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Low-voltage electrical installations -
Part 8-82: Functional aspects - Prosumer's low-voltage electrical installations

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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Low-voltage electrical installations - Part 8-82: Functional aspects - Prosumer's low-voltage electrical installations

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 60364-8-82 edition 1.1 contains the first edition (2022-10) [documents 64/2559/FDIS and 64/2562/RVD] and its amendment 1 (2026-04) [documents 64/2815/FDIS and 64/2858/RVD].

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

This corrected version of IEC 60364-8-82:2022+AMD1:2026 CSV incorporates the following correction:
– Renumbering of the terms and definitions from 82.3.1 to 82.3.19 in the PDF following an incorrect conversion.

IEC 60364-8-82 has been prepared by IEC technical committee 64: Electrical installations and protection against electrical shock, IEC technical committee 8: System aspects of electrical energy supply and its subcommittee 8B: Decentralized electrical energy systems. It is an International Standard.

This first edition cancels and replaces IEC 60364-8-2 published in 2018. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to IEC 60364-8-2:2018:

a) the vocabulary and concepts have been aligned as much as possible with those used by TC 8 and SC 8B, taking notably into account the IEC 62898 series and IEC TS 62786, still respecting the installers mindset (installers being the first users of the IEC 60364 series and being used to only refer to the IEC 60364 series);
b) the type of system earthing and the change of type of system earthing (sequencing) when there is a change of mode of the prosuming installation, have been clarified;
c) the conditions of connection and disconnection from the DSO network have also been described, both from the safety point of view and the proper functioning point of view;
d) additional requirements have been introduced;
e) the figures have been updated;
f) a new normative Annex D on single dwelling or similar application islandable PEIs has been added;
g) the numbering has also been reviewed to follow the updated numbering system of the IEC 60364 series, in line with the IEC Directives and compatible with Parts 7.

The text of this International Standard is based on the following documents:

Draft	Report on voting
64/2559/FDIS	64/2562/RVD

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 International Standard 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/standardsdev/publications.

A list of all parts in the IEC 60364 series, published under the general title *Low-voltage electrical installations*, can be found on the IEC website.

The reader's attention is drawn to the fact that Annex E lists all of the "in-some-country" clauses on differing practices of a less permanent nature relating to the subject of this document.

The committee has decided that the contents of this document and its amendment 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, or
– revised.

INTRODUCTION

Historically, utilities were managing the public transmission and distribution network from the point of view of having a central production adapted to demand variation, a top-down energy flow, a production/consumption balance done by integrated utility companies and with rather passive users.

The following key factors are pushing the distribution network to change:

– the increasing number of electronic devices used daily and the growing needs as well as future needs (e.g. charging electric vehicles) will result in the structural growing of electricity consumption;

– the mediated pressure on climate change results in pressure on CO_2 emissions reduction;

– the electricity market is also quickly changing due mainly to its unbundling and deregulation, and to the greater number of intermittent renewable energy sources (global and local);

– users' expectations are also evolving as a result of an increasing need for better distribution networks reliability and quality, the search for better economic performance and the willingness to pro-actively manage their energy;

– technological evolution should also be considered as information and communication technology (ICT) is affordable and new energy storage solutions are emerging.

All stakeholders directly involved in the electricity generation, transmission, distribution and consumption have new expectations:

– customers are willing to reduce electrical energy costs in order to meet environment targets (renewable energy, energy efficiency) but also wish to benefit from the quality of electricity supply;

– suppliers wish to limit customer churn rate with price and service management;

– producers expect to maximize their yield of assets, to optimize their investments and to take profit from energy trading;

– the aggregator wants to create conditions suitable for new market emergence;

– the transmission system operator (TSO) aspires to a robust transmission network and to meet regulation objectives (price and level of services), while the distribution system operator (DSO) wants to meet regulation objectives (price and level of services), to reduce costs by productivity (including meter) and to have a flexible network;

– finally, governments and regulators are willing to create a competitive and sustainable energy market.

The objective of this document is to ensure that the low-voltage electrical installation is compatible with the current and future ways to deliver safely and functionally the electrical energy to current-using equipment wherever the electrical energy comes from the DSO or local generation. This document is not intended to influence all stakeholders of electricity supply on how the electrical energy should be sold and delivered.

INTRODUCTION to Amendment 1

The purpose of this amendment is to add a dedicated annex for PEIs with a DC system and distributed sources with isolated interlink converter.

82.1 Scope

This part of IEC 60364 provides requirements and recommendations that apply to low-voltage electrical installations connected or not to a distribution network able to operate:

– with local power supplies, and/or
– with local storage units,

and that monitors and controls the energy from the locally connected sources delivering it to:

– current-using equipment, and/or
– local storage units, and/or
– distribution networks.

Such electrical installations are designated as prosumer's electrical installations (PEIs).

These requirements and recommendations apply to new installations and modifications of existing installations.

This document also provides requirements and recommendations for the safe, efficient and correct behaviour of these installations when integrated into a smart grid.

NOTE Requirements for electrical sources for safety services are given in IEC 60364-5-56.

Information related to grid interaction to ensure the stability of the electrical system for grid connected PEIs is given in Annex B.

This document covers the requirements related to stability of islanded and stand-alone PEIs.

82.2 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 60038, *IEC standard voltages*

IEC 60364 (all parts), *Low-voltage electrical installations*

IEC 60364-4-41:2005, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*
IEC 60364-4-41/AMD1:2017

IEC 60364-4-42:~~2010~~2024, *Low-voltage electrical installations – Part 4-42: Protection for safety – Protection against thermal effects*

IEC 60364-4-43:~~2008~~2023, *Low-voltage electrical installations – Part 4-43: Protection for safety – Protection against overcurrent*

IEC 60364-5-51:2005, *Electrical installations of buildings – Part 5-51: Selection and erection of electrical equipment – Common rules*

IEC 60364-5-53:2019, *Low-voltage electrical installations – Part 5-53: Selection and erection of electrical equipment – Devices for protection for safety, isolation, switching, control and*

monitoring
IEC 60364-5-53:2019/AMD1:2020

IEC 60364-5-54:2011, *Low-voltage electrical installations – Part 5-54: Selection and erection of electrical equipment – Earthing arrangements and protective conductors*

IEC 60364-5-55:2011, *Electrical installations of buildings – Part 5-55: Selection and erection of electrical equipment – Other equipment*
IEC 60364-5-55:2011/AMD1:2012
IEC 60364-5-55:2011/AMD2:2016

IEC 60364-5-57, *Low-voltage electrical installations – Part 5-57: Selection and erection of electrical equipment – Erection of stationary secondary batteries*

IEC 60364-6, *Low voltage electrical installations – Part 6: Verification*

IEC 60364-7-722*, Low-voltage electrical installations – Part 7-722: Requirements for special installations or locations – Supplies for electric vehicles*

IEC 60947-2:2016, *Low-voltage switchgear and controlgear – Part 2: Circuit-breakers*
IEC 60947-2:2016/AMD1:2019

IEC 61557-12:2018, *Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC – Equipment for testing, measuring or monitoring of protective measures – Part 12: Power metering and monitoring devices (PMD)*

IEC 62423, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

IEC TS 62749, *Assessment of power quality – Characteristics of electricity supplied by public networks*

IEC 60947-10, *Low-voltage switchgear and controlgear - Part 10: Semiconductor circuit-breakers*

IEC 62477-1:2022, *Safety requirements for power electronic converter systems and equipment - Part 1: General*

IEC TS 63053, *General requirements for residual current operated protective devices for DC system*

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IEC 60050-617, *International Electrotechnical Vocabulary (IEV) – Part 617: Organization/Market of electricity* (available at http://www.electropedia.org)

IEC 60050-692, *International Electrotechnical Vocabulary (IEV) – Part 692: Generation, transmission and distribution of electrical energy – Dependability and quality of service of electric power systems* (available at http://www.electropedia.org)

IEC 60364-1:2005, *Low-voltage electrical installations – Part 1: Fundamental principles, assessment of general characteristics, definitions*

IEC 60364-4-44:2007, *Low-voltage electrical installations – Part 4-44: Protection for safety – Protection against voltage disturbances and electromagnetic disturbances*
IEC 60364-4-44:2007/AMD1:2015
IEC 60364-4-44:2007/AMD2:2018

IEC 60364-7-712, *Low-voltage electrical installations – Part 7-712: Requirements for special installations or locations – Solar photovoltaic (PV) power supply systems*

IEC 60364-8-1:2019, *Low-voltage electrical installations – Part 8-1: Functional aspects – Energy efficiency*

IEC TS 60364-8-3, *Low-voltage electrical installation – Part 8-3: Functional aspects – Operation of prosumer's electrical installations*

IEC 60947-3, *Low-voltage switchgear and controlgear – Part 3: Switches, disconnectors, switch-disconnectors and fuse-combination units*

IEC 60947-6-1, *Low-voltage switchgear and controlgear – Part 6-1: Multiple function equipment – Transfer switching equipment*

IEC TS 62786:2017, *Distributed energy resources connection with the grid*

IEC 62898 (all parts), *Microgrids*

IEC TS 62898-3-1, *Microgrids – Part 3-1: Technical requirements: protection and dynamic control*

IEC 62933-1:2018, *Electrical energy storage (EES) systems – Part 1: Vocabulary*

IEC 62991, *Particular requirements for source switching equipment (SSE)*[1]

IEEE C37.2, *Standard Electrical Power System Device Function Numbers, Acronyms, and Contact Designations*

IEC 60445:2021, *Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals, conductor terminations and conductors*

[1] Under preparation. Stage at the time of publication: IEC PRVC 62991:2022.

IEC 61660-1, *Short-circuit currents in d.c. auxiliary installations in power plants and substations - Part 1: Calculation of short-circuit currents*

IEC 62305-2, *Protection against lightning - Part 2: Risk management*

IEC TR 63282:2024, *LVDC systems - Assessment of standard voltages and power quality requirements*

EN 50162, *Protection against corrosion by stray current from direct current systems*