KEMA TYPE TEST CERTIFICATE OF COMPLETE TYPE TESTS

Object	A direct connected, electronic single-phase two-wire, keypad and virtual token carrier interface smart pre-payment energy meter.	**1592-20**
Type	aMeter100- active: class 1/B - reactive: class 2	
Manufacturer 1	Wasion Group Limited, No.468 Tongzipo West Road, Wasion Science Park, 410205 Changsha, China	
Manufacturer 2	Wasion Group (Tanzania) Limited, Plot No.46, Kisemvule Industrial Area, Mkuranga District, Coast Region, Tanzania	
Production location 1	Wasion Group Limited, No.468 Tongzipo West Road, Wasion Science Park, 410205 Changsha, China	
Production location 2	Wasion Group (Tanzania) Limited. Plot No.46, Kisemvule Industrial Area, Mkuranga District, Coast Region, Tanzania	
Tested by	KEMA B.V., Klingelbeekseweg 195, Arnhem, The Netherlands	
Date of tests	October 2020 to December 2020	

The object, constructed in accordance with the description, drawings and photographs incorporated in this Certificate, has been subjected to the series of proving tests in accordance with the complete type test requirements of

IEC 62052-11:2003**, IEC 62053-21**:2003**, IEC 62053-23**:2003**, EN 50470-1**:2006, **EN 50470-3**:2006 and **IEC 62055-31**:2005 including Annex A, B, C and D

The results are shown in the record of proving tests. The values obtained and the general performance are considered to comply with the above standard(s) and to justify the ratings assigned by the manufacturer as listed in chapter 3.

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This Certificate consists of 143 pages in total.

KEMA B.V.

Bas Verhoeven
Director, High-Voltage Laboratory

Arnhem, 21 January 2021

Information sheet

1 KEMA Type Test Certificate

A KEMA Type Test Certificate contains a record of a series of (type) tests carried out in accordance with a recognized standard. The object tested has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KEMA Labs. In addition, the object's technical drawings have been verified and the condition of the object after the tests is assessed and recorded.
The Certificate contains the essential drawings and a description of the object tested. A KEMA Type Test Certificate signifies that the object meets all the requirements of the named subclauses of the standard. It can be identified by gold-embossed lettering on the cover and a gold seal on its front sheet.
The Certificate is applicable to the object tested only. KEMA Labs is responsible for the validity and the contents of the Certificate. The responsibility for conformity of any object having the same type references as the one tested rests with the manufacturer.
Detailed rules on types of certification are given in KEMA Labs' Certification procedure applicable to KEMA Labs.

2 KEMA Report of Performance

A KEMA Report of Performance is issued when an object has successfully completed and passed a subset (but not all) of test programs in accordance with a recognized standard. In addition, the object's technical drawings have been verified and the condition of the object after the tests is assessed and recorded. The report is applicable to the object tested only. A KEMA Report of Performance signifies that the object meets the requirements of the named subclauses of the standard. It can be identified by silver-embossed lettering on the cover and a silver seal on its front sheet.
The sentence on the front sheet of a KEMA Report of Performance will state that the tests have been carried out in accordance with …… The object has complied with the relevant requirements.

3 KEMA Test Report

A KEMA Test Report is issued in all other cases. Reasons for issuing a KEMA Test Report could be:

- Tests were performed according to the client's instructions.
- Tests were performed only partially according to the standard.
- No technical drawings were submitted for verification and/or no assessment of the condition of the object after the tests was performed.
- The object failed one or more of the performed tests.

The KEMA Test Report can be identified by the grey-embossed lettering on the cover and grey seal on its front sheet.
In case the number of tests, the test procedure and the test parameters are based on a recognized standard and related to the ratings assigned by the manufacturer, the following sentence will appear on the front sheet. The tests have been carried out in accordance with the client's instructions. Test procedure and test parameters were based on ..... If the object does not pass the tests such behavior will be mentioned on the front sheet. Verification of the drawings (if submitted) and assessment of the condition after the tests is only done on client's request.
When the tests, test procedure and/or test parameters are not in accordance with a recognized standard, the front sheet will state the tests have been carried out in accordance with client's instructions.

4 Official and uncontrolled test documents

The official test documents of KEMA Labs are issued in bound form. Uncontrolled copies may be provided as a digital file for convenience of reproduction by the client. The copyright has to be respected at all times.

5 Accreditation of KEMA Labs

KEMA Labs is accredited in accordance with ISO/IEC 17025 by the respective national accreditation bodies. KEMA Labs Arnhem, the Netherlands, is accredited by RvA under nos. L020, L218, K006 and K009. KEMA Labs Chalfont, United States, is accredited by A2LA under no. 0553.01. KEMA Labs Prague, the Czech Republic, is accredited by CAI as testing laboratory no. 1035.

REVISION OVERVIEW

Rev. No	Date of issue	Reason for issue
0	21 January 2021	First issue

TABLE OF CONTENTS

Information sheet....2

Revision overview....3

Table of contents....4

1 Summary....8

2 Introduction....9
2.1 Applied Standards 10
2.2 Subcontractors 10
2.3 Measurement uncertainty 10

3 Data related to the energy meters tested and marking....11
3.1 Current specifications 12
3.2 Accuracy class for Wh 12

4 Results of the type test....13
4.1 Tests of the mechanical properties 13
4.1.1 General 13
4.1.2 Case 13
4.1.3 Spring Hammer test 13
4.1.4 Shock test 13
4.1.5 Vibration test 13
4.1.6 Protection against penetration of dust and water 14
4.1.7 Terminals and terminal block 14
4.1.8 Resistance to heat and fire 14
4.1.9 Register and output device 14
4.1.10 Token carrier acceptor 15
4.2 Tests of climatic influences 15
4.2.1 General 15
4.2.2 Dry heat test - Storage and transport 15
4.2.3 Cold test 15
4.2.4 Damp heat cyclic test 15
4.2.5 Solar radiation test 16
4.2.6 Crystal-controlled clocks on operation reserve 16
4.2.7 Crystal-controlled clocks on a.c. supplies 16
4.2.8 Accuracy of crystal-controlled clocks at temperature limits 16
4.2.9 3th Harmonic component in the voltage circuits 17
4.3 Accuracy measurement at different loads 18
4.3.1 Interpretation of test results 18
4.3.2 Test of meter constant 18
4.3.3 Starting current 18

4.3.4	Test of no load condition	18
4.4	Effect of change of influence quantities on accuracy	19
4.4.1	Influence of ambient temperature variation	19
4.4.2	Effect of changes in the auxiliary supply voltage	20
4.4.3	Voltage variation	21
4.4.4	Frequency variation	21
4.4.5	Magnetic induction of external origin 0,5 mT	21
4.4.6	Harmonic components in the current and voltage circuits	22
4.4.7	DC and even harmonics in the a.c. current circuit	22
4.4.8	Odd harmonics in the a.c. current circuit	22
4.4.9	Sub-harmonics in the a.c. current circuit	23
4.4.10	Reversed phase sequence	23
4.4.11	Voltage unbalance	23
4.4.12	Continuous magnetic induction of external origin	23
4.4.13	Operation of accessories	23
4.4.14	Immunity to earth fault	24
4.4.15	Extended Voltage operation range	24
4.4.16	Abnormal voltage conditions	24
4.4.17	Limit Voltage range of operation with voltage.	25
4.4.18	Core functional tests within the voltage and temperature range limits	26
4.5	Effect of short time over currents on the accuracy	27
4.6	Self-heating	27
4.6.1	Influence of self-heating on the accuracy	27
4.6.2	Heating	27
4.7	Power consumption of the voltage and current circuits	28
4.7.1	According: IEC 62053-21 (measured at nominal current)	28
4.7.2	According to: IEC 62055-31 (measured at Imax).	28
4.8	Fast transient burst test	29
4.8.1	Test method	29
4.8.2	Test levels	29
4.8.3	Test results	29
4.9	Electrostatic discharges	30
4.9.1	Test method	30
4.9.2	Test levels	30
4.9.3	Test results	30
4.10	Immunity to electromagnetic RF fields	31
4.10.1	Test method	31
4.10.2	Test levels	31
4.10.3	Test results	31
4.11	Immunity to conducted disturbances induced by RF fields	32
4.11.1	Test method	32
4.11.2	Test levels	32

4.11.3	Test results	32
4.12	Radio interference measurement	32
4.12.1	Test levels	32
4.12.2	Test results	32
4.13	Voltage dips and short interruptions	33
4.13.1	Test levels	33
4.13.2	Test results	33
4.13.3	The results of the measurements according IEC 62055-31 D5.2	33
4.14	Surge immunity test	34
4.14.1	Test method	34
4.14.2	Test levels	34
4.14.3	Test results	34
4.15	Damped oscillatory waves immunity test	34
4.16	Insulation	35
4.16.1	Impulse voltage test	35
4.16.2	A.C. voltage test	35
4.17	Immunity to conducted disturbances 2-150 kHz	36
4.17.1	Test method	36
4.17.2	Test levels	36
4.17.3	Test results	36

5	Maximum permissible error	37
6	Durability and Reliability	38
7	Software and Protection against corruption	38
8	Token handling	39
8.1	Interruptions to token acceptance	39
8.2	Token acceptance	39
8.3	Rejection of duplicate tokens	39
8.4	Rejection of valid tokens when available credit is saturated	39
8.5	Energy register roll-over	40
8.6	Token carrier interface test	40

9	Load switch requirements	41
9.1	Load switching capabilities	41
9.2	Electrical endurance	41
9.2.2	Test circuit	41
9.2.3	Minimum switched current Test conditions	42
9.2.4	Power consumption	43
9.2.5	Impulse voltage test	43
9.2.6	A.C. voltage test	43
9.3	Fault current making capacity	44
9.3.1	Required test values	44

9.3.2 Test circuit 44
9.3.3 Pre-fusing cycles 44
9.3.4 Fault current making capacity 45
9.3.5 Minimum switched current Test conditions: 45
9.5 Short-circuit carrying capacity, test 2 49
9.5.1 Required test values 49
9.5.2 Test circuit 49
9.5.3 Pre-fusing cycles 49
9.5.4 Short-circuit current carrying capacity 50
9.5.5 Minimum switched current Test conditions: 50
9.5.6 Power consumption 51
9.5.7 Impulse voltage test 51
9.5.8 A.C. voltage test 51

Appendix A Accuracy test results 52

Appendix B Photographs of the meter 58

Appendix C Cross-reference table and checklist for static meters 124

Appendix D Checklist for Measuring Instrument Directive MID 2014/32/EU 127

Appendix E Measurement uncertainty 136

Appendix F Plots 137

1 SUMMARY

The energy meter as described in chapter 3, meets the requirements of:

IEC 62052-11:2003	:	Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Metering equipment
IEC 62053-21:2003	:	Electricity metering equipment (a.c.) - Static meters for active energy (classes 1 and 2)
IEC 62053-23:2003	:	Electricity metering equipment (a.c.) - Static meters for reactive energy (classes 2 and 3)
IEC 62055-31:2005	:	Particular requirements – Static payment meters for active energy (classes 1 and 2)
EN 50470-1:2006	:	Electricity metering equipment (a.c.)-part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C)
EN 50470-3:2006	:	Electricity metering equipment (a.c.)-part 3: Particular requirements - Static meters for active energy (class indexes A, B and C)

The scope of the type testing is carried out including IEC 62055-31 Annex A
The scope of the type testing is carried out including IEC 62055-31 Annex B
The scope of the type testing is carried out including IEC 62055-31 Annex C
The scope of the type testing is carried out including IEC 62055-31 Annex D

In addition, the meter meets the following requirements

- Water penetration test IPx4 instead of IPx1. See paragraph 4.1.6.
- Ambient temperature variation test -40°C up to 70°C. See paragraph 4.4.1.
- Immunity to conducted disturbances in the frequency range 2-150 kHz (EN 61000-4-19, 2014 and CLC/TR 50579, 2012). See paragraph 4.17.

Requirements for indoor use.
Based on a non-recurrent examination.

2 INTRODUCTION

The type test was carried out at KEMA Labs, from October 2020 till December 2020, on behalf of Wasion Group Limited. and Wasion Group (Tanzania) Limited. on the meter as described in chapter 3.

The energy meters were tested in respect of the following requirements:

IEC 62052-11:2003	:	Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Metering equipment
IEC 62053-21:2003	:	Electricity metering equipment (a.c.) - Static meters for active energy (classes 1 and 2)
IEC 62053-23:2003	:	Electricity metering equipment (a.c.) - Static meters for reactive energy (classes 2 and 3)
IEC 62055-31:2005	:	Particular requirements – Static payment meters for active energy (classes 1 and 2)
EN 50470-1:2006	:	Electricity metering equipment (a.c.)-part 1: General requirements, tests and test conditions - Metering equipment (class indexes A, B and C)
EN 50470-3:2006	:	Electricity metering equipment (a.c.)-part 3: Particular requirements - Static meters for active energy (class indexes A, B and C)

The scope of the type testing is carried out including IEC 62055-31 Annex A
The scope of the type testing is carried out including IEC 62055-31 Annex B
The scope of the type testing is carried out including IEC 62055-31 Annex C
The scope of the type testing is carried out including IEC 62055-31 Annex D

In addition the meter was tested to the following requirements

- Immunity to conducted disturbances in the frequency range 2-150 kHz (EN 61000-4-19, 2014 and CLC/TR 50579, 2012). See paragraph 4.17.
- Water penetration test IPx4 instead of IPx1. See paragraph 4.1.6.
- Ambient temperature variation test -40°C up to 70°C. See paragraph 4.4.1.

The kWh meters use the same measuring elements for both Wh- and varh-measurement. The meter calculates both from the same voltage and current measurement (with respect to the angle between the voltage and current). In many tests verification of the Wh function is therefore sufficient to cover compliance to both Wh- and varh- standards.

For all types being part of this type test the test plan of each type is determined based on a comparison of the different types. The expected impact on the result of each test is based on of the differences and similarities between the types. Based on that impact it is decided which types need to be tested on which test.

The test plan was based on these assumptions.

All tests are performed at reference voltage and reference frequency, unless mentioned otherwise.
The measurements are carried out with standards that are traceable to international standards.

2.1 Applied Standards

The product standard refers to documents, in whole or in part, these documents are normatively referenced to in this product standard and these documents are indispensable for its application. For dated references, only the edition cited applies. For undated references the latest edition of the referenced document (including any amendments) applies. KEMA Labs will use the latest edition of the referenced documents (including any amendments) in all cases, also in the cases reference is made to dated editions.

2.2 Subcontractors

The following tests were subcontracted to DEKRA Certification B.V., Arnhem, the Netherlands:

- Radiated radio interference measurement fields (30 to 1000 MHz) in accordance with IEC 62052-11 and CISPR 32.

The laboratory is accredited by RvA under accreditation number L022.

The following tests were subcontracted to Sebert Trillingstechniek BV, Bergschenhoek, the Netherlands:

- Shock test in accordance with IEC 60068-2-27
- Vibration test in accordance with IEC 60068-2-6.

The laboratory is accredited by RvA under accreditation number L540.

2.3 Measurement uncertainty

A table with measurement uncertainties is enclosed in this report. Unless otherwise stated, the measurement uncertainties of the results presented in this report are as indicated in that table.

3 DATA RELATED TO THE ENERGY METERS TESTED AND MARKING

Manufacturer 1	:	Wasion Group Limited.
Contact person	:	Mr. Penglong Li
Address	:	No.468 Tongzipo West Road, Wasion Science Park, 410205 Changsha,
Country	:	China
Manufacturer 2	:	Wasion Group (Tanzania) Limited.
Contact person	:	Wu Bokun
Address	:	Plot No.46, Kisemvule Industrial Area, Mkuranga District, Coast Region,
Country	:	Tanzania
Production site 1	:	Wasion Group Limited.
Address	:	No.468 Tongzipo West Road, Wasion Science Park, 410205 Changsha,
Country	:	China
Production site 2	:	Wasion Group (Tanzania) Limited.
Address	:	Plot No.46, Kisemvule Industrial Area, Mkuranga District, Coast Region,
Country	:	Tanzania
Instrument	:	Electronic single-phase two-wire, keypad and virtual token carrier interface smart pre-payment energy meter. Direct connected.
Mark - Type	:	aMeter100
Register	:	LCD
Accuracy Class	:	Active: 1/B ; 1000 imp./kWh Reactive: 2 ; 1000 imp./kvarh
Measurement range	:	120 – 240 V 0,25..5(60) and 0,25..5(80) A 50 and 60 Hz
Temperature range	:	-40 .. 70 °C
Use	:	Indoor
Protection Class	:	II
Environmental class	:	M1, M2, E1 and E2
Utilisation category	:	UC3
Internal clock	:	Crystal controlled
Token carrier interface	:	Keypad interface and virtual token carrier interface
Payment type	:	kWh
Registry method	:	Programmable, Bi-directional method separate registers: received- and delivered energy of the whole connection is added in separate registers. At received and delivered energy the amount of energy is deducted from the remain energy.

Note

Production site information was copied from customer specification and not verified by KEMA Labs.

Sample identification:

BS: 201012142001, 201012142002, 201012142003, 201012142004, 201012142005, 201012142006, 201012142007, 201012142008, 201012142009 and 201012142010.

BS Keypad: 201012141001, 201012141002, 201012141003, 201012141004, 201012141005, 201012141006, 201012141007, 201012141008, 201012141009, 201012141010, 201012141011, 201012141012, 201012141013, 201012141014, 201012141015, and 201012141016.

DIN: 201012122001, 201012122002, 201012122003 and 201012122004.

DIN Keypad: 201012121001, 201012121002, 201012121005 and 201012121006.

The meter contains all required markings.

The basic current and the reference voltage of the meter are standardised values.

3.1 Current specifications

The current values in this document are all based on the reference current. The relationships between the different terms of the current are clarified in the following table.

Current 0,25 .. 5(60) A			
Current specification		Current A	Percentage of the reference current I_{ref}
Starting current	I_{st}	0,02	≤ 0,4%
Minimum current	I_{min}	0,25	≤ 5%
Transitional current	I_{tr}	0,5	10%
Basic current	I_b	5	100%
Maximum current	I_{max}	60	≥500%

Current 0,25 .. 5(80) A			
Current specification		Current A	Percentage of the reference current I_{ref}
Starting current	I_{st}	0,02	≤ 0,4%
Minimum current	I_{min}	0,25	≤ 5%
Transitional current	I_{tr}	0,5	10%
Basic current	I_b	5	100%
Maximum current	I_{max}	80	≥500%

3.2 Accuracy class for Wh

The definition of the accuracy class indication of the meter is slightly different for the two standards mentioned in this document. Class B is comparable, but not identical to Class 1. This document covers all the requirements needed for the type test of a kWh meter according to Class 1 (IEC 62052-11) and Class B (EN 50470-1).

4 RESULTS OF THE TYPE TEST

4.1 Tests of the mechanical properties

4.1.1 General

The meter was subjected to the mechanical tests. In order to evaluate the materials used and the construction of the meter, the meters were assessed with regard to the following points.

4.1.2 Case

The meter can be sealed in such a way that the inside of the meter is only accessible after breaking the seal. See photograph appendix B.

4.1.3 Spring Hammer test

After carrying out the spring hammer test according to EN-IEC 60068-2-75 with a kinetic energy of 0,2 J, it showed that the mechanical strength of the meter case of the energy meter is adequate.

4.1.4 Shock test

This test was carried out on meter no. 201012141006.

A shock test was performed according to EN-IEC 60068-2-27, with a half-sine pulse, a peak acceleration of 300 m/s^2 and a pulse duration of 18 ms. After this test the meter showed no damage.

4.1.5 Vibration test

This test was carried out on meter no. 201012141007.

A vibration test according to EN-IEC 60068-2-6, test procedure A, was carried out on the meters in non-operating condition, frequency range from 10 Hz to 150 Hz, with a constant movement amplitude of 0,075 mm up to 60 Hz and a constant acceleration of 9,8 m/s^2 above 60 Hz. Per axis 10 sweep cycles were carried out. After the test the meter showed no damage.

4.1.6 Protection against penetration of dust and water

This test was carried out on meter no. 201012141002 (dust) and 201012141011 (Water).

The test was carried out according to EN-IEC 60529, protection degree IP54 (indoor).

The meter is dustproof as required by EN 50470-1 and IEC 62052-11 (Cat. 2 according to EN-IEC 60529).

The results of the water penetration test were satisfying.

The meter meets the requirements.

4.1.7 Terminals and terminal block

The clearances and creepage distances in the terminal block are adequate.

The terminal block material was tested in accordance with ISO 75 at a temperature of 135 ºC and a pressure of 1,8 MPa (method A). The worst case deflection at 135 ºC was 0,03 mm (requirement ≤ 0,34 mm). The material meets the requirements.

Specification of the material:
Type: PBT+30%GF
Manufacturer: Cixi Shunfa Telecommunication Equipment Co.,LTD
Colour: Pantone cool gray 1U

The terminal cover can be sealed independently of the meter cover.

4.1.8 Resistance to heat and fire

The material the terminal block, the meter case and insulating material of the load switch in position were subjected to a glow-wire test in accordance with IEC 60695-2-11. The temperature of the glow-wire was 960 °C for the load switch and terminal block, 650 °C for the meter case and cover.
The materials meet the requirements.

4.1.9 Register and output device

The meter has an LCD and records in kWhs and kvarhs.
On the front of the meter optical (LED) outputs are available for Wh- and varh measurements.

The energy registry method with regards to delivered- and received energy is: Programmable, Bi-directional method separate registers: received- and delivered energy of the whole connection is added in separate registers. At received and delivered energy the amount of energy is deducted from the remain energy.

The meter meets the requirements.

4.1.10 Token carrier acceptor

This test was carried out on meter no. 201012141009.

The keypad interface was tested to operate for a minimum of 20.000 operations for each individual key, the insertion force did not exceed 10N.

After the test the keypad interface worked properly.

The token carrier acceptor meets the requirements.

4.2 Tests of climatic influences

4.2.1 General

In order to evaluate the materials used and the construction of the meter, the relevant meter was assessed with regard to the following points.

4.2.2 Dry heat test - Storage and transport

This test was carried out on meter no. 201012141012.

The test was carried out according to EN-IEC 60068-2-2, at a temperature of 70 °C for a duration of 72 hours.

Afterwards, the meter showed no damage or loss of information.

4.2.3 Cold test

This test was carried out on meter no. 201012141012.

The test was carried out according to IEC 60068-2-1, at a temperature of -25 °C for a duration of 72 hours.

Afterwards the meter showed no damage or loss of information.

4.2.4 Damp heat cyclic test

This test was carried out on meter no. 201012141012.

The test was carried out according to IEC 60068-2-30 (variant 1) with an upper temperature of 40 °C for 6 cycles.

An insulation test was carried out. The meter showed no damage or loss of information.

The meter meets the requirements.

4.2.5 Solar radiation test

This test is not applicable to indoor meters.

4.2.6 Crystal-controlled clocks on operation reserve

This test was carried out on meter no. 201012142004.

The payment meter to be tested was supplied with power and synchronised with a reference clock.
Before the test, the payment meter was powered for a suitable length of time.
The power supply to the payment meter under test was switched off for 45 h. When the power supply was restored, the time-indication discrepancy between the reference clock and payment meter under test was 0,07 s (req. < 1,5 s/36 h).

The meter meets the requirements.

4.2.7 Crystal-controlled clocks on a.c. supplies

This test was carried out on meter no. 201012142004.

The payment meter to be tested was supplied with power and synchronised with a reference clock.
Before the test, the payment meter was powered for a suitable length of time.
After a testing period of 139 hours, the time-indication discrepancy between the reference clock and the payment meter under test was 0,09 s (req. < 1,0 s/48 h).

The meter meets the requirements.

4.2.8 Accuracy of crystal-controlled clocks at temperature limits

This test was carried out on meter no 201012142004.

The payment meter is placed in a climatic chamber and its time base was measured at +23 °C. The temperature was then set at +45 °C.
After a testing period of 90 hours at thermal equilibrium, the time-indication discrepancy between the reference clock and the payment meter under test was 0,34 s (req. < 3,8 s/24 h).

The payment meter is placed in a climatic chamber and its time base was measured at +23 °C. The temperature was then set at -10 °C.
After a testing period of 71 hours at thermal equilibrium, the time-indication discrepancy between the reference clock and the payment meter under test was 0,11 s (req. < 5,45 s/24 h).

The meter meets the requirements.

4.2.9 3th Harmonic component in the voltage circuits

This test was carried out on meter no. 201012141013.

The payment meter was synchronised to a suitable reference clock. Using the special amplifiers of the meter test equipment a third harmonic content equivalent to 10% of Un is added to the supply voltage of the payment meter under test, symmetrically to each phase.
The test is carried out for a period of 139 hours under reference conditions.
At the end of the test, the time-indication discrepancy between the payment meter under test and the reference clock was 0,30 s (req. < 1 s / 48 h).

The meter meets the requirements.

4.3 Accuracy measurement at different loads

These tests were carried out on meter no. 201012141004, 201012141014, 201012122002, 201012121006 and 201012142006.

The meters were examined at an ambient temperature of (23 ± 2) °C and after the voltage circuits had been connected to reference voltage for at least 1 hour.

The measuring conditions were as specified in subclause 8.7.1 of EN 50470-3 and in subclause 8.5 of IEC 62053-21 and IEC 62053-23. The measurements were made with an accurate static energy standard.

The percentage error of the meter can be expressed as follows:

$$p = \frac{PM - PA}{PA} \times 100\%$$

in which p = percentage error
PM = energy recorded by meter
PA = actual energy.

The values for the errors registered at different currents and various values for cos φ/sin φ, at reference voltage and reference frequency, can be found in appendix A. The results show that the static energy meters, under the reference conditions given in subclause 8.7.1 of EN 50470-3 and in subclause 8.5 of IEC 62053-21 and IEC 62053-23, meet the requirements given in the relevant publication.

4.3.1 Interpretation of test results

There was no need to displace the zero line to bring the errors of the kWh-meters within the limits.

4.3.2 Test of meter constant

A test has been carried out to prove that the relation between the test output and the registered energy (display) is correct.

4.3.3 Starting current

The minimum load at which the energy meters tested recorded Whs at reference voltage, reference frequency and cos φ = 1 was less than 0,3% of Ib (req. ≤ 0,4% Ib).
The minimum load at which the energy meters tested recorded varhs at reference voltage, reference frequency and sin φ = 1 was less than 0,3% of Ib (req. ≤ 0,5% Ib).

4.3.4 Test of no load condition

At zero current, reference frequency and a voltage of 115% U_n, no pulse was generated by the energy meters tested.

The meter meets the requirements.

4.4 Effect of change of influence quantities on accuracy

4.4.1 Influence of ambient temperature variation

The meter was placed into a climatic room with ambient temperatures as shown in the table below until thermal equilibrium was reached. The measured deviations in the errors according to IEC 62053-21 are shown in the following table.

Serial number 201012141004								Wh-measurement
I in % of I_b	cos φ	Temperature coefficient for the specified temperature range in % per K						
		-40..-25	-25..-10	-10..10	10..30	30..45	45..55	55..70
10	1	0,005%	0,007%	0,006%	0,007%	0,005%	0,005%	0,007%
20	0,5 ind.	0,005%	0,007%	0,007%	0,007%	0,007%	0,005%	0,006%
100	1	0,005%	0,006%	0,007%	0,007%	0,007%	0,007%	0,007%
100	0,5 ind.	0,006%	0,007%	0,007%	0,008%	0,007%	0,006%	0,007%
I_{max}	1	0,009%	0,010%	0,010%	0,008%	0,009%	0,007%	0,009%
I_{max}	0,5 ind.	0,011%	0,011%	0,011%	0,009%	0,009%	0,008%	0,008%

Serial number 201012141014								Wh-measurement
I in % of I_b	cos φ	Temperature coefficient for the specified temperature range in % per K						
		-40..-25	-25..-10	-10..10	10..30	30..45	45..55	55..70
10	1	0,001%	0,002%	0,004%	0,003%	0,002%	0,003%	0,003%
20	0,5 ind.	0,003%	0,002%	0,004%	0,004%	0,001%	0,003%	0,003%
100	1	0,002%	0,003%	0,004%	0,003%	0,002%	0,003%	0,003%
100	0,5 ind.	0,002%	0,003%	0,005%	0,003%	0,002%	0,003%	0,003%
Imax	1	0,006%	0,006%	0,007%	0,004%	0,005%	0,004%	0,005%
Imax	0,5 ind.	0,007%	0,009%	0,007%	0,006%	0,005%	0,003%	0,005%

Serial number 201012141004								varh-measurement
I in % of Ib	sin φ	Temperature coefficient for the specified temperature range in % per K						
		-40..-25	-25..-10	-10..10	10..30	30..45	45..55	55..70
10	1	0,005%	0,006%	0,007%	0,006%	0,006%	0,006%	0,007%
20	0,5 ind.	0,005%	0,005%	0,006%	0,006%	0,006%	0,007%	0,006%
100	1	0,005%	0,007%	0,007%	0,006%	0,006%	0,006%	0,007%
100	0,5 ind.	0,005%	0,006%	0,006%	0,006%	0,006%	0,006%	0,007%
Imax	1	0,010%	0,010%	0,010%	0,009%	0,008%	0,008%	0,008%
Imax	0,5 ind.	0,010%	0,011%	0,009%	0,009%	0,009%	0,008%	0,009%

Serial number 201012141014								varh-measurement
I in % of Ib	sin φ	Temperature coefficient for the specified temperature range in % per K						
		-40..-25	-25..-10	-10..10	10..30	30..45	45..55	55..70
10	1	0,001%	0,003%	0,004%	0,003%	0,002%	0,002%	0,003%
20	0,5 ind.	0,001%	0,003%	0,003%	0,003%	0,003%	0,003%	0,003%
100	1	0,002%	0,003%	0,003%	0,003%	0,003%	0,003%	0,003%
100	0,5 ind.	0,001%	0,002%	0,003%	0,003%	0,003%	0,003%	0,004%
Imax	1	0,006%	0,007%	0,007%	0,005%	0,005%	0,004%	0,004%
Imax	0,5 ind.	0,007%	0,006%	0,007%	0,005%	0,005%	0,005%	0,005%

The meter meets the requirements.

The measured values of the additional percentage errors according to EN 50470-3 are shown in the following table.

Serial number 201012141004										Wh-measurement
I in % of I_{ref}	cos φ	ºC	Additional percentage error due to temperature variation % -40	-25	-10	5	30	40	55	70
5	1		0,38%	0,31%	0,21%	0,12%	-0,03%	-0,09%	-0,17%	-0,27%
10	1		0,36%	0,29%	0,20%	0,11%	-0,05%	-0,10%	-0,19%	-0,29%
10	0,5 ind.		0,40%	0,32%	0,22%	0,12%	-0,05%	-0,12%	-0,19%	-0,28%
10	0,8 cap.		0,35%	0,29%	0,20%	0,10%	-0,05%	-0,11%	-0,20%	-0,30%
Imax	1		0,58%	0,44%	0,29%	0,14%	-0,06%	-0,15%	-0,26%	-0,39%
Imax	0,5 ind.		0,67%	0,50%	0,33%	0,17%	-0,06%	-0,15%	-0,27%	-0,39%
Imax	0,8 cap.		0,61%	0,46%	0,30%	0,14%	-0,07%	-0,16%	-0,29%	-0,42%

Serial number 201012141014										Wh-measurement
I in % of Iref	cos φ	ºC	Additional percentage error due to temperature variation % -40	-25	-10	5	30	40	55	70
5	1		0,16%	0,14%	0,11%	0,05%	-0,02%	-0,04%	-0,08%	-0,12%
10	1		0,17%	0,14%	0,11%	0,05%	-0,02%	-0,05%	-0,09%	-0,13%
10	0,5 ind.		0,20%	0,16%	0,13%	0,07%	-0,01%	-0,02%	-0,06%	-0,10%
10	0,8 cap.		0,16%	0,14%	0,11%	0,05%	-0,01%	-0,04%	-0,08%	-0,12%
Imax	1		0,37%	0,28%	0,19%	0,08%	-0,03%	-0,08%	-0,14%	-0,21%
Imax	0,5 ind.		0,44%	0,33%	0,20%	0,10%	-0,04%	-0,09%	-0,14%	-0,21%
Imax	0,8 cap.		0,41%	0,30%	0,20%	0,09%	-0,04%	-0,10%	-0,17%	-0,25%

The meter meets the requirements.

4.4.2 Effect of changes in the auxiliary supply voltage

Not applicable.