

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: File No. E44145 - Recognized only when ordered with marking on switch.

Add "/U" or "/CUL" before first dash in part number to order UL recognized switch.

All models recognized at 5A @ 125V AC & 3A @ 250V AC.

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.



Actual Size



- Supplement
- Accessories
- Indicators
- Touch
- Tilt
- Tactiles
- Slides
- Rotaries
- Keylocks
- Programmable
- Illuminated PB
- Pushbuttons
- B** Rockers
- Toggle

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 with green & blue) |

Single Element LED Colors

| | |
|---|--------|
| C | Red |
| E | Yellow |
| F | Green |

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 |

LED Rocker

| | |
|----|--------|
| LB | White |
| LC | Red |
| LE | Yellow |
| LF | Green |

Sculptured Rocker

| | |
|----|--------|
| SB | White |
| SC | Red |
| SE | Yellow |
| SF | Green |

Bezels/Colors

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



Note: Wire harness & cable assemblies offered only in Americas

IMPORTANT:

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



Supplement Accessories Indicators Touch Tilt Tactiles Slides Rotaries Keylocks Programmable Illuminated PB Pushbuttons Rockers B Toggles

POLES & CIRCUITS

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

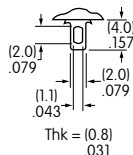
For 3 Throw (3-On)

| 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 | |

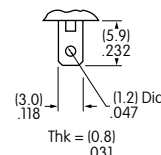
TERMINALS

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(+) - (-) L(-) | 06 | 12 | 18 | 24 | 28 | N | |
|--------------------|-------------|--|--|---------------|--------|--------|--------|----------------|---------|
| | | Voltage | V | 6V AC | 12V AC | 18V AC | 24V AC | 28V AC | 110V AC |
| | | Current | 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 | | | | | | | |
| | | 00 | No Lamp Code 00 indicates that no lamp is used. | | | | | | |

T-1 1/2 Pilot Slide Base

Toggles
 Rockers
 Pushbuttons
 Illuminated PB
 Programmable
 Keylocks
 Rotaries
 Slides
 Tactiles
 Tilt
 Touch
 Indicators
 Accessories
 Supplement

LED COLOR CODES & SPECIFICATIONS

Single Element LED

| AT622 LED | Resistor value calculation is shown in the Supplement. | Color | C | E | F |
|---|--|--------------|---------------|-----------|-----------|
| | | | Red | Yellow | Green |
|  | Forward Peak Current | I_{FM} | 30mA | 30mA | 30mA |
| | Typical Forward Current | I_F | 20mA | 20mA | 20mA |
| | Forward Voltage | V_F | 1.85V | 2.0V | 2.1V |
| | Reverse Peak Voltage | V_{RM} | 5V | 5V | 5V |
| | Current Reduction Rate Above 25°C | ΔI_F | 0.40mA/°C | 0.40mA/°C | 0.40mA/°C |
| | Ambient Temperature Range | | -10°C ~ +50°C | | |

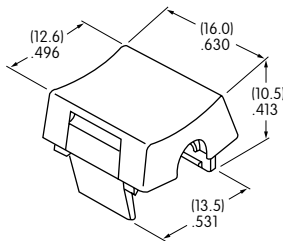
T-1¼ Pilot Slide Base

CAP TYPES & COLORS

For Incandescent or Neon Lamps

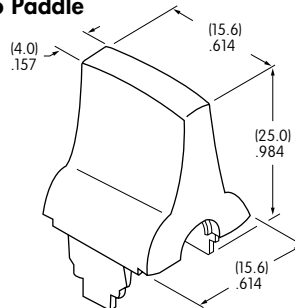
RA AT405 Rocker

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



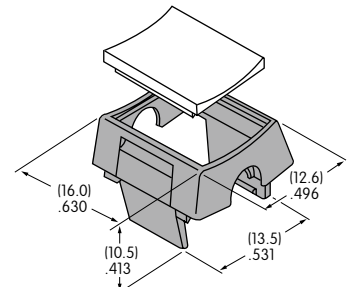
PA AT426 Paddle

- 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

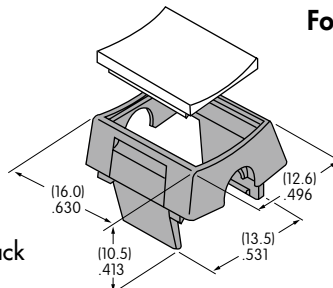
Translucent Colored Filter
Opaque Black Rocker Base

For LED

LB AT4125 LED Rocker

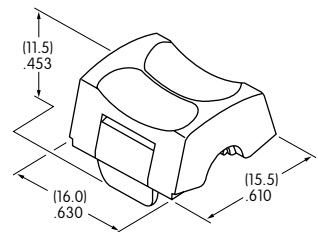
- LC
- LE
- LF

Translucent Colored Diffuser and Opaque Black Rocker Base



SB AT4127 Sculptured Rocker

- SC
- SE
- SF



Material: Translucent Polycarbonate Standard Finish: Glossy

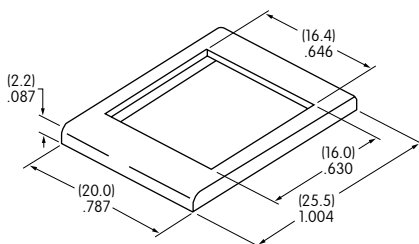
Color Codes:

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

OPTIONAL BEZELS

AT204 Standard Bezel .787" (20.0mm) Wide

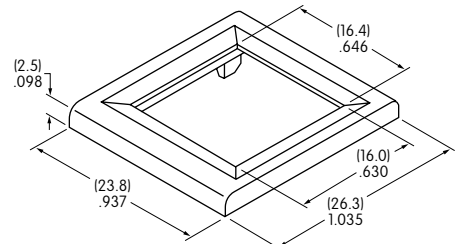
- 1A
- 1E
- 1B
- 1F
- 1C
- 1G
- 1D
- 1H



Material: Polycarbonate Standard Finish: Glossy

AT9201 Large Bezel .937" (23.8mm) Wide

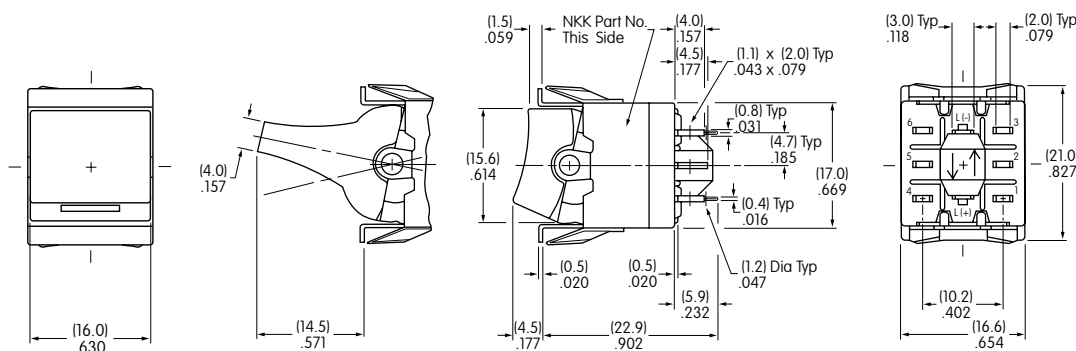
- 2A
- 2E
- 2B
- 2F
- 2C
- 2G
- 2D
- 2H



Material: Polycarbonate Standard Finish: Glossy

Toggles
Rockers
Pushbuttons
Illuminated PB
Programmable
Keylocks
Rotaries
Slides
Tactiles
Tilt
Touch
Indicators
Accessories
Supplement

TYPICAL SWITCH DIMENSIONS



Actuator in UP position

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

Without Bezel
Single & Double Pole



MLW3022-12-PC



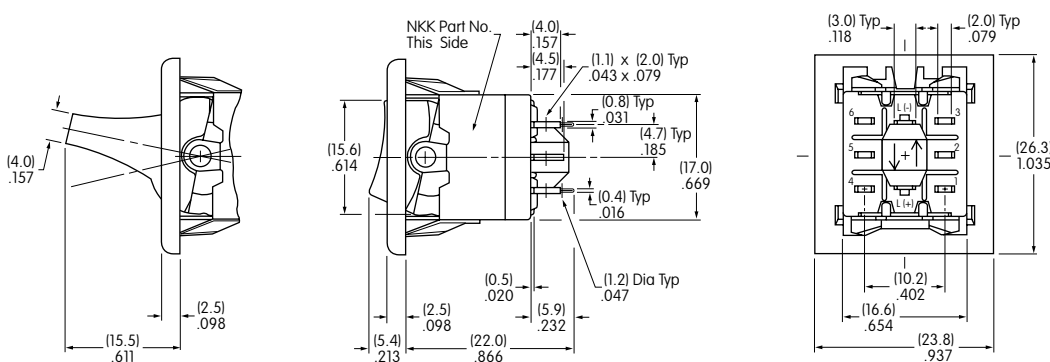
Actuator in UP position

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

Standard Bezel
Single & Double Pole



MLW3022-12-RC-1A



Actuator in UP position

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

Large Bezel
Single & Double Pole



MLW3022-12-PC-2A



Actuator in UP position

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

Sculptured Cap
Single & Double Pole



MLW3022-C-SC-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

NKK Switches can provide custom legends for caps. Contact factory for more information.



Recommended Print Method:
Pad Print
Epoxy based ink is recommended



Shaded areas are printable areas.



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- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
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- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



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