INCH-POUND
MS24149F
12 September 2011
SUPERSEDING
MS24149E
15 April 2003

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 2 PDT, 10 AMPERES, TYPE I, HERMETICALLY SEALED

INACTIVE FOR NEW DESIGN AFTER 5 JUNE 1987.
NO SUPERSEDING SPECIFICATION.

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

The requirements for acquiring the relay described herein shall consist of this specification and the latest issue of MIL-PRF-6106.

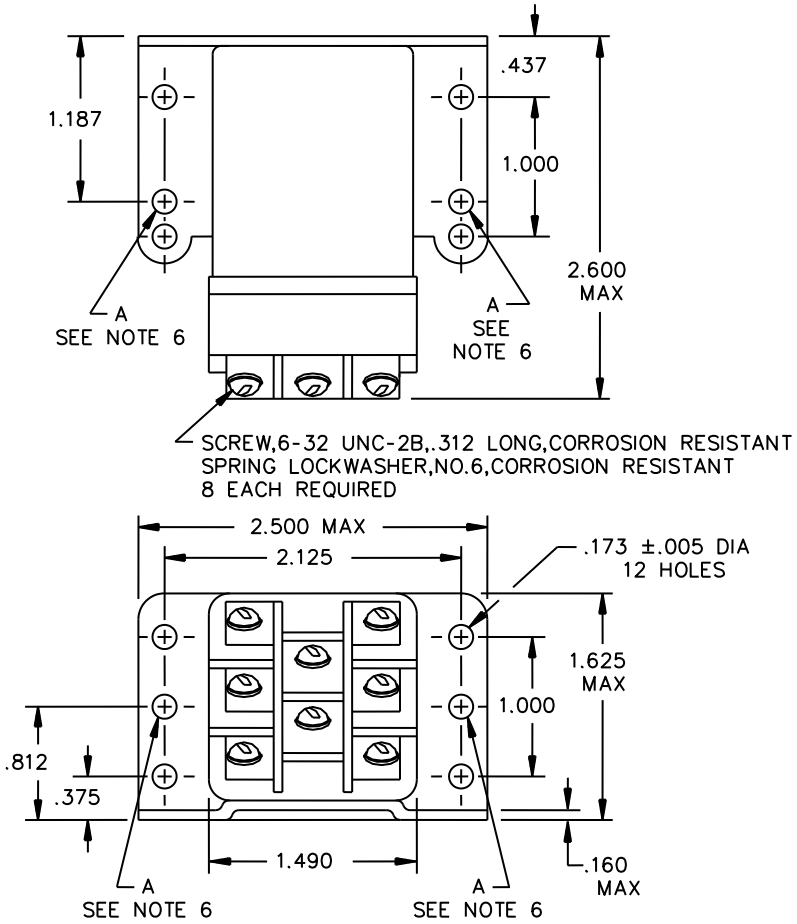
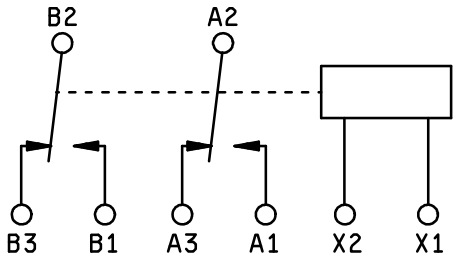
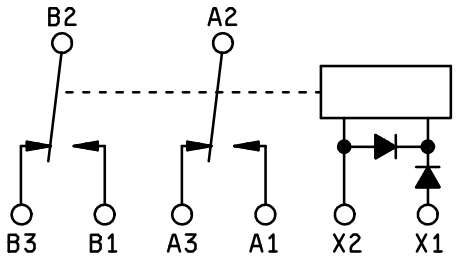


FIGURE 1. Dimensions and configurations.



CIRCUIT DIAGRAM
DC COILS



CIRCUIT DIAGRAM
AC COILS
SEE NOTES 7 AND 8

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is ±.010 (0.25 mm).
4. Part number MS24149-D1 replaces part numbers AN3311-1 and AN3311-2.
5. Interchangeability relationship - MS24149 parts can universally replace the cancelled AN3311 parts but cannot always replace the superseding MS24149 parts.
6. Mounting holes ‘A’ to be used only when replacing AN3311.
7. The use of diodes on ac relays is optional. Actual application must be shown on label.
8. Ac coils are inactive for new design.
9. In the event of a conflict between the text of this specification and the references cited herein, the text of this specification shall take precedence.
10. Copies of referenced documents are available online at https://assist.daps.dla.mil/quicksearch or from the Standardization Document Order Desk, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094.
11. Cadmium or cadmium compounds are prohibited on external hardware. A transition period to non-cadmium hardware is authorized for up to 1 year from the date of this revision.

FIGURE 1. Dimensions and configurations - Continued.

TABLE I. Dash numbers and characteristics.

Dash number MS24149-	Type	Coil	Terminal type	Mounting or mating socket	Auxiliary contacts	Max weight in pounds
D1	I	dc	Screw	Bracket	N/A	0.44
A1 1/	I	ac	Screw	Bracket	N/A	0.44

1/ Dash number -A1 is inactive for new design and shall be used for support of existing equipment designs only.

TABLE II. Operating characteristics.

PIN MS 24149-	Coil data												Time - (milliseconds maximum)					
	Coil	Nominal			Max		Max pick-up voltage			Drop out vol-tage 2/	Hold volt-age 2/	Oper -ate 3/	Rel-ease 4/	Contact bounce			
														Main		Aux	
		Volts 1/	Freq Hz	Ω Res +15% -10	Volts	Amp	Nor-mal 2/	High temp test	Cont cur-rent test					NO	NC	NO	NC
D1	dc	28	N/A	160	29	0.25	18	19.5	22.5	1.5	7.0	20	20	2	2	---	---
A1	ac	115	400	N/A	120	0.06	90	95	103	5	30	20	50	2	2	---	---

1/ CAUTION: Use of any coil voltage less than rated coil voltage will compromise the operation of the relay.
2/ Over the temperature range.
3/ With nominal coil voltage.
4/ From nominal coil voltage.

TABLE III. Rated contact load (amperes per pole) (case grounded).

Type of load	Life operating cycles x 10^3	28 V dc				115 V ac, 1 phase				115/200 V ac, 3 phase 1/				See appropriate notes
		Main		Aux		Main		Aux		Main		Aux		
		NO	NC	NO	NC	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	400 Hz	60 Hz	
Resistive	50	10	10			10								
Inductive	10	10	10			10								
Inductive														
Motor	50	6	6			6								
Lamp	50	2	2			2								
Transfer load														2/
Mechanical life reduced current	200	2.5	2.5											
Mixed loads	50	0.100	0.100											

1/ Absence of value indicates relay is not rated for 3-phase application.
2/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

Environmental characteristics:

Temperature range	-70°C to +125°C.
Max altitude rating	80,000 ft.
Shock G-level	25 G.
Duration	11 ms.
Max duration contact opening	10 µs.

Vibration – sinusoidal,

G-level 10 G.

Frequency range 10 - 1,500 Hz.

Acceleration 15 G.

Electrical characteristics:

Minimum insulation resistance, initial 100 megohms.

After life or environmental tests 50 megohms.

Dielectric strength (sea level).

	Initial	After life tests
Coil to case	1,250 V rms	1,050
Aux contacts	---	---
All other points	1,500 V rms	1,250

Dielectric strength (altitude): 1 minute.

	Initial	After life tests
Coil to case	500 V rms	500 V rms
Aux contacts	500 V rms	---
All other points	500 V rms	700 V rms

Max contact drop initial: 0.150 volt.

After life test: 0.175 volt.

Overload current (NO): 40 amperes dc, 40 amperes ac.

Rupture current 50 amperes dc, 50 amperes ac.

Duty rating: Continuous.

RFI specification: MIL-STD-461.

(Applicable to coil circuits of ac operated relays).

Conformance inspection:

Performance of groups B and C tests may be suspended at the discretion of the qualifying activity.

Qualification by similarity: See MIL-PRF-6106.

Referenced documents. In addition to MIL-PRF-6106, this document references the following:

MIL-STD-461

Changes from previous issue. The margins of this specification are marked with vertical lines to indicate where changes from the previous issue 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 and relationship to the last previous issue.

Custodians:
Navy - AS
Air Force - 85
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-2011-048)

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 https://assist.daps.dla.mil/.