

PERFORMANCE SPECIFICATION

RESISTOR, VARIABLE, NONWIREWOUND, ADJUSTMENT TYPE, LEAD SCREW ACTUATED, STYLE RJ22

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

The requirements for acquiring the product described herein shall consist
of this specification sheet and [MIL-PRF-22097](#).

Inactive for new design after 28 February 1974 (see [6.5](#))
Characteristic F is used as a replacement for characteristic C.

1. SCOPE

1.1 Scope. This specification covers the requirements for style RJ22, adjustment type, lead screw actuated, nonwirewound, variable resistors. This style is available in characteristic C (used characteristic F as a replacement for characteristic C) and characteristic F.

1.2 Part or Identifying Number (PIN). Resistors covered by this specification are identified by a PIN which consists of the style of this specification and a coded number. The PIN is in following form:

<u>RJ22</u>	<u>FP103</u>
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Specification style number	Coded number

2. APPLICABLE DOCUMENT

2.1 General. The documents listed in this section are specified in sections 3, 4 and 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4 and 5 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation (see [6.2](#)).

Comments, suggestions, or questions on this document should be addressed to DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990, or emailed to Resistor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at <https://assist.dla.mil>

MIL-PRF-22097/3J
w/ Amendment 1

DEPARTMENT OF DEFENSE SPECIFICATION

MIL-PRF-22097 - Resistor, Variable, Nonwirewound (Adjustment Type), General Specification For.

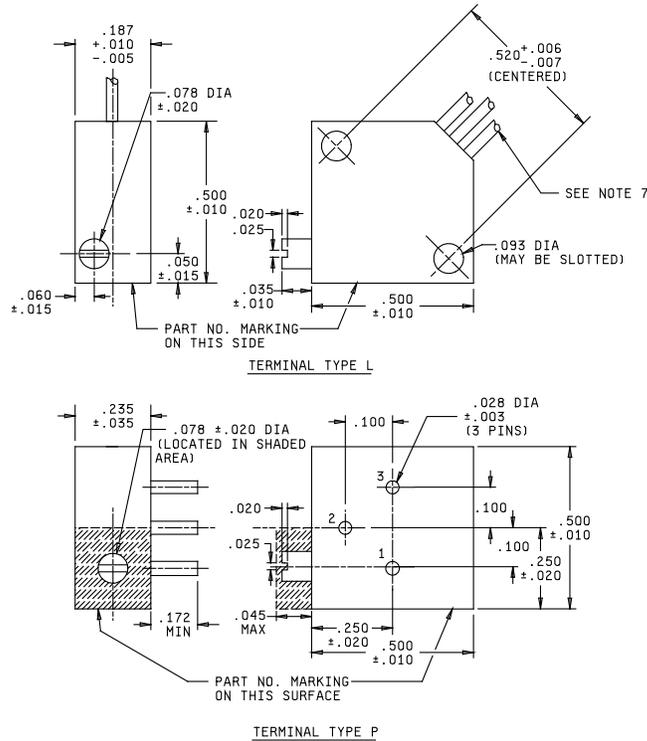
* (Copies of these documents are available online at <http://quicksearch.dla.mil> or from the DLA Document Services, 700 Robbins Avenue, Building 4D, Philadelphia, PA 19111-5094).

2.3 Order of precedence. Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein (except for related specification sheets), the text of this document takes precedence unless otherwise noted. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 General. The requirements for acquiring the product described herein shall consist of this document and MIL-PRF-22097.

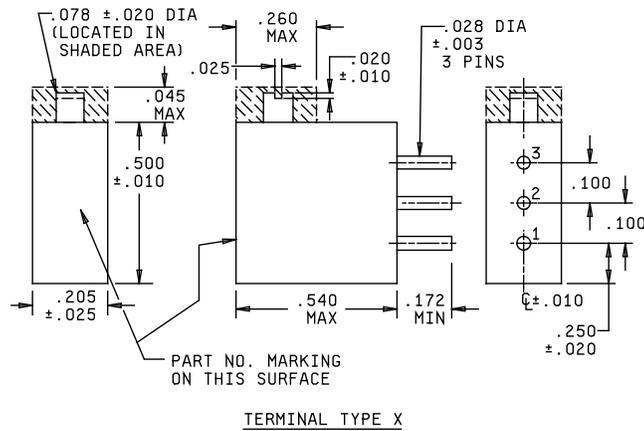
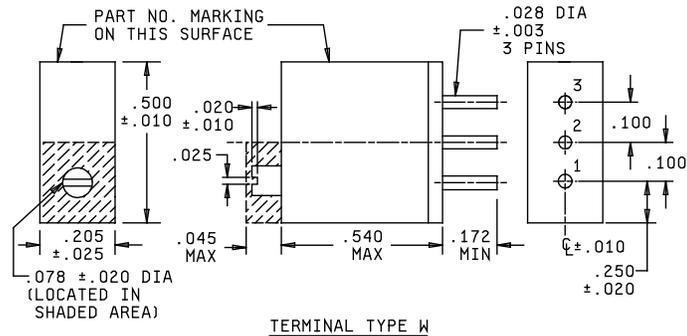
3.2 Interface and physical dimensions. Resistors shall meet the interface and physical dimensions specified on figure 1, as applicable.



Inches	mm	Inches	mm								
.003	0.08	.010	0.25	.035	0.89	.078	1.98	.187	4.75	.520	13.21
.005	0.13	.015	0.38	.045	1.14	.093	2.36	.235	5.97		
.006	0.15	.020	0.51	.050	1.27	.100	2.54	.250	6.35		
.007	0.18	.025	0.64	.060	1.52	.172	4.37	.500	12.70		

FIGURE 1. Style RJ22.

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<u>Inches</u>	<u>mm</u>	<u>Inches</u>	<u>mm</u>	<u>Inches</u>	<u>mm</u>	<u>Inches</u>	<u>mm</u>
.003	0.08	.028	0.71	.172	4.37	.500	12.70
.010	0.25	.045	1.14	.205	5.21	.540	13.72
.020	0.51	.078	1.98	.250	6.35		
.025	0.64	.100	2.54	.260	6.60		

NOTES:

1. Dimensions are in inches. Metric equivalents (to the nearest .01 mm) are given for general information only and are based upon 1 inch = 25.4 mm.
2. Unless otherwise specified, tolerance is $\pm .005$ (.13 mm).
3. The entire slot of the actuating screw must be above the surface of the unit.
4. For types P, W, and X, normal mounting means is by use of pins only.
5. The picturization of the styles above are given as representative of the envelope of the item. Slight deviations from the outline shown, which are contained within the envelope, and do not alter the functional aspects of the device are acceptable.
6. The three leads shall be of a stranded wire, AWG size 28 to 30, having a minimum length of 6 inches (152.4 mm); they shall be insulated with polytetrafluoroethylene, stripped $.250 \pm .062$ inches (6.35 ± 1.57 mm) from the end and color coded.

FIGURE 1. Style RJ22 - Continued.

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- * 3.3 Power rating. The power rating shall be .5 watt for characteristic C (used characteristic F as a replacement for characteristic C) and characteristic F.
- * 3.4 Terminals. Characteristic C (used characteristic F as a replacement for characteristic C), and characteristic F are available with L-type, P-type, W-type, and X-type terminals.
- 3.5 Nominal resistance value and maximum rated ac or dc working voltage. Nominal resistance values and maximum rated ac or dc working voltages shall be as specified in table I.

TABLE I. Nominal resistance value and maximum rated ac or dc working voltage.

Nominal resistance value (Ohms)	Maximum rated ac or dc working voltage per characteristic C ^{1/} and characteristic F (Volts)	Nominal resistance value (Ohms)	Maximum rated ac or dc working voltage per characteristic C and characteristic F (Volts)
10	2.23	10,000	70.7
20	3.1	20,000	100
50	5.0	25,000	111
100	7.0	50,000	158
200	10.0	100,000	223
500	15.8	200,000	300
1,000	22.3	250,000	300
2,000	31.6	500,000	300
5,000	50.0	1,000,000	300

^{1/} Used characteristic F as a replacement for characteristic C.

3.6 Actual effective electrical travel. Actual effective electrical travel shall be 20 turns minimum, and 45 turns maximum.

3.7 Operating torque. Operating torque shall be a maximum of 5 ounce-inches.

3.8 Pure tin. The use of pure tin, as an underplate or final finish, is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass (see 6.4).

4. VERIFICATION

4.1 Sampling and inspection. Sampling and inspection shall be in accordance with MIL-PRF-22097, and as specified herein.

4.2 Dielectric withstanding voltage. The magnitude of test voltage shall be 900 volts at atmospheric pressure, and 350 volts at reduced barometric pressure.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the military services system commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The notes specified in [MIL-PRF-22097](#) are applicable to this specification.

6.2 Acquisition requirements. Acquisition documents must specify the following:

- a. Title, number, and date of this specification, the applicable associated specification, and the complete PIN.
- b. Unless otherwise specified (see [2.1](#)), the versions of the individual documents referenced will be those in effect on the date of release of the solicitation.
- c. Packaging requirements (see [5.1](#)).
- d. Allowable substitution (see paragraph 3.29 of [MIL-PRF-22097](#)).

6.3 Weight. The maximum weight is .012 pound (5.4 grams).

6.4 Tin whisker growth. The use of alloys with tin content greater than 97 percent, by mass, may exhibit tin whisker growth problems after manufacture. Tin whiskers may occur anytime from a day to years after manufacture and can develop under typical operating conditions, on products that use such materials. Conformal coatings applied over top of a whisker-prone surface will not prevent the formation of tin whiskers. Alloys of 3 percent lead, by mass, have shown to inhibit the growth of tin whiskers. For additional information on this matter, refer to [ASTM-B545](#) (Standard Specification for Electrodeposited Coatings of Tin).

6.5 Substitution data. The resistors specified herein are not for use for new design. They are authorized for use in existing design contracts. Resistors specified in [MIL-PRF-39035/2](#) are preferred for design and regardless of the failure rate designation can be used as substitutes for the inactive resistors of the same resistance value, tolerance, and characteristic performance of this specification

* 6.6 Amendment notification. The margins of this specification are marked with asterisk to indicate modification 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 and relationship to the last previous issue.

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

Preparing activity:
DLA - CC
(Project 5905-2013-026)

Review activities:
Army - AR, AT, AV, CR4, MI
Navy - AS, MC, OS
Air Force - 19, 99

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.dla.mil>.