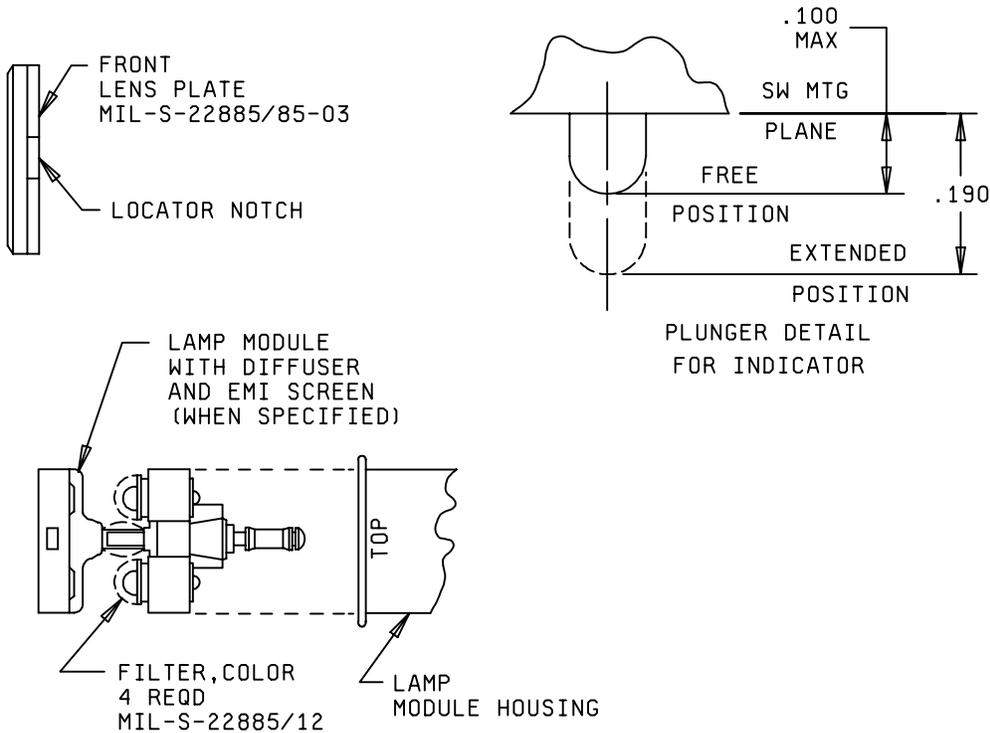


NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.016 inch (0.41 mm).
4. Terminal design is optional.
5. The design configuration is optional within envelope dimensions shown.
6. Mounting means to accumulate .050 inch (1.27 mm) to .250 inch (6.35 mm) panel thickness.
7. Design of lamp module locking device optional.
8. Lamp circuit schematic shall be marked on the indicator housing as shown on figure 6.
9. Lamp terminals shall be permanently identified with letters as shown on figure 6. Exact position of lamp terminals is optional. Relative positions shall be in accordance with figure 6 herein.
10. Design of switch retaining device is optional. Must interface with all previously qualified MIL-PRF-22885/86 switch assemblies.

FIGURE 1. Switch, pushbutton, illuminated - Continued.



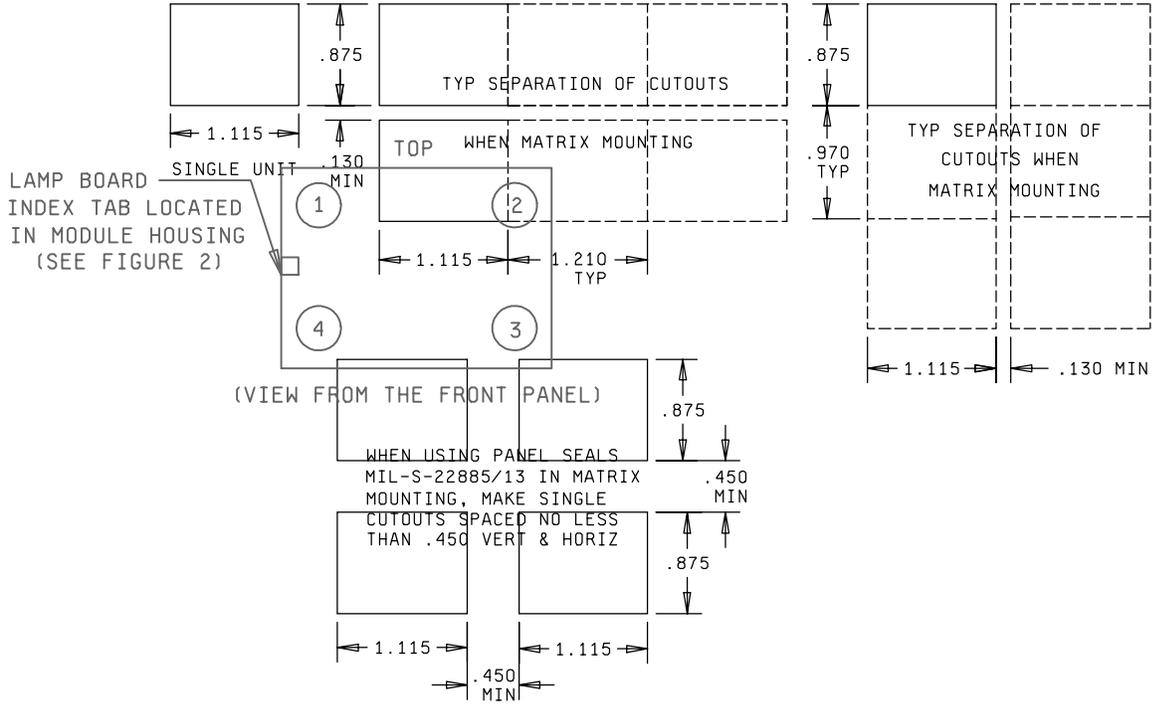
| Inches | mm |
|--------|------|
| .100 | 2.54 |
| .190 | 4.83 |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ± 0.005 (.013 mm).
4. Retention of lamp module to housing is optional (for relamping).

FIGURE 2. Lamp module and plunger detail.

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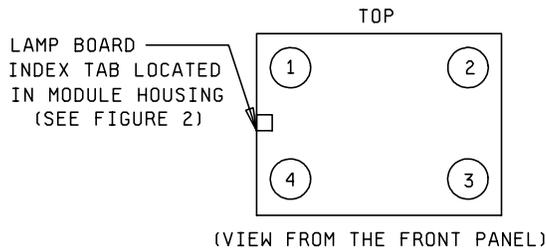


| Inches | mm |
|--------|-------|
| .130 | 3.30 |
| .450 | 11.43 |
| .875 | 22.23 |
| .970 | 24.64 |
| 1.115 | 28.32 |
| 1.210 | 30.73 |

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ± 0.010 inch (0.41mm).

FIGURE 3. Display screen, spacer or color filter, type 1.



NOTE: Numbers shown indicate sequence of color symbols in the Part or Identifying Number (PIN).

FIGURE 4. Color filter location with respect to modular light (housing).

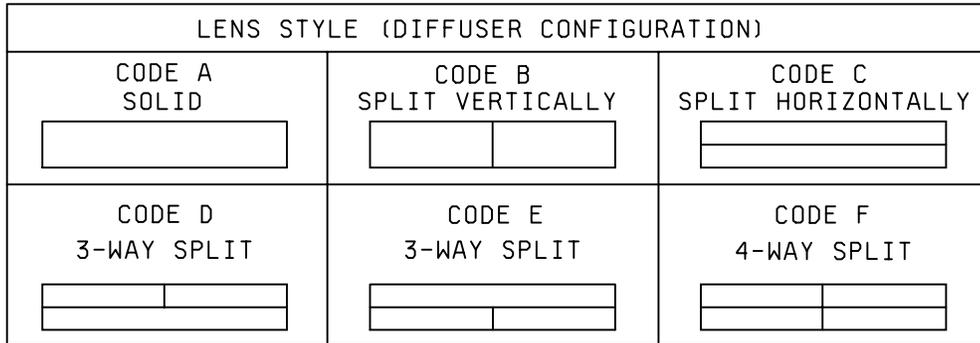
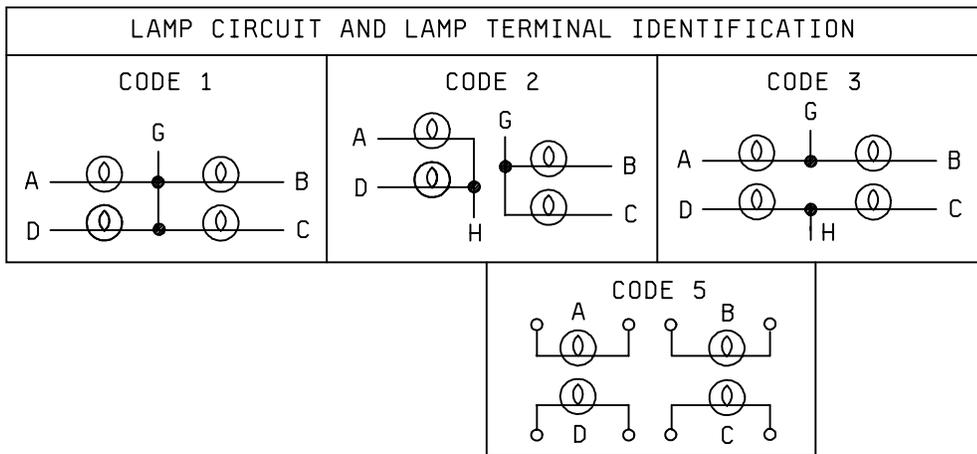


FIGURE 5. Lens style diffuser configuration.



NOTES:

1. For reliability, it is recommended that selection of lens styles and lamp circuits be limited to those providing at least 2 lamps per display area.
2. Lamp location or lens style shown is as viewed from front panel with module position in accordance with figure 4.

FIGURE 6. Lamp circuits.

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REQUIREMENTS:

Dimensions and configuration: See figures 1 through 6.

Indicator module shall consist of:

- 1 - Lamp module (with diffuser and EMI screen when specified, see table III).
- 1 - Transparent front lens plate (M22885/85-03).
- 4 - Lamps (T-1-3/4 midget-flange base) not included, order separately.
- 4 - Color filters (MIL-PRF-22885/12), when specified.
- 1 - Lamp module housing.
- 1 - Plunger stop.
- 1 - Panel seal (MIL-PRF-22885/13), not included, order separately.
- 1 - Switch retaining device or clip, if required.

Weight: .130 pound maximum.

Complete switch shall consist of:

- 1 - Modular indicator light as described above (lens plunger stop).
- 1 - Switch assembly (MIL-PRF-22885/88).

Weight: .180 pound maximum.

Enclosure design: 1 (unsealed).

Vibration grade: 2 (10 to 500 Hz).

Thermal shock: Temperature extremes shall be -55°C and +71°C (+55°C with lamps energized).

Lens transmittance:

Diffuser: T (translucent).

Front plate: M (nondiffusing).

Lamp module: The lamp insulator block (base) may be fabricated from thermoplastic material.

Lens: Shall consist of a transparent front plate and a diffuser. A translucent white background with the appropriate (one style shall be provided by the diffuser. When illuminated, the background shall appear in a color determined by the color of the lamp filters (MIL-PRF-22885/12).

Diffuser and lens plate material: High temperature heat resistant thermoplastic.

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Luminance: Shall be in accordance with MIL-PRF-22885/12. Brightness is reduced by approximately 50 percent when EMI screen is installed.

Color filters: Shall be in accordance with MIL-PRF-22885/12.

Mounting flange: Front face of the mounting flange shall be corrosion resistant steel with a natural lusterless finish.

Lamp module locking device: Shall be provided to prevent lamp module from moving from its normal (ready to operate) position during high shock.

Plunger stop: Design optional. Shall be readily adjustable or resolvable in the field without the need of special tools. Plunger stop shall be removed when switching action is required when indicator module is coupled to a switch assembly.

Plunger stop test: With the plunger stop functionally installed on the indicator module and the module mounted by its normal mounting means, a static force of 25 pounds shall be applied to the legend plate for 1 minute. The plunger stop shall restrict normal actuator travel.

Thermoplastic material: Shall be selected to meet the performance requirements of this document.

Marking: Color filter symbols shall not appear in the PIN marked on the items, but may be marked on shipping containers.

Shock:

Method I: There shall be no opening of closed contacts or closing of open contacts in excess of 10 microseconds for momentary action switches and 10 milliseconds for alternate action switches.

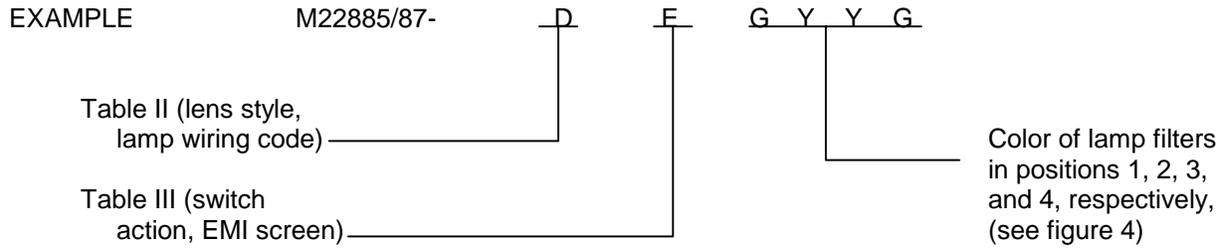
Method II: There shall be no opening of closed contacts or closing of open contacts in excess of 40 milliseconds. The standard mounting fixture shown in method 207 of MIL-STD-202 shall be used.

EMI shielding: When specified (see table III), indicators shall be equipped with a fine mesh EMI screen installed between the lamps and diffuser, making electrical contact to the indicator light's housing. The screen to housing resistance shall not exceed 1 ohm through one complete cycle of operation with full overtravel. Test in accordance with the following:

- a. Test current: 100 ± 10 milliamperes.
- b. Open circuit test voltage 6 ± 1 V dc.
- c. Before and after electrical endurance in qualification and group C testing.

PIN: M22885/87- (and two-digit alpha-numeric dash number from tables II and III. Add color filter symbols when required). For direct Government stocking, do not use color filter symbols, color filter should be acquired separately.

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This PIN describes a complete switch (including front lens plate) with vertical split lens style and lamp circuit, 4 PDT alternate switch action, green color filters in positions 1 and 4, and yellow color filters in positions 2 and 3.

These PIN's do not include lamps or legends. Switches with legend information shall be acquired through **Defense Supply Center, Columbus, (CAGE 144933) drawing 90103.**

Qualification inspection: All applicants for qualification approval shall demonstrate that each of their items conform to all the requirements specified in the applicable documents, singularly and in combination with all other previously qualified items, regardless of manufacturer.

Group submission:

- a. When the basic sensitive switches are not qualified to MIL-PRF-8805, the switch type for which qualification is sought, shall be submitted to the complete tests in accordance with table X of MIL-PRF-22885. If approval of the seal is requested, one-half of the samples for tests in groups II, III, and VI shall be tested with the seal assembled to the switch. In addition, two sample seals shall be subjected to the sunshine test in MIL-PRF-22885/13. The sample switches submitted to the color and luminance test, group VIII, shall also be subjected to the color fade test in MIL-PRF-22885/12.
- b. When the basic sensitive switches are qualified to MIL-PRF-8805, and the switches as shown are submitted for qualification at the same time, table I applies.

Single submission: When the basic sensitive switches are qualified to MIL-PRF-8805 sample units of the type switch for which qualification is sought shall be submitted to the following tests:

Schedule I of table I: 6 units.

Schedule III of table I.

Plunger stop test and sunshine test, when applicable.

Group A inspection: Tests may be performed on individual MIL-PRF-22885/88 units and indicator modules prior to assembly as a MIL-PRF-22885/87 switch, when applicable. Contact resistance may be performed on individual basic sensitive switches prior to assembly as a MIL-PRF-22885/88 unit.

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TABLE I. Qualification inspection (group submission).

| PIN's M22885/87 | Qualification inspection table of MIL-PRF-22885 | | Additional testing | Extent of approval |
|---|--|---|--|--------------------------------|
| | Group | Number of sample units | | |
| Schedule II -ALRRRR <u>2/</u> | I <u>1/</u> II <u>3/</u> III VI <u>4/</u> <u>5/</u> | 6 2 (from group I) 2 (from group I) 2 (from group I) | | All PIN's MIL-PRF-22885/13, |
| Schedule II -DCWWWW | I II | 2 2 (from group I) | Plunger stop test <u>6/</u> | |
| -EDBBBB | I | 2 | | |
| Schedule III (dash numbers from schedules I and II may be used) | VIII | 12 (2 each color) | Color fade test of <u>7/</u> MIL-PRF-22885/12 | |
| | | 2 (with M22885/13-02 seal installed) | Sunshine test of <u>7/</u> MIL-PRF-22885/13 | |

1/ Solderability not applicable.

2/ For approval of units without EMI screens substitute M22885/87-AERRRR for M22885/87-ALRRRR.

3/ When approval of each M22885/13-02 is desired, the seal shall be properly assembled to the 4-lamp illuminated push switch during the tests. There shall be no more than 10 percent change in transmittance after completion of the tests, nor shall there be any crazing or cracking.

4/ Sea level, dc resistive load only.

5/ For approval of units with EMI screen, resistance between EMI screen and housing shall be tested before and after electrical endurance.

6/ The plunger stop test shall be performed by removing the switch assembly and installing the stop.

7/ These tests are not required if the seal and color filters have been previously qualified.

TABLE II. Code letter for combination of lens style and lamp wiring code.

| Code letter | Lens style (see figure 5) | Lamp wiring code (see figure 6) | Front lens plate |
|-------------|------------------------------|------------------------------------|------------------|
| A | A | 1 | Included |
| B | A | 2 | Included |
| C | A | 3 | Included |
| D | B | 2 | Included |
| E | C | 3 | Included |
| L | B | 1 | Included |
| M | C | 1 | Included |
| N | D | 1 | Included |
| P | D | 3 | Included |
| Q | D | 5 | Included |
| R | E | 1 | Included |
| S | E | 3 | Included |
| T | E | 5 | Included |
| U | F | 1 | Included |
| V | F | 5 | Included |
| F | A | 1 | Not included |
| G | A | 2 | Not included |
| H | A | 3 | Not included |
| J | B | 2 | Not included |
| K | C | 3 | Not included |
| W | B | 1 | Not included |
| X | CD | 1 | Not included |
| Y | D | 1 | Not included |
| Z | D | 3 | Not included |
| 1 | D | 5 | Not included |
| 2 | E | 1 | Not included |
| 3 | E | 3 | Not included |
| 4 | E | 5 | Not included |
| 5 | F | 1 | Not included |
| 6 | F | 5 | Not included |

1/ Inactive for new design.

TABLE III. Code letter for switch action and EMI screen.

| Code letter | Switch section | EMI screen |
|-------------|-----------------|------------|
| A | None <u>1/</u> | No |
| B | 2 PDT momentary | No |
| C <u>2/</u> | 4 PDT momentary | No |
| D | 2 PDT alternate | No |
| E | 4 PDT alternate | No |
| F | None <u>1/</u> | Yes |
| H | 2 PDT momentary | Yes |
| J <u>2/</u> | 4 PDT momentary | Yes |
| K | 2 PDT alternate | Yes |
| L | 4 PDT alternate | Yes |

1/ Indicator light only.

2/ For other than direct Government stocking, acquisition of assembled units may be made with the code letters indicated. These PIN's shall not appear on the items, but may be marked on the shipping containers. The individual PIN's for indicator modules (code letters A and F) and switch modules (MIL-22885/88) shall be marked on the parts as required.

TABLE IV. Superseded code character for combinations of colors for positions 1 and 2, or 3 and 4, as applicable (see figure 4). 1/

| Code letter | Color of position 1 (or 3) | Color position 2 (or 4) | | Code letter | Color of position 1 (or 3) | Color of position 2 (or 4) |
|-------------|----------------------------|-------------------------|--|-------------|----------------------------|----------------------------|
| A | R | R | | T | Y | W |
| B | R | W | | U | Y | B |
| C | R | B | | V | Y | Y |
| D | R | Y | | W | Y | G |
| E | R | G | | X | Y | V |
| F | W | R | | Y | G | R |
| G | W | W | | Z | G | W |
| H | W | B | | 1 | G | B |
| J | W | Y | | 2 | G | Y |
| K | W | G | | 3 | G | G |
| L | W | V | | 4 | G | V |
| M | B | R | | 5 | V | W |
| N | B | W | | 6 | V | Y |
| P | B | B | | 7 | V | G |
| Q | B | Y | | 8 | V | V |
| R | B | G | | 9 | No color | No color |
| S | Y | R | | | | |

1/ Two code characters were previously used to define color of lighted display. the first character defined color of position 1 and 2. The second character defined color of position 3 and 4.

NOTE: This table is shown for reference only to previous part numbering for switches with color filters.

Custodians:

Army - CR
 Navy - EC
 Air Force - 11
 DLA - CC

Preparing activity:

DLA - CC

Review activities:

Air Force - 19, 99
 Army - AT, AV, CR4
 Navy - AS, MC, OS, SH

(Project 5930-1716-16)