

**Electricity metering - Payment systems -- Part 31:  
Particular requirements - Static payment meters for  
active energy (classes 1 and 2)**

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## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 62055-31:2008 sisaldab Euroopa standardi EN 62055-31:2005 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 19.08.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

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This Estonian standard EVS-EN 62055-31:2008 consists of the English text of the European standard EN 62055-31:2005.

This standard is ratified with the order of Estonian Centre for Standardisation dated 19.08.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

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English version

**Electricity metering –  
Payment systems  
Part 31: Particular requirements –  
Static payment meters for active energy (classes 1 and 2)  
(IEC 62055-31:2005)**

Equipements de comptage de l'électricité -  
Systèmes à paiement  
Partie 31: Prescriptions particulières -  
Compteurs statiques à paiement d'énergie  
active (classes 1 et 2)  
(CEI 62055-31:2005)

Messung der elektrischen Energie -  
Zählersysteme mit Inkassofunktion  
Teil 31: Besondere Anforderungen -  
Elektronische Inkasso-  
Wirkverbrauchszähler (Klassen 1 und 2)  
(IEC 62055-31:2005)

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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.

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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 13/1344/FDIS, future edition 1 of IEC 62055-31, prepared by IEC TC 13, Equipment for electrical energy measurement and load control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62055-31 on 2005-11-01.

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) | 2006-08-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn   | (dow) | 2008-11-01 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62055-31:2005 was approved by CENELEC as a European Standard without any modification.

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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 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 61000-4-5	1995	Electromagnetic compatibility (EMC) Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	1995
IEC 61008-1 + A1 (mod)	1996 2002	Residual current operated circuit- breakers without integral overcurrent protection for household and similar uses (RCCB's) Part 1: General rules	EN 61008-1	2004
IEC 61358	1996	Acceptance inspection for direct connected alternating current static watt- hour meters for active energy (classes 1 and 2)	EN 61358	1996
IEC/TR 62051	1999	Electricity metering - Glossary of terms	-	-
IEC 62052-11	2003	Electricity metering equipment (AC) - General requirements, tests and test conditions Part 11: Metering equipment	EN 62052-11	2003
IEC 62053-21	2003	Electricity metering equipment (a.c.) - Particular requirements Part 21: Static meters for active energy (classes 1 and 2)	EN 62053-21	2003
IEC 62054-21	2004	Electricity metering (a.c.) - Tariff and load control Part 21: Particular requirements for time switches	EN 62054-21	2004

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 62055-21	2005	Electricity metering - Payment systems Part 21: Framework for standardization	-	-

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references .....	8
3 Terms and definitions .....	8
3.1 General payment metering definitions .....	8
3.2 Definitions of tokens.....	10
3.3 Definitions of token carriers.....	11
3.4 Definitions relating to tokens and token carriers .....	13
3.5 Definitions related to load switching .....	14
3.6 Definitions related to timekeeping and tariff control .....	15
4 Standard electrical values .....	16
5 Mechanical requirements.....	16
5.1 General .....	16
5.2 General mechanical requirements .....	16
5.3 Case .....	16
5.4 Window .....	16
5.5 Terminals .....	17
5.6 Terminal covers.....	17
5.7 Creepage and clearance distances.....	17
5.8 Insulating-encased meter of protective class II .....	17
5.9 Resistance to heat and fire.....	17
5.10 Protection against penetration of dust and water .....	17
5.11 Display and indicators .....	17
5.12 Output device .....	19
5.13 Marking of meter .....	19
5.14 Token carrier interface .....	19
6 Climatic requirements.....	19
6.1 General .....	19
6.2 Temperature range.....	20
7 Electrical requirements .....	21
7.1 General .....	21
7.2 Influence of supply voltage .....	22
7.3 Power consumption .....	24
7.4 Influence of short-time overcurrents .....	24
7.5 Influence of heating.....	25
7.6 Influence of self-heating .....	25
7.7 Insulation .....	25
7.8 Electromagnetic compatibility (EMC) .....	25
7.9 Load switching .....	27
7.10 Auxiliary output switches .....	29
7.11 Token carrier acceptor interface test .....	29
8 Metering accuracy requirements .....	29

9	Functional requirements .....	29
9.1	General .....	29
9.2	Robustness of meter accounting process .....	30
10	Type test .....	31
	Annex A (informative) Functional performance .....	32
A.1	Basic functionalities – prepayment mode .....	32
A.2	Additional functionalities .....	39
A.3	System compliance requirements .....	41
	Annex B (informative) Reference model for a payment meter .....	42
B.1	General .....	42
B.2	Generalised payment meter instance .....	43
B.3	Functions in a single-part payment meter .....	45
	Annex C (normative) Performance requirements for payment meters with load switching utilisation categories UC2, UC3 and UC4 .....	49
C.1	Load switching capabilities .....	49
C.2	Normal operation .....	49
C.3	Electrical endurance .....	50
C.4	Line to load voltage surge withstand .....	51
C.5	Fault current making capacity .....	52
C.6	Short-circuit current carrying capacity .....	53
C.7	Minimum switched current .....	55
C.8	Dielectric strength .....	55
C.9	Sequence of tests .....	56
	Annex D (normative) Requirements of timekeeping .....	57
D.1	General .....	57
D.2	Synchronous clocks .....	58
D.3	Crystal-controlled clocks .....	58
D.4	Tests of timekeeping accuracy .....	59
D.5	Effects of disturbances on timekeeping .....	60
	Table C.1 – Summary of test currents for UC2, UC3 and UC4 .....	49
	Table C.2 – Test sequence and sample plan .....	56



## INTRODUCTION

Payment meters are used in situations where the supply of electrical energy to the load may be interrupted or its restoration enabled under the control of the payment meter in relation to a payment tariff agreed between the customer and the supplier. The payment meter is part of a system that uses token carriers to pass payment information as tokens between a vending network and the payment meters that include the meter accounting process.

The functions of a payment meter are to measure electrical energy consumed and to decrement the available credit value in accordance with the metered consumption, and possibly in accordance with the passing of time. This available credit value is incremented as the result of payments made to the electricity supplier, and the meter accounting process continuously calculates the balance of available credit held by the customer. When the available credit value has been decremented to a predetermined value that is related to the payment mode in use, a switch is used to interrupt the supply to the customer's load. However, additional features may be present in the payment meter, which prevent or delay the opening of the switch, or limit further consumption to a low load level. Such "social" features may include the provision of an emergency credit facility, the possibility of operation in a fixed-payment mode, and the inhibiting of interruptions for certain periods of time.

In return for the payment (usually in cash) and depending on the particular type of system, the customer may be issued with a single-use token on a disposable token carrier for the equivalent value, or a reusable token carrier may be credited with that value, or the token may be transmitted directly to the meter via a communications network (a so-called virtual token carrier). "One-way" and "two-way" data transfer systems may be used, and the token carriers may be: physical devices such as smart cards, or other electronic devices, or magnetic cards; virtual token carriers where the token information is transferred by a remote communications system; or numeric token carriers where sequences of digits are issued on a paper receipt and entered via a keypad on the meter.

IEC 62051 provides some details of payment metering terminology in Clause 17.

## **ELECTRICITY METERING – PAYMENT SYSTEMS –**

### **Part 31: Particular requirements – Static payment meters for active energy (classes 1 and 2)**

#### **1 Scope**

This part of IEC 62055 applies to newly manufactured, static watt-hour payment meters of accuracy classes 1 and 2 for direct connection, for the measurement of alternating current electrical energy consumption of a frequency in the range 45 Hz to 65 Hz that include a load switch for the purpose of interruption or restoration of the electricity supply to the load in accordance with the current value of the available credit maintained in the payment meter. It does not apply to static watt-hour payment meters where the voltage across the connection terminals exceeds 600 V (line-to-line voltage for meters for polyphase systems).

It applies to payment meters for indoor application only, where the payment meter shall be mounted as for normal service (i.e. together with a specified matching socket where applicable).

Payment meters are implementations where all the main functional elements are incorporated in a single enclosure, together with any specified matching socket. There are also multi-part installations where the various main functional elements, such as the measuring element, the user interface unit, token carrier interface, and the load switch are implemented in more than one enclosure, involving additional interfaces. This part of IEC 62055 does not apply to multi-part payment metering installations.

Functional requirements that apply to payment meters are also defined in this part of IEC 62055, and include informative basic functional requirements and tests for the prepayment mode of operation in Annex A. Allowances are made for the relatively wide range of features, options, alternatives, and implementations that may be found in practice. The diverse nature and functionality of payment meters prevent the comprehensive specification of detailed test methods for all of these requirements. However, in this case, the requirements are stated in such a way that tests can then be formulated to respect and validate the specific functionality of the payment meter being tested.

This part of IEC 62055 does not cover specific functionality or performance requirements for safety, circuit protection, isolation or similar purposes that may be specified through reference to other specifications or standards.

This part of IEC 62055 does not cover software requirements. Software requirements for basic energy meter metrology are under consideration for the IEC 62059 series of standards, and in other organisations.

This part of IEC 62055 covers type-testing requirements only. For acceptance testing, the concepts given in IEC 61358 may be used as a basic guideline.

Dependability aspects are addressed in the IEC 62059 series of standards.

This part of IEC 62055 does not cover conformity tests and system compliance tests that may be required in connection with legal or other requirements of some markets.

## 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 62051:1999, *Electricity metering – Glossary of terms*.

IEC 61358:1996, *Acceptance inspection for direct-connected alternating current static watt-hour meters for active energy (classes 1 and 2)*

IEC 62052-11:2003, *Electricity metering equipment (AC) – General requirements, tests and test conditions – Part 11: Metering equipment*

IEC 62053-21:2003, *Electricity metering equipment (AC) – Particular requirements – Part 21: Static meters for active energy (classes 1 and 2)*

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 61000-4-5:1995, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61008-1:1996, *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs) – Part 1: General rules*  
Amendment 1 (2002)

IEC 62055-21:2005, *Electricity metering – Payment systems – Part 21: Framework for standardisation*

IEC 62054-21:2004, *Electricity metering (a.c.) – Tariff and load control – Part 21: Particular requirements for time switches*

## 3 Terms and definitions

For the purposes of this part of IEC 62055, the terms and definitions given in IEC 60050-300, IEC 62051, IEC 62052-11, and IEC 62055-21, as well as the following, apply.

Where there is a difference between definitions in IEC 62055-31 and those contained in other referenced IEC standards, then those defined in IEC 62055-31 shall take precedence.

NOTE Some of these definitions cancel and replace those for the same term in IEC 62051, including some terms in Clause 17 of that standard.

### 3.1 General payment metering definitions

#### 3.1.1

##### **a.c. withstand voltage**

r.m.s. value of sinusoidal power frequency voltage that the equipment can withstand during tests made under specified conditions and for a specified time

[IEC 60050:1987 604-03-40, modified]