

ANSI
C83.92-1973

Approved April 9, 1973

AMERICAN NATIONAL STANDARDS INSTITUTE

EIA STANDARD

*Power Filter Inductors
for Electronic Equipment*

RS-197-A
(Revision of RS-197)



July 1973

Engineering Department

ELECTRONIC INDUSTRIES ASSOCIATION

EIA RS-197-A

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Published by

ELECTRONIC INDUSTRIES ASSOCIATION

Engineering Department

2001 Eye Street, N.W., Washington, D. C. 20006

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Price \$2.60

Printed in U.S.A.



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POWER FILTER INDUCTORS FOR ELECTRONIC EQUIPMENT

(From RS-197 and Standards Proposal No. 1062, formulated under the cognizance of the P-3 Committee on Inductive Components.)

1. SCOPE

This Standard covers iron-core power filter inductors for use in electronic equipment where long life, reliability and continuity of operation are essential.

2. DEFINITIONS

Definitions of electrical terms used in this Standard shall be in accordance with those given in "IEEE Standard Dictionary of Electrical and Electronics Terms", IEEE Std. 100-1972 except as otherwise noted. The "working voltage" between winding and ground shall be defined as the sum of the maximum d-c voltage and the peak a-c voltage which may appear between winding and ground under normal conditions outlined in Explanatory Notes 2.3 and 2.4 on Page 4.

3. PURCHASE SPECIFICATIONS

The purchaser will specify:

3.1 Inductance and rated direct current.

3.1.1 The full-load direct current supplied through the inductor.

NOTE: Standard values of current are decimal multiples of 1.0, 1.6, 2.5, 4.0 and 6.3 amperes.

3.1.2 The minimum inductance in henrys required under conditions specified in 3.1.1. Whenever possible, the values of inductance shall be decimal multiples of the following 1.0, 1.6, 2.5, 4.0 and 6.3 henrys.

3.1.3 If a swinging inductor is required, specify:

(a) The value of the reduced direct current supplied through the inductor.

(b) The minimum inductance required under condition specified in 3.1.3(a).

3.1.4 The maximum inductance in henrys, only if significant in the circuit.

3.2 D-c resistance at 25°C, if significant in the circuit. (See Explanatory Note 1 on Page 4.)



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3.3 Power frequency, ripple frequency, "working voltage" and rms value of ripple voltage across the inductor.

Alternatively, the circuit diagram of the rectifier and filter and character of the load may be given, complete with component values.

3.4 D-c voltage at the filter output under full load.

3.5 Peak surge voltage across the inductor. (See Explanatory Note 2 on Page 6.)

3.6 Unusual requirements or operating conditions.

3.7 Construction features.

3.7.1 General assembly. (For example: exposed core and coils, end-bell, sheet-metal-enclosed or hermetically sealed, dry- or liquid-filled).

NOTE: In specifying construction, cognizance should be taken of requirements imposed by 3.8.4, 4.3 and 4.4.

3.7.2 Terminals. (For example: leads, screw studs or soldering lugs.)

3.7.3 Mounting. (For example: terminal end or opposite end.)

3.7.4 Limiting dimensions and weight.

3.8 Conditions of operation.

3.8.1 Maximum ambient temperature for continuous operation.

(a) Unless otherwise specified, the ambient temperature shall be assumed to be 50°C.

3.8.2 Maximum altitude if more than 5000 feet (1.52 km) above sea level.

3.8.3 Duty cycle if not continuous. (Time on and ratio of time on to time off.)

3.8.4 Special conditions, such as ability to withstand vibration.

3.9 Other specifications with which the inductor must comply (Army, Navy, etc.)

4. PERFORMANCE STANDARDS

4.1 When tested under standard conditions as described in 5.1, the maximum temperature rise of the inductor winding shall not exceed the limit for the class of insulation used, as defined by the latest issue of IEEE Standard No. 1. Unless other classes are specifically agreed upon between purchaser and manufacturer, Class A insulation shall be used.