

INCH-POUND

MIL-R-5757/29E
25 April 2005
SUPERSEDING
MIL-R-5757/29D
22 July 1985

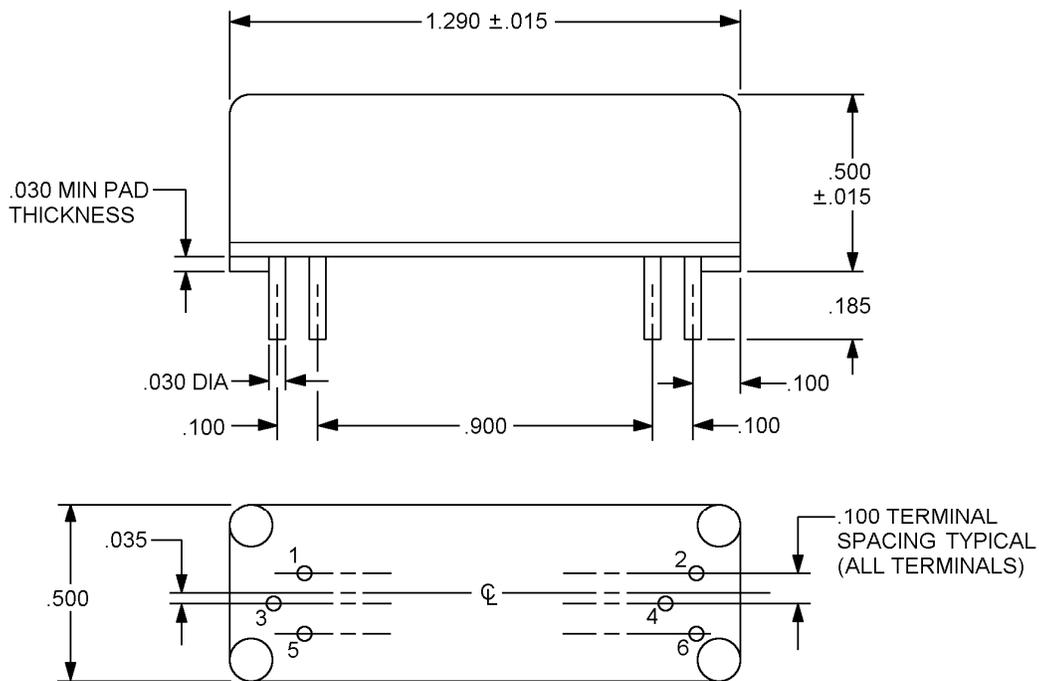
MILITARY SPECIFICATION SHEET

RELAYS, ELECTRICAL, 1 PST TO 4 PDT CONTACTS
LOW-LEVEL TO 1/2 AMPERE (DRY REED)

Inactive for new design after 22 July
1985. No superseding specification.

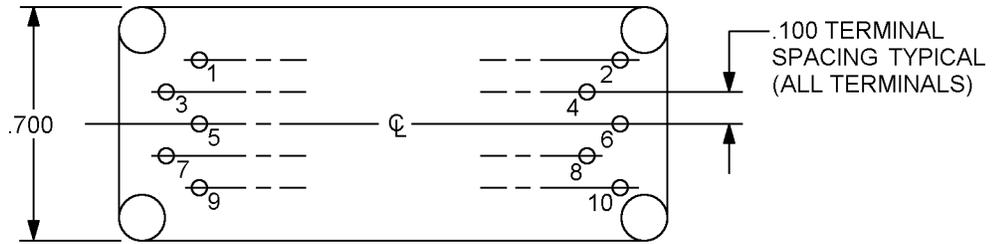
This specification is approved for use by all Departments
and Agencies of the Department of Defense.

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

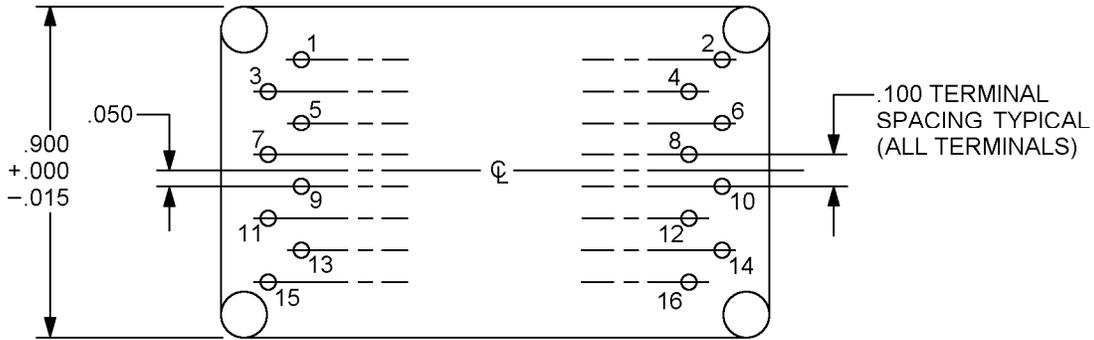


CONFIGURATION A

FIGURE 1. Dimensions and configuration.



CONFIGURATION B



CONFIGURATION C

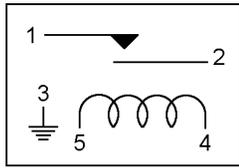
Inches	mm
.000	0.00
.015	0.38
.030	0.76
.035	0.89
.050	1.27
.100	2.54
.185	4.70
.500	12.70
.700	17.78
.900	22.86
1.290	32.77

NOTES:

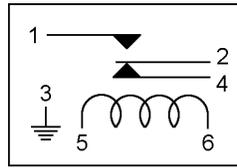
1. Dimensions are in inches.
2. Unless otherwise specified, tolerances are $\pm .005$.
3. Metric equivalents are given for general information only.
4. Views shown on configurations B and C are for header configuration only. See configuration A for case and terminal dimensions.

FIGURE 1. Dimensions and configuration – Continued.

MIL-R-5757/29E

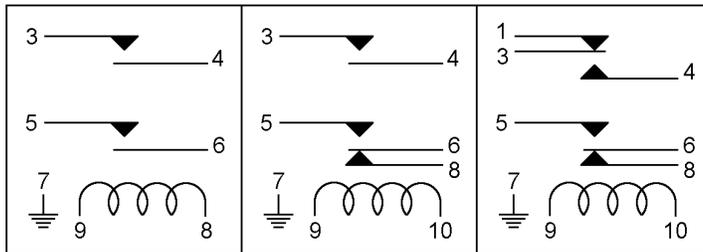


- 001
- 015
- 029



- 002
- 016
- 030

SINGLE POLE

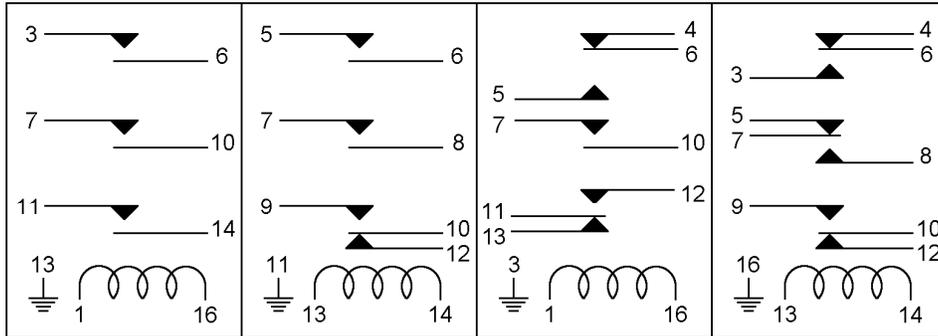


- 003
- 017
- 031

- 004
- 018
- 032

- 005
- 019
- 033

DOUBLE POLE



- 006
- 020
- 034

- 007
- 021
- 035

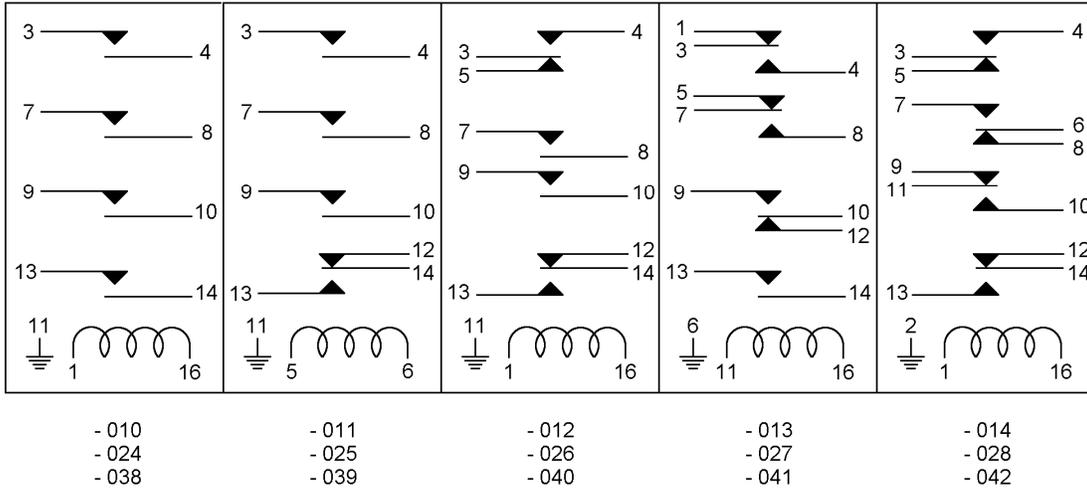
- 008
- 022
- 036

- 009
- 023
- 037

TRIPLE POLE

SCHEMATIC DIAGRAM

FIGURE 2. Schematic diagrams.



FOUR POLE

SCHEMATIC DIAGRAM

NOTES:

1. Figures shown next to the capsule and coil terminals refer to the pin arrangement diagrams and are for reference only.
2. Magnetic and electrostatic shielding connection is made to the ground-pin indicated in these diagrams.

FIGURE 2. Schematic diagrams – Continued.

REQUIREMENTS:

CONTACT DATA:

Configuration: 1PST to 4PDT.

Arrangement: See table III.

Load ratings, (relay case grounded): See table II.

Minimum current: 10 mA at 12 V dc max.

Contact resistance:

Rated life:

Before: 0.20 ohm max.

During: 4 ohms max. 2/

After: 4 ohms max. 2/

Minimum current:

Before: 0.20 ohm max.

During: 4 ohms max. 2/

After: 4 ohms max. 2/

Contact bounce: 1 millisecond (ms) max.

Contact noise: Applicable. 1/

Capacitance: 2 picofarads max.

Overload:

Resistive: 2 times rated current.

1/ Test shall not be made on relays since tests are conducted on switch capsules.

2/ Load conditions shall be at rated coil current and voltage.

MIL-R-5757/29E

COIL DATA:

Duty rating: Continuous.

Nominal voltage: See table III.

Pickup voltage: See table I.

Dropout voltage: See table I.

Coil resistance: See table III.

Operate time: Including bounce (see table I).

Release time: Including bounce (see table I).

ELECTRICAL DATA:

Insulation resistance: 10,000 megohms from contact to contact and from contact to case.

Dielectric withstanding voltage:

	Sea level	Altitude
Between case, frame, or enclosure and all contacts:	500 V	200 V
Between case, frame, or enclosure and coil:	500 V	200 V
Between all contacts and coil:	500 V	200 V
Between open contacts in the energized and unenergized positions:	250 V	200 V
Between contact poles:	500 V	200 V

Magnetic shielding: Applicable.

Electrostatic shielding: Applicable.

ENVIRONMENTAL DATA:

Temperature range: (-55°C to +85°C).

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

Magnetic interference: Applicable, adjacent-similar-relay.

Shock: (100 G).

Contact sticking: Applicable.

Resistance to solder heat: Applicable.

Cross talk: Attenuation 20 dB at 10 MHz (megahertz).

Coil life: Not applicable.

PHYSICAL DATA:

Terminal strength: 2 pounds axial pull.

Terminal solderability: Applicable.

Sealed by welding: Not applicable.

Dimensions and configuration: See figure 1.

Termination: Pin type (PC).

Marking: See figure 1.

Weight:

1 pole - 12 grams max.

2 pole - 18 grams max.

3 pole - 22 grams max.

4 pole - 24 grams max.

LIFE TEST REQUIREMENTS:

High level: See table II for number of operations and cycling rate.

Low level: See table II.

Minimum current: 20,000,000 operations at 900 to 1,200 operations per minute.

Quality conformance inspection:

Periodic inspection: Groups B and C inspections are not required.

QUALITY ASSURANCE:

Group A:

Subgroup 1: Applicable for low level loads only at a rate of approximately 60 operations/second.

Subgroup 2: 100 percent.

Dielectric withstanding voltage: Test to be conducted at sea level rating only. Duration of application shall be 5 to 10 seconds at a 10 percent increase in the dielectric strength voltage.

MIL-R-5757/29E

TABLE I. Qualification inspection and sample size.

Single submission	Group submission	
30 units plus 1 open unit Table I Group Q1 through Q4	M5757/29-012 M5757/29-026 M5757/29-040	14 units plus 1 open unit 8 units 8 units Table I Group Q1 – after the Q1 tests, the above units will be divided and tested as follows:
	M5757/29-012 M5757/29-026 M5757/29-040	2 units for each group 1 unit for each group 1 unit for each group Table I Groups Q1, Q2, Q3, Q4, and Q6
	M5757/29-012 M5757/29-026 M5757/29-040	6 units 4 units 4 units Table I Group Q4
	M5757/29-002 M5757/29-005	2 units each PIN Table I Group Q1 Group Q2 vibration only Group Q2 shock, terminal strength, and seal only.
	All other PINs	2 units each PIN Table I Group Q1

MIL-R-5757/29E

TABLE II. Data.

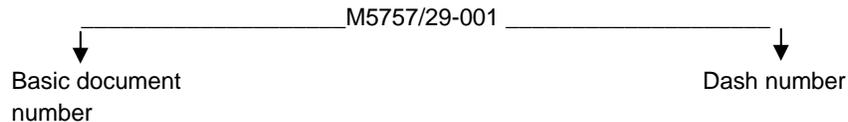
	Coil voltage		
	6.0	12.0	26.5
Nominal voltage	6.0	12.0	26.5
Pickup voltage – max (dc)	4.0	8.0	18.0
Dropout voltage – min (dc)	0.8	1.0	2.5
Coil resistance – ohms	See table III		
Operate time (max) including bounce (in milliseconds) at 25°C at 85°C	1 ms	1 ms	1 ms
	2 ms	2 ms	2 ms
Dropout time (max) including bounce (in milliseconds) over temperature range Contact arrangement: Form A Form C	1 ms	1 ms	1 ms
	2.5 ms	2.5 ms	2.5 ms

TABLE III. Load ratings.

Load current (amperes)	Resistive load (millions of operations)		Cycling rate operations/second
	12 V	28 V	
.50	1	0.5	3-5/seconds
.25	10	5	15-20/seconds
0.010 (low level)	100 at 50 mV dc or peak ac		60 (approx.)

Part or Identifying Number (PIN): Consists of the basic number of this specification sheet and a dash number.

Example:



MIL-R-5757/29E

TABLE IV. PINs and characteristics. 1/

PIN M5757/29	Nominal coil voltage (Vdc)	Coil resistance ohms $\pm 10\%$	No. of poles	No. of capsules (contact arrangement)		Configuration
				Form A	Form C	
-001	26.5	2340	1	1	0	A
-002	26.5	1450	1	0	1	A
-003	26.5	925	2	2	0	B
-004	26.5	925	2	1	1	B
-005	26.5	925	2	0	2	B
-006	26.5	650	3	3	0	C
-007	26.5	650	3	2	1	C
-008	26.5	650	3	1	2	C
-009	26.5	650	3	0	3	C
-010	26.5	460	4	4	0	C
-011	26.5	460	4	3	1	C
-012	26.5	460	4	2	2	C
-013	26.5	460	4	1	3	C
-014	26.5	460	4	0	4	C
-015	12	420	1	1	0	A
-016	12	420	1	0	1	A
-017	12	280	2	2	0	B
-018	12	185	2	1	1	B
-019	12	185	2	0	2	B
-020	12	130	3	3	0	C
-021	12	130	3	2	1	C
-022	12	130	3	1	2	C
-023	12	130	3	0	3	C
-024	12	100	4	4	0	C
-025	12	100	4	3	1	C
-026	12	100	4	2	2	C
-027	12	100	4	1	3	C
-028	12	100	4	0	4	C
-029	6	100	1	1	0	A
-030	6	70	1	0	1	A
-031	6	40	2	2	0	B
-032	6	40	2	1	1	B
-033	6	40	2	0	2	B
-034	6	30	3	3	0	C
-035	6	30	3	2	1	C
-036	6	30	3	1	2	C
-037	6	30	3	0	3	C
-038	6	22	4	4	0	C
-039	6	22	4	3	1	C
-040	6	22	4	2	2	C
-041	6	22	4	1	3	C
-042	6	22	4	0	4	C

1/ Relays possess high-level capability and low-level capability.

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:

Army - CR
Navy - EC
Air Force - 11
DLA - CC

Preparing activity:

DLA - CC

(Project 5945-1304)

Review activities:

Army - AT, AV, CR4, MI
Navy - MC
Air Force - 99

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