

INTERNATIONAL STANDARD



**Low-voltage switchgear and controlgear assemblies –
Part 7: Assemblies for specific applications such as marinas, camping sites,
market squares, electric vehicle charging stations**

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IEC 61439-7

Edition 2.0 2022-07
REDLINE VERSION

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INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 29.130.20

ISBN 978-2-8322-3978-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –**Part 7: Assemblies for specific applications such as marinas, camping sites, market squares, electric vehicle charging stations**

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61439-7:2018. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

IEC 61439-7 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.

This second edition cancels and replaces the first edition published in 2018. It constitutes a technical revision.

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

a) a general editorial review and a technical revision.

The text of this document is based on the following documents:

Draft	Report on voting
121B/138/CDV	121B/150/RVC

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 is to be read in conjunction with IEC 61439-1:2020. The provisions of the general rules dealt with in IEC 61439-1:2020 are applicable to this document where 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 701 (702, 703, 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 701.

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

In this document, the term assembly is defined in 3.1.1 of IEC 61439-1:2020.

The reader's attention is drawn to the fact that Annex FF 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 of the IEC 61439 series, under the general title *Low-voltage switchgear and controlgear assemblies*, can be found on the IEC website.

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.

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

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 7: Assemblies for specific applications such as marinas, camping sites, market squares, electric vehicle charging stations

1 Scope

Clause 1 of IEC 61439-1:~~2014~~2020 is applicable except as follows.

Replacement:

This part of IEC 61439 defines the specific requirements for assemblies for the following applications: marinas, camping sites, market squares and electric vehicle charging stations as follows:

- assemblies for which the rated voltage does not exceed 1 000 V AC or 1 500 V DC;
- assemblies intended for use in connection with the generation, transmission, distribution and conversion of electric energy, and for the control of electric energy consuming equipment;
- assemblies operated by ordinary persons (e.g. to plug and unplug of electrical equipment);
- assemblies intended to be installed and used in market squares, marinas, camping sites and other similar ~~outdoor public sites~~ sites accessible to the public including temporary installations;
- assemblies intended for charging stations for electric vehicles (AEVCS) for Mode 3 and Mode 4. They are designed to integrate the functionality and additional requirements for electric vehicle conductive charging systems according to IEC 61851-1:2017.

NOTE 1 Throughout this document, the terms AMHS (see 3.1.701), ACCS (see 3.1.702), AMPS (see 3.1.703), AEVCS (see 3.1.704) are used for low-voltage switchgear and controlgear assemblies intended for use respectively in marinas and similar locations (AMHS), camping sites and similar locations (ACCS), market squares and other similar external public sites (AMPS) and charging stations (AEVCS). The term assemblies is used for indicating all these boards.

This document is not applicable to assemblies intended to be installed on board of ships, houseboats, pleasure crafts and similar vessels.

For the correct selection of the switching devices and components, the following standards apply:

- IEC 60364-7-709 (AMHS) or
- IEC 60364-7-708 (ACCS) or
- IEC 60364-7-740 (AMPS) or
- IEC 60364-7-722 (AEVCS).

This document applies to all assemblies whether they are designed, manufactured and verified on a one-off basis or fully standardised and manufactured in quantity.

The manufacturing and/or assembling ~~may~~ can be carried out other than by the original manufacturer (see 3.10.1 of IEC 61439-1:~~2014~~2020).

This document does not apply to individual devices and self-contained components such as circuit breakers, fuse switches, electronic equipment, which comply with their relevant product standards.

NOTE 2 Where electrical equipment is directly connected to public low-voltage supply system and equipped with an energy meter for billing of the legal provider of the low-voltage supply, additional particular requirements based on national regulations apply, if any.

This document does not apply to boxes and enclosures for electrical accessories for household and similar fixed electrical installations as defined 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 61439-1:2014/2020 is applicable except as follows.

Addition:

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

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

IEC 61439-1:2014/2020, *Low-voltage switchgear and controlgear assemblies – Part 1: General rules*

IEC 62262:2002, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*
IEC 62262:2002/AMD1:2021

3 Terms and definitions

IEC 61439-7:2022

For the purposes of this document, the terms and definitions given in IEC 61439-1:2014/2020 and the following 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>

Clause 3 of IEC 61439-1:2014/2020 is applicable except as follows.

3.1 General terms

Additional terms:

3.1.701

low-voltage switchgear and controlgear assembly for marinas and harbour sites AMHS

combination of one or more transforming or switching devices together with associated control, measuring, signaling, protective and regulating equipment, with all their internal electrical and mechanical interconnections and structural parts, designed and built for use in all marinas, harbors and similar sites

~~Note 1 to entry:—This note applies to the French language only.~~

3.1.702**low-voltage switchgear and controlgear assembly for camping and caravan sites****ACCS**

combination of one or more transforming or switching devices together with associated control, measuring, signaling, protective and regulating equipment, with all their internal electrical and mechanical interconnections and structural parts, designed and built for use in all camping, caravan and similar sites

Note 1 to entry:—This note applies to the French language only.

3.1.703**low-voltage switchgear and controlgear assembly for markets and other outdoor public sites****AMPS**

combination of one or more transforming or switching devices together with associated control, measuring, signaling, protective and regulating equipment, with all their internal electrical and mechanical interconnections and structural parts, designed and built for use in all market squares and other similar outdoor public sites

Note 1 to entry:—This note applies to the French language only.

3.1.704**low-voltage switchgear and controlgear assembly for electric vehicles charging stations****AEVCS**

combination of one or more transforming or switching devices together with associated control, measuring, signaling, protective and regulating equipment, with all their internal electrical and mechanical interconnections and structural parts, designed and built for electric vehicle charging stations

Note 1 to entry:—This note applies to the French language only.

3.3 External design of assemblies

Modification:

[IEC 61439-7:2022](https://standards.iteh.ai/catalog/standards/iec/68a57115-4fd0-48eb-8232-87b8d4ad43f8/iec-61439-7-2022)

3.3.1**open-type assembly**

This term of IEC 61439-1:~~2014~~2020 does not apply.

3.3.2**dead-front assembly**

This term of IEC 61439-1:~~2014~~2020 does not apply.

3.5 Conditions of installation of assemblies**3.5.3****stationary assembly**

Additional terms and definitions:

3.5.3.701**ground and floor mounted assembly**

stationary assembly permanently connected to the supply with a part embedded in the ground or intended to be fixed directly on the floor or a base

Note 1 to entry: This type of assembly includes poles and columns.

3.5.3.702**wall-mounted assembly**

stationary assembly intended to be fixed directly on the wall while being permanently fixed to the supply

3.5.4 movable assembly

This term of IEC 61439-1:~~2014~~2020 does not apply.

Additional terms and definitions:

3.5.701 permanently connected assembly

assembly that can only be connected to, or disconnected from, the AC or DC supply network by the use of a tool

Note 1 to entry: This assembly corresponds to the definition of permanently connected EV supply equipment provided in 3.6.9 of IEC 61851-1:2017.

3.5.702 transportable assembly

assembly intended for use in a place where it is not permanently fixed

Note 1 to entry: When the equipment is to be moved to another place, it is first disconnected from the supply network.

3.5.703 mobile assembly

assembly which is capable to be moved while in operation or which can easily be moved from one place to another while connected to the supply network

3.5.704 assembly for locations with restricted access

assembly accessible to all persons who are authorized to have access to the location (e.g. equipment located in private housing, private parking areas or similar places)

Note 1 to entry: This assembly corresponds to the definition of equipment for locations with restricted access provided in 3.6.3 of IEC 61851-1:2017.

3.5.705 assembly for locations with non-restricted access

assembly accessible for all persons, e.g. the access is given in a public area

Note 1 to entry: This assembly corresponds to the definition of equipment for locations with non-restricted access provided in 3.6.4 of IEC 61851-1:2017.

3.5.706 water and other fluids system

part of the assembly which contains water tubes, valves, joins and taps as service to connected user

EXAMPLE Possible other fluids are compressed air, natural gasses, drinkable water and wastewater.

3.5.707 base

additional part of the arrangement used to support the assembly in any case of mounting intended to accommodate only cables

3.5.708 fixing mean

accessory intended to fix the base or the assembly to the ground, to the floor or to the wall etc.

4 Symbols and abbreviations

Clause 4 of IEC 61439-1:~~2014~~2020 is applicable except as follows.

Addition:

Symbol/Abbreviation	Term	Subclause
AMHS	low-voltage switchgear and controlgear assembly for marinas and harbour sites	3.1.701
ACCS	low-voltage switchgear and controlgear assembly for camping and caravan sites	3.1.702
AMPS	low-voltage switchgear and controlgear assembly for markets and other outdoor public sites	3.1.703
AEVCS	low-voltage switchgear and controlgear assembly for electric vehicles charging station	3.1.704

5 Interface characteristics

Clause 5 of IEC 61439-1:~~2014~~2020 is applicable except as follows. ~~Items subject to agreement between the ASSEMBLY manufacturer and the user: see Annex AA.~~

5.1 General

Replacement:

The characteristics of the assembly shall ensure compatibility with the ratings of the circuits to which it is connected and the installation conditions and shall be declared by the assembly manufacturer using the criteria identified in 5.2 to 5.6, 5.701 and 5.702.

The specification schedule detailed in the informative Annex AA is intended to help the user and the assembly manufacturer to meet this objective, whether the user:

- selects catalogue products, the characteristics of which meet their needs, and the requirements of this document; and/or,
- makes a specific agreement with the manufacturer.

5.4 Rated diversity factor (RDF)

Addition:

In the absence of ~~information~~ an agreement between the assembly manufacturer and the user concerning the actual load currents, the assumed loading of the outgoing circuits of AMHS, ACCS, AMPS assembly or group of outgoing circuits can be based on the ~~factor~~ values in Table 701, ~~may be used~~.

The assumed load current is the rated current of the protective device I_n as required by the user, multiplied with the loading factor of Table 701.

Table 701 does not apply for AEVCS. ~~For AEVCS the rated diversity factor of the outgoing circuit supplying directly the connecting point shall be taken as equal to 1. The rated diversity factor of the distribution circuit supplying multiple connecting points may be reduced if a load control is available.~~ For AEVCS it is assumed that all circuits can be loaded continuously and simultaneously. Therefore, the assumed loading factor of the outgoing circuits shall be taken as equal to 1 and can be reduced if a load control is available.

NOTE Values in Table 701 represent minimum values which are reached or exceeded in tests.

5.6 Other characteristics

Replacement of the item g):

g) intended for use by ordinary persons (see 3.7.16 of IEC 61439-1:~~2014~~2020);

Additional item:

q) locations with restricted access or non-restricted access (see 3.5.704 and 3.5.705).

Additional subclauses:

5.701 According to the method of mounting

5.701.1 Stationary assembly

5.701.1.1 Ground and floor mounted assembly (see Annex DD)

5.701.1.2 Wall-mounted assembly

5.701.2 Transportable assembly

5.701.3 Mobile assembly

5.702 According to the mechanical resistance for stationary assembly (see Table 702)

5.702.1 Basic mechanical resistance

5.702.2 Medium mechanical resistance

5.702.3 High mechanical resistance

6 Information

Clause 6 of IEC 61439-1:~~2014~~2020 is applicable except as follows.

6.1 Assembly designation marking

Replacement:

The assembly manufacturer shall provide each assembly with one or more labels, marked in a durable manner and located in a place such that they are visible and legible when the assembly is installed.

Compliance is checked according to the test of 10.2.7 of IEC 61439-1:~~2014~~2020 and by inspection.

The following information regarding the assembly shall be provided on the label(s):

- a) assembly manufacturer's name or trade mark (see 3.10.2 of IEC 61439-1:~~2014~~2020);
- b) type designation or identification number or any other means of identification, making it possible to obtain relevant information from the assembly manufacturer;
- c) means of identifying date of manufacture;
- d) rated current of the assembly I_{nA} (see 3.8.10.7 and 5.3.1 of IEC 61439-1:~~2014~~2020);
- e) rated voltage of the assembly U_n (see 3.8.9.1 and 5.2.1 of IEC 61439-1:~~2014~~2020);

- f) rated frequency ~~in the case of AC~~ of the assembly f_n (see 3.8.12 and 5.5 of IEC 61439-1:2011/2020);
- g) IEC 61439-7;
- h) degree of protection against contact with hazardous live parts, ingress of solid foreign bodies and water, IP code (see 8.2.2 of IEC 61439-1:2020);
- i) the weight, for transportable and mobile assemblies (see 3.5.702 and 3.5.703), where it exceeds 30 kg.

6.2.1 Information relating to the assembly

Replacement Addition:

The following additional information, where applicable, shall be provided in the assembly manufacturer's technical documentation supplied with the assembly:

- ~~a) rated operational voltage (U_g) of a circuit (see 5.2.2 of IEC 61439-1:2011);~~
- a) rated impulse withstand voltage (U_{imp}) (see 5.2.4 of IEC 61439-1:2011/2020);
- b) rated insulation voltage (U_i) (see 5.2.3 of IEC 61439-1:2011/2020);
- c) rated current of each circuit (I_{nc}) (see 5.3.2 of IEC 61439-1:2011/2020);
- ~~e) rated frequency (f_n) (see 5.5 of IEC 61439-1:2011);~~
- d) rated diversity factor(s) (RDF) (see 5.4);
- e) all necessary information relating to the other declared classifications and characteristics (see 5.6, 5.701 and 5.702);
- f) overall dimensions (including projections e.g. handles, covers, doors);
- g) AMHS (see 3.1.701), ACCS (see 3.1.702), AMPS (see 3.1.703), AEVCS (see 3.1.704) or equivalent terms;
- h) for mobile assemblies according to 3.5.703, the mounting position during operation, ~~if necessary~~.

7 Service conditions

Clause 7 of IEC 61439-1:2011/2020 is applicable.

8 Constructional requirements

Clause 8 of IEC 61439-1:2011/2020 is applicable except as follows.

8.2 Degree of protection and mechanical strength provided by an assembly enclosure

8.2.1 ~~Protection against mechanical impact~~ Mechanical strength for assemblies

Replacement of the whole text of this subclause:

8.2.1.701 Assemblies for locations with restricted access

The minimum mechanical resistance for assemblies for locations with restricted access is the basic resistance (5.702.1).

Medium or high resistance (5.702.2 and 5.702.3) ~~may~~ can be also required by the national installation rules.

For the relevant tests and severities see Table 702.