INCH-POUND

MIL-R-5757/23M
20 June 2011
SUPERSEDING
MIL-R-5757/23L
24 March 2011

MILITARY SPECIFICATION SHEET

RELAYS, ELECTRICAL, HERMETICALLY SEALED, DPDT, 10 AMPERES

Inactive for new design after 3 March 1988.
No superseding specification sheet.

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

The requirements for acquiring the relays described herein shall consist of this specification sheet and MIL-R-5757.

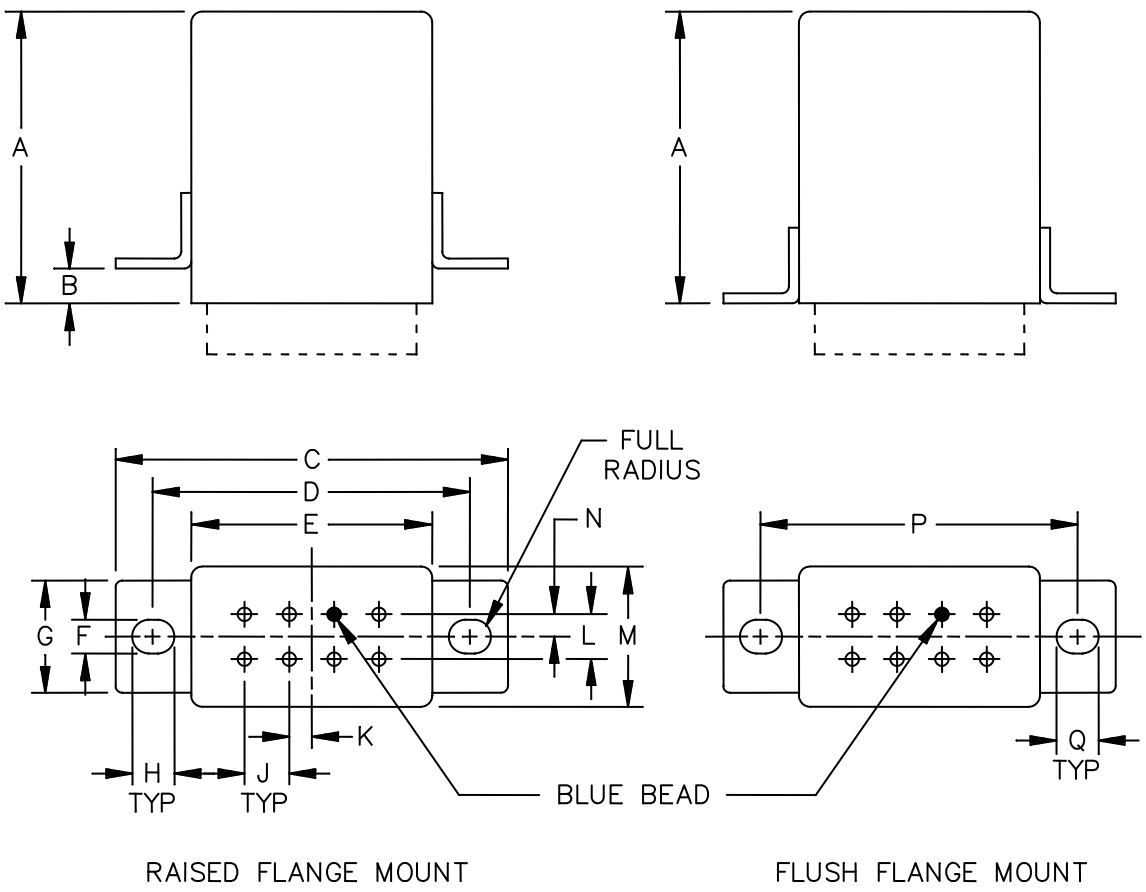
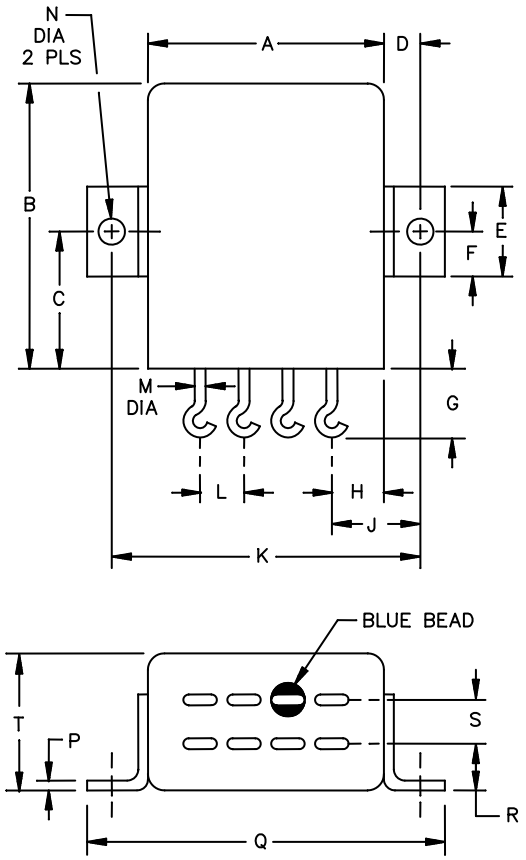


FIGURE 1. Dimensions and configuration.

Ltr	Inches		mm	
	Min	Max	Min	Max
A	---	1.300	---	33.02
B	.140	.170	3.56	4.32
C	---	1.750	---	44.45
D	1.427	1.447	36.25	36.75
E	---	1.075	---	27.31
F	.140	.160	3.56	4.06
G	---	.500	---	12.70
H	.188 TYP		4.78 TYP	
J	.200 TYP		5.08 TYP	
K	.090 REF	.110 REF	2.29 REF	2.79 REF
L	.190	.210	4.83	5.33
M	---	.625	---	15.88
N	.090	.110	2.29	2.79
P	1.396	1.416	35.46	35.97
Q	.175 TYP		4.45 TYP	

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are ±.010 (0.25 mm) for three place decimals.
4. Terminal numbers need not appear on the relay header provided there is affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.

FIGURE 1. Dimensions and configuration - Continued.



LAYDOWN FLANGE MOUNT

Ltr	Inches		Mm		Ltr	Inches		mm	
	Min	Max	Min	Max		Min	Max	Min	Max
A	1.015	1.075	25.78	27.31	K	1.401	1.411	35.59	35.84
B	---	1.300	---	33.02	L	.200 TYP		5.08 TYP	
C	.615	.635	15.62	16.13	M	.048	.052	1.22	1.32
D	.158		4.01		N	.110 DIA	.130 DIA	2.79 DIA	3.30 DIA
E	---	.410	---	10.41	P	---	.045	---	1.14
F	.195	.205	4.95	5.21	Q	---	1.630	---	41.40
G	---	.312	---	7.92	R	---	.213	---	5.41
H	---	.238	---	6.05	S	.190	.210	4.83	5.33
J	---	.406	---	10.31	T	---	.625	---	15.88

NOTES:
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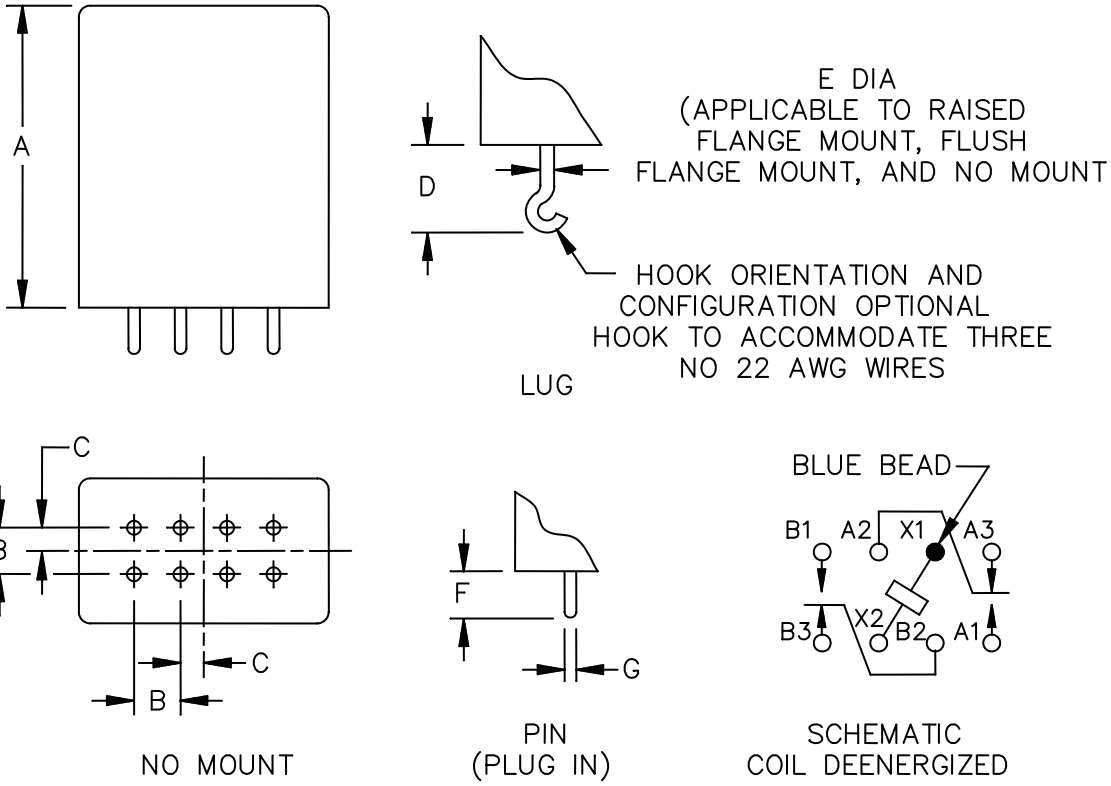
4. Terminal numbers need not appear on the relay header provided there is affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.

FIGURE 1. Dimensions and configuration - Continued.



Ltr	Inches		mm	
	Min	Max	Min	Max
A	---	1.300	---	33.02
B	.195	.205	4.95	5.21
C	.090 REF	.110 REF	2.29 REF	2.79 REF
D	---	.312	---	7.92
E	---	.063	---	1.60
F	.190	.210	4.83	5.33
G	.048	.052	1.22	1.32

NOTES:
1. Dimensions are in inches.
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4. Terminal numbers need not appear on the relay header provided there is affixed to the relay a suitable legible circuit diagram that identifies each terminal location specified.

FIGURE 1. Dimensions and configuration - Continued.

REQUIREMENTS:

CONTACT DATA:

Configuration: High-level 1/ characteristics, DPDT.

Arrangement: 2 form C.

Load ratings: 2/ (Relay case grounded)

Resistive:

10 amperes at 28 V dc.

3.0 amperes at 115 V, 60 Hz.

5.0 amperes at 115 V, 400 Hz.

Inductive:

6.0 amperes at 28 V dc.

2.0 amperes at 115 V, 60 Hz.

2.5 amperes at 115 V, 400 Hz.

Lamp:

1.0 ampere at 28 V dc.

0.5 ampere at 115 V, 60 Hz.

0.8 ampere at 115 V, 400 Hz.

Motor: 3/

3 amperes at 28 V dc.

1.5 amperes at 115 V, 60 Hz.

3 amperes at 115 V, 400 Hz.

Intermediate current: Applicable.

Contact resistance or voltage drop: Initial 0.1 V dc maximum.

1/ High-level relays are not designated for use at low-level loads.
2/ The ac contact ratings are for single-phase power only.
3/ The relay shall be subjected to 50,000 cycles for making five times the rated motor load at rated voltage and breaking the normal rated motor load. Duration of the inrush current shall be 0.07 ±0.02 second, after which it shall be reduced to its rated motor load for the remainder of the on time. Cycling rate shall be 0.35 ±0.09 second on and 2 ±0.1 seconds off.

Rated life:

During: 10 percent of open circuit voltage maximum.

After: 0.2 V dc maximum.

Intermediate current:

During: 3 ohms maximum.

After: 3 ohms maximum.

Contact bounce:

Normally open contacts: 5 milliseconds (ms) maximum.

Normally closed contacts: 5 ms maximum.

Overload:

Resistive: 2.5 times rated current.

Inductive: 2.5 times rated current.

COIL DATA: (See table I)

Duty rating: Continuous.

Operate time: 15 ms maximum over temperature range.

Release time: 15 ms maximum over temperature range.

ELECTRICAL DATA:

Conditioning: Not applicable.

Insulation resistance: 1,000 megohms minimum, except the resistance between coil and case at high temperature shall be 500 megohms or greater.

Dielectric withstanding voltage:

	Sea level V rms (60 Hz)	Altitude V rms (60 Hz)
Between case, frame, or enclosure and all contacts: ---------	1,000	
Between case, frame, or enclosure, and coil: ----------	500	500
Between all contacts and coil: ----------	1,000	All terminals to case
Between open contacts in the energized and deenergized positions: ----------	1,000	
Between contact poles: ----------	1,000	

ENVIRONMENTAL DATA:

Temperature range: Symbol B (-65°C to +125°C).

Internal moisture: Applicable.

Vibration: Symbol 4 (20 G, 10 Hz to 2,000 Hz).

Acceleration: Applicable.

Shock: Symbol 3 (100 G).

Resistive to solvents: Applicable.

Magnetic interference (adjacent-similar-relay): Applicable.

PHYSICAL:

Terminal strength: 3 ±0.3 pounds pull.

Dimensions and configuration: See figure 1 and table I.

Termination: See table I.

Weight: .125 pound (56.7 grams) maximum.

LIFE TEST REQUIREMENTS:

High level: 50,000 cycles.

Two relays per contact rating shall be tested, with rated loads on all contacts, except intermediate current.

Intermediate current: Level II (50,000 cycles).

Part or Identifying Number (PIN) M5757/23- (applicable dash number from table I).

TABLE I. PINs and characteristics.

PIN M5757/23-	Maximum coil voltage (V dc)	Rated coil voltage 1/ (V dc)	Over temperature range (-65°C to +125°C)					Mounting	Terminals
			Pickup voltage (V dc)	Hold voltage (V dc)	Drop-out voltage (V dc)	Coil Resistance (ohms) at 25°C			
						Min	Max		
001	32	26.5	18	7	1.5	270	330	Raised flange	Lug
002	32	26.5	18	7	1.5	270	330	Flush flange	Lug
003	32	26.5	18	7	1.5	270	330	Raised flange	Pin (plug in)
004	32	26.5	18	7	1.5	270	330	Flush flange	Pin (plug in)
005	32	26.5	18	7	1.5	270	330	No mount	Pin (plug in)
031	32	26.5	18	7	1.5	270	330	Laydown flange	Lug
006	16	12.0	9.0	5	.5	58	83	Raised flange	Lug
007	16	12.0	9.0	5	.5	58	83	Flush flange	Lug
008	16	12.0	9.0	5	.5	58	83	Raised flange	Pin (plug in)
009	16	12.0	9.0	5	.5	58	83	Flush flange	Pin (plug in)
010	16	12.0	9.0	5	.5	58	83	No mount	Pin (plug in)
032	16	12.0	9.0	5	.5	58	83	Laydown flange	Lug
011	9	6.0	4.5	2.5	.25	14	21	Raised flange	Lug
012	9	6.0	4.5	2.5	.25	14	21	Flush flange	Lug
013	9	6.0	4.5	2.5	.25	14	21	Raised flange	Pin (plug in)
014	9	6.0	4.5	2.5	.25	14	21	Flush flange	Pin (plug in)
015	9	6.0	4.5	2.5	.25	14	21	No mount	Pin (plug in)
033	9	6.0	4.5	2.5	.25	14	21	Laydown flange	Lug
016	52	48.0	36.0	20	2.0	900	1,320	Raised flange	Lug
017	52	48.0	36.0	20	2.0	900	1,320	Flush flange	Lug
018	52	48.0	36.0	20	2.0	900	1,320	Raised flange	Pin (plug in)
019	52	48.0	36.0	20	2.0	900	1,320	Flush flange	Pin (plug in)
020	52	48.0	36.0	20	2.0	900	1,320	No mount	Pin (plug in)
034	52	48.0	36.0	20	2.0	900	1,320	Laydown flange	Lug
026	122	120.0	90.0	50	5.0	6,840	8,360	Raised flange	Lug
027	122	120.0	90.0	50	5.0	6,840	8,360	Flush flange	Lug
028	122	120.0	90.0	50	5.0	6,840	8,360	Raised flange	Pin (plug in)
029	122	120.0	90.0	50	5.0	6,840	8,360	Flush flange	Pin (plug in)
030	122	120.0	90.0	50	5.0	6,840	8,360	No mount	Pin (plug in)
036	122	120.0	90.0	50	5.0	6,840	8,360	Laydown flange	Lug
037	24	18	13.5	7.5	.75	153	187	Raised flange	Lug
038	24	18	13.5	7.5	.75	153	187	Flush flange	Lug
039	24	18	13.5	7.5	.75	153	187	Raised flange	Pin (plug in)
040	24	18	13.5	7.5	.75	153	187	Flush flange	Pin (plug in)
041	24	18	13.5	7.5	.75	153	187	No mount	Pin (plug in)
042	24	18	13.5	7.5	.75	153	187	Laydown flange	Lug

1/ CAUTION: The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.

QUALIFICATION: See table II.

TABLE II. Qualification inspection and sample size.

Single submission	Group submission	
36 units plus 1 open unit. Qualification inspection as applicable.	M5757/23-026	36 units plus 1 open unit Qualification inspection, as applicable.
	M5757/23-042	2 units each part number. Qualification inspection, group I plus shock, vibration, terminal strength, and seal 1/
	M5757/23-002 M5757/23-011 M5757/23-016 M5757/23-032	2 units each part number. Qualification inspection table, group I

1/ Tests shall be performed in order shown.

CONFORMANCE INSPECTION:

Group A inspection: Applicable (subgroups 2 and 3) except dielectric withstanding voltage, 5-10 seconds at 10 percent increase in dielectric strength test voltage.

Group B inspection: Applicable.

Group C inspection: Not applicable

SUPERSESSION DATA: See table III.

TABLE III. Supersession data.

Superseded PIN M5757/23-	New PIN M5757/23-
021	026
022	027
023	028
024	029
025	030
035	036

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

Preparing activity:
DLA - CC

(Project 5945-2011-050)

Review activities:
Army - AR, AT, AV, CR4, MI
Navy - AS, MC, OS, SH
Air Force - 99

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