

## 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

#### LAMPS

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 w/green & blue)

#### CAP TYPES/COLORS

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

#### BEZELS/COLORS

.787" Wide	
1A	Black
1B	White
1C	Red
1D	Orange
1E	Yellow
1F	Green
1G	Blue
1H	Gray
.937" Wide	
2A	Black
2B	White
2C	Red
2D	Orange
2E	Yellow
2F	Green
2G	Blue
2H	Gray

#### IMPORTANT:

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



#### Double Element LED Colors

C	Red
E	Yellow
F	Green

#### LED Rocker

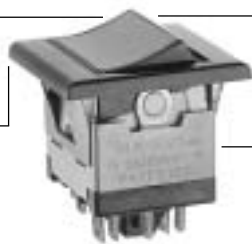
LB	White
LC	Red
LE	Yellow
LF	Green
Sculptured Rocker	
SB	White
SC	Red
SE	Yellow
SF	Green

#### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

### MLW3025-12-DC-1A

12-volt Incandescent Lamp

Black .787" Wide Bezel



Design Cap  
(Black Rocker Base with Red Filter)

DPDT  
ON-NONE-(ON)  
Circuit

## GENERAL SPECIFICATIONS

### Electrical Capacity (Resistive Load)

**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; 1,500V AC minimum between contacts & case  
**Mechanical Life:** 30,000 operations minimum  
**Electrical Life:** 10,000 operations minimum  
**Nominal Operating Force:** 1014 grams for rockers & 450 grams for paddles  
**Angle of Throw:** 26°

### 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 with nickel plating

### Environmental Data

**Operating Temp 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 acceleration (tested in 3 right angled directions, with 3 shocks in each direction)

### Installation

**Cap Installation Force:** 1.0 kg (2.2 lbs) for AT405 cap;  
 2.0 kg (4.4 lbs) for AT426 cap  
**Soldering Time & Temperature:** 3 seconds @ 350°C or 5 seconds @ 270°C  
**Process Seal:** Not available

### Standards & Certifications

**UL Recognized:** All double pole models recognized at 5A @ 125V AC & 3A @ 250V AC;  
 UL File No. E44145  
**CSA Certified:** All double pole models recognized at 5A @ 125V AC & 3A @ 250V AC;  
 CSA File No. LR23535

### POLES & CIRCUITS

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

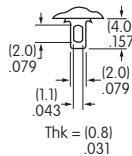
### For 3 Throw (3-On)

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

### TERMINALS

#### Power Terminals

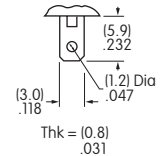
.043" x .079" oblong holes accommodate one solid 18-gauge wire or two solid or stranded 22-gauge wires.



Center terminal is .020" longer.

#### Lamp Terminals

Lamp terminals have .047" diameter holes which accommodate one solid 18-gauge wire.



### 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 Index (page Y1). 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; see Supplement Index (page Z1).




#### Incandescent Lamp for Solid and Design Caps

AT602 Incandescent	AT602N Neon		06	12	18	24	28	N		
 T-1 1/2 Pilot Slide Base		Voltage	V	6V	12V	18V	24V	28V	110V	
		Current	I	80mA	50mA	35mA	25mA	22mA	1.5mA	
		MSCP		.159	.215	.398	.215	.247	NA	
		Endurance	Hrs	2,000 average						25,000 average
		Ambient Temp Range		-10 ~ +50°C						
		Recommended Resistor for Neon: 33K ohms for 110V AC; 100K ohms for 220V AC								
		00 <b>No Lamp</b> Code 00 indicates that no lamp is used.								

### LED COLORS & SPECIFICATIONS

#### Double Element LED

AT622 LED					
			<b>C</b>	<b>E</b>	<b>F</b>
 T-1¼ Pilot Slide Base	LEDs are colored in OFF state.	Color	Red	Yellow	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	$\Delta I_F$	0.40mA/°C	0.32mA/°C	0.42mA/°C
	Ambient Temp Range		-10 ~ +50°C		

### CAP TYPES & COLORS

For Incandescent or Neon Lamps

**RA** AT405  
Rocker

**RB**

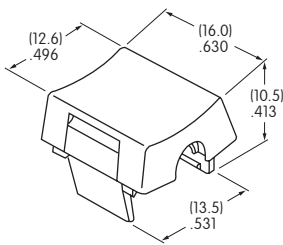
**RC**

**RD**

**RE**

**RF**

**RG**



**PA** AT426  
Paddle

**PB**

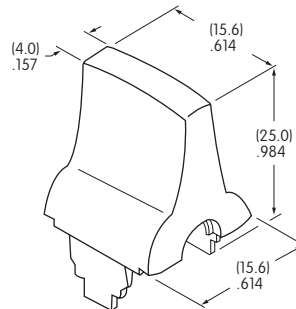
**PC**

**PD**

**PE**

**PF**

**PG**



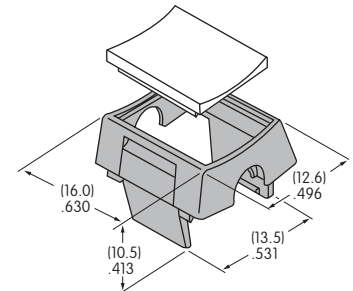
**DB** AT438  
Design Rocker

**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

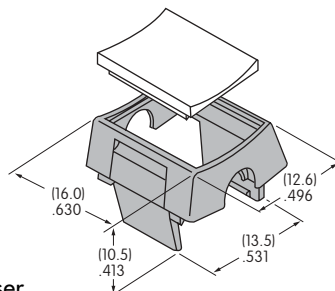
For LED

**LB** AT4125  
LED Rocker

**LC**

**LE**

**LF**



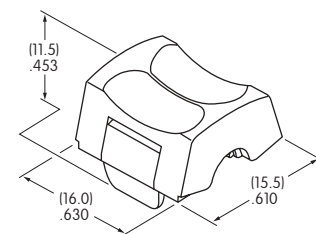
Translucent Colored Diffuser  
Opaque Black Rocker Base

**SB** AT4127  
Sculptured Rocker

**SC**

**SE**

**SF**

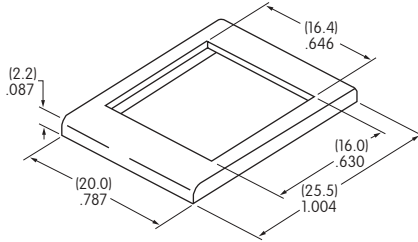
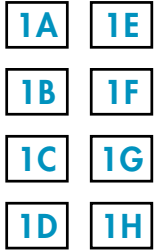


Material: Translucent Polycarbonate Standard Finish: Glossy

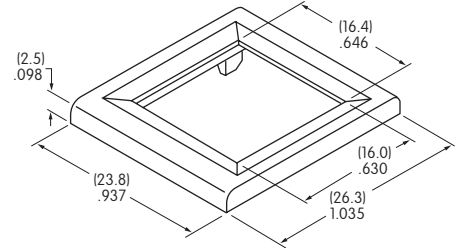
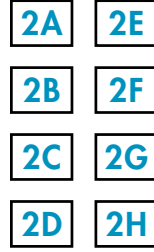
Color Codes: **A** Black **B** White **C** Red **D** Orange **E** Yellow **F** Green **G** Blue

## OPTIONAL BEZELS

### AT204 .787" Wide Bezel (Standard)



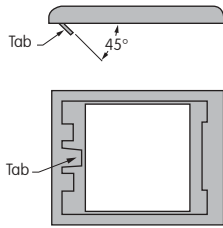
### AT9201 .937" Wide Bezel (Large)



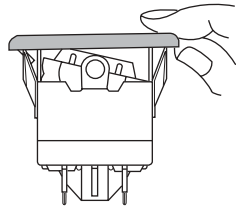
Material: Polycarbonate Standard Finish: Glossy

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

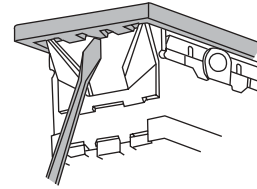
### Bezel Assembly



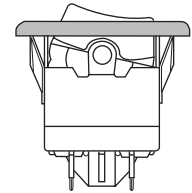
1. Pry out tab on bezel to a 45° angle.



2. Insert switch frame under tab and snap on bezel.



3. Push tab back into place.

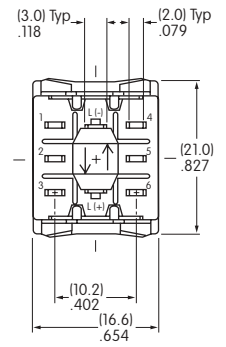
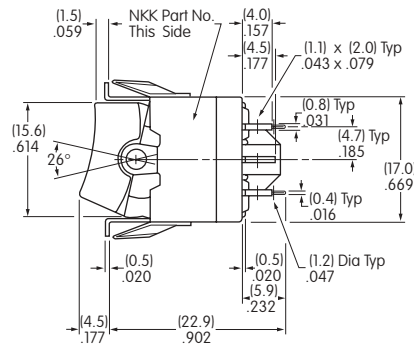
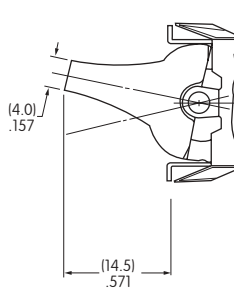
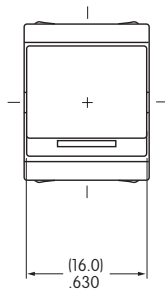


4. Snap cap onto switch.

## TYPICAL SWITCH DIMENSIONS

### Without Bezel

### Single & Double Pole



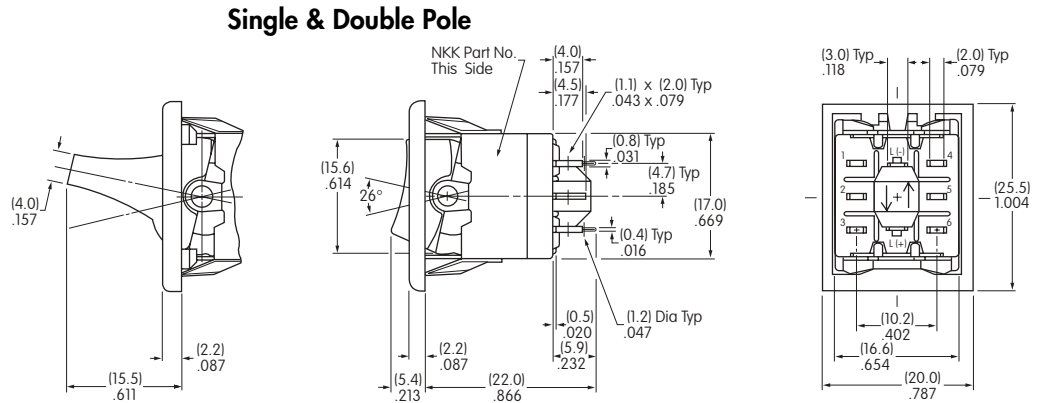
MLW3022-12PC

Actuator in UP position.

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

### TYPICAL SWITCH DIMENSIONS

#### Standard Bezel

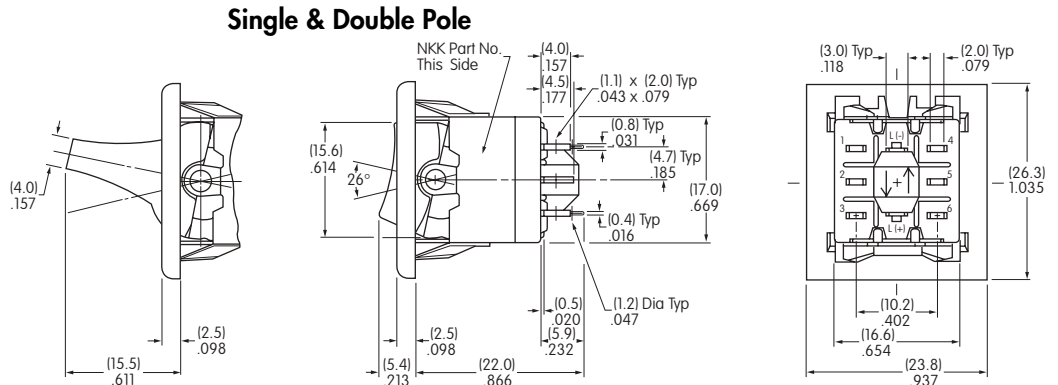


MLW3022-12RC-1A

Actuator in UP position.

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

#### Large Bezel

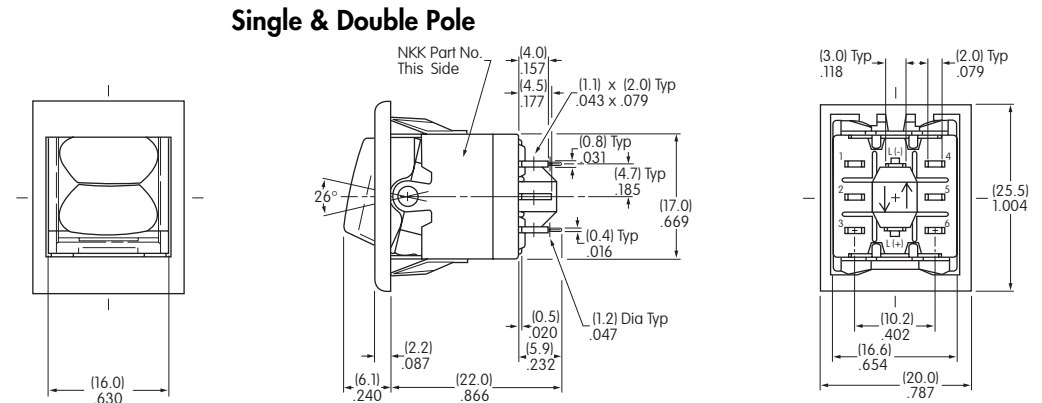


MLW3022-12PC-2A

Actuator in UP position.

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

#### Sculptured Cap

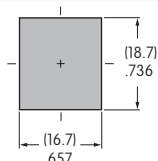


MLW3022-CSC-1A

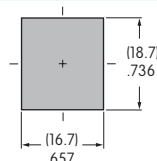
Actuator in UP position.

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

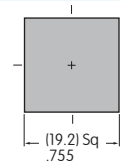
### PANEL CUTOUTS & THICKNESSES



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



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

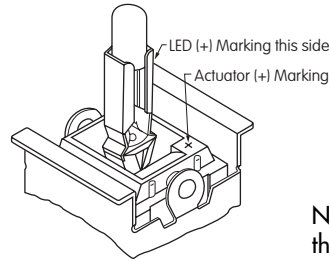
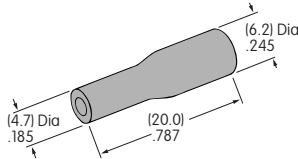


With Large Bezel AT9201  
1.0 ~ 3.0 mm (.039 ~ .118")

### 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**

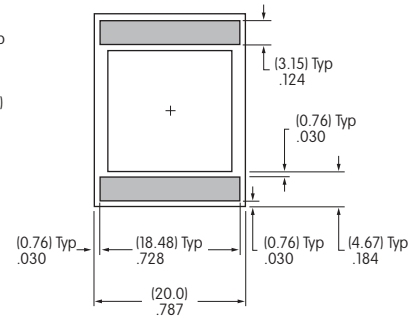
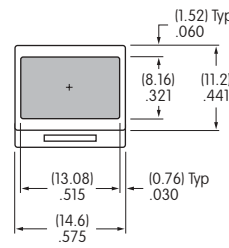
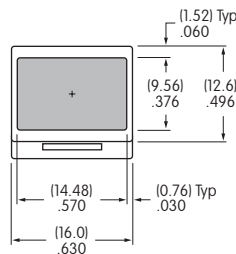
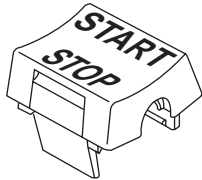


Note: When changing LEDs, match the positive polarity markings on both lamp base and actuator block.

### LEGENDS

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

#### Suggested Printable Area for Lens



**Recommended Print Method:**

Screen Print or Pad Print

Epoxy based ink is recommended.

Rocker

Design Rocker & LED Rocker

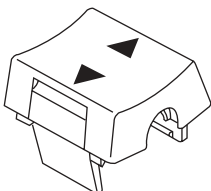
Printable areas on Bezel

Shaded areas are printable areas.

#### Additional Methods

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

### LEGEND PACKET FOR ORDERING CAPS WITH LEGENDS



1. To order caps with legends, contact the factory and request the MLW Legend Packet.
2. Once you determine your desired legend, fill out the ordering work sheet included in the packet.
3. Return the completed work sheet to receive a quotation.