MALAYSIAN STANDARD

MS IEC 62109-1:2011 (CONFIRMED:2015)

Safety of power converters for use in photovoltaic power systems - Part 1: General requirements (IEC 62109-1:2010, IDT)

ICS: 27.160

Descriptors: solar energy engineering, safety of power converters, photovoltaic power systems

NOTE. This MS has been reviewed by the responsible committee and confirmed that its contents are current

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Committee representation

The Industry Standards Committee on Generation, Transmission and Distribution of 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
Malaysian Green Technology Corporation
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
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Tenaga Nasional Berhad (Distribution Division)
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Teknologi Malaysia

The Technical Committee on Renewable Energies which supervised the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Association of Consulting Engineers Malaysia
Bank Pembangunan Malaysia Berhad
Core Competencies Sdn Bhd
Department of Environment
Felda Palm Industries Sdn Bhd
Forest Research Institute Malaysia
Jabatan Pengurusan Sisa Pepejal Negara
Malaysian Photovoltaic Industry Association
Ministry of Energy, Green Technology and Water
SIRIM Berhad (Secretariat)
SIRIM Berhad (Renewable Energy Research Centre)
Sarawak Energy Berhad
Suruhanjaya Tenaga
Tenaga Nasional Berhad (Distribution Division)
The Institution of Engineers, Malaysia
TNB Research Sdn Bhd
Universiti Tenaga Nasional

The Working Group on Solar Photovoltaic Systems which recommended the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Jabatan Kerja Raya Malaysia
Malaysian Photovoltaic Industry Association
Ministry of Energy, Green Technology and Water
Optimal Power Solutions Sdn Bhd
SIRIM Berhad (Secretariat)
SIRIM Berhad (Renewable Energy Research Centre)
SIRIM QAS International Sdn Bhd
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
Suruhanjaya Tenaga
The Electrical and Electronics Association of Malaysia
TNB Energy Services Sdn Bhd
Universiti Kebangsaan Malaysia
Universiti Malaya
Universiti Teknologi MARA
Universiti Teknologi Malaysia

NATIONAL FOREWORD

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

This Malaysian Standard is identical with IEC 62109-1:2010, *Safety of power converters for use in photovoltaic power systems - Part 1: General requirements*, published by the International Electrotechnical Commission (IEC). However, for the purposes of this Malaysian Standard, the following apply:

a) in the source text, "this International Standard" should read "this Malaysian Standard";

b) the comma which is used as a decimal sign (if any), to read as a point; and

c) reference to International Standards should be replaced by corresponding Malaysian Standards as follows:

Referenced International Standards	Corresponding Malaysian Standards
IEC 60060-1, *High-voltage test techniques Part 1: General definitions and test requirements*	MS IEC 60060-1, *High-voltage test techniques - Part 1: General definitions and test requirements*
IEC 60320 (all parts), *Appliances couplers for household and similar general purposes*	MS IEC 60320 (all parts), *Appliances couplers for household and similar general purposes*
IEC 60364-1:2005, *Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions*	MS IEC 60364-1:2007, *Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions*
IEC 60364-5-54, *Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors*	MS IEC 60364-5-54, *Electrical installations of buildings - Part 5-54: Selection and erection of electrical equipment - Earthing arrangements, protective conductors and protective bonding conductors*
IEC 60529, *Degrees of protection provided by enclosures (IP Code)*	MS IEC 60529, *Degrees of protection provided by enclosures (IP Code)*
IEC 60695-2-11, *Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products*	MS IEC 60695-2-11, *Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end-products*
IEC 60695-11-5, *Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance*	MS IEC 60695-11-5, *Fire hazard testing - Part 11-5: Test flames - Needle-flame test method - Apparatus, confirmatory test arrangement and guidance*

NATIONAL FOREWORD *(continued)*

IEC 60950-1:2005, *Information technology equipment - Safety - Part 1: General requirements*	MS IEC 60950-1:2007, *Information technology equipment - Safety - Part 1: General requirements*
IEC 61032*, Protection of persons and equipment by enclosures - Probes for verification*	MS IEC 61032*, Protection of persons and equipment by enclosures - Probes for verification*
IEC 61180-1, *High-voltage test techniques for low voltage equipment - Part 1: Definitions, test and procedure requirements*	MS IEC 61180-1, *High-voltage test techniques for low voltage equipment - Part 1: Definitions, test and procedure requirements*
ISO 178, *Plastics - Determination of flexural properties*	MS ISO 178, *Plastics - Determination of flexural properties*
ISO 179 (all parts), *Plastics - Determination of Charpy impact properties*	MS ISO 179 (all parts), *Plastics - Determination of Charpy impact properties*
ISO 180, *Plastics - Determination of Izod impact strength*	MS ISO 180, *Plastics - Determination of Izod impact strength*
ISO 261, *ISO general purpose metric screw threads - General plan*	MS ISO 261, *ISO general purpose metric screw threads - General plan*
ISO 262, *ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts*	MS ISO 262, *ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts*
ISO 527 (all parts*), Plastics - Determination of tensile properties*	MS ISO 527 (all parts*), Plastics - Determination of tensile properties*
ISO 4892-1, *Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance*	MS ISO 4892-1, *Plastics - Methods of exposure to laboratory light sources - Part 1: General guidance*
ISO 4892-2, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps*	MS ISO 4892-2, *Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps*
ISO 4892-4, *Plastics - Methods of exposure to laboratory light sources - Part 4: Open-flame carbon-arc lamps*	MS ISO 4892-4, *Plastics - Methods of exposure to laboratory light sources - Part 4: Open-flame carbon-arc lamps*
ISO 8256, *Plastics - Determination of tensile-impact strength*	MS ISO 8256, *Plastics - Determination of tensile-impact strength*

NATIONAL FOREWORD *(concluded)*

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

NOTE. IDT on the front cover indicates an identical standard i.e. a standard where the technical content, structure, and wording (or is an identical translation) of a Malaysian Standard is exactly the same as in an International Standard or is identical in technical content and structure although it may contain the minimal editorial changes specified in clause 4.2 of ISO/IEC Guide 21-1.

INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY OF POWER CONVERTERS FOR USE IN PHOTOVOLTAIC POWER SYSTEMS –

Part 1: General requirements

FOREWORD

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International Standard IEC 62109-1 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The text of this standard is based on the following documents:

FDIS	Report on voting
82/593/FDIS	82/597/RVD

Full information on the voting for approval can be found in the report on voting indicated in the above table.

A list of all parts of IEC 62109 series, under the general title, *Safety of power converters for use in photovoltaic power systems*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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