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

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CONTENTS

FOREWORD 4
INTRODUCTION 6
INTRODUCTION to Amendment 1 6
82.1 Scope 7
82.2 Normative references 7
82.3 Terms and definitions 8
82.4 Integration of PEI in its environment 12
82.4.1 Main objectives 12
82.4.2 Safety 12
82.4.3 Proper functioning 12
82.5 PEI concept 12
82.6 Types of PEI 15
82.6.1 General 15
82.6.2 Operating modes 15
82.6.3 Interaction with the distribution network 16
82.7 Control and monitoring 23
82.7.1 General 23
82.7.2 Architecture of control and monitoring system 24
82.8 Protection of prosumer electrical installation 24
82.8.1 General 24
82.8.2 Protection against electric shock 24
82.8.3 Protection against thermal effect 40
82.8.4 Protection against overcurrent 40
82.8.5 Protection against transient overvoltages 44
82.9 Isolation and switching 45
82.9.1 Isolation 45
82.9.2 Emergency switching-off 45
82.10 Load and source management 45
82.10.1 Energy storage 45
82.10.2 Design for flexibility of load and generators (demand/response) 45
82.10.3 Electric vehicle 46
Annex A (informative) Operating modes of PEI 47
A.1 Direct feeding mode 47
A.2 Island mode 47
A.3 Reverse feeding mode 48
Annex B (informative) Interaction with the supply system 50
B.1 General 50
B.2 Active power and frequency control 50
B.3 Reactive power and voltage control 50
B.4 Load shedding programme 50
Annex C (informative) Architectures of PEI 51
C.1 General 51
C.2 Architecture of individual PEI 51
C.3 Architecture of collective PEI 52
C.4 Architecture of shared PEI 58

Annex D (normative) Single dwelling or similar application islandable PEI 63
D.1 General 63
D.2 Type of system earthing 63
D.3 Connection of the local source 67
D.4 Fire switching-off 67
D.5 Switching device for islanding and system referencing conductor switching device 67
D.6 Labelling 67
D.7 Upgrading an existing single dwelling installation in islandable PEI 68
D.8 Initial verification 71
Annex E (informative) List of notes concerning certain countries 72
Annex F (normative) PEIs with a DC system and distributed sources with isolated interlink converter 73
F.1 General 73
F.2 Types of PEI with a DC system 74
F.3 General characteristics of the DC side of the PEI 76
F.4 Protection of PEI with a DC system 79
F.5 Selection and erection 81
F.6 Load and source management 86
Bibliography 87

Figure 1 – Example of prosumer's low-voltage electrical installation with AC electrical distribution within the PEI 13
Figure 2 – Example of prosumer's low-voltage electrical installation with AC and DC electrical distribution within the PEI 14
Figure 3 – Example of grid connected PEI architecture 17
Figure 4 – Example of islandable PEI architecture 18
Figure 5 – Example of architecture of PEI connected to LV DSO operating in TN-C-S in connected mode and becoming TN-S in island mode 27
Figure 6 – Example of architecture of PEI connected to LV DSO operating in TNC-S in connected mode and in island mode 28
Figure 7 – Example of architecture of PEI connected to LV DSO with disconnection of the neutral, operating in TT in connected mode and becoming TN in island mode 29
Figure 8 – Example of PEI installation with neutral earthing on the HV/LV transformer side: TT in connected mode, TN in island mode (as one unique earthing arrangement in the installation) 31
Figure 9 – Example of PEI installation in TN-S with neutral permanently earthed on PEI side 33
Figure 10 – Example of PEI installation in TN-S with neutral permanently earthed on PEI side with RCD on the system referencing conductor 36
Figure 11 – Example of PEI in IT system in island mode 38
Figure 12 – Example of PEI in IT system in island mode with automatic disconnection of supply 39
Figure 13 – Example of double short-circuit protection for the same circuit 42
Figure 14 – Example of selectivity with various power supplies 43
Figure 15 – Potential selectivity issue with overcurrent protections 44
Figure A.1 – Example of electrical design of PEI operating in direct feeding mode 47
Figure A.2 – Example of electrical design of PEI operating in island mode 48

Figure A.3 – Example of electrical design of individual PEI operating in reverse feeding mode 49
Figure C.1 – Example of electrical design of individual PEI 51
Figure C.2 – Example of type of architecture of individual PEI 52
Figure C.3 – Example of electrical design of collective PEI using DSO distribution system 53
Figure C.4 – Example of electrical design of collective PEI using a distribution system within PEI 54
Figure C.5 – Example of electrical design of collective PEI with distribution system within PEI in parallel with DSO distribution system 55
Figure C.6 – Example of type of architecture for collective PEI 57
Figure C.7 – Example of electrical design of shared PEI using DSO distribution system 58
Figure C.8 – Example of electrical design of shared PEI with distribution system within PEI 59
Figure C.9 – Example of electrical design of shared PEI with distribution system within PEI in parallel with DSO distribution system 60
Figure C.10 – Example of type of architecture for shared PEI 62
Figure D.1 – Example of single dwelling islandable PEI architecture in TN in connected mode and in island mode (with disconnection of the neutral – TN-S) 65
Figure D.2 – Example of single dwelling islandable PEI architecture in TT in connected mode becoming TN in island mode 66
Figure D.3 – Example of label 68
Figure D.4 – Example of single dwelling electrical installation before being upgraded to islandable PEI 69
Figure D.5 – Example of single dwelling electrical installation upgraded to islandable PEI 70
Figure F.1 – Example of a PEI with a DC system 74
Figure F.2 – Example of islandable PEI architecture 75
Figure F.3 – Example of a PEI with a DC system and illustration of DC circuit classification 78

Table 1 – Combinations of possible types of system earthing in connected mode and island mode for PEIs and associated requirements for system referencing conductor switching device 26

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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.

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*

82.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

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

82.3.0
smart grid
intelligent grid
electric power system that utilizes information exchange and control technologies, distributed computing and associated sensors and actuators, for purposes such as: