MALAYSIAN STANDARD

MS 1837:2018

Installation of grid-connected photovoltaic (PV) system (Second revision)

Preview Only

ICS: 27.160

Descriptors: installation, grid-connected, photovoltaic, system

© Copyright 2018

DEPARTMENT OF STANDARDS MALAYSIA

DEVELOPMENT OF MALAYSIAN STANDARDS

The **Department of Standards Malaysia (STANDARDS MALAYSIA)** is the national standards and accreditation body of Malaysia.

The main function of STANDARDS MALAYSIA is to foster and promote standards, standardisation and accreditation as a means of advancing the national economy, promoting industrial efficiency and development, benefiting the health and safety of the public, protecting the consumers, facilitating domestic and international trade and furthering international cooperation in relation to standards and standardisation.

Malaysian Standards (MS) are developed through consensus by committees which comprise balanced representation of producers, users, consumers and others with relevant interests, as may be appropriate to the subject at hand. To the greatest extent possible, Malaysian Standards are aligned to or are adoption of international standards. Approval of a standard as a Malaysian Standard is governed by the Standards of Malaysia Act 1996 [Act 549]. Malaysian Standards are reviewed periodically. The use of Malaysian Standards is voluntary except in so far as they are made mandatory by regulatory authorities by means of regulations, local by-laws or any other similar ways.

For the purposes of Malaysian Standards, the following definitions apply:

Revision: A process where existing Malaysian Standard is reviewed and updated which resulted in the publication of a new edition of the Malaysian Standard.

Confirmed MS: A Malaysian Standard that has been reviewed by the responsible committee and confirmed that its contents are current.

Amendment: A process where a provision(s) of existing Malaysian Standard is altered. The changes are indicated in an amendment page which is incorporated into the existing Malaysian Standard. Amendments can be of technical and/or editorial nature.

Technical corrigendum: A corrected reprint of the current edition which is issued to correct either a technical error or ambiguity in a Malaysian Standard inadvertently introduced either in drafting or in printing and which could lead to incorrect or unsafe application of the publication.

NOTE: Technical corrigenda are not to correct errors which can be assumed to have no consequences in the application of the MS, for example minor printing errors.

STANDARDS MALAYSIA has appointed **SIRIM Berhad** as the agent to develop, distribute and sell Malaysian Standards.

For further information on Malaysian Standards, please contact:

Department of Standards Malaysia
Ministry of Science, Technology and Innovation
Level 1 & 2, Block 2300, Century Square
Jalan Usahawan
63000 Cyberjaya
Selangor Darul Ehsan
MALAYSIA

Tel: 60 3 8318 0002
Fax: 60 3 8319 3131
http://www.jsm.gov.my
E-mail: central@jsm.gov.my

OR

SIRIM Berhad
(Company No. 367474 - V)
1, Persiaran Dato' Menteri
Section 2, P. O. Box 7035
40700 Shah Alam
Selangor Darul Ehsan
MALAYSIA

Tel: 60 3 5544 6000
Fax: 60 3 5510 8095
http://www.sirim.my
E-mail: msonline@sirim.my

Preview Only

Contents

Page

Committee representation ii

Foreword iv

1 Scope 1

2 Normative references 1

3 Terms and definitions 3

4 Abbreviations 8

5 General requirements 9

6 Protection requirements 16

7 Wiring requirements 19

8 Component requirements 22

9 Earthing 25

10 Marking requirements 25

11 Documentation 27

12 Commissioning 27

Annex A Characteristics of PV arrays 30

Annex B Examples of signs 32

Annex C Maintenance requirements 37

Bibliography 39

Preview Only

© STANDARDS MALAYSIA 2018 - All rights reserved

Committee representation

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

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Jabatan Kerja Raya Malaysia
Malaysia Nuclear Power Corporation
Malaysian Association of Standards Users
Malaysian Cable Manufacturers Association
Malaysian Electrical Appliances and Distributors Association
Malaysian Green Technology Corporation
Persatuan Kontraktor Elektrikal dan Mekanikal Melayu Malaysia
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM Berhad (Secretariat)
SIRIM QAS International Sdn Bhd
Suruhanjaya Komunikasi dan Multimedia Malaysia
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
Tenaga Nasional Berhad
The Electrical and Electronics Association of Malaysia
The Institution of Engineers, Malaysia
Universiti Malaya

The Technical Committee on Renewable Energies which supervised the development of this Malaysian Standard consists of representatives from the following organisations:

Association of Consulting Engineers Malaysia
Bank Pembangunan Malaysia Berhad
Department of Environment
Felda Palm Industries Sdn Bhd
Forest Research Institute Malaysia
Independent
Jabatan Pengurusan Sisa Pepejal Negara
Malaysian Association of Standards Users
Malaysian Photovoltaic Industry Association
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
Sime Darby Plantation Sdn Bhd
SIRIM Berhad (Industrial Centre of Innovation - Energy management)
SIRIM Berhad (Secretariat)
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
Tenaga Nasional Berhad
The Institution of Engineers, Malaysia
TNB Research Sdn Bhd
Universiti Teknologi MARA
Universiti Tenaga Nasional

Preview Only

© STANDARDS MALAYSIA 2018 - All rights reserved

Committee representation *(continued)*

The Working Group on Solar Photovoltaic Systems which developed this Malaysian Standard consists of representatives from the following organisations:

Jabatan Kerja Raya Malaysia
Malaysian Photovoltaic Industry Association
Malaysian Solar Resources
Manipal University
Sabah Electricity Sdn Bhd
Sarawak Energy Berhad
SIRIM Berhad (Industrial Centre of Innovation - Energy management)
SIRIM Berhad (Secretariat)
Suruhanjaya Tenaga
Sustainable Energy Development Authority Malaysia
The Electrical and Electronics Association of Malaysia
TNB Energy Services Sdn Bhd
TNB Research Sdn Bhd
Universiti Malaya
Universiti Teknologi Malaysia
Universiti Teknologi MARA
Universiti Tenaga Nasional
Universiti Tunku Abdul Rahman

Preview Only

© STANDARDS MALAYSIA 2018 - All rights reserved

Foreword

This Malaysian Standard was developed by the Working Group on Solar Photovoltaic Systems under the authority of the Industry Standards Committee on Generation, Transmission and Distribution of Energy.

Major modifications in this revision are as follows:

a) incorporation of new requirement on “Scope” in Clause 1;

b) incorporation of new clauses on “Normative references” in Clause 2;

c) incorporation of new clauses on “Terms and definitions” in Clause 3;

d) incorporation of new clauses on “Abbreviations” in Clause 4;

e) incorporation of new figures on “General requirements” in Clause 5;

f) incorporation of new requirement on “Protection requirements” in Clause 6;

g) incorporation of new requirement on “Wiring requirements” in Clause 7;

h) incorporation of new requirement on “Component requirements” in Clause 8;

i) incorporation of new requirement on “Component requirements” in Clause 9;

j) incorporation of new requirement on “Marking requirements” in Clause 10;

k) incorporation of new requirement on “Commissioning” in Clause 12; and

l) incorporation of new figures in “Annex B”.

This Malaysian Standard cancels and replaces MS 1837:2010, *Installation of grid-connected photovoltaic (PV) system (First revision).*

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

Preview Only

 © STANDARDS MALAYSIA 2018 - All rights reserved