

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Instrument transformers –
Part 1: General requirements**

**Transformateurs de mesure –
Partie 1: Exigences générales**



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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INSTRUMENT TRANSFORMERS –

Part 1: General requirements

FOREWORD

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International Standard IEC 61869-1 has been prepared by IEC technical committee 38: Instrument transformers.

TC 38 decided to restructure the whole set of stand-alone Standards in the IEC 60044 series and transform it into a new set of standards composed of general requirements documents and specific requirements documents.

This Standard is the first issue of this new series and can be regarded as a Product Family standard. It contains the general requirements for instrument transformers and shall be read in conjunction with the relevant specific requirements standard for the instrument transformer concerned.

An overview of the planned set of standards is given below:

PRODUCT FAMILY STANDARDS	PRODUCT STANDARD	PRODUCTS	OLD STANDARD	
61869-1 GENERAL REQUIREMENTS FOR INSTRUMENT TRANSFORMERS	61869-2	CURRENT TRANSFORMERS	60044-1	
	61869-3	INDUCTIVE VOLTAGE TRANSFORMERS	60044-2	
	61869-4	COMBINED TRANSFORMERS	60044-3	
	61869-5	CAPACITIVE VOLTAGE TRANSFORMERS	60044-5	
	61869-6	CURRENT TRANSFORMERS FOR TRANSIENT PERFORMANCE	60044-6	
	61869-9 ADDITIONAL REQUIREMENTS AND DIGITAL INTERFACE FOR ELECTRONIC INSTRUMENT TRANSFORMERS	61869-7	ELECTRONIC VOLTAGE TRANSFORMERS	60044-7
		61869-8	ELECTRONIC CURRENT TRANSFORMERS	60044-8
		61869-10	LOW-POWER STAND- ALONE CURRENT SENSORS	

This Standard covers all general requirements formerly found in the stand-alone standards of the IEC 60044 series. Additionally, it introduces some technical innovations:

- requirements for gas-insulated instrument transformers
- additional special tests
- requirements for internal arc fault protection
- requirements for degrees of protection by enclosure
- requirements for resistance to corrosion
- requirements for safety and environmental concerns

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

FDIS	Report on voting
38/360/FDIS	38/364/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.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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INSTRUMENT TRANSFORMERS –

Part 1: General requirements

1 Scope

This International Standard is applicable to newly manufactured instrument transformers with analogue or digital output for use with electrical measuring instruments or electrical protective devices having rated frequencies from 15 Hz to 100 Hz.

This standard is a product family standard and covers general requirements only. For each kind of instrument transformer the product standard is composed by this standard and the relevant specific standard.

2 Normative references

The following referenced documents are essential 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 60060-1: *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-2-11: *Basic environmental testing procedures – Part 2: Tests – Test Ka: Salt mist*

IEC 60068-2-17: *Basic environmental testing procedures – Part 2: Tests - Test Q: Sealing*

IEC 60068-2-75: *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests.*

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

IEC 60085: *Electrical insulation – Thermal classification*

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

IEC 60296: *Fluids for electrotechnical applications – Unused mineral insulating oils for transformers and switchgear*

IEC 60376: *Specification of technical grade sulfur hexafluoride (SF₆) for use in electrical equipment*

IEC 60417: *Graphical symbols for use on equipment*

IEC 60455 (all parts): *Resin based reactive compounds used for electrical insulation*

IEC 60480: *Guidelines for the checking and treatment of sulphur hexafluoride (SF₆) taken from electrical equipment and specification for its re-use*

IEC 60529: *Degrees of protection provided by enclosures (IP code)*

IEC 60567: *Oil-filled electrical equipment – Sampling of gases and of oil for analysis of free and dissolved gases – Guidance*

IEC 60694: *Common specifications for high-voltage switchgear and controlgear standards*

IEC 60695-1-1: *Fire hazard testing – Part 1-1: Guidance for assessing the fire hazard of electrotechnical products - General guidelines*

IEC 60695-1-30: *Fire hazard testing – Part 1-30: Guidance for assessing the fire hazard of electrotechnical products – Use of preselection testing procedures*

IEC 60695-7-1: *Fire hazard testing – Part 7-1: Toxicity of fire effluent - General guidance*

IEC 60721-3-3: *Classification of environmental conditions – Part 3-3: Classification of groups of environmental parameters and their severities – Stationary use of weatherprotected locations*

IEC 60721-3-4: *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 4: Stationary use at non-weatherprotected locations*

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

IEC 60867: *Insulating liquids – Specifications for unused liquids based on synthetic aromatic hydrocarbons*

IEC 61462: *Composite hollow insulators – Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V – Definitions, test methods and acceptance criteria and design recommendations*

IEC 61634: *High-voltage switchgear and controlgear – Use and handling of sulphur hexafluoride (SF₆) in high-voltage switchgear and controlgear*

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

IEC 62262: *Degree of protection IK code*

IEC 62271-2: *High-voltage switchgear and controlgear – Part 2: Seismic qualification for rated voltages of 72,5 kV and above.*

IEC 62271-203: *High-voltage switchgear and controlgear – Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV*

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

IEC Guide 109: *Environmental aspects – Inclusion in electrotechnical product standards*

ISO 3231: *Paints and varnishes – Determination of resistance to humid atmospheres containing sulphur dioxide*

3 Terms and definitions

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