# Installation Instructions for AML92 Series Type "L" High Intensity LEDs

#### GENERAL

AML92 Series Type "L" high intensity LEDs have six chips. They provide fullface illumination when used with MICRO SWITCH AML Advanced Manual Line lighted pushbutton, rocker and paddle switches, or indicators equipped with incandescent lamp sockets, as listed below.

# AML SWITCHES AND INDICATORS FOR USE WITH AML92 LEDS

**Pushbutton switches:** AML11 (Square Only)\*, AML21 (rectangular and square), and AML31.

Paddle switches: AML13/23/33 Rocker switches: AML14/24/34

Indicators: AML41 \*Rectangular solid state with one or two lamp circuits cannot be used.

#### **APPLICATION NOTES**

 To insure stable conditions, suitable external control of the LED current must be provided. It is recommended that a minimum of 5 VDC open circuit voltage with appropriate series resistance, limiting current to 50 mA, be used to drive LED devices. This minimizes current variation and its effect on temperature and LED forward voltage. Reverse voltage breakdown of the LEDs is 6 volts (min.).

Resistor values can be determined by supply voltage or current for LED.

$$\mathsf{R}_{\mathsf{s}} = \frac{\mathsf{E} \cdot \mathsf{V}_{\mathsf{F}}}{\mathsf{I}_{\mathsf{F}}} \quad \mathsf{E} = \frac{\mathsf{R}_{\mathsf{s}}}{\mathsf{I}_{\mathsf{F}}} \mathsf{V}_{\mathsf{F}} \mathsf{V}_{\mathsf{F}}$$

WHERE: R = Series Resistance

- E = Supply Voltage
  - $V_F$  = Forward Voltage of LED

I<sub>F</sub> = Circuit Current

2. Conventional AML housing orientation must be considered when designing circuit boards, preparing wiring diagrams, and specifying LED location, button legends and colors.

When viewed from front of panel, the MICRO SWITCH identification logo should be **up** for square pushbutton switches and indicators, **up** or to the **left** for the rectangular pushbutton switches and indicators, and to the **left** for rocker and paddle switches.

#### WIRING

Anode (+) and cathode (-) leads must align with (+) and (-) lamp terminals on AML housings.

Positive LED terminals are identified with a "+" molded into the base of switch and indicator housings. Refer to mounting dimension drawings in Catalog 30 to determine terminal location for layout purposes.

### OPERATING CHARACTERISTICS

@ 25°C (77°F) Suggested application for maximum brightness.

V <sub>F</sub> Forward Voltage (typ.)				I <sub>F</sub> Forward	V <sub>R</sub> Reverse
Yellow	Green	Red	White	Current	Voltage (max.)
4 V	4 V	4V	4V	50 mA	6 V

## **TEMPERATURE RANGE**

Operating: -20 to  $60^{\circ}$ C (-4° to  $140^{\circ}$ F) Storage: -30° to  $100^{\circ}$ C (-22° to  $212^{\circ}$ F)

## CATALOG LISTINGS

Catalog Listing	LED Color		
AML92ERL	Red		
AML92EYL	Yellow		
AML92EGL	Green		
AML92EWL	White		

#### WARRANTY/REMEDY

Seller warrants its products to be free from defects in design, material and workmanship under normal use and service Seller will repair or replace without charge any such product it finds to be so defective on its return to Seller within 18 months after date of shipment by Seller. The foregoing is in lieu of all other expressed or implied warranties (except of title), including those of merchantability and fitness for a particular purpose. The foregoing is also purchaser's sole remedy and is in lieu of all other guarantees, obligations, or liabilities or any consequential, incidental, or punitive damages attributable to negligence or strict liability, all by way of example.

While we provide application assistance on MICRO SWITCH products, personally and through our literature, it is up to the customer to determine the suitability of the product in the application.

Helping you control your world

