

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Laboratory resistors –
Part 1: Laboratory DC resistors**

**Résistances de laboratoire –
Partie 1: Résistances de laboratoire à courant continu**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LABORATORY RESISTORS –**Part 1: Laboratory DC resistors**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 60477-1 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities. It is an International Standard.

This first edition cancels and replaces the first edition of IEC 60477 published in 1974, and its Amendment 1:1997. This edition constitutes a technical revision.

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

- a) extended the resistor accuracy classes;
- b) deleted the resistor accuracy class expression in parts per million (ppm);
- c) excluded the active resistor from the scope of this document;
- d) updated the terms and definitions according to new IEC 60050 series;
- e) changed the term "resistance decade" to "resistance dial" to cover the multi-dial resistors with other resistance step values;
- f) updated the intrinsic error to intrinsic uncertainty according to IEC 60359;

- g) added the limits of relative stability for resistors of classes 0,000 05 to 0,01;
- h) added the requirements of high voltage resistors;
- i) updated the safety symbols and requirements according to the new IEC 61010 series;
- j) updated the insulation resistance requirements of resistors;
- k) added the requirements of temperature coefficient;
- l) updated the temperature requirements for transport and storage of resistors.

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

Draft	Report on voting
85/821/FDIS	85/824/RVD

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 60477 series, published under the general title *Laboratory resistors*, 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/standardsdev/publications.

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

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

LABORATORY RESISTORS –

Part 1: Laboratory DC resistors

1 Scope

This document applies to resistors intended for use as laboratory DC resistors (hereinafter referred to as "resistors") comprising standard resistors, single or multiple resistors of accuracy Classes 0,000 05 to 10 and single or multi-dial resistors of accuracy Classes 0,000 5 to 10.

This document does not apply to:

- 1) resistors which are intended for use solely as permanently mounted circuit components,
- 2) resistors used on alternating current or on pulsed current,
- 3) active resistors,
- 4) series resistors and shunts which are considered as accessories of electrical measuring instruments in the relevant IEC document (examples of these are as follows).

EXAMPLE 1 IEC 60051 series: Recommendations for direct acting indicating analogue electrical measuring instruments and their accessories.

EXAMPLE 2 IEC 60258: Direct acting recording electrical measuring instruments and their accessories.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60417 (all parts), *Graphical symbols for use on equipment* (available at <http://www.graphical-symbols.info/equipment>)

IEC 61010-1:2010, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61010-1:2010/AMD1:2016

IEC 61010-2-30, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-030: Particular requirements for equipment having testing or measuring circuits*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>