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Vodilo za električne inštalacije – 102. del: Smernice za uporabo enosmernih nizkonapetostnih električnih inštalacij, ki niso predvidene za priključitev na javno distribucijsko omrežje (IEC TS 61200-102:2020)

Electrical installation guide - Part 102: Application guidelines for low-voltage direct current electrical installations not intended to be connected to a public distribution network (IEC TS 61200-102:2020)

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Electrical installation guide –
Part 102: Application guidelines for low-voltage direct current electrical installations not intended to be connected to a public distribution network

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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ELECTRICAL INSTALLATION GUIDE –

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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 61200-102, which is a Technical Specification, has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

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

Draft TS	Report on voting
64/2385/DTS	64/2406/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 document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 61200 series, published under the general title *Electrical installation guide*, can be found on the IEC website.

The reader's attention is drawn to the fact that Annex C 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 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

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- withdrawn,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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

Many people in the world who still have no access to electricity would benefit from access to electrical power. This can now be achieved with distributed electrical sources using renewable energy. These electrical sources using renewable energy are all operating in direct current (e.g. photovoltaic system, wind turbines).

Supply from these renewable energies is not constant, photovoltaic panels do not operate at night, and wind turbines require wind for generating electrical energy. Therefore, the use of storage units becomes a necessity and manufacturers of stationary secondary batteries are investing in these technologies so that they can become affordable.

In addition, lighting with light emitting diodes (LED), mobile phones and other electronic devices generally operate using direct current.

All requirements and recommendations in this document comply with IEC 60364 (all parts).

ELECTRICAL INSTALLATION GUIDE –

Part 102: Application guidelines for low-voltage direct current electrical installations not intended to be connected to a public distribution network

1 Scope

This part of IEC 61200 applies to low-voltage DC electrical installations entirely supplied by local power sources and having a nominal voltage lower or equal to the low-voltage limit. These installations can be connected to collective or shared private electrical installations.

This document also applies to DC installations according to use cases TIER 2 and TIER 3 of the World Bank defined in ESMAP 008/15 report: Beyond Connections Energy Access Redefined.

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 60364-4-41, *Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock*

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

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

3 Terms and definitions

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

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

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

3.1
individual electrical installation
single consuming and/or producing electrical installation

3.2
collective electrical installation
set of consuming electrical installations sharing one common set of local power supplies and energy storage equipment

3.3
shared electrical installation
set of consuming and/or producing electrical installations, similar to an individual electrical installation, and sharing their individual power supplies and energy storage equipment

3.4
autonomous mode
operating mode where the electrical installation operates while disconnected from the public distribution network

3.5
public distribution network
PDN
set of coordinated equipment intended to be used for the distribution of electrical energy to private electrical installations and operated by a public organization

3.6
prosumer
entity or party which can be both a producer and a consumer of electrical energy

4 General

4.1 Concept of electrical installation

Any low-voltage electrical installation is to be considered as a set of electrical equipment having the following functions (see Figure 1):

- supply (e.g. local generator, photovoltaic systems, wind turbine, batteries);
- distribution (e.g. distribution board, wiring systems, socket-outlets);
- consumption (e.g. fans, lighting, appliances, pumps, batteries).

NOTE Rechargeable batteries can be considered as a power supply and as a consuming unit.