

This military standard is approved for use by all Departments and Agencies for the Department of Defense. Selection for all new engineering and design applications and for repetitive use shall be made from this document.

Technical Drawing Details:

- Side View:** Dimensions include 1.500 MAX (width), 1.812 MAX (height), .062 (gasket thickness), .047 (gasket recess), .203 (base thickness), .334 (pin height), and .093 ± .005 DIA (locating pin).
- Top View:** Dimensions include 1.062 MAX (height), 1.844 (width), and 2.187 MAX (width). It shows 16 pins (Y1, Y2, X1, X2, D1, D2, C1, C2, B1, B2, A1, A2, A3, B3, C3, D3) and 2 mounting holes (.147 ± .005 DIA).
- Pin Layout:** Shows the arrangement of pins with dimensions: .440 ± .005, .528 ± .005, .352 ± .005, .176 ± .005, .033 ± .005, .264, .143, .152 ± .005, .304 ± .005, .456 ± .005, and .603 ± .005.
- Circuit Diagrams:**
 - Circuit -D1 (Note 5):** Shows a coil (D1) and terminals (Y1, Y2, X1, X2).
 - Circuit -A1 (Note 3):** Shows a coil (A1) and terminals (Y1, Y2, X1, X2).
 - Circuit -AD1 (Notes 3, 5):** Shows a coil (AD1) and terminals (Y1, Y2, X1, X2).

NOTES:

- DIMENSIONS IN INCHES. UNLESS OTHERWISE SPECIFIED, TOLERANCES: DECIMALS ± .010.
- TERMINAL NUMBERS NEED NOT APPEAR ON RELAY HEADER PROVIDED THERE IS AFFIXED TO THE RELAY A SUITABLE LEGIBLE CIRCUIT DIAGRAM THAT PERMANENTLY AND POSITIVELY IDENTIFIES EACH TERMINAL LOCATION SPECIFIED HEREON.
- THE USE OF DIODES ON AC RELAYS IS OPTIONAL. ACTUAL APPLICATION MUST BE SHOWN ON LABEL.
- PINS TO BE PERPENDICULAR TO HEADER SURFACE WITHIN 1 DEGREE.
- RELAY IS MAGNETICALLY LATCHED IN BOTH POSITIONS. CAUTION NOTE TO OBSERVE POLARITY MUST APPEAR ON RELAYS WITH DC COILS.
- FOR DESIGN FEATURE PURPOSES, THIS STANDARD TAKES PRECEDENCE OVER PROCUREMENT DOCUMENTS REFERENCED HEREIN. REFERENCED DOCUMENTS SHALL BE OF THE ISSUE IN EFFECT ON DATE OF INVITATIONS FOR BID.
- SHOCK, VIBRATION AND ACCELERATION REQUIREMENT APPLICABLE WITH COILS DE-ENERGIZED.

TABLE 1: MS PART NUMBER, TYPE, COIL, TERMINAL TYPE, MOUNTING OR MATING SOCKET, MAX WEIGHT IN POUNDS

| MS PART NUMBER | TYPE | COIL | TERMINAL TYPE | MOUNTING OR MATING SOCKET | MAX WEIGHT IN POUNDS |
|----------------|------|---------|---------------|---------------------------|----------------------|
| MS25459-D1 | I | DC | PLUG IN | MS25460 | 0.30 |
| MS25459-A1 | I | AC | PLUG IN | MS25460 | 0.32 |
| MS25459-AD1 | I | AC - DC | PLUG IN | MS25460 | 0.32 |

TABLE 2: MILITARY STANDARD MS 25459

| MS PART NUMBER | TYPE | COIL | TERMINAL TYPE | MOUNTING OR MATING SOCKET | MAX WEIGHT IN POUNDS |
|----------------|------|---------|---------------|---------------------------|----------------------|
| MS25459-D1 | I | DC | PLUG IN | MS25460 | 0.30 |
| MS25459-A1 | I | AC | PLUG IN | MS25460 | 0.32 |
| MS25459-AD1 | I | AC - DC | PLUG IN | MS25460 | 0.32 |

REVISIONS:

| REV | DESCRIPTION |
|-----|----------------|
| 1 | INITIAL DESIGN |
| 2 | REVISION 1 |
| 3 | REVISION 2 |
| 4 | REVISION 3 |
| 5 | REVISION 4 |
| 6 | REVISION 5 |
| 7 | REVISION 6 |
| 8 | REVISION 7 |
| 9 | REVISION 8 |
| 10 | REVISION 9 |
| 11 | REVISION 10 |
| 12 | REVISION 11 |
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| 96 | REVISION 95 |
| 97 | REVISION 96 |

Reviewers:
Nav.-AS-EC
Air Force 85,11

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| OPERATING CHARACTERISTICS | | | | | | | | | | | | | | FED. SUP CLASS 5945 | | |
|----------------------------|----------------|-----------|------------|-----------------|-------|------|---------------------|----------------------|-------------------------|------------------------------|--|---------|--------|------------------------|-----|----|
| MS PART NO. MS25459- | COIL | COIL DATA | | | | | | | | | TIME-MILLISECONDS - MAX. $\frac{s}{s}$ | | | | | |
| | | Nominal | | | Max. | | Max Pick-up Voltage | | | Drop Out Voltage 1/ | Operate | Release | Bounce | | | |
| | | Volts | Freq Hz | Res Ω | Volts | Amp | Normal 1/ | High Temp Test | Cont Current Test | | | | Main | | Aux | |
| | | | | | | | | | | | | | NO | NC | NO | NC |
| D1 | X1,X2 Y1,Y2 | 28 | DC | — | 29 | 0.17 | 18 | 18 | 19.8 | N/A | 25 | N/A | 2 | 2 | — | — |
| A1 | X1,X2 Y1,Y2 | 115 | 400 4/ | — | 122 | 0.07 | 90 | 90 | 95 | N/A | 25 | N/A | 2 | 2 | — | — |
| AD1 | X1,X2 | 115 | 400 4/ | — | 122 | 0.07 | 90 | 90 | 95 | N/A | 25 | N/A | 2 | 2 | — | — |
| | Y1,Y2 | 28 | DC | — | 29 | 0.17 | 18 | 18 | 19.8 | N/A | 25 | N/A | 2 | 2 | — | — |

| RATED CONTACT LOAD (AMPERES PER POLE) | | | | | | | | | | CASE GROUNDED | | | | | |
|---------------------------------------|--|-------------------------------|------|-----|----|------------------|------|-------|------|-------------------------|------|-------|------|-----------------------------|--|
| TYPE OF LOAD | LIFE OPERATING CYCLES x 10 ³ | 28 VDC | | | | 115 VAC, 1 PHASE | | | | 115/200 VAC, 3 PHASE 2/ | | | | See Appropriate Notes | |
| | | Main | | Aux | | Main | | Aux | | Main | | Aux | | | |
| | | NO | NC | NO | NC | 400Hz | 60Hz | 400Hz | 60Hz | 400Hz | 60Hz | 400Hz | 60Hz | | |
| RESISTIVE | 100 | 5 | 5 | — | — | 5 | 4 | — | — | — | — | — | — | — | |
| INDUCTIVE | 100 | — | — | — | — | — | — | — | — | — | — | — | — | — | |
| INDUCTIVE | 20 | 3 | 3 | — | — | 3 | 2 | — | — | — | — | — | — | — | |
| MOTOR | 100 | 1.5 | 1.5 | — | — | 1.5 | 1 | — | — | — | — | — | — | — | |
| LAMP | 100 | 0.8 | 0.8 | — | — | 0.8 | 0.6 | — | — | — | — | — | — | — | |
| TRANSFER, LOAD | — | — | — | — | — | — | — | — | — | — | — | — | — | 3/ | |
| MECHANICAL LIFE REDUCED CURRENT | 400 | 1.25 | 1.25 | — | — | 1.25 | 1 | — | — | — | — | — | — | — | |
| MIN CURRENT | — | APPLICABLE PER SPECIFICATIONS | | | | | | | | | | | | | |

| ENVIRONMENTAL CHARACTERISTICS | | ELECTRICAL CHARACTERISTICS | |
|-------------------------------|-----------------|---|---------------------|
| TEMPERATURE RANGE | —70°C TO +125°C | INSULATION RESISTANCE, INITIAL | 100 MEGOHMS |
| MAX ALTITUDE RATING | 80,000 FT | AFTER LIFE OR ENVIRONMENTAL TESTS | 50 MEGOHMS |
| SHOCK G - LEVEL | 50 G | DIELECTRIC STRENGTH (SEA LEVEL) | |
| DURATION | 11 ms | Initial | After Life Tests |
| MAX DURATION CONTACT OPENING | 10 μ s | COIL TO CASE | 1000 VRMS 1000 VRMS |
| VIBRATION - SINUSOIDAL | | AUX CONTACTS | — |
| G - LEVEL | 10 G | ALL OTHER POINTS | 1000 VRMS 1000 VRMS |
| FREQUENCY RANGE | 5 - 1500 Hz | DIELECTRIC STRENGTH (ALTITUDE) 5/ | |
| ACCELERATION | 15 G | COIL TO CASE | 80,000 FT |
| | | AUX CONTACTS | 500 VRMS |
| | | ALL OTHER POINTS | 500 VRMS |
| | | MAX CONTACT DROP INITIAL | 0.150 VOLTS |
| | | AFTER LIFE TEST | 0.175 VOLTS |
| | | OVERLOAD CURRENT | 20 AMP |
| | | RUPTURE CURRENT | 25 AMP |
| | | DUTY RATING | CONTINUOUS |
| | | RFI SPEC | MIL-STD-461 |
| | | (APPLICABLE TO COIL CIRCUITS OF AC OPERATED RELAYS) | |

NOTES, APPLICATION

- 1/ OVER TEMPERATURE RANGE
- 2/ ABSENCE OF VALUE INDICATES RELAY IS NOT RATED FOR 3 PHASE APPLICATIONS
- 3/ TRANSFER LOAD INDICATES RELAY SUITABLE FOR TRANSFER BETWEEN UNSYNCHRONIZED AC POWER SUPPLIES AT RATING INDICATED.
- 4/ MS25459-A1 AND AD1 AC COILS MAY BE USED ON 60 Hz IF MAX. AMBIENT TEMPERATURE IS LIMITED TO 85 DEG C, MAX CURRENT WILL BE 0.077 AMP.
- 5/ WHEN MOUNTED IN MATING SOCKET
- 6/ WITH NOMINAL COIL VOLTAGE

| | | |
|--|--|-------------------------------|
| P.A. AIR FORCE 85 | TITLE | MILITARY STANDARD MS 25459 |
| Other Cust NAVY - AS | RELAY, MAGNETIC LATCH, 5 AMP, 4 PDT, TYPE I (HERMETICALLY SEALED), SOCKET MOUNTED | |
| PROCURMENT SPECIFICATION MIL-R-6106 | SUPERSEDES: | SHEET 2 |

APPROVED 1 NOV 1960 REVISED (D) SEE SHTS 1 & 2 (E) FOR CHANGES SEE SHEET 1