Instrument transformers –
Part 1: Current transformers

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSTRUMENT TRANSFORMERS –

Part 1: Current transformers

FOREWORD

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2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.

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International Standard IEC 60044-1 has been prepared by IEC technical committee 38: Instrument transformers.


The technical content is therefore identical to the base edition and its amendments and has been prepared for user convenience.

It bears the edition number 1.2.

A vertical line in the margin shows where the base publication has been modified by amendments 1 and 2.

Annex A forms an integral part of this standard.

Annex B is for information only.

The committee has decided that the contents of the base publication and its amendments will remain unchanged until 2005-12. At this date, the publication will be

• reconfirmed;
• withdrawn;
• replaced by a revised edition, or
• amended.
1 General

1.1 Scope

This part of IEC 60044 applies to newly manufactured current transformers for use with electrical measuring instruments and electrical protective devices at frequencies from 15 Hz to 100 Hz.

Although the requirements relate basically to transformers with separate windings, they are also applicable, where appropriate, to autotransformers.

Clause 11 covers the requirements and tests, in addition to those in clauses 3 to 10, that are necessary for current transformers for use with electrical measuring instruments.

Clause 12 covers the requirements and tests, in addition to those in clauses 3 to 10, that are necessary for current transformers for use with electrical protective relays, and in particular for forms of protection in which the prime requirement is the maintenance of accuracy up to several times the rated current.

For certain protective systems, where the current transformer characteristics are dependant on the overall design of the protective equipment (for example high-speed balanced systems and earth-fault protection in resonant earthed networks), additional requirements are given in clause 13 for class PR transformers and in clause 14 for class PX transformers.

Clause 13 covers the requirements and tests in addition to those in clauses 3 to 10 that are necessary for current transformers for use with electrical protective relays, and in particular for forms of protection in which the prime requirement is the absence of remanent flux.

Clause 14 covers the requirements and tests in addition to those in clauses 3 to 10 that are necessary for current transformers for use with electrical protective relays, and in particular for forms of protection for which knowledge of the transformer's secondary excitation characteristic, secondary winding resistance, secondary burden resistance and turns ratio is sufficient to assess its performance in relation to the protective relay system with which it is to be used.

Current transformers intended for both measurement and protection shall comply with all the clauses of this standard.

1.2 Normative references

The following referenced documents are indispensable for the application 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 60028:1925, International standard of resistance for copper

IEC 60038:1983, IEC standard voltages

2 Definitions

For the purpose of this part of IEC 60044, the following definitions apply:

2.1 General definitions

2.1.1 instrument transformer
a transformer intended to supply measuring instruments, meters, relays and other similar apparatus

2.1.2 current transformer
an instrument transformer in which the secondary current, in normal conditions of use, is substantially proportional to the primary current and differs in phase from it by an angle which is approximately zero for an appropriate direction of the connections

2.1.3 primary winding
the winding through which flows the current to be transformed

2.1.4 secondary winding
the winding which supplies the current circuits of measuring instruments, meters, relays or similar apparatus