SLOVENSKI STANDARD

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Instrument transformers - Part 3: Combined transformers

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EUROPEAN STANDARD **EN 60044-3**

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English version

Instrument transformers
Part 3: Combined transformers
(IEC 60044-3:2002)

Transformateurs de mesure
Partie 3: Transformateurs combinés
(CEI 60044-3:2002)

Messwandler
Teil 3: Kombinierte Wandler
(IEC 60044-3:2002)

This European Standard was approved by CENELEC on 2002-12-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC
European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

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Foreword

The text of document 38/287/FDIS, future edition 2 of IEC 60044-3, prepared by IEC TC 38, Instrument transformers, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60044-3 on 2002-12-01.

This European Standard supersedes HD 548.3 S1:1992.

This standard shall be used in conjunction with EN 60044-1:1999 and EN 60044-2:1999.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2003-09-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2005-12-01

Annexes designated "informative" are given for information only.
In this standard, annex A is informative.

Endorsement notice

The text of the International Standard IEC 60044-3:2002 was approved by CENELEC as a European Standard without any modification.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
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Transformateurs de mesure –

Partie 3:
Transformateurs combinés

Instrument transformers –

Part 3:
Combined transformers

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSTRUMENT TRANSFORMERS –

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FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the 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, the IEC publishes International Standards. 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. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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.
4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60044-3 has been prepared by IEC technical committee 38: Instrument transformers.

The text of this standard is based on the following documents:

FDIS	Report on voting
38/287/FDIS	38/291/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

Annex A is for information only.

This standard shall be used in conjunction with IEC 60044-1 and IEC 60044-2.

This standard is Part 3 of IEC 60044, published under the general title *Instrument transformers*. Apart from this standard, this series consists of the following parts:

IEC 60044-1:1996, *Instrument transformers – Part 1: Current transformers*

IEC 60044-2:1997, *Instrument transformers – Part 2: Inductive voltage transformers*

IEC/PAS 60044-5, *Instrument transformers – Part 5: Capacitor voltage transformers*

IEC 60044-6:1992, *Instrument transformers – Part 6: Requirements for protective current transformers for transient performance*

IEC 60044-7:1999, *Instrument transformers – Part 7: Electronic voltage transformers*

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

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

INSTRUMENT TRANSFORMERS –

Part 3: Combined transformers

1 Scope and object

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

The requirements and tests of this standard, in addition to the requirements and tests of IEC 60044-1, IEC 60044-2 and IEC/PAS 60044-5 cover current, voltage and capacitor voltage transformers, that are necessary for combined instrument transformers.

2 Definitions

For the purposes of this part of IEC 60044, the definitions given in IEC 60044-1 and IEC 60044-2 and the following definition apply.

2.1
combined instrument transformer
instrument transformer consisting of a current and a voltage transformer in the same case

3 Normal and special service conditions

For the purposes of this part of IEC 60044, Clause 3 of IEC 60044-1 and Clause 4 of IEC 60044-2 apply to current and voltage transformers respectively.

4 Ratings

4.1 General

For the purposes of this part of IEC 60044, in addition to Clause 4 of IEC 60044-1 and Clause 5 of IEC 60044-2, the following subclause applies.

4.2 Limits of temperature rise

The temperature rise of a combined instrument transformer shall not exceed the appropriate values of 4.6 of IEC 60044-1 and of 5.4 of IEC 60044-2, respectively, if a voltage as indicated in IEC 60044-2, 5.4, is applied to it and the current transformer is carrying a primary current equal to the rated continuous thermal current. The current transformer is connected to a unity power factor burden corresponding to the rated output and with the voltage transformer being loaded at rated burden, or at the highest rated burden if there are several rated burdens, and at a power factor between 0,8 lagging and unity. The additional tolerance of 10 K proposed in some cases for the voltage transformers is also applicable for the current transformers of the combined instrument transformers.

5 Design requirements

5.1 General

For the purposes of this part of IEC 60044, Clause 5 of IEC 60044-1 and Clause 6 of IEC 60044-2 apply to the current and voltage transformers respectively, unless otherwise specified below.

5.2 Transmitted overvoltages

These requirements apply to combined instrument transformers having $U_m \geq 72{,}5$ kV.

The characteristics of the impulse voltage applied to the primary windings for which the requirements are stated are the following:

– peak value of the applied voltage (U_p): $1{,}6 \times \frac{\sqrt{2}}{\sqrt{3}} \times U_m$

– conventional front time (T_1): 0,50 µs ± 20 %

– time to half-value (T_2): ≥50 µs

The peak values of the overvoltages transmitted from the primary to the secondary terminals (U_s), for both current and voltage transformers, shall not exceed 1,6 kV, under the test and measuring conditions described in 9.3.

NOTE 1 The wave-shape characteristics are representative of voltage oscillations due to switching operations.

NOTE 2 Other transmitted overvoltage limits may be agreed upon between manufacturer and purchaser.

The transmitted overvoltage peak limits of 1,6 kV, measured in accordance with the methods specified in 9.3, should ensure sufficient protection of electronic equipment connected to the secondary windings.

6 Tests

6.1 Classification of tests

The test specified in this standard are classified as type tests, routine tests and special tests.

Type test

A test made on a transformer of each type to demonstrate that all transformers made to the same specification comply with the requirements not covered by routine tests.

NOTE A type test may also be considered valid if it is made on a transformer which has minor deviations. Such deviations should be subject to agreement between manufacturer and purchaser.

Routine test

A test to which each individual transformer is subjected.