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**Instrumentni transformatorji – 5. del: Kapacitivni napetostnik (IEC 60044-5:2004)**

Instrument transformers - Part 5: Capacitor voltage transformers (IEC 60044-5:2004)

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English version

**Instrument transformers**  
**Part 5: Capacitor voltage transformers**  
(IEC 60044-5:2004)

Transformateurs de mesure  
Partie 5: Transformateurs condensateurs  
de tension  
(CEI 60044-5:2004)

Messwandler  
Teil 5: Kapazitive Spannungswandler  
(IEC 60044-5:2004)

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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.

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**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**

## Foreword

The text of document 38/320/FDIS, future edition 1 of IEC 60044-5, prepared by IEC TC 38, Instrument transformers, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60044-5 on 2004-06-01.

This European Standard, together with EN 60044-2:1999, supersedes HD 554 S1:1992.

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) 2005-03-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2007-06-01

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60044-5:2004 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60721

NOTE

Harmonized in EN 60721 series (not modified).

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60028	- <sup>1)</sup>	International standard of resistance for copper	-	-
IEC 60038 (mod)	- <sup>1)</sup>	IEC standard voltages <sup>2)</sup>	HD 472 S1 + corr. February	1989 <sup>3)</sup> 2002
IEC 60044-2 (mod)	- <sup>1)</sup>	Instrument transformers Part 2: Inductive voltage transformers	EN 60044-2	1999 <sup>3)</sup>
IEC 60050-321	- <sup>1)</sup>	International electrotechnical vocabulary - Chapter 321: Instrument transformers	-	-
IEC 60050-436	- <sup>1)</sup>	Chapter 436: Power capacitors	-	-
IEC 60050-601	- <sup>1)</sup>	Chapter 601: Generation, transmission and distribution of electricity - General	-	-
IEC 60050-604	- <sup>1)</sup>	Chapter 604: Generation, transmission and distribution of electricity - Operation	-	-
IEC 60060-1	- <sup>1)</sup>	High-voltage test techniques Part 1: General definitions and test requirements	HD 588.1 S1	1991 <sup>3)</sup>
IEC 60071-1	- <sup>1)</sup>	Insulation co-ordination Part 1: Definitions, principles and rules	EN 60071-1	1995 <sup>3)</sup>
IEC 60085	- <sup>1)</sup>	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990 <sup>3)</sup>
IEC 60270	- <sup>1)</sup>	High-voltage test techniques - Partial discharge measurements	EN 60270	2001 <sup>3)</sup>
IEC 60358	- <sup>1)</sup>	Coupling capacitors and capacitor dividers	HD 597 S1 + corr. March	1992 <sup>3)</sup> 1992

<sup>1)</sup> Undated reference.

<sup>2)</sup> The title of HD 472 S1 is: Nominal voltages for low-voltage public electricity supply systems.

<sup>3)</sup> Valid edition at date of issue.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60481	- <sup>1)</sup>	Coupling devices for power line carrier systems	-	-
IEC 60815	- <sup>1)</sup>	Guide for the selection of insulators in respect of polluted conditions	-	-
IEC 62155 (mod)	- <sup>1)</sup>	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V	EN 62155	2003 <sup>3)</sup>
CISPR 18-2	- <sup>1)</sup>	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 2: Methods of measurement and procedure for determining limits	-	-

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CEI  
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60044-5

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**Transformateurs de mesure –**

**Partie 5:**

**Transformateurs condensateurs de tension**

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Instrument transformers –

**Part 5:**

**Capacitor voltage transformers**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

## INSTRUMENT TRANSFORMERS –

## Part 5: Capacitor voltage transformers

## 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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International Standard IEC 60044-5, has been prepared by IEC technical committee 38: Instrument transformers.

This standard replaces IEC 60186 regarding capacitor voltage transformers as well as IEC-PAS 60044-5.

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

FDIS	Report on voting
38/320/FDIS	38/324/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 2.

This standard is Part 5 of IEC 60044, published under the general title *Instrument transformers*. This series consists of the following parts:

- IEC 60044-1:2003, Instrument transformers – Part 1: Current transformers
- IEC 60044-2:2003, Instrument transformers – Part 2: Inductive voltage transformers
- IEC 60044-3:2002, Instrument transformers – Part 3: Combined transformers
- IEC 60044-5:2004, 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
- IEC 60044-8:2002, Instrument transformers – Part 8: Electronic current transformers

The committee has decided that the contents of this publication will remain unchanged until 2007. At this date, the publication will be

- reconfirmed; [SIST EN 60044-5:2005](https://standards.iteh.ai/catalog/standards/sist/e3df192e-ed01-4687-a441-29b8548c334b/sist-en-60044-5-2005)
- withdrawn; <https://standards.iteh.ai/catalog/standards/sist/e3df192e-ed01-4687-a441-29b8548c334b/sist-en-60044-5-2005>
- replaced by a revised edition, or
- amended.

## INSTRUMENT TRANSFORMERS –

### Part 5: Capacitor voltage transformers

#### 1 Scope

This part of IEC 60044 applies to new single-phase capacitor voltage transformers connected between line and ground for system voltages  $U_m \geq 72,5$  kV at power frequencies from 15 Hz to 100 Hz. They are intended to supply a low voltage for measurement, control and protective functions.

The capacitor voltage transformer can be equipped with or without carrier-frequency accessories for power line carrier-frequency (PLC) application at carrier frequencies from 30 kHz to 500 kHz.

This standard replaces IEC 60186 regarding capacitor voltage transformers.

Three standards formed the basis for this IEC 60044-5 standard:

- IEC 60044-2, concerning inductive voltage transformers;
- IEC 60358, concerning coupling capacitors and capacitor dividers;
- IEC 60481, concerning coupling devices for power line carrier (PLC) systems.

The measurement application includes both indication measuring and revenue measuring.

NOTE Diagrams of capacitor voltage transformer to which this standard applies are given in Figures A.1 and A.2.

#### 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, *International standard of resistance for copper*

IEC 60038, *IEC standard voltages*

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

IEC 60050-321:1986, *International Electrotechnical Vocabulary (IEV) – Chapter 321: Instrument transformers*

IEC 60050-436:1990, *International Electrotechnical Vocabulary (IEV) – Chapter 436: Power capacitors*

IEC 60050-601:1985, *International Electrotechnical Vocabulary (IEV) – Chapter 601: Generation, transmission and distribution of electricity – General*

IEC 60050-604:1987, *International Electrotechnical Vocabulary (IEV) – Chapter 604: Generation, transmission and distribution of electricity – Operation*

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60071-1, *Insulation co-ordination – Part 1: Definitions, principles and rules*

IEC 60085, *Thermal evaluation and classification of electrical insulation*

IEC 60270, *High-voltage test techniques – Partial discharge measurements*

IEC 60358:1990, *Coupling capacitors and capacitor dividers*

IEC 60481, *Coupling devices for power line carrier systems*

IEC 60815, *Guide for the selection of insulators in respect of polluted conditions*

IEC 62155, *Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V*

CISPR 18-2, *Radio interference characteristics of overhead power lines and high-voltage equipment – Part 2: Methods of measurement and procedure for determining limits*

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### 3 Terms and definitions (standards.iteh.ai)

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

NOTE Some of these definitions are identical with or are similar to those of IEC 60050-321, IEC 60050-436, IEC 60050-601 and IEC 60050-604. These are indicated by the relevant IEC reference number in brackets.

#### 3.1 General definitions

##### 3.1.1

##### capacitor voltage transformer

##### CVT

a voltage transformer comprising a capacitor divider unit and an electromagnetic unit so designed and interconnected that the secondary voltage of the electromagnetic unit is substantially proportional to the primary voltage, and differs in phase from it by an angle which is approximately zero for an appropriate direction of the connections

[IEV 321-03-14]

##### 3.1.2

##### rated frequency of a capacitor voltage transformer

##### $f_R$

the frequency for which the capacitor voltage transformer has been designed

##### 3.1.3

##### standard reference range of frequency

the range of frequency for which the rated accuracy is applicable