IEC TS 62257-9-4

Edition 2.0 2016-09

TECHNICAL SPECIFICATION

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Recommendations for renewable energy and hybrid systems for rural electrification –
Part 9-4: Integrated systems – User installation

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RECOMMENDATIONS FOR RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

Part 9-4: Integrated systems – User installation

FOREWORD

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- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- 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 62257-9-4, which is a technical specification, has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

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This second edition cancels and replaces the first edition issued in 2006. It constitutes a technical revision.

The main technical changes with regard to the previous edition are as follows:

- Changing the voltage range covered by the technical specification to a.c. nominal voltage below 1 000 V and d.c. nominal voltage below 1 500 V (introduction).
- Including 240 V and 220 V 1-Ø in the voltage levels (scope).
- Introduced requirement that conductor used for lightning protection must be minimum 16 mm^2 (7.2).

This part of IEC 62257 is to be used in conjunction with the IEC 62257 series.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
82/1031/DTS	82/1090/RVC

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

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.

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

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INTRODUCTION

The IEC 62257 series intends to provide to different players involved in rural electrification projects (such as project implementers, project contractors, project supervisors, installers, etc.) documents for the setting up of renewable energy and hybrid systems with a.c. nominal voltage below 1 000 V, and d.c. nominal voltage below 1 500 V.

These documents are recommendations:

- to choose the right system for the right place,
- to design the system,
- to operate and maintain the system.

These documents are focused only on rural electrification concentrating on but not specific to developing countries. They should not be considered as all inclusive to rural electrification. The documents try to promote the use of renewable energies in rural electrification; they do not deal with clean mechanisms developments at this time (CO_2 emission, carbon credit, etc.). Further developments in this field could be introduced in future steps.

This consistent set of documents is best considered as a whole with different parts corresponding to items for safety, sustainability of systems and at the lowest life cycle cost as possible. One of the main objectives is to provide the minimum sufficient requirements, relevant to the field of application that is: small renewable energy and hybrid off-grid systems.

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RECOMMENDATIONS FOR RENEWABLE ENERGY AND HYBRID SYSTEMS FOR RURAL ELECTRIFICATION –

Part 9-4: Integrated systems – User installation

1 Scope

This part of IEC 62257, which is a technical specification, specifies the general requirements for the design and the implementation of a user's installation.

This part of IEC 62257 applies to single phase user's electrical installations with maximum power of 500 VA, in Decentralized Rural Electrification Systems (DRES).

NOTE For installations above 500 VA in decentralized electrification systems, IEC TS 62257-5 applies.

This part of IEC 62257 is applicable to installations supplied by an a.c microgrid (120 V or 220 V or 230 V or 240 V) and to installations encompassing their own single-unit a.c. micropower plant (120 V or 220 V or 230 V or 240 V) or d.c micropower plant (12 V or 24 V).

The part of IEC 62257 applies neither to the electric power production and distribution installations described in the clauses concerning micropower plants and microgrids, nor to user electrical equipment. It details the rules governing the design and construction of consumer’s electrical installations for the purpose of ensuring the safety of persons and property, and satisfactory operation in accordance with the purpose for which the installations are designed.

It applies to new installations and modifications of existing installations.

2 Normative reference

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 60269 (all parts), *Low-voltage fuses*

IEC 60364-5-52, *Electrical installations of buildings – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 62257 (all parts), *Recommendations for renewable energy and hybrid systems for rural electrification*

IEC TS 62257-5, *Recommendations for renewable energy and hybrid systems for rural electrification – Part 5: Protection against electrical hazards*

IEC TS 62257-7 (all parts), *Recommendations for renewable energy and hybrid systems for rural electrification – Part 7: Generators*

IEC TS 62257-7-1, *Recommendations for small renewable energy and hybrid systems for rural electrification – Part 7-1: Generators – Photovoltaic generators*

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