



MALAYSIAN STANDARD

MS IEC 62040-1:2012

**Uninterruptible power systems (UPS) - Part 1:
General and safety requirements for UPS
(First revision)
(IEC 62040-1:2008, IDT)**

ICS: 29.200

Descriptors: uninterruptible, power systems, general, safety

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Committee representation

The Industry Standards Committee on Electrical and Electronics Equipments and Accessories (ISC S) under whose authority this Malaysian Standard was adopted, comprises representatives from the following organisations:

Atomic Energy Licensing Board
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 Distributors Association
Malaysian Green Technology Corporation
Ministry of Domestic Trade, Co-operatives and Consumerism
Ministry of International Trade and Industry
Multimedia University
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
Universiti Teknologi Malaysia
Universiti Tenaga Nasional

The Technical Committee on Audio, Video, IT and Communication Equipment which supervised the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Federation of Malaysian Manufacturers
Jabatan Penyiaran Malaysia
Malaysian Electrical Appliances and Distributors Association
Multimedia University
Persatuan Industri Komputer dan Multimedia Malaysia
Pioneer Technology (M) Sdn Bhd
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
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Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
The Electrical and Electronics Association of Malaysia
Universiti Malaya
Universiti Putra Malaysia
Universiti Sains Malaysia

The Working Group on IT Equipments which recommended the adoption of the IEC Standard as Malaysian Standard consists of representatives from the following organisations:

Jabatan Penyiaran Malaysia
Power Solutions Sdn Bhd
Significant Technologies Sdn Bhd
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia

NATIONAL FOREWORD

The adoption of the IEC Standard as a Malaysian Standard was recommended by the Working Group on IT Equipments under the authority of the Industry Standards Committee on Electrical and Electronics Equipments and Accessories.

This Malaysian Standard is the first revision of MS IEC 62040-1-1, *Uninterruptible power systems (UPS) - Part 1-1: General and safety requirements for UPS used in operator access areas* and MS IEC 62040-1-2, *Uninterruptible power systems (UPS) - Part 1-2: General and safety requirements for UPS used in restricted access locations*.

This Malaysian Standard is identical with IEC 62040-1:2008, *Uninterruptible power systems (UPS) - Part 1: General and safety requirements for UPS*, 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 60364-4-42, *Electrical installations of buildings - Part 4-42: Protection for safety - Protection against thermal effects*

MS IEC 60364-4-42, *Electrical installations of buildings - Part 4-42: Protection for safety - Protection against thermal effects*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

MS IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60755, *General requirements for residual current operated protective devices*

MS 60755, *General requirements for residual current operated protective devices*

IEC 60950-1, *Information technology equipment - Safety - Part 1: General requirements*

MS IEC 60950-1, *Information technology equipment - Safety - Part 1: General requirements*

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

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

IEC 61009-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules*

MS IEC 61009-1, *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs) - Part 1: General rules*

IEC 62040-2, *Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements*

MS IEC 62040-2, *Uninterruptible power systems (UPS) - Part 2: Electromagnetic compatibility (EMC) requirements*

NATIONAL FOREWORD (continued)

Referenced International Standards

IEC 62040-3:1999, *Uninterruptible power systems (UPS) - Part 3: Method of specifying the performance and test requirements*

Corresponding Malaysian Standards

MS IEC 62040-3:1999, *Uninterruptible power systems (UPS) - Part 3: Method of specifying the performance and test requirements*

MS IEC 62040 consists of the following parts, under the general title *Uninterruptible power systems (UPS)*:

Part 1: General and safety requirements for UPS

Part 2: Electromagnetic compatibility (EMC) requirements

Part 3: Method of specifying the performance and test requirements

This Malaysian Standard cancels and replaces MS IEC 62040-1-1:2007 and MS IEC 62040-1-2:2007.

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

UNINTERRUPTIBLE POWER SYSTEMS (UPS) –**Part 1: General and safety requirements for UPS**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62040-1 has been prepared by subcommittee 22H: Uninterruptible power systems (UPS), of IEC technical committee 22: Power electronic systems and equipment.

This standard cancels and replaces the first edition of IEC 62040-1-1, published in 2004 and IEC 62040-1-2, published in 2004 and constitutes a technical revision. This standard merges all requirements of previous IEC 62040-1-1 and IEC 62040-1-2, with the addition of the following:

- update of normative references including IEC 60950-1 as Reference Document (RD);
- harmonization and alignment with current world recognized best practices;
- enhancement of backfeed protection, definition of ground-fault, revision of temperature rise tables and of hydrogen concentration in battery compartments.

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

FDIS	Report on voting
22H/104/FDIS	22H/106/RVD

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

It is to be used with IEC 60950-1, Edition 2.0, which is referred to in this standard as "RD".

In this standard, the following print types are used:

- requirements proper and normative annexes: in roman type;
- compliance statements and test specifications: *in italic type*;
- notes and other informative matter: in smaller roman type;
- normative conditions within tables: in smaller roman type;
- terms that are defined in Clause 3: **bold**.

A list of all parts of the IEC 62040 series, under the general title: *Uninterruptible power systems (UPS)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

The contents of the corrigendum of September 2008 have been included in this copy.