

INCH-POUND

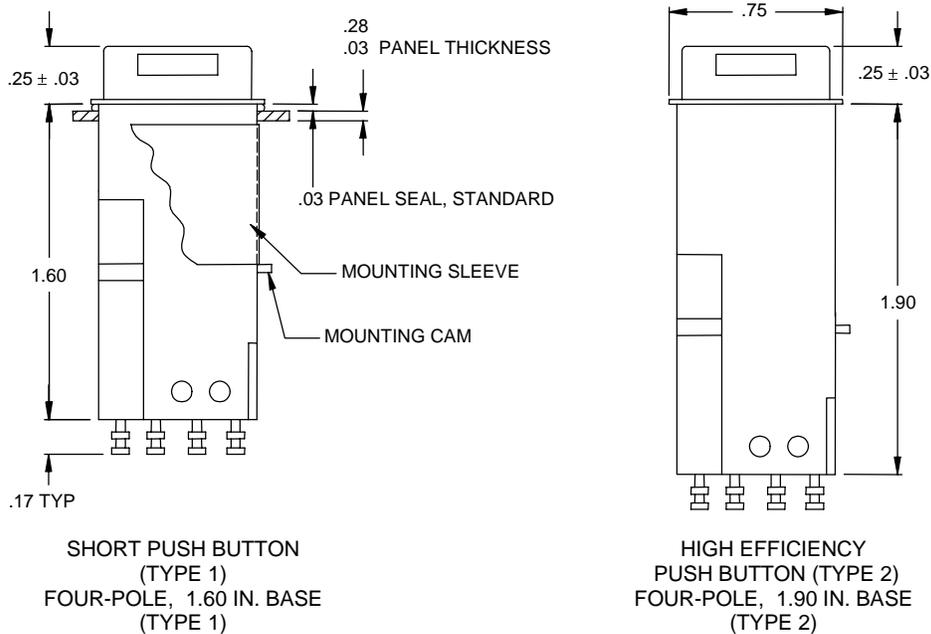
MIL-PRF-22885/109B
18 April 2001
SUPERSEDING
MIL-PRF-22885/109A
16 February 1990

PERFORMANCE SPECIFICATION SHEET

SWITCHES, PUSH BUTTON, ILLUMINATED,
4-LAMP, .75 SQUARE, 4PDT AND DPDT, 7 AMPERES
SUNLIGHT READABLE DISPLAY OPTION, NVIS COMPATIBLE OPTION,
MOMENTARY AND ALTERNATE HOLDDOWN, LOW TOUCH TEMPERATURE
CONNECTOR MODULE TERMINATION OPTION

This specification is approved for use by all Departments and Agencies of the Department of Defense.

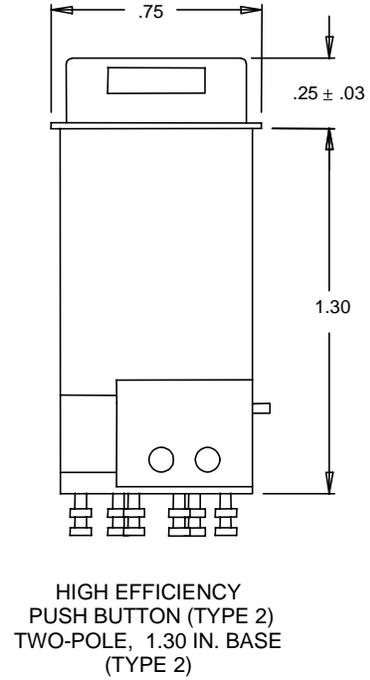
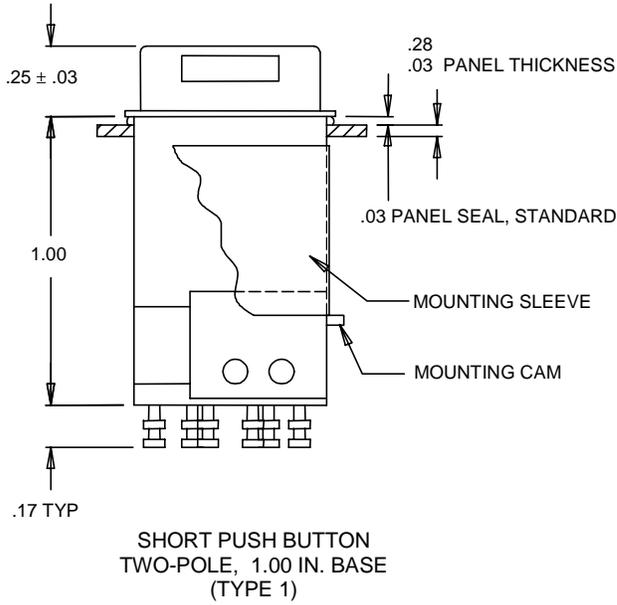
The requirements for acquiring the switches described herein shall consist of this specification and MIL-PRF-22885.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Push button height dimension is measured at center of legend area.
4. See Figure 8 for additional applicable notes.

FIGURE 1. Four-pole switch - solder terminals.

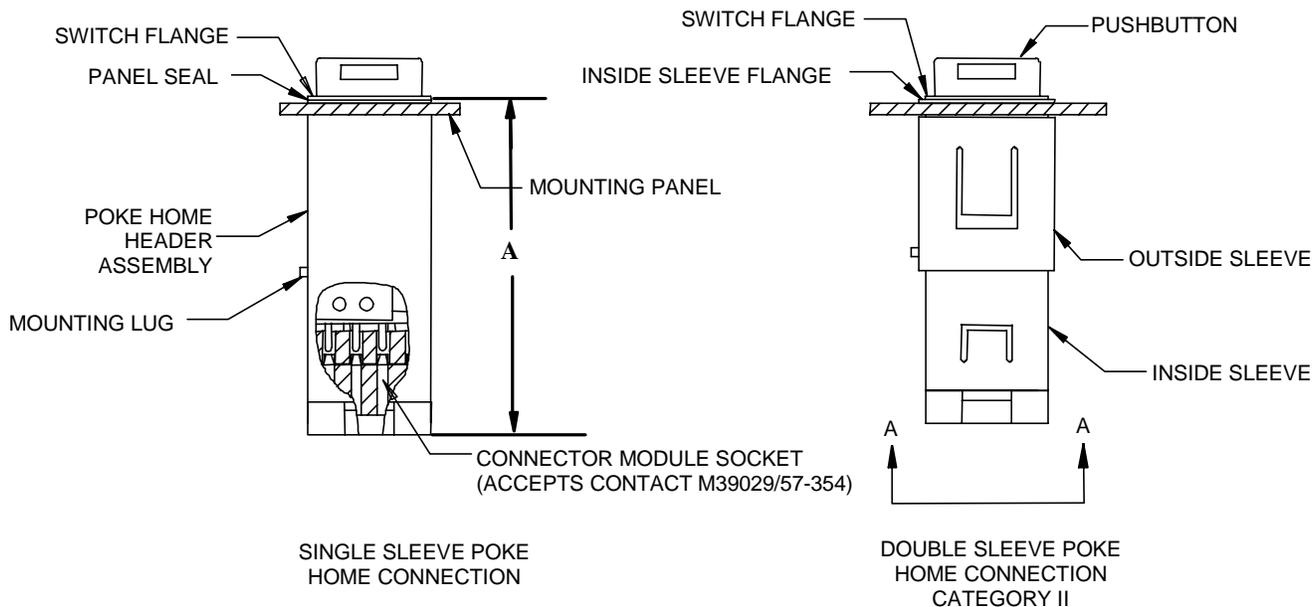


Inches	mm
.03	0.8
.17	4.3
.25	6.4
.28	7.1
.75	19.
1.00	25.4
1.30	33.

NOTES:

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3. Push button height dimension is measured at center of legend area.
4. See figure 8 for additional applicable notes.

FIGURE 2. Two-pole switch and indicator light - solder terminals.



Inches	mm
1.90	48.3
2.20	55.9
2.50	63.5
2.80	71.1

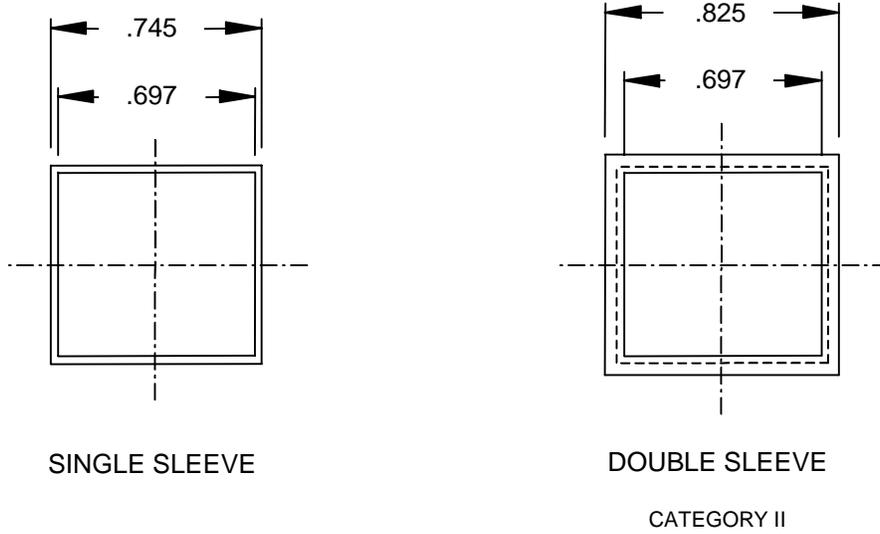
NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. See figure 8 for additional applicable notes.

Pokehome Connector type	Dimension A inches max
Type 1 - 4 poles (accepts short push button)	2.50
Type 2 - 4 poles (accepts high efficiency push button)	2.80
Type 1 - 2 poles (accepts short push button)	1.90
Type 2 - 2 poles (accepts high efficiency push button)	2.20

FIGURE 3. Switches with Pokehome connector module termination.

Sleeve Dimensions
(Dimensions shown are square dimensions)



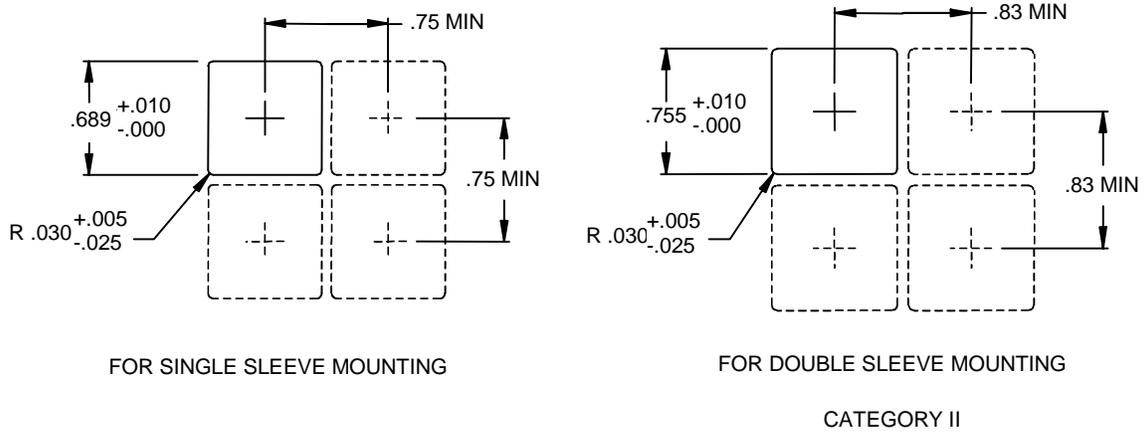
Inches	mm
.697	17.70
.745	18.92
.825	21.00

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. See figure 8 for additional applicable notes.

FIGURE 3. Switches with Pokehome connector module termination - Continued.

Panel Cutouts
 (Cutout dimensions shown are square dimensions)

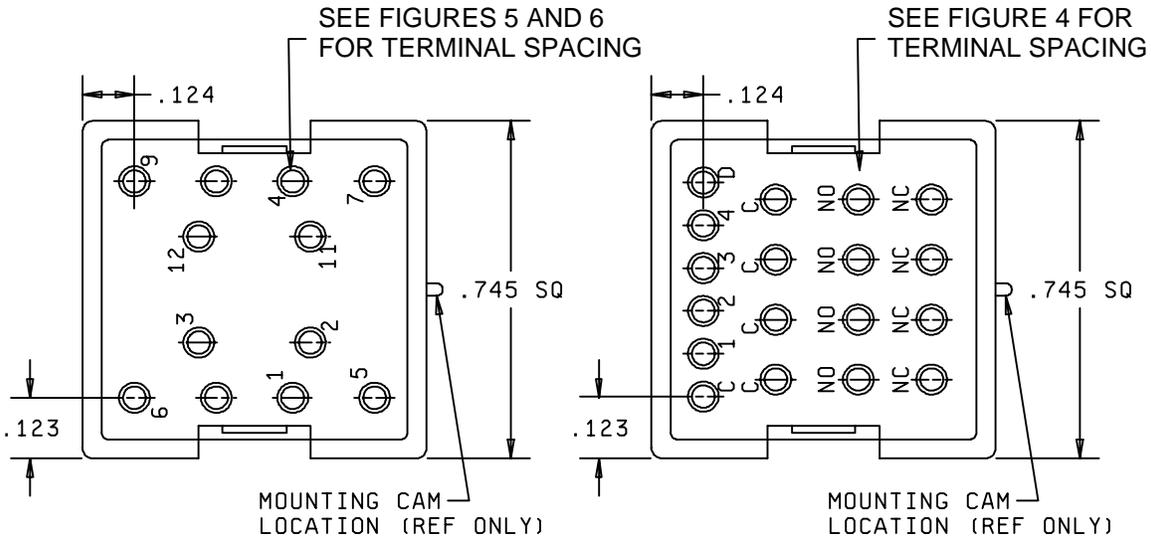


Inches	mm
.005	0.13
.010	0.25
.025	0.64
.030	0.76
.689	17.5
.75	19.1
.755	19.2
.83	21.1

NOTES:

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2. Metric equivalents are given for general information only.
3. See figure 8 for additional applicable notes.

FIGURE 3. Switches with Pokehome connector module termination - Continued.

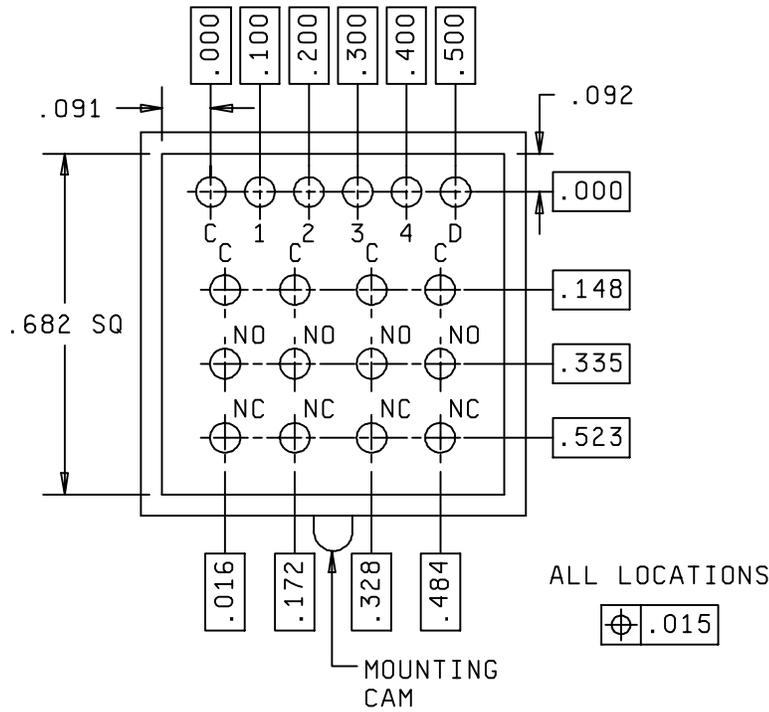


Inches	mm
.005	0.13
.010	0.25
.123	3.12
.124	3.15
.692	17.58
.745	18.92

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Switches with Single Sleeve mounting are totally front panel replaceable but poke home header will not stay secured during replacement.
4. Switches with Double Sleeve mounting are totally front panel replaceable and poke home header will stay secured to panel during replacement.
5. The connector module shall be capable of receiving M39029/57-354 contacts crimped to a 22 or 24 gauge wire.
6. The connector module shall be capable of having the socket contacts inserted or removed using an M81969/14-01 contact insertion/removal tool.
7. See figure 8 for additional applicable notes.

FIGURE 3. Switches with Pokehome connector module termination - Continued.

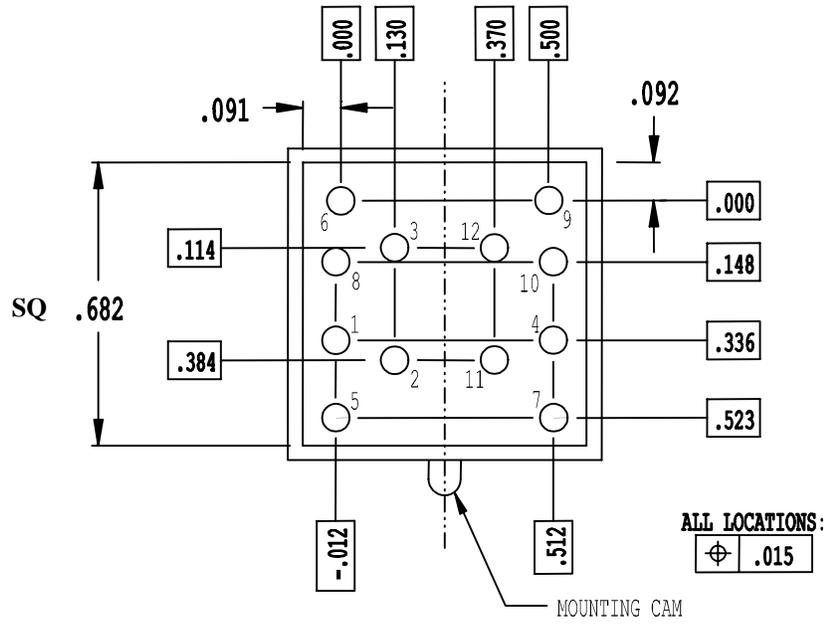


Inches	mm	Inches	mm
.015	0.38	.300	7.62
.016	0.41	.328	8.33
.091	2.31	.335	8.51
.092	2.34	.400	10.16
.100	2.54	.484	12.29
.148	3.76	.500	12.70
.172	4.37	.523	13.28
.200	5.08	.682	17.32

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimensions apply for PC and connector module terminals only.
4. See figure 8 for additional applicable notes.

FIGURE 4. Four-pole terminal locations.

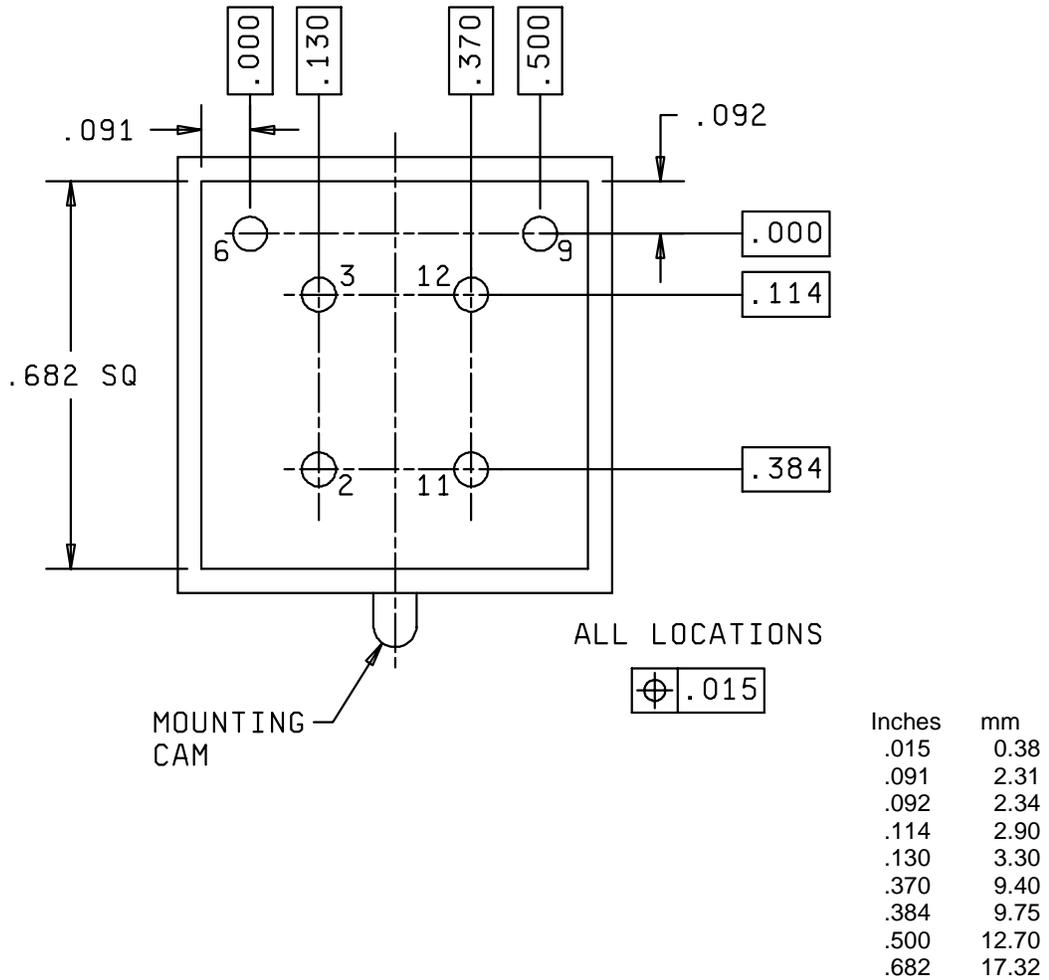


Inches	mm	Inches	mm
.012	0.30	.336	8.53
.015	0.38	.370	9.40
.091	2.31	.384	9.75
.092	2.34	.500	12.70
.114	2.90	.512	13.00
.130	3.30	.523	13.28
.148	3.76	.682	17.32

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimensions apply for PC and connector module terminals only.
4. See figure 8 for additional applicable notes.

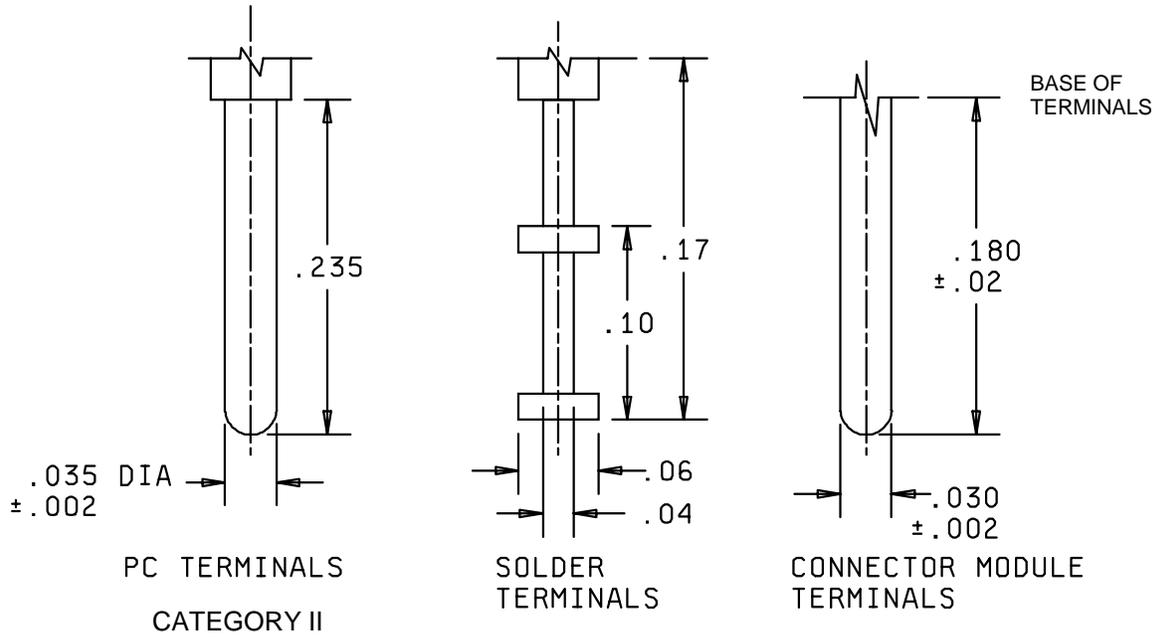
FIGURE 5. Two-pole terminal locations.



NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Dimensions apply for PC and connector module terminals only.
4. See figure 8 for additional applicable notes.

FIGURE 6. Indicator terminal locations.

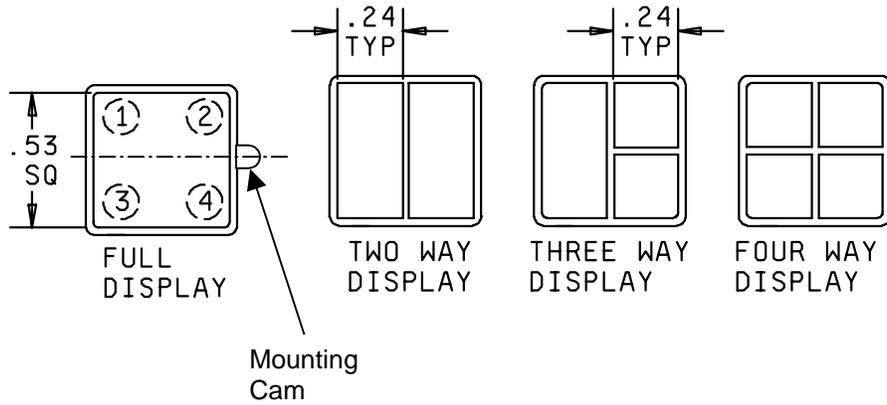


Inches	mm
.002	0.05
.02	0.5
.030	0.76
.035	0.89
.04	1.00
.06	1.5
.10	2.5
.17	4.3
.180	4.57
.235	5.97

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. See figure 8 for additional applicable notes.

FIGURE 7. Terminals.



Inches	mm
.24	6.1
.53	13.5

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are $\pm .015$ (± 0.38 mm) for three place decimals and $\pm .03$ (± 0.8 mm) for two place decimals.
4. The push button is designed to prevent incorrect insertion into the switch housing.
5. The push button is held captive to the switch body by a retaining element to prevent accidental interchange.
6. The exact shape of the switch is optional provided the dimensions specified are not exceeded.

FIGURE 8. Lens configuration.

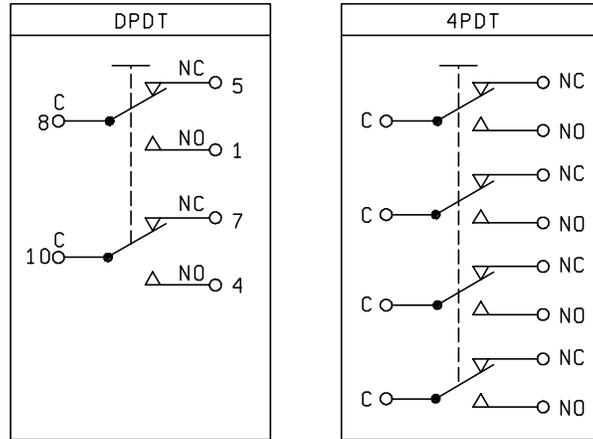


FIGURE 9. Switch arrangements.

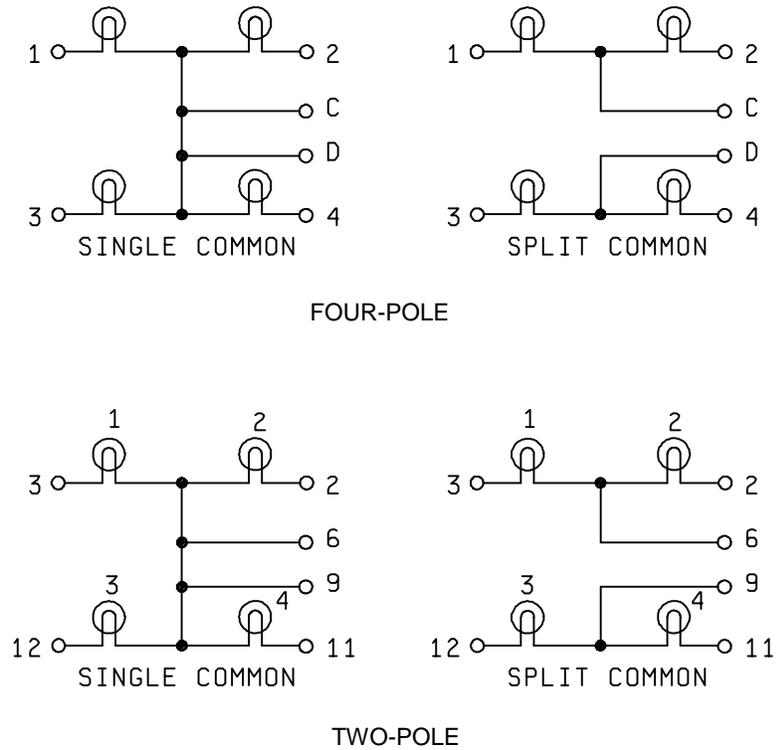


FIGURE 10. Lamp circuits.

MIL-PRF-22885/109B

REQUIREMENTS:

Design and construction: See figures 1 through 10. Basic switch shall be in accordance with MIL-PRF-8805/4 or MIL-PRF-8805/109 (M8805/109-2 or MS8805/109-4) listed on QPL-8805. The basic switch elements may be selected items with reduced operating point tolerance, or category II items with printed-circuit terminals or connector module.

Enclosure design: 2 (dripproof).

Temperature characteristics: 1 (-55°C to +85°C).

Vibration grade: 3 (10 to 2,000 Hz, 15 g peak).

Operation: A (momentary action), E (position indicating, alternate action, H (indicator light only).

Illuminated color: Standard displays, incandescent illumination: See table I for standard display colors using .15 ± 2% MSCP incandescent lamps.

TABLE I. Illuminated color - standard displays, incandescent illumination.

Color	x <u>1/</u>	y <u>1/</u>
Red (R)	.660 .655 .695 .703	SL <u>2/</u> .325 .285 SL <u>2/</u>
Green (G)	.300 .300 .380 .380	SL <u>2/</u> .600 .600 SL <u>2/</u>
Yellow (Y)	.570 .562 .596 .605	SL <u>2/</u> .415 .382 SL <u>2/</u>
Blue (B)	.230 .230 .320 .320	.420 .350 .350 .420
White (W)	.400 .400 .460 .460	.420 .380 .380 .420

1/ Chromaticity is expressed as "X" and "Y" on the CIE chromaticity diagram. Values shown are corners of limiting envelope.

2/ SL - Spectrum locus where intersected by a line of x-value shown.

Display types: See table II.

TABLE II. Display types.

Description	Unlighted	Lighted	Type designation
Hidden legend sunlight readable	Black background	Colored lighted letters, black background	S
Hidden legend lighted background	Black background	Black letters, lighted colored background	B
Lighted background	Black letters, white background	Black letters, lighted colored background	W
Colored background	Black letters, colored background	Black letters, colored lighted background	C
Lighted letters	White letters, black background	Colored lighted letters, black background	N

Weight:

Four-pole with standard PB and 1.60-inch base, .875 ounces maximum.
 Four-pole with high efficiency PB and 1.90-inch base, 1.05 ounces, maximum.
 Two-pole with standard PB and 1.00-inch base, .525 ounces maximum.
 Two-pole with high efficiency PB and 1.30-inch base, 0.7 ounces maximum.
 Connector module and hard-mount sleeve, 1.4 ounces maximum.

Lamps: Illumination is by four T-1 subminiature flanged base, .15 MSCP (28 V, CC2F Filament), incandescent lamps. Call Supplier for application information regarding use of these switches with LEDs.

Operating characteristics:

Actuation force: 2 to 5 pounds.
 Actuation travel: .250 inch maximum
 Extraction force: 1 to 5 pounds maximum.

Shock: Method I (75 g, half-sine).

Dielectric withstanding voltage at reduced barometric pressure:

Altitude: 50,000 feet (MIL-STD-202, method 105, test condition B).

Electrical endurance: See table III.

Luminance: Standard displays with incandescent illumination: See table IV for standard displays with incandescent illumination using $.15 \pm 2\%$ MSCP lamps.

EMI/RFI shielding: The shielding efficiency test is applicable. The shielding attenuation shall be not less than specified on figure 11.

TABLE III. Electrical ratings.

	Voltage	Contact rating	
		115 V ac	Sea level
Silver contacts	Resistive Inductive Lamp	7 amperes	
		4 amperes	
	2 amperes		
	28 V dc	Sea level	50,000 feet
Resistive Inductive Lamp	7 amperes	4 amperes	
	4 amperes	2.5 amperes	
	2.5 amperes	2.5 amperes	
Gold contacts	28 V dc	Sea level	50,000 feet
	Resistive Inductive	1 ampere	1 ampere
		.5 ampere	.5 ampere

TABLE IV. Luminance - standard displays with incandescent illumination.

Color	Minimum average brightness	
	Legend type code (see table II)	foot-lambert
Yellow	N	190
Red		75
Green		50
White		50
Blue		40
Yellow	W	285
Red		85
Green		100
White		125
Blue		75
Yellow	S	350
Red		185
Green		185
White		185
Blue		150
Yellow	C	300
Red		120
Green		110
White		175
Blue		90
Yellow	B	300
Red		150
Green		150
White		150
Blue		100

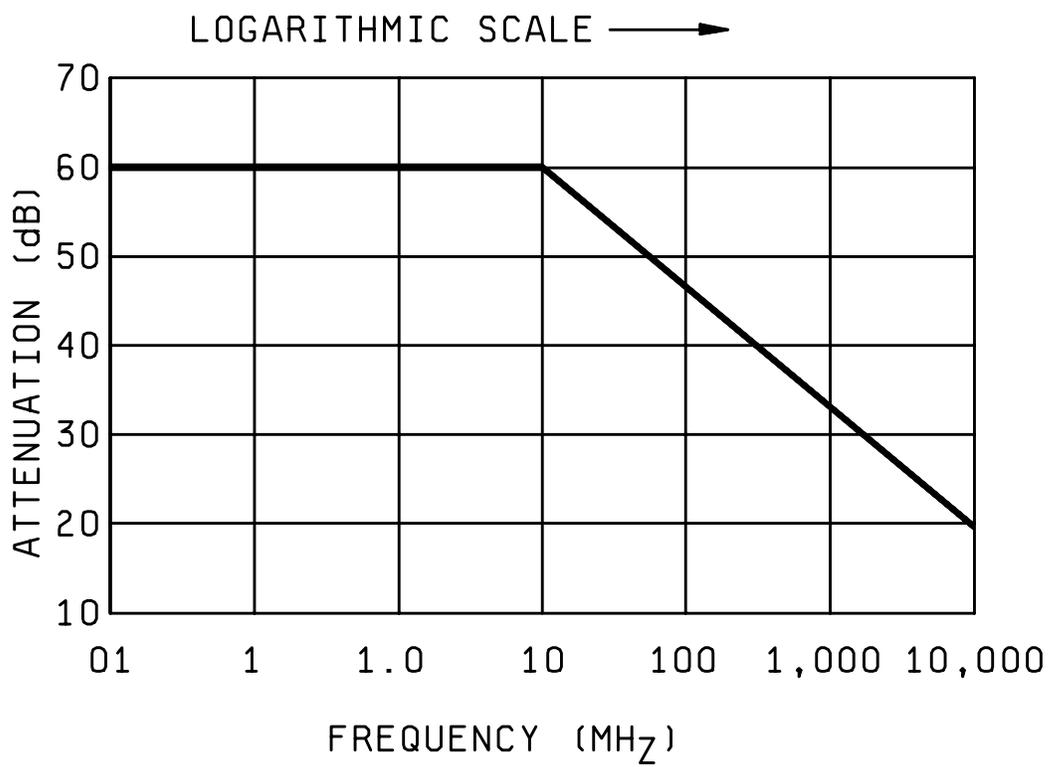


FIGURE 11. RF/EMI attenuation.

Sunlight readability: Applicable when specified only for Type 'S' designation switches with high efficiency (type 2) push button and incandescent illumination. See table V for minimum average contrast ratios in the lighted condition. In the unlighted condition, the average contrast ratio of each legend character to the background shall have an absolute value less than or equal to 0.1 when measured in accordance with MIL-PRF-22885.

TABLE V. Contrast ratios for high efficiency push button with sunlight readable display-incandescent illumination. 1/

Color	$C_L = \frac{(B_2 - B_1)}{B_1}$ 2/ 3/		
	Condition 1 4/ ($\phi_1 = \phi_2 = 15^\circ$)	Condition 2 4/ ($\phi_1 = \phi_2 = 30^\circ$)	Non-Glare Sunlight Condition 4/ ($\phi_1 = 0^\circ \phi_2 = 45^\circ$)
Red	0.6	0.3	0.8
Green	0.6	0.3	0.8
Yellow	0.6	0.4	0.8
Blue	0.4	0.2	0.4
White	0.6	0.2	0.8
NVIS green A	0.6	N/A	N/A
NVIS green B	0.6	N/A	N/A
NVIS yellow	0.6	N/A	N/A

Application notes.

- 1/ In addition to luminance contrast, color contrast is an important factor in readability. Red has the best color contrast during sunlight conditions, blue and white have the poorest color contrast. Colors are in accordance with table I.

Lamps with a mean spherical candlepower of .15±2% must be used to obtain the contrast values specified above. The qualified source(s) should be contacted for lamp recommendations for the specific equipment application.

- 2/ C_L = Lighted contrast.
 B_2 = Legend character brightness.
 B_1 = Legend background brightness.
- 3/ Minimum average contrast of each legend character using incandescent lamps.
- 4/ The photometer and high intensity light source (10,000 foot-candles) are coplanar with the normal to the legend. ϕ_1 and ϕ_2 indicate the angle from the normal, from which the photometer and light source are oriented, respectively.

Night vision imaging system (NVIS) compatibility: Applicable when specified (see table XIII) only for Type ‘S’ designation switches with high efficiency (type 2) push button and incandescent illumination.

Requirements: The illuminated color of the legend shall be compatible with NVIS goggles as specified in MIL-L-85762 as shown in Table VI.

TABLE VI. Illuminated chromaticity limits - incandescent illumination.

Color	Color code	Luminance foot-lambert	u' <u>1/</u>	v' <u>1/</u>	r <u>1/</u>
NVIS green A	H	0.1	.088	.543	.037
NVIS green B	J	0.1	.131	.623	.057
NVIS yellow	K	15	.274	.622	.083
NVIS red	L	15	.450	.550	.060

1/ When illuminated by 4 T-1 midget flange base subminiature lamps of .15 ± 2% MSCP at 28 V dc.

The formula is solved for the radius (r) to confirm compliance.

$$(u' - u'_1)^2 + (v' - v'_1)^2 \leq r^2$$

Where:

u', v' = 1976 UCS chromaticity coordinates of the test article.

u'₁, v'₁ = 1976 UCS chromaticity coordinates of the center point of the specified color area above.

r = Radius of the allowable circular area on the 1976 UCS chromaticity diagram for the specified color.

The spectral radiance of the legend shall be compatible with NVIS goggles as specified in MIL-L-85762 where NVIS radiance (NR) is defined as shown in Table VII.

TABLE VII. NVIS Radiance limits - incandescent illumination

Color	Minimum for Type I only	Maximum for Type I & II	Scaled to:
Class A&B Green A&B	N/A	1.7 X 10 ⁻¹⁰	.1 foot-lambert
Class A Yellow	5.0 X 10 ⁻⁸	1.5 X 10 ⁻⁷	15 foot-lambert
Class B Yellow	4.7 X 10 ⁻⁸	1.4 X 10 ⁻⁷	15 foot-lambert
Class B Red	4.7 X 10 ⁻⁸	1.4 X 10 ⁻⁷	15 foot-lambert

The luminance of the legend shall be compatible with NVIS goggles as specified in MIL-L-85762 as shown in Table VIII.

TABLE VIII. Luminance for NVIS compatible- incandescent illumination.

Color	Color code	Display Type	Average character luminance foot-lambert ^{1/}
NVIS green A	H	S	100 min
NVIS green B	J	S	200 min
NVIS yellow	K	S	200 min
NVIS red	L	S	150 min
NVIS green A	H	N or B	0.5 to 3.0
NVIS green B	J	N or B	0.5 to 3.0
NVIS yellow	K	N or B	0.5 to 3.0

^{1/} When illuminated by 4 T-1 midget flange base subminiature lamps of $.15 \pm 2\%$ MSCP at 28 V dc.

The night vision goggle compatible feature, when specified for type S displays, will meet the sunlight readable feature and all minimum sunlight readable requirements along with the unique requirements for night vision goggle compatibility.

Test methods: The test procedure for measuring the NVIS luminance, color and spectral radiance shall be in accordance with MIL-L-85762 for illuminated controls (for NVIS green A and B) and warning signals (for NVIS Red) or master caution signals (for NVIS yellow).

Touch temperature: Applicable too incandescent illuminated switches. When switches are tested as specified below, the maximum difference between the legend face temperature and the ambient temperature shall be as specified in table IX.

A single switch shall be mounted in a 2 inch by 3 inch by one-eighth of an inch thick aluminum plate, using the recommended panel cutout (see figure 3). All four lamps shall be continuously energized at their maximum rated voltage. The test shall be performed with the switch in still air, which has a temperature of $70^{\circ}\text{F} \pm 5^{\circ}\text{F}$. The legend face temperature at the center of the legend area shall be recorded at not less than 5-minute intervals, until the temperature has stabilized. The temperature shall be considered stable when three successive readings taken at 5-minute intervals indicate no change in temperature. The ambient temperature shall be measured during the same period at a point sufficiently far from any heat source (including the test switch) to obtain a representative temperature value for the air reaching the switch by convection. The difference between the legend face temperature and the ambient temperature shall then be calculated by subtracting the lowest recorded ambient temperature from the highest recorded legend face temperature. The test shall be performed with each of the lamp types specified in table IX.

TABLE IX. Touch temperature difference.

Bulbs four each	Short push button standard temperature (type 1)	Short push button low touch option (type 1)	High efficiency push button (type 2)
5 volts <u>1/</u> (low power)	50°F	32°F	40°F
5 volts <u>1/</u> (high power)	70°F	50°F	40°F
28 volts <u>1/</u> (standard)	75°F	52°F	45°F

1/ Lamp definition is:

Description	Voltage	Current	Part number
Low power	5 V	.06 ampere	685AS15
High power	5 V	.115 ampere	718AS15
Standard	28 V	.024 ampere	6839

QUALITY ASSURANCE

Qualification inspection: All Part or Identifying Numbers (PINs) will be approved for inclusion in the qualified products list upon successful completion of testing specified in table X. Table X is based on the use of qualified MIL-PRF-8805/4 or MIL-PRF-8805/109 basic switches in the assembly.

TABLE X. Qualification inspection - group submission.

Inspection <u>1</u> /	Sample <u>2</u> /
Group I	All samples
Group II	M22885/109WAB06 (2 samples) M22885/109S3234 (2 samples)
Group III	M22885/109WAB06 (2 samples)
Group VI <u>3</u> /	M22885/109W0106 (2 samples)
Group VII	M22885/109S3234 (2 samples)

See footnotes at end of table.

TABLE X. Qualification inspection - group submission - Continued.

Inspection <u>1/</u>	Sample <u>2/</u>
Group VIII <u>4/ 5/</u>	Display type S, high efficiency push button, incandescent lamps, two push buttons of each color (16 samples including NVIS colors) <u>6/</u> Display type W, short push button, standard touch temperature, incandescent lamps; two push buttons of each color (10 samples) <u>6/</u> Display type S. Two push buttons of each color (6 samples) <u>6/</u>

1/ Inspection groups in accordance with qualification inspection table of MIL-PRF-22885.

2/ Test sample color and legend optional when not specified. For type S displays, legend shall conform to the test requirements for sunlight readability (for high efficiency push button only.)

3/ Electrical endurance: Test sea level resistance dc only. Lamps used during electrical endurance test shall be industry number 6839 (28 V, .024 A).

4/ Following the field of view test, red color samples of group VIII shall be tested for touch temperature as follows:

Short push button, standard touch temperature: 28-volt lamps shall be used.

Short push button, low touch temperature: 5-volt high power lamps shall be used.

High efficiency push button: 5-volt low power lamps shall be used.

5/ NVIS color and NVIS radiance testing shall be done where applicable during group VIII testing.

6/ Push buttons shall be assembled to any representative switch body during testing.

Group A inspection: See table XI. Other verification methods, as approved by the Qualification Activity, may be used in place of Group A.

TABLE XI. Group A inspection.

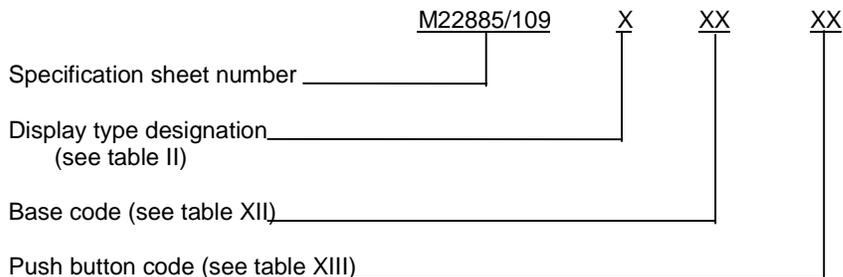
Inspection
Seal Visual and mechanical examination Operating characteristics <u>1/</u> Dielectric withstanding voltage Contact resistance <u>2/</u> Sunlight readability <u>3/</u> NVIS compatibility <u>4/</u>

- 1/ Do not exceed low level electrical rating on gold contact switches.
- 2/ Contact resistance measurements for gold contact switches shall be measured in accordance with the switch contact resistance of MIL-PRF-22885, except the test current at 10 milliamperes and the open-circuit test voltage at 30 millivolts dc. Maximum contact resistance is 3 ohms.
- 3/ Test one switch per color and use these as visual standards. Visually inspect all switches in each lot against the appropriately colored standard switch. The switches used as visual standards shall be certified annually by performing the sunlight readability test.
- 4/ Test one switch each for NVIS green A, NVIS green B, and NVIS yellow in accordance with the requirements of MIL-L-85762. These units will serve as standards when viewed with an image intensifier. Visually inspect all NVIS compatible switches in each lot with an image intensifier against the appropriate standard switch. The switches used as visual standards shall be certified annually by performing the NVIS compatibility test.

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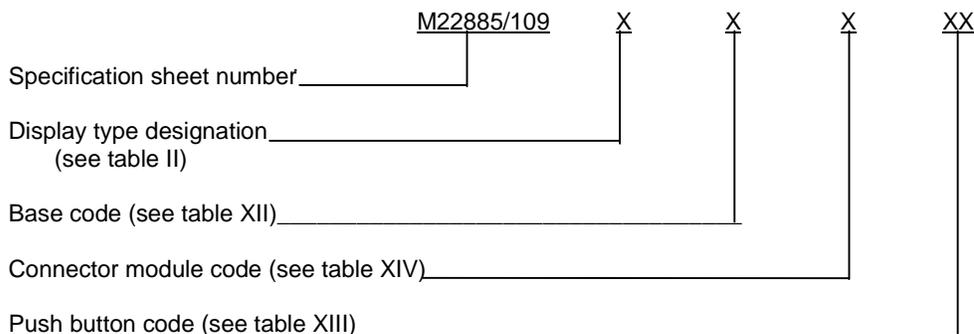
PINs:

Assign PINs for switches with solder lug or PCB pin terminals as follows:



Example: M22885/109S1435

Assign PINs for switches with connector module termination as follows:



Example: M22885/109WJF05

PINs generated do not include lamps, legends, or display color. Switches with legends must be described on a separate altered item drawing in accordance with category II part requirements of MIL-PRF-22885 including the required color for each segment of the lens. Lamps shall be acquired separately or specified on contract or purchase order.

TABLE XII. Switch base codes.

Base code	4-pole type 1 1/	4 pole type 2 2/	2-pole type 1 1/	2-pole type 2 2/	Indicator light type 3 1/	Indicator light type 4 2/	Solder terminal	PCB terminal	7-ampere switch	1-ampere switch	Alternate action	Momentary action
For switches with solder or PCB pin terminals												
01	X						X		X		X	
02	X						X		X			X
03	X						X			X	X	
04	X						X			X		X
05	X							X	X		X	
06	X							X	X			X
07	X							X		X	X	
08	X							X		X		X
09		X					X		X		X	
10		X					X		X			X
11		X					X			X	X	
12		X					X			X		X
13		X						X	X		X	
14		X						X	X			X
15		X						X		X	X	
16		X						X		X		X
17			X				X		X		X	
18			X				X		X			X
19			X				X			X	X	
20			X				X			X		X
21			X					X	X		X	
22			X					X	X			X
23			X					X		X	X	
24			X					X		X		X
25				X			X		X		X	
26				X			X		X			X
27				X			X			X	X	
28				X			X			X		X
29				X				X	X		X	
30				X				X	X			X
31				X				X		X	X	
32				X				X		X		X
33					X		X		N/A	N/A	N/A	N/A
34					X			X	N/A	N/A	N/A	N/A
35						X	X		N/A	N/A	N/A	N/A
36						X		X	N/A	N/A	N/A	N/A

See footnotes at end of table.

TABLE XII. Switch base codes - Continued.

Base code	4-pole type 1 <u>1/</u>	4 pole type 2 <u>2/</u>	2-pole type 1 <u>1/</u>	2-pole type 2 <u>2/</u>	Indicator light type 3 <u>1/</u>	Indicator light type 4 <u>2/</u>	Solder terminal	PCB terminal	7-ampere switch	1-ampere switch	Alternate action	Momentary action
For switches with connector module												
A	X						N/A	N/A	X		X	
B	X						N/A	N/A	X			X
C	X						N/A	N/A		X	X	
D	X						N/A	N/A		X		X
E		X					N/A	N/A	X		X	
F		X					N/A	N/A	X			X
G		X					N/A	N/A		X	X	
H		X					N/A	N/A		X		X
J			X				N/A	N/A	X		X	
K			X				N/A	N/A	X			X
L			X				N/A	N/A		X	X	
M			X				N/A	N/A		X		X
N				X			N/A	N/A	X		X	
P				X			N/A	N/A	X			X
Q				X			N/A	N/A		X	X	
R				X			N/A	N/A		X		X
T					X		N/A	N/A	N/A	N/A	N/A	N/A
V						X	N/A	N/A	N/A	N/A	N/A	N/A

1/ For use with short push button only.

2/ For use with high efficiency push button only.

TABLE XIII. Push button codes.

PB codes 1/	Short PB type 1 2/	High effi- ciency PB type 2 3/	Split common	Single common	NVIS compatible 4/	Standard temperature	Low temperature	Full display	2-way display	3-way display	4-way display
01	X		X			X		X			
02	X		X			X			X		
03	X		X			X				X	
04	X		X			X					X
05	X		X				X	X			
06	X		X				X		X		
07	X		X				X			X	
08	X		X				X				X
17	X			X		X		X			
18	X			X		X			X		
19	X			X		X				X	
20	X			X		X					X
21	X			X			X	X			
22	X			X			X		X		
23	X			X			X			X	
24	X			X			X				X
33		X	X			X	N/A	X			
34		X	X			X	N/A		X		
35		X	X			X	N/A			X	
36		X	X			X	N/A				X
41		X		X		X	N/A	X			
42		X		X		X	N/A		X		
43		X		X		X	N/A			X	
44		X		X		X	N/A				X
49		X	X		X	X	N/A	X			
50		X	X		X	X	N/A		X		
51		X	X		X	X	N/A			X	
52		X	X		X	X	N/A				X
53		X		X	X	X	N/A	X			
54		X		X	X	X	N/A		X		
55		X		X	X	X	N/A			X	
56		X		X	X	X	N/A				X

1/ Codes 09 through 16, 25 through 32, 37 through 40, and 45 through 48 have been canceled and replaced by 01 through 08, 17 through 24, 33 through 36, and 41 through 44 respectively.

2/ Short push button may be used only with base types 1 and 3.

3/ High efficiency push button may be used only with base types 2 and 4.

4/ NVIS compatible displays are available only in display types S, and N.

TABLE XIV. Connector module codes.

Code	Standard mounting sleeve	Double Mounting Sleeve	Panel thickness	
			Min	Max
A	x		.055	.085
B	x		.125	.155
C	x		.205	.235
D <u>1/</u>	x		.243	.273
E		x	.055	.085
F		x	.125	.155
G		x	.205	.235
H <u>1/</u>		x	.243	.273

1/ Not available for short push button (type I) version.

Application information:

LED lighting characteristics using 4 T-1 subminiature flanged base LEDs in high efficiency push buttons with white color filters. See table XV.

TABLE XV. LED lighting characteristics. Category II

Display type	LED color/ wavelength (nm)	Forward voltage V dc	Axial intensity at typical forward voltage MCD	Legend brightness foot-lambert min
S <u>1/</u>	Red/635 <u>2/</u>	5.0	6.0 - 8.5	5
B	Red/635 <u>2/</u>	5.0	6.0 - 8.5	5
C	Red/635 <u>2/</u>	5.0	6.0 - 8.5	5
N	Red/635 <u>2/</u>	5.0	6.0 - 8.5	5
S <u>1/</u>	Amber/585 <u>3/</u>	5.0	6.0 - 8.5	5
B	Amber/585 <u>3/</u>	5.0	6.0 - 8.5	5
C	Amber/585 <u>3/</u>	5.0	6.0 - 8.5	5
N	Amber/585 <u>3/</u>	5.0	6.0 - 8.5	5
S <u>1/</u>	Green/565 <u>4/</u>	5.0	6.5 - 9.0	5
B	Green/565 <u>4/</u>	5.0	6.5 - 9.0	5
C	Green/565 <u>4/</u>	5.0	6.5 - 9.0	5
N	Green/565 <u>4/</u>	5.0	6.5 - 9.0	5

1/ When using LED's in type S displays, the resulting display is not sunlight readable.

2/ Red LED: WAMCO (CAGE 58774) PIN OLR-108SMF/5V or equivalent.

3/ Amber LED: WAMCO (CAGE 58774) PIN OLY-108SMF/5V or equivalent.

4/ Green LED: WAMCO (CAGE 58774) PIN OLG-108SMF/5V or equivalent.

MIL-PRF-22885/109B

Custodians:
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC
(Project 5930-1716-25)