

Specification for

**Alternating current
static watt-hour meters
for active energy
(classes 1 and 2)**

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Power Electrical Engineering Standards Policy Committee (PEL/-) to Technical Committee PEL/14, upon which the following bodies were represented:

BEAMA Ancilliary Metering Equipment Manufacturers' Association
BEAMA Meter Association
Department of Energy (Electricity Division)
Electricity Supply Industry in England and Wales
Energy System Trade Association
Institution of Electrical Engineers

This British Standard, having been prepared under the direction of the Power Electrical Engineering Standards Policy Committee, was published under the authority of the Board of BSI and comes into effect on 31 January 1991

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The following BSI references relate to the work on this standard:
Committee reference PEL 14
Draft for comment 87 20581 DC

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Amendments issued since publication

Amd. No.	Date	Text affected

Amendment No. 1
published and effective from 15 April 1993
to BS 7400 : 1991

Specification for alternating current static watt-hour meters
for active energy (classes 1 and 2)

NOTE. The European Committee for Electrotechnical Standardization (CENELEC) has accepted IEC 1036 : 1990 as a European Standard designated as EN 61036 : 1992. This amendment implements EN 61036 : 1992 as a British Standard in the BS EN series.

Implementation of European Standard

Front cover

Delete the existing cover page and substitute the attached.

AMD 7672/April 1993

National foreword

At the end of paragraph 1 insert the following new paragraph.

'In 1992 the European Committee for Electrotechnical Standardization (CENELEC) accepted IEC 1036 : 1990 as European Standard EN 61036 : 1992. As a consequence of implementing the European Standard this British Standard is renumbered as BS EN 61036 and any reference to BS 7400 : 1991 should be read as a reference to BS EN 61036 : 1993.'

Delete the existing corresponding British Standard to IEC 529 and substitute.

'BS EN 60529 : 1989 Specification for degrees of protection provided by enclosures (IP code)

(Technically equivalent)'

AMD 7672/April 1993

New EN title page and foreword

Immediately after the national foreword insert the attached new EN title page and foreword page.

AMD 7672/April 1993

Common modifications

Amend the text of IEC 1036 in accordance with the details given on the attached pages.

AMD 7672/April 1993

New annex ZA

Immediately after annex E, insert the attached new annex ZA.

AMD 7672/April 1993

Alternating current static watt-hour meters for active energy (classes 1 and 2)

The European Standard EN 61036 : 1993 has the status of a
British Standard

Compteurs statiques d'énergie active pour
courant alternatif (classes 1 et 2)

Statische Wechselstrom-Wirkverbrauchszähler
(Klassen 1 und 2)

UDC 621.317.71.025 : 620.1

Descriptors: Electrical energy, active energy, watt-hour meter for electrical energy, static watt-hour meter, classes 1 and 2 watt-hour meter

English version

Alternating current static watt-hour meters for active energy (classes 1 and 2)

(IEC 1036 : 1990, modified)

Compteurs statiques d'énergie active pour courant alternatif (classes 1 et 2) (CEI 1036 : 1990, modifiée)	Statische Wechselstrom-Wirkverbrauchsähler (Klassen 1 und 2) (IEC 1036 : 1990, modifiziert)
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This European Standard was approved by CENELEC on 1992-09-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Following the advice of CENELEC Technical Committee TC 13, Equipment for electrical energy measurement and load control, the CENELEC 69 Technical Board decided to submit the text of IEC 1036 : 1990, together with some common modifications prepared by TC 13, to the CENELEC formal vote.

The text of the draft was approved by CENELEC as EN 61036 on 15 September 1992.

The following dates were fixed:

- latest date of publication of an identical national standard (dop) 1993-06-01
- latest date of withdrawal of conflicting national standards (dow) 1993-06-01

For products which have complied with the relevant national standard before 1993-06-01, as shown by the manufacturer or by a certification body, this previous standard may continue to apply for production until 1998-06-01.

Annexes designated 'normative' are part of the body of the standard. In this standard, annexes A, B, C, D and ZA are normative.

Statement

The International Standard IEC 1036 : 1990, together with the common modifications attached can be used in its present state. However the answers received from the members to the Primary Questionnaire showed that a number of complementary studies (which do not affect fundamentally the present text) were needed; these complementary studies have been proposed to IEC TC 13. They could lead to a draft amendment to IEC 1036, draft which should then be submitted to the parallel IEC/CENELEC voting procedure (this amendment could also include the common modifications).

In addition, it is to be noted that the accuracy performance during the lifetime of the meters is under consideration in IEC TC 13/WG13, which might lead to additional requirements.

COMMON MODIFICATIONS

Table 12, 13 (F) : *replace : "limites des variations d'erreur en pourcentage" by : "limites d'erreur en pourcentage". (editorial)*

2.1 and 5.5.2 Test of Immunity to electrostatic discharges : *refer to the latest edition (1991) of IEC 801-2. Replace "test voltage : 15 kV" by "severity level 4"*

5.5.3 Test of Immunity to HF electromagnetic fields : *refer to the latest version of Publication IEC 801-3 (currently under révision, and at the DIS stage), which in particular extends the frequency range to 26-1000 MHz .*

5.5.4 Fast transient burst test

Replace the whole paragraph by the following :

Two tests shall be carried out according to IEC 801-4, under the following conditions:

- meter in operating condition;
- voltage and auxiliary circuits energized with reference voltage;
- energization of the current circuits : see table below;
- duration of the test : minimum 60 s each.

The test voltage shall be applied in common mode to :

- the voltage circuits;
- the current circuits, if separated from the voltage circuits in normal operation;
- the auxiliary circuits, if separated from the voltage circuits in normal operation;
- any other independent circuit.

Severity level and Evaluation of test results

Test N°	Severity level	Test voltage	Test conditions	Evaluation of test results
1	3	2 kV	Alternative A : without any current in the current circuits, the current terminals being in open circuit Alternative B : meter operating normally, the current circuits being energized.	During the test the meter shall not produce a change in the register of more than 0,01 kWh and the test output shall not produce a signal equivalent to more than 0,01 kWh (for transformer-operated meters, equivalent values should be used taking into account the transformation ratios). To be defined by mutual agreement between user and manufacturer
2	4	4 kV	Without any current in the current circuits, the current terminals being in open circuit	A temporary degradation or loss of function or performance which is self-recoverable is allowed ; the content of the memories (where the energy is recorded) shall not be affected.

Annex ZA (normative)

Other international publications quoted in this standard with the references of the relevant European publications

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

IEC Publication	Date	Title	EN/HD	Date
38 (mod)	1983	IEC standard voltages	HD 472 S1	1989
50(301)	1983	International Electrotechnical Vocabulary (IEV) — Chapter 301: General terms on measurements in electricity	—	—
50(302)	1983	Chapter 302: Electrical measuring instruments	—	—
50(303)	1983	Chapter 303: Electronic measuring instruments	—	—
60	—	High-voltage test techniques	—	—
68-2-1 68-2-1A + A1	1974 1976 1983	Environmental testing Part 2: Tests — Tests A: Cold	HD 323.2.1 S2	1987
68-2-2	1974	Part 2: Tests — Test B: Dry heat	HD 323.2.2 S1*	1988
68-2-5	1975	Part 2: Tests — Test Sa: Simulated solar radiation at ground level	HD 323.2.5 S1	1988
68-2-6	1982	Part 2: Tests — Test Fc and guidance: Vibration (sinusoidal)	HD 323.2.6 S2*	1988
68-2-11	1981	Part 2: Tests — Test Ka: Salt mist	HD 323.2.11 S1	1988
68-2-27	1987	Part 2: Tests — Test Ea and guidance: Shock	HD 323.2.27 S2	1988
68-2-30	1980	Part 2: Tests — Test Db and guidance: Damp heat, cyclic (12 + 12-hour cycle)	HD 323.2.30 S2*	1987
85	1984	Thermal evaluation and classification of electrical insulation	HD 566 S1	1990
185 (mod)	1987	Current transformers	HD 553 S1	1992
186 (mod)	1987	Voltage transformers	HD 554 S1*	1992
255-4	1976	Electrical relays — Part 4: Single input energizing quantity measuring relays with dependent specified time	—	—

* HD 323.2.2 S1 : 1988 includes IEC 68-2-2A : 1976
HD 323.2.6 S2 : 1988 includes A1 : 1983 + A2 : 1985 to IEC 68-2-6
HD 323.2.30 S2 : 1987 includes A1 : 1985 to IEC 68-2-30
HD 554 S1 : 1992 includes A1 : 1988 to IEC 186

IEC Publication	Date	Title	EN/HD	Date
269-1	1986	Low-voltage fuses — Part 1: General requirements	EN 60269-1	1989
359	1987	Expression of the performance of electrical and electronic measuring equipment	—	—
387	1972*	Symbols for alternating-current electricity meters	—	—
417C	1977	Graphical symbols for use on equipment Index, survey and compilation of the single sheets — Third supplement	HD 243 S9*	1991
514 (mod)	1975	Acceptance inspection of Class 2 alternating-current watt hour meters	HD 309.2 S1	1979
521	1988*	Classes 0.5, 1 and 2 alternating-current watt-hour meters	—	—
529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
664	1980	Insulation co-ordination within low-voltage systems including clearances and creepage distances for equipment	—	—
687	1980*	Static watthour meters — Metrological specifications for Classes 0.2 S and 0.5 S	—	—
695-2-1	1980	Fire hazard testing — Part 2: Test methods — Glow-wire test and guidance	HD 444.2.1 S1	1983
721-3-3	1987	Classification for environmental conditions — Part 3: Classification of groups of environmental parameters and their severities — Stationary use at weatherprotected locations (Corrigendum April 1988)	HD 478.3.3 S1	1989
736	1982	Testing equipment of electrical energy meters	—	—
801-2	1984	Electromagnetic compatibility for industrial-process measurement and control equipment — Part 2: Electro-static discharge requirements	HD 481.2 S1	1987
801-3	1984	Part 3: Radiated electromagnetic field requirements	HD 481.3 S1	1987
801-4	1988	Part 4: Electrical fast transient/burst requirements	—	—
817	1984	Spring-operated impact-test apparatus and its calibration	HD 495 S1	1987
CISPR 14 (mod)	1985	Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus	EN 55014	1987
+ A2 (mod)	1989		+ A2	1990

Other publication

ISO 75 : 1987 Plastics and ebonite — Determination of temperature of deflection under load

* IEC 387 : 1992 was harmonized as EN 60387 : 1992
 HD 243 S9 : 1991 includes supplements A : 1974 to J : 1990 to IEC 417
 IEC 521 : 1976, (mod) was harmonized as HD 309.1 S1 : 1979
 IEC 687 : 1992 was harmonized as EN 60687 : 1992

Amendment No. 1
published and effective from 15 November 1995
to BS EN 61036 : 1993

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NOTE. The English language version of European Standard
EN 61036 : 1992 was implemented in the United Kingdom by the
publication of Amendment 1 to BS 7400 : 1991. This amendment
implements corrigendum to EN 61036 dated 1994.

This corrigendum together with the European Standard
EN 61036 : 1992 has the status of a British Standard.

Corrections

New annex ZB

Immediately after annex ZA, insert the attached new annex ZB.

AMD 8842/November 1995

Annex ZB (normative)

Special national conditions

Special national condition: national characteristic or practice that cannot be changed over a long period, e.g. climatic conditions, electrical earthing conditions. If it affects harmonization, it forms part of the European Standard.

For the countries in which the relevant special national conditions apply these provisions are normative, for other countries they are informative.

Clause	Special national condition
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4.4	Austria, Germany and Netherlands
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Additional subclause:

4.4.7 Influence of earth fault.

Three-phase four-wire meters, connected to distribution networks which are equipped with ground-fault neutralizers and in which an earth fault condition may last for several hours, shall comply with the appropriate national requirements regarding immunity against earth fault of DIN VDE 0418 Part 12.

