INCH-POUND

MIL-PRF-83726/30J
26 February 2013
SUPERSEDING
MIL-PRF-83726/30H
18 June 2012

PERFORMANCE SPECIFICATION SHEET

# RELAY, HYBRID, TIME DELAY (ON OPERATE), CLASS B, TYPE I, HERMETICALLY SEALED, DPDT, 10 AMPERES, ADJUSTABLE TIME DELAY (EXTERNAL RESISTOR), 0.1 TO 500 SECONDS

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 MIL-PRF-83726.

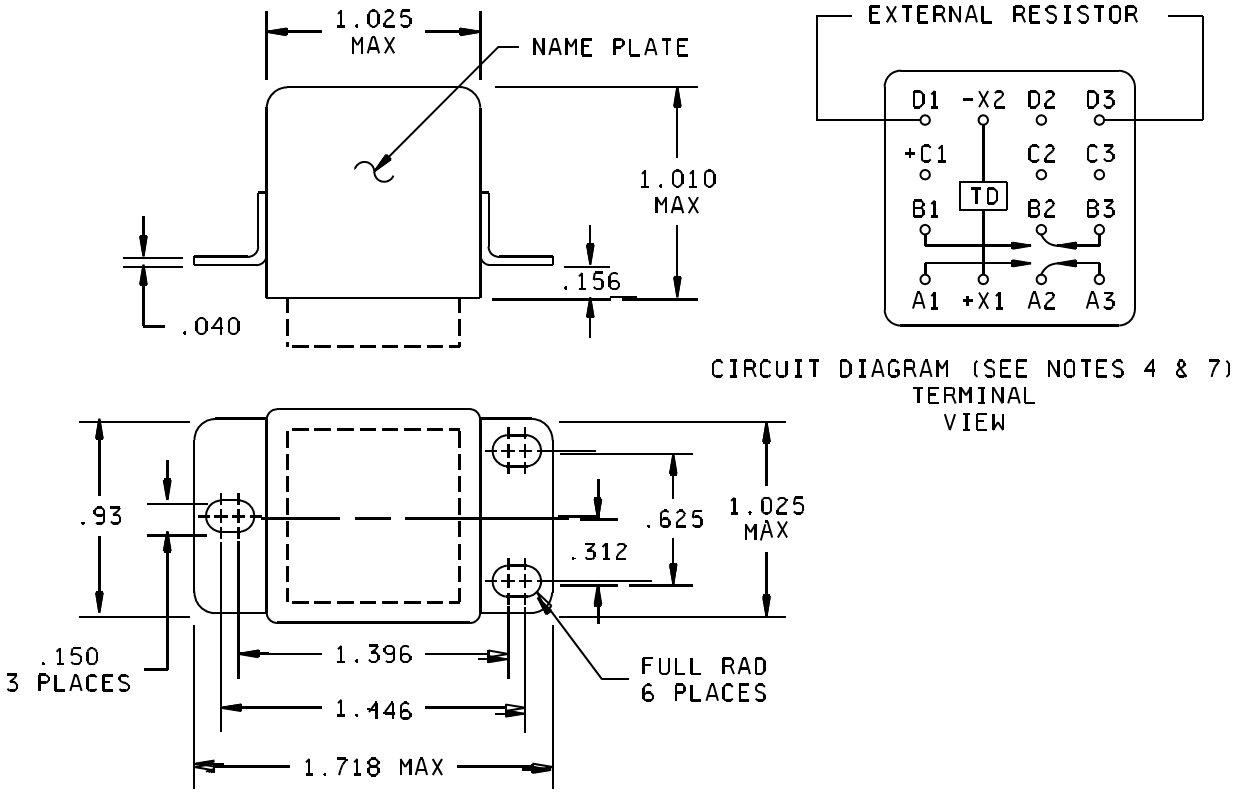
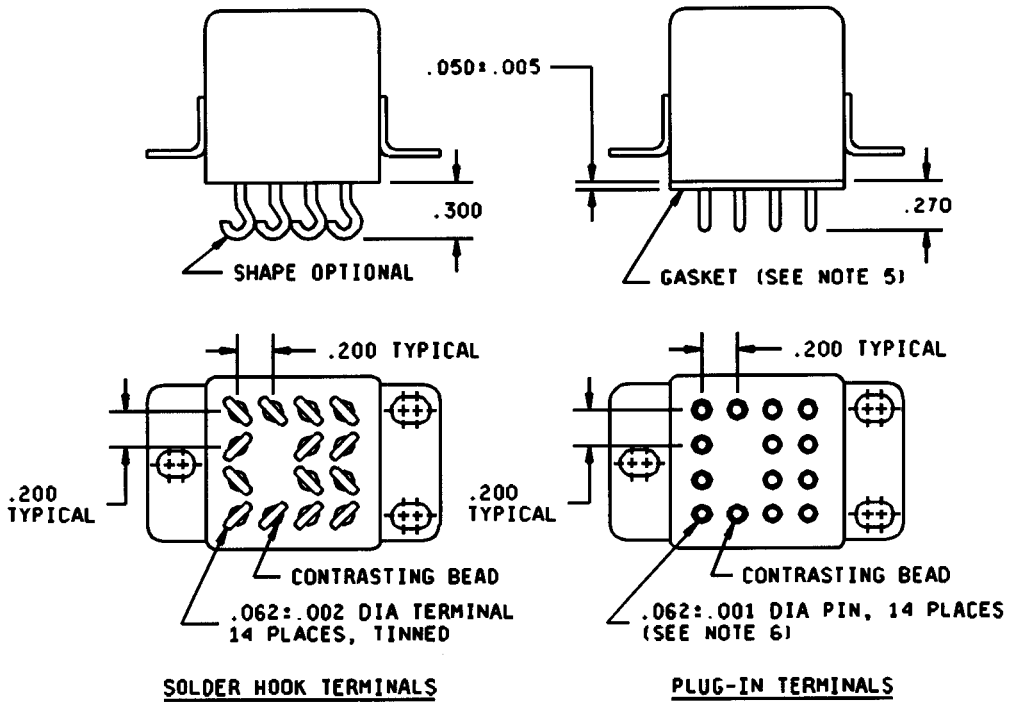



FIGURE 1. Outline dimensions and configuration of relay.



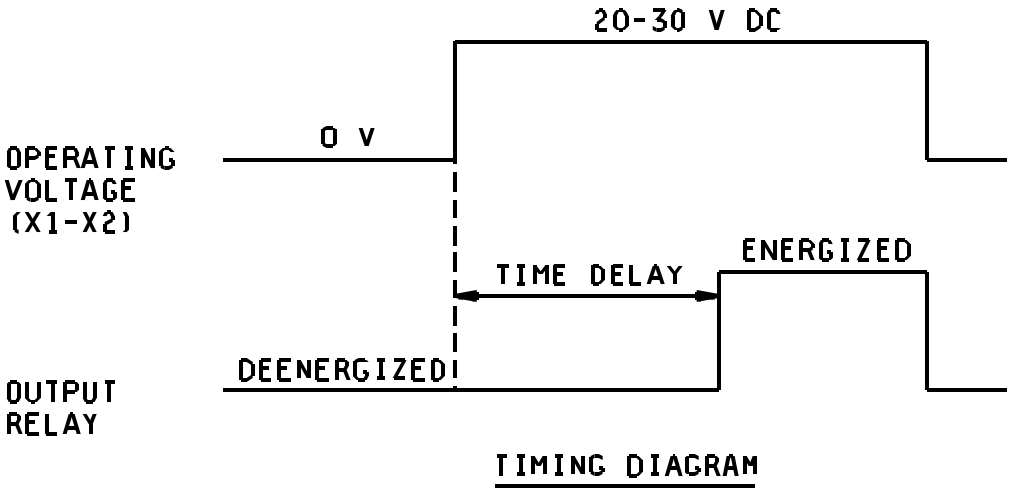




FIGURE 1. Outline dimensions and configuration of relay – Continued.

| Inches | mm | Inches | mm |
|---|---|---|---|
| .001 | 0.03 | .300 | 7.62 |
| .002 | 0.05 | .312 | 7.92 |
| .005 | 0.13 | .625 | 15.88 |
| .040 | 1.02 | .930 | 23.60 |
| .050 | 1.27 | 1.010 | 25.65 |
| .062 | 1.57 | 1.025 | 26.04 |
| .150 | 3.81 | 1.396 | 35.46 |
| .156 | 3.96 | 1.446 | 33.73 |
| .200 | 5.08 | 1.718 | 43.64 |

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) for three place decimals and ± .03 (0.76 mm) for two place decimals.
4. Terminal numbers shall not appear on the relay header and there shall be a legible circuit diagram on relay which identifies each terminal location specified.
5. Gasket material: The gasket material shall be of such quality to ensure the relay meets all the performance requirements of this specification. Silicone rubber gasket SAE-AMS-3332, shore hardness 20 ±5 has been considered acceptable.
6. Terminal composition: The terminal composition shall be of such quality to ensure the relay meets all the performance requirements of this specification. Gold in accordance with SAE-AMS-2422 or ASTM-B488, Type 3; underplating: nickel, 50 microinches to 150 microinches thick; has been considered acceptable.
7. External resistor: In accordance with MIL-PRF-55182 (RNC60HXXXXFS), is selected as follows:
   REXT = ((T1/T0) – 1)100k
   T0 = Minimum time
   T1 = Required time
   T1 $\leq$ 10 T0
8. Terminal C2 is optional.

FIGURE 1. Outline dimensions and configuration of relay – Continued.

REQUIREMENTS:

OPERATING REQUIREMENTS:

Timing action: Delay-on-operate.

Time delay: Adjustable; select from 0.1 second to 500 seconds.

Timing accuracy: ±10 percent of nominal value. (The accuracy requirement applies for any combination of operating temperature and voltage. External resistors shall be in accordance with MIL-R-10509, characteristic C or equivalent. Add ±10 ms for timing less than 1 second.)

Recycle time: 50 milliseconds maximum. (Recycle time is defined as the minimum time that power must be removed from the input terminals to assure that the next timing cycle will be completed within the specified timing tolerance. (Units can be recycled during timing or after time-out.))

Power interrupt: 500 microseconds. (Transient and power loss specifications are based on a maximum duty cycle of 1/50.)

Operating current: 150 mA maximum at 25°C.

INPUT REQUIREMENTS:

Input voltage range: 20 V dc to 30 V dc. (Minimum high temperature test 21 V dc, minimum continuous current test 23.5 V dc.)

Duty rating: Continuous.

Polarity protection: The timer shall be inoperative during, and undamaged by, reversal of the polarity of the operating voltage.

OUTPUT REQUIREMENTS: (At +25°C unless otherwise specified.)

Configuration: DPDT.

Life: See table I.

TABLE I. Life load ratings (relay case grounded).

| Type of load | Life (cycles) | Amperes 28 V dc | Amperes 115/200 V ac 400 Hz |
|---|---|---|---|
| Resistive | 100,000 | 10 | 10 |
| Inductive | 20,000 | 8 | 8 |
| Motor | 100,000 | 4 | 4 |
| Lamp | 100,000 | 2 | 2 |
| Low level 1/ | 100,000 | | --- |

1/ Contact load 10 μA to 50 μA at 10 mV to 50 mV (dc or peak ac).

ELECTRICAL REQUIREMENTS:

Transients: In accordance with MIL-STD-704 for 28 volts dc system (figure 11).

Spike:

Self-generated: ±50 volts maximum.

Spike transients: ±600V, 10 microseconds maximum.

Susceptibility: + 80V maximum; -600 V maximum.

Electromagnetic interference: In accordance with MIL-STD-461(methods CS101, CS114, RS101, and RS103) for PIN's with suffix letter W. (EMI test limits will not be exceeded during the timing interval or when continuously energized under steady-state conditions in accordance with the EMI test of MIL-PRF-83726.)

Insulation resistance: 1,000 megohms at 500 V dc at sea level, and 100 V dc at 80,000 feet between each pin and case. (Terminals X1, X2 and D1, D3 must be connected together during this test. Insulation resistance is measured between all mutually insulated terminals and between all terminals and case.)

Dielectric withstanding voltage: 1,000 V rms at 60 Hz at sea level, and 350 V rms at 80,000 feet between case and pins connected together. (Terminals X1, X2 and D1, D3 must be connected together during this test. Dielectric withstanding voltage is measured between all mutually insulated terminals and between all terminals and case.)

ENVIRONMENTAL REQUIREMENTS:

Ambient temperature (operating or non-operating): -55°C to +125°C.

Vibration (sinusoidal): 30 g's, 10 Hz to 3,000 Hz.

Moisture resistance: Not applicable.

Vibration (random): 0.4 $g^2$/Hz power spectral density, 50 Hz to 2,000 Hz in accordance with MIL-STD-202, method 214, test condition 1G. Duration of 15 minutes each plane.

Shock (specified pulse): 100 g's, 6 ms ±1 ms, ½ sine, 3 axes.

Acceleration: 15 g's in any axis.

Seal: Hermetic.

Maximum altitude rating: 80,000 feet.

PHYSICAL REQUIREMENTS:

Dimensions and configuration: See figure 1.

Mating socket: MIL-DTL-12883/40-01, MIL-DTL-12883/40-05, MIL-DTL-12883/40-07, MIL-DTL-12883/40-11, MIL-DTL-12883/40-13, MIL-DTL-12883/40-17, MIL-DTL-12883/40-19, or MIL-DTL-12883/40-23 in accordance with MIL-DTL-12883/40. (CAUTION: Consideration should be given to ambient temperature and current requirements when using wire barrels size 20.)

Terminations: See figure 1.

Terminal strength: 3 pounds pull.

Weight: 2.5 ounces maximum.

Marking: See MIL-PRF-83726. In addition, relays shall be marked with the ESDS identifier as specified in MIL-STD-1285.

Part or Identifying Number (PIN): Consists of the prefix M83726/30-, a four digit dash number (time delay expressed in milliseconds), and a suffix letter (P for plug-in; S for solder lug) as follows:)

| M | 83726/30- | 1001 | P |
|---|---|---|---|
| Military designation | | | |
| | Specification sheet number | | |
| | | The first three digits are significant; the fourth is the number of zeros to follow the first three digits. The time is expressed in milliseconds and converted to seconds. (See examples.) | |
| | | | Suffix letter. (Any relay numbered prior to the date of this specification shall be considered interchangeable with same mounting type, store and issue.) |

Examples:
M83726/30-1001P – 0.1 to 1 second time delay, plug-in.
M83726/30-9002S – 9 to 90 second time delay, solder lug.

NOTE: Time delay relays within the 0.1 second to 500 second delay range are available within a one-decade range. The PIN represents the upper timing limit of each range.

Marginal notations 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.

Referenced documents: In addition to MIL-PRF-83726, this document references the following:

| | | | |
|---|---|---|---|
| MIL-R-10509 | MIL-DTL-12883/40 | MIL-PRF-55182 | MIL-STD-202 |
| MIL-STD-461 | MIL-STD-704 | MIL-STD-1285 | ASTM-B488 |
| SAE-AMS-2422 | SAE-AMS-3332 | | |

Custodians:
Navy - EC
Air Force - 85
DLA – CC

Preparing activity:
DLA - CC

(Project 5945-2013-008)

Review activities:
Navy - OS
Air Force – 19

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