MALAYSIAN STANDARD

MS 62052-11:2009

ELECTRICITY METERING EQUIPMENT (a.c.) - GENERAL REQUIREMENTS, TESTS AND TEST CONDITIONS - PART 11: METERING EQUIPMENT
(SECOND REVISION)
(IEC 62052-11:2003, MOD)

ICS: 17.220.20

Descriptors: measurement of electrical, magnetic quantities, electricity metering equipment

DEPARTMENT OF STANDARDS MALAYSIA

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Committee representation

The Industry Standards Committee on Generation, Transmission and Distribution of Electrical Energy (ISC E) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distribution Association
Ministry of Domestic Trade, Co-operatives and Consumerism
Ministry of International Trade and Industry
Persatuan Kontraktor Elektrikal dan Mekanikal Melayu Malaysia
Persatuan Penjana Kuasa Bebas
Pusat Tenaga Malaysia
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Teknologi Malaysia

The Technical Committee on Low Voltage Transformer and Storage of Electrical Energy which supervised the adoption of the IEC Standard consists of representatives from the following organisations:

Jabatan Kerja Raya Malaysia
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Tenaga
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
TNB Remaco Repair & Maintenance Sdn Bhd
Universiti Malaya
Universiti Teknologi Malaysia

Co-opted members:

Battery Manufacturers Association of Malaysia
Federation of Malaysian Manufacturers
GP Autobat Sdn Bhd
Malaysian Association of Standards Users
Ministry of Domestic Trade, Co-operatives and Consumerism
TNB Metering Services

The Working Group on Electrical Energy Measurement which recommended the adoption of the IEC Standard consists of representatives from the following organisations:

EDMI Meters Sdn Bhd
Iskraemeco (M) Sdn Bhd
Krizik (Malaysia) Sdn Bhd
Malaysian Intelligence Meters Sdn Bhd
Metertek Sdn Bhd
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM Berhad (National Metrology Laboratory)
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Smart Meters Technologies (M) Sdn Bhd
Suruhanjaya Tenaga
TNB Metering Services
Universiti Teknologi Malaysia

NATIONAL FOREWORD

The adoption of the IEC Standard as a Malaysian Standard was recommended by the Working Group on Electrical Energy Measurement under the authority of the Industry Standards Committee on Generation, Transmission and Distribution of Electrical Energy.

This Malaysian Standard is the second revision of the following Malaysian Standards:

MS 859: Part 1, *Specification for electricity meters (electromechanical) - Part 1: Class 0.5, 1 and 2 single-phase and polyphase, single rate and multi-rate watthour meters*

MS 859: Part 2, *Specification for electricity meters - Part 2: Specification for class 3 var-hour meters*

MS 859: Part 3, *Specification for electricity meters - Part 3: Specification for meters having class 1 electro-mechanical maximum demand indicators*

This standard is a modified adoption of IEC 62052-11:2003, *Electricity metering equipment (a.c.) - General requirements, tests and test conditions - Part 11: Metering equipment*, published by the International Electrotechnical Commission (IEC) with the following modifications:

a) in the source text, “this International Standard” has been replaced by “this Malaysian Standard”;

b) the comma which is used as a decimal sign has been replaced by a point; and

c)

Clause/Subclause	**Modifications**
0 Introduction	Replace “IEC 62052” with “MS 62052”, “IEC 62053” with “MS 62053” and “IEC 62059” with “ MS 62059” in the first paragraph Replace “IEC 62053” with “MS 62053” in the third paragraph

Explanation: These IEC Standards have been adopted as Malaysian Standards.

1	Scope	Delete “or 60 Hz” in first paragraph

Explanation: Standard frequency in Malaysia is 50 Hz.

Table 1	Standard reference voltages (Direct connection - Standard values)	Delete “120-277-480”
Table 1	Standard reference voltages (Direct connection - Exceptional values)	Delete “100-127-200-220-380”

NATIONAL FOREWORD *(continued)*

Explanation: Standard voltages in Malaysia are 230 V and 400 V (standard values) and 240 V and 415 V (exceptional values). Others consider not applicable.

Table 1	Standard reference voltages (Connection through voltage transformer(s) - Standard values)	Delete "57.7-100-115-120-200" and delete "(IEC 60044-2)"
Table 1	Standard reference voltages (Connection through voltage transformer(s) - Exceptional values)	Delete "173-190-220"

Explanation: Standard voltages (connection through voltage transformer(s)) in Malaysia are 63.5 V and 110 V (standard values). Others consider not applicable.

Table 2	Standard reference currents (Direct connection (I_b) - Standard values)	Delete "5-15-20-30-40-50"
Table 2	Standard reference currents (Direct connection (I_b) - Exceptional values)	Replace "80" with "5-20-40"

Explanation: Standard currents (direct connection) in Malaysia are 10 A (standard values) and 40 A (exceptional values). The addition of 5 A and 20 A under exceptional values are because there were practiced by Sarawak Energy Berhad.

Table 2	Standard reference currents (Connection through current transformer(s) (I_n) - Standard values)	Delete "2" and "(IEC 60044-1)"
Table 2	Standard reference currents (Connection through current transformer(s) (I_n) - Exceptional values)	Delete "1.5-2.5"

Explanation: Standard currents [(connection through current transformer(s)] in Malaysia are 1 A and 5 A (standard values).

4.3	Standard reference frequency	Replace "frequencies are 50 Hz and 60 Hz" with "frequency is 50 Hz"

Explanation: Standard frequency in Malaysia is 50 Hz.

5.4	Terminals - Terminals block(s) - Protective earth terminal	Add "Each terminal shall be capable of accommodating and reliably clamping a multi-stranded conductor as specified in Table 2a." as the fifth paragraph.

NATIONAL FOREWORD *(continued)*

5.4	Terminals - Terminals block(s) - Protective earth terminal	Add “Table 2a. - Conductor sizes for terminal” after fifth paragraph

Explanation: 35 mm^2 cable’s size is increased to compensate for connection losses.

Table 3b	Clearances and creepage distances for insulating encased meter of protective class II	Replace “6 000” with “10 000” in rated impulse voltage column.
Table 3b	Clearances and creepage distances for insulating encased meter of protective class II	Delete all requirements in the last row of Table 3b

Explanation: Proposal to increase from 6 kV to 10 kV, after considering environmental condition in Malaysia (as high isoceraunic).

Table 4	Voltage marking (Single-phase 2-wire 120 V)	Replace “120“ with “230“ for voltage at the terminals of the voltage circuit(s) and rated system voltage

Explanation: Standard voltages in Malaysia are 230 V and 400 V (for standard values) and 240 V and 415 V (for exceptional values).

Table 4	Voltage marking	Replace “120 V” with “230 V” in the first row of Table 4 Delete all requirements in the second row of Table 4

Explanation: Standard configuration in Malaysia is single-phase two-wire 230 V.

Table 5	Temperature range (Specified operating range)	Replace “-10 °C to 45 °C” with “0 °C to 45 °C” in indoor meter column Replace “-25 °C to 55 °C” with “0 °C to 60 °C” and “class 3K6” with “class 3K6 mod.” in outdoor meter column

NATIONAL FOREWORD *(concluded)*

Table 5	Temperature range (Limit range of operation)	Replace “-25 °C to 55 °C” with “0 °C to 55 °C” and “class 3K6” with “class 3K6 mod.” in indoor meter column Replace “-40 °C to 70 °C” with “0 °C to 70 °C” and “class 3K7” with “class 3K7 mod.” in outdoor meter column

Explanation: Based on the statistic from Jabatan Meteorologi Malaysia, the mean temperature for Malaysia has never recorded below 0 °C which is based on MS 1750: Part 3-3:2005.

Table 6	Relative humidity	Replace “95 %” with “100 %” in the second row “For 30 days, these days being spread in a natural manner over one year”
Table 6	Relative humidity	Replace “85 %” with “90 % to 97 %” in the third row “Occasionally on other days”

Explanation: Based on the statistic from Jabatan Meteorologi Malaysia, the relative humidity range for Malaysia is small. The highest annual 24 h mean relative humidity is 89.4 % which is based on MS 1750:2004.

6.3.2	Cold test	Replace “-25 °C” with “0 °C and “-40. °C” with “0 °C” in the temperature requirement

Explanation: Based on the statistic from Jabatan Meteorologi Malaysia, the mean temperature for Malaysia has never recorded below 0 °C which is based on MS 1750:2004.

This Malaysian Standard cancels and replaces MS 859: Part 1:1991, MS 859: Part 2:1989 and MS 859: Part 3:1996.

This Malaysian Standard has been redrafted in order to provide a structure consistent with that of other Malaysian Standards.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

NOTE. MOD on the front cover indicates modified standard i.e. a standard adapted from an International Standard with permitted technical deviations, which are clearly identified and explained. The changes in structure are permitted provided that the altered structure permits easy comparison of the content of the two standards. Modified standards also include the changes permitted under identical correspondence.