

TEST REPORT FOR THE PATTERN AND CONSTRUCTION OF ELECTRICITY METERS

MANUFACTURER : *Schneider Electric*

TYPE : *PM8000*

MODEL : *METSEPM8240*

CLASS : *0.2s (kWh) & 2(kvarh)*

DESCRIPTION : *Polyphase, Active Import/Export (kWh), Reactive Import/Export (kvarh), Transformer Operated, Electricity Meter with Auxiliary Power Supply*

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

and IEC 62053-22: 2003, Electricity metering equipment (AC) – Particular requirements Part 22: Static meters for active energy (classes 0.2s and 0.5s).

and IEC 62053-23: 2003, Electricity metering equipment (AC) – Particular requirements Part 23: Static meters for reactive energy (classes 2 & 3).

and IEC 61326-1: 2013, Electrical equipment for measurement, control and laboratory use – EMC requirements, clause 6.1

The meters tested satisfied the required specification.

ISSUED BY:



K. Hunter
Test Engineer

CHECKED BY:



R. Jackson
Metering Manager

REPORT ISSUE DATE: 4th July 2016

ISSUE No.: 2

"This document is issued by the Company subject to its General Conditions of Service available on request or accessible at www.sgs.com/terms_and_conditions.htm and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law." "Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 28 days only."

Tests marked * are not covered under our UKAS scope.



CONTENTS

INTRODUCTION

INFORMATION OF THE ELECTRICITY METER TESTED

SUMMARY OF TEST RESULTS

GENERAL REQUIREMENTS

- 1 INSULATION
 - 1.1 Impulse Voltage Test
 - 1.2 AC Voltage Test

- 2 ACCURACY REQUIREMENTS
 - 2.1 Meter Constant
 - 2.2 Starting Conditions
 - 2.3 Running with no load
 - 2.4 Influence of ambient temperature
 - 2.5 Influence Quantities -
 - 2.5.1 Current Variation
 - 2.5.2 Voltage Variation
 - 2.5.3 Frequency Variation
 - 2.5.4 Reverse Phase Sequence
 - 2.5.5 Voltage Unbalance
 - 2.5.6 Continuous Magnetic Induction
 - 2.5.7 Magnetic Induction of 0.5mT
 - 2.5.8 Auxiliary Power Supply Voltage Variation
 - 2.6 Accuracy test in the Presence of Harmonics
 - 2.6.1 Harmonic Components in the Current and Voltage Circuits
 - 2.6.2 Influence of Odd and Sub Harmonics in the AC Current Circuit

- 3 ELECTRICAL REQUIREMENTS
 - 3.1 Power Consumption
 - 3.2 Influence of Supply Voltage - Interruptions and Dips.
 - 3.3 Influence of Short-Time Over-currents
 - 3.4 Influence of Self Heating
 - 3.5 Influence of Heating

- 4 ELECTROMAGNETIC COMPATIBILITY (EMC)
 - 4.1 Immunity to Electrostatic Discharges
 - 4.2 Immunity to Electromagnetic HF Fields
 - 4.3 Fast Transient Burst Test
 - 4.4 Immunity to Conducted Disturbances
 - 4.5 Surge Immunity
 - 4.6 Immunity to Damped Oscillatory Waves



- 5 CLIMATIC INFLUENCES
 - 5.1 Dry Heat Test
 - 5.2 Cold Test
 - 5.3 Damp Heat Cyclic Test

- 6 MECHANICAL REQUIREMENTS
 - 6.1 Spring Hammer
 - 6.2 Shock
 - 6.3 Vibration
 - 6.4 Resistance to Heat & Fire
 - 6.5 Penetration of Dust & Water

DEVIATIONS OR EXCLUSIONS FROM THE TEST SPECIFICATION

- ANNEX A Radiated Immunity Test (0.08-2GHz) – Graphical plots of results
- ANNEX B Radiated Immunity Test (2-2.7GHz) – Graphical plots of results
- ANNEX C Conducted Immunity Test – Graphical plots of results
- ANNEX D Photographs of Meter Under Test



INTRODUCTION

The type tests described were carried out in the SGS (Durham) measurement laboratory on behalf of:

CLIENT DETAILS: Schneider Electric
2195 Keating Cross Road
Saanichton
British Columbia
V8M 2A5
Canada

ORDER No's: 138517, 139130, 134546

APPLICATION RECEIVED DATE: 27th June 2014

DATE OF RECEIPT OF SAMPLES: 30th September 2014

DATE OF TESTS: 10th October to January 2015 & 14th March to 6th April 2016

In the cases where no or only limited tests have been conducted on the submitted samples, tests carried out during previous OFGEM approval (or by other accredited bodies) on meters of similar construction and designs have been taken to confirm that the meter satisfies the requirements of the relevant standard. See supporting documentation for reference.

Conditions under which the type tests took place:

Unless otherwise stated, the meters were examined at an ambient temperature of $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$, and after the voltage circuits had been connected to reference voltage for at least 1 hour.

Unless otherwise stated, Polyphase tests were tested with a standard phase sequence of L1-L2-L3 (corresponding to the Red, Yellow & Blue phases).

The tests were conducted using equipment, traceable to National and International Standards.



INFORMATION ON THE ELECTRICITY METERS TESTED

Manufacturer	:	<i>Schneider Electric</i>
Type	:	<i>PM8000</i>
Model	:	<i>METSEPM8240</i>
Class	:	<i>0.2s (kWh) & 2(kvarh)</i>
Type of circuit	:	<i>3 phase 4 wire</i>
No. of Elements	:	<i>3</i>
Rated Current (In)	:	<i>1A and 5A</i>
Maximum Current (Im)	:	<i>10A</i>
Reference Supply Voltage (Un)	:	<i>3x57.7/100V- 3x270/480V</i>
Auxiliary Voltage (Ux)	:	<i>90-415V</i>
Rated Frequency	:	<i>50Hz and 60Hz</i>
Pulse output constant	:	<i>Programmable</i>
Manufacturers Serial No's	:	<i>ME-1407A007-00, ME-1407A013-00, ME-1407A016-00, ME-1407A003-00, ME-1601A029-01</i>



SUMMARY OF TEST RESULTS

IEC 62052-11: 2003 General Requirements:

IEC 62052-11 Clause	Test	Performed	Result
5.2.2.1	Spring hammer	Yes	Complied
5.2.2.2	Shock	Yes	Complied
5.2.2.3	Vibration	Yes	Complied
5.8	Resistance to heat and fire	Yes	Complied
5.9	Penetration of dust and water	Yes	Complied
6.3.1	Dry heat	Yes	Complied
6.3.2	Cold	Yes	Complied
6.3.3	Damp heat cyclic	Yes	Complied
6.3.4	Solar radiation	N/A	N/A
7.1.2	Voltage dips and short interruptions	Yes	Complied
7.2	Influence of heating	Yes	Complied
7.3.2	Impulse voltage	Yes	Complied
7.5.2	Electrostatic discharge immunity	Yes	Complied
7.5.3	Radiated immunity	Yes	Complied
7.5.4	Fast transient bursts immunity	Yes	Complied
7.5.5	Conducted immunity	Yes	Complied
7.5.6	Surge immunity	Yes	Complied
7.5.7	Damped oscillatory waves immunity	Yes	Complied
7.5.8	Radio interference suppression	No*	-

IEC 62053-22: 2003 Particular Requirements:

IEC 62053-22 Clause	Test	Performed	Result
7.1	Power consumption	Yes	Complied
7.2	Influence of short-time over-currents	Yes	Complied
7.3	Influence of self-heating	Yes	Complied
7.3.3	AC voltage	Yes	Complied
8.1	Current variation	Yes	Complied
8.2	Variation of error due to voltage variation	Yes	Complied
8.2	Variation of error due to frequency variation	Yes	Complied
8.2	Reverse Phase Sequence	Yes	Complied
8.2	Voltage Unbalance	Yes	Complied
8.2	Operation of accessories	N/A	N/A
8.2	Auxiliary voltage variation	Yes	Complied
8.2	Variation of error due to temperature variation	Yes	Complied
8.2	Variation of error due to harmonics	Yes	Complied
8.2	Sub-harmonics in the AC circuit	Yes	Complied
8.2	Continuous magnetic induction of external origin	Yes	Complied
8.2	Magnetic induction of external origin (0.5mT)	Yes	Complied
8.3	Starting and no-load condition	Yes	Complied
8.4	Meter constant	Yes	Complied

No*: Tests performed at Labtest Certification Inc

Report No: 12046-1E

Issued: 31st July 2014



SUMMARY OF TEST RESULTS (cont.)

IEC 62053-23: 2003 Particular Requirements:

IEC 62053-23 Clause	Test	Performed	Result
7.1	Power consumption	No	-
7.2	Influence of short-time overcurrents	No	-
7.3	Influence of self-heating	No	-
7.4	AC voltage	No	-
8.1	Current variation	Yes	Complied
8.2	Variation of error due to voltage variation	Yes	Complied
8.2	Variation of error due to frequency variation	Yes	Complied
8.2	Operation of accessories	No	-
8.2	Variation of error due to temperature variation	No	-
8.2	DC Component in the current circuit	No	-
8.2	Continuous magnetic induction of external origin	No	-
8.2	Magnetic induction of external origin (0.5mT)	No	-
8.3	Starting and no-load condition	Yes	Complied
8.4	Meter constant	Yes	Complied

IEC 61326-1: 2013 Electrical equipment for measurement, control and laboratory use – EMC requirements:

IEC 61326-1 Clause	Test	Performed	Result
6.1	Radiated Immunity, 1V/m , 2-2.7GHz	Yes	Complied