

# Manual Switches

## Lamps, Soldering Recommendations, Receptacles

### AML91 LAMP ORDER GUIDE

| Lamp Type                             | Industry Lamp No. | Voltage | Catalog Listing |
|---------------------------------------|-------------------|---------|-----------------|
| Incandescent<br>T-1-3/4<br>wedge base | 86                | 6.3     | AML91LA86       |
|                                       | 73                | 14.0    | AML91LA73       |
|                                       | 85                | 28.0    | AML91LA85       |

### LAMP DATA

The following data was compiled from manufacturer's specifications, for reference only.

### INCANDESCENT LAMPS

| Industry Lamp No. | Volts | Amps | Watts | MSCP | Life A/C Volts |
|-------------------|-------|------|-------|------|----------------|
| 86                | 6.3   | .200 | 1.25  | .49  | 20,000 hours   |
|                   | 5.5   | .185 | 1.12  | .246 | 106,200 hours  |
|                   | 5.0   | .177 | .89   | .185 | 290,000 hours  |
| 73                | 14.0  | .080 | 1.12  | .30  | 15,000 hours   |
|                   | 12.0  | .077 | 1.00  | .23  | 36,450 hours   |
| 85                | 28.0  | .04  | 1.12  | .30  | 7,000 hours    |
|                   | 24.0  | .037 | .89   | .177 | 41,860 hours   |

### Neon Lamps

25,000 hours (half life)

### INTEGRAL LEDs

| LEDs Furnished Permanently Installed in These Products | V <sub>f</sub> | I <sub>f</sub> | V <sub>PD</sub> | Peak Inverse Voltage |                    |
|--|----------------|----------------|-----------------|----------------------|--------------------|
|  |                |                |                 | w/o Diode Protection | w/Diode Protection |
| AML12, 15, 16, 22, 25, 26, 42                          | 2.4 V          | 20 mA          | .7 V            | 5 V                  | 34 V               |
| AML45  | 2.4 V          | 20 mA          | .7 V            | 4 V                  | 33 V               |

100,000 hours (half life).

### AML92 SERIES LEDs



For use with these AML switches and indicators equipped with lamp sockets:

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

**Paddle switches:** AML31/23/33

**Rocker switches:** AML14/24/34

**Indicators:** AML41

\* Rectangular solid state with one or two lamp circuits cannot be used with LED catalog listings ending in "L".

### AML92 ORDER GUIDE

| LED Color | Quad Chip | Six Chip   |
|-----------|-----------|------------|
| Red       | AML92ERY  | AML92ERL   |
| Green     | AML92EGY  | AML92EGL   |
| Yellow    | AML92EYY  | AML92EYL   |
| White     | —         | AML92EWL** |

\*\* For use with white or yellow buttons.

### OPERATING CHARACTERISTICS

| Type      | V <sub>f</sub> Fwd. Voltage (typ.) |       |     |       | I <sub>f</sub> Fwd. Current | V <sub>R</sub> Rev. Voltage |
|-----------|------------------------------------|-------|-----|-------|-----------------------------|-----------------------------|
|           | Yellow                             | Green | Red | White |                             |                             |
| Quad Chip | 8.6                                | 8.6   | 7.8 | —     | 15 mA                       | 16 V                        |
| Six Chip  | 4 V                                | 4 V   | 4 V | 4 V   | 50 mA                       | 5.6 V                       |

### TEMPERATURE RANGE

(Quad Chip or Six Chip)

Operating: -20 to 60°C (-4 to 140°F)

Storage: -30 to 100°C (-22 to 212°F)

### SOLDERING RECOMMENDATIONS

All terminals are solder plated. Proper soldering and cleaning procedures must be followed to maintain the reliability of AML products during installation. An instruction sheet which outlines these procedures is included with AML shipments. You may also obtain a copy from your MICRO SWITCH Sales Office. Request PK 8518.

As a general guide, the following information may be used:

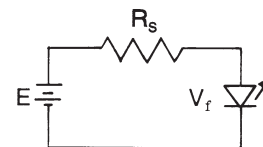
Use a 280°C (538°F) solder iron tip, up to 6 seconds duration, with a 60-40 rosin core solder. This allows the terminal to heat quickly on the exterior of the housing only, and greatly reduces the chance of flux migrating inside the housing.

### LED APPLICATION INFORMATION

For those devices without internal current limiting resistors, suitable external control of the LED current must be provided. It is recommended that a minimum of 5 VDC open circuit voltage with an appropriate series resistance be used to drive LED devices. This minimizes the effect of temperature (current variation) on forward voltage of the LED.

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

$$R_s = \frac{E - V_f}{I_f}$$



WHERE: R<sub>s</sub> = Series Resistance

E = Supply Voltage

V<sub>f</sub> = Forward Voltage of LED

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

If a diode is added in series for reverse polarity protection then:

$$R_s = \frac{E - V_f - V_{PD}}{I_f}$$

WHERE: V<sub>PD</sub> Forward Voltage of Protection Diode

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