

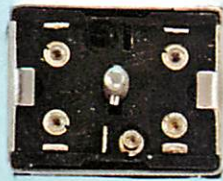
**MSC**<sup>®</sup>

**4 LAMP LIGHTED  
PUSHBUTTON  
SWITCHES**

CATALOG LISTING  
**SERIES 12 & 12H  
TWIST-LITE<sup>®</sup> II**

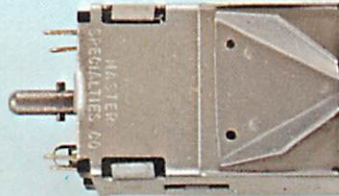
REF.

MASTER SPECIALTIES CO., 1640 MONROVIA, COSTA MESA, CALIFORNIA 92627



850

1.090



1.750 MAX.

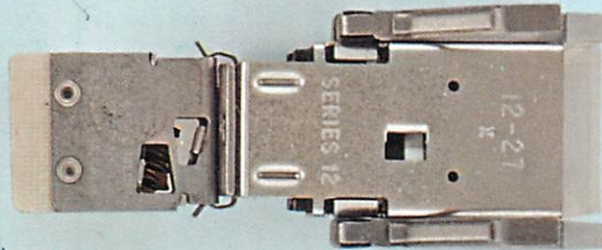


MSC  
SERIES  
12

1.350



$\pm .015$   
.780



1.171  
MAX.



HORIZ.

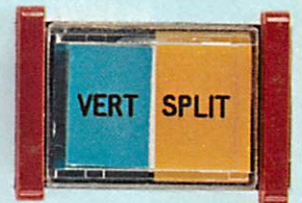
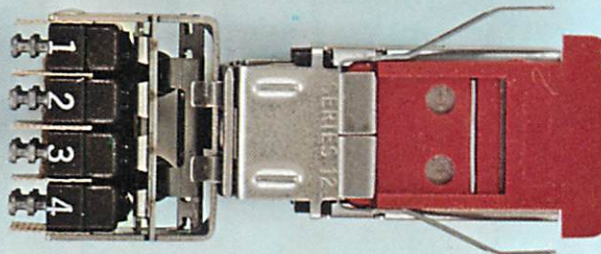
SPLIT

.656  
MAX.

2.760 MAX.  
MOM.



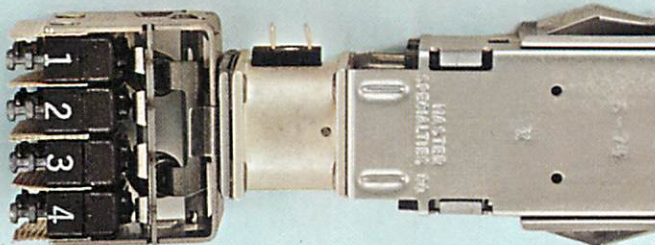
1.183  
MAX.



VERT SPLIT

$\pm .015$   
.780

2.760 MAX.  
MOM.



1.120



3 WAY

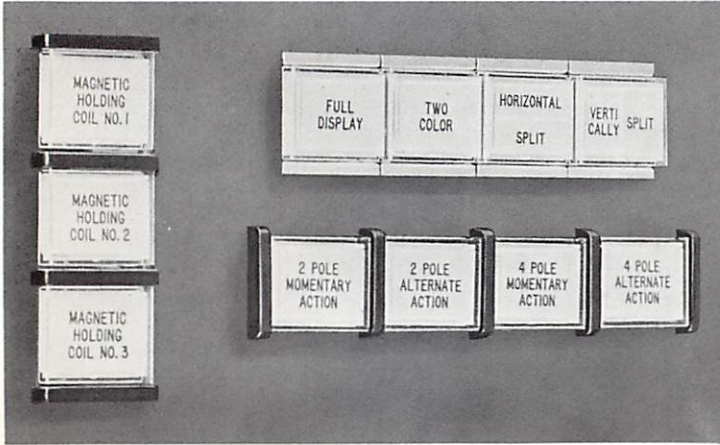
SPLIT

3.315 MAX.  
MOM.

FORM MK 20  
UNLESS OTHERWISE SPECIFIED  
FRACTION ANGLE DECIMAL  
1/8 1/16 1/32 1/64 1/128 1/256 1/512 1/1024  
DRAWN *JE Thompson* 6-11-79  
CHECK *JET*  
RELEASE *5/1/74 BLL*

NOTES MSC - YOU CAN'T DO BETTER!

SYM	DESCRIPTION	DATE	BY	REL
REVISIONS				



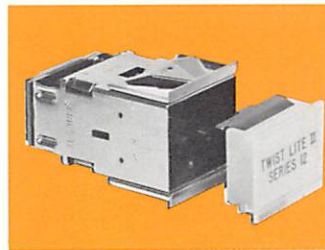
The Series 12 Twist Lite® II is an illuminated push button switch for use on commercial or military applications where premium performance at economical prices are a prime consideration. The unit can also be obtained without the switching mechanism as a basic indicator device only. These assemblies have provisions for four (4) lamps with individual bulb boots used to control the color of each lamp. The front lens provides a flat surface for engraving the desired inscription. Switch assemblies are easily installed and provide momentary or alternate action operation. Twist Lite II requires no tools for relamping, re-legending, colored bulb boot installation, switch mounting or panel mounting.

They are easy to mount from the panel front. A choice of six mounting arrangements — vertical or horizontal spring clips attached to the units themselves; vertical or horizontal mounting barriers; and, a combination of both spring clips and spacing barriers — provide maximum panel layout flexibility. The units are available in three basic configurations: (1) Indicator; (2) Switch-Lite; and (3) Switch-Lite with Holding Coil. They accept up to four (4) T-1-3/4 midget flanged-base lamps, operating at 6, 12, 28 VDC or 115 VAC.

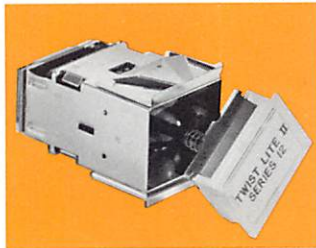
Relamping is quickly and conveniently accomplished, without tools of any kind, with a simple "pull-and-twist" action on the front lens housing. And, all this is effected without transfer of switch contacts.

Translucent color "boots", molded from high temperature silicon rubber, are also offered to provide individual color control for each lamp. They come in a choice of standard colors.

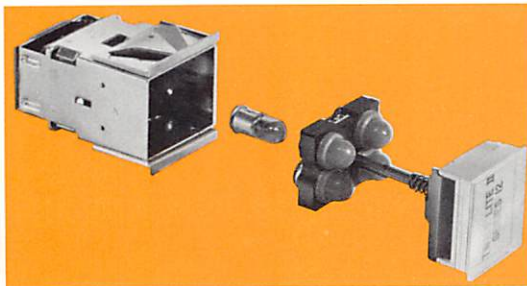
Front lens assemblies are available in a choice of full, vertical, horizontal, and 3- or 4-way split display arrangements. In addition, front lens covers can be provided in clear, white, amber, blue, green or red colors.



**EXTEND**



**TWIST**



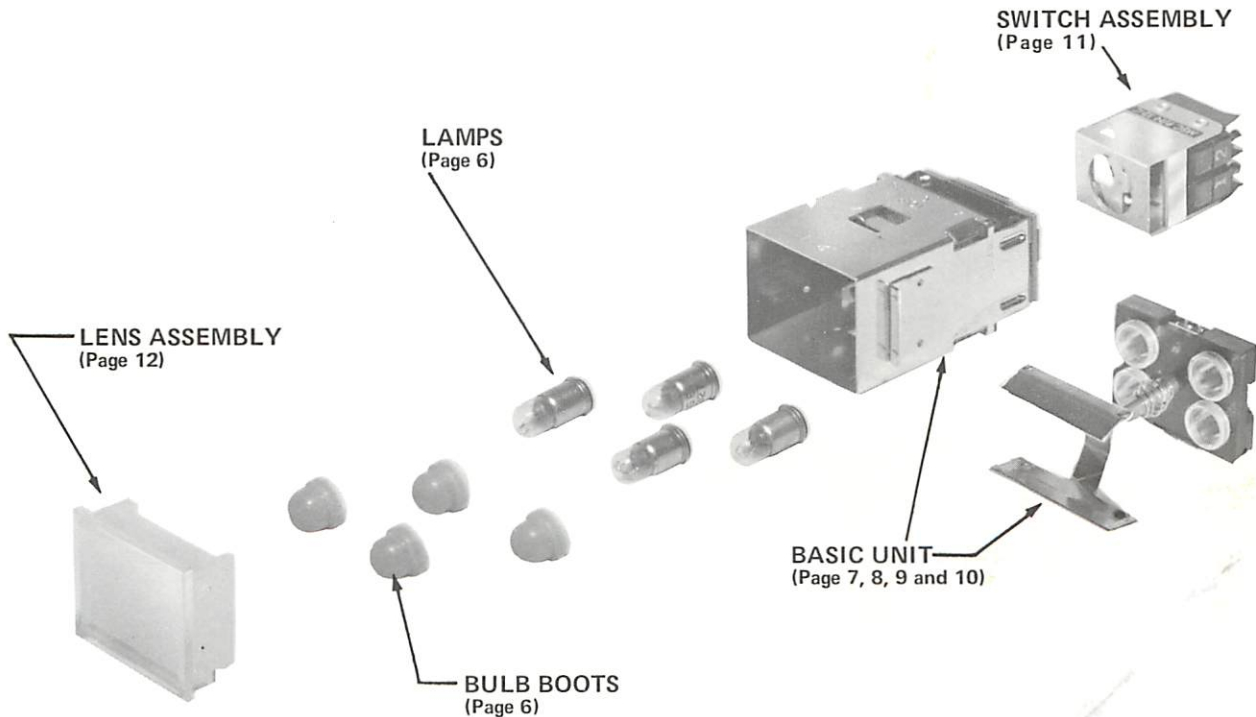
**REMOVE**

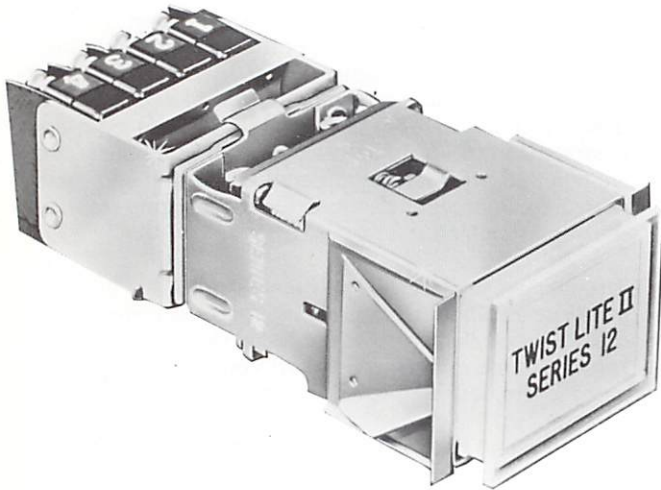
SERIES 12 COMMERCIAL ORDERING GUIDE (Typical Unassembled Unit)		
ITEM	TYPICAL P/N	WHAT IS REQUIRED
Front Lens Assembly	12-M	1 required available in single piece or 3 piece assembly. (Page 12)
Colored Bulb Boots	12-A	2 or 4 required—A (amber) B (blue) R (red) G (green) Y (yellow) W (white—light blue for white illumination). (Page 6)
Lamps	12-H	2 or 4 required—6VDC (P.N.—12-K), 12VDC (P.N.—12-J), 28VDC (P.N.—12-H), 115VAC w/ resistor (P.N.—12-L*). *recommended for use with red or amber filters only. (Page 6)
Basic Unit	12-75	1 required (see basic unit descriptions on inside of folder for specific part no. designations). (Pages 7,8,9 and 10)
Mounting Barriers	12-S1	2 required for single unit plus one for each additional unit in the same row. Barriers are not required for spring clip mounted units. (Page 14)
Space Barriers	12-P1	2 required—for single unit plus one for each additional unit in the same row. These may be used with spring clip mounted units only. (Page 14)
Switch Assembly	12-D	1 required—for each switch-lite unit or switch-lite unit with holding coil. (Page 11)

The pages of this catalog describe each element of the Series 12 switch-lite or indicator-lite units. Each item required for a completed unit is assigned a code number. To determine the units you need, simply select the codes that define your choice of each element. The items are ordered separately and shipped unassembled. (If assembled units are required, they may be ordered this way at additional charge. Note on your purchase order that units are to be shipped assembled.)

The chart at the left shows a breakdown of the items that comprise a completed unit and the page numbers that describe each element. The exploded view illustration below also identifies the elements you can specify and the pages where each element can be found in this catalog.

An alternate, simplified ordering method is available wherein items required for a complete switch-lite or indicator-lite unit or even an assembly of units are defined in a Specification Sheet, which is maintained for the specific customer by MSC. Consult your MSC representative for details.





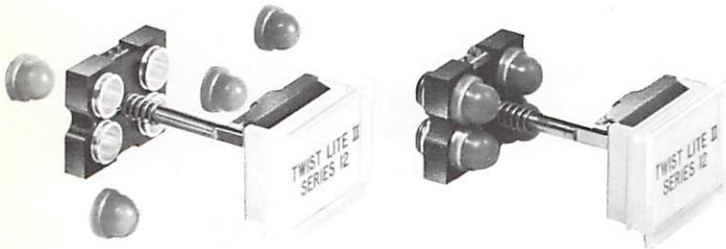
The Series Number "12" is the first two numbers in the part number of each element. There are two versions of the Series 12 unit. One is a commercial version; the other is a military version. An "H" following the Series 12 number designates the military version. Both versions are described below.

**SERIES 12**

This is the commercial version offering premium performance at economical prices. It is available with any or all of the elements described in this catalog. It has been used extensively in numerous applications from process control panels to computers, instruments, test equipment, medical equipment, and machine tools.

**SERIES 12H**

This is the military version that has been tested and qualified to MIL-S-22885. Part number cross reference information has been provided on page 15. This unit has been used extensively for applications at missile launch sites and ground support equipment, as well as for ship board requirements.

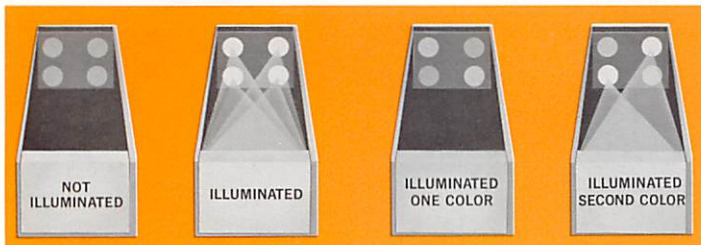


**COLORED BULB BOOTS & PROJECTED COLOR**

Colored bulb boots are molded from high temperature silicone rubber and are easily attached to each lamp socket. These translucent colored boots provide individual color control for each lamp. They are available in all standard colors and do not necessitate removal during the relamping operation.

A projected color causes the translucent white front lens assembly to evenly assimilate the color of the bulb boots behind the lens. Prior to illumination, the front lens appears white but when illuminated it appears in color.

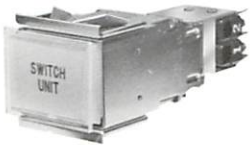
Up to four different illuminated colors may be achieved by using a different colored bulb boot over each lamp and lighting only one lamp at a time. For two color operation it is recommended that two diagonal lamps having the same color bulb boot be used for each color.





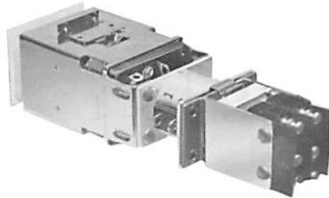
### INDICATOR UNITS

Indicator units are used where an indication is desired without the use of a switch assembly. In this case the front lens is locked in its normal position to prevent its being depressed. Relamping, however, is accomplished in the same manner described on page 2.



### SWITCH-LITE UNITS

Switch lite units accept switch assemblies to provide for both indication and switching. Depressing the Front Lens face actuates the switch assembly mounted on the rear of the unit.

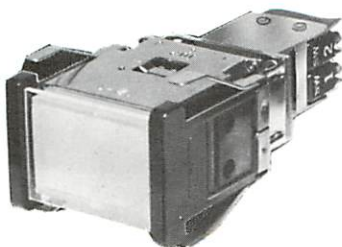


### HOLDING COIL UNITS

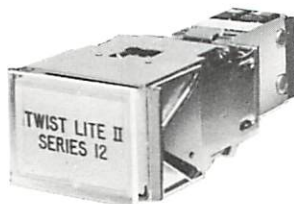
Switch lite units with holding coils can be combined with momentary action switches to provide an electrical interlock. Without energizing the holding coil, the unit operates in the same manner as a momentary action switch. Once the holding coil is energized however, an actuated switch will remain actuated until the holding coil voltage is removed. At that time, the switch will return to its normal position.

### SIX MOUNTING ARRANGEMENTS

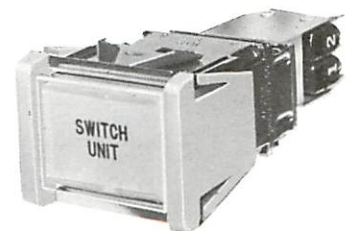
Mounting of the units is easily accomplished from the panel front. Units are securely held in place by either spring clips, which are attached to the unit or mounting barriers. Two variations of three types of mounting arrangements are available to choose from.



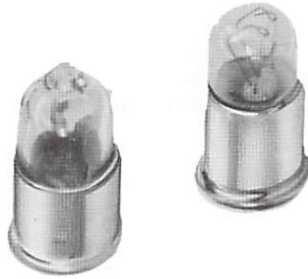
BARRIER



SPRING CLIP



SPRING CLIP WITH SPACE BARRIER

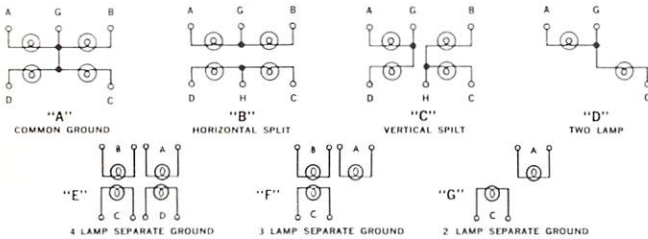


### LAMPS

Series 12 units accept two or four industry type 327 T-1 3/4 midget flanged base lamps. Standard lamp voltages of 6, 12 or 28 volts are available and a specially designed (No. 327 size) neon lamp with current limiting resistor is available for 115 VAC operation. Neons are only recommended with amber or red filters due to the absence of blue energy in the color spectrum of this type lamp.

### PART NUMBER

VOLTAGE	PART NO.
6 V.D.C.	12-K
12 V.D.C.	12-J
28 V.D.C.	12-H
115 V.D.C.	12-L
28 V.D.C. Long Life	12-301



### LAMP CIRCUITS

Different lamp circuits are available which minimize the number of soldered connections required during installation. These circuits provide a common or split ground depending on the particular application requirements. Available circuits are shown at the left.

COLOR	PART NO.	
RED	12-R	
GREEN	12-G	
AMBER	12-A	
BLUE	12-B	
* WHITE	12-W	

\* White Color is produced by light blue boot

### COLORED BULB BOOTS

2 or 4 required—available in red, white, green, amber, blue.

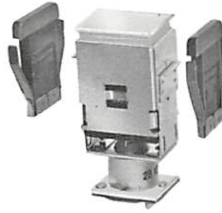
### INDICATOR



### SWITCH-LITE

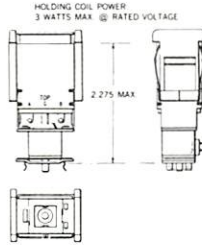
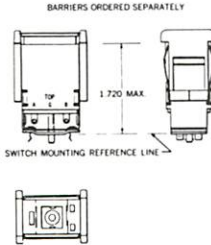
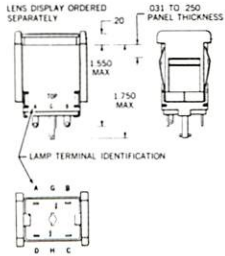


### HOLDING COIL



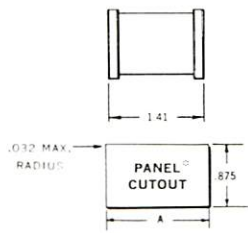
This type is primarily used for horizontal row mounting, however vertical stacks may be made by rotating the entire assembly 90°. The barriers form an integral part of the basic unit and provide the mounting means. Vertical barriers are not furnished as part of the basic unit and must be ordered separately.

When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.



LAMP CIRCUIT	PART NUMBERS (BARRIERS AND LENS NOT INCLUDED)					
	INDICATOR UNIT	SWITCH-LITE UNIT	SWITCH-LITE UNIT WITH HOLDING COIL			
			6 VDC	12 VDC	28 VDC	48VDC
A	12-22	12-1	12-5	12-6	12-7	12-8
B	12-23	12-2	12-9	12-10	12-12	12-13
C	12-24	12-3	12-14	12-15	12-16	12-17
D	12-25	12-4	12-18	12-19	12-20	12-21
E	12-104	12-99	12-100	12-101	12-102	12-103
F	12-128	12-123	12-124	12-125	12-126	12-127
G	12-152	12-147	12-148	12-149	12-150	12-151

PANEL CUTOUT		(DIMENSIONS IN INCHES ± .010)			
NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"
1	1.421	5	6.441	9	11.460
2	2.677	6	7.696	10	12.715
3	3.932	7	8.951	11	13.969
4	5.186	8	10.205	12	15.224



\* Recommended panel cutout.

### MOUNTING BARRIER COLOR CODE



COLOR	PART NO.
RED	12-S1
GRAY	12-S2
BLACK	12-S3
WHITE	12-S4

### INDICATOR

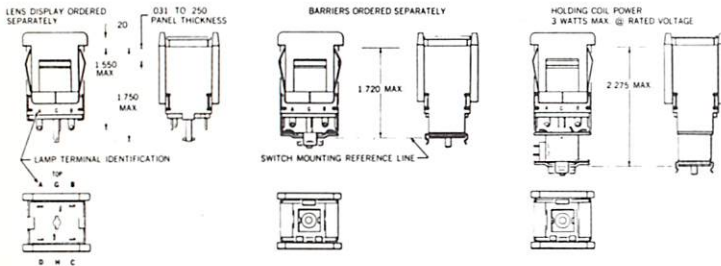
### SWITCH-LITE

### HOLDING COIL



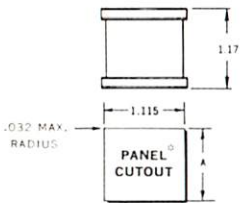
This type is primarily used for vertical stack mounting, however horizontal rows may be made by rotating the entire assembly 90°. The barriers form an integral part of the basic unit and provide the mounting means. Horizontal barriers are not furnished as part of the basic unit and must be ordered separately.

When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.



LAMP CIRCUIT	PART NUMBERS (BARRIERS AND LENS NOT INCLUDED)					
	INDICATOR UNIT	SWITCH-LITE UNIT	SWITCH-LITE UNIT WITH HOLDING COIL			
			6 VDC	12 VDC	28 VDC	48 VDC
A	12-46	12-26	12-30	12-31	12-32	12-33
B	12-47	12-27	12-34	12-35	12-36	12-37
C	12-49	12-28	12-38	12-39	12-40	12-41
D	12-50	12-29	12-42	12-43	12-44	12-45
E	12-110	12-105	12-106	12-107	12-108	12-109
F	12-134	12-129	12-130	12-131	12-132	12-133
G	12-158	12-153	12-154	12-155	12-156	12-157

PANEL CUTOUT (DIMENSIONS IN INCHES ± .010)					
NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"
1	1.181	5	5.241	9	9.300
2	2.196	6	6.256	10	10.315
3	3.212	7	7.271	11	11.329
4	4.226	8	8.285	12	12.344



### MOUNTING BARRIER COLOR CODE



COLOR	PART NO.
RED	12-S5
GRAY	12-S6
BLACK	12-S7
WHITE	12-S8

°Recommended panel cutout.



### INDICATOR



### SWITCH-LITE

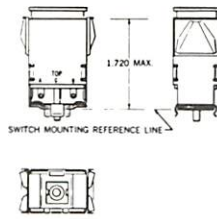
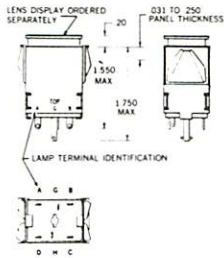


### HOLDING COIL



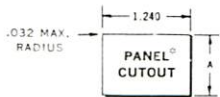
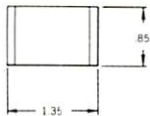
Vertical spring clip units can be mounted from the front of the panel without tools or additional hardware. They can be mounted individually or in vertical stacks one at a time and can, conversely, be removed individually without disturbing adjacent units. The spring clip is permanently attached to the narrow side of the basic unit.

When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.



LAMP CIRCUIT	PART NUMBERS (LENS NOT INCLUDED)					
	INDICATOR UNIT	SWITCH-LITE UNIT	SWITCH-LITE UNIT WITH HOLDING COIL			
			6 VDC	12 VDC	28 VDC	48 VDC
A	12-71	12-51	12-55	12-56	12-57	12-58
B	12-72	12-52	12-59	12-60	12-61	12-62
C	12-73	12-53	12-63	12-64	12-65	12-66
D	12-74	12-54	12-67	12-68	12-69	12-70
E	12-116	12-111	12-112	12-113	12-114	12-115
F	12-140	12-135	12-136	12-137	12-138	12-139
G	12-164	12-159	12-160	12-161	12-162	12-163

PANEL CUTOUT		(DIMENSIONS IN INCHES ± .010)			
NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"
1	860	5	4 279	9	7 697
2	1 715	6	5 134	10	8 552
3	2 570	7	5 988	11	9 406
4	3 424	8	6 843	12	10 260



### SPACER BARRIER® COLOR CODE



COLOR	PART NO.
RED	12-P5
GRAY	12-P6
BLACK	12-P7
WHITE	12-P8

\*Recommended panel cutout.

°NOTE: Add .160" to Panel Cutout for each Space Barrier used.

**INDICATOR**



**SWITCH-LITE**

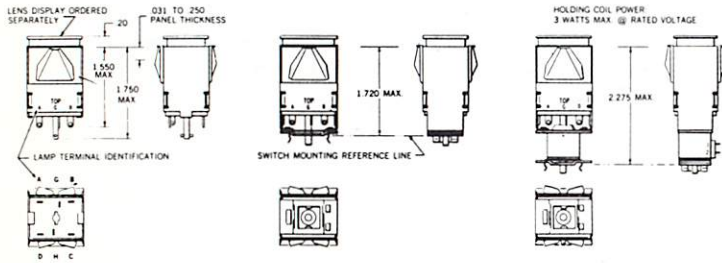


**HOLDING COIL**

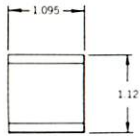


Horizontal spring clip units can be mounted from the front of the panel without tools or additional hardware. They can be mounted individually or in horizontal rows one at a time and can, conversely, be removed individually without disturbing adjacent units. The spring clip is permanently attached to the wide side of the basic unit.

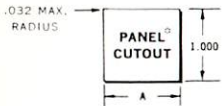
When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.



LAMP CIRCUIT	PART NUMBERS (LENS NOT INCLUDED)						
	INDICATOR UNIT	SWITCH-LITE UNIT	SWITCH-LITE UNIT WITH HOLDING COIL				
			6 VDC	12 VDC	28 VDC	48 VDC	
A	12-95	12-75	12-79	12-80	12-81	12-82	
B	12-96	12-76	12-83	12-84	12-85	12-86	
C	12-97	12-77	12-87	12-88	12-89	12-90	
D	12-98	12-78	12-91	12-92	12-93	12-94	
E	12-122	12-117	12-118	12-119	12-120	12-121	
F	12-146	12-141	12-142	12-143	12-144	12-145	
G	12-170	12-165	12-166	12-167	12-168	12-169	



PANEL CUTOUT		(DIMENSIONS IN INCHES ± 010)			
NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"	NO. UNITS	DIM. "A"
1	1.100	5	5.485	9	9.865
2	2.200	6	6.580	10	10.960
3	3.295	7	7.675	11	12.055
4	4.390	8	8.770	12	13.150



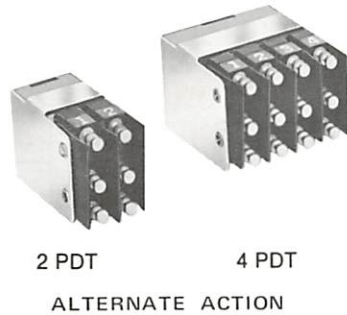
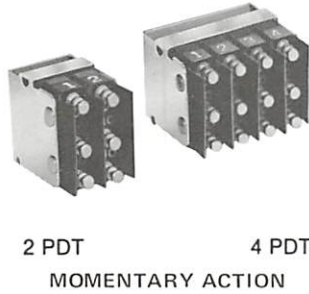
**SPACER BARRIER<sup>®</sup> COLOR CODE**



COLOR	PART NO.
RED	12-P1
GRAY	12-P2
BLACK	12-P3
WHITE	12-P4

<sup>®</sup>Recommended panel cutout.

<sup>®</sup>NOTE: Add .160" to Panel Cutout for each Space Barrier used.



Switch assemblies are modules that snap-on to the back of the basic indicator-lite unit, making it a switch-lite unit. These standard switch assemblies are available in momentary and alternate action with 2 or 4 pole double throw operation. With momentary action, the switch contacts transfer when the switch-lite display face is depressed, but will transfer back when pressure is removed from the display face. With alternate action, the switch contacts transfer when the switch-lite display face is depressed, and they remain transferred until the display face is depressed again.

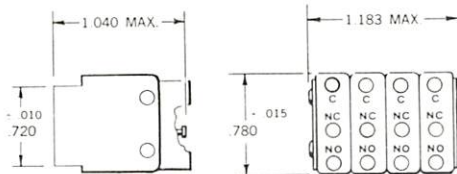
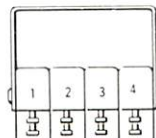
**SWITCH RATINGS**

**SILVER CONTACTS:** Rated for 5 amps @ 125 or 250 volts A.C. The 30-volt D.C. rating is: Inductive, 3 amps; resistive, 5 amps. **GOLD CONTACTS:** The 30-volt D.C. rating is: Inductive, 1/2 amp; resistive, 1 amp.

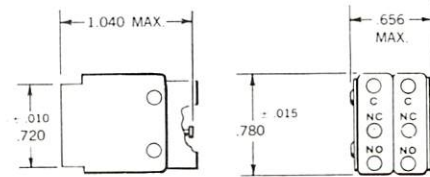
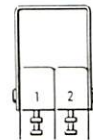
SWITCH ASSEMBLY CODE NUMBER				
CONTACT MATERIAL	MOMENTARY ACTION		ALTERNATE ACTION	
	2 PDT	4 PDT	2 PDT	4 PDT
SILVER	12—C	12—D	12—E	12—F
GOLD	12—311	12—314	12—315	12—316

**Switch Assembly Outline Dimensions**

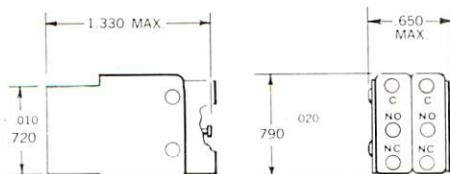
4 PDT MOMENTARY ACTION SWITCH



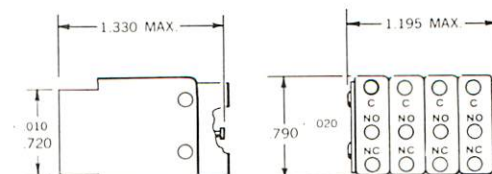
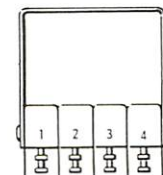
2 PDT MOMENTARY ACTION SWITCH

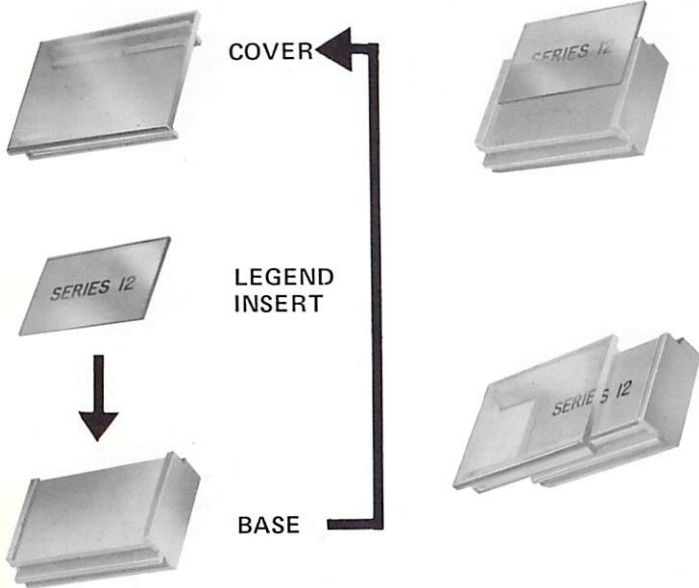


2 PDT ALTERNATE ACTION SWITCH



4 PDT ALTERNATE ACTION SWITCH

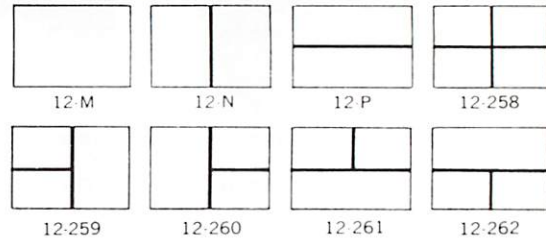




### FRONT LENS ASSEMBLY (3 Piece)

Front lens assemblies are available for full, vertical, horizontal, and 3 or 4 way split displays. Each assembly consists of a translucent white base, a clear legend insert and a clear cover which slides over the white base and holds the clear legend insert in place. Vertically and horizontally split assemblies have an opaque divider which prevents light leakage from one side of the split to the other. All assemblies easily clip into the lens retainer for installation.

### FRONT LENS ASSEMBLIES 3 PIECE (WHITE)



When colored translucent bases are required, follow the basic part number with the color code letters shown below. Color code letters are listed for sections beginning with the upper left section, then upper right, lower left, and then lower right.

AMBER	A	RED	R	BLUE	B
WHITE	W	YELLOW	Y	GREEN	G

**PART NO. EXAMPLE** 12-M A  
 Base color code (amber)  
 Basic part no. full display

#### COLORED LENS COVER

Where colored lens cover is required add the letter "C" to the end of the part number. This denotes that lens cover color is same as base color.

**PART NO. EXAMPLE** 12-M G C  
 Lens cover color same as base color  
 Base color code (green)  
 Basic part no. Full display

### FRONT LENS 1 PIECE FULL DISPLAY

COLOR	PART NO.
WHITE	12-XF
AMBER	12-XFA
BLUE	12-XFB
GREEN	12-XFG
RED	12-XFR

FULL DISPLAY  
Part No. 12-M-13 Missile,  
Away



HORIZONTALLY SPLIT  
Part No. 12-P-16  
Missile/Released



VERTICALLY SPLIT  
Part No. 12-N-28 Hold/  
Raise, to, fire



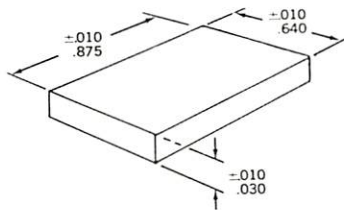
FRONT LENS AND ENGRAVING CODE

The front lens with required engraving is ordered by following the lens part number with the engraving configuration number as selected from below. After this, the actual wording is added, using commas between rows of lettering and a diagonal line between splits. Priority for segments of split displays when viewed from the front of the panel is upper left, upper right, lower left, lower right. Examples are shown at the left.

INSERT FOR THREE PIECE LENS ASSEMBLY

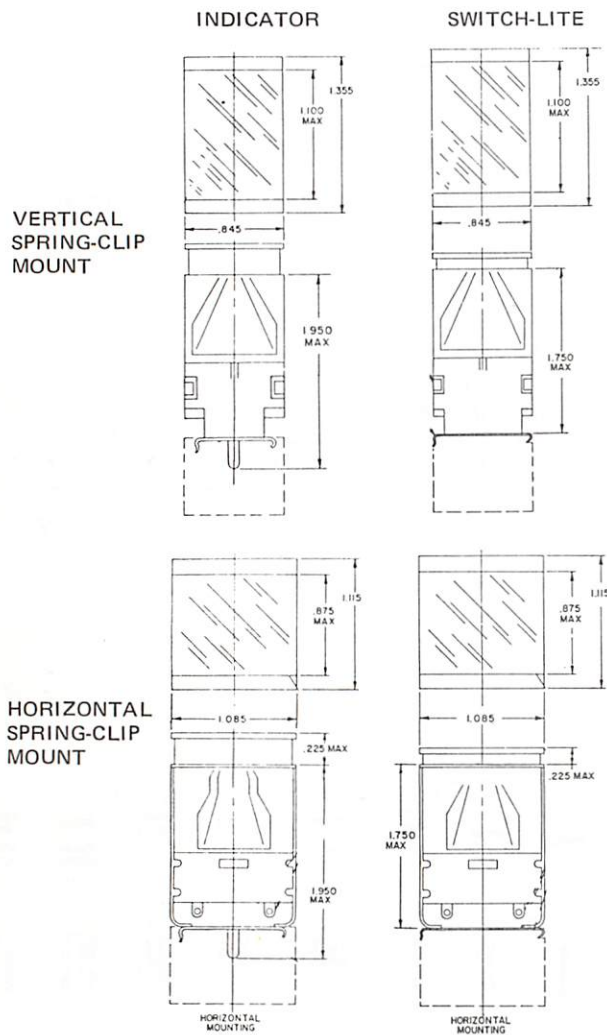
The clear lens insert which is part of all 3 piece lens assemblies may be ordered separately with the required inscription reverse engraved on the back side. The engraved characters are .120 high with a stroke of .020 and are black filled. This provides black letters on a clear plastic field. Legend configurations shown above denote location of engraving and type of display. When ordering spare "legend inserts" use No. 12-240 before the engraving code number.

INSERT  
12-240



ENGRAVING CONFIGURATIONS

<p><b>FULL DISPLAY</b> (11 LETTERS OR SPACES PER ROW)</p>				<p><b>HORIZONTALLY SPLIT</b> (11 LETTERS OR SPACES PER ROW)</p>				<p><b>FULL DISPLAY</b> (7 LETTERS OR SPACES PER ROW)</p>				<p><b>VERTICALLY SPLIT</b> (7 LETTERS OR SPACES PER ROW)</p>			
<p><b>VERTICALLY SPLIT (5 LETTERS OR SPACES PER ROW)</b></p>				<p><b>FULL DISPLAY (5 LETTERS OR SPACES PER VERTICAL ROW)</b></p>				<p><b>HORIZONTALLY SPLIT (5 LETTERS OR SPACES PER VERTICAL ROW)</b></p>							
<p><b>THREE WAY SPLIT</b></p>															
<p><b>FOUR WAY SPLIT</b></p>															
<p><b>VERTICALLY SPLIT (5 LETTERS OR SPACES PER ROW)</b></p>															
<p><b>HORIZONTALLY SPLIT (3 LETTERS OR SPACES PER ROW)</b></p>															



## SERIES 12H

This is the military version that has been tested and qualified to MIL-S-22885. Part number cross reference information has been provided on page 15. This unit has been used extensively for applications at missile launch sites and ground support equipment, as well as for ship board requirements.

### VERTICAL SPRING CLIP MOUNT

Vertical spring clip units can be mounted from the front of the panel without tools or additional hardware. They can be mounted individually or in vertical stacks one at a time and can, conversely, be removed individually without disturbing adjacent units. The spring clip is permanently attached to the narrow side of the basic unit.

When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.

### HORIZONTAL SPRING CLIP MOUNT

Horizontal spring clip units can be mounted from the front of the panel without tools or additional hardware. They can be mounted individually or in horizontal rows one at a time and can, conversely, be removed individually without disturbing adjacent units. The spring clip is permanently attached to the wide side of the basic unit.

When units are mounted vertically (rotated 90° from normal mounting), the housing surface marked 'TOP' should be at the right when viewed from the panel front.

### SWITCH RATINGS

Rated for 5 amps @ 115 volts A.C. The 28 volt D.C. rating is: Inductive, 2.5 amps; resistive, 4 amps.

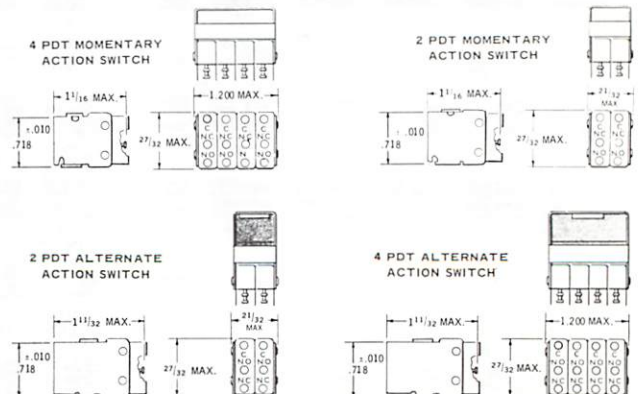
#### VERTICAL SPRING-CLIP MOUNT

LAMP CIRCUIT	PART NUMBER (Lens Not Included)	
	INDICATOR UNIT	SWITCH-LITE UNIT
A	12-71	12-51
B	12-72	12-52
C	12-73	12-53
E	12-116	12-111

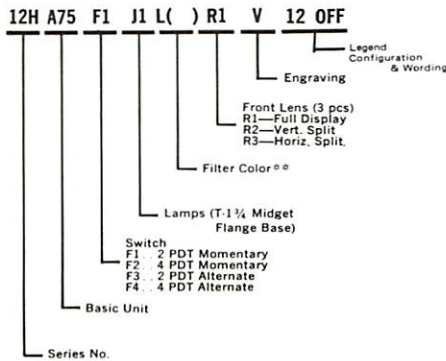
#### HORIZONTAL SPRING-CLIP MOUNT

LAMP CIRCUIT	PART NUMBER (lens Not Included)	
	INDICATOR UNIT	SWITCH-LITE UNIT
A	12-95	12-75
B	12-96	12-76
C	12-97	12-77
E	12-122	12-117

#### Switch Assembly Outline Dimensions



### Series 12H Part Numbering System (Military)



### SERIES 12H

The completed unit, including the engraved inscription, may be ordered by a single coded callout. Each item required for a completed unit is assigned a code Letter and Number. Select the code callout for each item required and then place them in alphabetical sequence following the series number. If one or more items comprising a completed unit are not required, omit the callout for that item.

### CROSS REFERENCE GUIDE — Commercial vs. Military Part Numbers.\*

Description	Commercial P/N	Military P/N	Military Specification No.	
<b>Switches</b>	2 PDT Momentary 4 PDT Momentary 2 PDT Alternate 4 PDT Alternate	12-C 12-D 12-E 12-F	12H-F1 12H-F2 12H-F3 12H-F4	MIL-S-22885/11-001 MIL-S-22885/11-002 MIL-S-22885/11-003 MIL-S-22885/11-004
<b>Lamps</b>	6VDC 12VDC 28VDC 115VAC (w/ resistor)	12-K 12-J 12-H 12-L	12H-J1 12H-J2 12H-J3 12H-J4	
<b>Colored Bulb Filters</b>	Amber Blue Green Red White (light blue) Yellow	12-A 12-B 12-G 12-R 12-W 12-Y	12H-L(A) 12H-L(B) 12H-L(G) 12H-L(R) 12H-L(W) 12H-L(Y)	MIL-S-22885/12-001 MIL-S-22885/12-002 MIL-S-22885/12-003 MIL-S-22885/12-004 MIL-S-22885/12-005
<b>Lenses</b>	Full Display Vertical Split Horizontal Split	12-M 12-N 12-P	12H-R1 12H-R2 12H-R3	

### \*\* COLORED BULB FILTERS

Where more than one color is desired within the same unit, denote by including within the ( ) all colors desired. Priority for actual location in the unit when viewed from the front of the panel is: upper left, upper right, lower left, lower right. Where two colors are indicated and the display screen callout is for a full display the first color will be upper left, lower right and the second color will be upper right, lower left.

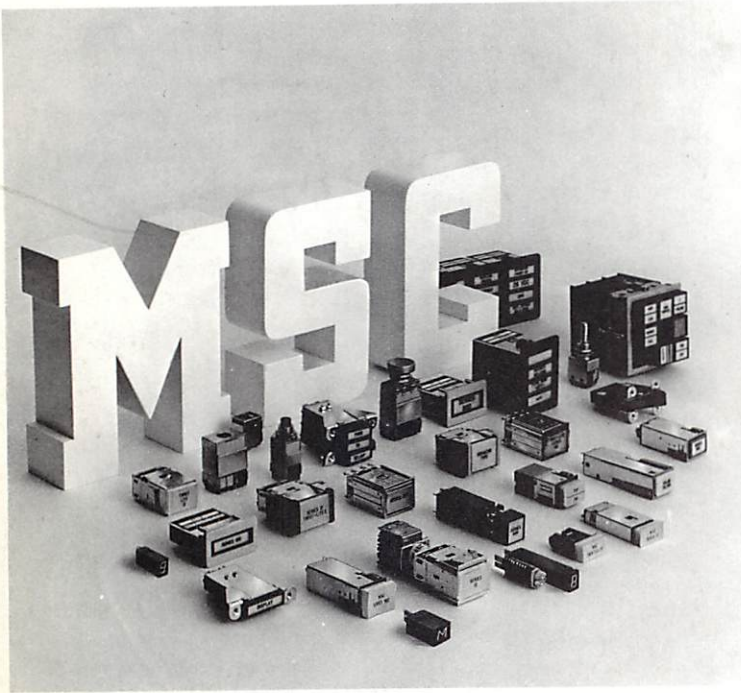
- \* NOTES:
- Units are described in this selection guide under their commercial part numbers.
  - Military Basic Units have the same base number as the commercial, e.g. 12HA75 is described under commercial part number 12-75. All 12H Indicators are supplied with switch retaining clips. These clips are shown as part of the Switch-Lite dimensional diagrams rather than the Indicator unit drawings.
  - An alternate ordering method is available wherein all items required for a completed unit are included on a specification sheet which is maintained by MSC. Each completed unit is assigned a dash number following the basic specification number set up for each customer. This method reduces the size of the completed unit part number to seven digits; however, this method is not coded.

### COMPLETE UNITS (SWITCHES)

MIL-S-22885/15 Part Number	MSC Part Number	MIL-S-22885/15 Part Number	MSC Part Number	MIL-S-22885/15 Part Number	MSC Part Number
15-01 (XXXX)	12H-A75-F1-L ( ) - R1	15-25 (XXXX)	12H-A51-F1-L ( ) - R1	15-49 (XXXX)	12H-A117-F1-L ( ) - R1
15-02 (XXXX)	12H-A75-F2-L ( ) - R1	15-26 (XXXX)	12H-A51-F2-L ( ) - R1	15-50 (XXXX)	12H-A117-F2-L ( ) - R1
15-03 (XXXX)	12H-A75-F3-L ( ) - R1	15-27 (XXXX)	12H-A51-F3-L ( ) - R1	15-51 (XXXX)	12H-A117-F3-L ( ) - R1
15-04 (XXXX)	12H-A75-F4-L ( ) - R1	15-28 (XXXX)	12H-A51-F4-L ( ) - R1	15-52 (XXXX)	12H-A117-F4-L ( ) - R1
15-05 (XXXX)	12H-A75-F1-L ( ) - R2	15-29 (XXXX)	12H-A51-F1-L ( ) - R2	15-53 (XXXX)	12H-A117-F1-L ( ) - R2
15-06 (XXXX)	12H-A75-F2-L ( ) - R2	15-30 (XXXX)	12H-A51-F2-L ( ) - R2	15-54 (XXXX)	12H-A117-F2-L ( ) - R2
15-07 (XXXX)	12H-A75-F3-L ( ) - R2	15-31 (XXXX)	12H-A51-F3-L ( ) - R2	15-55 (XXXX)	12H-A117-F3-L ( ) - R2
15-08 (XXXX)	12H-A75-F4-L ( ) - R2	15-32 (XXXX)	12H-A51-F4-L ( ) - R2	15-56 (XXXX)	12H-A117-F4-L ( ) - R2
15-09 (XXXX)	12H-A77-F1-L ( ) - R2	15-33 (XXXX)	12H-A53-F1-L ( ) - R2	15-57 (XXXX)	12H-A117-F1-L ( ) - R3
15-10 (XXXX)	12H-A77-F2-L ( ) - R2	15-34 (XXXX)	12H-A53-F2-L ( ) - R2	15-58 (XXXX)	12H-A117-F2-L ( ) - R3
15-11 (XXXX)	12H-A77-F3-L ( ) - R2	15-35 (XXXX)	12H-A53-F3-L ( ) - R2	15-59 (XXXX)	12H-A117-F3-L ( ) - R3
15-12 (XXXX)	12H-A77-F4-L ( ) - R2	15-36 (XXXX)	12H-A53-F4-L ( ) - R2	15-60 (XXXX)	12H-A117-F4-L ( ) - R3
15-13 (XXXX)	12H-A75-F1-L ( ) - R3	15-37 (XXXX)	12H-A51-F1-L ( ) - R3	15-61 (XXXX)	12H-A111-F1-L ( ) - R1
15-14 (XXXX)	12H-A75-F2-L ( ) - R3	15-38 (XXXX)	12H-A51-F2-L ( ) - R3	15-62 (XXXX)	12H-A111-F2-L ( ) - R1
15-15 (XXXX)	12H-A75-F3-L ( ) - R3	15-39 (XXXX)	12H-A51-F3-L ( ) - R3	15-63 (XXXX)	12H-A111-F3-L ( ) - R1
15-16 (XXXX)	12H-A75-F4-L ( ) - R3	15-40 (XXXX)	12H-A51-F4-L ( ) - R3	15-64 (XXXX)	12H-A111-F4-L ( ) - R1
15-17 (XXXX)	12H-A76-F1-L ( ) - R3	15-41 (XXXX)	12H-A52-F1-L ( ) - R3	15-65 (XXXX)	12H-A111-F1-L ( ) - R2
15-18 (XXXX)	12H-A76-F2-L ( ) - R3	15-42 (XXXX)	12H-A52-F2-L ( ) - R3	15-66 (XXXX)	12H-A111-F2-L ( ) - R2
15-19 (XXXX)	12H-A76-F3-L ( ) - R3	15-43 (XXXX)	12H-A52-F3-L ( ) - R3	15-67 (XXXX)	12H-A111-F3-L ( ) - R2
15-20 (XXXX)	12H-A76-F4-L ( ) - R3	15-44 (XXXX)	12H-A52-F4-L ( ) - R3	15-68 (XXXX)	12H-A111-F4-L ( ) - R2
15-21 (XXXX)	12H-A76-F1-L ( ) - R1	15-45 (XXXX)	12H-A52-F1-L ( ) - R1	15-69 (XXXX)	12H-A111-F1-L ( ) - R3
15-22 (XXXX)	12H-A76-F2-L ( ) - R1	15-46 (XXXX)	12H-A52-F2-L ( ) - R1	15-70 (XXXX)	12H-A111-F2-L ( ) - R3
15-23 (XXXX)	12H-A76-F3-L ( ) - R1	15-47 (XXXX)	12H-A52-F3-L ( ) - R1	15-71 (XXXX)	12H-A111-F3-L ( ) - R3
15-24 (XXXX)	12H-A76-F4-L ( ) - R1	15-48 (XXXX)	12H-A52-F4-L ( ) - R1	15-72 (XXXX)	12H-A111-F4-L ( ) - R3

### COMPLETE UNITS (INDICATORS)

MIL-S-22885/16 Part Number	MSC Part Number
16-01 (XXXX)	12H-A95-L ( ) - R1
16-02 (XXXX)	12H-A71-L ( ) - R1
16-03 (XXXX)	12H-A97-L ( ) - R1
16-04 (XXXX)	12H-A73-L ( ) - R1
16-05 (XXXX)	12H-A95-L ( ) - R2
16-06 (XXXX)	12H-A71-L ( ) - R2
16-07 (XXXX)	12H-A97-L ( ) - R2
16-08 (XXXX)	12H-A73-L ( ) - R2
16-09 (XXXX)	12H-A95-L ( ) - R3
16-10 (XXXX)	12H-A71-L ( ) - R3
16-11 (XXXX)	12H-A96-L ( ) - R3
16-12 (XXXX)	12H-A72-L ( ) - R3
16-13 (XXXX)	12H-A96-L ( ) - R1
16-14 (XXXX)	12H-A72-L ( ) - R1
16-15 (XXXX)	12H-A122-L ( ) - R1
16-16 (XXXX)	12H-A116-L ( ) - R1
16-17 (XXXX)	12H-A122-L ( ) - R2
16-18 (XXXX)	12H-A116-L ( ) - R2
16-19 (XXXX)	12H-A122-L ( ) - R3
16-20 (XXXX)	12H-A116-L ( ) - R3



## MSC PRODUCTS AND CAPABILITIES

For more than 30 years, Master Specialties Company has specialized in the development and production of display and control devices for commercial, industrial, military, and aerospace applications. Today MSC offers a wide range of:

*Lighted and unlighted pushbutton switches.*

*Indicating fuse holders. Word Indicators.*

*Fiber-optic character displays. Custom subassemblies.*

*Voice-response systems.*

MSC's general offices and manufacturing facilities are located in Costa Mesa, California, a coastal city approximately 35 miles from the center of Los Angeles. Our plant provides 100,000 square feet of office and production space — sufficient for all design, manufacturing, assembly, test, and shipping activities. The manufacturing area alone has 50,000 square feet, equipped to assure a smooth, uninterrupted flow from order processing to shipping.

MSC maintains sales offices throughout the United States and Europe to provide fast, efficient service to our customers. MSC salesmen are equipped with operational demonstrators that include all the standard product lines. The MSC sales engineer near you will be happy to bring a demonstrator to your office where you will be able to evaluate the many features of each product, in operation.

MSC also has a network of stocking distributors throughout the United States, Europe, Canada, and Japan to provide technical services and quick delivery of MSC's standard catalog products.

Contact your local MSC representative, distributor, or the factory to help you with your switch or indicator requirements.

# MSC®

## MASTER SPECIALTIES COMPANY

General Offices and Manufacturing Facilities:  
1640 Monrovia Ave., Costa Mesa, California 92627  
Phone (Area Code 714) 642-2427 • TELEX 678-433