

All models 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".

Rotary



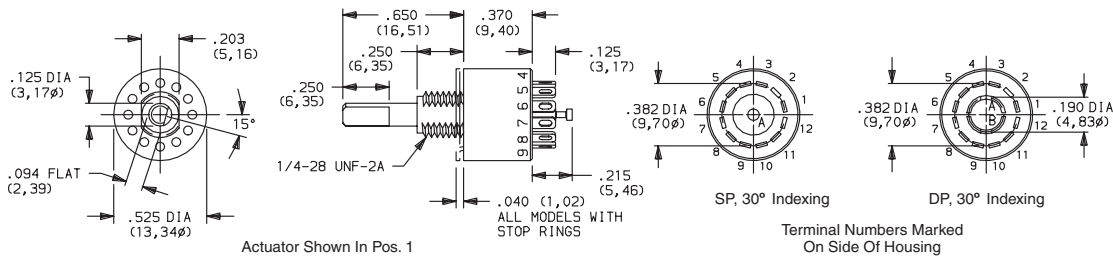
Actuator Shown In Pos. 1

SP, 36° Indexing

DP, 36° Indexing

Terminal Numbers Marked On Side Of Housing

Part number shown: MA00L1NZQD



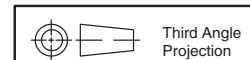
Actuator Shown In Pos. 1

SP, 30° Indexing

DP, 30° Indexing

Terminal Numbers Marked On Side Of Housing

Part number shown: MC00L1NZQD



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

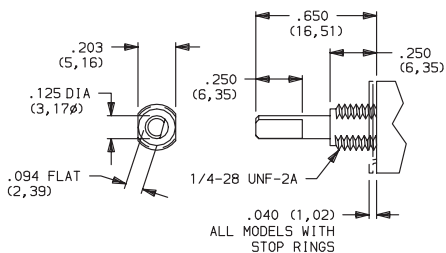


M Series Half-inch Rotary Switches

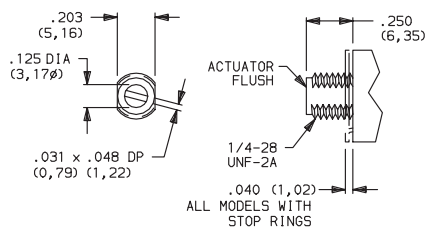
ACTUATOR (ZINC ALLOY)



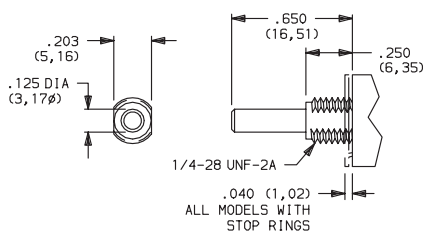
L1 .650" LONG, FLATTED



L2 SCREWDRIVER SLOT, FLUSH



L3 .650" LONG, ROUND

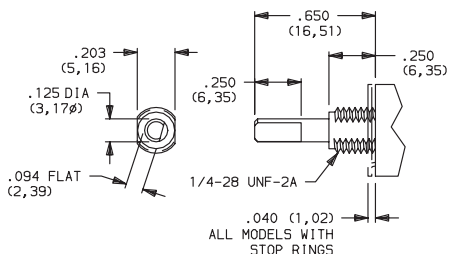


All actuators shown in pos. 1

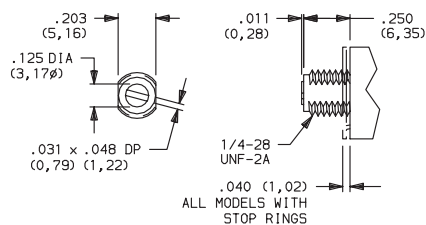
ACTUATOR (STAINLESS STEEL)



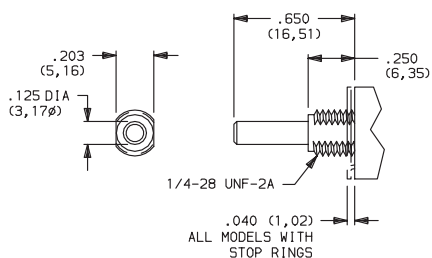
S1 .650" LONG, FLATTED



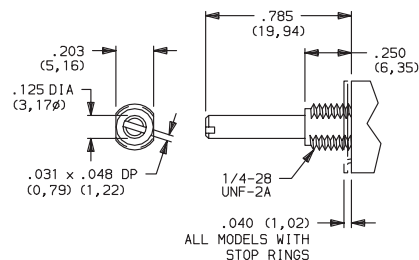
S2 SCREWDRIVER SLOT, FLUSH



S3 .650" LONG, ROUND

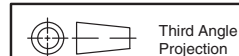


S6 .785" LONG, SLOT



All actuators shown in pos. 1

All models UL/CSA when ordered with stainless steel actuators.



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

M Series Half-inch Rotary Switches

SHORTING/NON-SHORTING CONTACTS



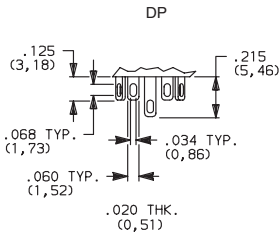
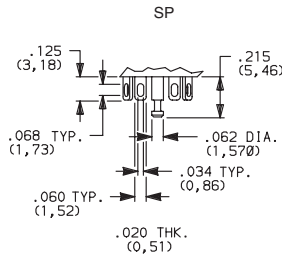
N NON-SHORTING CONTACTS

Break-before-make

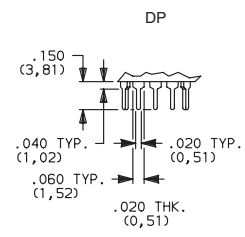
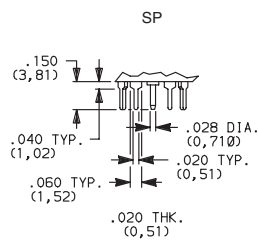
TERMINATIONS



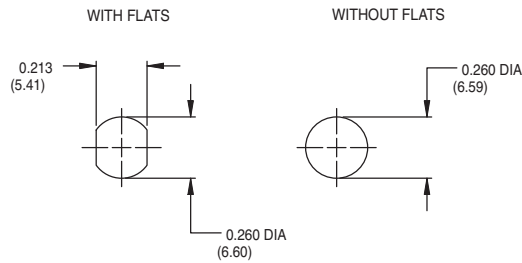
Z SOLDER LUG



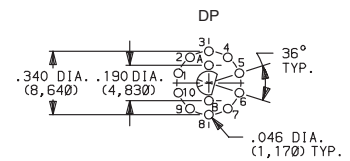
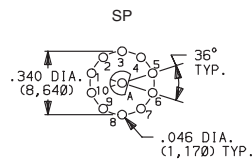
C PC THRU-HOLE



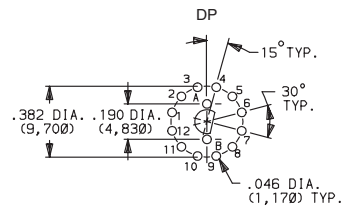
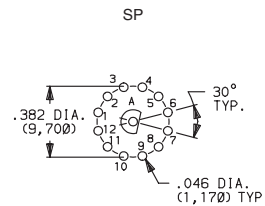
PANEL MOUNTING



PC MOUNTING 36° INDEXING



PC MOUNTING 30° INDEXING



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".

Actuators and schematics shown in pos. 1.

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	
Q	SILVER ^{1,2}	SILVER ²	POWER	CARRY: 6 AMPS CONTINUOUS. SWITCH: 250 mA @ 125 V AC or 28 V DC.
G	GOLD OVER SILVER ^{3,4}	GOLD ⁴	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. Shorting: Zinc alloy, silver plated.

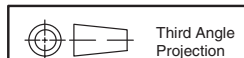
² STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.

³ MOVABLE CONTACTS: Non-shorting: Copper alloy, with gold plate over nickel plate, over silver plate. Shorting: Zinc alloy, with gold 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  when ordered with S1-S6 stainless steel actuator options.



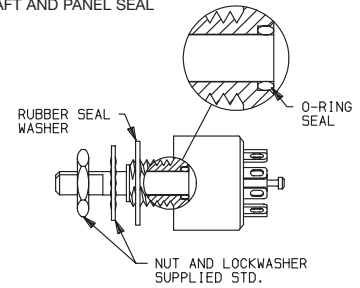
Third Angle Projection
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

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.

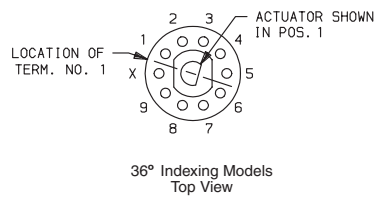


Fig. 1

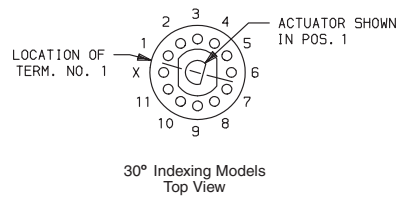


Fig. 2

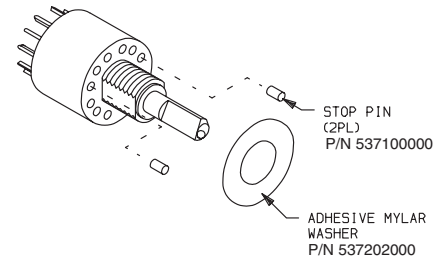


Fig. 3

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.

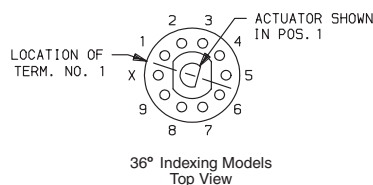


Fig. 4

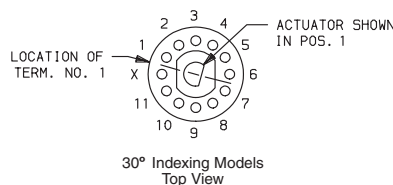


Fig. 5

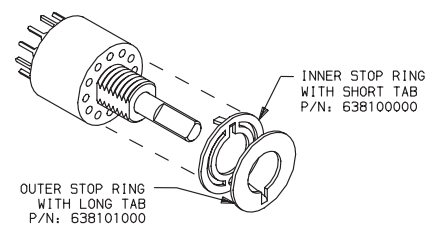


Fig. 6



Dimensions are shown: mm
Specifications and dimensions subject to change



RTBH Series

1-2 Pole Coded Rotary Switches



Features/Benefits

- **Totally sealed**
- **Detent angles, 15 , 22.5 , 30 and 36**
- **Multi pole**
- **Coding functions**
- **Robust construction**
- **RoHS Compliant**

Typical Applications

- **Telecommunications**
- **Military**
- **Instrumentation**
- **Heavy-duty industrial equipment**

Electrical Data

SWITCHING MODE:
 MAX. SWITCHING POWER:
 Max. SWITCHING CURRENT:
 MIN. SWITCHING CURRENT:
 MAX. CARRYING CURRENT:
 MAX. VOLTAGE:
 MIN. VOLTAGE:
 BOUNCE:
 CONTACT RESISTANCE after life:
 DIALECTRIC STRENGTH between contacts or contacts and frame:
 INSULATION RESISTANCE between contacts or contacts and frame:

Silver

BBM*
 5VA
 250 mA
 10 mA
 5A
 25V
 5V
 <5ms
 <100mΩ
 500 V rms
 >10⁹Ω

Gold

BBM*
 0.2VA
 20 mA
 1 mA
 1A
 25V
 1V
 <5ms
 <100mΩ
 500 V rms
 >10⁹Ω

Environmental Data

OPERATING TEMPERATURE: -25°C to +70°C
 STORAGE TEMPERATURE: -40°C to +85°C
 TOTALLY SEALED: Immersion test acc. to MIL R22.097 F and NFC 20631/QF

* BBM= Break Before Make (non-starting)

Materials

HOUSING: PBT thermoplastic and PC thermoplastic
 STATIONARY CONTACTS & TERMINALS: Nickel plated Brass with additional Gold or Silver plating, insert molded in PBT thermoplastic.
 ROTOR: Printed circuit, gold or silver plated.
 ACTUATOR: Steel
 BUSHING: Brass
 HARDWARE: Stop pin and spring: Stainless steel
 All models are RoHS compliant and compatible.

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

Mechanical Data

NUMBER OF BANKS: 1 to 4
 OPERATING TORQUE: 5 Ncm±30% (with 1 module)
 MECHANICAL STOP RESISTANCE: >70 Ncm
 BUSHING MOUNTING TORQUE: 100 Ncm

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 thru K-23. For additional options not shown in catalog, consult Customer Service Center.



Designation

RTBH

Indexing

- 1 15°/24 positions max.
- 2 22.5°/16 positions max.
- 3 30°/12 positions max.
- 4 36°/10 positions max.

Number of Banks**

- 1 1 Bank
- 2 2 Banks
- 3 3 Banks
- 4 4 Banks

Switch Function Number of Poles or code (binary code = B, complement = C, direct +complement = BC) (first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)

- 1S02 SP, 02 positions with stop
- 1S03 SP, 03 positions with stop
- 1S04 SP, 04 positions with stop
- 1S05 SP, 05 positions with stop
- 1S06 SP, 06 positions with stop
- 1S07 SP, 07 positions with stop
- 1S10 SP, 10 positions with stop
- 1W10 SP, 10 positions without stop
- 1S11 SP, 11 positions with stop
- 1S12 SP, 12 positions with stop
- 1W12 SP, 12 positions without stop
- 1S14 SP, 14 positions with stop
- 1S16 SP, 16 positions with stop

- 1W16 SP, 16 positions without stop
- 1S24 SP, 24 positions with stop
- 1W24 SP, 24 positions without stop
- 2S04 DP, 4 positions with stop
- 2S05 DP, 5 positions with stop
- 2S06 DP, 6 positions with stop
- GS__ Gray Code with stop (indicate position)

Shaft Diameter & Style***

- N Metric shaft .236 (6,0)
- P Standard shaft .250 (6,35)
- F Metric shaft with flat .236 (6,0)
- G Standard shaft with flat .250 (6,35)
- S Metric shaft with slot .236 (6,0)
- T Standard shaft with slot .250 (6,35)

Seal

- A Standard bushing for panel mount
- D Sealed bushing for panel mount

- GW__ Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- BS__ Binary Code with stop (indicate position)
- BW__ Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- CS__ Complement with stop (indicate position)
- CW__ Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- ES__ Direct+Complement with stop (indicate position)
- EW__ Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing

Contact Material

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

Actuator Length

- Z (.984) 25 mm

Actuator Option Angle*

- N None for actuators without a flat
- 0 0° angle
- 3 30° angle
- 6 60° angle
- 9 90° angle
- 2 120° angle
- 8 180° angle
- 7 270° angle

* Other angles available by request

** Several functions can be combined. For more information consult us.

***Note: Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.

NOTE: S&T Shaft Diameter and Style are only available with Actuator Option angle 0, 6, 9, 2.

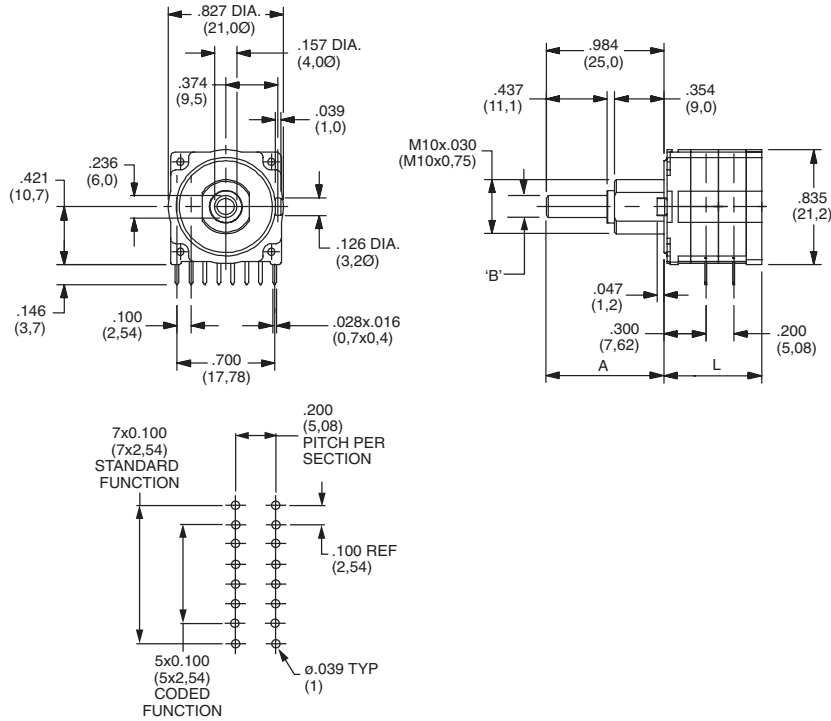


Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

RTBH Series 1-2 Pole Coded Rotary Switches

DESIGNATION

RTBH



Dimensions L		
Number modules	inch	L mm
1	0.500	12.7
2	0.700	17.78
3	0.900	22.86
4	1.10	27.94
Dimensions A		
A: (standard) 0.984 inch (25 mm)		
Dimensions B		
0.236 or 0.250 inch (06 or 6.35 mm)		

INDEXING

- 1** 15° index/24 positions
- 2** 22.5° index/16 positions
- 3** 30° index/12 positions
- 4** 36° index/10 positions

NUMBER OF BANKS

- 1** 1 BANK
- 2** 2 BANKS
- 3** 3 BANKS
- 4** 4 BANKS

NOTE: Several functions can be combined. For more information consult customer service.



K

Rotary



Dimensions are shown: mm
Specifications and dimensions subject to change

RTBH Series

1-2 Pole Coded Rotary Switches

SWITCH FUNCTION

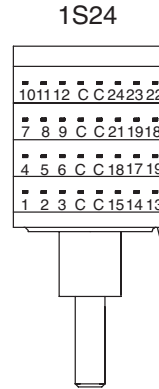
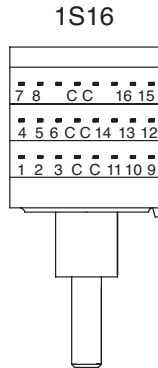
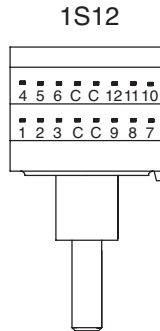
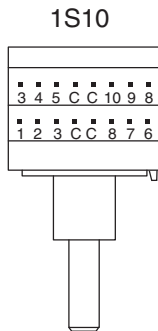
Switch Function Number of Poles or code (binary code = B, complement = C, direct + complement = BC)
 (first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)

- 1S02** SP, 02 positions with stop
- 1S03** SP, 03 positions with stop
- 1S04** SP, 04 positions with stop
- 1S05** SP, 05 positions with stop
- 1S06** SP, 06 positions with stop
- 1S07** SP, 07 positions with stop
- 1S10** SP, 10 positions with stop
- 1W10** SP, 10 positions without stop
- 1S11** SP, 11 positions with stop
- 1S12** SP, 12 positions with stop
- 1W12** SP, 12 positions without stop
- 1S14** SP, 14 positions with stop
- 1S16** SP, 16 positions with stop
- 1W16** SP, 16 positions without stop
- 1S24** SP, 24 positions with stop
- 1W24** SP, 24 positions without stop
- 2S04** DP, 4 positions with stop
- 2S05** DP, 5 positions with stop
- 2S06** DP, 6 positions with stop
- GS__** Gray Code with stop (indicate position)
- GW__** Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- BS__** Binary Code with stop (indicate position)
- BW__** Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- CS__** Complement with stop (indicate position)
- CW__** Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing
- ES__** Direct+Complement with stop (indicate position)
- EW__** Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing

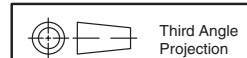
1 Single Pole Function 1S10, 1S12, 1S16, 1S24

	C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
1	●	●																								
2	●		●																							
3	●			●																						
4	●				●																					
5	●					●																				
6	●						●																			
7	●							●																		
8	●								●																	
9	●									●																
10	●										●															
11	●											●														
12	●												●													
13	●													●												
14	●														●											
15	●															●										
16	●																●									
17	●																	●								
18	●																		●							
19	●																			●						
20	●																				●					
21	●																					●				
22	●																						●			
23	●																							●		
24	●																								●	

Rotary K



NOTE: Switch depicted from top down onto PCB.



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



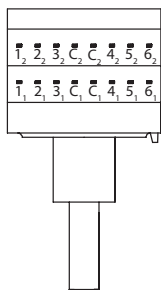
RTBH Series 1-2 Pole Coded Rotary Switches

SWITCH FUNCTION

2 DOUBLE POLE FUNCTION

	C ₁	1 ₁	2 ₁	3 ₁	4 ₁	5 ₁	6 ₁	C ₂	1 ₂	2 ₂	3 ₂	4 ₂	5 ₂	6 ₂
1	●	●						●	●					
2	●		●					●		●				
3	●			●				●			●			
4	●				●			●				●		
5	●					●		●					●	
6	●						●	●						●

2S06

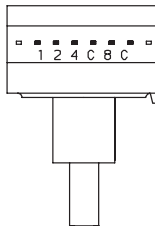


NOTE: Switch depicted from top down onto PCB.

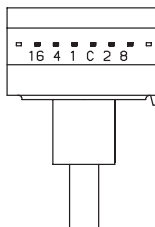
B BINARY DIRECT CODE

	C	1	2	4	8	16
0	●					
1	●	●				
2	●		●			
3	●	●	●			
4	●			●		
5	●	●		●		
6	●		●		●	
7	●	●	●		●	
8	●			●		●
9	●	●		●		●
10	●		●		●	
11	●	●	●		●	
12	●			●		●
13	●	●		●		●
14	●		●		●	
15	●	●	●		●	
16	●					●
17	●	●				●
18	●		●			●
19	●	●				●
20	●		●			●
21	●	●	●			●
22	●			●		●
23	●	●		●		●

BS10 BS12 BS16



BS24

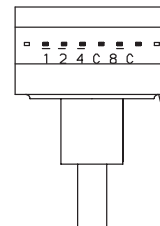


NOTE: Switch depicted from top down onto PCB.

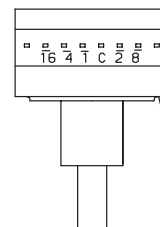
C COMPLEMENT BINARY CODE

	C	1	2	4	8	16
0	●	●	●	●	●	●
1	●	●	●	●	●	●
2	●	●	●	●	●	●
3	●	●	●	●	●	●
4	●	●	●	●	●	●
5	●	●	●	●	●	●
6	●	●	●	●	●	●
7	●	●	●	●	●	●
8	●	●	●	●	●	●
9	●	●	●	●	●	●
10	●	●	●	●	●	●
11	●	●	●	●	●	●
12	●	●	●	●	●	●
13	●	●	●	●	●	●
14	●	●	●	●	●	●
15	●	●	●	●	●	●
16	●	●	●	●	●	●
17	●	●	●	●	●	●
18	●	●	●	●	●	●
19	●	●	●	●	●	●
20	●	●	●	●	●	●
21	●	●	●	●	●	●
22	●	●	●	●	●	●
23	●	●	●	●	●	●

CS10 CS12 CS16



CS24

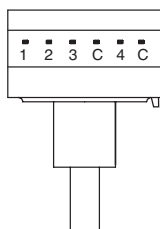


NOTE: Switch depicted from top down onto PCB.

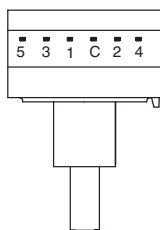
G GRAY CODE

	C	1	2	3	4	5
1	●					
2	●	●				
3	●		●			
4	●	●	●			
5	●			●		
6	●	●	●	●		
7	●		●		●	
8	●	●		●		●
9	●			●		●
10	●	●	●		●	
11	●		●		●	
12	●	●	●		●	
13	●			●		●
14	●	●	●		●	
15	●		●		●	
16	●	●		●		●
17	●			●		●
18	●	●		●		●
19	●		●		●	
20	●	●	●		●	
21	●			●		●
22	●	●	●		●	
23	●		●		●	
24	●	●		●		●

GS10 GS12 GS16



GS24

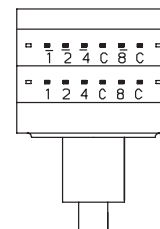


NOTE: Switch depicted from top down onto PCB.

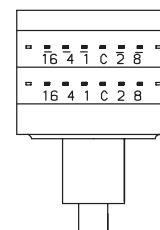
E DIRECT AND COMPLEMENT BINARY CODE

	C	1	2	4	8	16	C	1	2	4	8	16
0	●						●	●	●	●	●	●
1	●	●					●	●	●	●	●	●
2	●		●				●	●	●	●	●	●
3	●	●	●				●	●	●	●	●	●
4	●			●			●	●	●	●	●	●
5	●	●		●			●	●	●	●	●	●
6	●		●		●		●	●	●	●	●	●
7	●	●	●		●		●	●	●	●	●	●
8	●			●		●	●	●	●	●	●	●
9	●	●		●		●	●	●	●	●	●	●
10	●		●		●		●	●	●	●	●	●
11	●	●	●		●		●	●	●	●	●	●
12	●			●		●	●	●	●	●	●	●
13	●	●		●		●	●	●	●	●	●	●
14	●		●		●		●	●	●	●	●	●
15	●	●	●		●		●	●	●	●	●	●
16	●					●	●	●	●	●	●	●
17	●	●				●	●	●	●	●	●	●
18	●		●			●	●	●	●	●	●	●
19	●	●				●	●	●	●	●	●	●
20	●		●			●	●	●	●	●	●	●
21	●	●	●			●	●	●	●	●	●	●
22	●			●		●	●	●	●	●	●	●
23	●	●		●		●	●	●	●	●	●	●

ES10 ES12 ES16



ES24



NOTE: Switch depicted from top down onto PCB.



K

Rotary



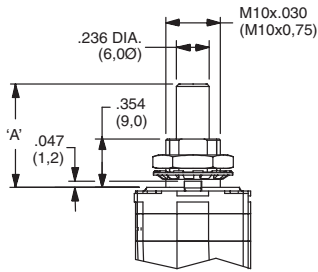
Dimensions are shown: mm
Specifications and dimensions subject to change



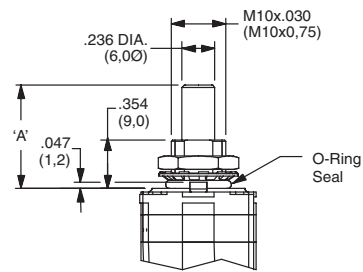
RTBH Series 1-2 Pole Coded Rotary Switches

SEAL

A STANDARD BUSHING FOR PANEL MOUNT

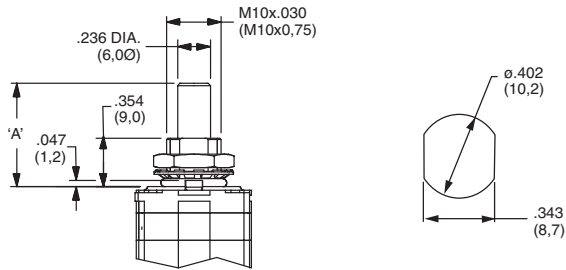


D SEALED BUSHING FOR PANEL MOUNT

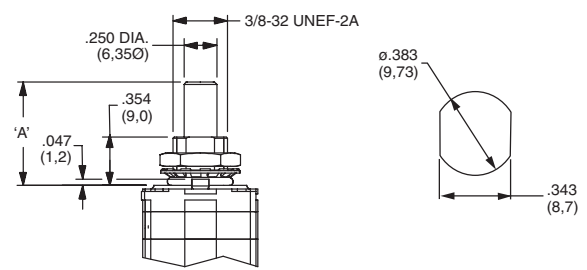


SHAFT DIAMETER & STYLE

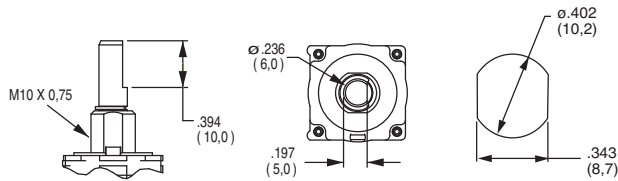
N METRIC SHAFT 0.236 (6,0)



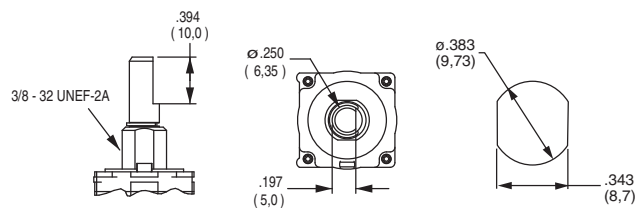
P STANDARD SHAFT 0.250 (6,35)



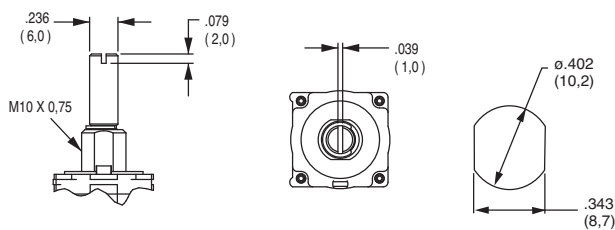
F METRIC SHAFT WITH FLAT 0.236 (6,0)



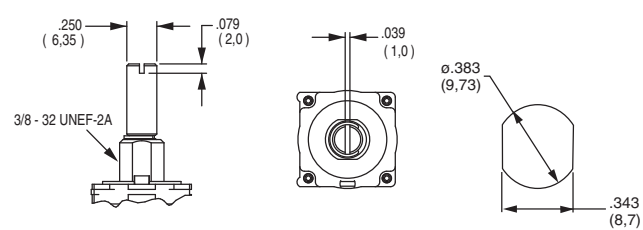
G STANDARD SHAFT WITH FLAT 0.250 (6,35)



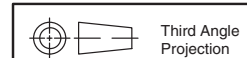
S METRIC SHAFT WITH SLOT 0.236 (6,0)



T STANDARD SHAFT WITH SLOT 0.250 (6,35)



***Note: Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.



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



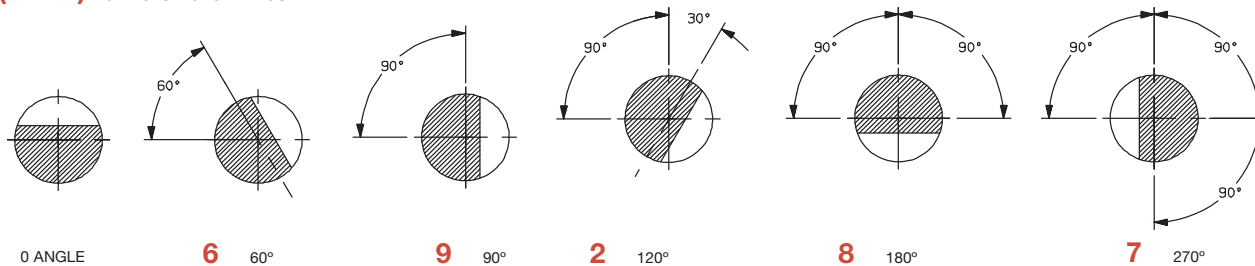
C&K RTBH Series 1-2 Pole Coded Rotary Switches

ACTUATOR OPTION ANGLE

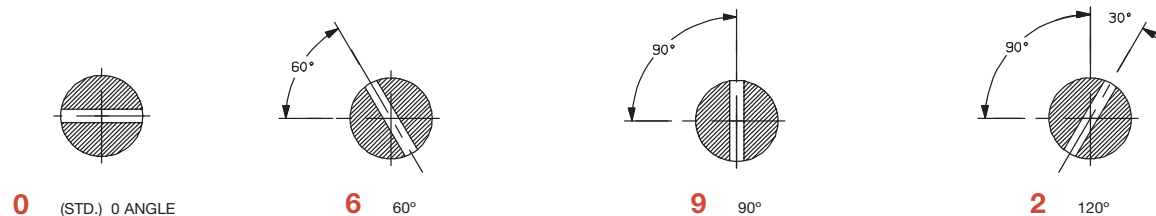


SHAFT WITH FLAT OPTIONS

N (None) FOR ACTUATORS WITHOUT A FLAT



SHAFT WITH SLOT OPTIONS



ACTUATOR LENGTH



Z (.984) 0,25 mm STANDARD SHAFT

Other lengths available by request.

CONTACT MATERIAL

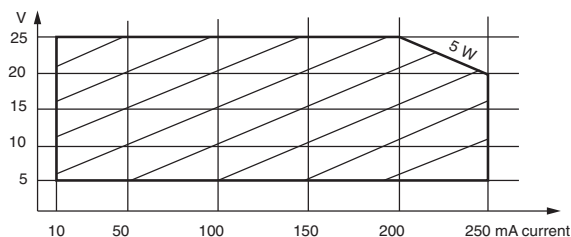


OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING
S	SILVER	SWITCH: 250 mA, POWER: 5 VA; CARRY: 5 AMPS
P	GOLD	SWITCH: 20 mA, POWER: 0.2 VA; CARRY: 1 AMP

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

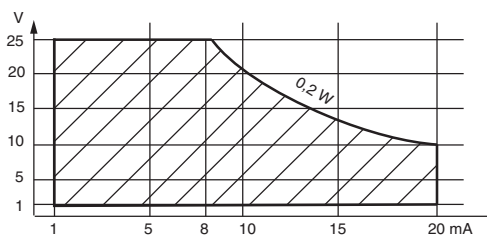
SWITCHING POWER

S (SILVER CONTACTS)

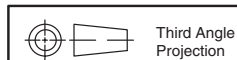


Switching power: 5 W
Max. voltage: 25 V
Min. voltage: 5 V
Max. switching current: 250 mA
Min. switching current: 10 mA

P (GOLD CONTACTS)



Switching power: 0.2 W
Max. voltage: 25 V
Min. voltage: 1 V
Max. switching current: 20 mA
Min. switching current: 1 mA



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

RTBV Series

1-2 Pole Coded Rotary Switches



Features/Benefits

- **Totally sealed**
- **Detent angles, 15 , 22.5 , 30 and 36**
- **Multi pole**
- **Coding functions**
- **Robust construction**

Typical Applications

- **Telecommunications**
- **Military**
- **Instrumentation**
- **Heavy-duty industrial equipment**

Electrical Data

SWITCHING MODE:
 MAX. SWITCHING POWER:
 MAX. SWITCHING CURRENT:
 MIN. SWITCHING CURRENT:
 MAX. CARRYING CURRENT:
 MAX. VOLTAGE:
 MIN. VOLTAGE:
 BOUNCE:
 CONTACT RESISTANCE after life:
 DIALECTRIC STRENGTH between contacts or contacts and frame:
 INSULATION RESISTANCE between contacts or contacts and frame:

Silver

BBM*
 5VA
 250 mA
 10 mA
 5A
 25V
 5V
 <5ms
 <100mΩ
 500 V rms
 >10⁹Ω

Gold

BBM*
 0.2VA
 20 mA
 1 mA
 1A
 25V
 1V
 <5ms
 <100mΩ
 500 V rms
 >10⁹Ω

Environmental Data

OPERATING TEMPERATURE: -25°C to +70°C
 STORAGE TEMPERATURE: -40°C to +85°C
 TOTALLY SEALED: Immersion test acc. to MIL R22.097 F and NFC 20631/QF

* BBM= Break Before Make (non-starting)

Materials

HOUSING: PBT thermoplastic and PC thermoplastic
 STATIONARY CONTACTS & TERMINALS: Nickel plated Brass with additional Gold or Silver plating, insert molded in PBT thermoplastic.
 ROTOR: Printed circuit, gold or silver plated.
 ACTUATOR: Steel
 BUSHING: Brass
 HARDWARE: Stop pin and spring: Stainless steel
 All models are RoHS compliant and compatible.

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

Mechanical Data

NUMBER OF BANKS: 1 to 10
 OPERATING TORQUE: 5 Ncm±30% (with 1 module)
 MECHANICAL STOP RESISTANCE: >70 Ncm
 BUSHING MOUNTING TORQUE: 100 Ncm



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-25 thru K-29. For additional options not shown in catalog, consult Customer Service Center.



Designation
RTBV

Indexing
1 15°/24 positions max.
2 22.5°/16 positions max.
3 30°/12 positions max.
4 36°/10 positions max.

Number of Banks**
1 1 Bank
2 2 Banks
3 3 Banks
4 4 Banks

Switch Function Number of Poles or code (binary code = B, complement = C, direct +complement = BC) (first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)

1S02 SP, 02 positions with stop
1S03 SP, 03 positions with stop
1S04 SP, 04 positions with stop
1S05 SP, 05 positions with stop
1S06 SP, 06 positions with stop
1S07 SP, 07 positions with stop
1S10 SP, 10 positions with stop
1S11 SP, 11 positions with stop
1S12 SP, 12 positions with stop
1W12 SP, 12 positions without stop

1S14 SP, 14 positions with stop
1S16 SP, 16 positions with stop
1W16 SP, 16 positions without stop
1S24 SP, 24 positions with stop
1W24 SP, 24 positions without stop
2S04 DP, 4 positions with stop
2S05 DP, 5 positions with stop
2S06 DP, 6 positions with stop

Shaft Diameter & Style***
N Metric shaft .236 (6,0)
P Standard shaft .250 (6,35)
F Metric shaft with flat .236 (6,0)
G Standard shaft with flat .250 (6,35)
S Metric shaft with slot .236 (6,0)
T Standard shaft with slot .250 (6,35)

Seal
A Standard bushing for panel mount
D Sealed bushing for panel mount

GS_ _ Gray Code with stop (indicate position)
GW_ _ Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
BS_ _ Binary Code with stop (indicate position)
BW_ _ Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing
CS_ _ Complement with stop (indicate position)
CW_ _ Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing
ES_ _ Direct+Complement with stop (indicate position)
EW_ _ Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing

Contact Material
S Silver plated, matte-tin terminal
P Gold plated, matte-tin terminal

Actuator Length
Z (.984) 25 mm

Actuator Option Angle*
N None for actuators without a flat
0 0° angle
3 30° angle
6 60° angle
9 90° angle
2 120° angle
8 180° angle
7 270° angle

* Other angles available by request
 ** Several functions can be combined. For more information consult us.

***Note: Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.
NOTE: S&T Shaft Diameter and Style are only available with Actuator Option angle 0, 6, 9, 2.



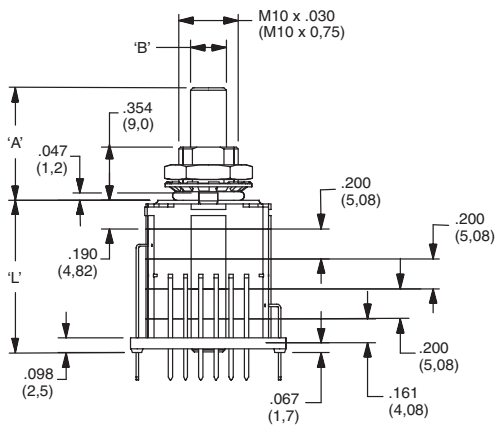
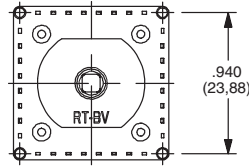
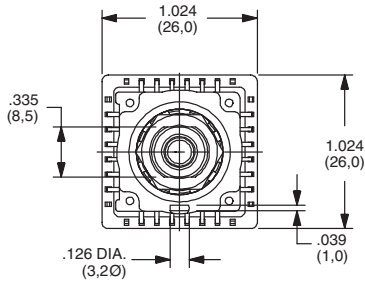
Dimensions are shown: Inch (mm)
 Specifications and dimensions subject to change

RTBV Series 1-2 Pole Coded Rotary Switches

DESIGNATION



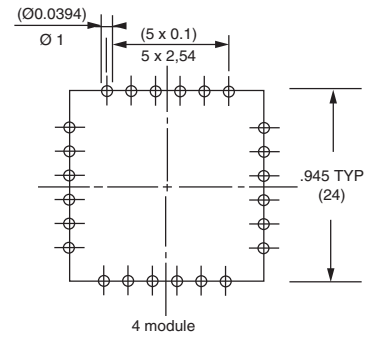
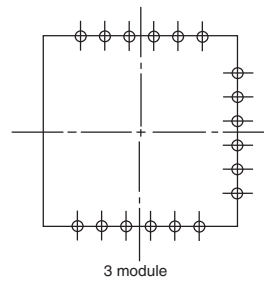
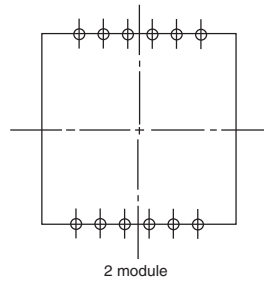
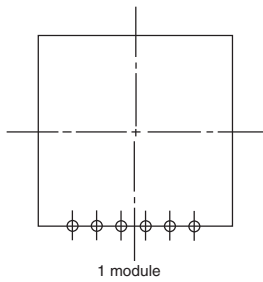
RTBV DIMENSIONAL DRAWINGS



Dimensions L		
Number modules	inch	L mm
1	0.419	10.65
2	0.619	15.73
3	0.819	20.81
4	1.02	25.89

Dimensions A	
A: (standard)	0.984 inch (25 mm)

Dimensions B	
0.236 or 0.250 inch (Ø6 or 6.35 mm)	



INDEXING



- 1** 15° index/24 positions
- 2** 22.5° index/16 positions
- 3** 30° index/12 positions
- 4** 36° index/10 positions



K

Rotary



Dimensions are shown: mm
Specifications and dimensions subject to change

RTBV Series

1-2 Pole Coded Rotary Switches

NUMBER OF BANKS

- 1 1 BANK
- 2 2 BANKS
- 3 3 BANKS
- 4 4 BANKS

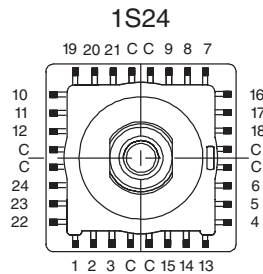
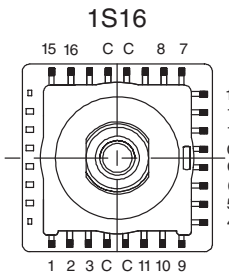
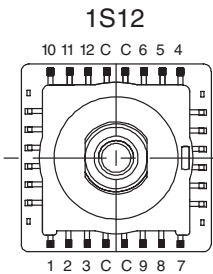
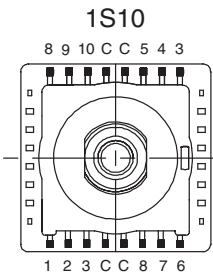
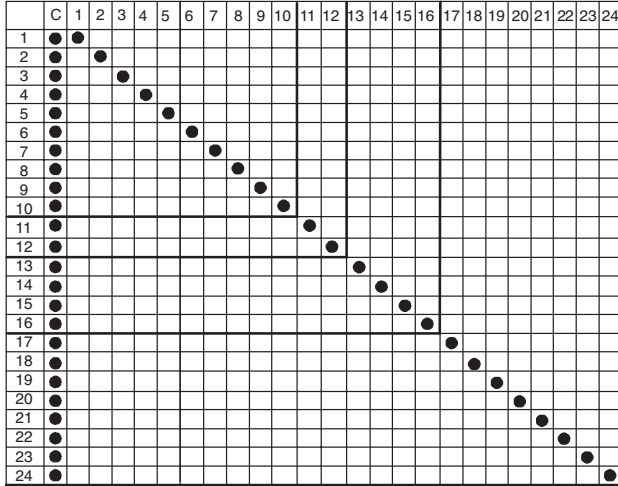
NOTE: Several functions can be combined. For more information consult customer service.

SWITCH FUNCTION

Switch Function Number of Poles or code (binary code = B, complement = C, direct +complement = BC) (first digit), Stop (with=S, without=W), Maximum Position (third & fourth digit)

- | | |
|---|--|
| 1S02 SP, 02 positions with stop | 1S24 SP, 24 positions with stop |
| 1S03 SP, 03 positions with stop | 1W24 SP, 24 positions without stop |
| 1S04 SP, 04 positions with stop | 2S04 DP, 4 positions with stop |
| 1S05 SP, 05 positions with stop | 2S05 DP, 5 positions with stop |
| 1S06 SP, 06 positions with stop | 2S06 DP, 6 positions with stop |
| 1S07 SP, 07 positions with stop | GS__ Gray Code with stop (indicate position) |
| 1S10 SP, 10 positions with stop | GW__ Gray Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing |
| 1W10 SP, 10 positions without stop | BS__ Binary Code with stop (indicate position) |
| 1S11 SP, 11 positions with stop | BW__ Binary Code without stop (indicate position) only can be 10,12, 16, 24 based on indexing |
| 1S12 SP, 12 positions with stop | CS__ Complement with stop (indicate position) |
| 1W12 SP, 12 positions without stop | CW__ Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing |
| 1S14 SP, 14 positions with stop | ES__ Direct+Complement with stop (indicate position) |
| 1S16 SP, 16 positions with stop | EW__ Direct+Complement without stop (indicate position) only can be 10,12, 16, 24 based on indexing |
| 1W16 SP, 16 positions without stop | |

1 Single Pole Function 1S10, 1S12, 1S16, 1S24



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



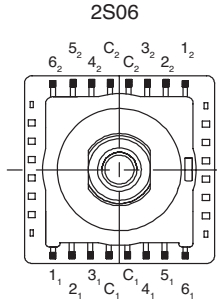
RTBV Series 1-2 Pole Coded Rotary Switches

SWITCH FUNCTION



2 DOUBLE POLE FUNCTION

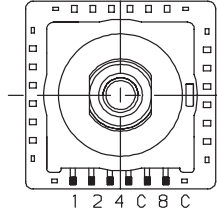
	C ₁	1 ₁	2 ₁	3 ₁	4 ₁	5 ₁	6 ₁	C ₂	1 ₂	2 ₂	3 ₂	4 ₂	5 ₂	6 ₂
1	●	●						●	●					
2	●		●					●		●				
3	●			●				●			●			
4	●				●			●				●		
5	●					●		●					●	
6	●						●	●						●



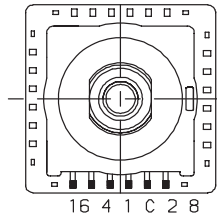
B BINARY DIRECT CODE

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1	●	●				
2	●		●			
3	●	●	●			
4	●			●		
5	●	●			●	
6	●	●	●			
7	●	●	●	●		
8	●				●	
9	●	●				●
10	●		●			
11	●	●				●
12	●			●		
13	●	●			●	
14	●		●			●
15	●	●	●			●
16	●					●
17	●	●				
18	●		●			
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20	●			●		
21	●	●				●
22	●		●			
23	●	●	●			●

BS10 BS12 BS16



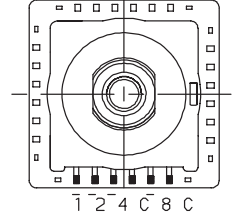
BS24



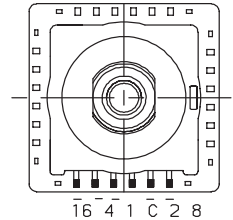
C COMPLEMENT BINARY CODE

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2	●	●	●	●	●	●
3	●	●	●	●	●	●
4	●	●	●	●	●	●
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6	●	●	●	●	●	●
7	●	●	●	●	●	●
8	●	●	●	●	●	●
9	●	●	●	●	●	●
10	●	●	●	●	●	●
11	●	●	●	●	●	●
12	●	●	●	●	●	●
13	●	●	●	●	●	●
14	●	●	●	●	●	●
15	●	●	●	●	●	●
16	●	●	●	●	●	●
17	●	●	●	●	●	●
18	●	●	●	●	●	●
19	●	●	●	●	●	●
20	●	●	●	●	●	●
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22	●	●	●	●	●	●
23	●	●	●	●	●	●

CS10 CS12 CS16



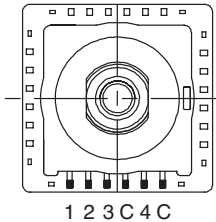
CS24



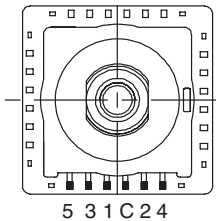
G GRAY CODE

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3	●	●		●		
4	●	●	●	●		
5	●	●			●	
6	●	●	●	●	●	
7	●	●				●
8	●	●	●	●		●
9	●	●				●
10	●	●	●	●	●	●
11	●	●	●	●	●	●
12	●	●	●	●	●	●
13	●	●	●	●	●	●
14	●	●	●	●	●	●
15	●	●	●	●	●	●
16	●	●	●	●	●	●
17	●	●	●	●	●	●
18	●	●	●	●	●	●
19	●	●	●	●	●	●
20	●	●	●	●	●	●
21	●	●	●	●	●	●
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23	●	●	●	●	●	●
24	●	●	●	●	●	●

GS10 GS12 GS16



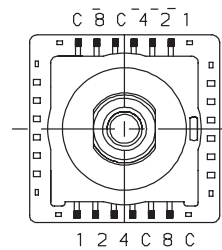
GS24



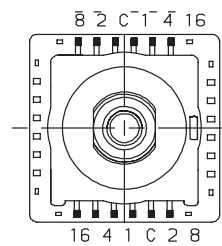
E DIRECT AND COMPLEMENT BINARY CODE

	C	1	2	4	8	16	C	1	2	4	8	16
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1	●	●					●	●	●	●	●	●
2	●		●				●	●	●	●	●	●
3	●	●	●				●	●	●	●	●	●
4	●			●			●	●	●	●	●	●
5	●	●			●		●	●	●	●	●	●
6	●	●	●				●	●	●	●	●	●
7	●	●	●	●			●	●	●	●	●	●
8	●				●		●	●	●	●	●	●
9	●	●				●	●	●	●	●	●	●
10	●		●				●	●	●	●	●	●
11	●	●				●	●	●	●	●	●	●
12	●			●			●	●	●	●	●	●
13	●	●			●		●	●	●	●	●	●
14	●		●				●	●	●	●	●	●
15	●	●	●			●	●	●	●	●	●	●
16	●					●	●	●	●	●	●	●
17	●	●					●	●	●	●	●	●
18	●		●				●	●	●	●	●	●
19	●	●			●		●	●	●	●	●	●
20	●			●			●	●	●	●	●	●
21	●	●				●	●	●	●	●	●	●
22	●		●				●	●	●	●	●	●
23	●	●	●			●	●	●	●	●	●	●

ES10 ES12 ES16

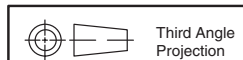


ES24



K

Rotary



Third Angle
Projection

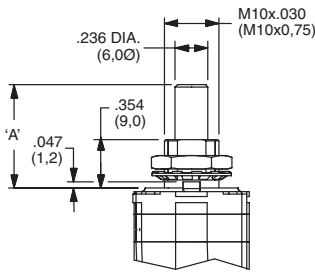
Dimensions are shown: mm
Specifications and dimensions subject to change



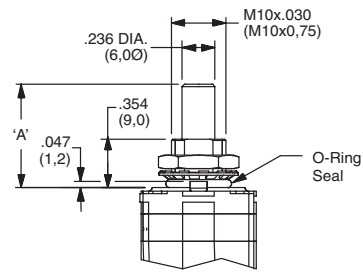
RTBV Series 1-2 Pole Coded Rotary Switches

SEAL

A STANDARD BUSHING FOR PANEL MOUNT

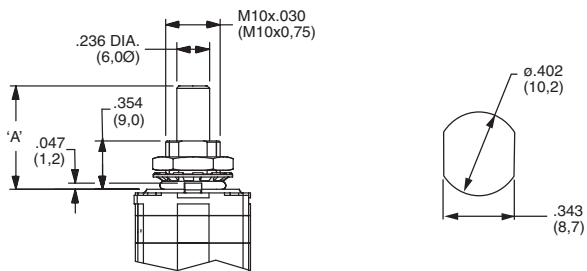


D SEALED BUSHING FOR PANEL MOUNT

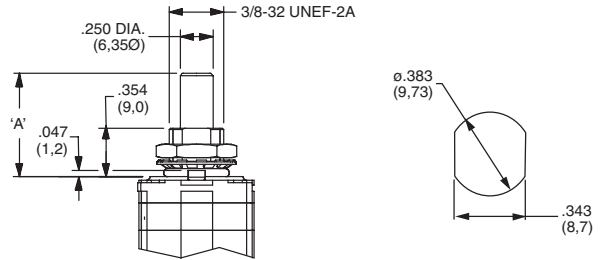


SHAFT DIAMETER & STYLE

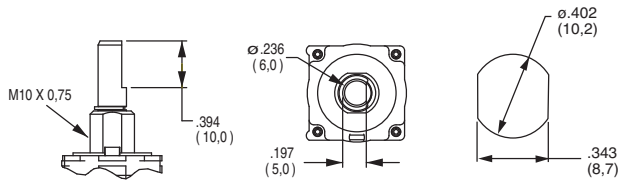
N METRIC SHAFT 0.236 (6,0)



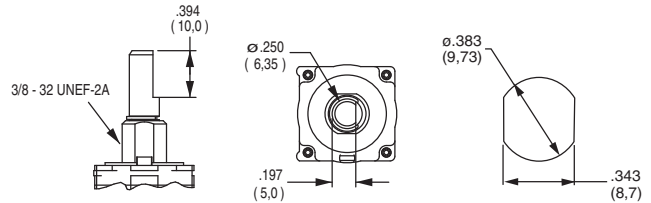
P STANDARD SHAFT 0.250 (6,35)



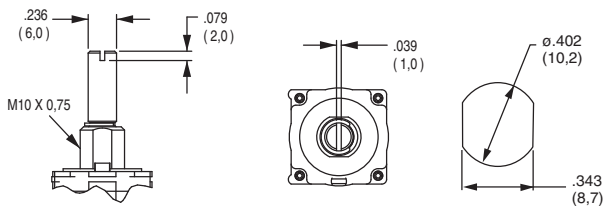
F METRIC SHAFT WITH FLAT 0.236 (6,0)



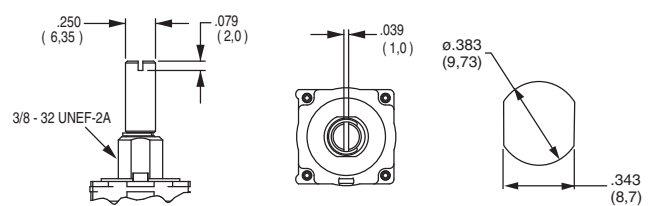
G STANDARD SHAFT WITH FLAT 0.250 (6,35)



S METRIC SHAFT WITH SLOT 0.236 (6,0)



T STANDARD SHAFT WITH SLOT 0.250 (6,35)



***Note: Metric diameter shafts are only available with metric diameter bushings, standard 1.250 inch diameter shafts are only available with standard 3/8 diameter bushings.



Third Angle
Projection

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



www.ck-components.com

RTBV Series 1-2 Pole Coded Rotary Switches

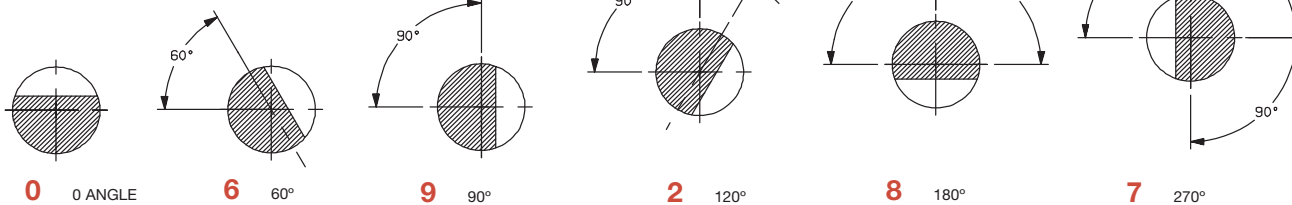
ACTUATOR OPTION ANGLE



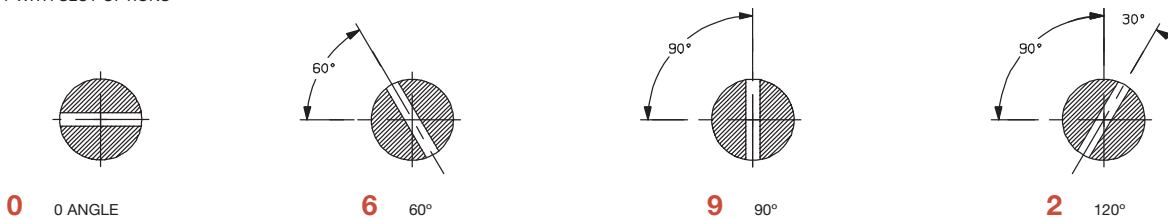
SHAFT WITH FLAT OPTIONS

N (None)

FOR ACTUATORS WITHOUT A FLAT



SHAFT WITH SLOT OPTIONS



* Note: S&T Shaft Diameter and Style are only available with Actuator Option Angle 0, 6, 9, 2.

ACTUATOR LENGTH



Z (.984) 0,25 mm STANDARD SHAFT

Other lengths available by request.

CONTACT MATERIAL

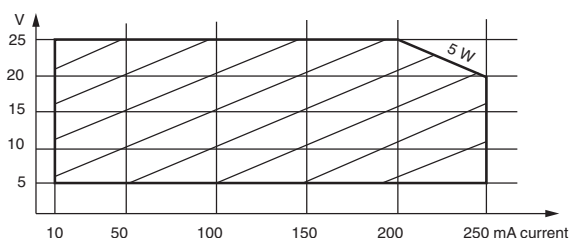


OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING
S	SILVER	SWITCH: 250 mA, POWER: 5 VA; CARRY: 5 AMPS
P	GOLD	SWITCH: 20 mA, POWER: 0.2 VA; CARRY: 1 AMP

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

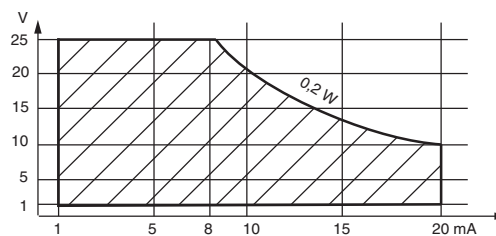
SWITCHING POWER

S (SILVER CONTACTS)



Switching power: 5 W
Max. voltage: 25 V
Min. voltage: 5 V
Max. switching current: 250 mA
Min. switching current: 10 mA

P (GOLD CONTACTS)



Switching power: 0.2 W
Max. voltage: 25 V
Min. voltage: 1 V
Max. switching current: 20 mA
Min. switching current: 1 mA



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

R Series ROTA-SLIDE® Rotary Switches



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 L-36 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: 10⁹ 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-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 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-31 and K-32. 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

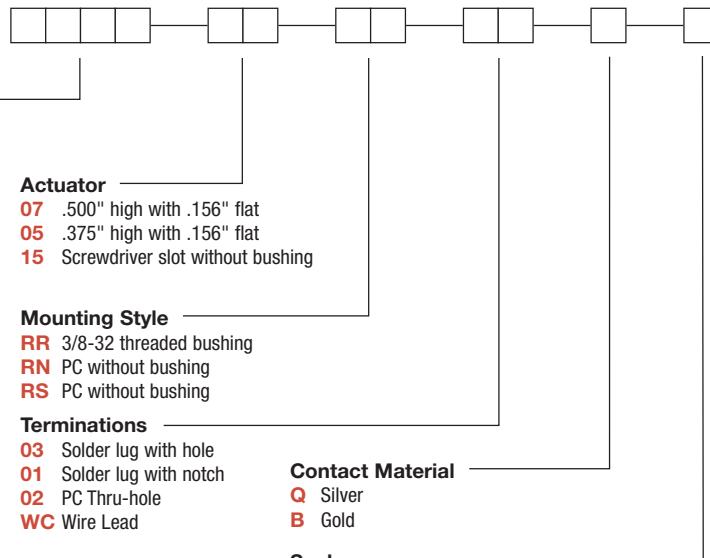
- 03** Solder lug with hole
- 01** Solder lug with notch
- 02** PC Thru-hole
- WC** Wire Lead

Contact Material

- Q** Silver
- B** Gold

Seal

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



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

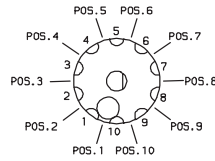
R Series ROTA-SLIDE® Rotary Switches

SWITCH FUNCTION



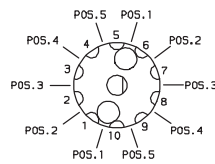
SP MODELS 36° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	R100	10 Position No Stops	All Terminals
	R103	3 Position	10-1-2-3
	R104	4 Position	10-1-2-3-4
	R108	8 Position	10-1-2-3-4-5-6-7-8

SP MODELS 36° INDEXING SCHEMATIC



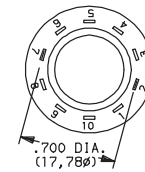
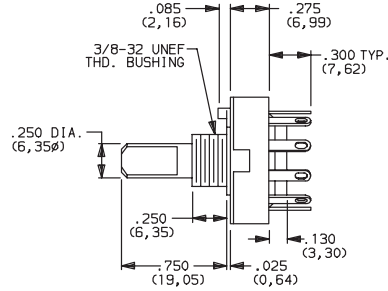
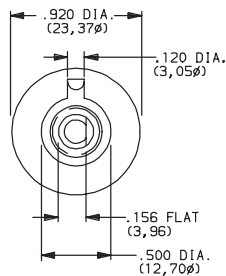
DP MODELS 36° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
DP	R203	3 Position	10-1-2-3-5-6-7-8
	R204	4 Position	All Terminals
	R205	5 Position	All Terminals

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.



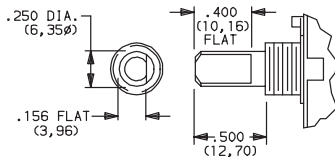
TERM. NOS.
MOLDED ON HOUSING

Part number show: R10007RR03Q

ACTUATOR

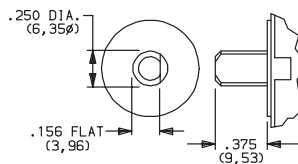


07 .500" HIGH WITH .156" FLAT



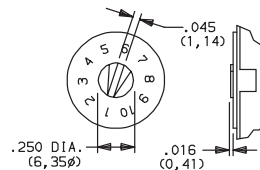
Shown with 'RR' mounting style.
For mounting styles without bushing,
add .250 (6,35) to actuator length.

05 .375" HIGH WITH .156" FLAT

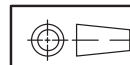


Shown with 'RN' mounting style.

15 SCREWDRIVER SLOT



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



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

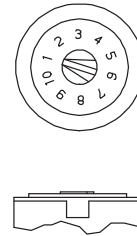
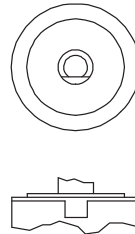
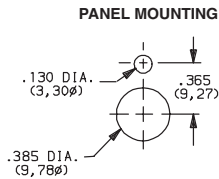
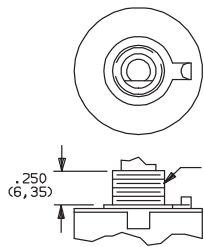
R Series ROTA-SLIDE® Rotary Switches

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 175000100).

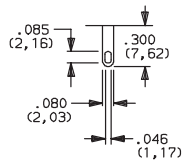
TERMINATIONS

03 SOLDER LUG WITH HOLE

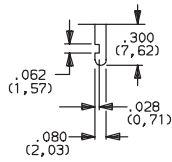
01 SOLDER LUG WITH NOTCH

02 PC THRU-HOLE

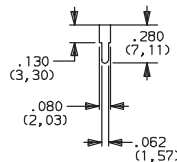
WC WIRE LEAD



.020 THK.
(0,51)

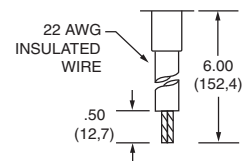
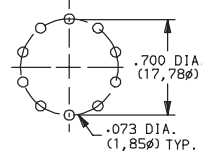


.020 THK.
(0,51)



.020 THK.
(0,51)

PC MOUNTING



K

Rotary

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
Q	SILVER ²	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).
B	GOLD ¹	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.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

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

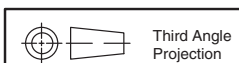
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

All models 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



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



Specifications

CONTACT RATING: Q contact material: 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA). See page L-40 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: 10⁹ 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

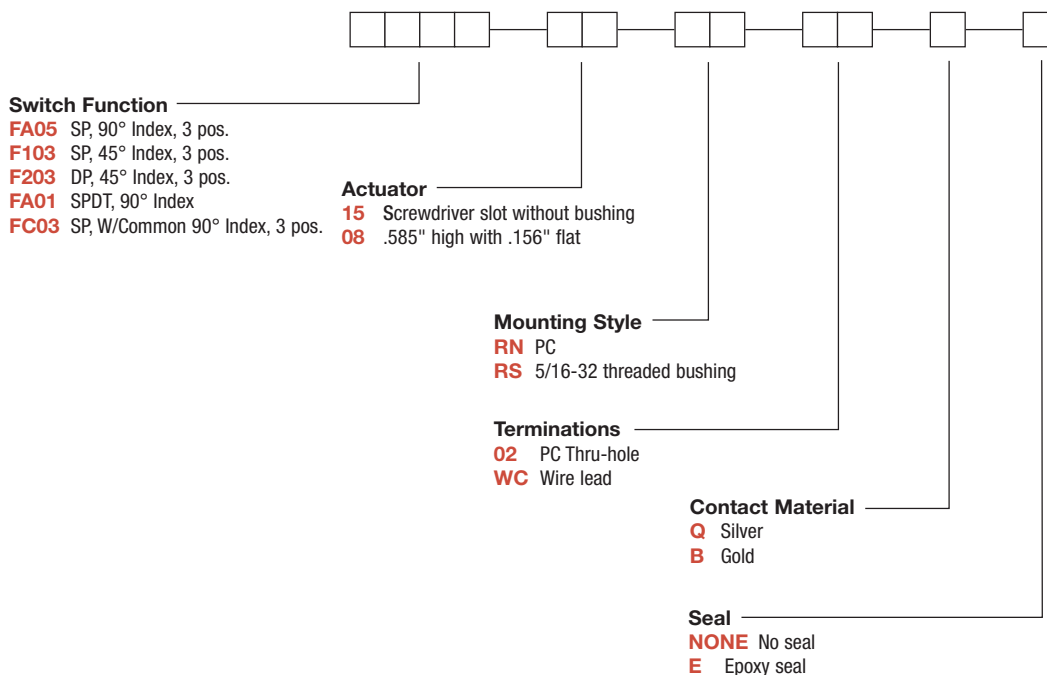
HOUSING & BUSHING: 6/6 Nylon (UL 94V-2).
 ACTUATOR: 6/6 nylon (UL 94V-2).
 CONTACTS: Q contact material: Copper, silver plated. See page K-40 for additional contact materials.
 TERMINALS: Q contact material: Copper, silver plated. See page K-39 for additional contact materials.
 CONTACT SPRING: Music 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-34 thru K-36. For additional options not shown in catalog, consult Customer Service Center.



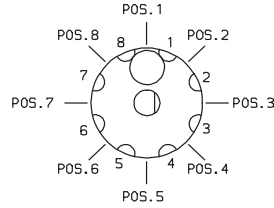
Dimensions are shown: mm
 Specifications and dimensions subject to change

F Series Miniature ROTA-SLIDE® Rotary Switches

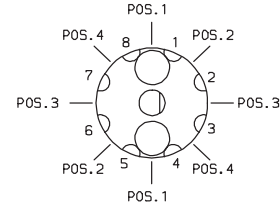
SWITCH FUNCTION

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

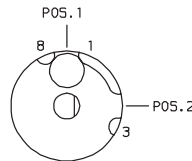
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

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

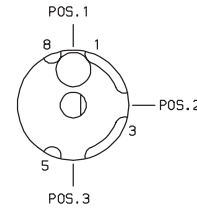
F1XX, F2XX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

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

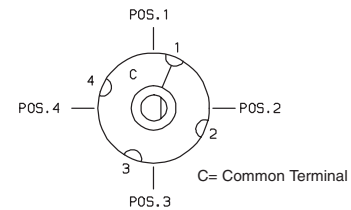
90° INDEXING SCHEMATICS



FA01 MODEL



FA05 MODEL



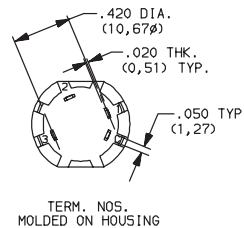
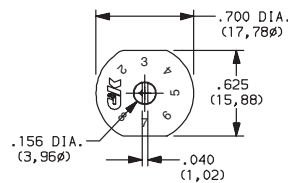
FCXX MODEL

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

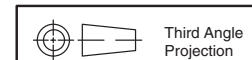
FCXX models: Common terminal is present.

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



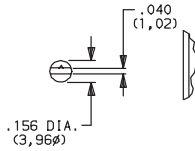
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



F Series Miniature ROTA-SLIDE® Rotary Switches

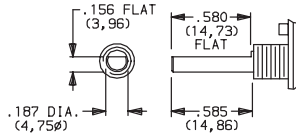
ACTUATOR

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.

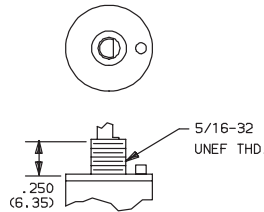
MOUNTING STYLE

RN PC



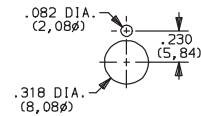
PC mount, no bushing, position numbers molded standard. Shown with '15' actuator; not available with '08' actuator or FCXX models.

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.

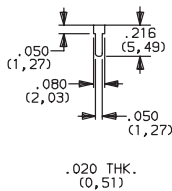
PANEL MOUNTING



5/16 IN. BUSHING

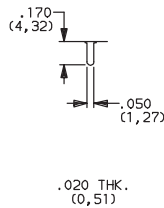
TERMINATIONS

02 PC THRU-HOLE



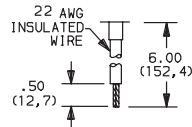
F1XX, F2XX & FAXX Models

02 PC THRU-HOLE



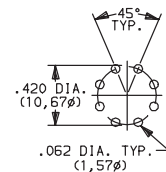
FCXX Models

WC WIRE LEAD



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

PC MOUNTING



Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

F Series Miniature ROTA-SLIDE® Rotary Switches

CONTACT MATERIAL



OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
Q	SILVER ²	POWER	4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA).
B	GOLD ¹	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.

¹ CONTACTS & TERMINALS: Copper, with gold plate over nickel plate.

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

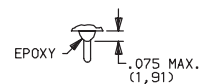
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

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

SEAL

NONE NO SEAL

E EPOXY SEAL

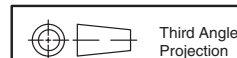


Not available on FCXX models.



K

Rotary



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

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



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: 10⁹ Ω 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.

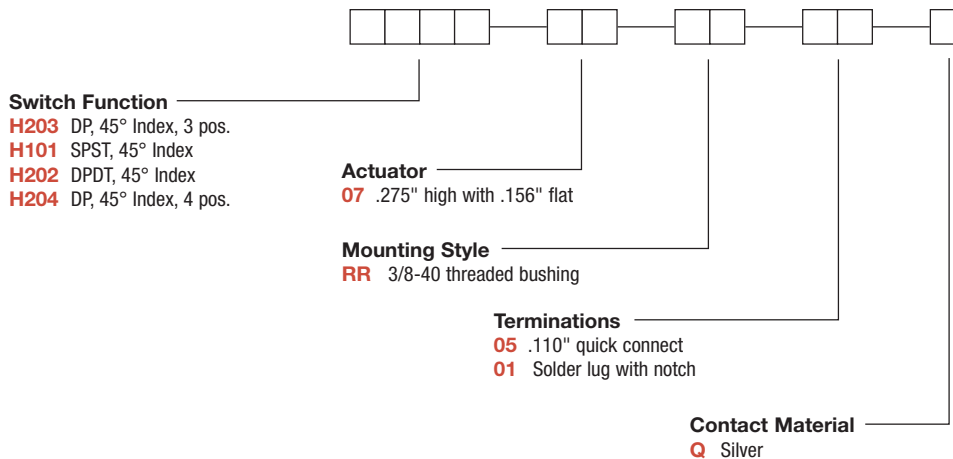
TERMINAL SEAL: Epoxy.

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-38 thru K-39. For additional options not shown in catalog, consult Customer Service Center.



K

Rotary



Dimensions are shown: mm
Specifications and dimensions subject to change

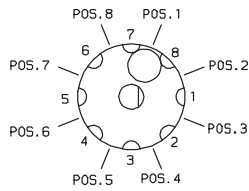
H Series Power ROTA-SLIDE® Rotary Switches

SWITCH FUNCTION

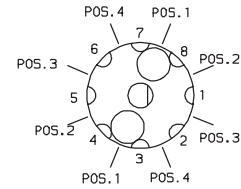
SP MODELS 45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	H101	SPST	8-1

DP MODELS 45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	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

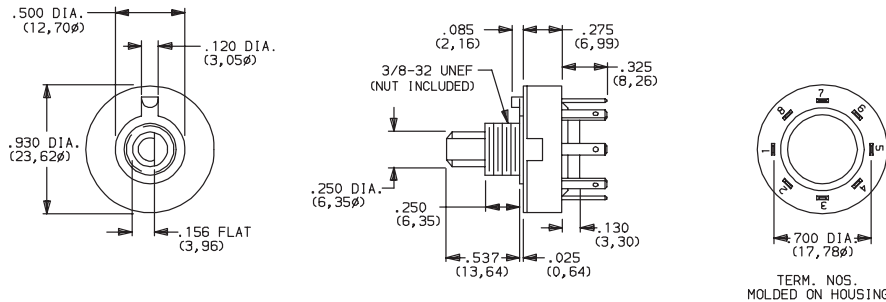


NOTE: Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

All models with all options.



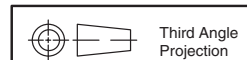
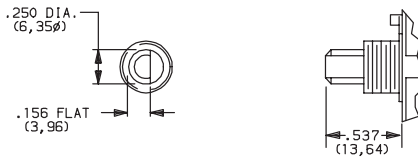
Rotary K



Part number shown: H10107RR05Q

ACTUATOR

07 .275" HIGH WITH .156" FLAT



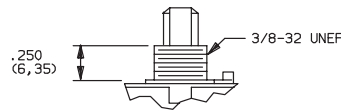
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change



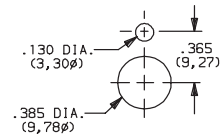
H Series Power ROTA-SLIDE® Rotary Switches

MOUNTING STYLE

RR 3/8-32 THREADED BUSHING



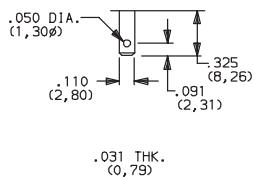
PANEL MOUNTING



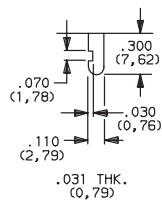
Mounting nut included (part number 175000100).

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	
		Q	SILVER ¹

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

¹ CONTACTS & TERMINALS: Copper, silver plated.

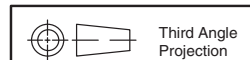
NOTE: Any models supplied with Q contact material are RoHS compliant.

All models  with all options.



K

Rotary



Dimensions are shown: mm
Specifications and dimensions subject to change

P Series Low Profile Key Switches



Features/Benefits

- Low profile design
- Multi-pole and multi-position
- Panel and PCB mounting
- Variety of termination styles
- RoHS Compliant

Typical Applications

- CATV
- Low cost security devices
- Lawn 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 L-46 for additional ratings.

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

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

INSULATION RESISTANCE: 10⁹ Ω min.

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

INDEXING: 45° or 90°, 2-3 positions. Other functions available, consult Customer Service Center.

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

Materials

HOUSING: One piece, 6/6 nylon (UL94V-2), black. Finish, matte.

KEY: One nickel plated brass key.

CONTACTS AND TERMINALS: Q contact material: Copper, silver plated. See page K-46 for additional contact materials.

CONTACT SPRING: Music wire or stainless steel.

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 switchlocks, consult Customer Service Center.

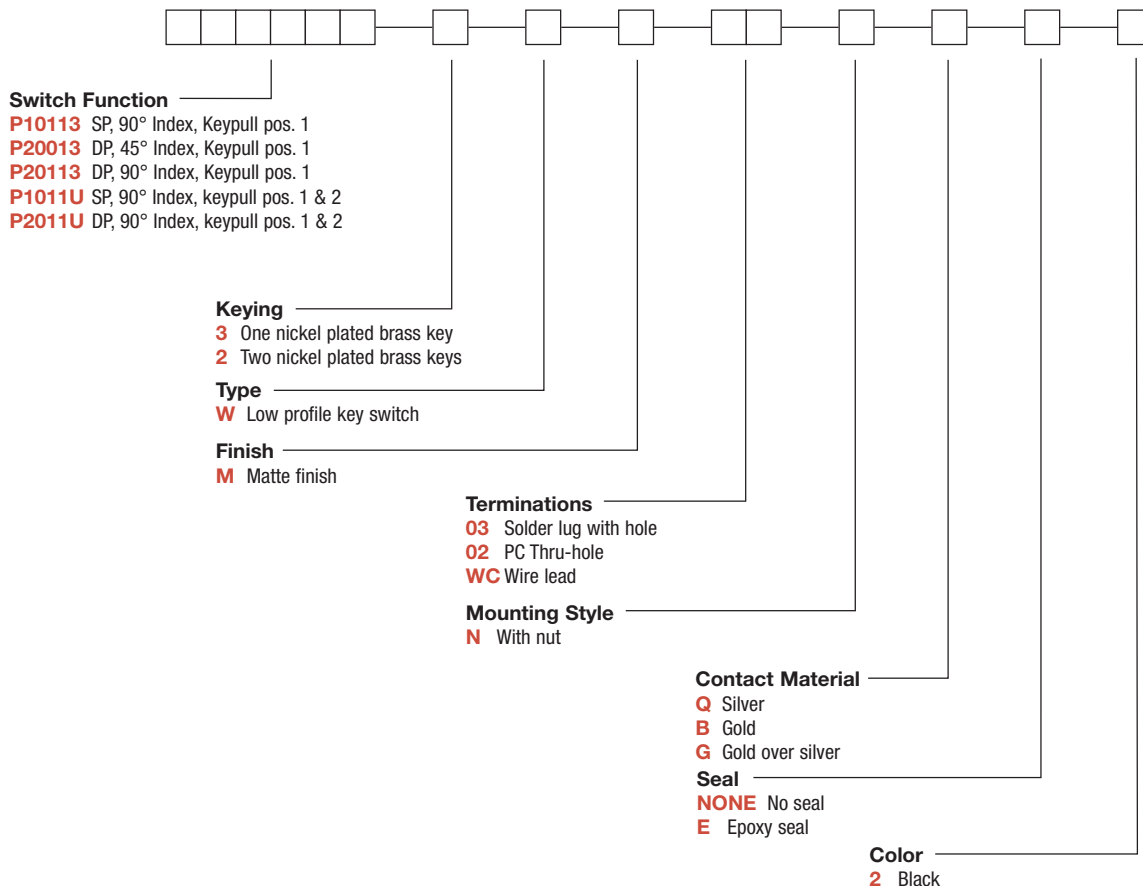
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-41 thru K-42. For additional options not shown in catalog, consult Customer Service Center.



K

Rotary



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

P Series Low Profile Key Switches

SWITCH FUNCTION

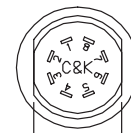
NO. POLES	MODEL NO.	CONNECTED TERMINALS (see terminal location below.)			KEY PULL POSITIONS	SWITCH CONFIGURATION	INDEXING
		POS.1	POS. 2	POS. 3			
DP	P20013	8-1,4-5	1-2,5-6	2-3, 6-7	Position 1		45°
SP DP	P10113 P20113	8-1 8-1,4-5	1-3 1-3,5-7		Position 1		90°
SP DP	P1011U P2011U	8-1 8-1,4-5	1-3 1-3,5-7		Position 1 & 2		

LEGEND

- = Detent Positions (45° or 90°).
- ⊙ = Key pull possible in these positions.
- ⊙ = Stop positions.

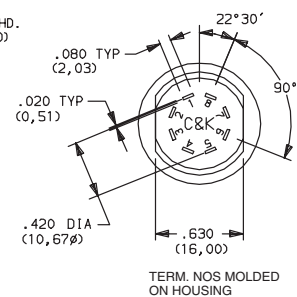
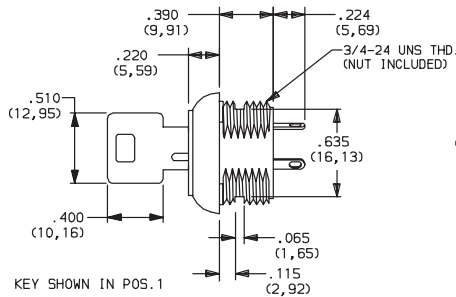
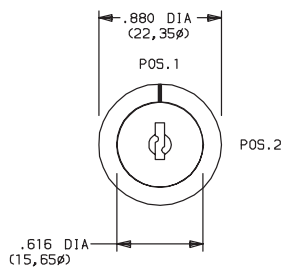
All models with all options when ordered with 'G' or 'Q' contact material.

TERMINAL NUMBERS



Terminal numbers molded on bottom of housing.

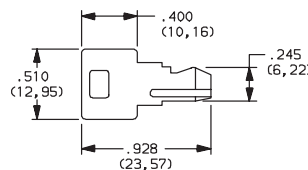
.630
(16,00)



KEYING

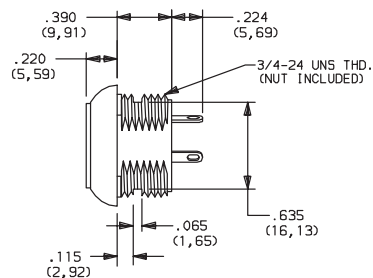
- 3** ONE NICKEL PLATED BRASS KEY
- 2** TWO NICKEL PLATED BRASS KEYS

NOTE: All models provided with the same key code.
For replacement keys or special features, consult Customer Service Center.



TYPE

- W** LOW PROFILE KEY SWITCH



OPTION CODE	COLOR
2	BLACK

NOTE: Standard housing color is black. Special colors or mixed housing and key plug colors available, consult Customer Service Center.



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



K

Rotary

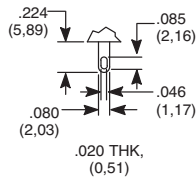
P Series Low Profile Key Switches

FINISH

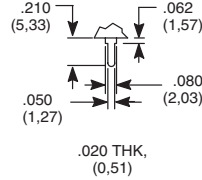
M MATTE FINISH

TERMINATIONS

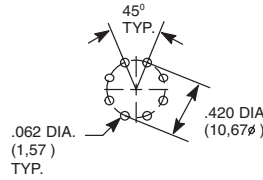
03 SOLDER LUG WITH HOLE



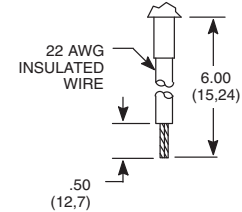
02 PC THRU-HOLE



PC MOUNTING



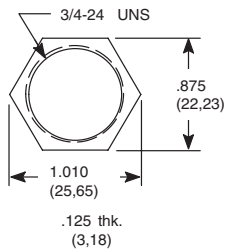
WC WIRE LEAD



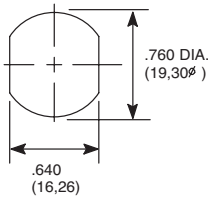
Black wire standard, other colors, gages, and lengths available, consult Customer Service Center. UL style 1015.

MOUNTING STYLE

N WITH NUT



PANEL MOUNTING



MOUNTING STYLE	PANEL THICKNESS
N (with nut)	.215 (5,46) max.

Nut part number: 175050700

CONTACT MATERIAL

OPTION CODE	CONTACT AND TERMINAL MATERIAL	RATING	
		Q	SILVER ²
B	GOLD ¹	LOW LEVEL/DRY CIRCUIT	0.4 VA MAX. @ 20 V AC or DC MAX
G	GOLD OVER SILVER ³	LOW LEVEL/DRY CIRCUIT OR POWER	0.4 VA MAX. @ 20 V AC or DC MAX. or 4 AMPS @ 125 V AC or 28 V DC; 2 AMPS @ 250 V AC (UL/CSA)

* 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).

³ CONTACTS & TERMINALS: Copper, with gold plate over silver plate.

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

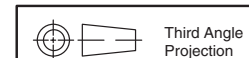
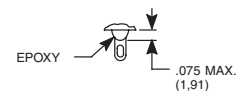
All models with all options when ordered with 'G' or 'Q' contact material.

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

SEAL

NONE NO SEAL

E EPOXY SEAL



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

C&K