IEC 61439-3

Edition 2.0 2024-03
COMMENTED VERSION

INTERNATIONAL STANDARD

colour inside

Low-voltage switchgear and controlgear assemblies –
Part 3: Distribution boards intended to be operated by ordinary persons (DBO)



IEC 61439-3:2024-03 CMV(en)



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 3: Distribution boards intended to be operated by ordinary persons (DBO)

FOREWORD

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This commented version (CMV) of the official standard IEC 61439-3:2024 edition 2.0 allows the user to identify the changes made to the previous IEC 61439-3:2012 edition 1.0. Furthermore, comments from IEC TC SC 121B experts are provided to explain the reasons of the most relevant changes, or to clarify any part of the content.

A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text. Experts' comments are identified by a blue-background number. Mouse over a number to display a pop-up note with the comment.

This publication contains the CMV and the official standard. The full list of comments is available at the end of the CMV.

IEC 61439-3 has been prepared by subcommittee 121B: Low-voltage switchgear and controlgear assemblies, of IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) alignment with the structure of IEC 61439-1:2020;
b) inclusion in the scope of more examples of the type of protection and control devices;
c) deletion of type A and type B DBOs;
d) addition of a new Annex BB related to DBOs used in a prosumer's electrical installation (PEI);
e) addition of a new Annex CC related to rated current of a DBO with additional source of supply in parallel/simultaneously with another source that is connected to the DBO e.g. PV.

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

Draft	Report on voting
121B/193/FDIS	121B/195/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/publications.

This document is to be read in conjunction with IEC 61439-1:2020. The provisions of the general rules dealt with in IEC 61439-1 are only applicable to this document insofar as they are specifically cited. When this document states "addition", "modification" or "replacement", the relevant text in IEC 61439-1:2020 is to be adapted accordingly.

Subclauses that are numbered with a 101 (102, 103, etc.) suffix are additional to the same subclause in IEC 61439-1:2020.

Tables and figures in this document that are new are numbered starting with 101.

New annexes in this document are lettered AA, BB, etc.

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

A list of all parts in the IEC 61439 series, published under the general title *Low-voltage switchgear and controlgear assemblies,* can be found on the IEC website.

The committee has decided that the contents of this document 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.

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 3: Distribution boards intended to be operated by ordinary persons (DBO)

1 Scope

This part of IEC 61439 defines the specific requirements for distribution boards intended to be operated by ordinary persons (abbreviated DBO throughout this document, see 3.1.101) as follows:

– assemblies intended to be operated by ordinary persons (e.g. switching operations and replacing fuse-links), e.g. in domestic (household) applications;

– assemblies containing outgoing circuits with protective devices intended to be operated by ordinary persons, complying e.g. with IEC 60898-1, the IEC 61008 series, the IEC 61009 series, IEC 62606, IEC 62423 and IEC 60269-3;

– assemblies for applications where the ~~rated~~ nominal **1** voltage to earth does not exceed 300 V AC (see Table G.1 of IEC 61439-1:2020);

NOTE The voltage limits for DC applications are under consideration.

– assemblies with a rated current (I_{nc}) of the outgoing circuits not exceeding 125 A and a rated current (I_{nA}) not exceeding 250 A;

– assemblies intended for use in connection with the generation, transmission, distribution and conversion of electrical energy, and for the control of equipment consuming electrical energy and for associated data processing; **2**

– enclosed, stationary assemblies;

– assemblies for indoor or outdoor use.

~~DBOs may also include control and/or signaling devices associated with the distribution of electrical energy.~~

~~DBOs may be assembled outside the factory of the original manufacturer.~~ **3**

DBOs can contain protection devices, control devices, signalling devices alone or a combination of devices e.g. circuit-breakers, load shedding relay, energy management, communication devices, lighting control. **4**

This document does not apply to an empty enclosure nor to individual devices and self-contained components, such as circuit-breakers, fuse-switches, electronic equipment~~, etc~~. which comply with the relevant product standards, it describes the integration of devices, or self-contained components, or both, into a DBO or into an empty enclosure forming a DBO.

This document applies to DBOs designed, manufactured, and verified on a one-off basis or fully standardized and manufactured in quantity.

This document does not apply to the specific types of assemblies covered by other parts of the IEC 61439 series.

NOTE Enclosures for electrical accessories for household and similar fixed electrical installations are covered in IEC 60670-24.

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.

Clause 2 of IEC 61439-1:2020 is applicable in addition to the following.

Addition:

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60269-3, *Low-voltage fuses – Part 3: Supplementary requirements for fuses for use by unskilled persons (fuses mainly for household and similar applications) – Examples of standardized systems of fuses A to F*

IEC 60364-8-82, *Low-voltage electrical installations – Part 8-82: Functional aspects – Prosumer's low-voltage electrical installations*

IEC 60898-1~~:2010~~, *Electrical accessories – Circuit-breakers for overcurrent protection for household and similar installations – Part 1: Circuit-breakers for a.c. operation*

IEC 60669-2-4, *Switches for household and similar fixed electrical installations – Part 2-4: Particular requirements – Isolating switches*

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

IEC 61008 (all parts), *Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCBs)*

IEC 61009 (all parts), *Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBOs)*

IEC 61439-1:~~2011~~2020, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 62423:2009, *Type F and type B residual current operated circuit-breakers with and without integral overcurrent protection for household and similar uses*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

IEC 62606, *General requirements for arc fault detection devices*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61439-1:2020 and the following 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

Clause 3 of IEC 61439-1:2020 is applicable except as follows.

3.1 General terms

Additional terms and definitions:

3.1.101
distribution board intended to be operated by ordinary persons
DBO
~~ASSEMBLY used to distribute electrical energy in domestic (household) applications and other places where operation is intended by ordinary persons~~

assembly used to distribute and control electrical energy for all types of electrical supplies and loads, intended for operation by ordinary persons **5**

Note 1 to entry: For operation by ordinary persons, see 8.4.6.1 of IEC 61439-1:2020.

Note 2 to entry: Switching operations and replacing fuse-links are examples of operations intended to be carried out by ordinary persons.

Note 3 to entry: Definition 3.1.101 does not preclude the DBO from being operated by skilled or instructed persons, and also being used in non-domestic installations. **6**

Note 4 to entry: DBOs can be assembled outside the factory of the original manufacturer. DBOs can be assembled by the original manufacturer or by an assembly manufacturer.

~~**3.1.102**~~ **7**
~~**type A DBO**~~
~~DBO designed to accept single pole devices~~

~~Note 1 to entry: In the UK, a type A DBO used principally for domestic (household) installations and having a maximum incoming unit rating of 100 A and a maximum outgoing circuit rating of 63 A, is known as a "consumer unit" or "customer distribution board".~~

~~**3.1.103**~~
~~**type B DBO**~~
~~DBO designed to accept multi-pole and/or single pole devices~~

4 Symbols and abbreviations

Clause 4 of IEC 61439-1:2020 is applicable.

5 Interface characteristics

Clause 5 of IEC 61439-1:2020 is applicable except as follows.

5.1 General

Addition:

This objective can be achieved through one of two typical processes; the user will either select a catalogue product, the characteristics of which meet the required user needs, or make a specific agreement with the manufacturer.

In both cases, the specification schedule according to Annex AA is intended to help the user to provide all data necessary to specify, and to help the manufacturer to provide the actual DBO characteristics. In some cases information declared by the DBO manufacturer may take the place of an agreement.