

# INTERNATIONAL STANDARD



**Measuring relays and protection equipment –  
Part 27: Product safety requirements**

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**MEASURING RELAYS AND PROTECTION EQUIPMENT –****Part 27: Product safety requirements**

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**A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.**

**This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.**

IEC 60255-27 has been prepared by IEC technical committee 95: Measuring relays and protection equipment. It is an International Standard.

This third edition cancels and replaces the second edition published in 2013. This edition constitutes a technical revision.

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

- a) conflicting statements removed;
- b) scope clarified and statement added that all clauses of the standard are required not just type tests;
- c) terminology, definitions and documentation requirements aligned with IEC 60255-1;
- d) alignment with IEC 61010-1, e.g. HLV definitions;
- e) ingress protection clarified;
- f) dielectric and impulse tests added to mechanical and environmental test requirements;
- g) insulation resistance requirements updated for alignment with other product safety standards;
- h) sample testing removed;
- i) short time limiting thermal overload added;
- j) resistance to mechanical stress added;
- k) low-power voltage and current transformer ports added;
- l) Annex C tables updated to align with base standards;
- m) Annex D voltage dependent resistors and radio transmitters added;
- n) Annex G for risk assessment added.

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

Draft	Report on voting
95/516/FDIS	95/526/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.

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/publications](http://www.iec.ch/publications).

A list of all parts in the IEC 60255 series, published under the general title *Measuring relays and protection equipment*, can be found on the IEC website.

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## INTRODUCTION

~~In order to demonstrate that the equipment is safe, it was previously necessary to refer to general safety standards such as IEC 61010-1 in addition to IEC 60664-1.~~

~~These general safety standards specify requirements for general product types or product families in order to reduce the risk of fire, electric shock or injury to the user. The product types do not include measuring relays and protection equipment. These standards also take into account single-fault conditions.~~

~~Reference to all these various standards created confusion due to conflicting requirements, for example, different clearances, creepage distances and test voltages etc., for the same rated voltages.~~

The aim of this standard is:

- ~~• to remove confusion due to conflicting requirements between existing standards;~~
- ~~• to achieve a uniform approach throughout the international industry for measuring relays and protection equipment.~~

~~This product safety standard for measuring relays and protection equipment takes the general product safety standards and IEC 60664-1 as the base, defining those issues specific to measuring relays and protection equipment.~~

This document specifies the safety requirements that are generally applicable to all equipment within its scope. These requirements may be supplemented by general product safety standards and IEC 60664-1.

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# MEASURING RELAYS AND PROTECTION EQUIPMENT –

## Part 27: Product safety requirements

### 1 Scope

This part of IEC 60255—~~describes~~ specifies the product safety requirements for measuring relays and protection equipment having a rated AC voltage up to 1 000 V ~~with a rated frequency up to 65 Hz~~, or a rated DC voltage up to 1 500 V. Above these limits, IEC 60664-1 is applicable for the determination of clearance, creepage distance and withstand test voltage.

This document ~~details~~ specifies essential safety requirements to minimize the risk of fire and hazards caused by electric shock or injury to the user and property. This document specifies only product safety requirements; functional performance of the equipment is not covered. **1**

~~This standard does not cover the safety requirements of installations.~~ This document covers all the ways in which the equipment ~~may~~ can be mounted and used in ~~cubicles~~ cabinets, racks and panels, ~~and also retesting~~. This document also applies to auxiliary devices such as shunts, series resistors, transformers, auxiliary control panels, display devices, etc., that are used in conjunction with measuring relays and protection equipment and are tested together.

It is possible that ancillary equipment such as network switches used in conjunction with measuring relays and protection equipment ~~may need~~ needs to comply with additional safety requirements.

~~This standard is intended to describe only product safety requirements; therefore, functional performance of the equipment is not covered.~~

~~Functional safety requirements, including EMC functional safety, are not covered by this standard. Functional safety risk analysis is not within the scope of this product safety standard.~~

This document does not specify the implementation of individual equipment, circuits and components.

~~The object of this standard is to have a comprehensive standard that covers all aspects of product safety and the related type and routine tests, for measuring relays and protection equipment.~~

This document applies to equipment designed to be safe at least under the following environmental conditions:

- indoor use;
- altitude up to 2 000 m, in accordance with IEC 60255-1;
- ~~— external operating temperature range, in accordance with IEC 60255-1;~~
- rated ambient temperature range, in accordance with IEC 60255-1;
- maximum external relative humidity ~~95 %, non-condensing~~, in accordance with IEC 60255-1;
- ~~— supply fluctuations in accordance with IEC 60255-1;~~
- operating range of auxiliary energizing voltage in accordance with IEC 60255-1;
- applicable ~~supply~~ overvoltage category;
- ~~— external pollution degree 1 and external pollution degree 2.~~