

**Photovoltaic (PV) module performance testing and  
energy rating - Part 4: Standard reference climatic  
profiles**

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See Eesti standard EVS-EN IEC 61853-4:2018 sisaldab Euroopa standardi EN IEC 61853-4:2018 ingliskeelset teksti.	This Estonian standard EVS-EN IEC 61853-4:2018 consists of the English text of the European standard EN IEC 61853-4:2018.
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English Version

**Photovoltaic (PV) module performance testing and energy rating  
- Part 4: Standard reference climatic profiles  
(IEC 61853-4:2018)**

Essais de performance et caractéristiques assignées  
d'énergie des modules photovoltaïques (PV) - Partie 4:  
Profils climatiques de référence normalisés  
(IEC 61853-4:2018)

Prüfung des Leistungsverhaltens von photovoltaischen  
(PV)-Modulen und Energiebemessung - Teil 4: Genormtes  
Referenzklimaprofil  
(IEC 61853-4:2018)

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European Committee for Electrotechnical Standardization  
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## European foreword

The text of document 82/1442/FDIS, future edition 1 of IEC 61853-4, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61853-4:2018.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2019-07-04
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2021-10-04

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## Endorsement notice

The text of the International Standard IEC 61853-4:2018 was approved by CENELEC as a European Standard without any modification.

## Annex ZA

(normative)

### Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: [www.cenelec.eu](http://www.cenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61853-3	-	Photovoltaic (PV) module performance-testing and energy rating – Part 3: Energy rating of PV modules		-
IEC/TS 61836	-	Solar photovoltaic energy systems -- Terms, definitions and symbols		-

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## INTRODUCTION

This International Standard series establishes IEC requirements for determining PV module performance in terms of power (watts), specific module energy rating (kWh/kW) and climatic specific energy rating (dimensionless). It is written to be applicable to all PV technologies including non-linear devices. The methodology does not take into account either progressive degradation or transient behaviour such as light induced changes and/or thermal annealing.

This series consists of four parts:

- IEC 61853-1: *Photovoltaic (PV) module performance testing and energy rating – Part 1: Irradiance and temperature performance measurements and power rating*, which describes requirements for evaluating PV module performance in terms of power (watts) rating over a range of irradiances and temperatures;
- IEC 61853-2: *Photovoltaic (PV) module performance testing and energy rating – Part 2: Spectral responsivity, incidence angle, and module operating temperature measurements*, which describes test procedures for measuring the effect of varying angles of incidence and sunlight spectra as well as the estimation of module temperature from irradiance, ambient temperature, and wind speed;
- IEC 61853-3: *Photovoltaic (PV) module performance testing and energy rating – Part 3: Energy rating of PV modules*, which describes the calculations for PV module ratings; and
- IEC 61853-4: *Photovoltaic (PV) module performance testing and energy rating – Part 4: Standard reference climatic profiles*, which describes the standard time periods and environmental data set that shall be used for the energy rating calculations.

# PHOTOVOLTAIC (PV) MODULE PERFORMANCE TESTING AND ENERGY RATING –

## Part 4: Standard reference climatic profiles

### 1 Scope

This part of IEC 61853 describes the standard reference climatic profiles used for calculating energy ratings.

IEC 61853-1 describes requirements for evaluating PV module performance in terms of power (watts) rating. IEC 61853-2 describes test procedures for determining module temperature from irradiance, ambient temperature and wind speed, a method for measuring angle of incidence effects, and spectral responsivity. IEC 61853-3 describes the calculation of PV module energy rating values, using the data from IEC 61853-1, IEC 61853-2 and IEC 61853-4.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC TS 61836, *Solar photovoltaic energy systems – Terms, definitions and symbols*

IEC 61853-3, *Photovoltaic (PV) module performance testing and energy rating – Part 3: Energy rating of PV modules*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC TS 61836 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 4 Standard reference climatic profiles for energy rating

#### 4.1 General

The defined conditions contained within this document shall be used in IEC 61853-3 to obtain an energy rating. A fixed number (6) of standard reference climatic profiles are tabulated, representative of global regions relevant for the application of photovoltaics. The irradiance and ambient temperature data are representative of typical conditions over each region, but are to be considered as average values. The spectrally resolved irradiances are derived from satellite data.