

INCH-POUND

MIL-PRF-8805/3L  
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 SUPERSEDING  
 MIL-PRF-8805/K  
 14 March 2003

PERFORMANCE SPECIFICATION SHEET  
 SWITCHES, PUSH, 10 AMPERES OR LOW LEVEL, DUSTTIGHT

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

The complete requirements for acquiring the switches described herein shall consist of this specification and the latest issue of MIL-PRF-8805.

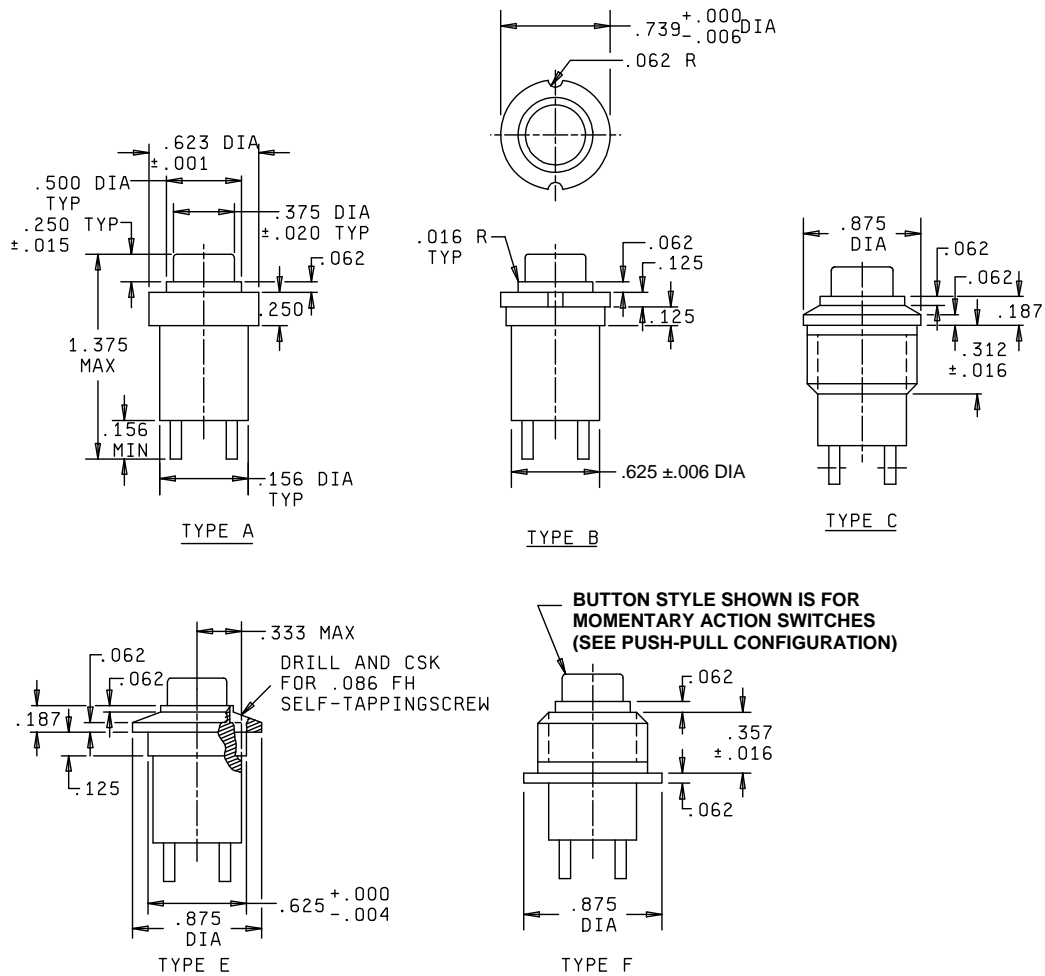
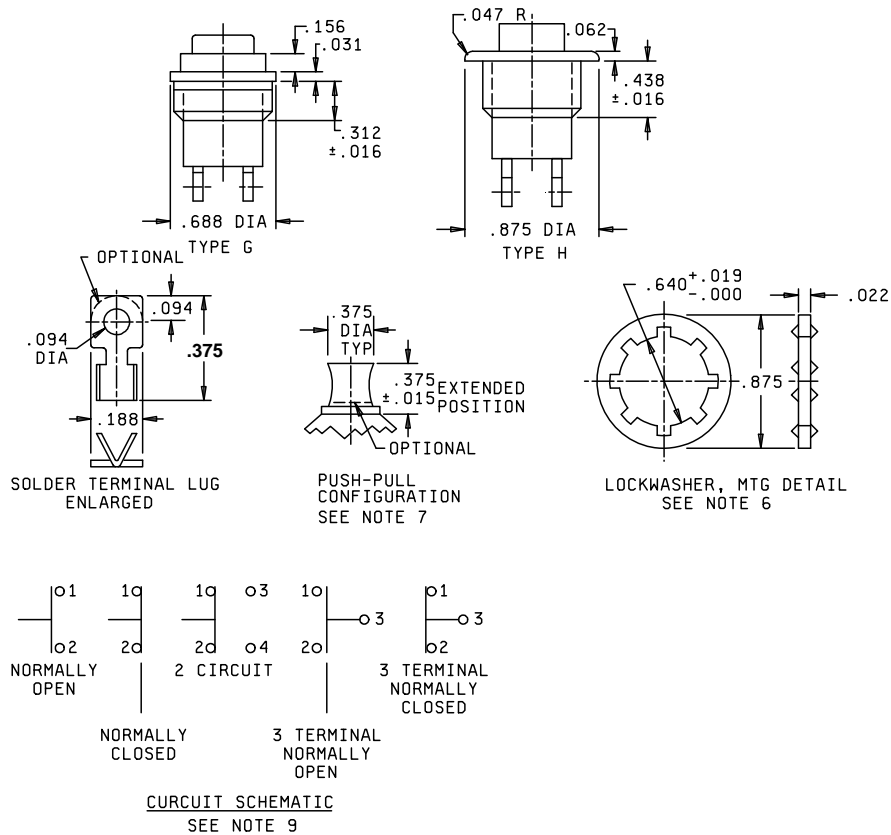


FIGURE 1. Configuration and dimensions.

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Inches	mm	Inches	mm	Inches	mm	Inches	mm
.001	0.03	.031	0.79	.250	6.35	.623	15.82
.004	0.10	.047	1.19	.312	7.92	.625	15.88
.006	0.15	.062	1.57	.333	8.46	.640	16.26
.015	0.38	.094	2.39	.375	9.53	.688	17.48
.016	0.41	.125	3.18	.438	11.13	.739	18.77
.019	0.48	.156	3.96	.500	12.70	.875	22.23
.020	0.51	.187	4.75	.562	14.27	1.375	34.93
.022	0.56	.188	4.78				

## NOTES:

- Dimensions are in inches.
- Unless otherwise stated, tolerance is  $\pm 0.010$  (0.25 mm).
- Mounting thread .625-24 UNEF-2A applies to type C, F, G, and H. All threads to be within .10 (2.54 mm) of shoulder.
- All terminal threads are .086-56UNC-28.
- Hardware for each terminal includes one screw, one terminal lug, and one lockwasher.
- Types C, F, G, and H shall be furnished with suitable mounting hardware.
- Overall height of switch with push-pull activator is 1.530 (38.66 mm) maximum in extended position.
- Metric equivalents are given for general information only.
- For push-pull configuration, circuit schematic is shown with actuator in extended position.

FIGURE 1. Configuration and dimensions - Continued.

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REQUIREMENTS:

Dimensions and configuration: See figure 1.

Enclosure design: 2 (dust-tight).

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

Shock type: H for monetary type only (no contact opening or closing in excess of 20 milliseconds).  
M for other units.

Sinusoidal vibration grade: 2 (10 to 2,000 Hz).

Weight: .050 pound maximum.

Solderability: Applicable to screw tabs and solder lugs.

Operating characteristics:

Total plunger travel:  $.085 \pm .015$  inch.

Operating force:

    Momentary:  $4 \pm 1$  pounds.

    Push-pull: 0.5 to 2 pounds.

    Releasing force: 1 pound minimum, monetary.

Terminal strength torque test: Not applicable.

Strength of actuator and stop: 75 pounds for 3 terminals circuitry; 40 pounds for all others.

Finish: The switch case shall be corrosion resistant , lusterless black.

Dielectric withstanding voltage:

    Sea level: 1,000 V rms.

    After electrical endurance: 200 V rms.

Intermediate current: 1/

    MS25089-1, MS25089-2, and MS25089-3: 200,000 cycles.

    MS25089-4 and MS25089-5: 50, 000 cycles.

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1/ Prior to test, units preconditioned at 85°C for 48 hours.

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Mechanical endurance (10 to 15 cpm):

MS25089-1, MS25089-2, and MS25089-3:

At room temperature: 200,000 cycles.

At -55°C and +85°C: 100,000 cycles each.

MS25089-4 and MS25089-5: 50,000 cycles.

Electrical endurance: 25,000 cycles at sea level; 5,000 cycles at 50,000 feet.

Electrical ratings:

Central terminal ratings: 3 amperes maximum.

Other than center terminals: See table I.

TABLE I. Electrical ratings, power circuit switches. <sup>1/</sup>

Load	Sea level		50,000 feet
	28 V dc	115/V ac, 60/400 Hz	28 V dc
	Amperes	Amperes	Amperes
Resistive -----	10	10	---
Inductive -----	5	5	5
Lamp -----	3	3	---

<sup>1/</sup> Center terminal rating: 3 amperes maximum.

<sup>2/</sup> The 400 Hz ratings are shown for information only and do not require electrical endurance testing.

Sand and dust: Applicable.

Electrical logic circuit (5.0 V dc, .010 ampere): Applicable when specified (see table II): 25,000 cycles at an actuation rate of 120 cycles per minute maximum with no "stick", or "misses", allowed when tested in accordance with EIA RS448, method 17 as follows:

Test condition:

Each switch contact shall be tested using a 5.0 ±0.5 V dc, 10 ±1 mA resistive load. During each closure of the contacts, the voltage drop across the switch terminals shall be monitored for a duration of no less than 50 percent of each contact static closure. The switch contacts need not be monitored until 10 milliseconds after the initial contact closure to exclude any contact bounce. During each opening of the contacts, the voltage drop across the switch terminals shall be monitored for a duration of no less than 50 percent of each contact opening.

A voltage of 2.1 volts or greater across the switch terminals shall constitute a contact "miss" (failure to properly close the circuit). A voltage drop of less than 90 percent of the open-circuit voltage shall constitute a contact "stick" (failure to properly open the circuit).

The monitoring device shall either record the number of contact closures at which "sticks" and/or "misses" occur, or discontinue the test when "sticks" and/or "misses" occur.

Operating temperature:

- a. 25 percent of the test cycle at -55°C specified.
- b. 25 percent of the test cycle at room ambient conditions.
- c. 50 percent of the test cycle at +85°C.

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Qualification:

Group submission: See table III.

Group A inspection: When low level circuit applies, switches shall not be subjected to loads greater than 100 milliamperes at an open circuit voltage of 6 volts maximum dc or peak ac.

Part number: See table II.

TABLE II. Part numbers and characteristics.

Type	Momentary action switches			Push-pull switches			Switch circuit
	Button color			Button color			
	Black	Red	White	Black	Red	White	
A	1A	1AR	1AW	None			NO NC 2 circuit 3 term NO 3 term NC
	2A	2AR	2AW				
	3A	3AR	3AW				
	4A	4AR	4AW				
	5A	5AR	5AW				
B	1B	1BR	1BW	None			NO NC 2 circuit 3 term NO 3 term NC
	2B	2BR	2BW				
	3B	3BR	3BW				
	4B	4BR	4BW				
	5B	5BR	5BW				
C	1C	1CR	1CW	1C-1	1CR-1	1CW-1	NO NC 2 circuit 3 term NO 3 term NC
	2C	2CR	2CW	2C-1	2CR-1	2CW-1	
	3C	3CR	3CW	3C-1	3CR-1	3CW-1	
	4C	4CR	4CW	4C-1	4CR-1	4CW-1	
	5C	5CR	5CW	5C-1	5CR-1	5CW-1	
E	1E	1ER	1EW	None			NO NC 2 circuit 3 term NO 3 term NC
	2E	2ER	2EW				
	3E	3ER	3EW				
	4E	4ER	4EW				
	5E	5ER	5EW				
F	1F	1FR	1FW	1F-1	1FR-1	1FW-1	NO NC 2 circuit 3 term NO 3 term NC
	2F	2FR	2FW	2F-1	2FR-1	2FW-1	
	3F	3FR	3FW	3F-1	3FR-1	3FW-1	
	4F	4FR	4FW	4F-1	4FR-1	4FW-1	
	5F	5FR	5FW	5F-1	5FR-1	5FW-1	
G	1G	1GR	1GW	1G-1	1GR-1	1GW-1	NO NC 2 circuit 3 term NO 3 term NC
	2G	2GR	2GW	2G-1	2GR-1	2GW-1	
	3G	3GR	3GW	3G-1	3GR-1	3GW-1	
	4G	4GR	4GW	4G-1	4GR-1	4GW-1	
	5G	5GR	5GW	5G-1	5GR-1	5GW-1	
H	1H	1HR	1HW	1H-1	1HR-1	1HW-1	NO NC 2 circuit 3 term NO 3 term NC
	2H	2HR	2HW	2H-1	2HR-1	2HW-1	
	3H	3HR	3HW	3H-1	3HR-1	3HW-1	
	4H	4HR	4HW	4H-1	4HR-1	4HW-1	
	5H	5HR	5HW	5H-1	5HR-1	5HW-1	

1/ Low level circuit and electronic logic circuit does not apply for dash numbers shown. To specify switches with low circuit and electronic logic circuit applicable, add the letter "L" to the dash number.

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Examples of part numbers:

MS25089-4C = Switch, Push, Dusttight, 3 Terminal (NO), Type C, Momentary, Black Button.

MS25089-4CR-1 = Switch, Push, Dusttight, 3 Terminal (NO), Type C, Push-Pull, Red Button.

MS25089-4CL = As above, except low level circuit and electronic logic circuit applies. Power circuit electrical ratings do not apply.

MS25089-4CR-1L = As above, except low level circuit and electronic logic circuit applies. Power circuit electrical ratings do not apply.

TABLE III. Qualification inspection.

Examination or test	Basic switch	Other switch samples	Extent of approval	
Qualification <u>1/</u> inspection table of MIL-PRF-8805	Required sample units of any 2 circuit configurations <u>2/</u>	Required number of sample units of 3 terminal NO or 3 terminal NC (groups VII and x tests, qualification inspection table, MIL-PRF-8805 plus 2 additional sample units shall be subjected to electronic logic circuit test and operating characteristics) <u>2/</u>	All	In addition, 2 sample units of each of the other configurations shown on this specification sheet shall be submitted. Visual and mechanical examination.

1/ Electrical endurance tests shall be performed at 28 V dc and 115 V ac, 60 Hz only.

2/ One-half of sample units shall be momentary and one-half shall be push-pull.

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The margins of this specification are marked with vertical lines to indicate where modifications from this amendment were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations.

Referenced documents:

MIL-PRF-8805  
EIA RS448

Custodians:

Army - CR  
Navy - EC  
Air Force - 85  
DLA - CC

Preparing activity:

DLA - CC

(Project 5930-2009-012)

Review activities:

Air Force - 19, 99  
Army - AR, AV, MI  
Navy - AS, MC, OS, SH

NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at <http://assist.daps.dla.mil/> .