Elektrimõõteseadmed vahelduvvoolule. Osa 1: Üldnõuded, katsetused ja katsetingimused. Klassidesse A, B ja C kuuluvad arvestid

Electricity metering equipment (a.c.) - Part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C)

EESTI STANDARDIKESKUS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 50470-1:2007 sisaldab Euroopa standardi EN 50470-1:2006 ingliskeelset teksti.	This Estonian standard EVS-EN 50470-1:2007 consists of the English text of the European standard EN 50470-1:2006.
Standard on kinnitatud Eesti Standardikeskuse 14.12.2006 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 14.12.2006 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 27.10.2006.	Date of Availability of the European standard text 27.10.2006.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 91.140.50

Võtmesõnad: arvestid, elektrimõõteseadmed, katsetused

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50470-1

October 2006

ICS 91.140.50

English version

Electricity metering equipment (a.c.)
Part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C)

Equipement de comptage d'électricité (c.a.)
Partie 1: Prescriptions générales, essais et conditions d'essai - Equipement de comptage (classes de précision A, B et C)

Wechselstrom-Elektrizitätszähler
Teil 1: Allgemeine Anforderungen, Prüfungen und Prüfbedingungen - Messeinrichtungen (Genauigkeitsklassen A, B und C)

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

This European Standard was prepared by the Technical Committee CENELEC TC 13, Equipment for electrical energy measurement and load control.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50470-1 on 2006-05-01.

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)	2007-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-05-01

This EN 50470-1 is related to EN 62052-11:2003, *Electricity metering equipment (a.c.) – General requirements, tests and test conditions – Part 11: Metering equipment*.

The structure of the two standards is similar, modifications in this European Standard are provided in the perspective of compliance with the essential requirements of the Directive 2004/22/EC on Measuring Instruments (MID).

This standard is to be used with:

– EN 50470-2:2006, *Electricity metering equipment (a.c.) – Part 2: Particular requirements – Electromechanical meters for active energy (class indexes A and B)* or

– EN 50470-3:2006, *Electricity metering equipment (a.c.) – Part 3: Particular requirements – Static meters for active energy (class indexes A, B and C).*

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 Directives 89/336/EMC and 2004/22/EC. See Annex ZZ.

Contents

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1 Scope

This European Standard applies to newly manufactured watt-hour meters, measuring active electrical energy, intended for residential, commercial and light industrial use, for use on 50 Hz electrical networks. It specifies general requirements and type tests methods.

It applies to electromechanical or static watt-hour meters for indoor and outdoor application, consisting of a measuring element and register(s) enclosed in a meter case. It also applies to operation indicator(s) and test output(s).

If the meter has (a) measuring element(s) for more than one type of energy (multi-energy meters), or when other functional elements, like maximum demand indicators, electronic tariff registers, time switches, ripple control receivers, data communication interfaces, etc. are enclosed in the meter case (multi-function meters) then this standard applies only for the active energy metering part.

This standard distinguishes between:

– electromechanical and static meters;
– meters of class indexes A, B and C;
– direct connected and transformer operated meters;
– protective class I and protective class II meters;
– meters intended to be used indoors and outdoors.

It does not apply to:

– watt-hour meters where the voltage across the connection terminals exceeds 600 V (line-to-line voltage for meters for polyphase systems);
– portable meters;
– reference meters.

For rack-mounted meters, the mechanical properties are not covered in this standard.

The test levels are regarded as minimum values to guarantee the proper functioning of the meter under normal working conditions. For special applications, other test levels might be necessary and should be agreed on between the user and the manufacturer.

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.

Publication	Year	Title
EN 50470-2	2006	*Electricity metering equipment (a.c.) – Particular requirements – Part 2: Electromechanical meters for active energy (class indexes A and B)*
EN 50470-3	2006	*Electricity metering equipment (a.c.) – Particular requirements – Part 3: Static meters for active energy (class indexes A, B and C)*
EN 55022	2006	*Information technology equipment – Radio disturbance characteristics – Limits and methods of measurement* (CISPR 22:2005, mod.)
EN 60044-1 + A1 + A2	1999 2000 2003	*Instrument transformers – Part 1: Current transformers* (IEC 60044-1:1996, mod. + A1:2000 + A2:2002)

Publication	Year	Title
EN 60044-2 + A1 + A2	1999 2000 2003	*Instrument transformers – Part 2: Inductive voltage transformers* (IEC 60044-2:1997, mod. + A1:2000 + A2:2002)
EN 60068-2-1 + A1 + A2	1993 1993 1994	*Environmental testing – Part 2: Tests – Tests A: Cold* (IEC 60068-2-1:1990 + A1:1993 + A2:1994)
EN 60068-2-2 + A1 + A2	1974 1993 1994	*Environmental testing – Part 2: Tests – Tests B: Dry heat* (IEC 60068-2-2:1974 + IEC 60068-2-2A:1976 + A1:1993 + A2:1994)
EN 60068-2-5	1999	*Environmental testing – Part 2: Tests – Test Sa: Simulated solar radiation at ground level* (IEC 60068-2-5:1975)
EN 60068-2-6	1995	*Environmental testing – Part 2: Tests – Test Fc: Vibration (sinusoidal)* (IEC 60068-2-6:1995 + corrigendum Mar. 1995)
EN 60068-2-11	1999	*Environmental testing – Part 2: Tests – Test Ka: Salt mist* (IEC 60068-2-11:1981)
EN 60068-2-27	1993	*Environmental testing – Part 2: Tests – Test Ea and guidance: Shock* (IEC 60068-2-27:1987)
EN 60068-2-30	1999	*Environmental testing – Part 2: Tests – Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)* (IEC 60068-2-30:1980 + A1:1985)
EN 60068-2-75	1997	*Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests* (IEC 60068-2-75:1997)
EN 60085	2004	*Electrical insulation – Thermal classification* (IEC 60085:2004)
EN 60359	2002	*Electrical and electronic measurement equipment – Expression of performance* (IEC 60359:2001)
EN 60529 + A1	1991 2000	*Degrees of protection provided by enclosures (IP Code)* (IEC 60529:1989 + A1:1999)
EN 60695-2-10	2001	*Fire hazard testing – Part 2-10: Glowing/hot-wire based test methods – Glow-wire apparatus and common test procedure* (IEC 60695-2-10:2000)
EN 60695-2-11	2001	*Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products* (IEC 60695-2-11:2000)
EN 60721-3-1	1997	*Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 1: Storage* (IEC 60721-3-1:1997)
EN 60721-3-2	1997	*Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 2: Transportation* (IEC 60721-3-2:1997)
EN 60721-3-3	1995	*Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 3: Stationary use at weatherprotected locations* (IEC 60721-3-3:1994)
EN 61000-4-1	2000	*Electromagnetic compatibility (EMC) – Part 4-1: Testing and measurement techniques – Overview of IEC 61000-4 series* (IEC 61000-4-1:2000)
EN 61000-4-2 + A1 + A2	1995 1998 2001	*Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test* (IEC 61000-4-2:1995 + A1:1998 + A2:2000)
EN 61000-4-3	2002	*Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test* (IEC 61000-4-3:2002)

Publication	Year	Title
EN 61000-4-4	2004	*Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test* (IEC 61000-4-4:2004)
EN 61000-4-5	1995	*Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test* (IEC 61000-4-5:1995)
EN 61000-4-8 + A1	1993 2001	*Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test* (IEC 61000-4-8:1993 + A1:2000)
EN 61000-4-11	2004	*Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests* (IEC 61000-4-11:2004)
EN 61000-4-12 + A1	1995 2001	*Electromagnetic compatibility (EMC) – Part 4-12: Testing and measurement techniques – Oscillatory waves immunity test* (IEC 61000-4-12:1995 + A1:2000)
EN 62052-11	2003	*Electricity metering equipment (a.c.) – General requirements, tests and test conditions – Part 11: Metering equipment* (IEC 62052-11:2003)
EN 62053-31	1998	*Electricity metering equipment (a.c.) – Particular requirements – Part 31: Pulse output devices for electromechanical and electronic meters (two wires only)* (IEC 62053-31:1998)
EN 62053-52	2005	*Electricity metering equipment (a.c.) – Particular requirements – Part 52: Symbols* (IEC 62053-52:2005)
EN ISO 75-2	1996	*Plastics – Determination of temperature of deflection under load – Part 2: Plastic and ebonite* (ISO 75-2:1993)
HD 588.1 S1	1991	*High-voltage test techniques – Part 1: General definitions and test requirements* (IEC 60060-1:1989 + corrigendum Mar. 1990)
IEC 60038 + A1 + A2	1983 1994 1997	*IEC standard voltages* [1)]
IEC 60050-300	2001	*International Electrotechnical Vocabulary – Electrical and electronic measurements and measuring instruments –* *Part 311: General terms relating to measurements –* *Part 312: General terms relating to electrical measurements –* *Part 313: Types of electrical measuring instruments –* *Part 314: Specific terms according to the type of instrument*
IEC 60417-DB [2)]	2002	*Graphical symbols for use on equipment*
IEC 61000-4-6 + A1	2003 2004	*Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances, induced by radio-frequency fields*
ISO/IEC VIM	1993	*International vocabulary of basic and general terms in metrology*

1) IEC 60038:1983 (mod.) without its amendments is harmonized as HD 472 S1:1989 "Nominal voltages for low-voltage public electricity supply systems".

2) "DB" refers to the IEC on-line database.