

Manual Switches

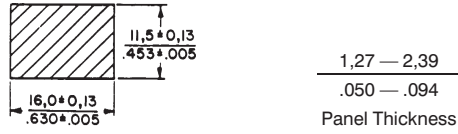
Miniature Manual Line

MML Series

MOUNTING DIMENSIONS (For reference only)

PANEL CUTOUTS FOR PUSHBUTTON SWITCHES AND INDICATORS/RECTANGULAR TYPE

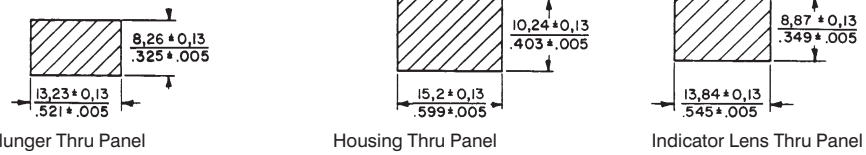
INDIVIDUAL SNAP-IN PANEL MOUNT



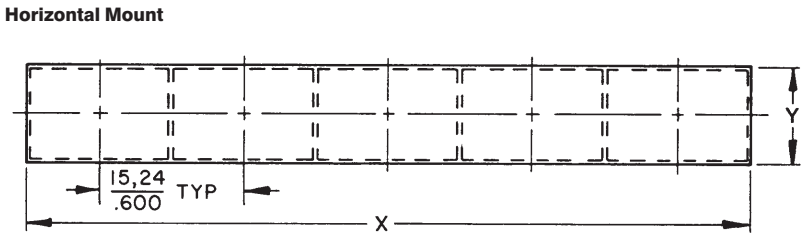
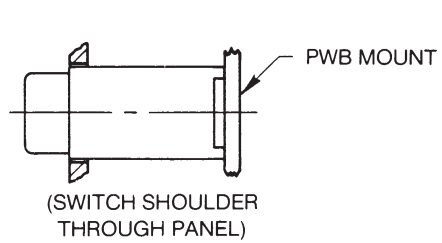
PANEL PUNCH FOR MML SERIES

A panel punch is manufactured by Greenlee-Textron Tool Co., Rockford, IL (815-926-3011).

INDIVIDUAL PRINTED WIRING BOARD (PWB) MOUNT



MULTI-UNIT PRINTED WIRING BOARD (PWB) MOUNT



Establish tooling holes on X coordinate and use these holes to establish relationship between PWB and Panel

$$\text{Terminals } \frac{0.20}{.008} \times \frac{0.76}{.030}$$

Recommended hole size in PWB $\frac{1.17}{.046}$

$$N = \text{Number of switches}$$

$$X = N-1 \times \frac{15.24}{.600} + \frac{15.11}{.595}$$

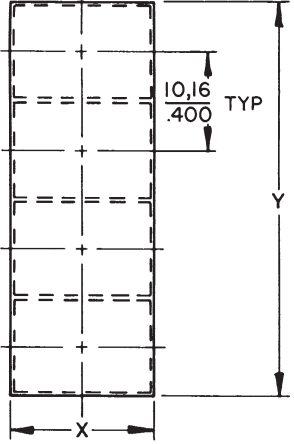
$$Y = \frac{10.16}{.400}$$

Example: N = 5 Switches

$$X = 5-1 \times \frac{15.24}{.600} + \frac{15.11}{.595}$$

$$X = \frac{76.07}{2.995}$$

Vertical Mount



$$N = \text{Number of Switches}$$

$$Y = N \times \frac{10.16}{.400}$$

$$X = \frac{15.11}{.595}$$

Example: N = 4

$$Y = 4 \times \frac{10.16}{.400}$$

$$Y = \frac{40.64}{1.600}$$

Manuals

Manual Switches

Miniature Manual Line

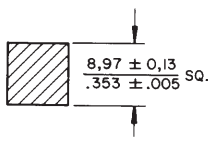
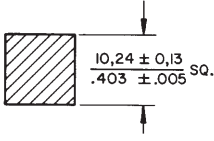
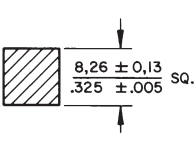
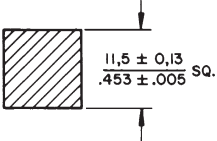
MML Series

MOUNTING DIMENSIONS (For reference only)

PANEL CUTOUTS FOR PUSHBUTTON SWITCHES AND INDICATORS/SQUARE TYPE

Individual Snap-in Panel Mount

Individual Printed Wiring Board PWB Mount



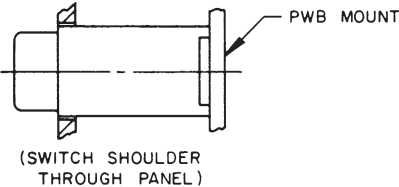
Pushbutton Plunger Thru Panel

Housing Thru Panel

Indicator Lens Thru Panel

See page 88 for panel punch manufacturer.

MULTI-UNIT PRINTED WIRING BOARD (PWB) MOUNT

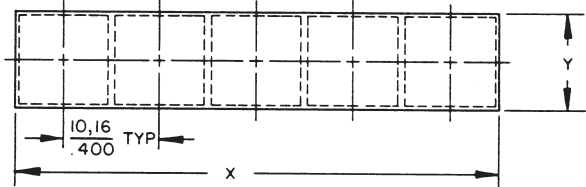


Establish tooling holes on X coordinate and use these holes to establish relationship between PWB and Panel

$$\text{Terminals } \frac{0,20}{.008} \times \frac{0,76}{.030}$$

Recommended hole size in PWB $\frac{1,17}{.046}$

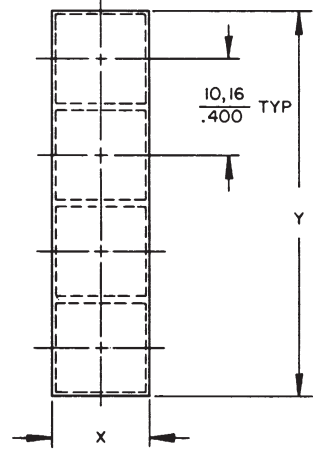
Horizontal Mounting



Formula:
 N = Number of switches
 $X = N \times \frac{10,16}{.400}$
 $Y = \frac{10,16}{.400}$

Example: N = 5 Switches
 $X = 5 \times \frac{10,16}{.400}$
 $X = \frac{50,80}{2.00}$

Vertical Mounting



N = Number of Switches
 Formula: $Y = N \times \frac{10,16}{.400}$
 $X = \frac{10,16}{.400}$
 Example: N = 4
 $Y = 4 \times \frac{10,16}{.400}$
 $Y = \frac{40,64}{1.600}$

Manual Switches

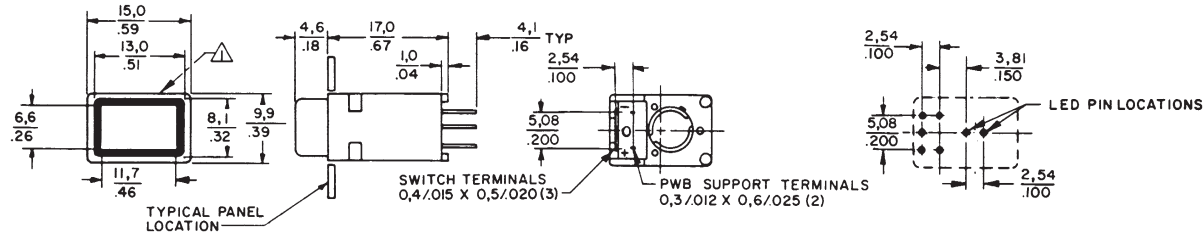
Miniature Manual Line

MOUNTING DIMENSIONS (For reference only)

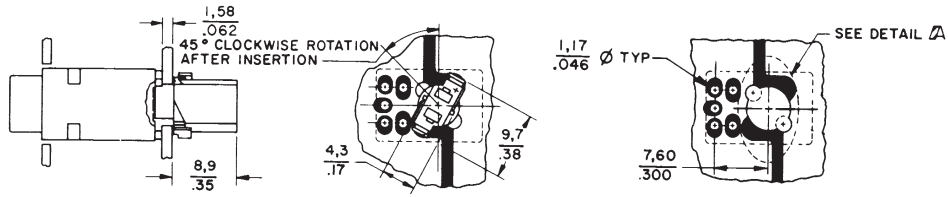
PRINTED WIRING BOARD MOUNT PUSHBUTTON SWITCHES/RECTANGULAR TYPE

MML11 Switches

PWB Pin Locations

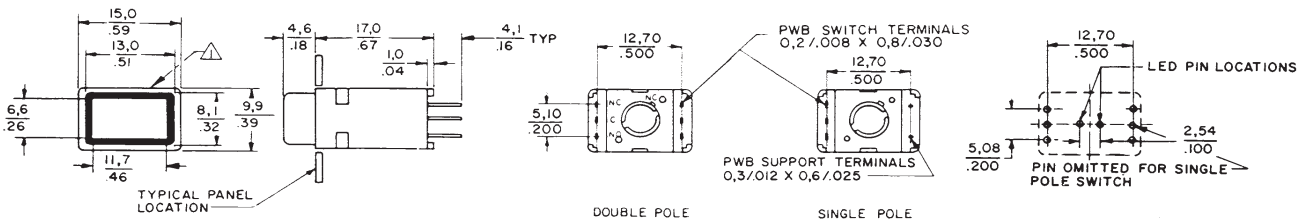


PWB Receptacle Installed (LED or Incandescent Lamp)

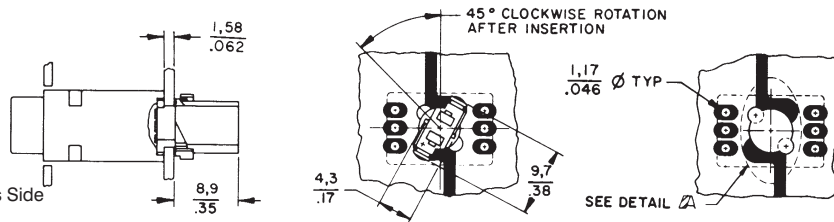


MML21 Switches

PWB Pin Locations



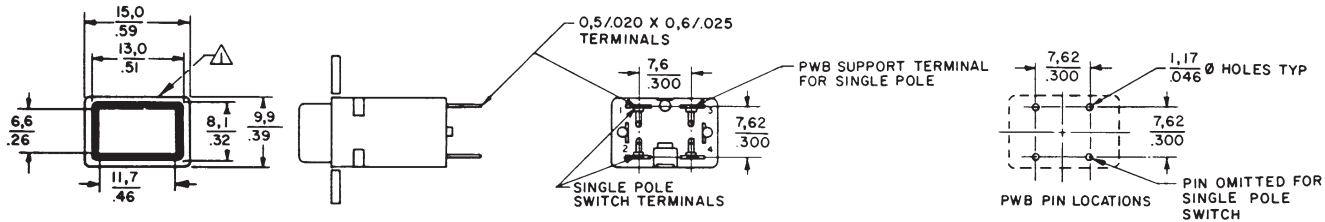
PWB Receptacle Installed (LED or Incandescent Lamp)



Notes:

△ MICRO SWITCH Identification This Side
 2 - Linear measure mm/IN. or $\frac{\text{mm}}{\text{IN.}}$

MML31 Switches



Manuals

Manual Switches

Miniature Manual Line

MML Series

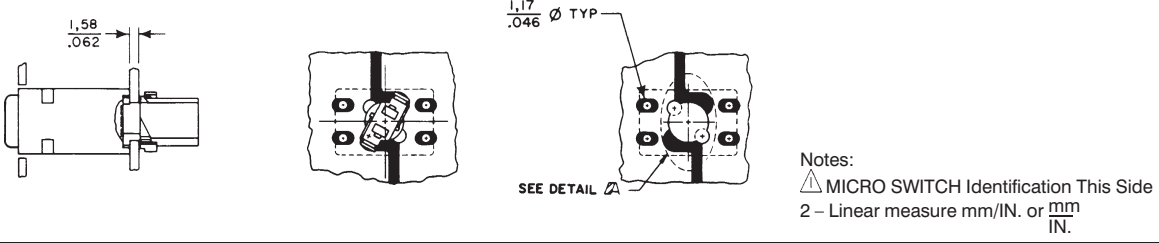
Mounting Dimensions (For reference only)

Printed Wiring Board Mount Indicators/Rectangular Type

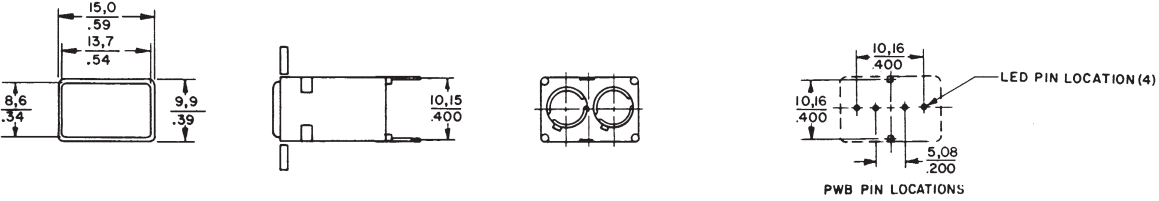
MML41 Indicators



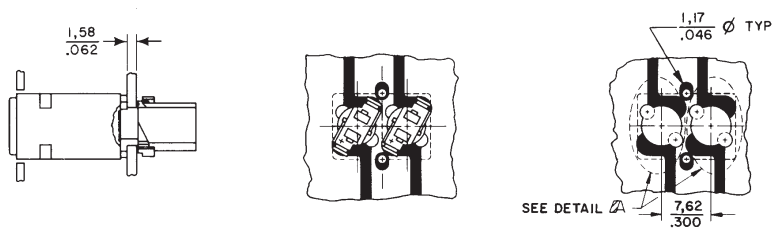
PWB Receptacle Installed (LED or Incandescent Lamp)



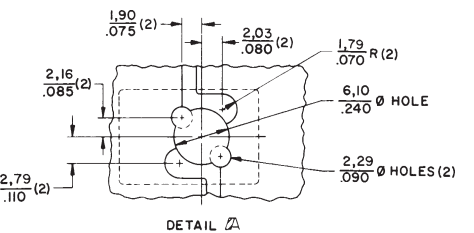
MML46 Indicators



PWB Receptacle Installed (LED or Incandescent Lamp)



PWB Pad Location For Receptacle (LED or Incandescent Lamp)



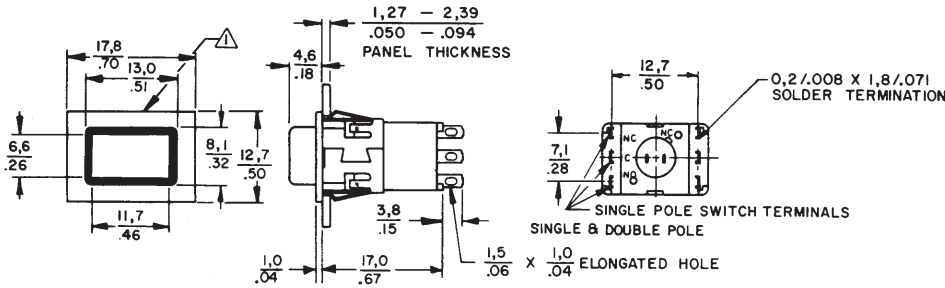
Manual Switches

Miniature Manual Line

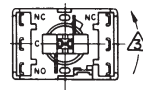
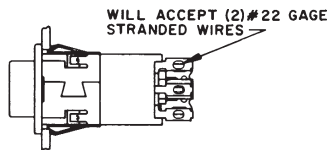
MOUNTING DIMENSIONS (For reference only)

PANEL MOUNT PUSHBUTTON SWITCHES/RECTANGULAR TYPE

MML21 Switches



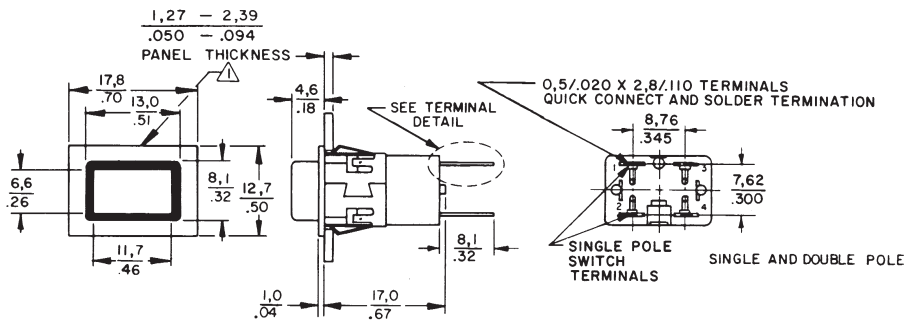
Solder Receptacle Installed (LED or Incandescent Lamp)



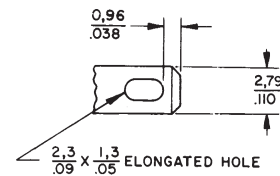
Notes:

- △ MICRO SWITCH Identification This Side
- 2 - Linear measure mm/IN. or $\frac{mm}{IN}$.
- ⊗ Rotate 45° counter clockwise for removal from switch or indicator

MML31 Switches



Terminal Detail



Manuals

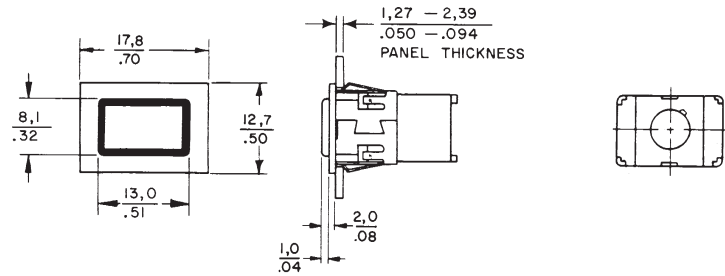
Manual Switches

Miniature Manual Line

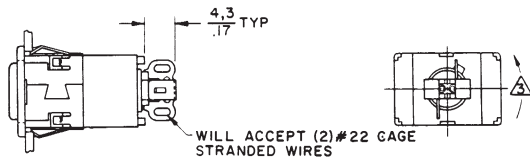
MOUNTING DIMENSIONS (For reference only)

PANEL MOUNT INDICATORS/RECTANGULAR TYPE

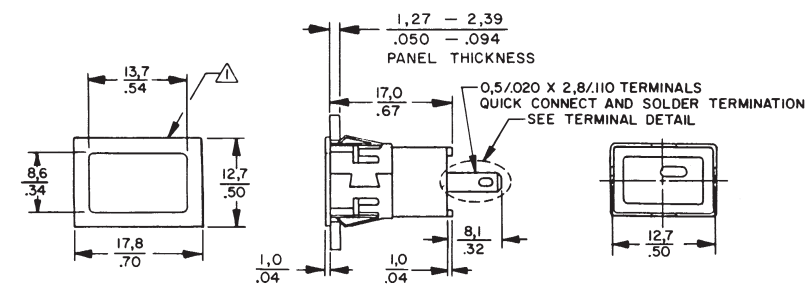
MML41 Indicators



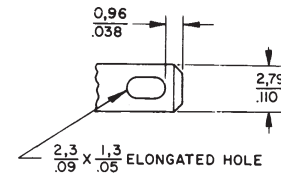
Solder Receptacle Installed (LED or Incandescent Lamp)



MML43 Indicators

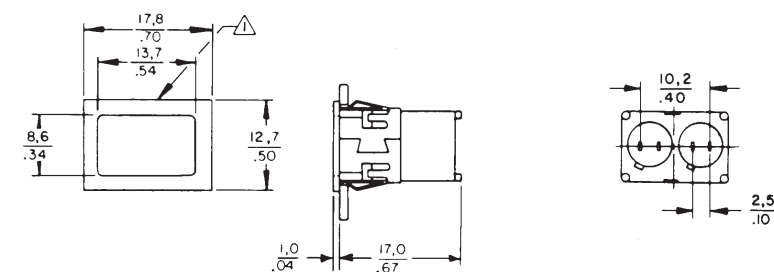


Terminal Detail

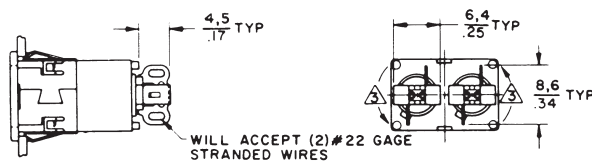


Notes:
 △ MICRO SWITCH Identification This Side
 2 - Linear measure mm/IN. or $\frac{\text{mm}}{\text{IN.}}$

MML46 Indicators



Solder Receptacle Installed (LED or Incandescent Lamp)



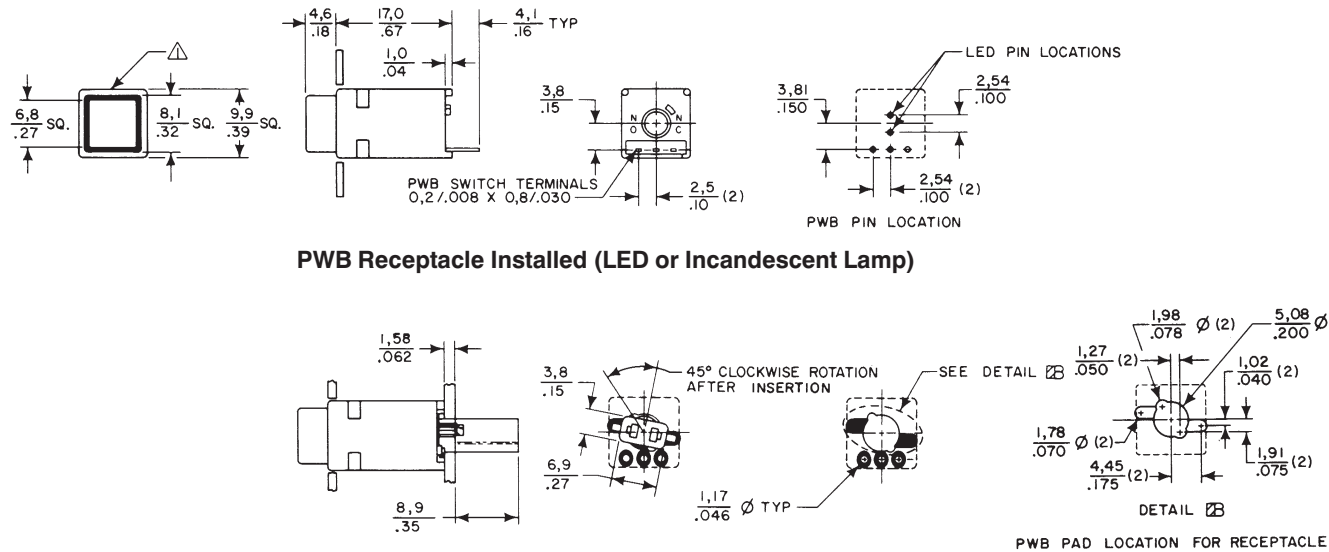
Manual Switches

Miniature Manual Line

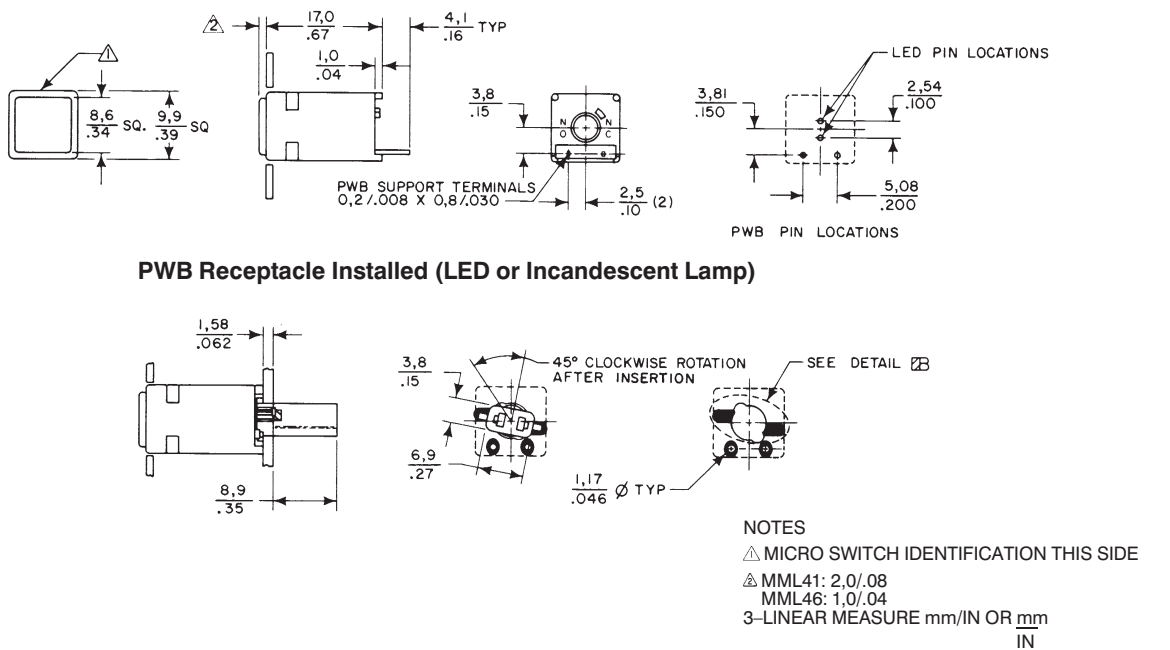
MOUNTING DIMENSIONS (For reference only)

PRINTED WIRING BOARD MOUNT PUSHBUTTON SWITCHES AND INDICATORS/SQUARE TYPE

MML21 Switches



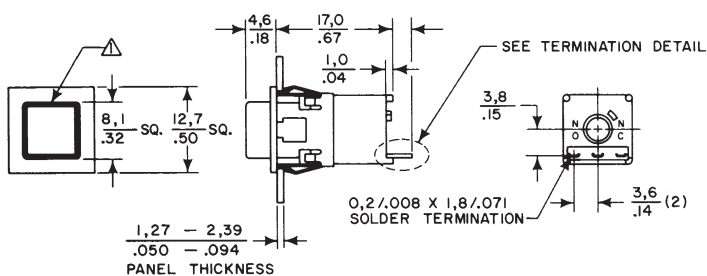
MML46 Indicators



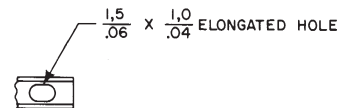
Manuals

PANEL MOUNT PUSHBUTTON SWITCHES/SQUARE TYPE

MML21 Switches



Termination Detail



NOTE:
To install LED or lamp, use MML93L receptacle shown on page 88.

Manual Switches

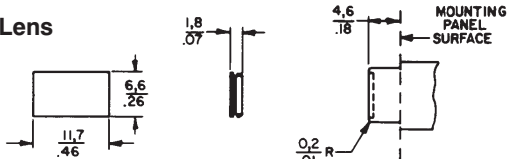
Miniature Manual Line

MML Series

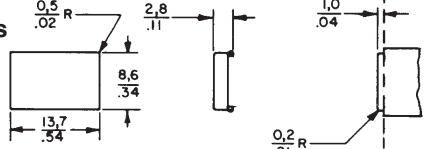
MOUNTING DIMENSIONS (For reference only)

LENSES

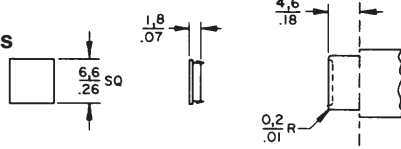
Rectangular Pushbutton Lens



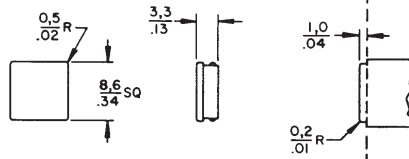
Rectangular Indicator Lens



Square Pushbutton Lens

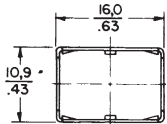


Square Indicator Lens

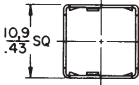


PWB SUPPORT BRACKETS

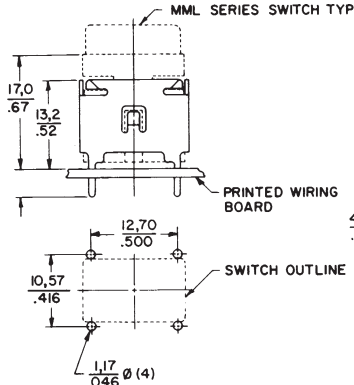
Rectangular



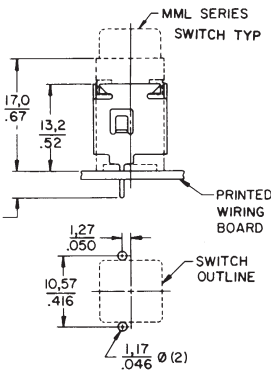
Square



MML SERIES SWITCH TYP



MML SERIES SWITCH TYP



RECOMENDED PRINTED WIRING BOARD LAYOUT

RECOMENDED PRINTED WIRING BOARD LAYOUT

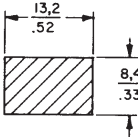
Manual Switches

Miniature Manual Line

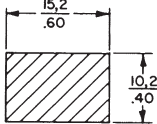
MML Series

MOUNTING DIMENSIONS (For reference only)

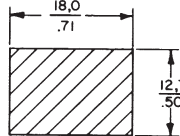
PANEL CUTOUTS FOR PWB MOUNT PADDLE AND ROCKER SWITCHES



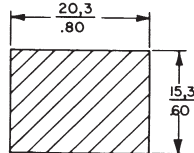
Actuator Thru Panel



Housing Thru Panel



2-Pole MML33, 34 Actuator

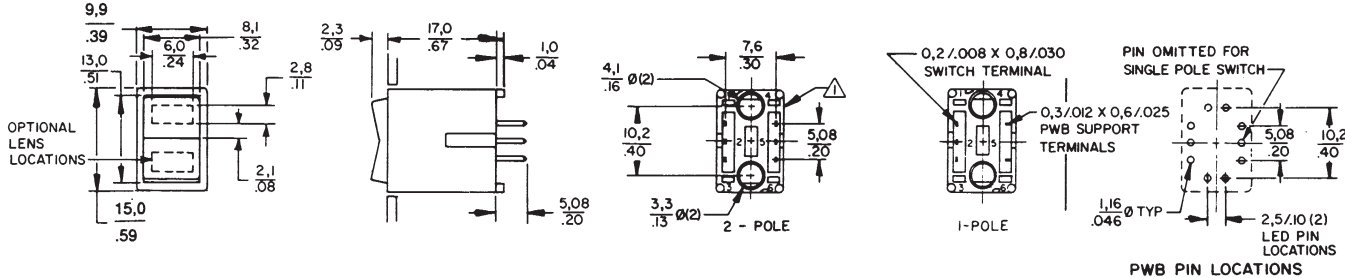


2-Pole MML33, 34 Thru Panel

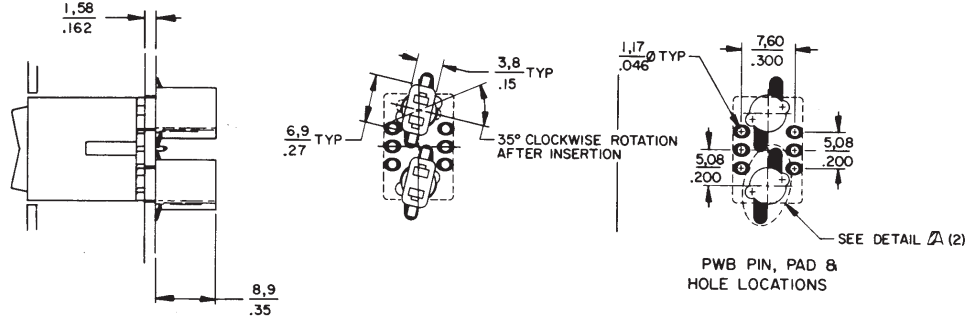
Housing Thru Panel

See page 91 for panel punch manufacturer.

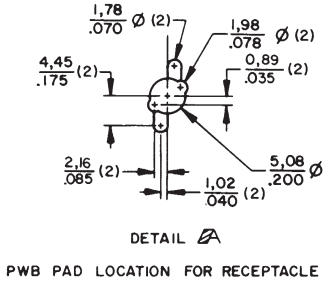
MML24 Rocker Switches



With PWB Receptacle Installed (LED or Incandescent Lamp)



Notes:
 ▲ MICRO SWITCH Identification This Side
 2 - Linear measure mm/IN. or mm/IN.



Manuals

Manual Switches

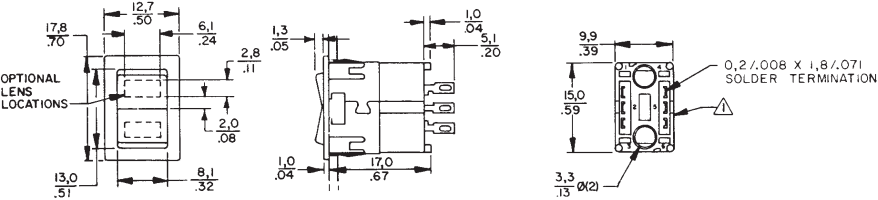
Miniature Manual Line

MML Series

MOUNTING DIMENSIONS (For reference only)

PANEL MOUNT ROCKER SWITCHES

MML24 Rocker Switches



Notes:
 △ MICRO SWITCH Identification This Side
 2 – Linear measure mm/IN. or $\frac{mm}{IN}$.

NOTE:
 To install LED or lamp, use MML93R receptacle shown on page 87.