audio

automotive

aerospace

communication devices

consumer appliances

consumer electronics

datacom

data storage

handheld devices

industrial

industrial equipment

instrumentation

medical

military

mobile phones

portable tools

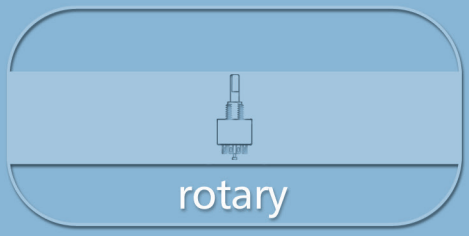
pumps & motors

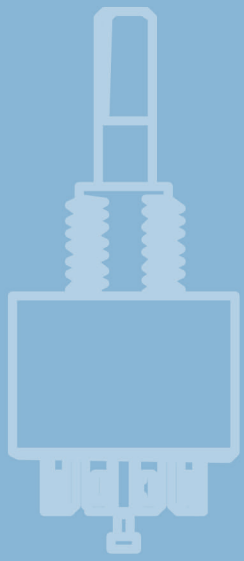
security alarms

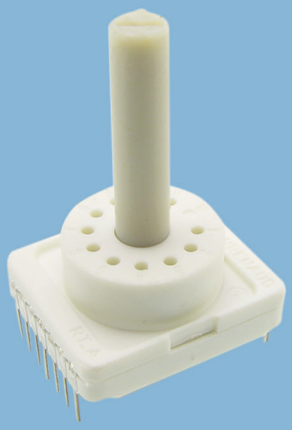
telecom

test equipment

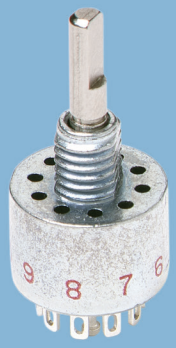
thermostatic controls

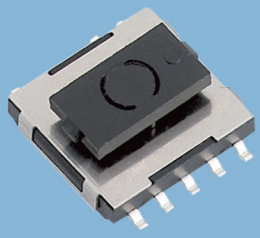


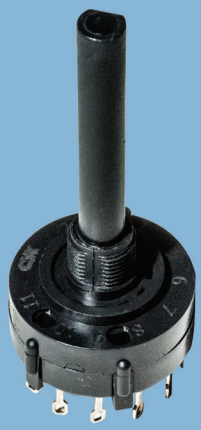












rotary

Rotary Switches
Product Selection Guide

Rotary									
Series	**A**	**RTA**	**M**	**R**	**F**	**H**	**RW**	**RM**	**ENC**
Switch Type	Multi-pole/ Multi-position	Multi-pole/ Multi-position	Half-inch	Rota-slide	Rota-slide	Power Rota-slide	Subminiature Rotary SMT	Subminiature Rotary	Optical Encoder
Miniature					•		•	•	
Low Profile					•		•		
Screwdriver Slot	•	•	•	•	•			•	•
Power						•			
Maximum Current	2.5 Amps	5A/ 1A	6 Amps	5 Amps	4 Amps	12 Amps	0.1 A 10mA	0.5 Amps	30 mA
Poles	1-4	1-4 (except 3)	1 & 2	1 & 2	1 & 2	1 & 2	1	1	1
Indexing	30º, 45º, 90º	22.5º, 30º 36º	30º & 36º	36º	45º & 90º	45º & 90º	36º & 45º	45º	
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–21	K–25	K–28	K–30	K–33

Features/Benefits

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

c UL us
Models Available

Typical Applications

- *Automotive*
- *Major and small appliances*
- *Industrial equipment*



Specifications

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

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

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

INSULATION RESISTANCE: 10^9 Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level. Operating and storage temp: -30° to 85°C

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

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

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

Materials

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

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

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

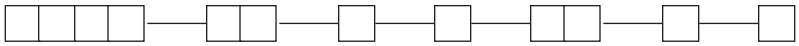
STATIONARY CONTACTS & TERMINALS: Q contact material: Brass, silver plated. See page K-6 for additional contact materials.

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

TERMINAL SEAL: Epoxy.

Build-A-Switch

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



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

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

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

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

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

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

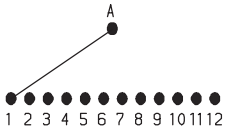
Seal
- **NONE** No seal
- **E** Epoxy seal
- **F** Splashproof bushing seal
- **K** Epoxy & splashproof bushing seal

A Series
1-4 Pole Rotary Switches

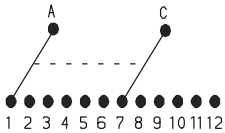
SWITCH FUNCTION

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

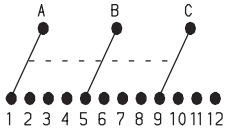
SP MODELS SCHEMATIC



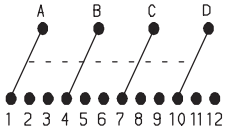
DP MODELS SCHEMATIC



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

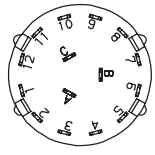
NOTE: * These models with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch.

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

TERMINAL NUMBERS

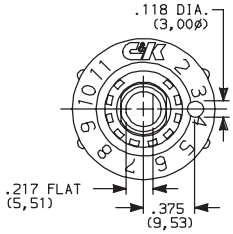


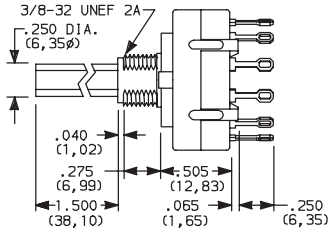
Terminal numbers molded on bottom of housing.

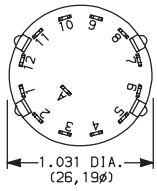


4P MODELS
SP MODELS (omit terminals B, C & D)
DP MODELS (omit terminals B & D)

3P MODELS







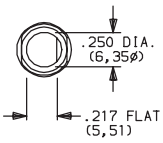
TERM. NOS.
MOLDED ON HOUSING

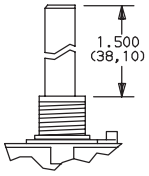
Third Angle Projection

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

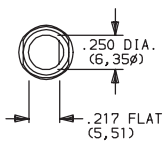
ACTUATOR

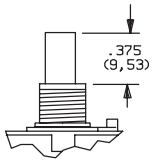
15 1.500" HIGH



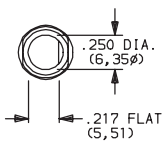


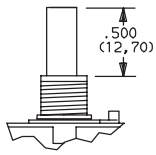
03 .375" HIGH



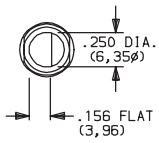


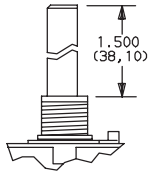
05 .500" HIGH



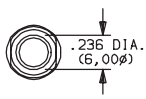


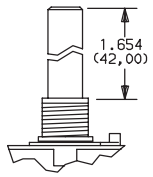
14 1.500" HIGH



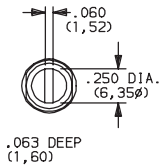


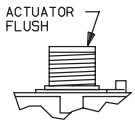
42 1.654" METRIC





S1 SCREWDRIVER SLOT

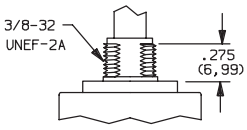




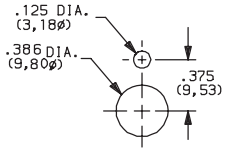
NOTE: Actuators shown in position 1, fully CCW.

MOUNTING STYLE

R 3/8-32 THREAD

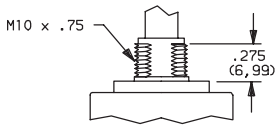


PANEL MOUNTING

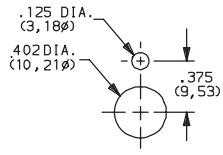


$^{3}/_{8}$ IN. BUSHING

M M10 x .75 METRIC

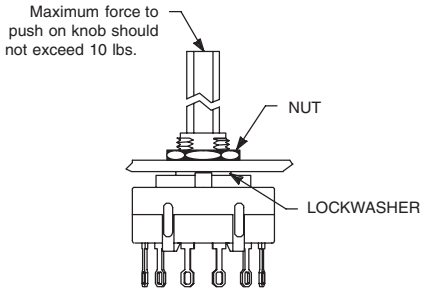


PANEL MOUNTING



METRIC BUSHING

TYPICAL INSTALLATION



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)

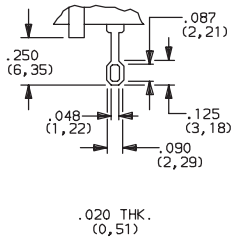
NOTE: 'S' shorting contacts are not available with A114, A124 and A214 models.

Third Angle Projection

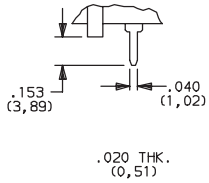
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

TERMINATIONS

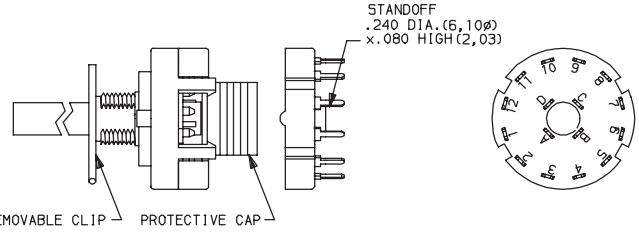
Z SOLDER LUG



C PC THRU-HOLE

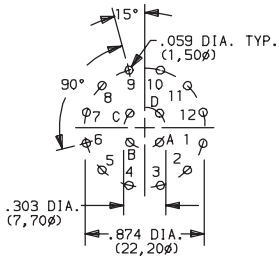


MC MODULAR BASE (for wave soldering)

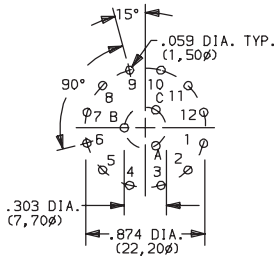


NOTE: Switches with 'C' or 'MC' terminations have additional terminal no. 9 as switch support only. This terminal is not connected electrically inside switch. Solder and clean switch base on PC board with other components, then snap on housing/actuator assembly. See page K-7 for installation instructions.

PC MOUNTING



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



3P MODEL

CONTACT MATERIAL

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

* 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 cULus with all options when ordered with 'G' or 'Q' contact material.

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

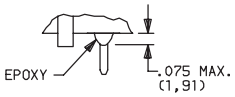
Third Angle Projection

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

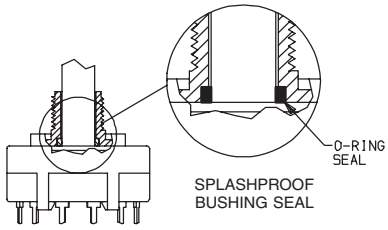
FUNCTION

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

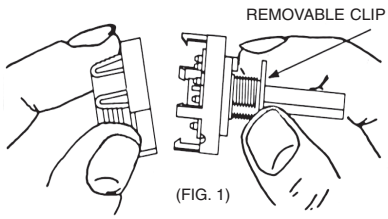
1. Insert switch base only into PC board.
2. Do not bend terminals.
3. Wave soldering recommended at 500F solder temperature.
4. Hand solder at 500F, 10 sec. max./terminal.

Switch Assembly

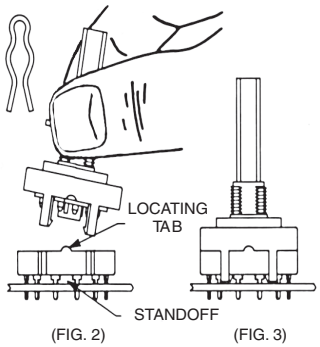
1. Hold housing/shaft assembly by housing. Remove protective cap by squeezing tabs and discard. (FIG. 1)
2. *Do not push on switch shaft. Detent mechanism will come apart.*
3. While holding switch housing, align locating tab on base with notch on housing and engage 4 housing latches in slots on base.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

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.



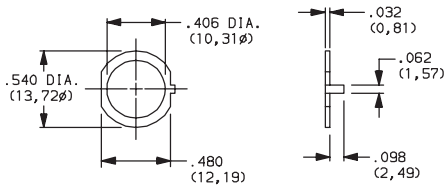
(FIG. 1)



(FIG. 2) (FIG. 3)

AVAILABLE HARDWARE

Stop ring



PART NO.
767B00201

Material: Brass
Finish: Nickel plated

Third Angle Projection

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

RTA Series
1–4 Poles Coded Rotary Switches



Features/Benefits

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

Typical Applications

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

Electrical Data

	Silver	Gold
SWITCHING MODE:	BBM	BBM
MAX. SWITCHING POWER	5 VA	0.5 VA
MAX. SWITCHING CURRENT:	150 mA	20 mA
MAX. CARRYING CURRENT:	5 A	1 A
NOMINAL VOLTAGE AT 50 Hz	60 V	25 V
CONTACT RESISTANCE:	< 150 mΩ	< 150 mΩ
DIELECTRIC STRENGTH AT 50 Hz 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

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.

Mechanical Data

MAX. NO. OF BANKS: 1.

OPERATING TORQUE: 5 Ncm±20%.

END STOP TORQUE: 50 Ncm. minimum

STOP: With/without or adjustable

MOUNTING: By fixed index 9.5 mm (0.374) of center, for bushing mount only

Materials

BUSHING/HOUSING: PETP Thermoplastic

STATIONARY CONTACTS & TERMINALS: Nickel Plated Brass with additional plating of Gold or Silver.

ROTOR: Gold or Silver plated Brass or PCB.

CODING PLATE: PA thermoplastic

ACTUATOR: Polysulfon thermoplastic

HARDWARE: Stop pin: Aluminum. Ball & Spring: Stainless steel. Washer: PA. Nut: Brass.

Build-A-Switch

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

Designation
RTA

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

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

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.
4S02	4P, 30° /36° Index, 2 pos.
EW10	Direct + complement, 36° Index, no stop
EW12	Direct + complement, 30° Index, no stop
ES_ _	Direct + complement, 30°/36° Index, with stop (specify stop position)

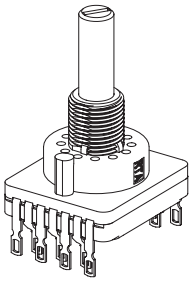
Mounting Style
W Without bushing
R 3/8-32 Threaded Bushing
M M10x.75 Metric Threaded Bushing
A 3/8-32 Threaded Bushing with Offset Bracket
B M10x.75 Metric Threaded Bushing with Offset Bracket
C 3/8-32 Threaded Bushing with Straight Bracket
D M10x.75 Metric Threaded Bushing with Straight Bracket

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

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

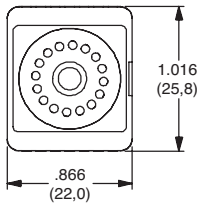
DESIGNATION

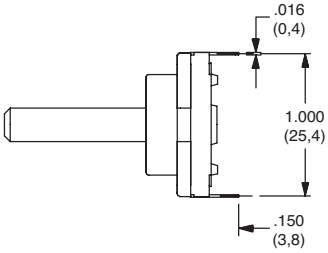
RTA

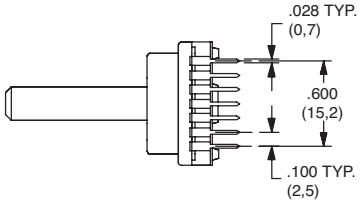


TERMINATION

P WITH PC PINS

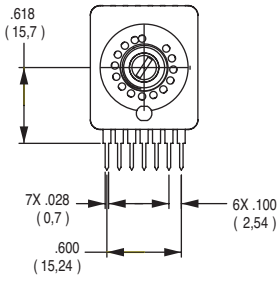


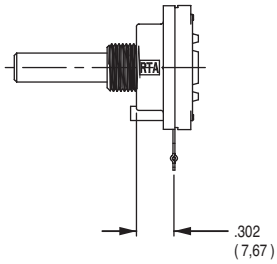






H Horizontal with PC Thru-hole





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

INDEXING

3 30 index, 12 positions max.

4 36 index, 10 positions max.

Both commons must be connected by user to ground.

Third Angle Projection

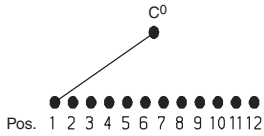
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

RTA Series
1-4 Poles Coded Rotary Switches

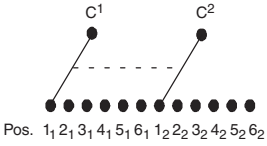
SWITCH FUNCTION

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°

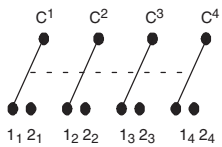
SP MODELS SCHEMATIC



DP MODELS SCHEMATIC



4P MODELS SCHEMATIC

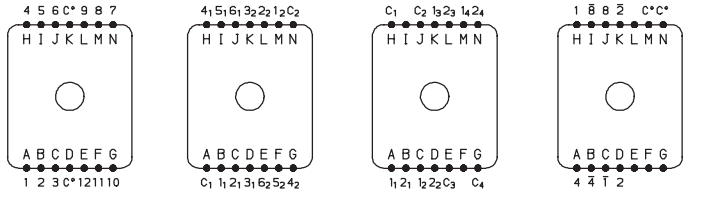


MODEL NO.	SWITCH FUNCTION	INDEX
EW10	Direct + complement, No stop	36°
EW12	Direct + complement, No stop	30°
ES__	Direct + complement, with stop (specify stop position)	30° & 36°

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°
4P	4S02	2 Positions	30°/36°

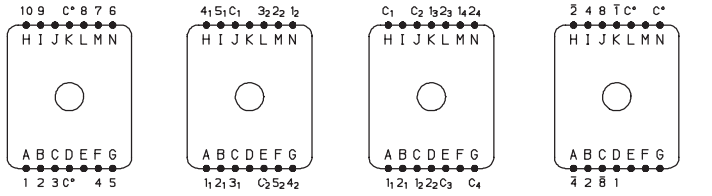
30° Term.	36° Term.	Pos.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
M,N	L,N	C	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
H	D	1		•		•		•		•		•		•		•		•
D	B	2			•	•			•	•			•	•			•	•
A	I	4					•	•	•	•					•	•	•	•
J	J	8									•	•	•	•	•	•	•	•
C	K	$\overline{1}$	•		•		•		•		•		•		•		•	
K	H	$\overline{2}$	•	•			•	•			•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

Indexing Option Code 3, 30 INDEXING ANGLE PCB LAYOUT



1 POLE | 2 POLES | 4 POLES | BCD + COMPLEMENTS

Indexing Option Code 4, 36 INDEXING ANGLE PCB LAYOUT



1 POLE | 2 POLES | 4 POLES | BCD + COMPLEMENTS

NOTE: Layout view from component side.

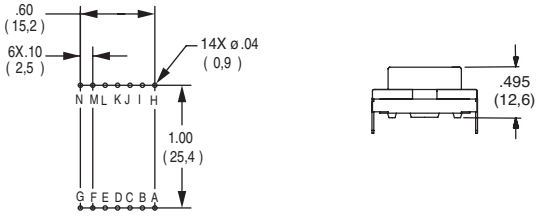
Common terminals that are in locations A-G are not connected to common terminals that are in locations H-N. For 7-12 position output customer must tie these commons together.

Third Angle Projection

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

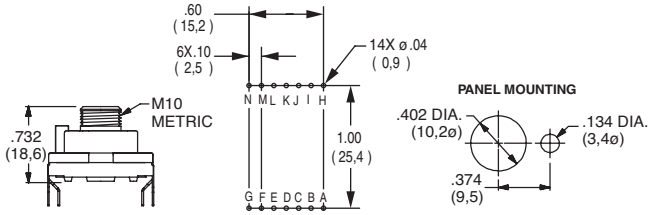
MOUNTING STYLE

W WITHOUT BUSHING



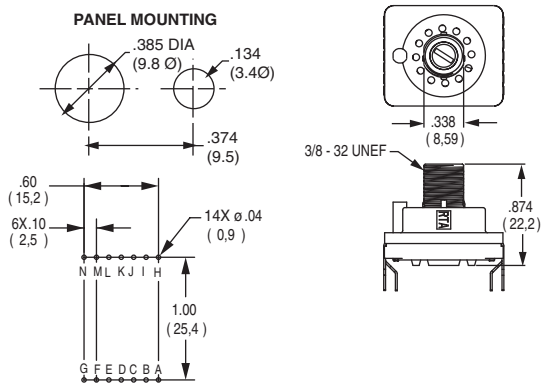
Note: W mounting style not available with H termination.

M M10 x .75 MERTIC THREADED BUSHING



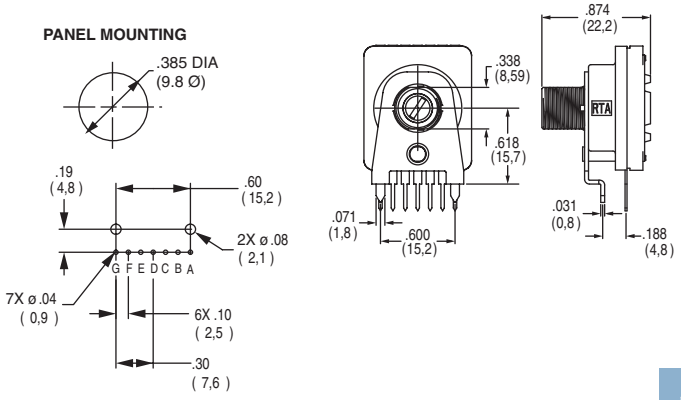
Note: M mounting style not available with H termination.

R 3/8-32 THREADED BUSHING



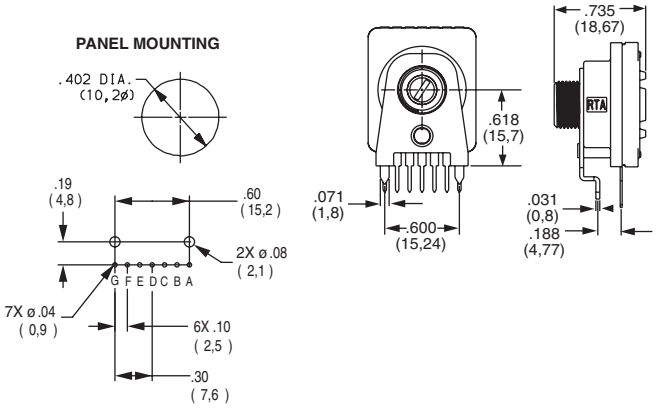
Note: R mounting style not available with H termination.

A 3/8-32 THREADED BUSHING WITH BRACKET



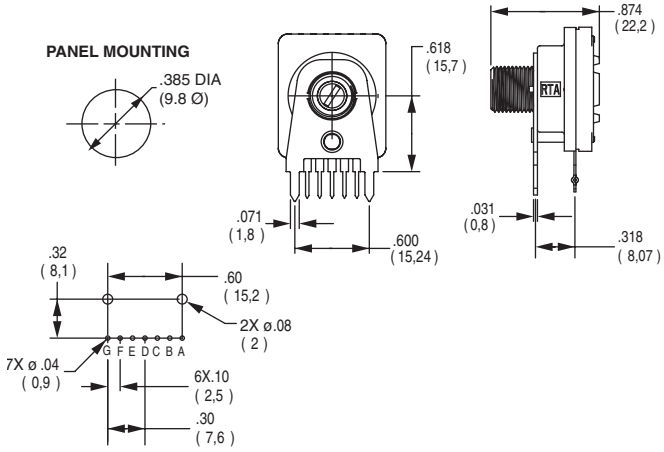
Note: A mounting style only available with H termination.

B M10 x .75 METRIC THREADED BUSHING WITH BRACKET

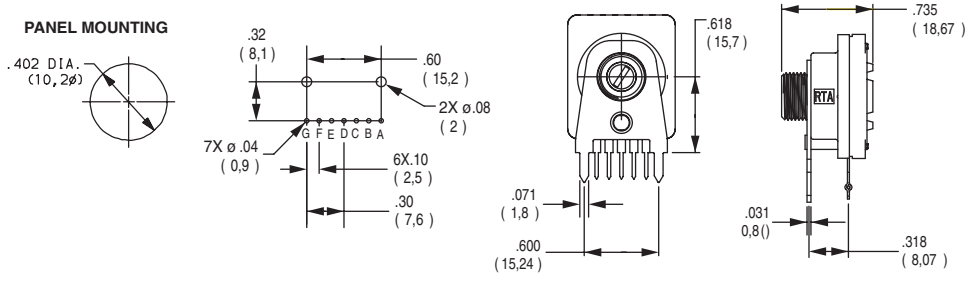


Note: B mounting style only available with H termination.

C 3/8-32 THREADED BUSHING WITH STRAIGHT BRACKET



D M10 x .75 METRIC THREADED BUSHING WITH STRAIGHT BRACKET



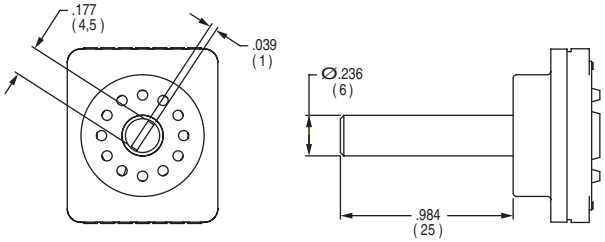
Third Angle Projection

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

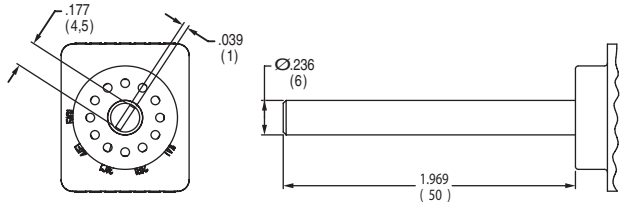
RTA Series
1-4 Poles Coded Rotary Switches

ACTUATOR

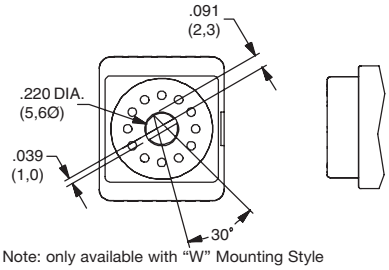
25N .984 (25,0) WITH SCREWDRIVER SLOT



50N 1.97 (50,0) WITH SCREWDRIVER SLOT

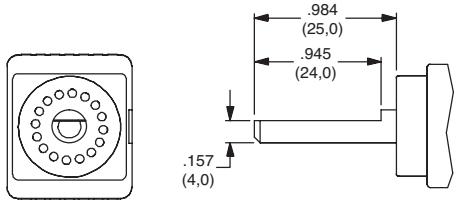


FLS FLUSH SHAFT WITH SCREWDRIVER SLOT AND POSITION INDICATOR



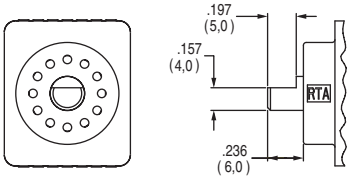
Note: only available with "W" Mounting Style

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

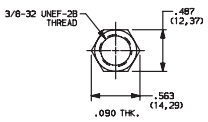
CONTACT MATERIAL

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

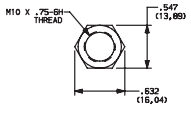
* Note: See Technical Data section of this catalog for RoHS compliant and compatible definition and specifications.

AVAILABLE HARDWARE

Mounting Nuts



PART NO.
472706201
Standard



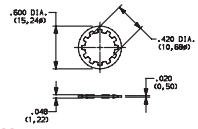
PART NO.
205D00201CH
Metric

Stop pins



PART NO.
Y200300200PCH

Lockwasher



PART NO.
472800A47CH

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

Third Angle Projection

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

Features/Benefits

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

Typical Applications

- ***Test equipment***
- ***Industrial equipment***
- ***Medical equipment***



Models Available

Specifications

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

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

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

INSULATION RESISTANCE: 10^{10} Ω min.

DIELECTRIC STRENGTH: 600 Vrms min. @ sea level.

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

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

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

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

Materials

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

ACTUATOR: Zinc alloy, nickel plated or stainless steel.

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

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

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

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

CONTACT SPRING: Music wire, phosphate coated.

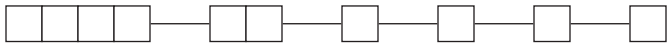
STOP PIN: Stainless steel.

STOP RING: Brass.

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

Build-A-Switch

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



Switch Function

MA00	SP, 10 pos., 36°
MA02	SP, 2 pos., 36°
MA03	SP, 3 pos., 36°
MA04	SP, 4 pos., 36°
MA05	SP, 5 pos., 36°
MA06	SP, 6 pos., 36°
MA10	SP, 10 pos., 36°
MB00	DP, 5 pos., 36°
MB03	DP, 3 pos., 36°
MB04	DP, 4 pos., 36°
MB05	DP, 5 pos., 36°
MC00	SP, 12 pos., 30°
MC03	SP, 3 pos., 30°
MC07	SP, 7 pos., 30°
MC12	SP, 12 pos., 30°
MD00	DP, 6 pos., 30°
MD06	DP, 6 pos., 30°
ME00	SP, 10 pos., 36°
ME04	SP, 4 pos., 36°
MF00	DP, 5 pos., 36°
MG00	SP, 12 pos., 30°
MH00	DP, 6 pos., 30°

Actuator & Bushing

L1	.650" long, flatted
L2	Screwdriver slot, flush
L3	.650" long, round
S1	.650" long, flatted
S2	Screwdriver slot, flush
S3	.650" long, round
S6	.785" long, slot

Short/Non-short

N Non-shorting contacts

Terminations

Z Solder lug
C PC Thru-hole

Contact Material

Q Silver
G Gold over silver

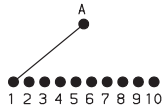
Seal

D No seal
F Splashproof shaft & panel seal (IP67)

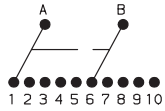
SWITCH FUNCTION

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

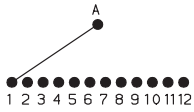
SP MODELS 36° INDEXING SCHEMATIC



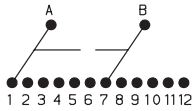
DP MODELS 36° INDEXING SCHEMATIC



SP MODELS 30° INDEXING SCHEMATIC



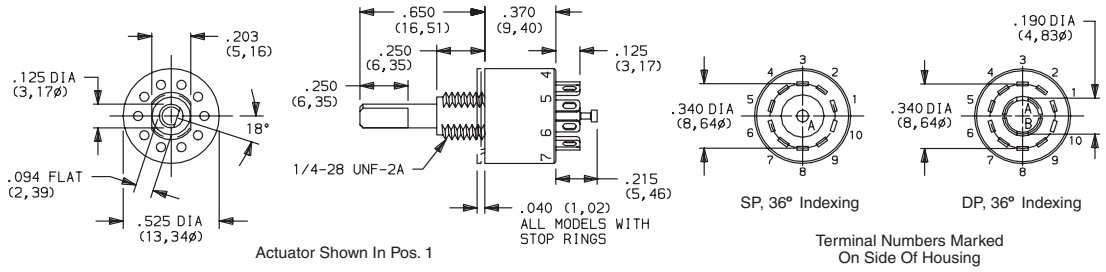
DP MODELS 30° INDEXING SCHEMATIC



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

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

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



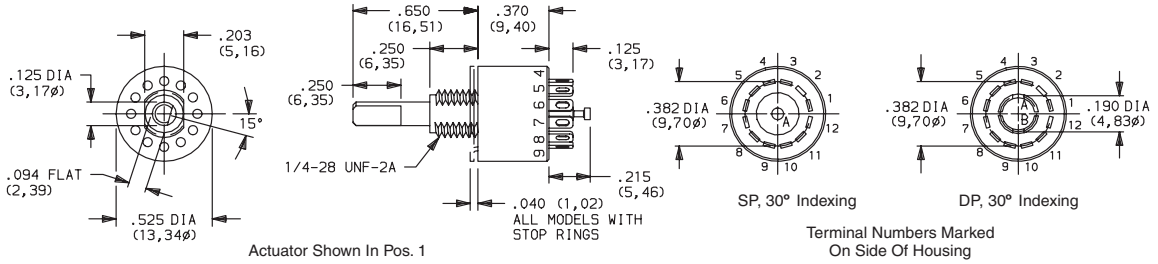
Actuator Shown In Pos. 1

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

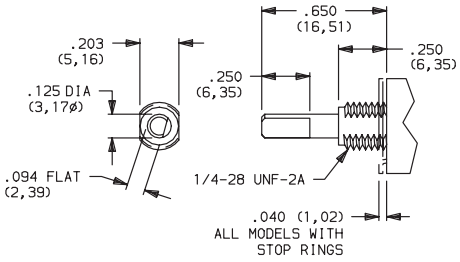
Part number shown: MC00L1NZQD

Third Angle Projection

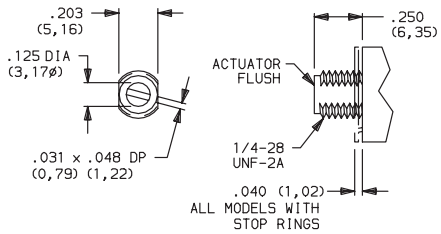
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

ACTUATOR (ZINC ALLOY)

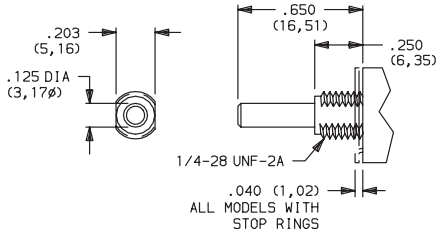
L1 .650" LONG, FLATTED



L2 SCREWDRIVER SLOT, FLUSH



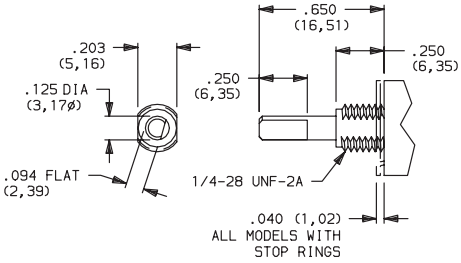
L3 .650" LONG, ROUND



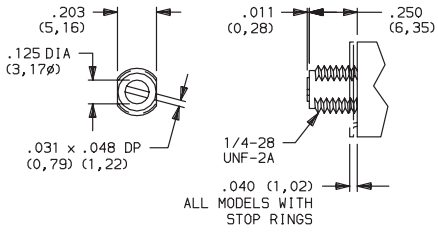
All actuators shown in pos. 1

ACTUATOR (STAINLESS STEEL)

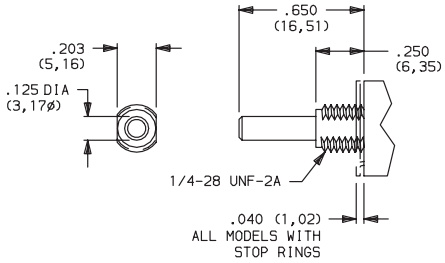
S1 .650" LONG, FLATTED



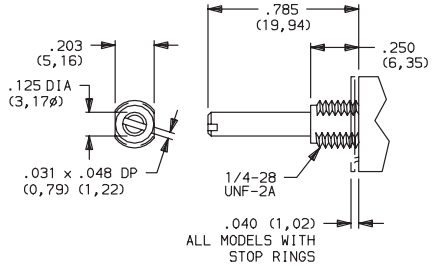
S2 SCREWDRIVER SLOT, FLUSH



S3 .650" LONG, ROUND



S6 .785" LONG, SLOT



All actuators shown in pos. 1

All models cULus when ordered with stainless steel actuators.

Third Angle Projection

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

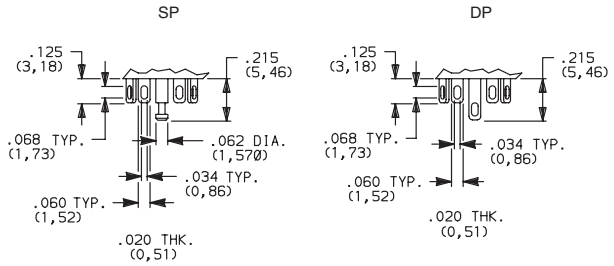
SHORTING/NON-SHORTING CONTACTS

N NON-SHORTING CONTACTS

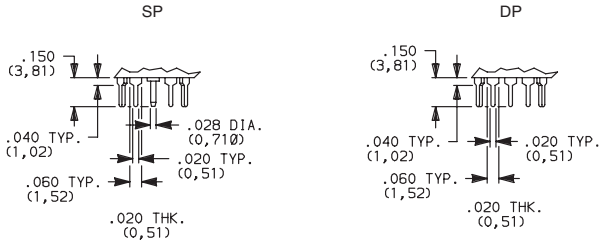
Break-before-make

TERMINATIONS

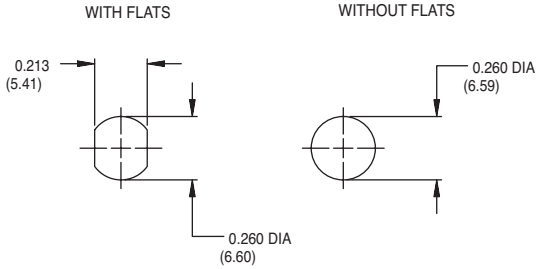
Z SOLDER LUG



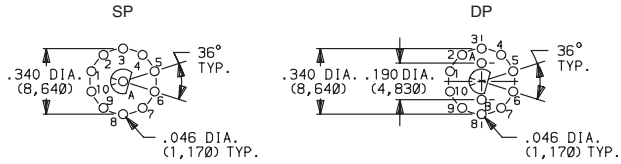
C PC THRU-HOLE



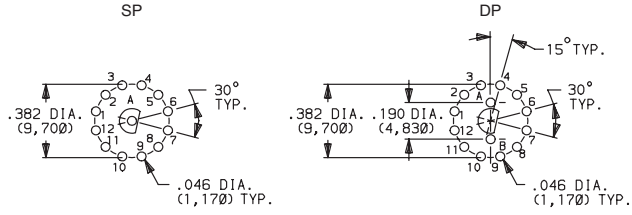
PANEL MOUNTING



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".

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

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

Actuators and schematics shown in pos. 1.

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.
[2] STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, silver plated.
[3] MOVABLE CONTACTS: Non-shorting: Copper alloy, with gold plate over nickel plate, over silver plate.
[4] STATIONARY CONTACTS & ALL TERMINALS: Copper alloy, with gold plate over nickel plate over silver plate.

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

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

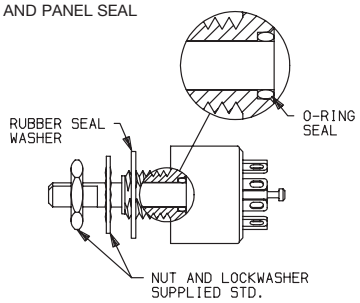
Third Angle Projection

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

SEAL

D NO EPOXY SEAL

F SPLASHPROOF SHAFT AND PANEL SEAL
IP67 approved



Setting Stops With Stop Pins

MA00, MB00, MC00 & MD00 Models Only:

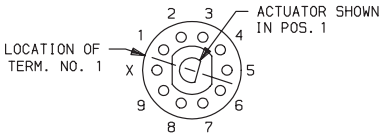
The number of switch positions or stops are adjustable by means of stop pins provided with each switch. Switches are normally shipped with stop pins and hardware in bulk, not installed. Without stop pins, switches have full 360° rotation and no stops. Note that all two pole models begin to repeat when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

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

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

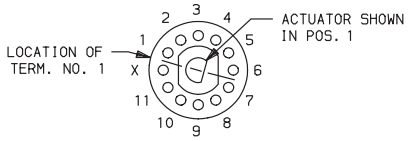
Hardware:

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



36° Indexing Models
Top View

Fig. 1



30° Indexing Models
Top View

Fig. 2

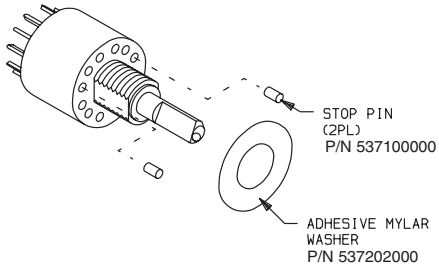


Fig. 3

Setting Stops With Stop Rings

ME00, MF00, MG00 & MH00 Models Only:

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

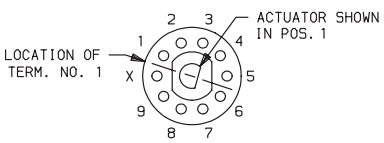
To set stops refer to figures 4 & 5. Orient switch so that terminal no. 1 is as shown. Turn actuator to pos. 1 using flats on bushing
and terminal no. 1 as reference. See figure 6 and install inner stop ring with short tab in hole designated 'X'. Install outer stop ring with long tab in hole number corresponding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

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

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

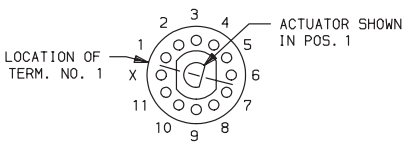
Hardware:

Two stop rings, mounting nut and lockwasher supplied standard.



36° Indexing Models
Top View

Fig. 4



30° Indexing Models
Top View

Fig. 5

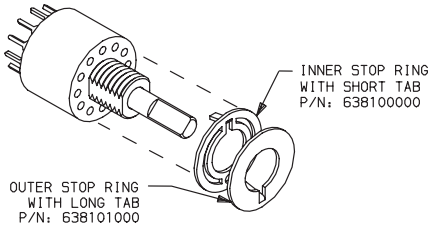


Fig. 6

R Series
ROTA-SLIDE® Rotary Switches



Models Available

Features/Benefits

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

Typical Applications

- *Ceiling fans*
- *Industrial equipment*
- *Portable tools*

Specifications

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

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

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

INSULATION RESISTANCE: 10^9 Ω min.

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

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

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

Materials

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

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

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

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

TERMINAL SEAL: Epoxy.

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

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

Build-A-Switch

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



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

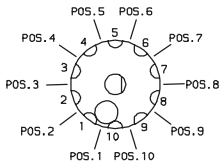
Seal
NONE No seal
E Epoxy seal

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

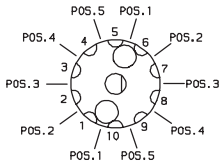
All models cULus with all options when ordered with 'Q' contact material.

SP MODELS 36° INDEXING SCHEMATIC

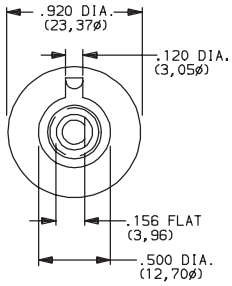


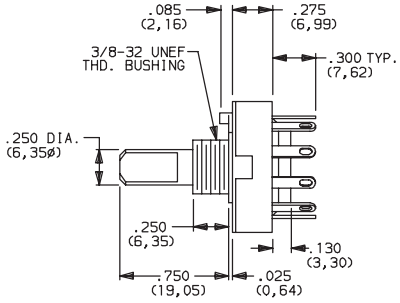
DP MODELS 36° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
DP	R203	3 Position	10-1-2-3,5-6-7-8
	R204	4 Position	All Terminals
	R205	5 Position	All Terminals

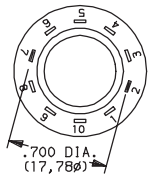
DP MODELS 36° INDEXING SCHEMATIC



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





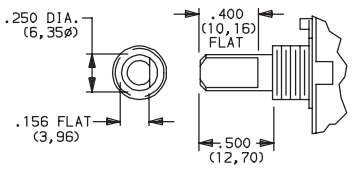


TERM. NOS.
MOLDED ON HOUSING

Part number show: R10007RR03Q

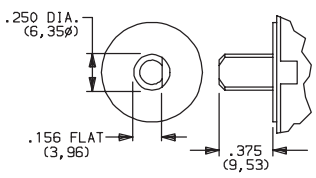
ACTUATOR

07 .50019" HIGH WITH .156" FLAT



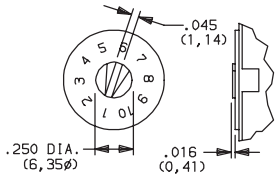
Shown with 'RR' mounting style.
For mounting styles without bushing, add .250 (6,35) to actuator length.

05 .375"19 HIGH WITH .156" FLAT



Shown with 'RN' mounting style.

15 SCREWDRIVER SLOT



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

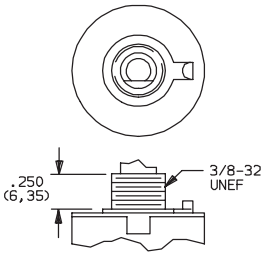
Third Angle Projection

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

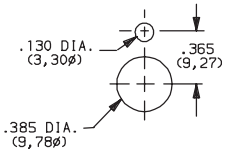
R Series
ROTA-SLIDE® Rotary Switches

MOUNTING STYLE

RR 3/8-32 THREADED BUSHING

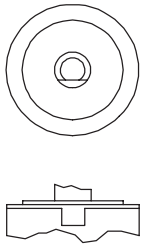


PANEL MOUNTING

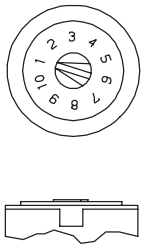


Mounting nut included (part number 175000100).

RN PC WITHOUT BUSHING



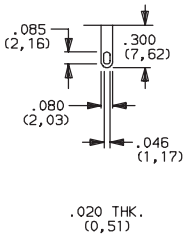
RS PC SCREWDRIVER SLOT WITHOUT BUSHING



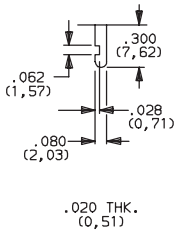
Position numbers and characters are molded on housing.

TERMINATIONS

03 SOLDER LUG WITH HOLE

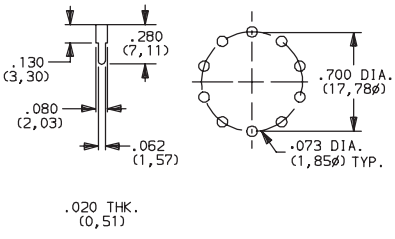


01 SOLDER LUG WITH NOTCH

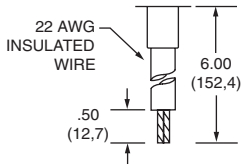


02 PC THRU-HOLE

PC MOUNTING



WC WIRE LEAD



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.)

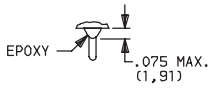
NOTE: Any models supplied with Q, B or G contact material are RoHS compliant.

All models cULus 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

Features/Benefits

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

Typical Applications

- *Small appliances*
- *Testing fixtures*
- *Safety equipment*



Models Available

Specifications

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

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

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

INSULATION RESISTANCE: 10^9 Ω min.

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

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

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

Materials

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

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

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

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

CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Brass, nickel plated.

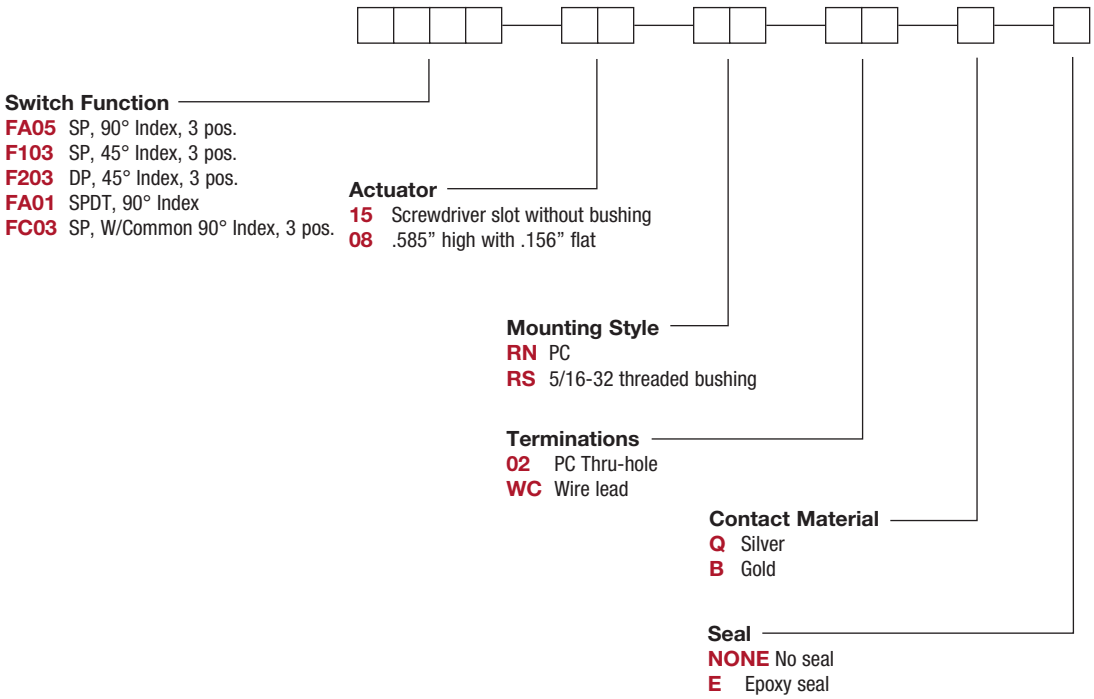
TERMINAL SEAL: Epoxy.

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

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

Build-A-Switch

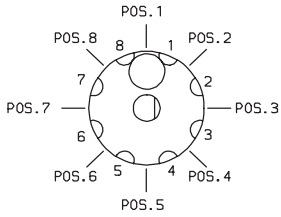
To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages K-22 thru K-24. For additional options not shown in catalog, consult Customer Service Center.



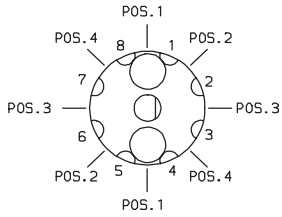
SWITCH FUNCTION

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

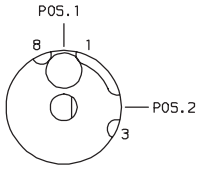
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

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

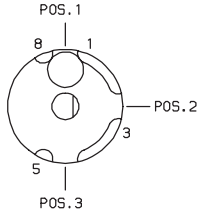
NOTE: *Switches with '02' PC terminations have additional terminal no. 5 as switch support only. This terminal is not connected electrically inside switch.

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

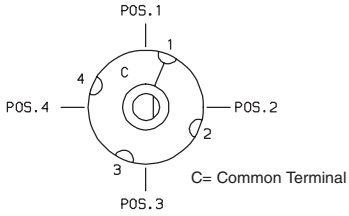
90º INDEXING SCHEMATICS



FA01 MODEL



FA05 MODEL



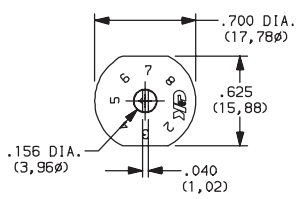
FCXX MODEL

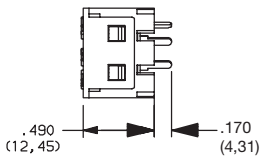
Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators are shown in position 1.

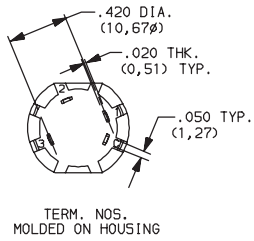
FAXX models: No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

FCXX models: Common terminal is present.

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







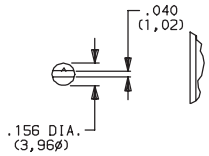
Part number show: FC0315RN02Q

Third Angle Projection

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

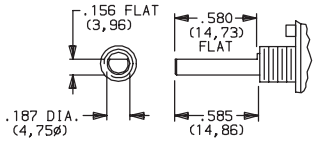
ACTUATOR

15 SCREWDRIVER SLOT WITHOUT BUSHING



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

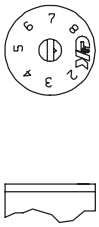
08 .585" HIGH WITH .156" FLA



Must be ordered with 'RS' mounting style.

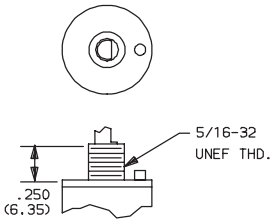
MOUNTING STYLE

RN PC



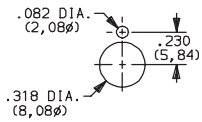
PC mount, no bushing, position numbers molded standard. Shown with '15' actuator; not available with '08' actuator or FCXX models.

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.

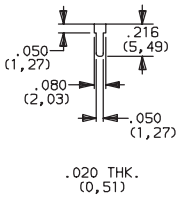
PANEL MOUNTING



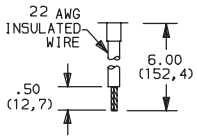
5/16 IN. BUSHING

TERMINATIONS

02 PC THRU-HOLE

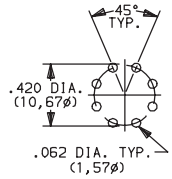


WC WIRE LEAD



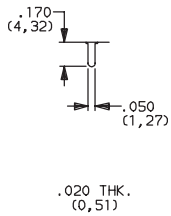
Black wire standard, other colors and lengths available, consult Customer Service Center. UL style 1015.

PC MOUNTING



F1XX, F2XX & FAXX Models

02 PC THRU-HOLE



FCXX Models

Third Angle Projection

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

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).

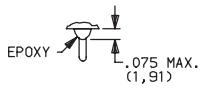
NOTE: Any models supplied with Q or B contact material are RoHS compliant.

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

SEAL

NONE NO SEAL

E EPOXY SEAL



Not available on FCXX models.

Third Angle Projection

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

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***



c UL us

Models Available

Specifications

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

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

INSULATION RESISTANCE: 10^9 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

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

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

Materials

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

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

CONTACTS & TERMINALS: Copper, silver plated.

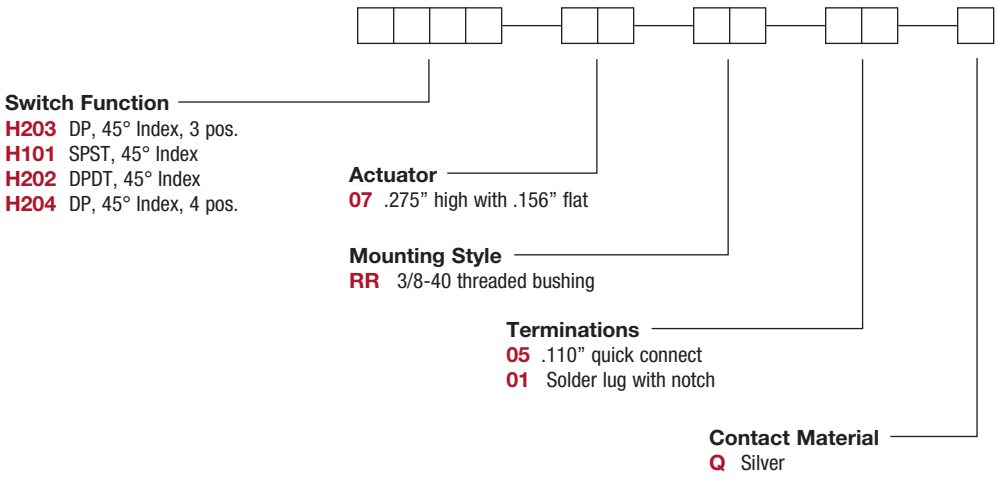
CONTACT SPRING: Music wire or stainless steel.

MOUNTING NUT: Steel, zinc plated.

TERMINAL SEAL: Epoxy.

Build-A-Switch

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



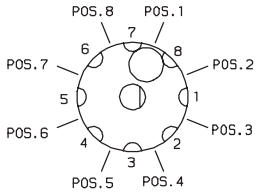
H Series
Power ROTA-SLIDE® Rotary Switches

SWITCH FUNCTION

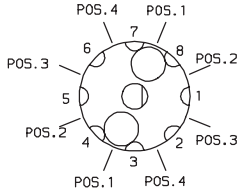
SP MODELS 45° INDEXING			
NO. POLES	MODEL NO.	SWITCH FUNCTION	TERMINALS
SP	H101	SPST	8-1

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

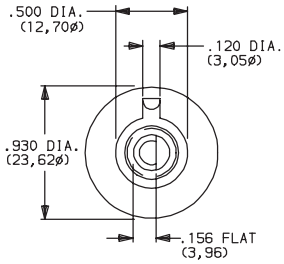


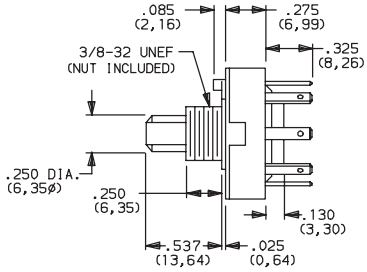
DP MODELS 45° INDEXING SCHEMATIC

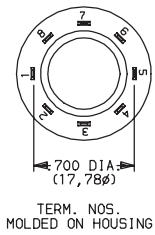


NOTE: Break-before-make contacts. Terminal numbers are molded on bottom of housing. Actuators and contacts are shown in position 1. No common terminal is present. Switching function is provided by movable contacts shorting adjacent pairs of stationary contacts.

All models cULus with all options.



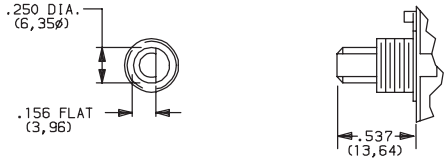




Part number shown: H10107RR05Q

ACTUATOR

07 .275" HIGH WITH .156" FLAT



Third Angle Projection

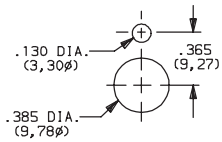
Dimensions are shown: Inch (mm)
Specifications and dimensions subject to change

MOUNTING STYLE

RR 3/8-32 THREADED BUSHING



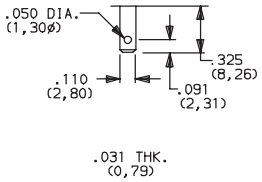
PANEL MOUNTING



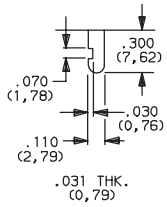
Mounting nut included (part number 925C00000).

TERMINATIONS

05 SOLDER LUG WITH HOLE



01 SOLDER LUG WITH NOTCH



Not available on models with 90° indexing.

CONTACT MATERIAL

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

* 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 cULus with all options.

Third Angle Projection

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

RW Series
Sub-miniature Rotary Switches



Features/Benefits

- *8 and 10 positions*
- *SMT version*
- *Subminiature design*

Typical Applications

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

How To Order

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

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

PART NUMBER	PACKAGING
RW-108 NS RT	800 pieces per reel



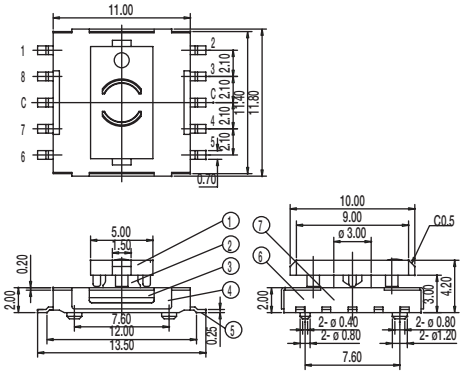
Specifications

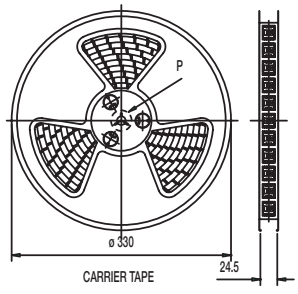
CONTACT ARRANGEMENT: 1 Pole 8 Position
CONTACT RATING: 0.1 A @ 16 V DC.
ELECTRICAL LIFE: 10,000 cycles.
INITIAL CONTACT RESISTANCE: 100 mΩ max.
INSULATION RESISTANCE: 10M Ω min.
DIELECTRIC STRENGTH: 100V (50-60 Hz).
TWIST FORCE: 150 ± 100 gf
OPERATING TEMPERATURE: -20ºC to 70ºC

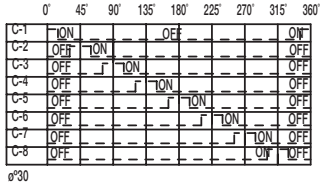
Materials

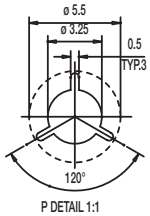
KNOB: PA (UL 94V-0).
COVER: SUS
HOUSING: PA (UL94V-0)
TERMINAL: Silver plated

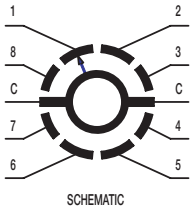
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

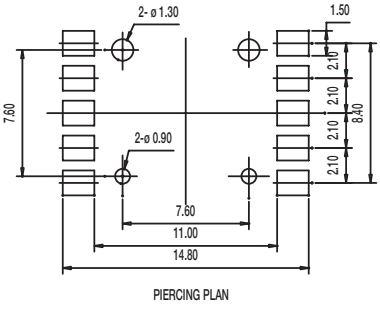


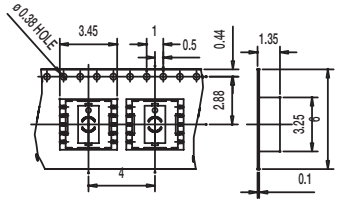




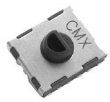








PART NUMBER	PACKAGING
RW-1106-NS RT	2,000 pieces per reel



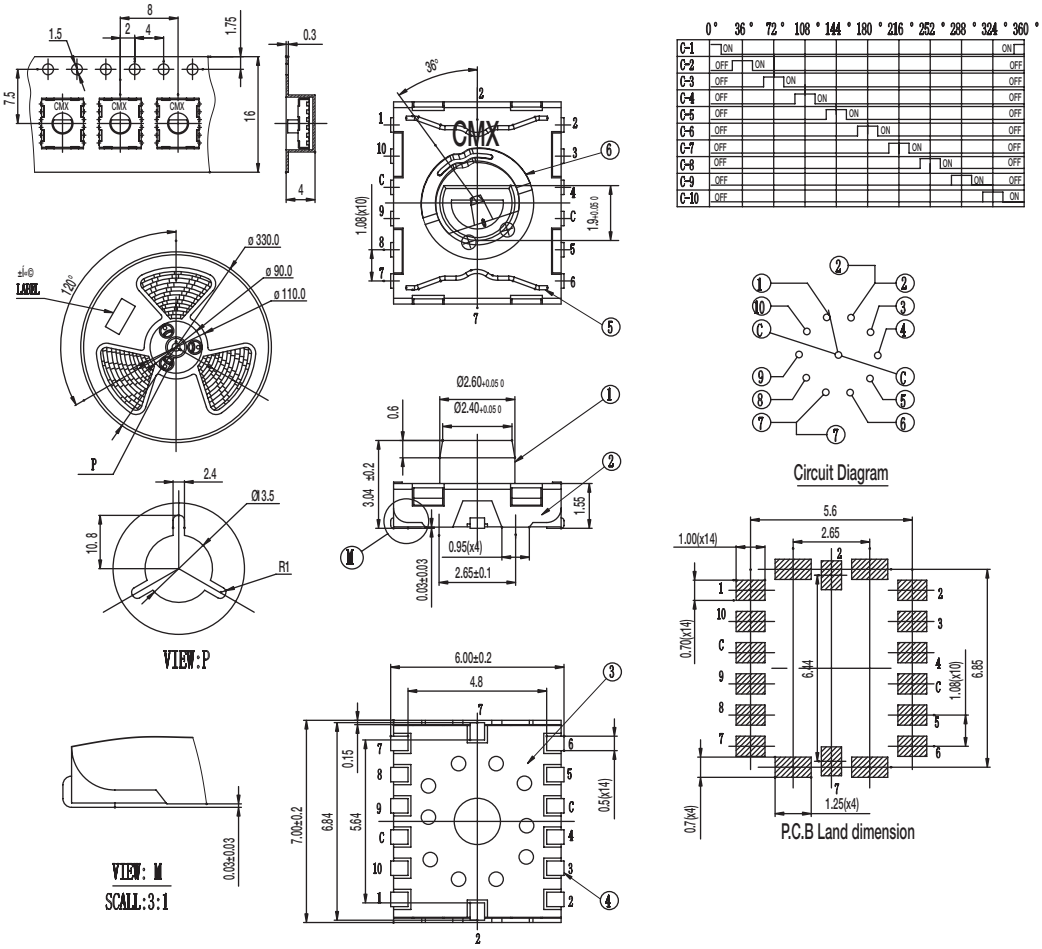
Specifications

CONTACT ARRANGEMENT: 1 Pole, 10 Position
CONTACT RATING: 10 mA @ 5 V DC.
ELECTRICAL LIFE: 7,000 cycles.
INITIAL CONTACT RESISTANCE: 200 mΩ max.
INSULATION RESISTANCE: 250M Ω min.
DIELECTRIC STRENGTH: 250 VAC (50-60 Hz).
TWIST FORCE: 90 ± 15 gf
OPERATING TEMPERATURE: -30°C to 80°C

Materials

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

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



RM Series
Subminiature Rotary Switches



Features/Benefits

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

Typical Applications

- ***Audio & visual equipment***
- ***Consumer electronics***
- ***Telecom equipment***

Specifications

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

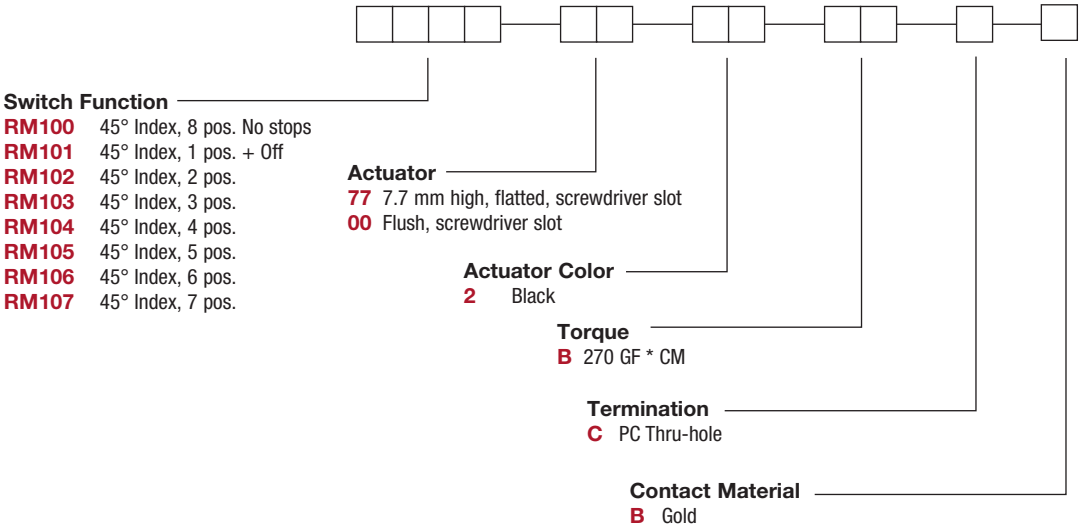
Materials

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

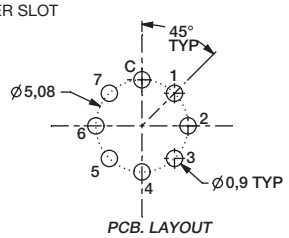
NOTE: Specifications and materials listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

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

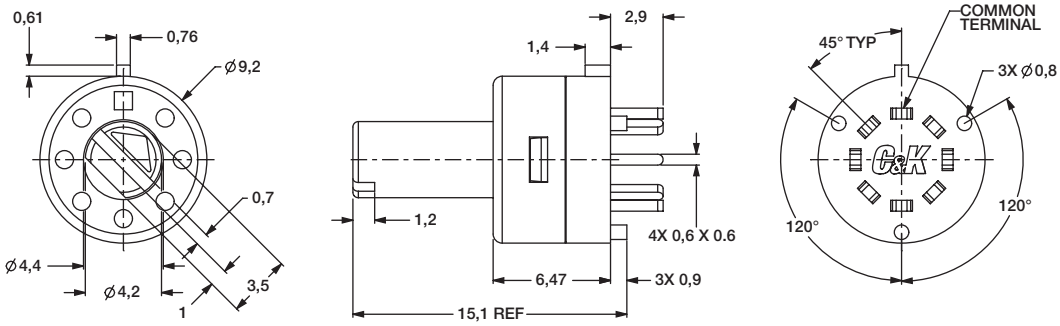


77 7.7 MM HIGH, FLATTED, SCREWDRIVER SLOT



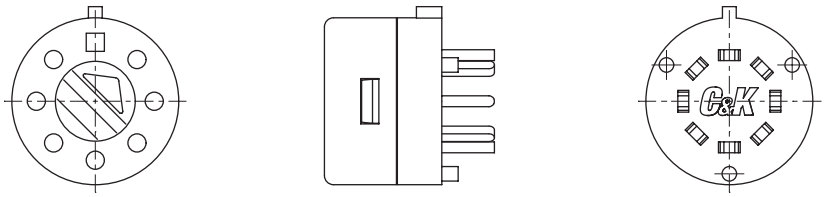
PCB. LAYOUT

EXTENDED ACTUATOR



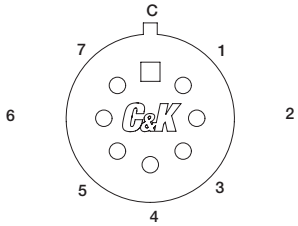
00 FLUSH, SCREWDRIVER SLOT

FLUSH ACTUATOR



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

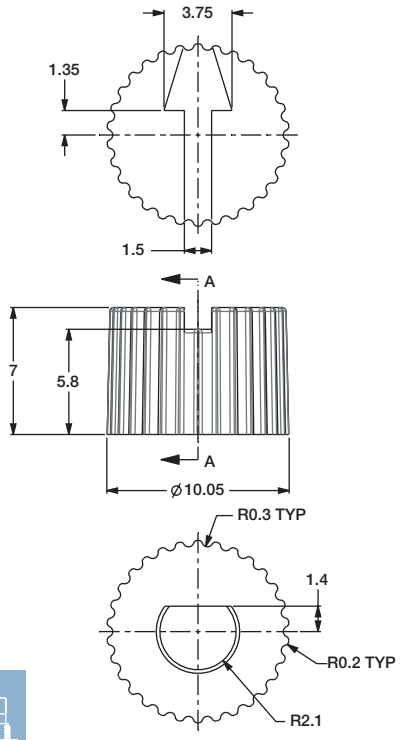
TERMINAL ID NUMBERS ARE SHOWN FOR REFERENCE ONLY AND ARE NOT MARKED ON BOTTOM OF THE SWITCH



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

KNOBS

297F02000



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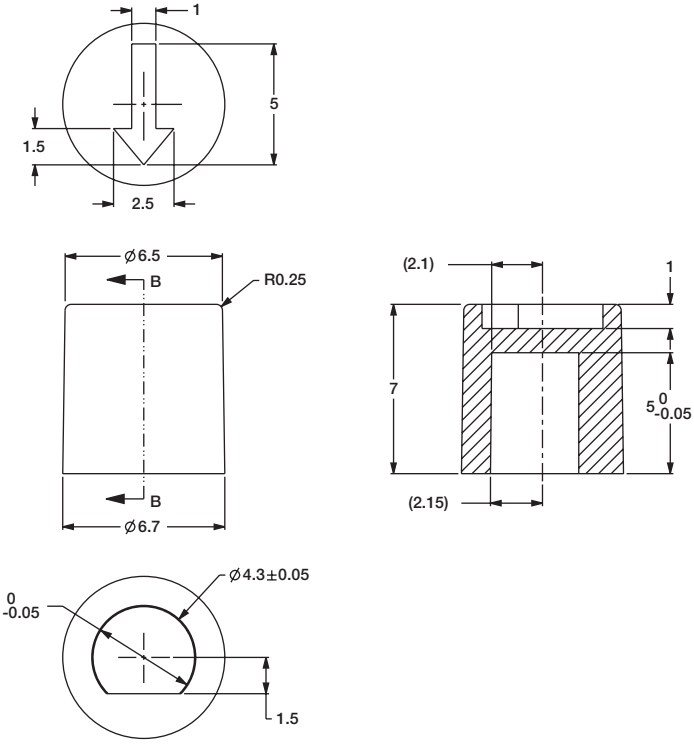


ENC Series
Optical Encoder

NEW



Features/Benefits

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

Typical Applications

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

Specifications

ROTARY
ELECTRICAL & MECHANICAL
OPERATING VOLTAGE: DC 5 ± 0.25V, 30mA max.
OUTPUT VOLTAGE: Logic high > 3V DC
Logic low < 1V DC
ROTATIONAL TORQUE: 265 gf-cm initially
MECHANICAL LIFE: 300K cycles

PUSHBUTTON
ELECTRICAL & MECHANICAL
OPERATING VOLTAGE: DC 5V, 10mA
INITIAL CONTACT RESISTANCE: 10 ohm max.
ACTUATION FORCE: 600 ± 20% gf
SHAFT TRAVEL: 0.74 ± 0.2mm
CONTACT BOUNCE: < 4ms make, < 10ms break
MECHANICAL LIFE: 300K cycles

Environmental Data

OPERATING TEMPERATURE: -40°C to +90°C
OPERATING RELATIVE HUMIDITY: <= 96% RH, +40°C
STORAGE TEMPERATURE: -40°C to +90°C

Materials

ACTUATOR: Zinc Alloy
HOUSING FRAME: Zinc Alloy
DETENT ROTOR: POM, HB
DETENT SPRING: SUS
HOUSING UPPER: PA66, V0
HOUSING LOWER: POM, HB
PUSHBUTTON DOME: SUS

Build-A-Switch

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

E	N	C	O	S			D	2	S	6	5	

Series
ENC Series encoder

Type
OS Optical model S (STD)

Positions
16 16 position or 22.5°
24 24 position or 15°

Detent
D2 265gf*cm torque

Switch
S6 Switch 6N op force

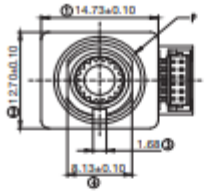
Operating Voltage
5 5V

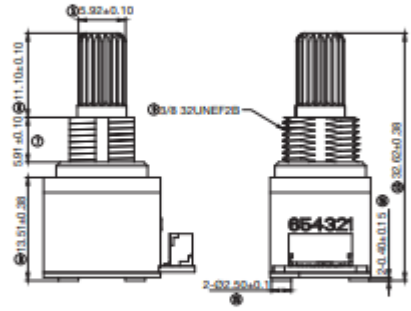
Terminations
C Connector
R Right angle connector

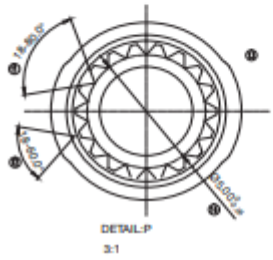
ENC Series
Optical Encoder

NEW

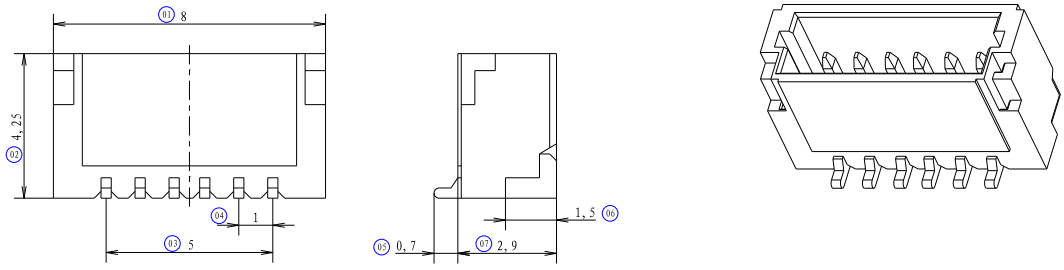
PART NUMBER	PACKAGING
ENCOS16D2S65C	Tray





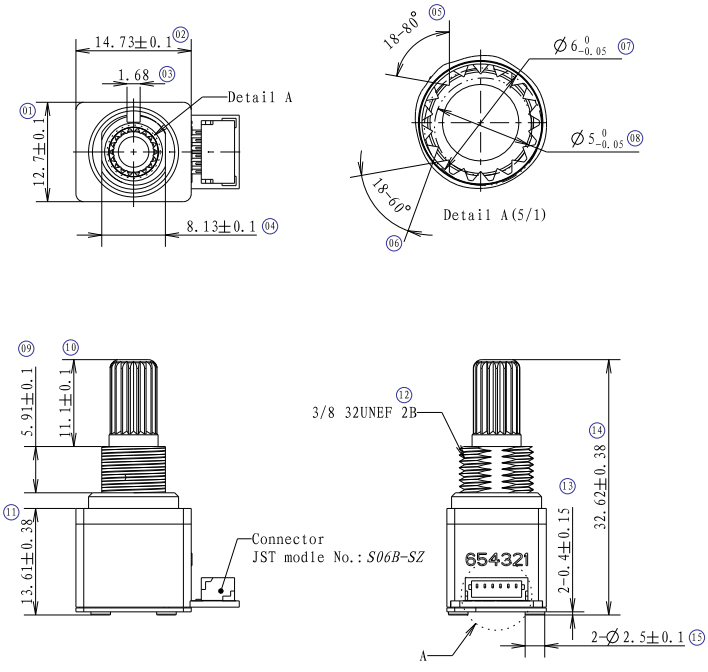


Header Socket



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

PART NUMBER	PACKAGING
ENCOS24D2S65R	Tray



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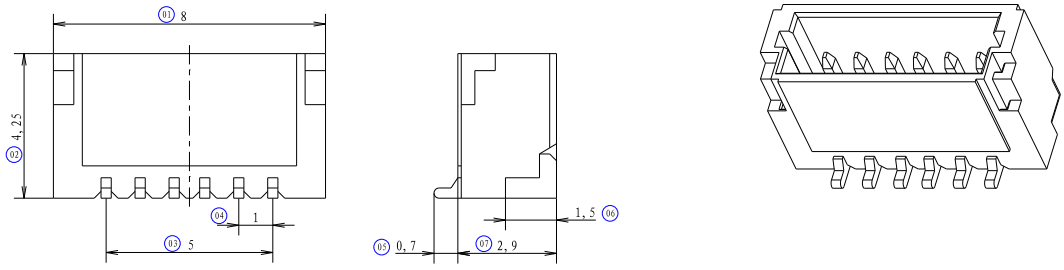


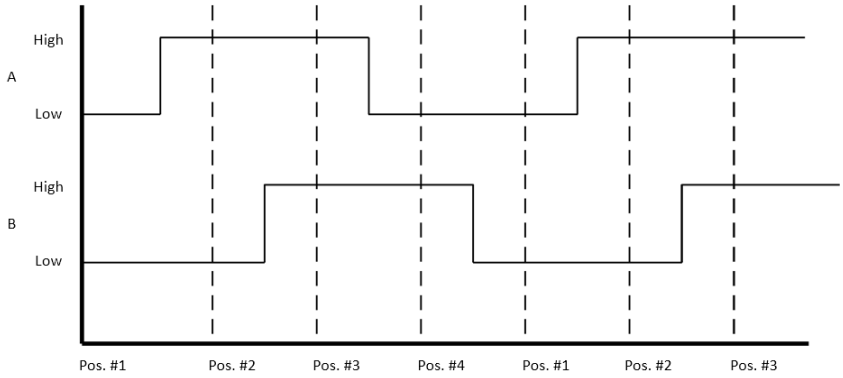
* Note: Recommended connector is JST 06SR-3S

OPERATING CHARACTERISTICS

Output Logic Levels & Voltage by Position

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

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



Pinout Order & Function

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

