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INCH-POUND

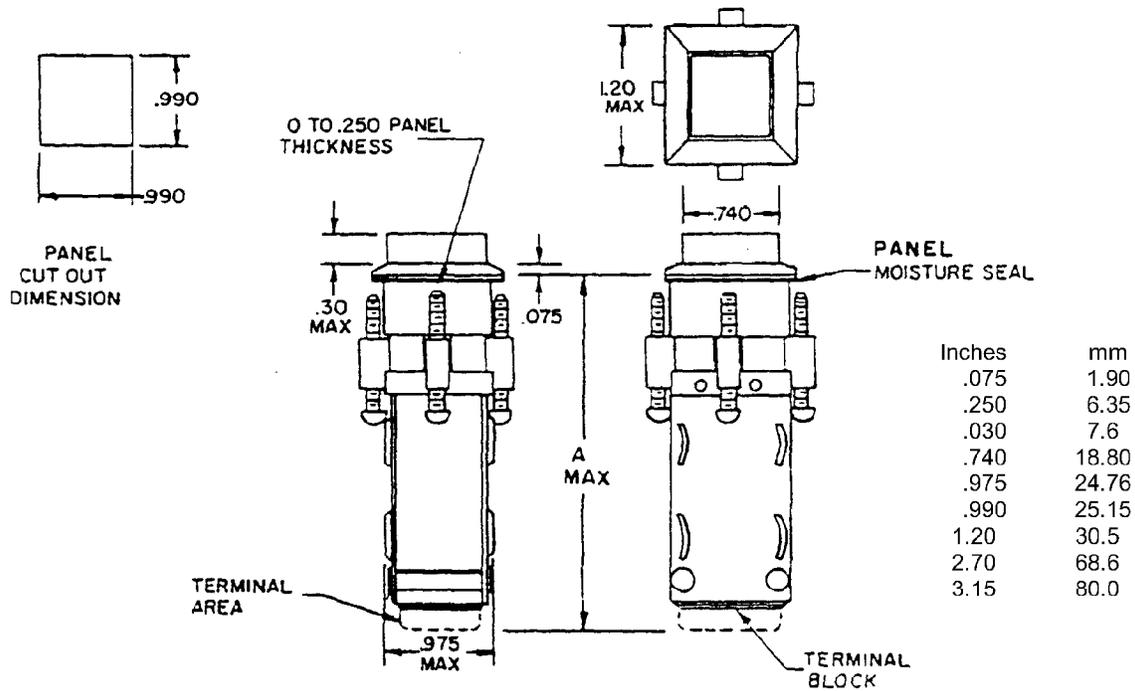
MIL-PRF-22885/80F  
 17 MARCH 1999  
 SUPERSEDING  
 MIL-S-22885/80E  
 24 February 1984

PERFORMANCE SPECIFICATION SHEET

SWITCH, PUSHBUTTON, ILLUMINATED, 4-LAMP SOLID MOUNT,  
 RFI SHIELDED, MOISTURE SEALED, HIGH IMPACT SHOCK RESISTANT

This specification sheet 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 sheet and MIL-PRF-22885.



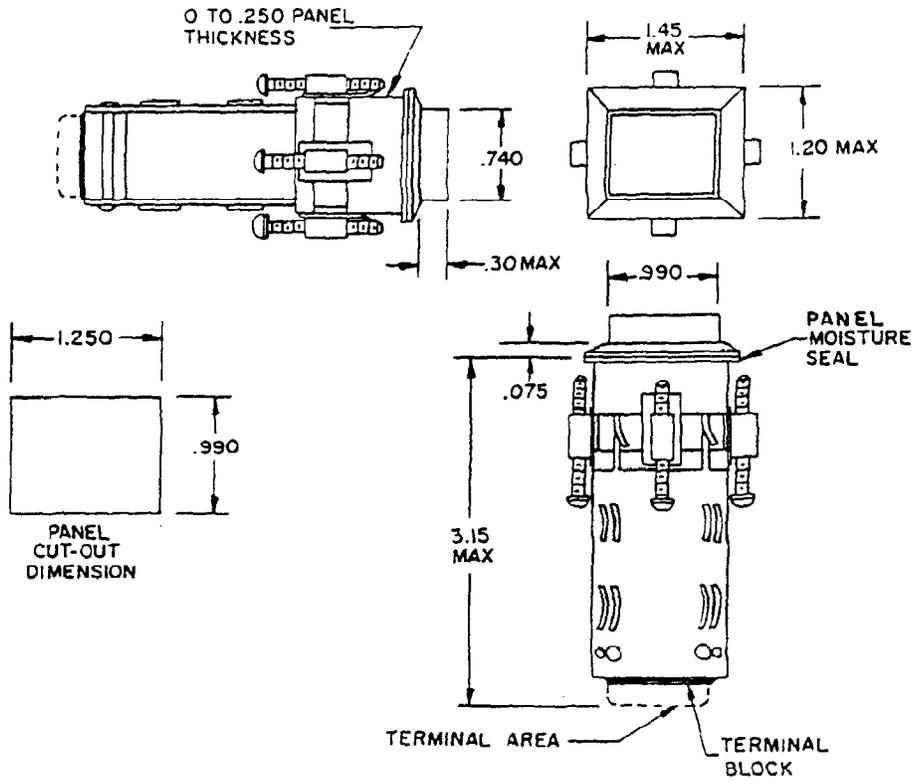
DIMENSION A

Type 1: 3.15 MAX  
 Type 3: 2.70 Max

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.010$  (.25 mm).
4. The design configuration is optional within the envelope dimensions shown.

FIGURE 1. Switch, 4-lamp, solid mount, type 1 and type 3.

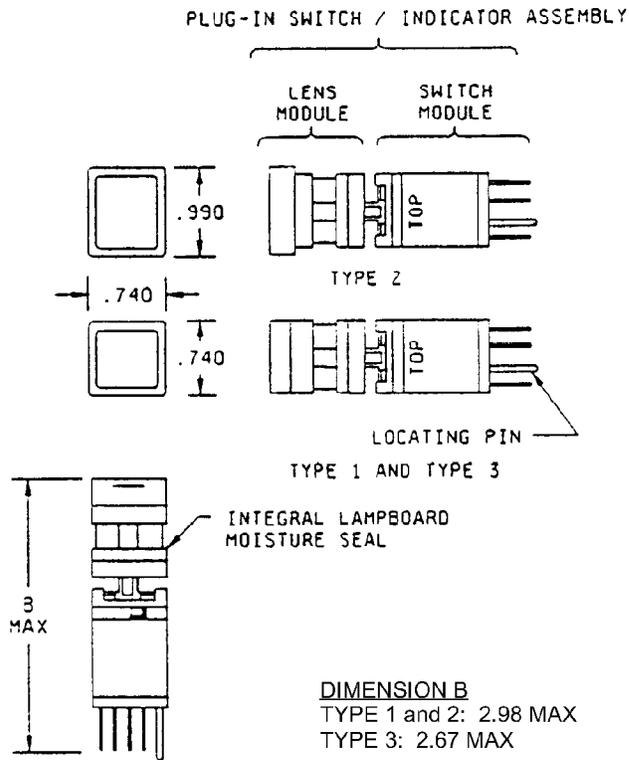


Inches	mm
.075	1.90
.250	6.35
.30	7.6
.740	18.80
.990	25.15
1.20	30.5
1.250	32.75
1.45	36.3
3.15	80.0

NOTES:

1. Dimensions are inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.010$  (.25 mm).
4. The design configuration is optional within the envelope dimensions shown.

FIGURE 2. Switch, 4-lamp, solid mount, type 2.

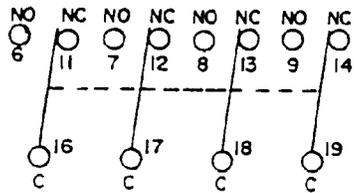
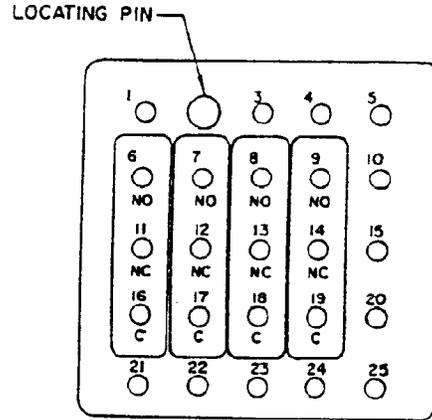
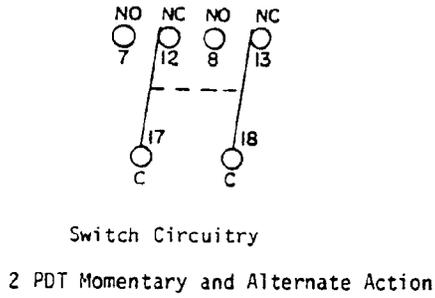


Inches	mm
.740	18.80
.990	25.15
2.67	67.8
2.98	75.7

NOTES:

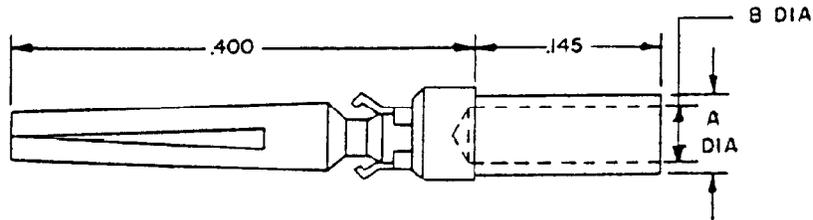
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.016$  (0.41 mm).
4. Location of RFI grounding contact is optional.

FIGURE 3. Plug-in switch/indicator assembly.



NOTE: Terminals shall be permanently identified as shown.;

FIGURE 4. Switch circuitry schematics.



Terminal part numbers and selection criteria.

P/N M22885/80- (package of 25 terminals)	"A" dia.	"B" dia.	Acceptable wire sizes & qty. (stranded or solid conductor) (see note 5)
50	.076	.054	#20(1), #22(1), #24(1) or #24(2)
51	.049	.029	#26(1) or #28(10)
52	.092	.072	#18(1), #20(2), #22(2)

Inches	mm
.029	.74
.049	1.24
.054	1.37
.072	1.83
.076	1.93
.092	2.34
.145	3.68
.400	10.16

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.010$  (.25 mm).
4. Design configuration is optional within envelope dimensions shown.
5. Wire size for stranded conductor is based on nearest AWG size.
6. Terminals are crimped onto the end of each wire using M22520/1-01 crimping tool and M22520/1-02 positioner in accordance with MIL-C-22520.

FIGURE 5. Terminal, crimp-type.

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REQUIREMENTS:

Design and construction: See figures 1 through 5.

Complete switch shall consist of:

- 1 - Plug-in switch/indicator assembly (see figure 3).
- 1 - Housing.
- 4 - Lamps (T-1 ¾ midget-flanged-base). Not included, order separately.

Plug-in switch/indicator assembly shall include:

- 1 - Switch module.
- 1 - Lens module: Consists of lens assembly in accordance with MIL-PRF-22885/82, as specified (see table IV and V), lens retainer (M-22885/82-50 or 58), and lamp capsule assembly with RFI screen and moisture seal. The lamps and lens assembly shall be capable of being installed or removed from the panel front without the use of special tools.

Housing shall include:

- 1 - Terminal block.
- 1 - Mounting fastener.

Terminals: See figure 5 for available part numbers. Not included, order separately.

Enclosure design: 2 (Dripproof).

Temperature characteristic:

- 55°C minimum to +71°C maximum.
- +55°C maximum with lamps energized.

Vibration grade: 2 (10-500 Hz).

Operation: A (momentary), B (alternate), H (indicator only).

Color: See table II and MIL-PRF-22885/82.

Display type: W (white until illuminated, then background appears in color specified).

Weight:

- Type 1: 3.0 ounces maximum.
- Type 2: 3.5 ounces maximum.
- Type 3: 2.5 ounces maximum.

Solderability: Not applicable.

Resistance to soldering heat: Not applicable.

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Operating characteristics:

Actuating force: 4 pounds maximum.

Shock:

Momentary action switches and indicator: Method I and method II (high impact). Displacement of lens module to re-lamp position permissible during method II high impact shock test.

Alternate action switches: Method I.

Seal: No leakage allowed through panel seal and beyond integral lampboard seal (lens assembly not sealed).

Electrical endurance: Test at electrical ratings specified in table I.

Contact resistance: Not applicable after electrical endurance, inductive load dc.

EMI/RFI shielding: Grounded lens screen shall be provided. Screen to mounting surface resistance shall not exceed 3 ohms. EMI screen is not grounded during switch travel or in the depressed position.

Luminance: See table II.

Marking: Part numbers for complete assemblies shall not appear on the items. The part numbers for individual plug-in switch/indicators and housing shall be marked on the item as required.

TABLE I. Electrical ratings.

Load	Sea level	
	28 V dc	115 V ac, 60 Hz
Resistive	(amperes) 5.0	(amperes) 5.0
Inductive	2.5	2.5

TABLE II. Luminance.

Color	Minimum switch photometric brightness (foot lamberts)
Green (G)	8
Yellow (Y)	150
Red (R)	40
Blue (B)	3
White (W)	55

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QUALIFICATION:

Group submission: The following applies when the momentary action switches, types 1 and 2, are submitted for qualification at the same time.

Qualification inspection: See table III.

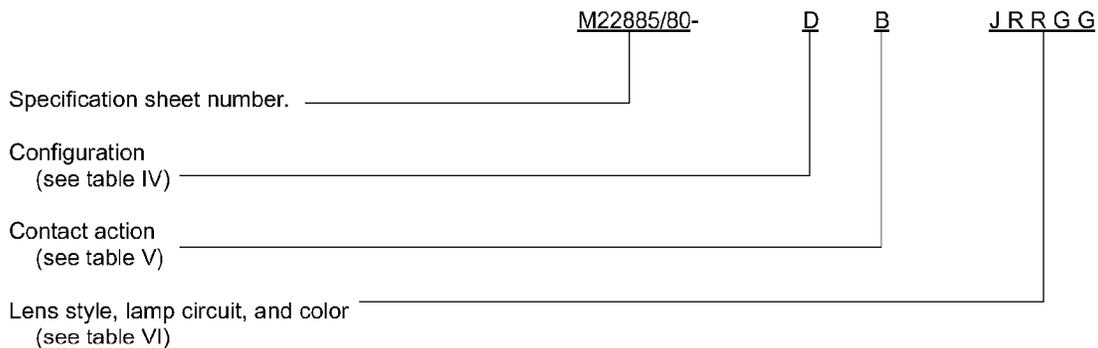
TABLE III. Qualification inspection.

Part number	Test	Extent of approval
M22885/80-ABCW <u>1/</u>	Qualification inspection table of MIL-PRF-22885 <u>2/</u>	All part numbers
M22885/80-FDLRW	Groups I and II tests from qualification inspection table	

1/ Switches with red, green, yellow and blue color filters shall be tested, in addition to white, for group VIII tests.

2/ Two samples shall be submitted to method I shock and two samples to method II shock.

Part number: Part numbers shall be assigned as illustrated below. For acquisition of government spares, use configuration codes for plug-in switch/indicator assembly and housing only. Provisioning documentation shall show parts breakdown by associated military part number.



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TABLE IV. Configuration.

Code	Configuration	
	Type 1	
A <u>1/</u>	Complete assembly with front lens plate	(see figure 1)
B <u>1/</u>	Complete assembly without front lens plate	(see figure 1)
C	Plug-in switch or indicator assy with front lens plate	(see figure 3)
D	Plug-in switch or indicator assy without front lens plate	(see figure 3)
E	1 Housing only	
	Type 2	
F <u>1/</u>	Complete assembly with front lens plate	(see figure 2)
G <u>1/</u>	Complete assembly without front lens plate	(see figure 2)
H	Plug-in switch or indicator assy with front lens plate	(see figure 3)
J	Plug-in switch or indicator assy without front lens plate	(see figure 3)
K	Housing only	
	Type 3	
M <u>1/</u>	Complete assembly with front lens plate	(see figure 1)
N <u>1/</u>	Complete assembly without front lens plate	(see figure 1)
P <u>2/</u>	Plug-in switch or indicator assy with front lens plate	(see figure 3)
Q <u>2/</u>	Plug-in switch or indicator assy without front lens plate	(see figure 3)
R	Housing only	

1/ For other than direct government stocking, acquisition of assembled units may be made with the code letters indicated. These part numbers shall not appear on the items, but may be marked on shipping containers. The individual part numbers for plug-in switch indicator assembly and housing shall be marked as required.

2/ Not for use in MIL-S-24317/8 multistation switch housings.

TABLE V. Contact action. 1/

Code	Contact action
A	2PDT Momentary (high impact shock resistant)
B	4PDT Momentary (high impact shock resistant)
C	2PDT Alternate
D	4PDT Alternate
E	Indicator function only (high impact shock resistant)

1/ This code is not required when specifying housing portion of switch only.

2/ Not available with type 3 switches.

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TABLE VI. Lens style, lamp circuit and color. 1/

Code 2/	Lens style 3/	Lamp schematic
C(X)	1	
D(XX)	1 2	
E(XX)	1 2	
F(XXX)	1 2 3	
H(XXX)	1 2 3	
J(XXXX)	1 2 3 4	
K(X)	1	
L(XX)	1 2	
M(XXX)	1 2 3	
N(XXX)	1 2 3	
P(XXXX)	1 2 3 4	
S(XX)	1 2	

1/ This code is not required when specifying housing portion of switch only.

2/ Codes are shown for units without color filters. When color filters are to be included, add the color symbols of table II in place of (X), (XX), (XXX) or (XXXX) in proper sequence. For direct government stocking, do not use color filter codes; color filters should be acquired separately (see MIL-PRF-22885/82). Part numbers with color filter codes shall not appear on the items, but may be marked on shipping containers.

3/ Numbers indicate color symbol sequence.

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TABLE VII. Supersession data. <sup>1/</sup>

Superseded military part number M22885/80-	Superseding military part number M22885/80-
19 (X)	CAC (X)
20 (XX)	CAL (XX)
21 (XX)	CAS (XX)
22 (X)	CBC (X)
23 (XX)	CBL (XX)
24 (XX)	CBS (XX)
25 (X)	CEC (X)
26 (XX)	CEL (XX)
27 (XX)	CES (XX)
28 (X)	HAC (X)
29 (XX)	HAL (XX)
30 (XX)	HAS (XX)
31 (X)	HBC (X)
32 (XX)	HBL (XX)
33 (XX)	HBS (XX)
34 (X)	HEC (X)
35 (XX)	HEL (XX)
36 (XX)	HES (XX)

<sup>1/</sup> Part numbers are shown for units without color filters. When color filters are included, the color symbols of table II are added in place of (X) or (XX) in the sequence shown in table VI.

TABLE VIII. Inactive part numbers. <sup>1/</sup>

Part number <sup>2/</sup> M22885/80-	Configuration (see table IV)	Contact action (see table V)	Lens style and lamp circuit (see table VI)
01 (X)	A	A	C
02 (XX)	A	A	L
03 (XX)	A	A	S
04 (X)	A	B	C
05 (XX)	A	B	L
06 (XX)	A	B	S
07 (X)	A	E	C
08 (XX)	A	E	L
09 (XX)	A	E	S
10 (X)	F	A	C
11 (XX)	F	A	L
12 (XX)	F	A	S
13 (X)	F	B	C
14 (XX)	F	B	L
15 (XX)	F	B	S
16 (X)	F	E	C
17 (XX)	F	E	L
18 (XX)	F	E	S

<sup>1/</sup> These part numbers are inactive for new design. They cover switches with black painted housing bezel.

<sup>2/</sup> Part numbers are shown for units without color filters. When color filters are included, the color symbols of table II are added in place of (X) or (XX) in the sequence shown in table VI.

