

TECHNICAL SPECIFICATION

**Renewable energy off-grid systems –
Part 100: Overview of the IEC 62257 series**





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

RENEWABLE ENERGY OFF-GRID SYSTEMS –**Part 100: Overview of the IEC 62257 series**

FOREWORD

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IEC TS 62257-100 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems. It was developed in cooperation with other IEC technical committees and subcommittees dealing with renewable energies and related matters, namely IEC technical committee 21: Secondary cells and batteries, subcommittee 21A: Secondary cells and batteries containing alkaline or other non-acid electrolytes, IEC technical committee 64: Electrical installations and protection against electric shock, IEC technical committee 88: Wind energy generation systems. It is a Technical Specification.

This first edition of IEC TS 62257-100 cancels and replaces the third edition of IEC TS 62257-1 issued in 2015. It constitutes a major technical revision. This new edition of the introductory document transitions the entire series to a 3-digit numbering scheme. The overall numbering scheme is presented, including planned topics and sub-topics, to assist in organizing future documents and to differentiate the new documents from those under the former scheme. This major re-organization and update of the series was determined by JWG1 to be necessary to accommodate major advances within this subject area.

The main technical changes with regard to the previous edition's introductory document, IEC TS 62257-1, are as follows:

- describe the major updates for the IEC 62257 series;
- new simplified title for the series “Renewable energy off-grid systems”, which will precede individual part numbers;
- provide an introduction to the entire series, including the updated organization and planned content of the IEC 62257 series;
- add example user case studies to assist various users in selecting relevant parts within the series;
- removal of content replicated in other documents and relocation of some information to other planned documents in this series;
- addition of general information on access to electricity;
- additional information on managing a renewable energy off-grid project including tendering;
- removal of an annex containing definitions, originally intended to cover all documents in the series; future documents published under this new scheme will contain definitions for individual documents within that document itself.

This technical specification should be used in conjunction with the other documents of the IEC 62257 series, as relevant.

The text of this Technical Specification is based on the following documents:

Draft	Report on voting
82/2028/DTS	82/2066/RVDTS

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

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62257 series, published under the general title *Renewable energy off-grid systems*, can be found on the IEC website.

Future standards in this series will carry the new general title and three-digit numbering. Titles and numbers of existing standards in this series will be updated at the time of their next edition.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

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

INTRODUCTION

The IEC 62257 series provides technical standardization to different stakeholders (including but not limited to project developers, financing agencies, testing agencies, installers, etc.) involved in electrification projects for access to electricity for those not solely connected to the regional grid, through the setting up of off-grid renewable energy and hybrid systems (including micro-grids) with a voltage less than or equal to 1 000 V for AC (alternating current) or a voltage less than or equal to 1 500 V for DC (direct current).

Access to electricity is one of the predominant policy actions designed to increase the well-being of populations, together with access to clean water, improved healthcare, education, personal advancement and economic development. Increasing access to electricity through utilization of renewable off-grid electricity also directly or indirectly supports various United Nations Sustainability Development Goals (<https://sdgs.un.org/goals>), depending on the application.

Several strategies can be adopted to implement electrification and improve access to electricity in rural and urban settings, including the ability for connection to a national or regional electricity grid. The IEC 62257 series applies to cases where the utility grid is too far away, the individual demand centres are too small to make grid access economical: off-grid solutions provide an economical option, and where autonomous power systems can be used to supply these services.

These technical specifications are used to:

- a) choose the right solution for the right place with the optimal technology,
- b) design, purchase and install the product(s) and/or system to optimal compliancy,
- c) operate and maintain the system.

The IEC 62257 technical specifications focus on enabling access to electricity by concentrating on, but not being specific to, developing countries. This series shall not be considered as all-inclusive for access to electricity. That means that the technical specifications could be used for rural electrification, also for electrification of remote sites in developed countries, or any requirement for electricity access that cannot be met by attaching solely to the national utility grid. They promote the use of renewable energies, but at this time they do not deal with clean-energy mechanisms development (CO₂ emission, carbon credit, etc.). The series does allow for other types of energy, such as diesel generators, to be included as part of a hybrid renewable energy off-grid system.

This consistent set of documents may be considered as a whole, with different parts focusing on specific aspects of renewable energy off-grid systems. However, several parts are intended to be read as stand-alone documents depending on their intended application. IEC TS 62257-100 provides an overview of the various topics covered by this series. Additionally, the content and scopes of individual documents, available at the website webstore.iec.ch, provide potential users with the intended application for each document. For further information on planned documents to be published under the new IEC 62257 numbering scheme, IEC TC82 committee members may refer to the annex in the JWG1 Program of Work circulated after each JWG1 meeting, or to the Planned Work Programme on the www.iec.ch TC82 website.

One of the main objectives of this series is to provide the minimum sufficient recommendations, including items for safety, sustainability of systems and at the lowest life cycle cost, relevant to the renewable energy and hybrid off-grid systems field of application.