

INTERNATIONAL STANDARD

**Fixed resistors for use in electronic equipment –
Part 4-10: Blank detail specification: Power resistors with axial leads for
through-hole assembly on circuit boards (THT), for general electronic
equipment, classification level G**





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIXED RESISTORS FOR USE IN ELECTRONIC EQUIPMENT –**Part 4-10: Blank detail specification:
Power resistors with axial leads
for through-hole assembly on circuit boards (THT),
for general electronic equipment, classification level G**

FOREWORD

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IEC 60115-4-10 has been prepared by IEC technical committee 40: Capacitors and resistors for electronic equipment. It is an International Standard.

This first edition cancels and replaces IEC 60115-4-1:1983. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) it employs the product classification based on application requirements as defined in the generic specification IEC 60115-1:2020;

- b) it permits the specification additional dimensional requirements concerning the eccentricity of termination wires and the coating extending onto wires;
- c) it provides for a tabulated presentation of resistance ranges in relationship to the temperature coefficient and the tolerance;
- d) it supports solderability testing for both, traditional lead-bearing soldering and up-to-date lead-free soldering, as required;
- e) it introduces a test for the specimens' robustness to electrostatic discharge if required;
- f) it introduces a test for the specimens' resistance to solvents if required;
- g) it introduces a test for the flammability of the specimens if required;
- h) it employs consistent stability requirements grouped in stability classes;
- i) it supports the provision of detailed visual acceptance criteria
- j) it includes the requirement for a visual inspection of the primary and proximity packaging;
- k) it provides the correlated test schedules for a qualification approval and for subsequent quality conformance inspections side by side;
- l) it employs quality assessment procedures which meet the requirements of a zero-defect approach, which evades the use of historic AQL levels and the permission of non-conforming specimens in test groups;
- m) it provides for the inclusion of specific visual acceptance criteria, to be applied in addition to those given in Annex B of the sectional specification IEC 60115-4:2022;
- n) furthermore, it employs a new document structure, for which a transition guidance is provided in Annex X.

The text of this International Standard is based on the following documents:

Draft	Report on voting
40/3039/CDV	40/3078/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

A list of all parts in the IEC 60115 series, published under the general title *Fixed resistors for use in electronic equipment*, can be found on the IEC website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

0 Introduction to the template provided by this blank detail specification

COMMENT This introduction is not intended to be copied into the drafted detail specification. Therefore, it is positioned in front of the conventional document structure and clause numbering range. It nevertheless contains normative requirements to the drafted detail specification.

0.1 Scope of this blank detail specification

This part of IEC 60115-4 is applicable to the drafting of detail specifications for fixed power resistors with leads, classified to level G, which is defined in IEC 60115-1:2020, 3.4 for general electronic equipment.

Another part of IEC 60115-4 provides separate blank detail specifications for the drafting of detail specifications for fixed power resistors with leads, classified to level P and/or to level R.

Yet other parts of IEC 60115-4 may be issued to provide blank detail specifications for the drafting of detail specifications for vertical or radial fixed power resistors of other technologies or of other classification levels.

0.2 Function of this blank detail specification

A blank detail specification is a supplementary document to the sectional specification and contains requirements for style, layout and minimum contents of detail specifications. Detail specifications not complying with these requirements shall not be accepted as being in accordance with IEC specifications nor shall they be described as such.

Detail specifications complying with the requirements of this blank detail specification are a legitimate basis for the quality assessment of leaded fixed power resistors under an adequate quality assessment system, e.g. the IEC Quality Assessment System for Electronic Components (IECQ System), whereas the plain blank detail specification is not a suitable basis.

The detail specification should contain a table of contents prior to the first page of the actual specification.

In the preparation of the detail specification, the content of IEC 60115-4:2022, 8.2 shall be taken into account. The detail specification should be written by using the preferred values given in IEC 60115-4.

Units, graphical symbols and letter symbols shall, whenever possible, be taken from those specified by the following standards:

- IEC 60027-1, *Letter symbols to be used in electrical technology – Part 1: General*
- IEC 60617, *Graphical symbols for diagrams*
- IEC 80000 (all parts), *Quantities and units*
- ISO 80000 (all parts), *Quantities and units*

This blank detail specification uses for its purpose two different kinds of notes:

NOTE For notes which give additional information intended to assist the understanding or use of the resulting document and therefore shall be copied as NOTE into the drafted detail specification. As outlined in the ISO/IEC directives, these notes shall not contain any requirement, instruction, recommendation or permission.

COMMENT For editorial notes which are intended to aid and direct the specification writer and therefore shall not be copied into the drafted detail specification. In order to accomplish their function, editorial notes require the use of instructions, recommendations and permissions addressed to the writer of the detail specification.