

Distinctive Characteristics

Industry's first miniature snap-in, lighted rocker switch.

Actuators in various styles operate with firm, well-defined movements.

Interlocking actuator prevents switch failure due to jamming or window locking.

Two bezel sizes adapt to varied panel cutouts.

Unique stainless steel retaining clips securely hold switches over a range of panel thicknesses, even when exposed to vibration.

Space conserving front panel mounting with minimum behind panel dimension of .902" (22.9mm).

Durable stainless steel housing prevents corrosion.

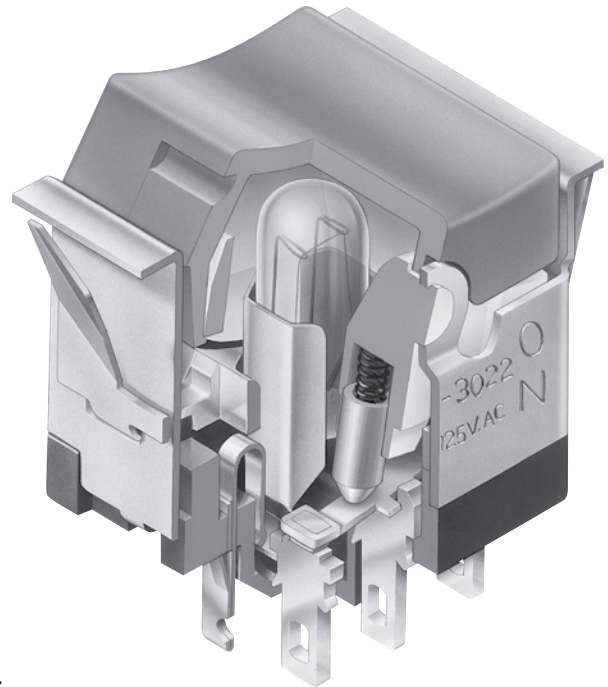
Isolated lamp circuit for incandescent, LED, and neon lamps.
Front panel relamping.

Built-in protective cover shields contacts from dust.

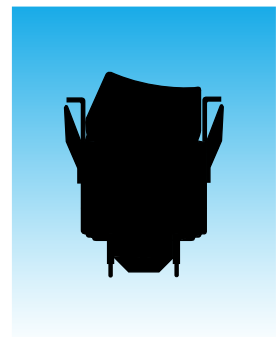
Epoxy sealed solder lug terminals lock out flux, dust, and other contaminants.

Extended lamp terminal for ease of wiring.

Matching indicators available and shown at end of section M.



Actual Size



General Specifications

Electrical Capacity

Power Level: 5A @ 125V AC, 3A @ 250V AC, & 3A @ 30V DC;

Other Ratings

Contact Resistance: 10 milliohms maximum
Insulation Resistance: 200 megohms minimum @ 500V DC
Dielectric Strength: 1,000V AC minimum between contacts for 1 minute minimum;
 1,500V AC minimum between contacts & case for 1 minute minimum
Mechanical Life: 30,000 operations minimum
Electrical Life: 10,000 operations minimum
Nominal Operating Force: 9.94N for rockers & 4.41N for paddles
Angle of Throw: 24° for On-None-(On); 28° for all other circuits

Materials & Finishes

Housing: Stainless steel
Movable Contacts: Silver alloy
Stationary Contacts: Silver
Base: Phenolic resin
Common Terminal: Copper with silver plating
End Terminals: Copper with silver plating
Lamp Terminals: Phosphor bronze with nickel plating

Environmental Data

Operating Temperature Range: -10°C through +50°C (+14°F through +122°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/s²) acceleration (tested in 3 right angled directions, with 3 shocks in each direction)

Installation

Cap Installation Force: 9.80N (2.2 lbf) for rockers;
 19.61N (4.4 lbf) for paddle
Soldering Time & Temperature: Manual Soldering: See Profile A in Supplement section.

Standards & Certifications



UL Recognized: All models recognized at 5A @ 125V AC & 3A @ 250V AC;
 UL File No. WOYR2.E44145



C-UL Recognized: All models recognized at 5A @ 125V AC & 3A @ 250V AC;
 C-UL File No. WOYR8.E44145
 Add "/C-UL" to end of part number to order C-UL mark on switch

TYPICAL SWITCH ORDERING EXAMPLE

MLW30 — 2 — 5 — 12 — DC — 1A

POLES	
1	SPDT
2	SP3T DPDT

CIRCUITS			
2	ON	NONE	ON
3	ON	OFF	ON
5	ON	NONE	(ON)
8	(ON)	OFF	(ON)
9	ON	OFF	(ON)
0	ON	ON	ON

() = Momentary

Incandescent & Neon Lamps	
00	No Lamp
06	6-volt
12	12-volt
18	18-volt
24	24-volt
28	28-volt
N	110-volt (not suitable with green & blue)

Double Element LED Colors	
C	Red
E	Yellow
F	Green

Rocker	
RA	Black
RB	White
RC	Red
RD	Orange
RE	Yellow
RF	Green
RG	Blue

Paddle	
PA	Black
PB	White
PC	Red
PD	Orange
PE	Yellow
PF	Green
PG	Blue

Design Rocker	
DB	White
DC	Red
DD	Orange
DF	Green
DG	Blue

LED Rocker	
LB	White
LC	Red
LE	Yellow
LF	Green

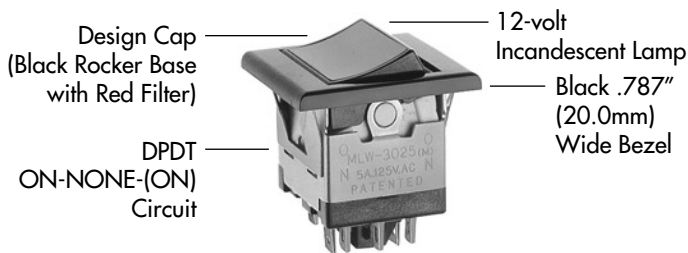
Sculptured Rocker	
SB	White
SC	Red
SE	Yellow
SF	Green

Standard	
1A	Black
1B	White
1C	Red
1D	Orange
1E	Yellow
1F	Green
1G	Blue
1H	Gray

Large	
2A	Black
2B	White
2C	Red
2D	Orange
2E	Yellow
2F	Green
2G	Blue
2H	Gray

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE







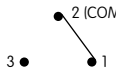
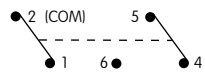
MLW3025-12-DC-1A



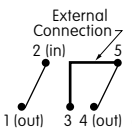
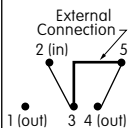
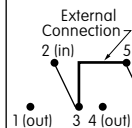
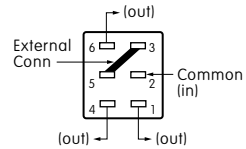
IMPORTANT:

Switches are supplied without UL & CSA markings unless specified. Specific models & ratings noted on General Specifications page.

POLES & CIRCUITS

Pole	Model	Rocker Position () = Momentary			Connected Terminals			Throw & Power/Lamp Schematics
		Up 	Center 	Down 	Up 	Center 	Down 	
SP	MLW3012 MLW3013 MLW3015 MLW3018 MLW3019	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) ON (ON)	2-1	OPEN	2-3	Notes: Terminal numbers are not actually on switch. Lamp circuit is isolated and requires an external power source. SPDT 
DP	MLW3022 MLW3023 MLW3025 MLW3028 MLW3029	ON ON ON (ON) ON	NONE OFF NONE OFF OFF	ON ON (ON) ON (ON)	2-1 5-4	OPEN	2-3 5-6	DPDT 

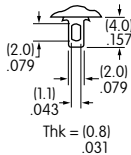
For 3 Throw (3-On)

Pole	Model	Up	Center	Down	Connected Terminals & Schematics			External Connection
SP	MLW3020	ON	ON	ON				The SP3T model utilizes a double pole base. External connection must be made during field installation. 
With External Connection					2-1	2-4	2-6	
Without External Connection					2-1 5-4	2-3 5-4	2-3 5-6	

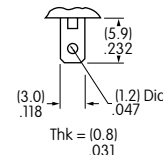
TERMINALS

Switch Terminals.

Center terminal is .020" (0.5mm) longer





Lamp Terminals



LAMP CODES & SPECIFICATIONS

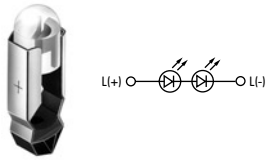
Electrical specifications are determined at a basic temperature of 25°C. Lamp circuit is independent of switch operation. For dimension drawings of lamps see Accessories & Hardware section. For neon, if the source voltage is greater than rated voltage, a ballast resistor is required. The ballast resistor calculation and more lamp detail are shown in the Supplement.

Incandescent & Neon Lamps for Solid & Design Caps

AT602 Incandescent	AT602N Neon	L(+) — O — L(-)	06	12	18	24	28	N
 		V	6V AC	12V AC	18V AC	24V AC	28V AC	110V AC
		I	80mA	50mA	35mA	25mA	22mA	1.5mA
		MSCP	.159	.215	.398	.215	.247	NA
		Endurance Hours	2,000 Average					15,000 Average
		Ambient Temperature Range	-10°C ~ +50°C					-10°C ~ +50°C
Recommended Resistor for Neon: 33K ohms for 110V AC; 100K ohms for 220V AC								
T-1 ½ Pilot Slide Base		00 No Lamp	Code 00 indicates that no lamp is used.					

LED COLOR CODES & SPECIFICATIONS

Double Element LED

AT622 LED 	Resistor value calculation is shown in the Supplement.	Color	C Red	E Yellow	F Green
	Forward Peak Current	I_{FM}	30mA	30mA	30mA
	Continuous Forward Current	I_F	20mA	20mA	20mA
	Forward Voltage	V_F	1.85V	4.2V	4.3V
	Reverse Peak Voltage	V_{RM}	5V	8V	8V
	Current Reduction Rate Above 25°C	ΔI_F	0.40mA/°C	0.32mA/°C	0.42mA/°C
	Ambient Temperature Range		-10°C ~ +50°C		

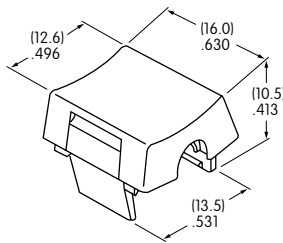
T-1 3/4 Pilot Slide Base

CAP TYPES & COLORS

For Incandescent or Neon Lamps

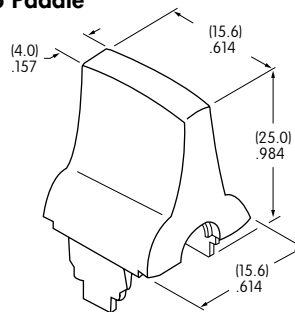
RA AT405 Rocker

- RB
- RE
- RC
- RF
- RD
- RG



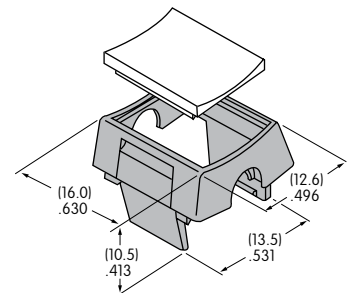
PA AT426 Paddle

- PB
- PE
- PC
- PF
- PD
- PG



DB AT438 Design Rocker

- DC
- DD
- DF
- DG



Material: Translucent Polycarbonate Standard Finish: Glossy
Black Rocker/Paddle not for use with lamp

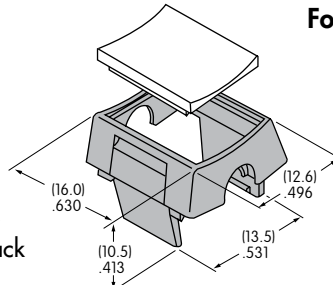
Translucent Colored Filter
Opaque Black Rocker Base

For LED

LB AT4125 LED Rocker

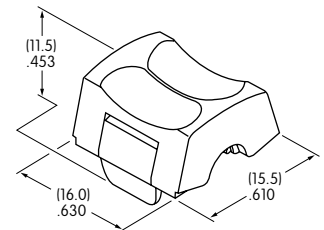
- LC
- LE
- LF

Translucent Colored Diffuser and Opaque Black Rocker Base



SB AT4127 Sculptured Rocker

- SC
- SE
- SF



Material: Translucent Polycarbonate Standard Finish: Glossy

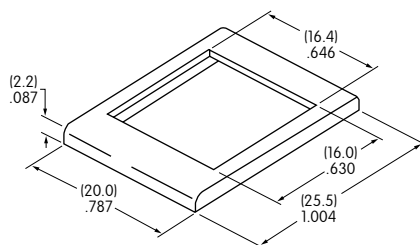
Color Codes:

- A** Black
- B** White
- C** Red
- D** Orange
- E** Yellow
- F** Green
- G** Blue

OPTIONAL BEZELS

AT204 Standard Bezel .787" (20.0mm) Wide

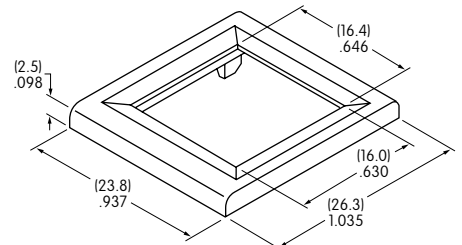
- 1A
- 1E
- 1B
- 1F
- 1C
- 1G
- 1D
- 1H



Material: Polycarbonate Standard Finish: Glossy

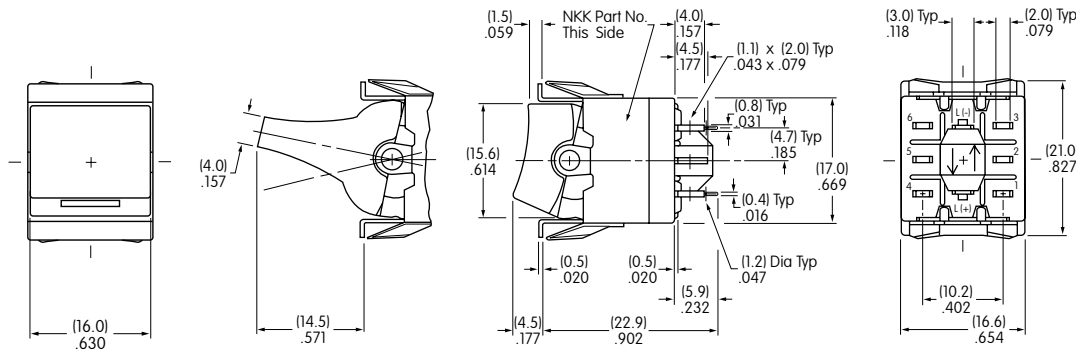
AT9201 Large Bezel .937" (23.8mm) Wide

- 2A
- 2E
- 2B
- 2F
- 2C
- 2G
- 2D
- 2H



Material: Polycarbonate Standard Finish: Glossy

TYPICAL SWITCH DIMENSIONS



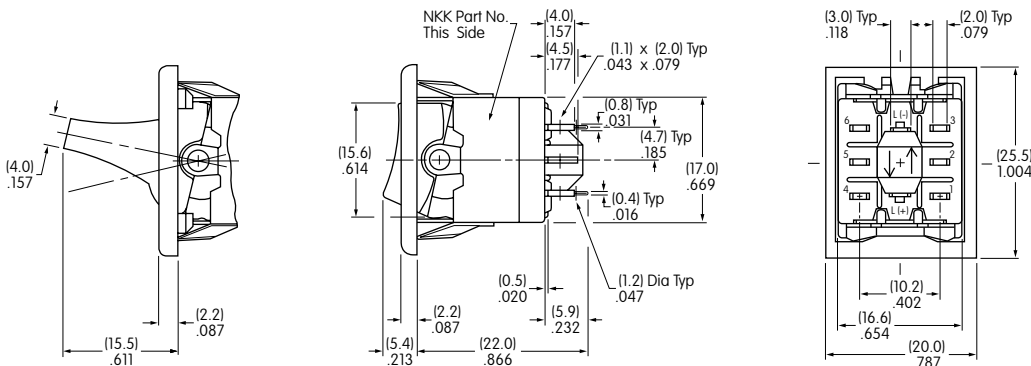
Actuator in UP position

Terminals 4, 5, & 6 are not on single pole models

Without Bezel
Single & Double Pole



MLW3022-12PC



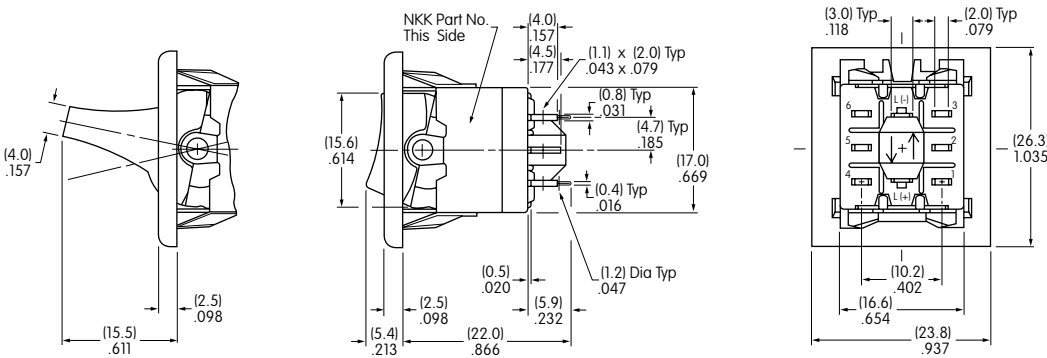
Actuator in UP position

Terminals 4, 5, & 6 are not on single pole models

Standard Bezel
Single & Double Pole



MLW3022-12RC-1A



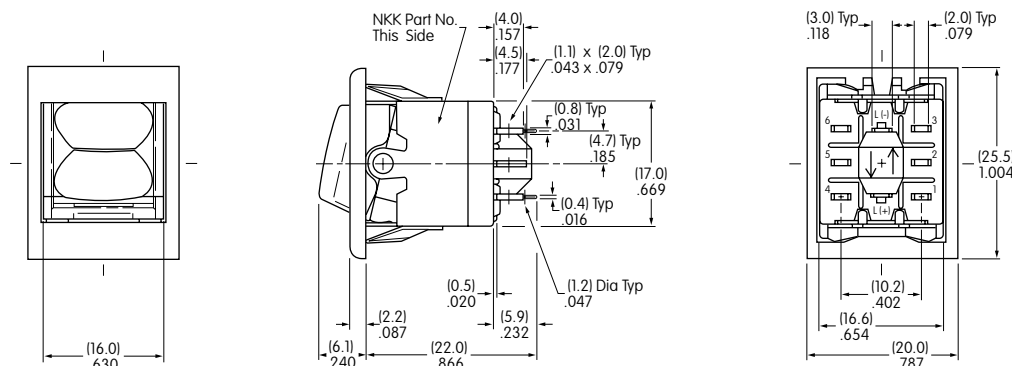
Actuator in UP position

Terminals 4, 5, & 6 are not on single pole models

Large Bezel
Single & Double Pole



MLW3022-12PC-2A



Actuator in UP position

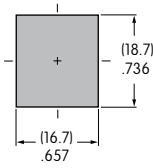
Terminals 4, 5, & 6 are not on single pole models

Sculptured Cap
Single & Double Pole

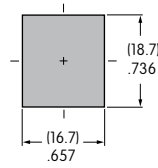


MLW3022-CSC-1A

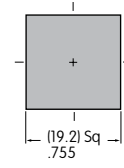
PANEL CUTOUTS & THICKNESSES



Without Bezel
.039" ~ .157" (1.0mm ~ 4.0mm)



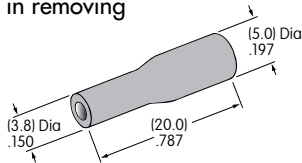
With Standard Bezel AT204
.039" ~ .118" (1.0mm ~ 3.0mm)



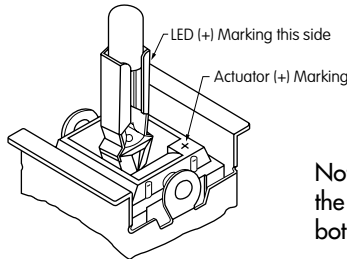
With Large Bezel AT9201
.039" ~ .118" (1.0mm ~ 3.0mm)

INSTALLATION & MAINTENANCE

Lamps and LEDs can be changed without removing the switch from the panel. The lamp extractor AT107 assists in removing lamps and LEDs.



AT107
Lamp Extractor

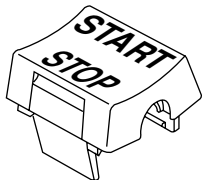


Note: When changing LEDs, match the positive polarity markings on both lamp base and actuator block.

LEGENDS

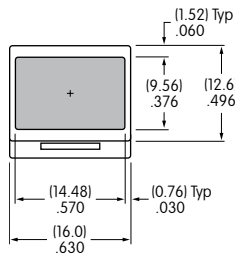
General information and basic specifications are presented here for customers who want to do their own legends.

Shaded areas are printable areas.

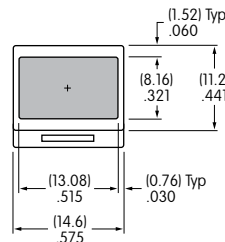


Recommended Print Method:

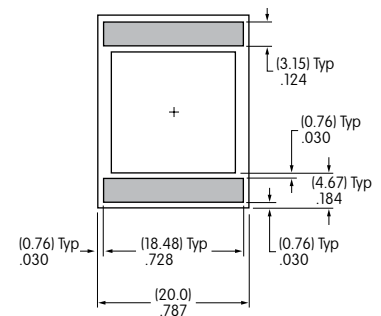
Screen Print or Pad Print
Epoxy based ink is recommended



Rocker



Design Rocker
& LED Rocker



Bezel

Additional Methods

An additional method for legends is engraving the lens. Maximum depth for engraving is .012" (0.3mm) on the cap lens. Enamel paint is recommended to fill the engraved area.