SVENSK STANDARD SS-EN 61869-1

Fastställd	Utgåva	Sida	Ansvarig kommitté
2009-11-16	1	1 (1+66)	SEK TK 38

Mättransformatorer – Del 1: Allmänna fordringar

Instrument transformers – Part 1: General requirements

Som svensk standard gäller europastandarden EN 61869-1:2009. Den svenska standarden innehåller den officiella engelska språkversionen av EN 61869-1:2009.

Nationellt förord

Europastandarden EN 61869-1:2009

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 61869-1, First edition, 2007 - Instrument transformers - Part 1: General requirements**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 17.220.20

Denna standard är fastställd av SEK Svensk Elstandard,
som också kan lämna upplysningar om **sakinnehållet** i standarden.
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Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61869-1

September 2009

ICS 17.220.20

English version

Instrument transformers - Part 1: General requirements

(IEC 61869-1:2007, modified)

Transformateurs de mesure - Partie 1: Exigences générales (CEI 61869-1:2007, modifiée)

Messwandler - Teil 1: Allgemeine Anforderungen (IEC 61869-1:2007, modifiziert)

CENELEC

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

Central Secretariat: Avenue Marnix 17, B - 1000 Brussels

Ref. No. EN 61869-1:2009 E

SEK Svensk Elstandard

Foreword

The text of document 38/360/FDIS, future edition 1 of IEC 61869-1, prepared by IEC TC 38, Instrument transformers, was submitted to the IEC-CENELEC parallel vote and, together with a number of editorial modifications drafted by the Technical Committee CENELEC TC 38X, Instrument transformers, to answer the EMC Consultant's remarks, it was approved by CENELEC as EN 61869-1 on 2009-07-01.

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)	2010-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2012-07-01

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 2004/108/EC. See Annex ZZ.

IEC 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:

<table>
<tr><th colspan="2">PRODUCT FAMILY STANDARDS</th><th>PRODUCT STANDARD</th><th>PRODUCTS</th><th>OLD STANDARD</th></tr>
<tr><td rowspan="8">61869-1
GENERAL REQUIREMENTS FOR INSTRUMENT TRANSFORMERS</td><td rowspan="5"></td><td>61869-2</td><td>CURRENT TRANSFORMERS</td><td>60044-1</td></tr>
<tr><td>61869-3</td><td>INDUCTIVE VOLTAGE TRANSFORMERS</td><td>60044-2</td></tr>
<tr><td>61869-4</td><td>COMBINED TRANSFORMERS</td><td>60044-3</td></tr>
<tr><td>61869-5</td><td>CAPACITIVE VOLTAGE TRANSFORMERS</td><td>60044-5</td></tr>
<tr><td>61869-6</td><td>CURRENT TRANSFORMERS FOR TRANSIENT PERFORMANCE</td><td>60044-6</td></tr>
<tr><td rowspan="3">61869-9
ADDITIONAL REQUIREMENTS AND DIGITAL INTERFACE FOR ELECTRONIC INSTRUMENT TRANSFORMERS</td><td>61869-7</td><td>ELECTRONIC VOLTAGE TRANSFORMERS</td><td>60044-7</td></tr>
<tr><td>61869-8</td><td>ELECTRONIC CURRENT TRANSFORMERS</td><td rowspan="2">60044-8</td></tr>
<tr><td>61869-10</td><td>LOW-POWER STAND-ALONE CURRENT SENSORS</td></tr>
</table>

This standard covers all general requirements formerly found in the stand-alone standards of the EN 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.

Annexes ZA and ZZ have been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61869-1:2007 was approved by CENELEC as a European Standard with agreed common modifications as given below.

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

Publication	Year	Title	EN/HD	Year
IEC 60060-1	- [1)]	High-voltage test techniques - Part 1: General definitions and test requirements	HD 588.1 S1	1991 [2)]
IEC 60068-2-11	- [1)]	Environmental testing - Part 2: Tests - Test Ka: Salt mist	EN 60068-2-11	1999 [2)]
IEC 60068-2-17	- [1)]	Environmental testing - Part 2: Tests - Test Q: Sealing	EN 60068-2-17	1994 [2)]
IEC 60068-2-75	- [1)]	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997 [2)]
IEC 60071-1	- [1)]	Insulation co-ordination - Part 1: Definitions, principles and rules	EN 60071-1	2006 [2)]
IEC 60085	- [1)]	Electrical insulation - Thermal evaluation and designation	EN 60085	2008 [2)]
IEC 60270	- [1)]	High-voltage test techniques - Partial discharge measurements	EN 60270	2001 [2)]
IEC 60296	- [1)]	Fluids for electrotechnical applications - Unused mineral insulating oils for transformers and switchgear	EN 60296 + corr. September	2004 [2)] 2004
IEC 60376	- [1)]	Specification of technical grade sulfur hexafluoride (SF_6) for use in electrical equipment	EN 60376	2005 [2)]
IEC 60417	Data-base	Graphical symbols for use on equipment	-	-
IEC 60455	Series	Resin based reactive compounds used for electrical insulation	EN 60455	Series
IEC 60480	- [1)]	Guidelines for the checking and treatment of sulphur hexafluoride (SF_6) taken from electrical equipment and specification for its re-use	EN 60480	2004 [2)]
IEC 60529	- [1)]	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 [2)] 1993
IEC 60567	- [1)]	Oil-filled electrical equipment - Sampling of gases and of oil for analysis of free and dissolved gases - Guidance	EN 60567	2005 [2)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

Publication	Year	Title	EN/HD	Year
IEC 60694	- [1)]	Common specifications for high-voltage switchgear and controlgear standards	EN 60694 + corr. May	1996 [3)] 1999
IEC 60695-1-1	- [1)]	Fire hazard testing - Part 1-1: Guidance for assessing the fire hazard of electrotechnical products - General guidelines	EN 60695-1-1	2000 [2)]
IEC 60695-1-30	- [1)]	Fire hazard testing - Part 1-30: Guidance for assessing the fire hazard of electrotechnical products - Preselection testing process - General guidelines	EN 60695-1-30	2008 [2)]
IEC 60695-7-1	- [1)]	Fire hazard testing - Part 7-1: Toxicity of fire effluent - General guidance	EN 60695-7-1	2004 [2)]
IEC 60721-3-3	- [1)]	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weatherprotected locations	EN 60721-3-3	1995 [2)]
IEC/TR 60815	- [1)]	Guide for the selection of insulators in respect of polluted conditions	-	-
IEC 60867	- [1)]	Insulating liquids - Specifications for unused liquids based on synthetic aromatic hydrocarbons	EN 60867	1994 [2)]
IEC 61462	- [1)]	Composite hollow insulators - Pressurized and unpressurized insulators for use in electrical equipment with rated voltage greater than 1 000 V - Definitions, test methods, acceptance criteria and design recommendations	EN 61462	2007 [2)]
IEC/TR 61634	- [4)]	High-voltage switchgear and controlgear - Use and handling of sulphur hexafluoride (SF_6) in high-voltage switchgear and controlgear	-	-
IEC 62155 (mod)	- [1)]	Hollow pressurized and unpressurized ceramic and glass insulators for use in electrical equipment with rated voltages greater than 1 000 V	EN 62155	2003 [2)]
IEC 62262	- [1)]	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002 [2)]
IEC 62271-2	- [1)]	High-voltage switchgear and controlgear - Part 2: Seismic qualification for rated voltages of 72,5 kV and above	EN 62271-2	2003 [5)]
IEC 62271-203	- [1)]	High-voltage switchgear and controlgear - Part 203: Gas-insulated metal-enclosed switchgear for rated voltages above 52 kV	EN 62271-203	2004 [2)]

[3)] EN 60694:1996 is superseded by EN 62271-1:2008, which is based on IEC 62271-1:2007.

[4)] IEC/TR 61643 is superseded by IEC/TR 62271-303:2008, which is harmonized as CLC/TR 62271-303:2009.

[5)] EN 62271-2:2003 is superseded by EN 62271-207:2007, which is based on IEC 62271-207:2007.

Publication	Year	Title	EN/HD	Year
CISPR 18-2	- [1)]	Radio interference characteristics of overhead power lines and high-voltage equipment - Part 2: Methods of measurement and procedure for determining limits	-	-
IEC Guide 109	- [1)]	Environmental aspects - Inclusion in electrotechnical product standards	-	-
ISO 3231	- [1)]	Paints and varnishes - Determination of resistance to humid atmospheres containing sulphur dioxide	-	-

CONTENTS

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 (SF_6) 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 (SF_6) 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 that 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 (SF_6) 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*