JAY-EL MARK 20 P/N 10785
ILLUMINATED PUSHBUTTON SWITCH
MEETS REQUIREMENTS OF
MIL-S-22885
MINIATURE KEYBOARD SWITCH

Meets requirements of Mil-S-22885

Showed Approximately Actual Size.

DESIGN FEATURES

Uniform lightning from low level to Sunlight Readable.

Four Pushbutton sizes.

.030 diameter terminals for P/C board or flex circuit.

All legend and color combinations available.

Compact size

Will mount on 1/2 inch centers minimum.

T-1 lamp provides low temperature

Front Re-lampable

Unit supplied with drip proof seal.

ELECTRICAL

Contact rating: 100 mAmps @ 28VDC

Contact bounce: 4 milliseconds max.

Lamp: Utilize 5, 12 or 28 volt T-1 lamp

Life: 100,000 cycles minimum

Dielectric Strength: 100VRMS minimum between terminals and between terminals and housing.

MECHANICAL

Total travel: .115 ± .010 inches

Pre-Travel: .06 inches to .09 inches

Actuation force: 26 ± 5 oz.

Weight: 7 grams max.

Mounting torque: 5 ± .5 inch lbs.

Pushbutton removal force: 1 to 3 lbs.

Installation note: Solder per Mil-Std 202, Method 210 except limit hi-temp to 450 °F for 7 seconds max. Do not exert force on terminals during soldering operation.

ENVIRONMENTAL

Shock and Vibration:

In accordance with Mil-S-22885.

Operation temperature: -55°C to + 85°C

Seal: Drip proof per Mil-Std-108

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<tr>
<td>BASIC PN</td>
<td>MOUNTING TYPE</td>
<td>BEZEL COLOR</td>
<td>SPLIT GROUND</td>
<td>EMI</td>
<td>DRIP PROOF SEAL</td>
<td>RETAINED PUSHBUTTON</td>
<td>PUSHBUTTON STYLE</td>
<td>SWITCH POLES</td>
<td>CONTACTS</td>
<td>SWITCH ACTION</td>
</tr>
<tr>
<td>10785</td>
<td>NOT APPLICABLE</td>
<td>NOT APPLICABLE</td>
<td>NOT APPLICABLE</td>
<td>YES</td>
<td>NOT APPLICABLE</td>
<td>A</td>
<td>C</td>
<td>B</td>
<td>D</td>
<td>0 INDICATOR</td>
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TABLE 12

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<thead>
<tr>
<th>UNLIT DISPLAY COLOR</th>
<th>TABLE 13</th>
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<tr>
<td>BLACK DW DIFFUSED WHITE</td>
<td>BLK</td>
<td>TO BE SPECIFIED ON PRELIMINARY FORM</td>
<td>C</td>
<td>CLEAR</td>
<td>NO</td>
<td>NUETRAL GRAY</td>
<td>0 INDICATOR</td>
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<tr>
<td>DW DIFFUSED WHITE</td>
<td>DW</td>
<td>RED</td>
<td>G</td>
<td>GREEN</td>
<td>AG1</td>
<td>AVIATION GREEN 1</td>
<td>1 1 SPDT</td>
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<tr>
<td>DW DIFFUSED WHITE</td>
<td>DW</td>
<td>AMBER</td>
<td>Y</td>
<td>YELLOW</td>
<td>B1</td>
<td>WHITE</td>
<td>G</td>
<td>GOLD</td>
</tr>
<tr>
<td>DW DIFFUSED WHITE</td>
<td>DW</td>
<td>BLUE</td>
<td>G</td>
<td>GREEN</td>
<td>B1</td>
<td>WHITE</td>
<td>G</td>
<td>GOLD</td>
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</table>

NOTES

* AG OR AY SHOULD BE SPECIFIED WHEN GREEN OR YELLOW IS TO MEET MIL-C-25050 AY APPEARS AMBER WHEN ILLUMINATED.

* B1 AND AG1 SPECIAL HIGH BRIGHT BLUE & GREEN RECOMMENDED FOR DISPLAY TYPE 8.

* ** DISPLAY TYPE 8 & A .125 DIAMETER AREA IS AVAILABLE FOR HIGH CONTRAST. SUNLIGHT READABLE MESSAGE. (i.e. A SYMBOL OR SINGLE CHARACTER OF .012 STROKE WIDTH ONLY)

* *** ALL STANDARD UNITS HAVE RETAINED PUSHBUTTONS AND A BLACK AT THE FRONT OF THE SWITCH HOUSING.

** **** IF ADDITIONAL CHARACTERS PER LINE ARE REQUIRED. SPECIFY FUTURA MEDIUM CONDENSED.

CHARACTER INFORMATION

(HORIZONTAL DIRECTION ONLY)

<table>
<thead>
<tr>
<th>CONDENSED BLOCK CHARACTERS</th>
<th>CHARACTER SIZE NUMBER</th>
<th>STROKE WIDTH</th>
<th>CHARACTER HEIGHT (OVERALL)</th>
<th>CHARACTERS PER LINE *** PUSHBUTTON STYLES</th>
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<tbody>
<tr>
<td>JAY - EL PRODUCTS INC.</td>
<td>-1</td>
<td>.010</td>
<td>.072</td>
<td>5 6 4 2</td>
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<tr>
<td>JAY - EL PRODUCTS INC.</td>
<td>-2</td>
<td>.012</td>
<td>.087</td>
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<tr>
<td>JAY - EL PRODUCTS INC.</td>
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<td>.015</td>
<td>.109</td>
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<td>JAY - EL PRODUCTS</td>
<td>-4</td>
<td>.018</td>
<td>.125</td>
<td>3 4 0 3</td>
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<tr>
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<td>.020</td>
<td>.145</td>
<td>2 3 0 2</td>
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<tr>
<td>JAY - EL PRODUC</td>
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<td>.178</td>
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<tr>
<td>JAY - EL PRODUC</td>
<td>-7</td>
<td>.035</td>
<td>.222</td>
<td>2 3 0 2</td>
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</table>

1. Suggested Soldering Procedures

A. Position the assembly in a rigid fixture to prevent movement during the soldering operation.

B. The use of a temperature controlled soldering iron is recommended. Resistance to soldering heat per Mil-Std-202, Method 210 except temperature extreme shall be 235°C and duration shall be 7 seconds. Do not exert force on the terminals while being subjected to soldering temperatures.

C. Only rosin core solder should be used, terminals are plated for ease of soldering. The use of additional flux should be just avoided.

2. Cleaning Operations

A. Position assembly to prevent flux removal solvents from entering and contaminating the switch.

B. A 50/50 solution of Freon and isopropyl alcohol applied with a cotton swab is suggested to remove the flux residue from terminals.
**MARK 20**
P/N 10785

**JAY-EL PRODUCTS**

**SWITCH/INDICATOR BODY**

Indicator uses Pins 1 & 2

- 3/8 32 MOUNTING NUT, (.09 THK, .50 HEX)
- INTERNAL TOOTH LOCKWASHER
- GASKET, SILICONE RUBBER, .015 THK
- .031 DIA (4 TERMINALS)
- TOP
- KEYWAY
- PANEL INDEX

**PUSHBUTTON STYLES**

A

- .437
- .375
- .344 LEGEND AREA
- .53 DIA. MAX

B

- .625
- .344 LEGEND AREA
- .53 DIA. MAX

D

- .500
- .344 LEGEND AREA
- .53 DIA. MAX

**SIDE VIEW**

Typical A, B, C & D pushbuttons.

- TOP
- .437
- .375
- .344 LEGEND AREA
- .53 DIA. MAX

**SCHEMATIC**

1 3 4 2

**PANEL CUTOUT**

D pattern hole may also be used for body keying.

- .625 DIA RELIEF MIN IN OVERLAY PANEL

Tolerances: Unless otherwise specified - Fraction ± 1/32", XX ± .01, XXX ± .005

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