

INCH-POUND

MS24140M
w/AMENDMENT 1
22 October 2004
SUPERSEDING
MS24140M
15 April 2003

DETAIL SPECIFICATION SHEET

RELAYS, ELECTROMAGNETIC, 50 AMPERES, 1 PST (N.O.),
TYPE I, HERMETICALLY SEALED

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.

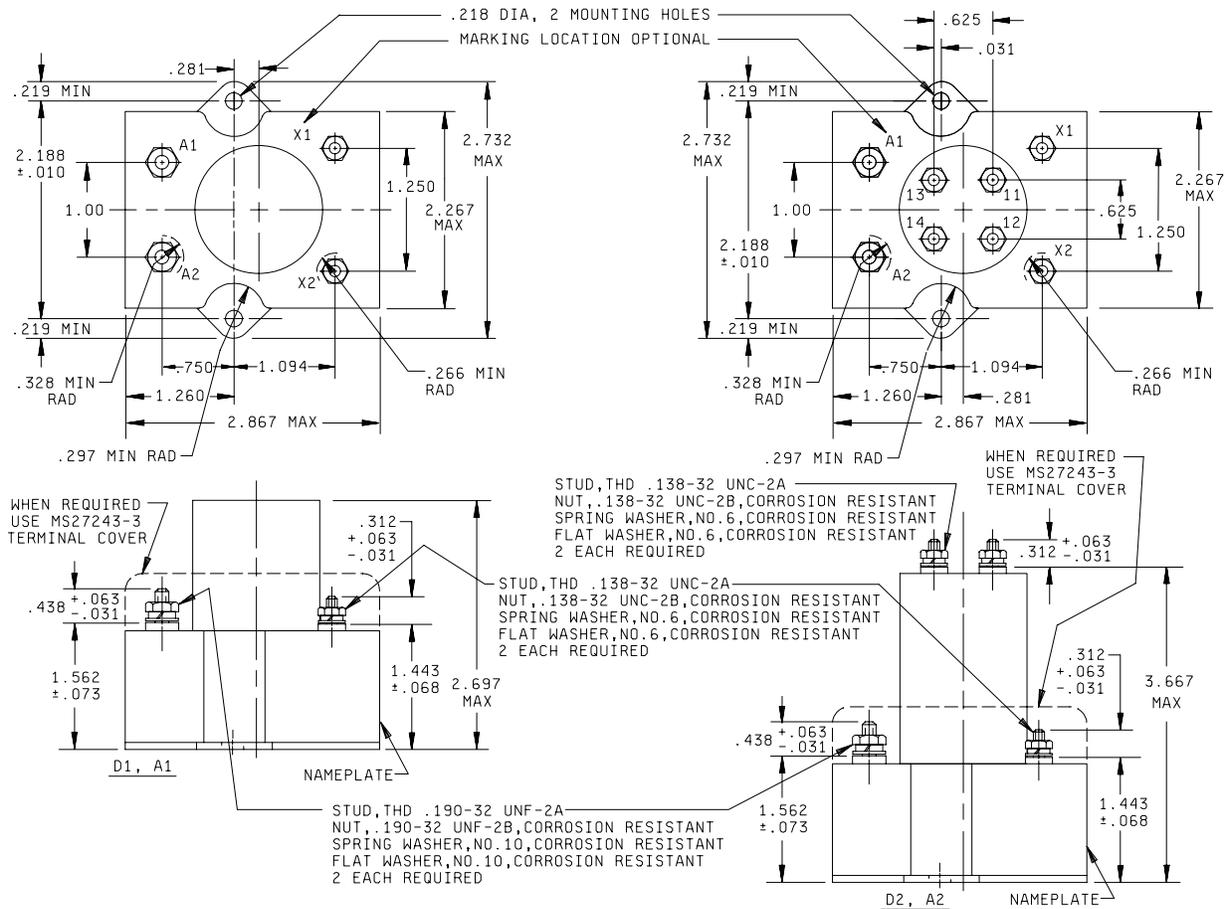
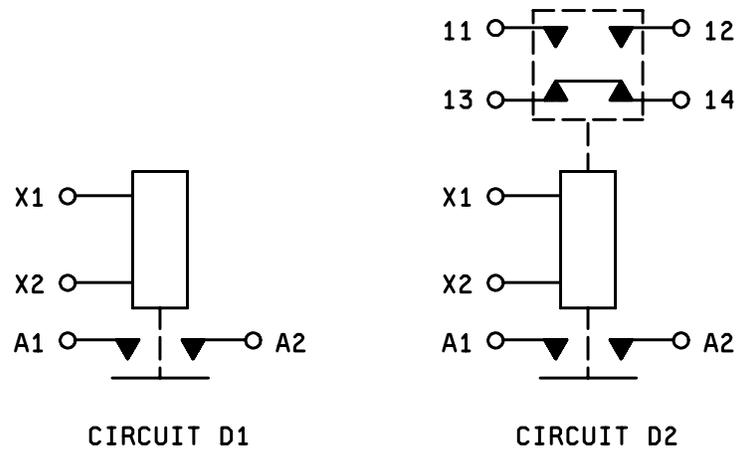


FIGURE 1. Dimensions and configurations.

MS24140M
w/AMENDMENT 1

CIRCUIT D1

CIRCUIT D2

Inches	mm	Inches	mm
.010	0.25	.625	15.86
.031	0.79	.750	19.05
.063	1.60	1.000	25.40
.068	1.73	1.094	27.79
.073	1.85	1.250	31.75
.138	3.51	1.260	32.00
.190	4.83	1.443	36.65
.218	5.54	1.562	39.67
.219	6.96	1.572	39.93
.240	6.10	2.188	55.58
.266	6.76	2.267	57.68
.281	7.14	2.697	68.50
.297	7.54	2.732	69.39
.312	7.92	2.867	72.82
.328	8.33	3.667	93.14
.438	11.13		

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerance is $\pm.031$.
4. This specification sheet takes precedence over documents referenced herein.
5. Referenced Government documents of the issue listed in that issue of the Department of Defense Index of Specifications and Standards (DODISS) specified in the solicitation form a part of this specification to the extent specified herein.
6. Coil and auxiliary terminals may use additional flat washer for terminal seat.
7. 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.
8. Spring washer on drawing is a spring lock washer.

FIGURE 1. Dimensions and configurations - Continued.

MS24140M
w/AMENDMENT 1

REQUIREMENTS:

Dimensions and configuration: See figure 1.

Dash numbers and general characteristics: See table I.

Contact data:

Load ratings: See table II.

Maximum contact drop:

Initial: 0.150 volt.

After life test: 0.175 volt.

Overload current (NO): 400 amperes.

Rupture current (NO): 500 amperes.

Coil data: See table III.

Duty rating: Continuous.

RFI specification: MIL-STD-461 (applicable to coil circuits of ac-operated relays).

Electrical data:

Minimum insulation resistance:

Initial: 100 megohms.

After life or environmental test: 50 megohms.

Dielectric strength (sea level): 2-5 seconds (see table IV).

Dielectric strength (altitude): 1 minute (see table V).

Environmental characteristics:

Temperature range: -70°C to +125°C.

Maximum altitude rating: 80,000 feet.

Shock G-level: 25 g's.

Duration: 6-9 ms.

Maximum duration contact opening; 2 ms.

Vibration (sinusoidal): See table VI.

Acceleration: 15 g's.

Qualification by similarity: See MIL-PRF-6106.

Part or Identifying Number (PIN): MS24140 - (plus dash number from table I).

MS24140M
w/AMENDMENT 1

TABLE I. Dash numbers and general characteristics. 1/

PIN MS24140-	Type	Coil	Terminal type	Mounting or mating socket	Auxiliary contacts	Maximum weight in pounds 2/
D1 D2	I	dc	Stud	Flange	None Yes	.95 1.10

1/ Dash numbers A1 and A2 have been cancelled without replacement.

2/ Weights include covers and barriers.

TABLE II. 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/			
		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	50		5	5	50		5					
Inductive	10	50		5	5	50		5					
Motor	50	50				50							
Lamp	30 4/	25 4/		.75	.75	10 2/		.75					
Transfer load 3/													
Mechanical life reduced current	100	12.5		1.25	1.25	1.25		1.25					
Mixed loads	50	5		Per	spec	5							

1/ Absence of value indicates relay is not rated for 3 phase application.

2/ Test requirement: 100 amperes AC inrush current with 2 seconds off-time.

3/ Transfer load indicates relay is suitable for transfer between unsynchronized ac power supplies at rating indicated.

4/ MS24140-D1 is rated for 50,000 cycles at 100 amperes DC inrush current and 10 amperes DC current steady state.

TABLE III. Operating characteristics.

PIN MS 24140-	Coil data										Time - milliseconds max						
	Coil	Rated			Max		Max pick-up voltage			Hold vol- tage 2/	Drop out vol- tage 2/	Oper- ate 3/	Rel- ease 4/	Bounce			
		Volts 1/	Freq Hz	Ω Res +15% -10	Volts	Amp	Nor- mal 2/	High temp test	Cont cur- rent test					Main		Aux	
														NO	NC	NO	NC
D1	X1,X2	28	dc	78	29	.50	18	21	22.5	7	1.5	20	10	2	---	---	---
D2	X1,X2	28	dc	78	29	.50	18	21	22.5	7	1.5	20	10	2	---	4	4

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 rated coil voltage.

4/ From rated coil voltage.

MS24140M
w/AMENDMENT 1

TABLE IV. Dielectric strength (sea level).

	Initial		After life tests	
	28 V dc	115 V ac	28 V dc	115 V ac
Coil to case	1,250 V rms	1,500	1,000 V rms	1,125
Aux contacts	1,250 V rms	1,500	1,000 V rms	1,125
All other points	1,250 V rms	1,500	1,000 V rms	1,125

TABLE V. Dielectric strength (altitude).

	28 V dc	115 V ac
Coil to case	500 V rms	500
Aux contacts	500 V rms	500
All other points	500 V rms	500

TABLE VI. Vibration levels (sinusoidal).

PIN MS24140-	5-10 Hz	10-55 Hz	55-250 Hz	250-500 Hz	500-1,500 Hz
D1	.08 DA	.06 DA	10 g's	10 g's	4 g's
D2	.08 DA	.06 DA	10 g's	6 g's	4 g's

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

MIL-STD-461

The margins of this specification are marked with vertical lines to indicate modifications generated by this amendment. 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.

Custodians:
Navy - AS
Air Force - 11
DLA - CC

Preparing activity:
DLA - CC

(Project 5945-1279)

Review activities:
Navy - EC

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 ASSIST Online database at www.dodssp.daps.mil.