



# TECHNICAL SPECIFICATION

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**Recommendations for renewable energy and hybrid systems for rural electrification –  
Part 7-4: Generators – Integration of solar with other forms of power generation  
within hybrid power systems**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## CONTENTS

|   |    |
|---|----|
| FOREWORD .....  | 3  |
| 1 Scope .....   | 5  |
| 2 Normative references .....  | 5  |
| 3 Terms and definitions .....   | 6  |
| 4 Overview .....  | 6  |
| 5 Types of hybrid systems .....   | 7  |
| 5.1 General .....   | 7  |
| 5.2 Multi-master rotating machine dominated mini-grid .....                             | 7  |
| 5.2.1 General .....   | 7  |
| 5.2.2 Design .....  | 8  |
| 5.2.3 Design and selection of diesel generators .....                                   | 8  |
| 5.2.4 Design and selection of renewable energy component .....                          | 9  |
| 5.2.5 Design and selection of batteries .....   | 9  |
| 5.2.6 Control system .....  | 9  |
| 5.3 Single switched master mini-grid .....  | 10 |
| 5.3.1 General .....   | 10 |
| 5.3.2 Design .....  | 11 |
| 5.3.3 Design and selection of diesel generators .....                                   | 12 |
| 5.3.4 Design and selection of renewable energy component .....                          | 12 |
| 5.3.5 5.2.4 Design and selection of batteries .....                                     | 12 |
| 5.3.6 System control .....  | 13 |
| 5.4 Multi-master inverter dominated mini-grid .....                                     | 14 |
| 5.4.1 General .....   | 14 |
| 5.4.2 Design .....  | 15 |
| 5.4.3 Design and selection of diesel generators .....                                   | 15 |
| 5.4.4 Design and selection of renewable energy component .....                          | 15 |
| 5.4.5 Design and selection of batteries .....   | 15 |
| 5.4.6 Control .....   | 15 |
| Figure 1 – Typical multi-master rotating machine dominated mini-grid architecture ..... | 8  |
| Figure 2 – Single switched master mini-grid architecture .....                          | 11 |
| Figure 3 – Multi-master inverter dominated mini-grid architecture .....                 | 14 |

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### RECOMMENDATIONS FOR RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

#### Part 7-4: Generators – Integration of solar with other forms of power generation within hybrid power systems

#### FOREWORD

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical Specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62257-7-4, which is a Technical Specification, has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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

| Draft TS    | Report on voting |
|-------------|------------------|
| 82/1477/DTS | 82/1545A/RVDTS   |

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

This part of IEC 62257 is to be used in conjunction with IEC 62257 (all parts).

A list of all parts in the IEC 62257 series, published under the general title *Recommendations for renewable energy and hybrid systems for rural electrification*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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

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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or amended.

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

## RECOMMENDATIONS FOR RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

### Part 7-4: Generators – Integration of solar with other forms of power generation within hybrid power systems

#### 1 Scope

This part of IEC 62257, which is a technical specification, specifies the design and implementation of hybrid off-grid solar systems, where solar energy provides energy to a load in conjunction with other sources of energy. Such systems may or may not include an energy storage system. There are a variety of different system architectures and applications, and many ways in which these energy sources can be combined. This document distinguishes between different sorts of hybrid system applications and gives guidance on the design and integration of these systems.

It applies to single-phase and three-phase applications, and it covers situations where grid is available as an additional source of power for charging batteries and maintaining system reliability, but this document does not cover situations in which energy is fed back into a utility grid, although such systems may incidentally possess this function.

#### 2 Normative references

The following documents are referred to in the text in such a way the 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 TS 62257-7-2, *Recommendations for renewable energy and hybrid systems for rural electrification – Part 7-2: Generator set – Off-grid wind turbines*<sup>1</sup>

IEC TS 62257-7-3, *Recommendations for renewable energy and hybrid systems for rural electrification – Part 7-3: Generator set – Selection of generator sets for rural electrification systems*

IEC TS 62257-9-7, *Recommendations for renewable energy and hybrid systems for rural electrification – Part 9-7: Selection of inverters*

IEC 62509, *Battery charge controllers for photovoltaic systems – Performance and functioning*

IEC 62548, *Photovoltaic (PV) arrays – Design requirements*

IEC TS 62738, *Ground-mounted photovoltaic power plants – Design guidelines and recommendations*

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<sup>1</sup> To be published.