General Specifications

Electrical Capacity (Resistive Load)

For MRX: 2A @ 125V AC or 1A @ 30V DC

For MRY: For MRY106G: 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: See Supplement Index to find explanation of operating range.
For all other MRY models: 3A @ 125V AC or 2A @ 30V DC

For MRT: For MRT22: 10A @ 125V AC or 4A @ 30V DC
For MRT23: 5A @ 125V AC or 3A @ 30V DC

Other Ratings

Contact Resistance: 10 milliohms maximum for MRX, MRY, & MRT; 20 milliohms maximum for MRY106G

Insulation Resistance: 100 megohms minimum @ 500V DC for MRX & MRY
200 megohms minimum @ 500V DC for MRT

Dielectric Strength: 1,000V AC minimum for 1 minute minimum

Mechanical Life: 15,000 operations minimum

Electrical Life: 7,500 operations minimum

Range of Operating Torque: 0.03 ~ 0.15Nm for MRX; 0.02 ~ 0.10Nm for MRY; 0.02 ~ 0.05Nm for MRT

Contact Timing: Nonshorting (break-before-make)
MRX: Self-cleaning, sliding contact; MRY: Rotary contactor dish; MRT: Butt contacts

Indexing: 45° for MRX; 60° for MRY; 120° for MRT22; 60° for MRT23

Materials & Finishes

Shaft: Brass with nickel plating

Stopper Plate: Steel with zinc plating for MRX & MRY

Bushing/Housing: Brass with nickel plating

Movable Contacts: Silver alloy for MRX & MRT; copper with silver plating for MRY106;
copper with gold plating for MRY106G

End Contacts & Terminals: Silver alloy & copper with silver plating for MRX & MRT; silver alloy plus brass with silver plating for MRY106; silver alloy with gold plating for MRY106G

Common Contacts & Terminals: Copper with silver plating for MRX, MRY106 & MRT22; brass with gold plating for MRY106G; brass with silver plating for MRT23

Base: Phenolic resin

Environmental Data

Operating Temperature Range: –10°C through +70°C (+14°F through +158°F)

Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)

Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours

Shock: 50G (490m/s^2) acceleration (tested in 3 right angled directions, with 3 shocks in each direction)

Installation

Mounting Torque: .686Nm (6.08 lb•in)

Cap Installation Force: 19.6 ~ 29.4N (4.41 ~ 6.61 lbf)

Soldering Time & Temperature: Manual Soldering: See Profile A in Supplement section.

Standards & Certifications

UL: **File No. E44145 - Recognized only when ordered with marking on switch.**
Add "/U" or "/CUL" before dash in part number to order UL recognized switch.
MRT22 models recognized at 10A @ 125V AC; MRT23 models recognized at 5A @ 125V AC

Distinctive Characteristics

Positive detent mechanism for distinct feel and audible feedback.

Metal bushing and housing construction increases durability.

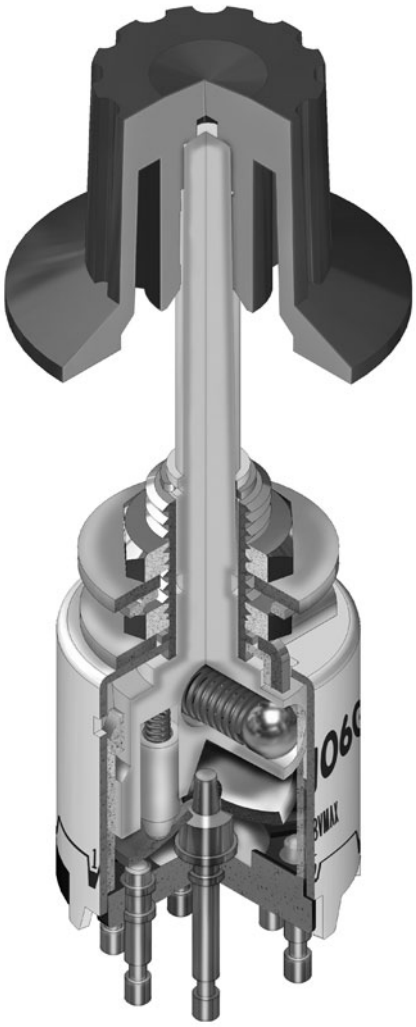
Adjustable stopper plate allows 2-8 position settings.

High contact reliability achieved by the self-cleaning contact mechanism.

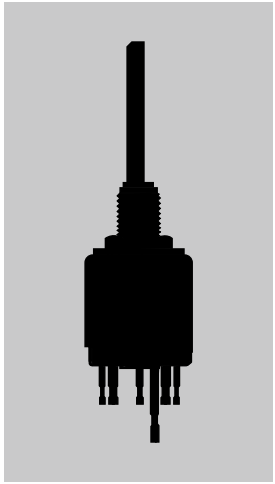
Break-before-make contact timing with various mechanism types: sliding contacts in MRX, contactor dish in MRY, and butt contacts in MRT models.

Terminal types include PC-turret for MRX, turret for MRY, and solder lug for MRT models.

Molded-in PC-turret and turret terminals prevent entry of flux and other contaminants.



Actual Size



TYPICAL SWITCH ORDERING EXAMPLE

MR [X] [108] — [A] [ ]

Actuators & Terminals

X	Shaft Actuated with PC-Turret Terminals
Y	Shaft Actuated with Turret Terminals
T	Shaft Actuated with Solder Lug Terminals *

Poles & Circuits

108	SP with 2-8 Positions
204	DP with 2-4 Positions
402	4P with 2 Positions
106	SP with 2-6 Positions
106G	SP with 2-6 Positions Gold Contacts 0.4VA
22	DPDT ON-NONE-ON
23	DPDT ON-OFF-ON

Knobs

A	Plain Black
B	Small Color Tipped
C	Large Color Tipped

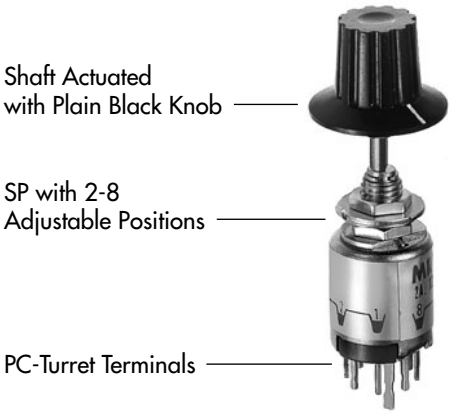
Colors

For Plain Knob	
No Code	Black
For Color Tipped	
A	Black
B	White
C	Red
E	Yellow
F	Green
G	Blue
H	Gray

* Wire harness & cable assemblies offered only in Americas

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

MRX108-A

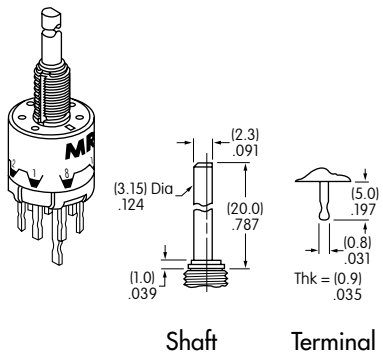


IMPORTANT:

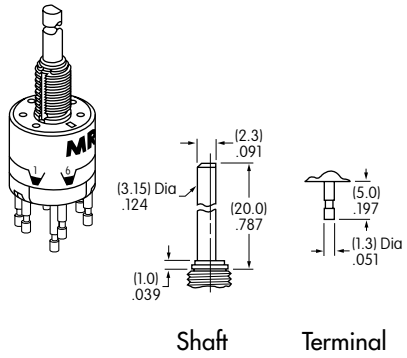
MRT Switches are supplied without UL & cULus marking unless specified. **UL & cULus recognized only when ordered with marking on the switch.** Specific models, ratings, & ordering instructions are noted on General Specifications page.

ACTUATORS & TERMINALS

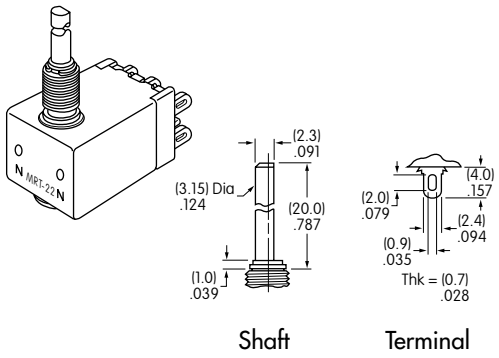
X Shaft Actuated with PC-Turret Terminals



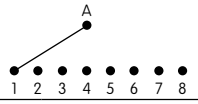
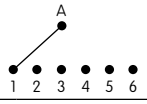
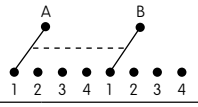
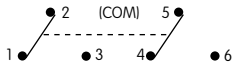
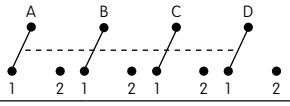
Y Shaft Actuated with Turret Terminals



T Shaft Actuated with Solder Lug Terminals



POLES & CIRCUITS

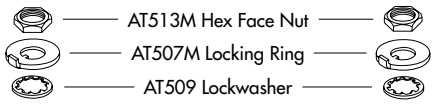
Pole	Model	Number of Positions	Stopper Settings	Number of Terminals	Schematics
SP	**MRX108**	2-8	2, 3, 4, 5, 6, 7, 8	1 COM, 8 LOAD	
	MRY106 **MRY106G**	2-6	2, 3, 4, 5, 6	1 COM, 6 LOAD	
DP	**MRX204**	2-4	2, 3, 4	2 COM, 8 LOAD	
DPDT	**MRT22**	2	ON-NONE-ON	2-3 2-1 5-6 5-4	
	MRT23	3	ON-OFF-ON	2-3 OPEN 2-1 5-6 OPEN 5-4	
4P	**MRX402**	2	1 & 2	4 COM, 8 LOAD	

POSITION SETTING FOR MRX & MRY MODELS

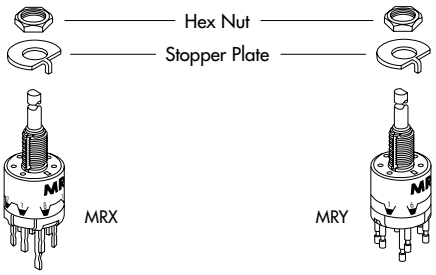
Each switch is supplied with the stopper set for the maximum number of positions allowed for that model. Prior to installation, the desired position setting should be made. Contact factory for continuous rotation.

1. Using the actuator knob, turn the shaft counterclockwise to the extreme left. If the shaft is not turned to this extreme position where the white line on the knob points to the number 1 position shown on the side of the switch, proper setting cannot be achieved.
2. Remove the knob from the shaft and loosen the nut far enough to allow raising the stopper plate for resetting to the desired position.
3. Note the position numbers on the side of the switch; these correspond to the terminal numbers and stopper holes. Insert the stopper in the hole numbered for the maximum desired number of stop settings. Satisfactory switch functioning cannot be assured if the stopper plate is not properly positioned.
4. Tighten the nub (beveled side up) firmly against the stopper plate.

Mounting Hardware
Packaged Loose with Each Switch

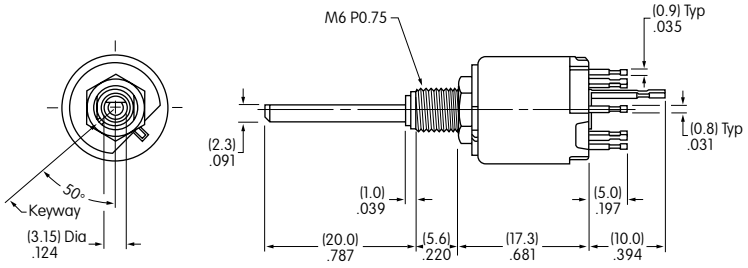


Factory Assembled:

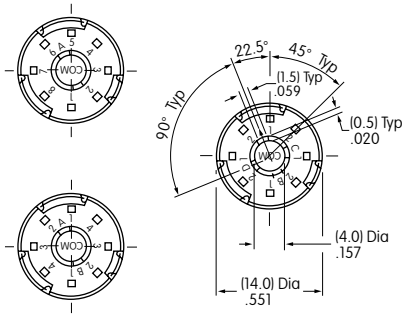


TYPICAL SWITCH DIMENSIONS

Single, Double & Four Pole



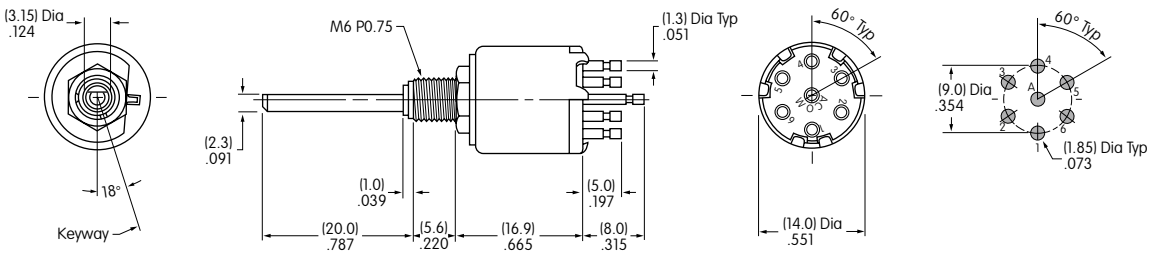
MRX • PC-Turret Terminals



MRX108

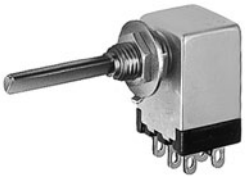
TYPICAL SWITCH DIMENSIONS

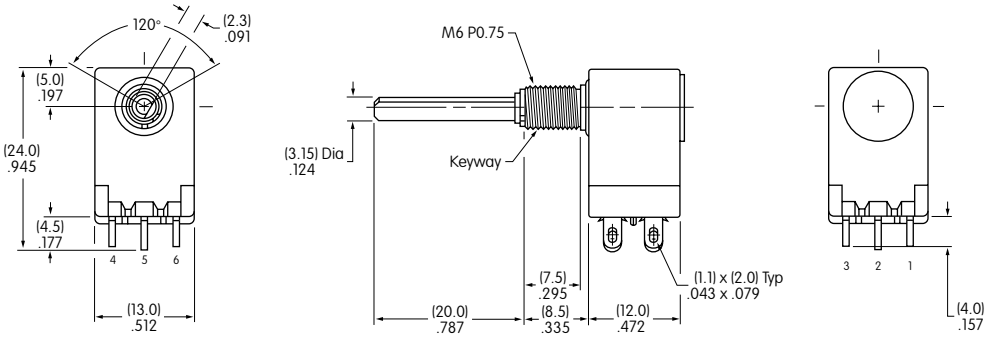
MRY • Turret Terminals — Single Pole



MRY106

MRT • Solder Lug Terminals — Double Pole

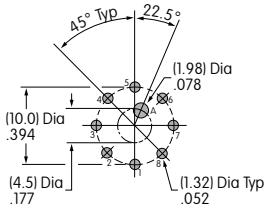




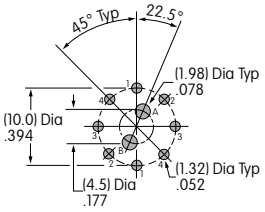
MRT22

PC FOOTPRINTS FOR MRX SINGLE, DOUBLE, & FOUR POLE

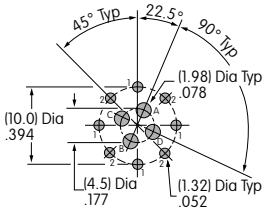
Single Pole



Double Pole

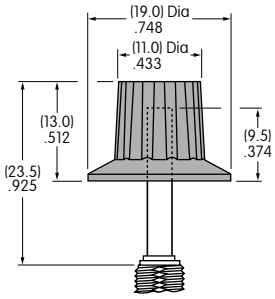


Four Pole



KNOBS

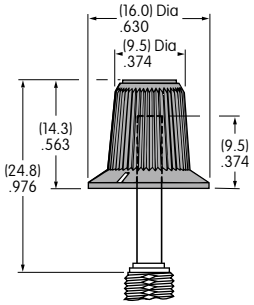
A **AT433**
Plain Black



Material: Polyacetal

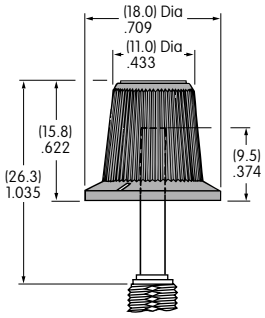
Color: Black only

B **AT4103 Small**
Color Tipped



Base Material: Polyester
Base Color: Black
Polyamide Tip
Colors: A, B, C, E, F, G, H

C **AT4104 Large**
Color Tipped

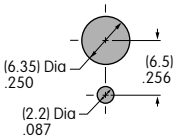


Base Material: Polyester
Base Color: Black
Polyamide Tip
Colors: A, B, C, E, F, G, H

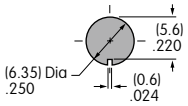
Color Codes: **A** Black **B** White **C** Red **E** Yellow **F** Green **G** Blue **H** Gray

PANEL CUTOUTS & MAXIMUM EFFECTIVE PANEL THICKNESS

Without Keyway



With Keyway



Maximum Effective Panel Thickness

With Standard Hardware: MRX & MRY .095" (2.4mm); MRT .106" (2.7mm)

Without Locking Ring: MRX & MRY .126" (3.2mm); MRT .138" (3.5mm)

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

NKK Switches:

MRT23-RO MRY106G-A-RO MRX108-A-RO MRX402-BB-RO MRT23-A-RO MRX108-BH-RO MRX108-BC-RO MRT22-RO MRX204-BG-RO MRX108-BB-RO MRX204-CF-RO MRX204-BB-RO MRX204-BH-RO MRX402-CC-RO MRX108-BA-RO MRX108-BG-RO MRX402-A-RO MRX402-CA-RO MRX204-CE-RO MRT22-A-RO MRX204-A-RO MRX204-RO MRY106-BC-RO MRY106-RO