

Instrument transformers —

Part 3: Combined transformers

The European Standard EN 60044-3:2003 has the status of a
British Standard

ICS 17.220.20; 29.180

National foreword

This British Standard is the official English language version of EN 60044-3:2003. It is identical with IEC 60044-3:2002. It supersedes BS 7628:1993 which will be withdrawn on 2005-12-01.

The UK participation in its preparation was entrusted to Technical Committee PEL/38, Instrument transformers, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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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with the EN have to be withdrawn (dow) 2005-12-01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.

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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): $0,50 \mu s \pm 20 \%$
- time to half-value (T_2): $\geq 50 \mu s$

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.