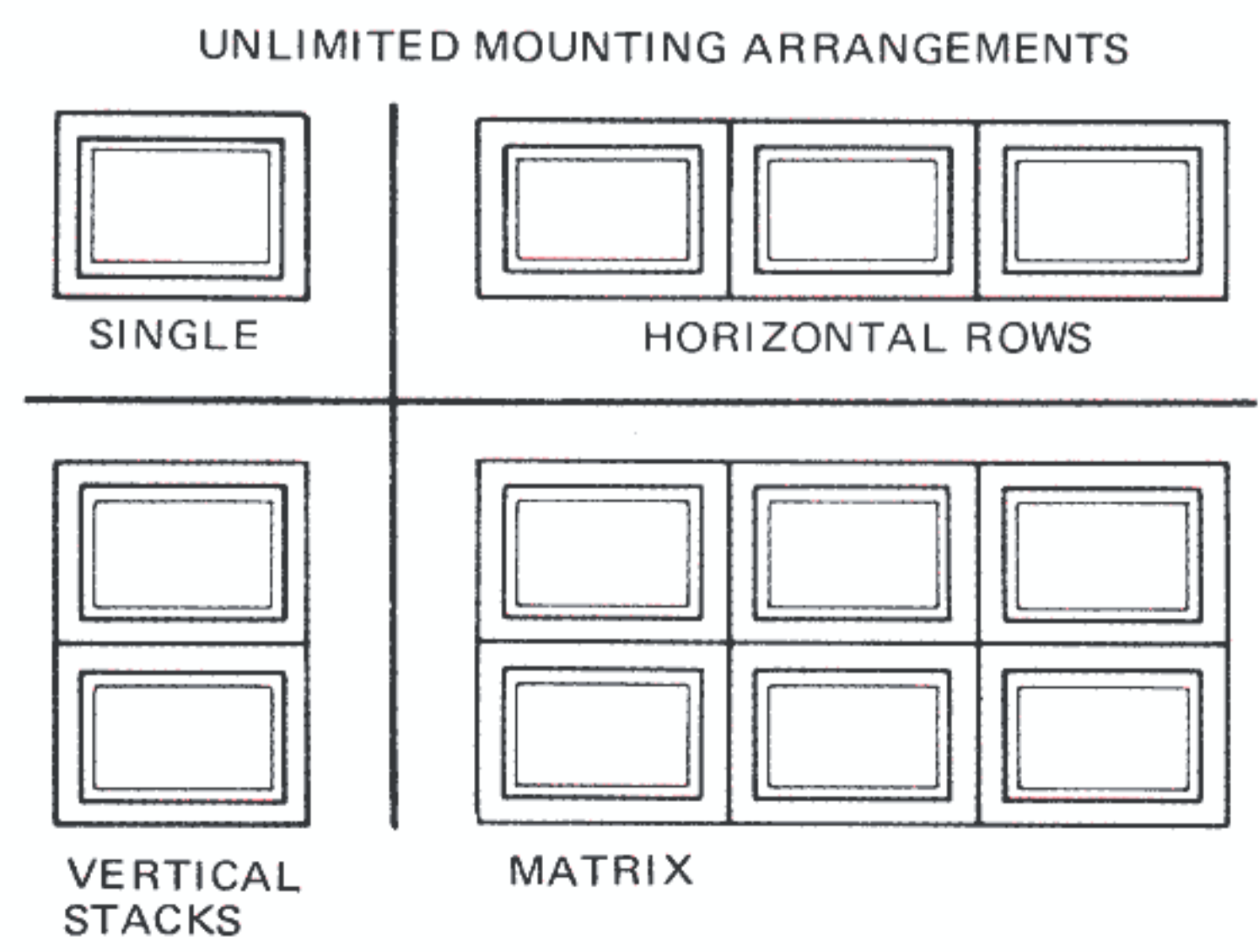
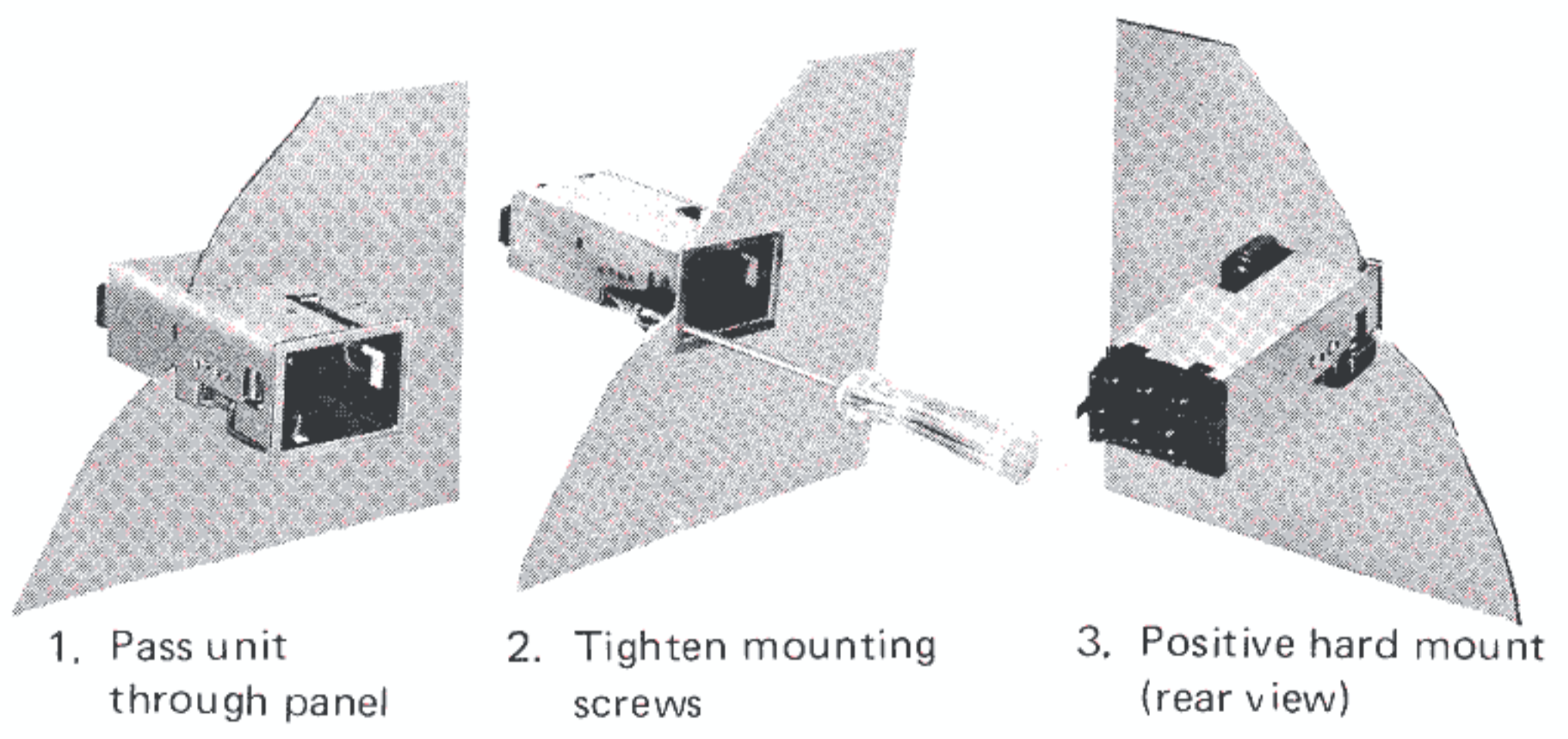
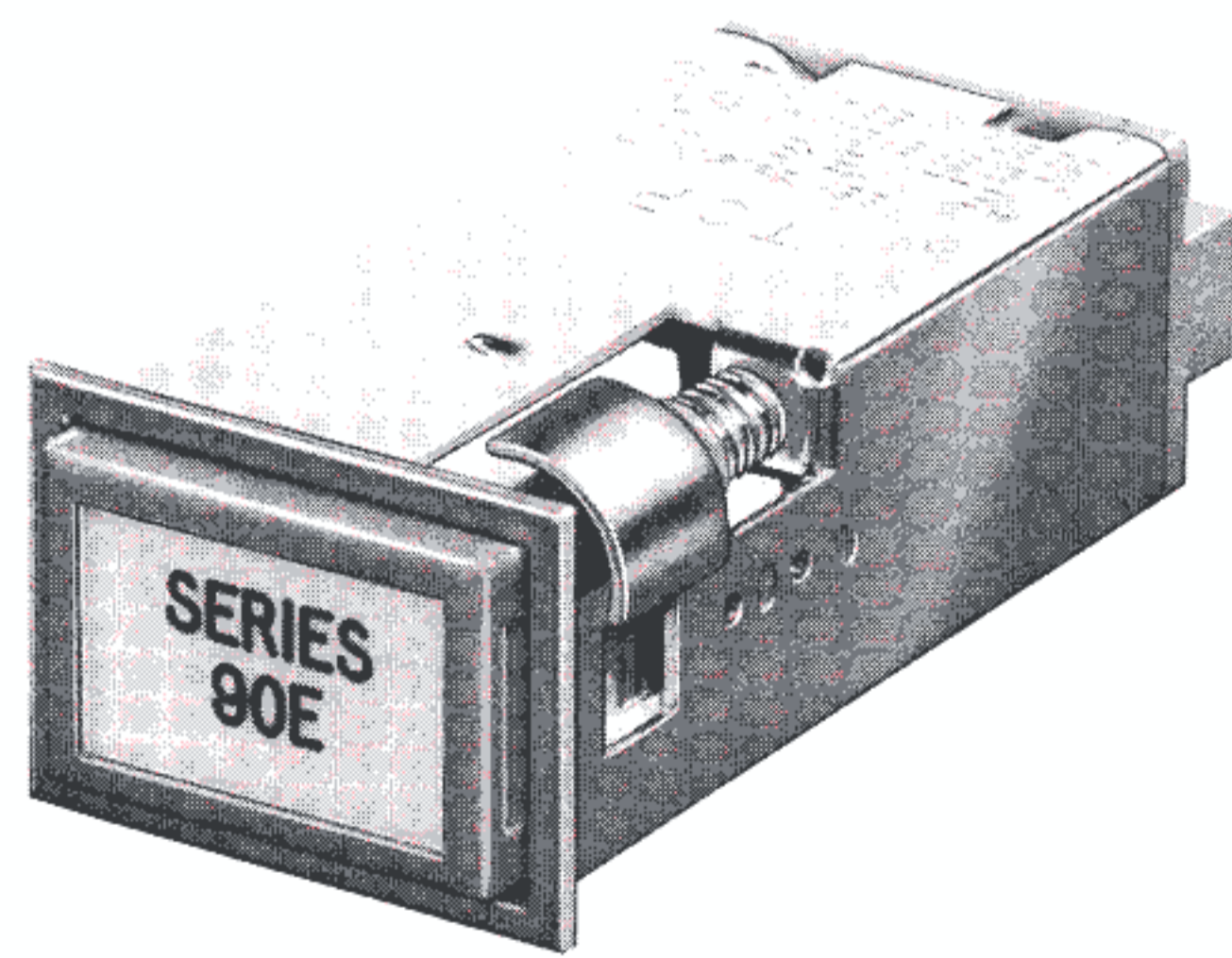
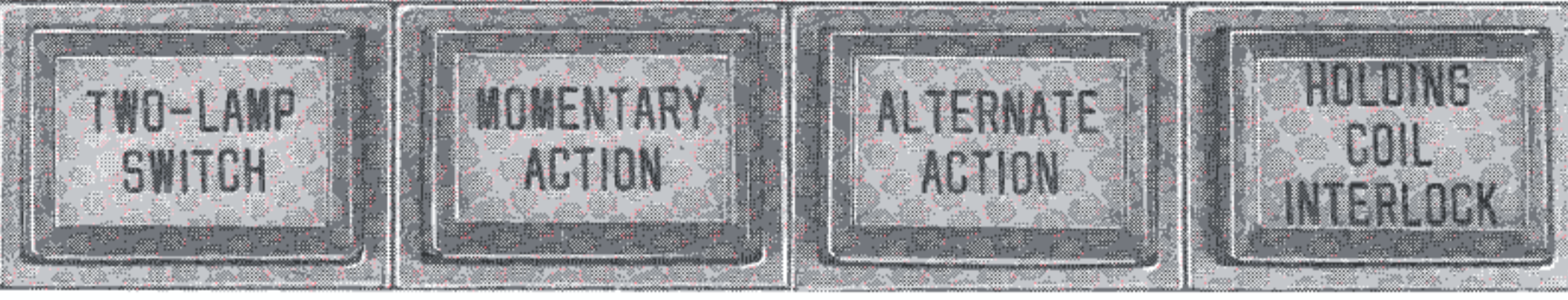


The Series 90 Tellite units are miniature, two-lamp lighted push-button switches and/or word indicator lights with capacity for up to three lines of legend in a compact area. They feature flush-to-the-panel mounting and rectangular lens configuration with word indication by means of two separate standard lamps. The lamps and/or lens assembly may be installed or removed from the panel front without the use of any tools.

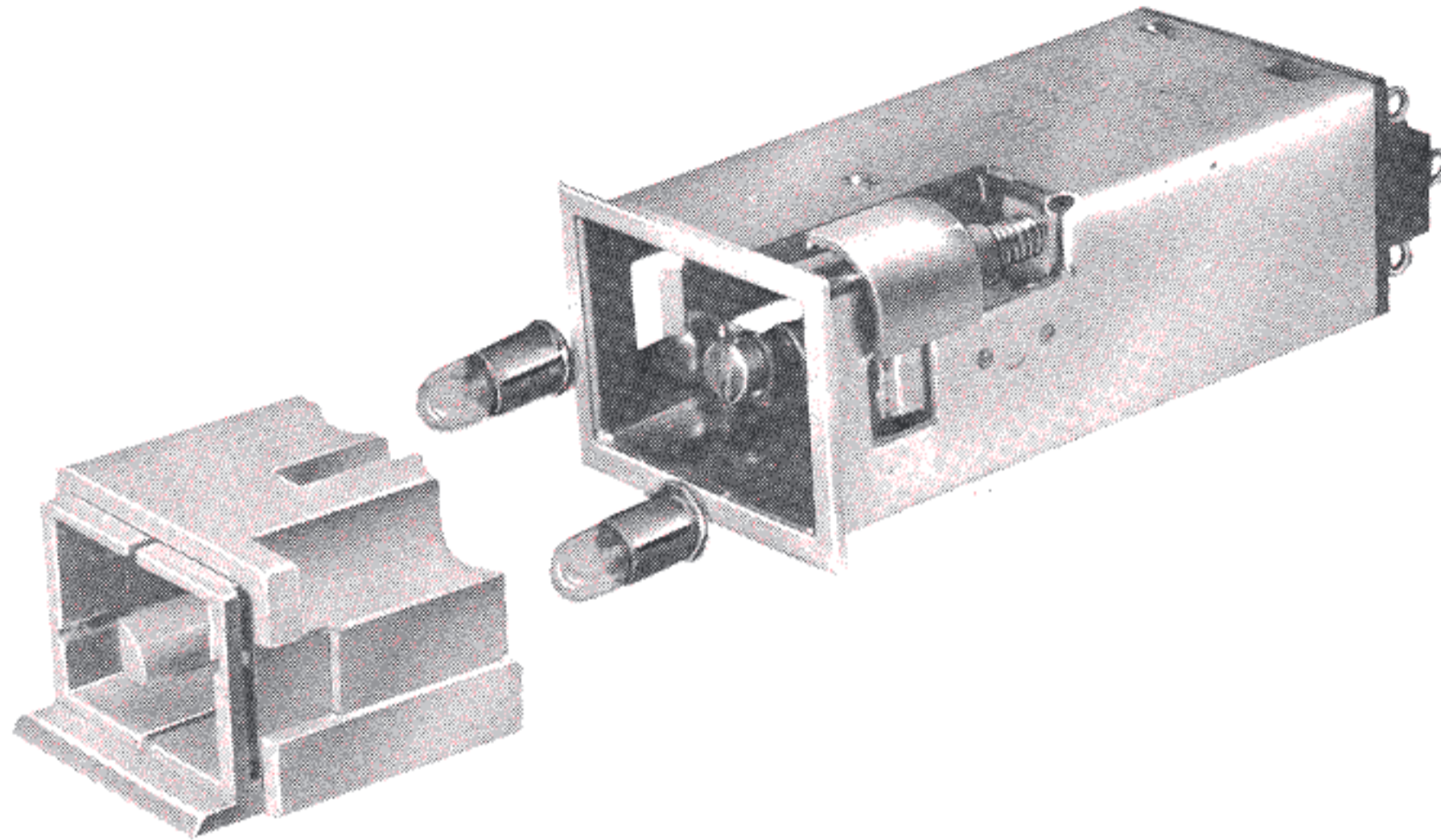
Units are available from 2PDT in some versions to 4PDT, in either momentary or alternate switch action. Holding coil units are also available for electrical interlock.

### UNIQUE MOUNTING HAS NO LOOSE HARDWARE

The mounting is designed as an integral part of the main housing and consists of special mounting sleeves located in opposite corners. Removing the front-end assembly gives access to the screw heads which cam the mounting sleeves in position to contact the rear of the panel. Hard mounting is attained, yet no screw heads show from the panel front; there is no loose or special mounting hardware; and the mounting is completely contained within the outline dimensions of the unit's front face.

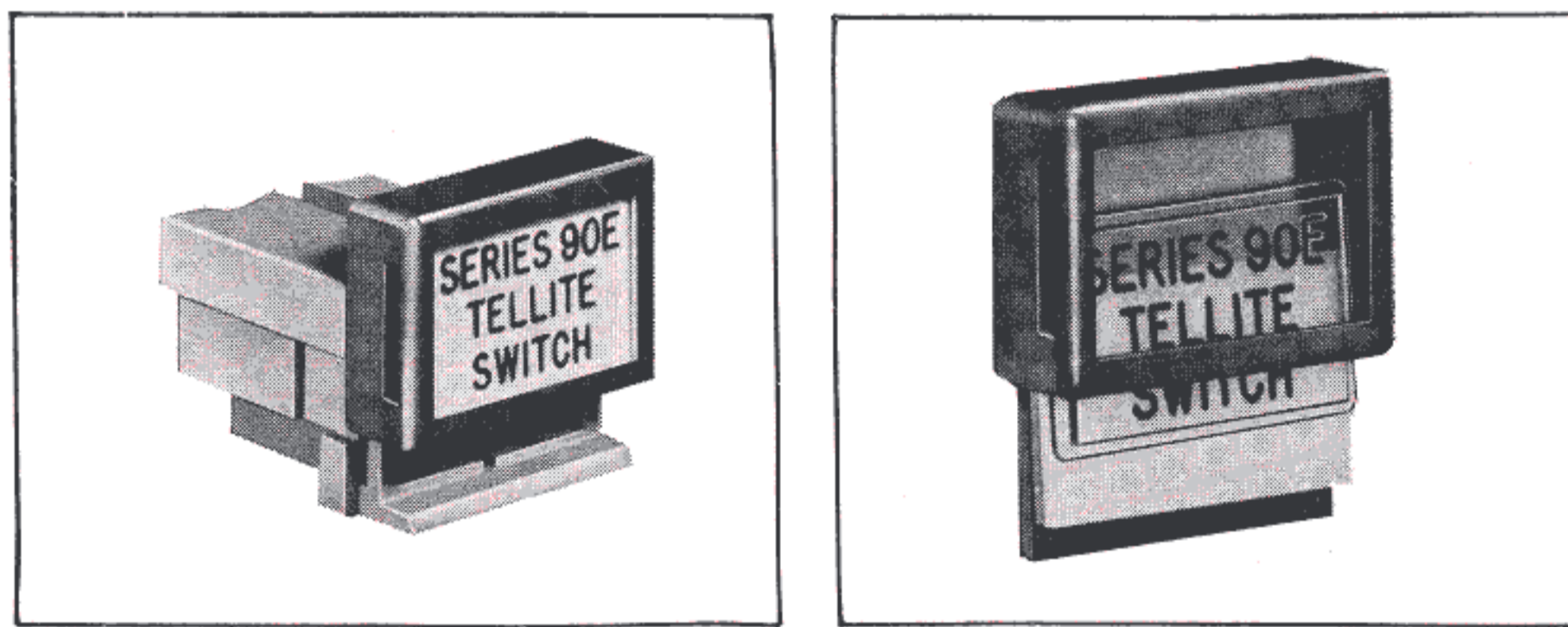


Note: All dimensions are approximate. Contact factory for exact dimensions.



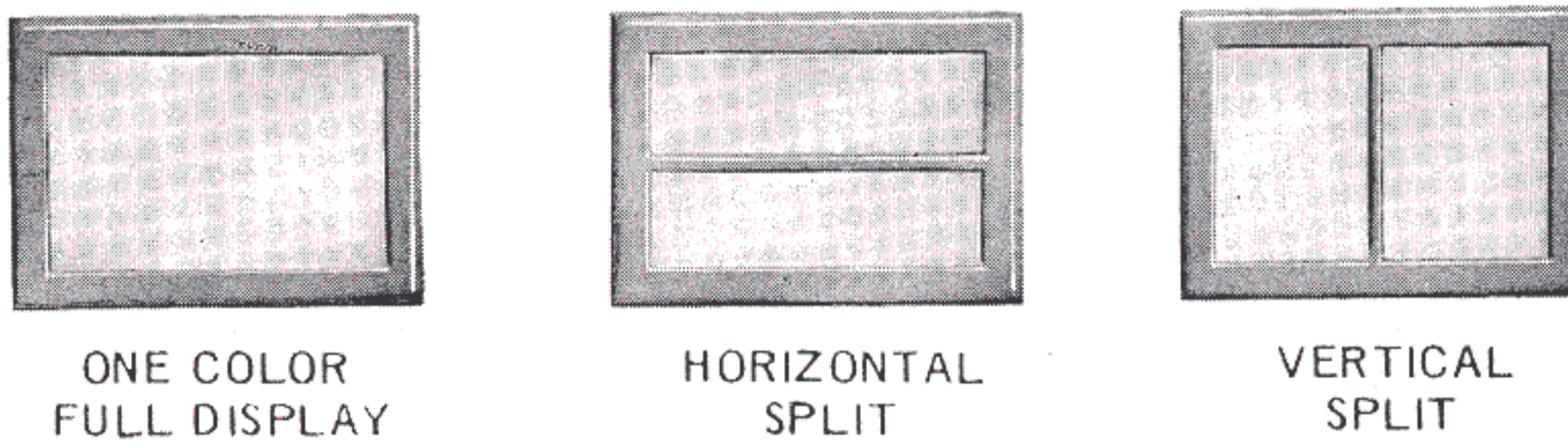
### NO TOOLS REQUIRED FOR LAMP REPLACEMENT

Lamp replacement is accomplished from the panel front without the use of any tools. The light capsule, which holds the lamps and front lens, is held to the unit housing by spring clips which allow it to be removed for quick and easy lamp replacement.



### REMOVABLE LENS ASSEMBLY

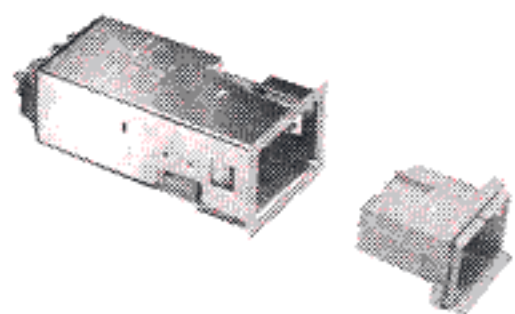

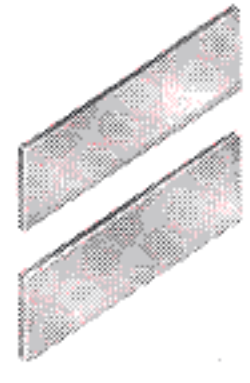
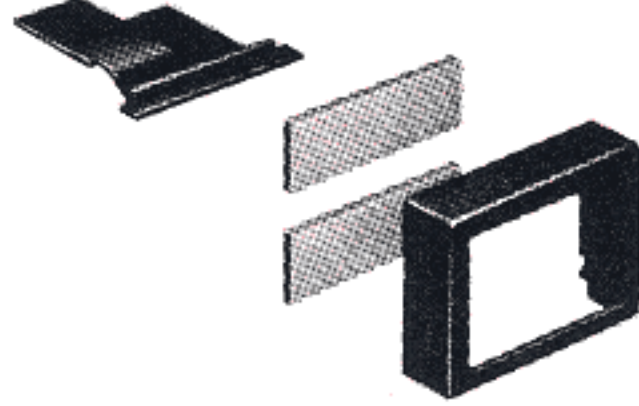

Once the light capsule has been disengaged from the housing, the lens assembly is readily removed. This permits easy changing of display arrangement, color filter, or legend configuration. Simply slide the holder up, which frees the lens, diffuser, and color filter.



### VERSATILE DISPLAY ARRANGEMENT

Word indication may be presented on a full, horizontally, or vertically split display screen. The full display one-color has the added feature of two-lamp reliability. The horizontal or vertical split is made possible by the unique design of the light capsule wherein one lamp illuminates each half of the display, thus providing two indications in the same unit. Colored display is achieved through the use of color filters. Color coded indication — two separate colors illuminating the full display screen — is available. A process in which Eaton pioneered is that of engraving on the reverse side of the lens. This avoids the usual problem of legends being defaced through normal wear.



SERIES	BASIC UNITS	LAMPS	COLOR FILTERS	DISPLAY SCREEN	FRONT LENS AND ENGRAVING
90E	A1C2	F3	J2(AB)	L2	N1R16 ON/OFF
TELLITE SWITCH	 HOUSING AND LIGHT CAPSULE 2 PDT MOM. ACTION	 2 EA. 28 VOLT LAMPS	 1 EA. AMBER 1 EA. BLUE	 HORIZONTAL SPLIT	

**CODED CALL-OUT PROVIDES EASY ORDERING**

The completed unit, including the engraved inscription, may be ordered by a single coded call-out. This system eliminates the need for individually ordering each item required for a completed unit, which in turn would necessitate the customer having to assemble the items once received. The engraving service eliminates the customer's need for in-house engraving equipment or additional sub-contracting.

**CODED CALL-OUT SYSTEM**

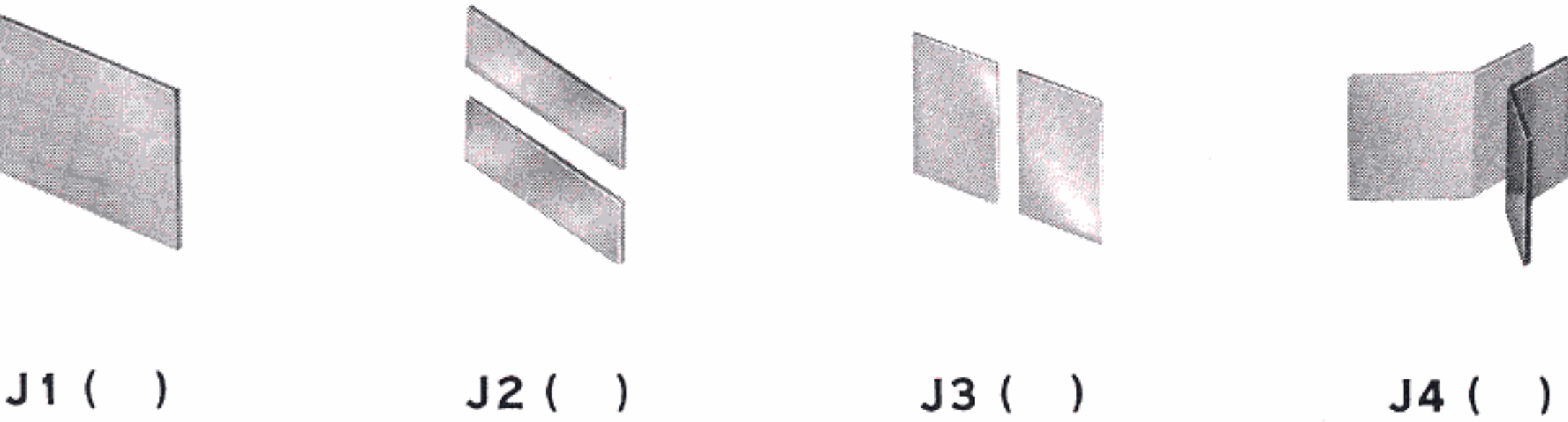
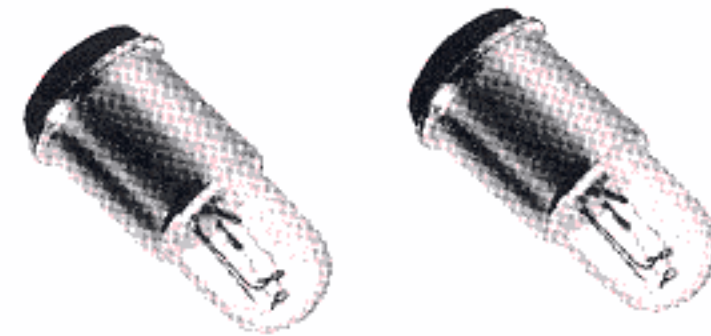
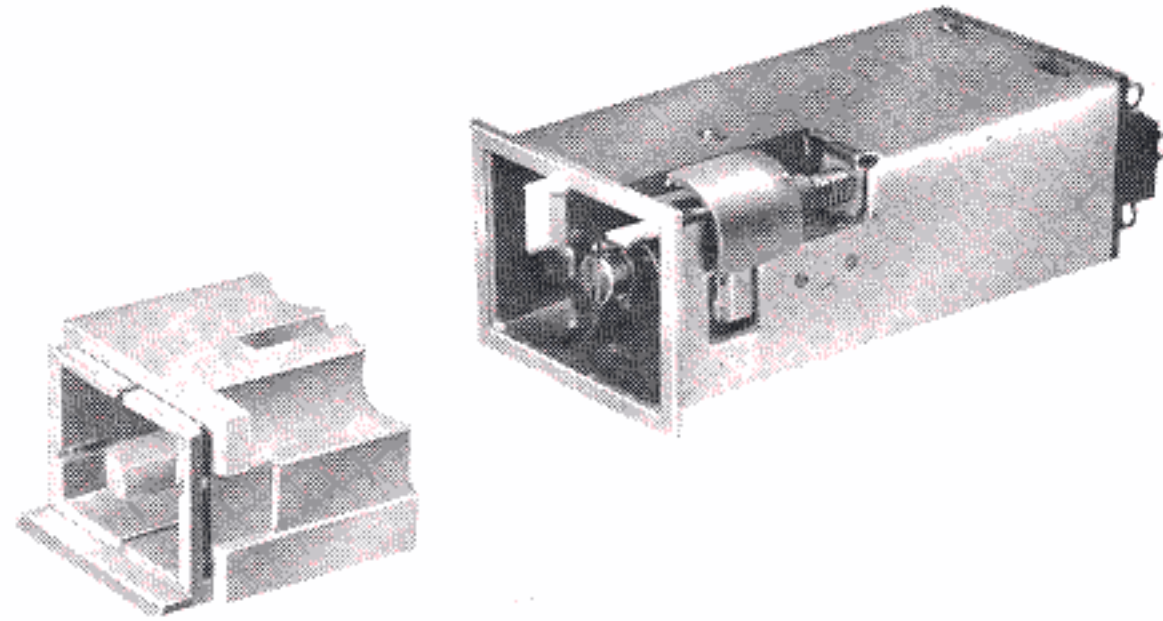
Each item required for a completed unit is assigned a code number. By selecting the code number call-out for each item required and then placing these in alphabetical sequence following the series number "90E," a completed unit call-out is derived.

**ELIMINATION OF ITEMS**

Where one or more items comprising a completed unit are not required, omit the call-out for that item.

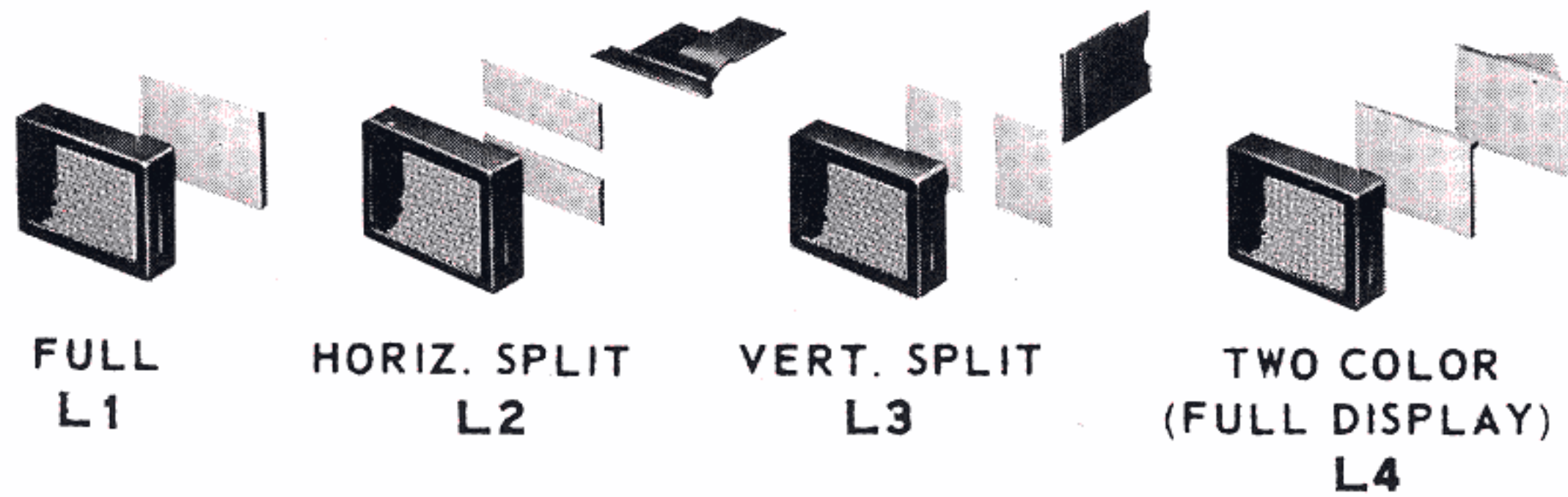
**ORDERING SEPARATE ITEMS**

Where separate items are required, precede an item's call-out with the basic "90E" to obtain the correct order number for that item. Lamps, when ordered separately, are always considered 1 each rather than the 2.



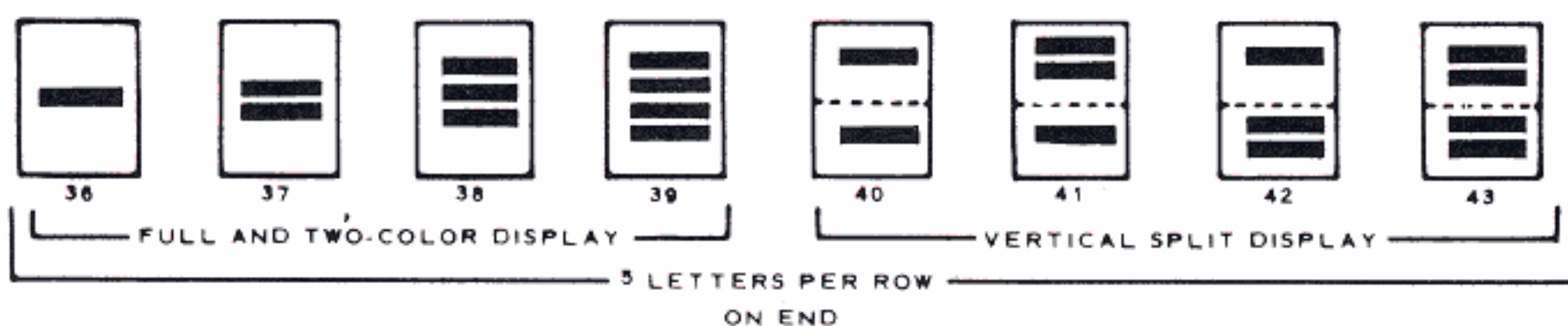
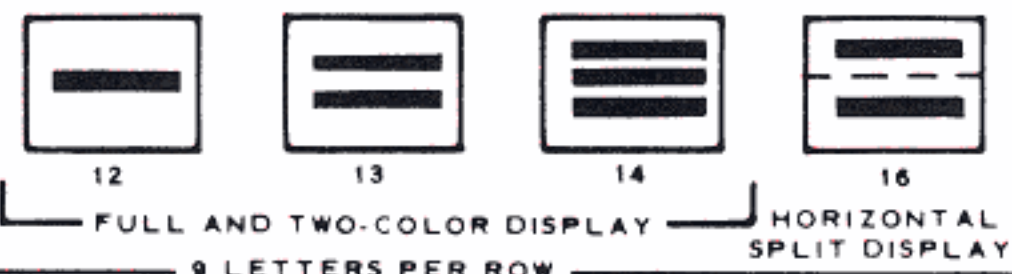
COLOR CODE: A=AMBER; B=BLUE\*; G=GREEN\*; R=RED  
W=WHITE\*\*; Y=YELLOW\*

\*Not recommended for use with 115VAC neon lamps  
\*\*Light blue for white illumination



**Engraving Configurations**

CALL-OUT EXAMPLE



**BASIC UNIT CODE NUMBERS**

SWITCH CHARACTERISTICS	SWITCH UNIT	HOLDING COIL UNIT			
		6 Volt	12 Volt	28 Volt	48 Volt
2PDT Momentary	A1C2	A3C2	A4C2	A2C2	A5C2
4PDT Momentary	A1C3	A3C3	A4C3	A2C3	A5C3
2PDT Alternate	A1C4	—	—	—	—
4PDT Alternate	A1C5	—	—	—	—

**LAMP CODE NUMBERS**

6 Volt	12 Volt	28 Volt	28 Volt Long Life	115 Volt Neon W/Resistor	115 Volt Neon No Resistor
F1*	F2	F3	F14	F4	F10

Lamp size; T-1 3/4 midget flanged base.  
\*Eaton recommends lamps with nickle plated contacts for low voltage applications.

**COLOR FILTER CODE NUMBER**

To order a color filter for a specific display arrangement, use the code numbers shown for that display, followed by the color code letter desired in parentheses. In a horizontal split, the first color code denotes the top half of the display, the second color code denotes the bottom half. In a vertical split, the first color code denotes the color for the left half of the display, the second color code denotes the color for the right half. For the 2-color full display, the first color code denotes the color to be used with the left lamp; the second color code denotes the color for the right lamp, as viewed from the panel front.

**DISPLAY SCREEN CODE NUMBER**

The code number includes the holder and dividers, where applicable. Full displays or horizontally or vertically split displays are available. The coded part number, "L1," etc., also includes the holder for the lens assembly.

**FRONT LENS AND ENGRAVING CODE NUMBER**

The front lens with required engraving is ordered by following the call-out "N1R" with the engraving configuration number as selected on left. After this, the actual wording is added, using commas between rows of wording and a straight vertical line between splits.

**NON-ENGRAVED LENS**

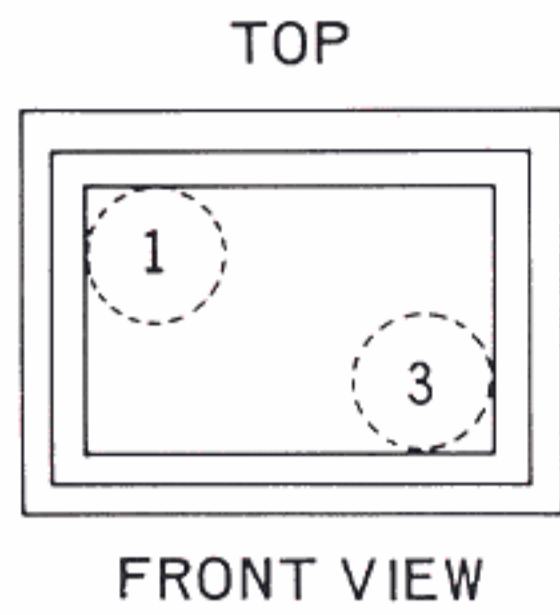
When a non-engraved lens is required, the code number "N1" is used, eliminating the remaining part of the engraved lens call-out.

**SEPARATE ENGRAVED LENSES**

Where separate engraved lenses are required, precede the front lens and engraving code number call-out with the basic "90E."

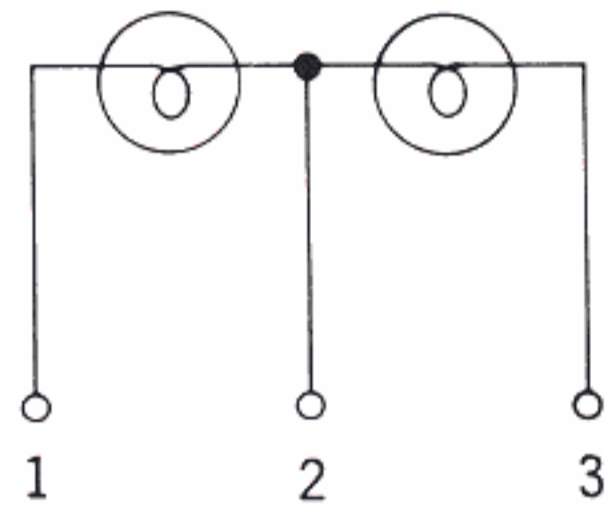
**ENGRAVING SPECIFICATIONS**

Engraving of the 90E Series lens produces letters .110" in height, with a .017" stroke. Letters are filled with a special black filler.

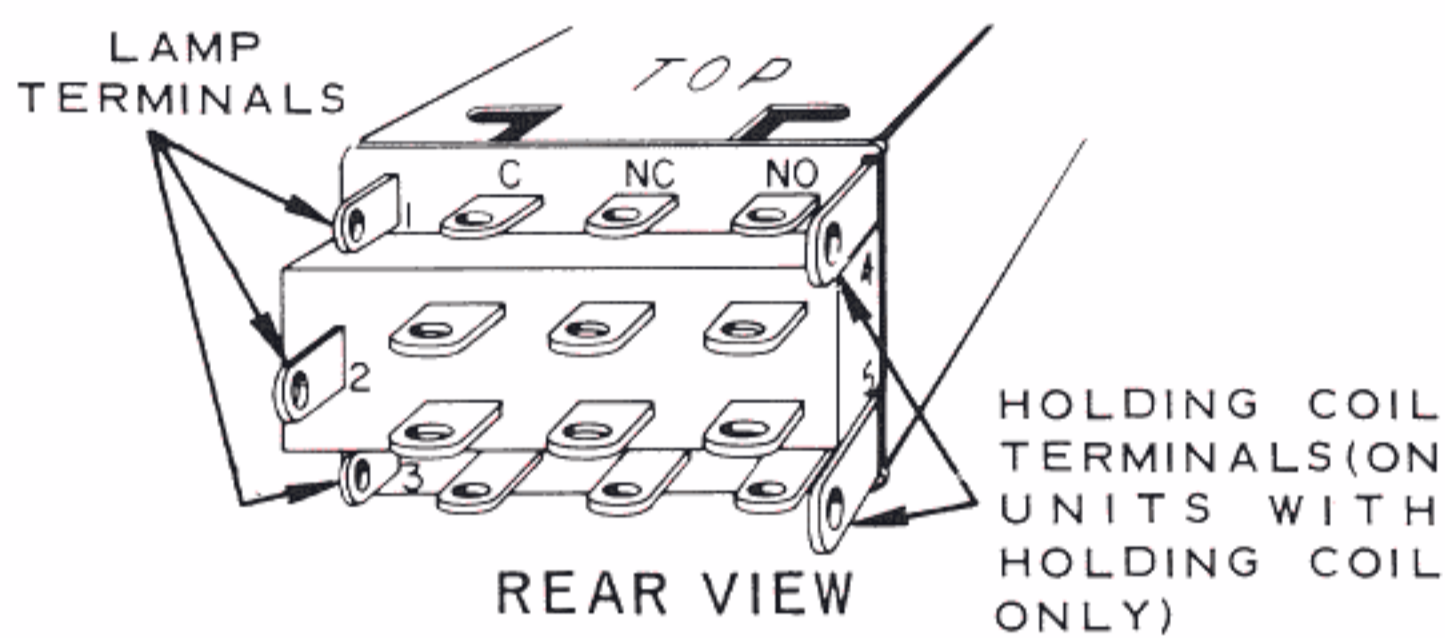


(Numbers correspond to lamp terminals)

LAMP SCHEMATIC



### LAMP LOCATION AND LAMP TERMINAL IDENTIFICATION

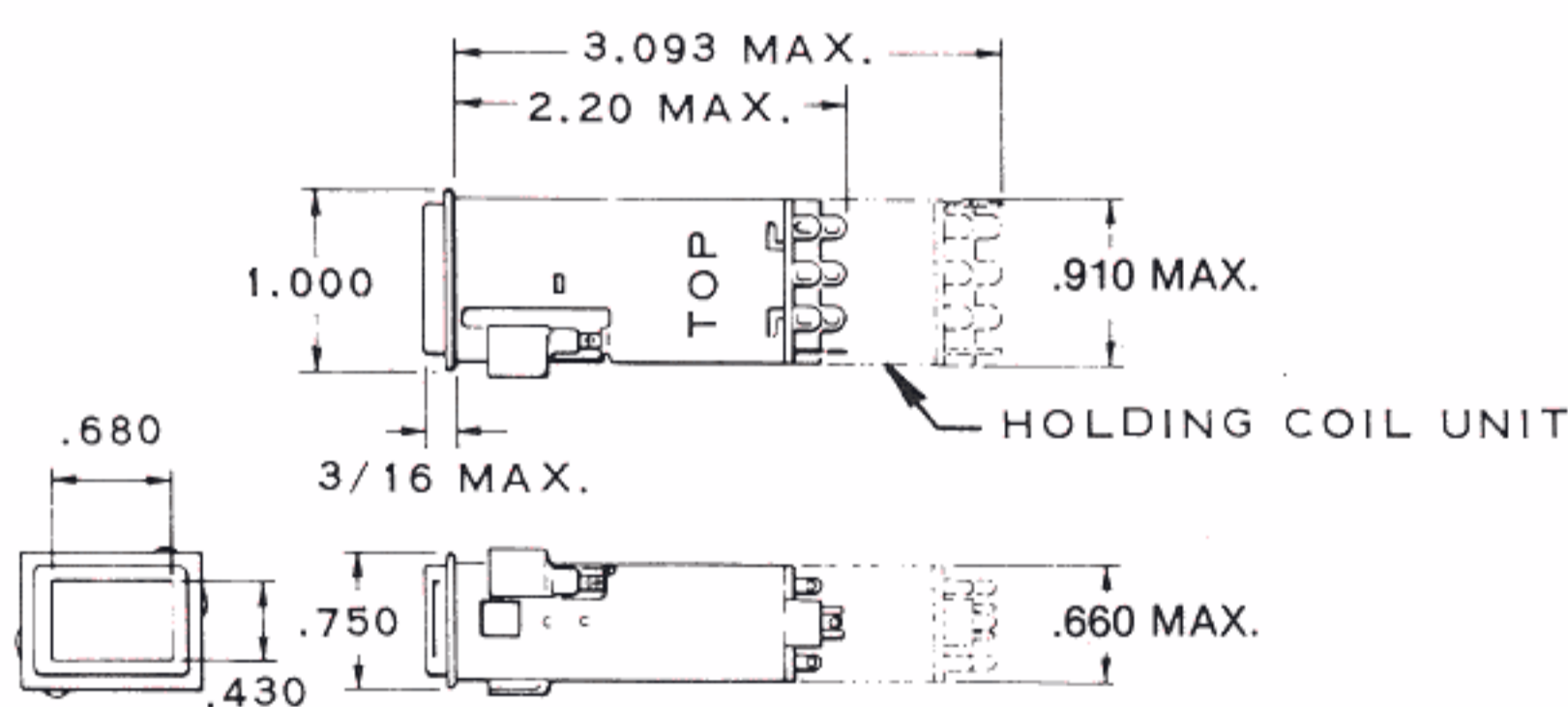


### SWITCH TERMINAL IDENTIFICATION

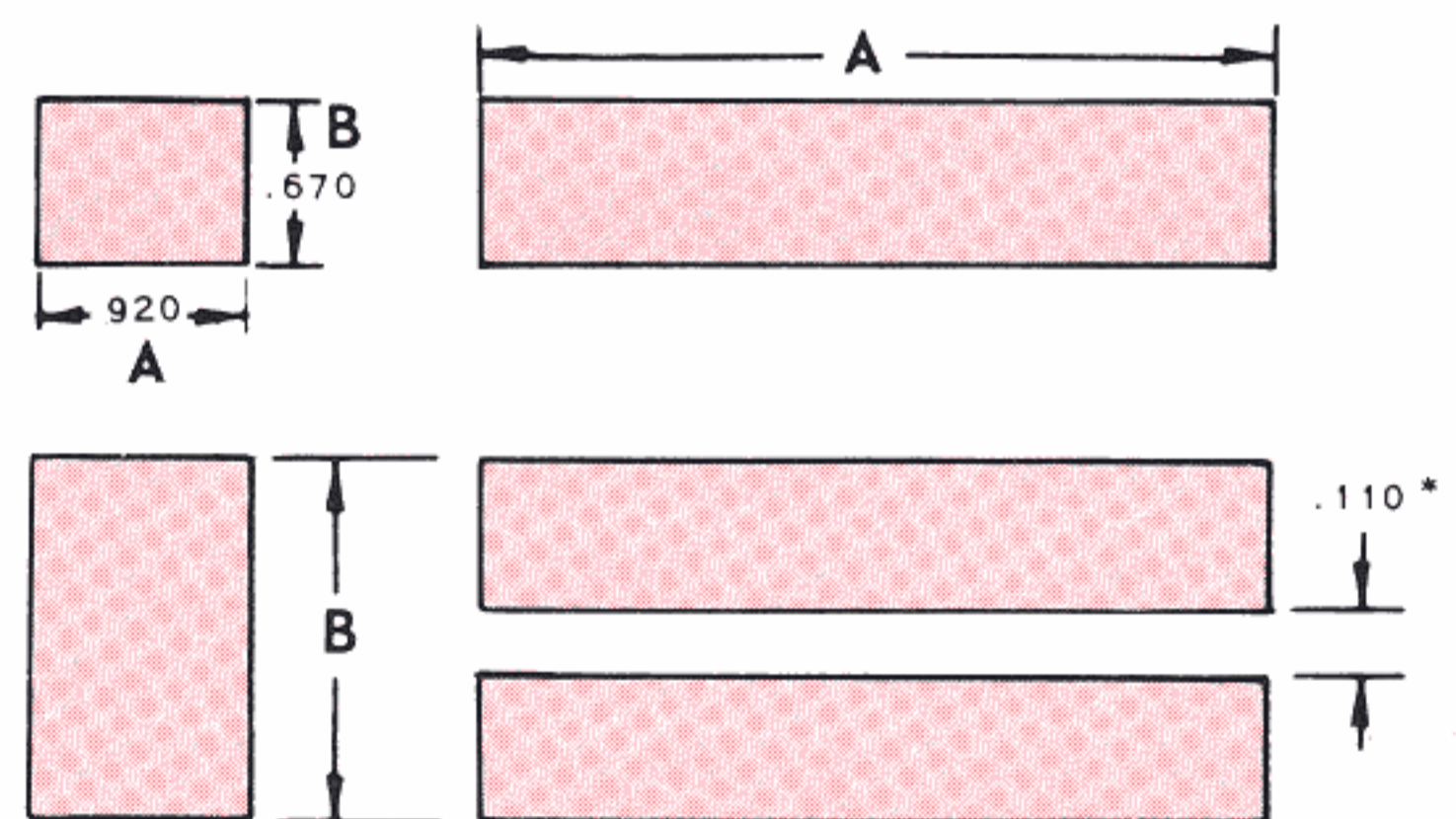
NOTES:

1. On 2 PDT switches, switch terminals are furnished in center only.
2. Terminals will accept two No. 20 AWG wire leads.
3. Electrical ratings: 3 amps resistive, 1½ amps inductive, 1 amp lamp load @ 28 VDC.
4. Holding coil power requirement: Maximum 3 watts.
5. Operating force - 4 lb. max.
6. Electrical life - 25,000 cycles min.
7. Mechanical life - 100,000 cycles min.

## Outline Dimensions and Panel Cutout



All decimal dimensions are ±.010".



NOTES:

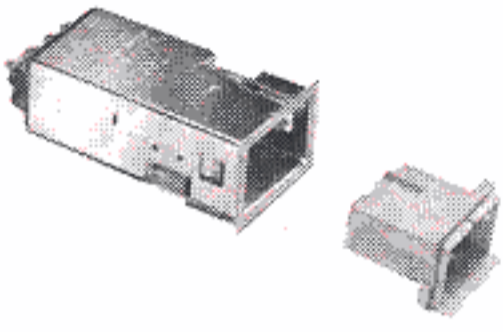

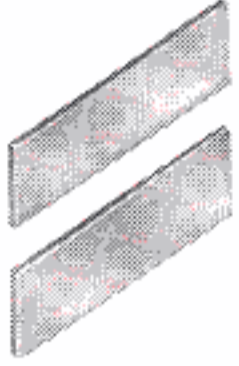
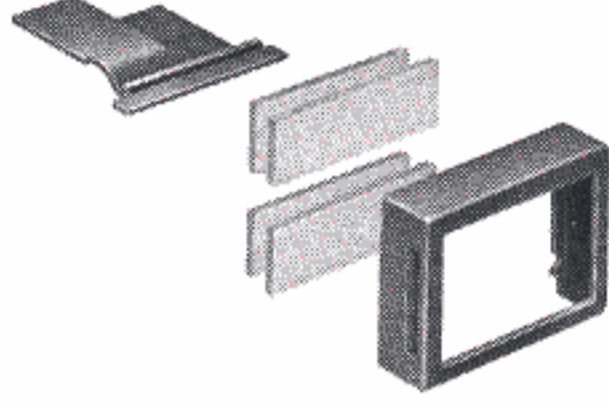

1. The unit will mount in panels 3/32" to 3/16" thick. For units to fit other panel thicknesses, contact the factory.
2. When mounting unit on end, the side marked "top" is on the left as viewed from the front of the panel.

### PANEL CUT-OUT DIMENSIONS IN INCHES (±.010)

NO. OF UNITS IN ROW	1	2	3	4	5	6	7	8
Horizontal Row "A".....	.920	1.925	2.930	3.935	4.940	5.945	6.950	7.955
Vertical Row "B".....	.670	1.425	2.180	2.935	3.690	4.445	5.200	5.955

\*For matrix arrangement, allow .110" in panel between cut-outs for adjacent horizontal or vertical rows.



SERIES	BASIC UNITS	LAMPS	COLOR FILTERS	DISPLAY SCREEN	FRONT LENS AND ENGRAVING
90H	A1C2	F3	J2(AB)	L2	N1R16 ON/OFF
TELLITE SWITCH	 HOUSING AND LIGHT CAPSULE 2 PDT MOM. ACTION	 2 EA. 28 VOLT LAMPS	 1 EA. AMBER 1 EA. BLUE	 HORIZONTAL SPLIT	

The Series 90 H Tellite Switch is the military version of the Series 90E, and it meets the requirements of MIL-S-22885/58. The package size, mounting method, and wire terminations are the same as the Series 90E. The following is a cross reference of the Mil-Spec part numbers and the 90H part numbers.

**BASIC UNIT CODE NUMBERS**  
Same as 90E; see page 5

**LAMP CODE NUMBERS**  
Same as 90E; see page 5

Mil-Spec Part No.	Eaton Part No.	Mil-Spec Part No.	Eaton Part No.
M22885/58-01 (X)	90HA1C2J1 ( )L1N1	M22885/58-07 (X)	90HA1C4J1 ( )L1N1
M22885/58-02 (XX)	90HA1C2J2 ( )L2N1	M22885/58-08 (XX)	90HA1C4J2 ( )L2N1
M22885/58-03 (XX)	90HA1C2J3 ( )L3N1	M22885/58-09 (XX)	90HA1C4J3 ( )L3N1
M22885/58-04 (X)	90HA1C3J1 ( )L1N1	M22885/58-10 (X)	90HA1C5J1 ( )L1N1
M22885/58-05 (XX)	90HA1C3J2 ( )L2N1	M22885/58-11 (XX)	90HA1C5J2 ( )L2N1
M22885/58-06 (XX)	90HA1C3J3 ( )L3N1	M22885/58-12 (XX)	90HA1C5J3 ( )L3N1

**CODED CALL-OUT PROVIDES EASY ORDERING**

The completed unit, including the engraved inscription, may be ordered by a single coded call-out. This system eliminates the need for individually ordering each item required for a completed unit, which in turn would necessitate the customer having to assemble the items once received. The engraving service eliminates the customer's need for in-house engraving equipment or additional sub-contracting.

**CODED CALL-OUT SYSTEM**

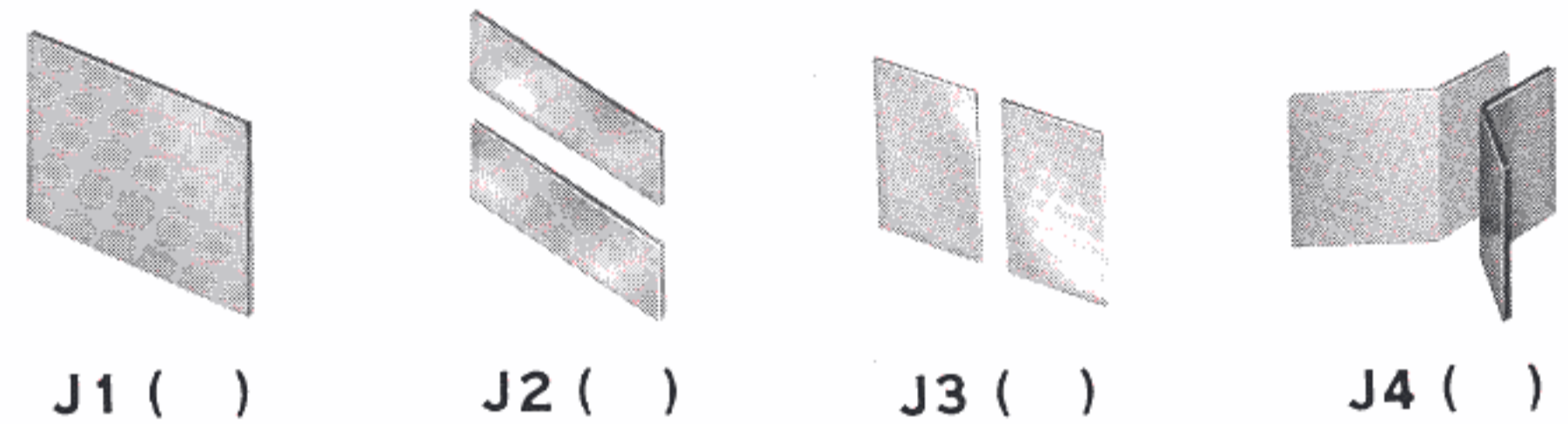
Each item required for a completed unit is assigned a code number. By selecting the code number call-out for each item required and then placing these in alphabetical sequence following the series number "90H," a completed unit call-out is derived.

**ELIMINATION OF ITEMS**

Where one or more items comprising a completed unit are not required, omit the call-out for that item.

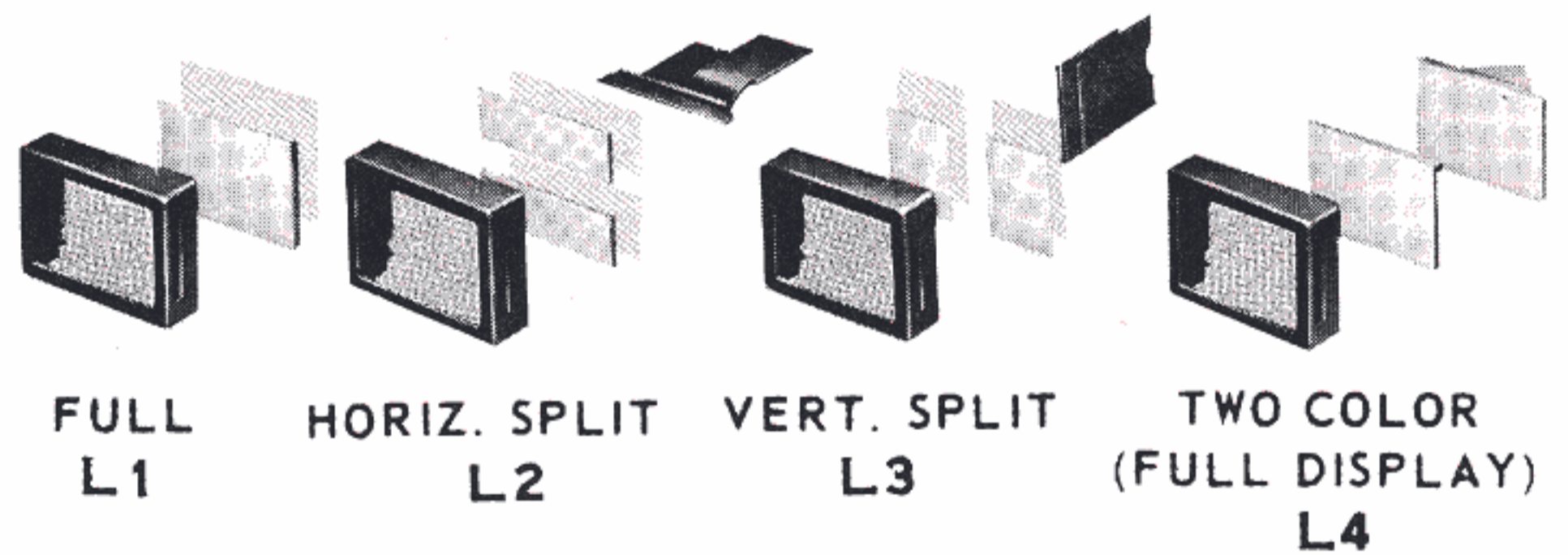
**ORDERING SEPARATE ITEMS**

Where separate items are required, precede an item's call-out with the basic "90H" to obtain the correct order number for that item. Lamps, when ordered separately, are always considered 1 each rather than the 2.



COLOR CODE: V = VIOLET\*; B = BLUE\*; G = GREEN\*; R = RED  
W = WHITE\*\*; Y = YELLOW\*

\*Not recommended for use with 115VAC neon lamps  
\*\*Light blue for white illumination



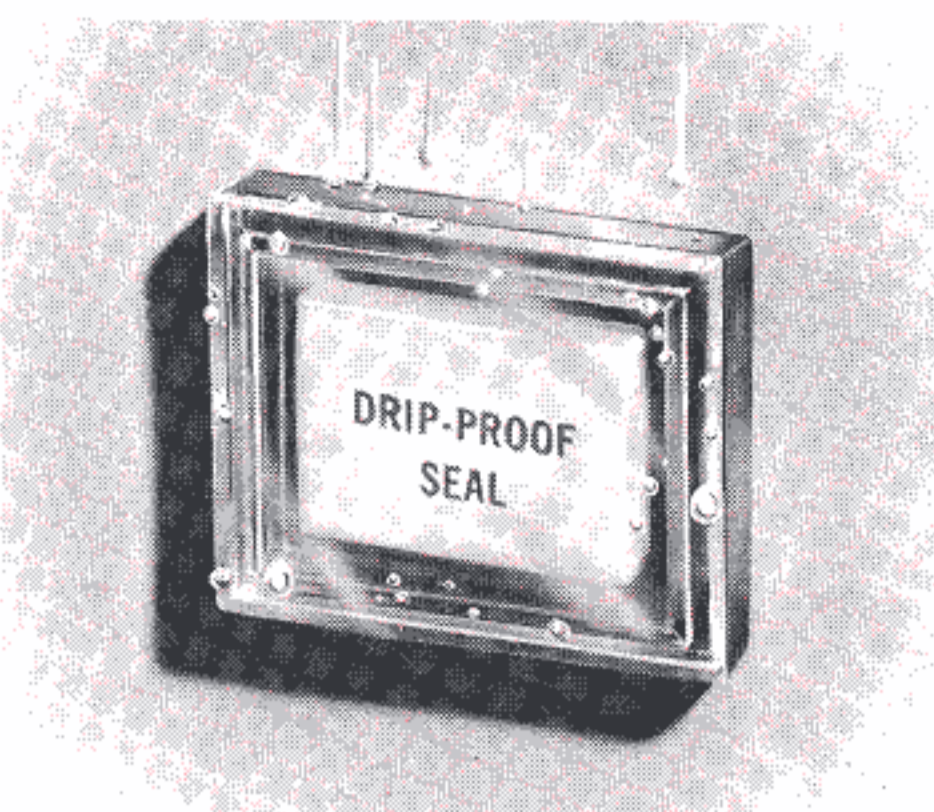
**COLOR FILTER CODE NUMBER**

To order a color filter for a specific display arrangement, use the code numbers shown for that display, followed by the color code letter desired in parentheses. In a horizontal split, the first color code denotes the top half of the display, the second color code denotes the bottom half. In a vertical split, the first color code denotes the color for the left half of the display, the second color code denotes the color for the right half. For the 2-color full display, the first color code denotes the color to be used with the left lamp; the second color code denotes the color for the right lamp, as viewed from the panel front.

**DISPLAY SCREEN CODE NUMBER**

The code number includes the holder and dividers, where applicable. Full displays or horizontally or vertically split displays are available. The coded part number, "L1," etc., also includes the holder for the lens assembly.

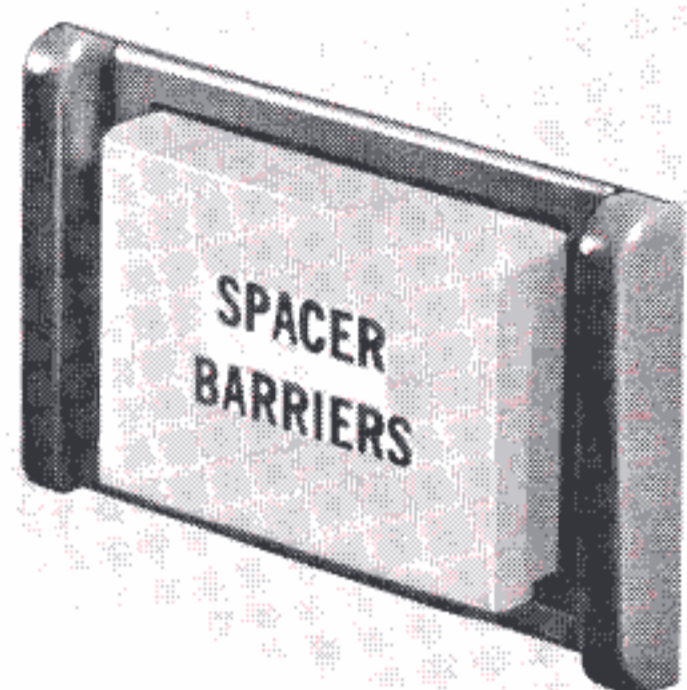
### DRIP-PROOF SEAL



An easily installed, effective barrier that prohibits the entrance of liquids, or foreign matter through panel openings, without affecting visibility of legends or ease of switching. Assembly consists of a diaphragm which slips over the basic unit from the back, and a seal that fits over the front of the unit to provide an effective seal.

Order as part number 90E-502.

### SPACER BARRIERS



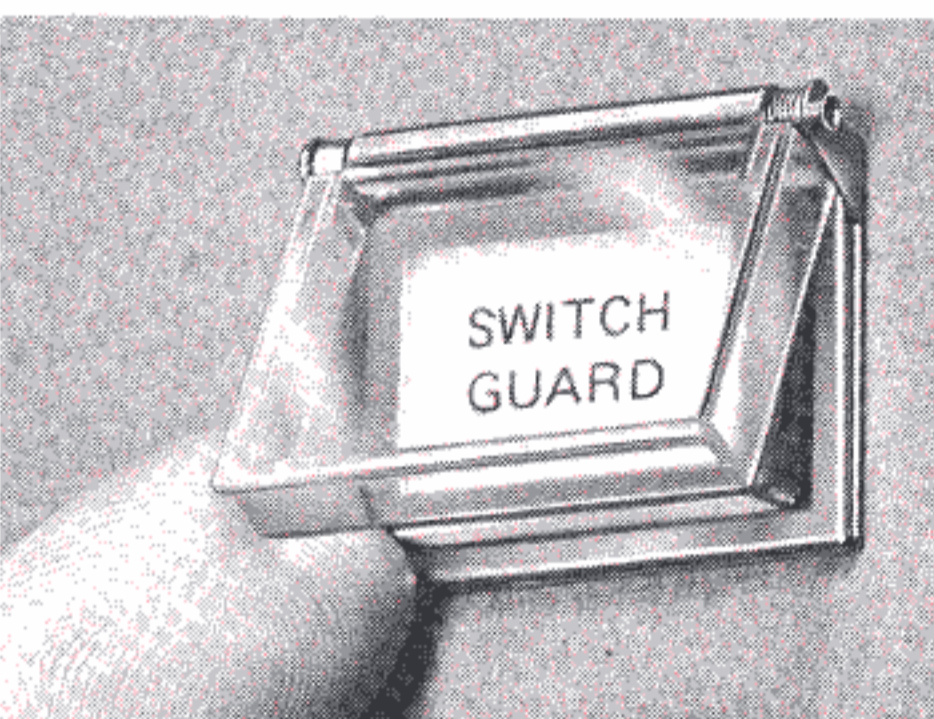
Spacer Barriers are available for vertical or horizontal mounting with basic 90 units. As a safety precaution, the barriers preclude the possibility of inadvertently switching two adjacent units at the same time. For design purposes, barriers are available in a variety of colors as listed.

**How to Order:** Select vertical (short) or horizontal (long) barriers from the tables below, according to the desired colors. Two are required for one unit (and one for each additional unit if rows are used).

Vertical Barriers for Horizontal Rows (Mount on Sides)		Horizontal Barriers for Vertical Rows (Mount on Top and Bottom)	
Part Number	Color	Part Number	Color
90E535G	Gray	90E536G	Gray
90E535B	Black	90E536B	Black
90E535W	White	90E536W	White
90E535R	Red	90E536R	Red

**NOTE:** Barriers are 0.125" thick. The added space required for barriers must be allowed for in the preparation of panel cutouts as detailed on page 6. Allow 0.340 for the first unit and 0.125 for each additional unit in a matrix.

### SWITCH GUARD

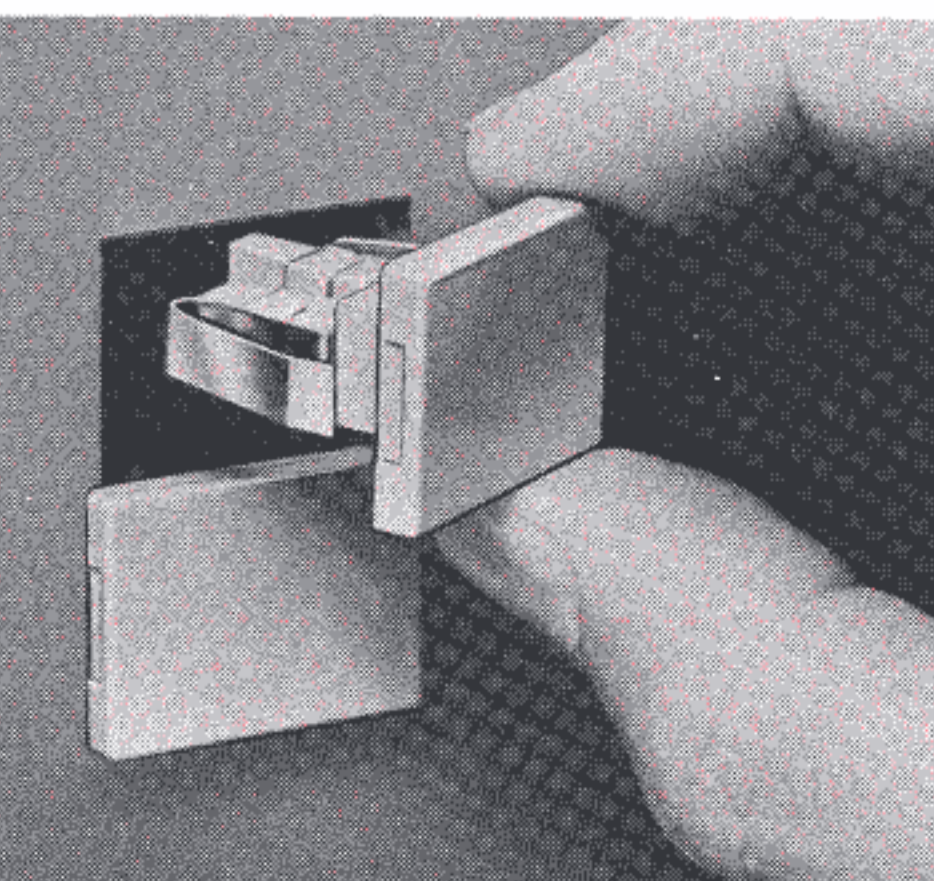


Positive protection against accidental switch actuation is provided by this spring-loaded, clear plastic cover. The spring holds the cover over the switch face at all times. To gain access to the switch face to actuate the switch, the cover must be raised by deliberate action.

**How to Order:** Switch Guards may be ordered separately by specifying Part Number 90E-19.

**How to Install:** The installation of a Switch Guard can be quickly accomplished in the field. To install, remove the unit light capsule, loosen the mounting screws sufficiently to provide space between the frame of the switch unit and the panel front. Slip the Switch Guard onto the frame from the bottom of the frame. Tighten mounting screws securely and replace the light capsule.

### PANEL PLUGS



Panel plugs may be used to attractively cover cutouts which have been provided for future expansion, or which have been created by design changes. Each plug will fit any single cutout measuring 0.920" x 0.670". Plugs may also be inserted into vertical or horizontal rows of units to cover spaces allotted for one or several units. Dimensions of plug face are 3/4" x 1".

#### How to Order

Panel plugs may be ordered in various colors by using the part numbers shown below.

Eaton Part Number	Color
90E542-1	Black
90E542-2	Red
90E542-3	Gray
90E542-4	White
90E542-5	Blue
90E542-6	Yellow
90E542-7	Green