

BS EN 61439-5:2015

Incorporating corrigendum September 2015



BSI Standards Publication

Low-voltage switchgear and controlgear assemblies

Part 5: Assemblies for power distribution
in public networks

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National foreword

This British Standard is the UK implementation of EN 61439-5:2015. It is identical to IEC 61439-5:2014, incorporating corrigendum March 2015. It supersedes BS EN 61439-5:2011 which is withdrawn.

The UK participation in its preparation was entrusted by Technical Committee PEL/121, Switchgear and Controlgear and their assemblies for low voltage, to Subcommittee PEL/121/2, Low voltage switchgear and controlgear assemblies.

A list of organizations represented on this subcommittee can be obtained on request to its secretary.

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English Version

Low-voltage switchgear and controlgear assemblies - Part 5: Assemblies for power distribution in public networks (IEC 61439-5:2014)

Ensembles d'appareillage à basse tension -
Partie 5: Ensembles pour réseaux de distribution publique
(IEC 61439-5:2014)

Niederspannungs-Schaltgerätekombinationen -
Teil 5: Schaltgerätekombinationen in öffentlichen
Energieverteilungsnetzen
(IEC 61439-5:2014)

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Foreword

The text of document 17D/492/CDV, future edition 2 of IEC 61439-5, prepared by SC 17D "Low-voltage switchgear and controlgear assemblies" of IEC/TC 17 "Switchgear and controlgear" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61439-5:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-07-23
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-09-29

This document supersedes EN 60439-5:2011.

This standard is to be read in conjunction with EN 61439-1.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive.

For the relationship with EU Directive see informative Annex ZZ, which is an integral part of this document.

Endorsement notice

The text of the International Standard IEC 61439-5:2014 was approved by CENELEC as a European Standard without any modification.

In the Bibliography of EN 61439-1:2011, the following note has to be **added** for the standard indicated:

ISO 9223 NOTE Harmonised as EN ISO 9223.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Annex ZA of EN 61439-1:2011 applies, except as follows:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
Addition:				
IEC 60695-11-10	2013	Fire hazard testing -- Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	2013
IEC 61439-1	2011	Low-voltage switchgear and controlgear assemblies -- Part 1: General rules	EN 61439-1	2011
ISO 6506-1	-	Corrosion of metals and alloys - Corrosivity of atmospheres - Classification, determination and estimation	EN ISO 6506-1	-

Annex ZZ (informative)

Coverage of Essential Requirements of EU Directive 2004/108/EC

This European Standard has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and within its scope the standard covers all relevant essential requirements as given in Article 1 of Annex I of the EU Directive 2004/108/EC.

Compliance with this standard provides one means of conformity with the specified essential requirements of the Directive concerned.

WARNING: Other requirements and other EU Directives may be applicable to the products falling within the scope of this standard.

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LOW-VOLTAGE SWITCHGEAR AND CONTROLGEAR ASSEMBLIES –

Part 5: Assemblies for power distribution in public networks

1 Scope

This part of IEC 61439 defines the specific requirements for public electricity network distribution assemblies (PENDAs).

PENDAs have the following criteria:

- used for the distribution of electrical energy in three phase systems for which the rated voltage does not exceed 1 000 V a.c. (see Figure 101 for a typical distribution network);
- stationary;
- open ASSEMBLIES are not covered by this standard;
- suitable for installation in places where only skilled persons have access for their use, however, outdoor types may be installed in situations that are accessible to ordinary persons;
- for indoor or outdoor use.

The object of this standard is to state the definitions and to specify the service conditions, construction requirements, technical characteristics and tests for PENDAs. Network parameters may require tests at higher performance levels.

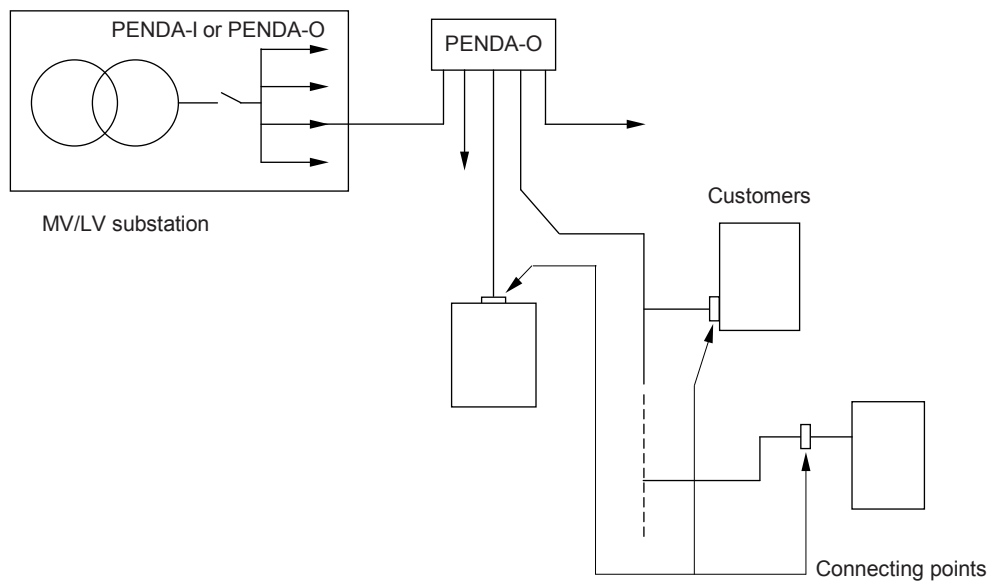
PENDAs may also include control and or signalling devices associated with the distribution of electrical energy.

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

The manufacture and/or assembly may be carried out other than by the original manufacturer (see 3.10.1 of IEC 61439-1:2011).

This standard does not apply to individual devices and self-contained components, such as motor starters, fuse switches, electronic equipment, etc. which comply with the relevant product standards.

This standard does not apply to specific types of ASSEMBLIES covered by other parts of IEC 61439 series.



IEC

Figure 101 – Typical distribution network

NOTE 1 If a PANDA is equipped with additional equipment (for example meters), in such a way that the main function is changed considerably, then other standards can also apply as agreed between user and manufacturer (see 8.5 of IEC 61439-1:2011).

NOTE 2 Where local regulations and practices permit, a PANDA according to this standard can be used in other than public networks.

2 Normative references

This clause of Part 1 applies except as follows.

Addition:

IEC 60695-11-10:2013, *Fire hazard testing – Part 11-10: Test flames – 50 W horizontal and vertical flame test methods*

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

ISO 6506-1, *Metallic materials – Brinell hardness test – Part 1: Test method*

3 Terms and definitions

This clause of Part 1 applies except as follows.

3.1 General terms

Additional terms:

3.1.101

public electricity network distribution ASSEMBLY PENDA

ASSEMBLY, generally for installation in a public electricity network which in use, receives electrical energy from one or more supplies and distributes that energy through one or more cables to other equipment

Note 1 to entry: A PENDA is installed, operated and maintained solely by skilled persons.

Note 2 to entry: Some types of a PENDA were previously known as a cable distribution cabinet (CDC).

3.1.101.1

outdoor public electricity network distribution ASSEMBLY PENDA-O

cubicle type public electricity network distribution ASSEMBLY that is suitable for outdoor installation in places that may, or may not, be accessible to the public

3.1.101.2

indoor public electricity network distribution ASSEMBLY PENDA-I

public electricity network distribution ASSEMBLY suitable for installation indoors, generally without an enclosure, but including all structural parts necessary to support busbars, functional units and other ancillary devices, necessary to complete the ASSEMBLY

3.3 External design of ASSEMBLIES

3.3.1

open-type ASSEMBLY

This term of Part 1 does not apply.

3.9 Verification

Modifications:

3.9.1

design verification

Delete the note.

3.9.1.2

verification comparison

This term of Part 1 does not apply.

3.9.1.3

verification assessment

This term of Part 1 does not apply.

4 Symbols and abbreviations

This clause of Part 1 applies.

5 Interface characteristics

This clause of Part 1 applies except as follows.

5.4 Rated diversity factor (RDF)

Addition:

In the absence of an agreement between the ASSEMBLY manufacturer and user concerning the actual load currents, the assumed loading of the outgoing circuits of the ASSEMBLY or group of outgoing circuits may be based on the values given in Table 101.

Table 101 – Values of assumed loading

Number of main circuits	Assumed loading factor
2 and 3	0,9
4 and 5	0,8
6 to 9 inclusive	0,7
10 (and above)	0,6

6 Information

This clause of Part 1 applies except as follows.

6.1 Assembly designation marking

Addition to first paragraph:

Designation plates may be placed inside an enclosure of an ASSEMBLY provided their intended place ensures good legibility and visibility when the door(s) is open or the cover is removed.

Replacement of item d):

d) IEC 61439-5.

6.3 Device and/or component identification

Additional paragraph:

In the case of removable fuse-carriers which are specific to a fuseway, a label shall be placed on the fuse carrier as well as on the fuse base, to avoid incorrect interchangeability of the fuse-carrier.

Additional subclause:

6.101 Circuit identification

It shall be possible to identify each functional unit in a clearly visible manner.

7 Service conditions

This clause of Part 1 applies except as follows.

7.1.1.2 Ambient air temperature for outdoor installations

Replacement of last paragraph with:

Unless the user specifies a PENDA shall be suitable for use in an arctic climate, the lower limit of ambient air temperature is $-25\text{ }^{\circ}\text{C}$. For an arctic climate the lower limit of ambient temperature is $-50\text{ }^{\circ}\text{C}$.

7.2 Special service conditions

Addition of the following note to item h):

NOTE Exposure to vibration arising from traffic and/or occasional ground excavation is a normal service condition for PENDAs.

Additional paragraph:

Additional requirements for a PENDA-O, to be installed where heavy snowfalls occur and where they are adjacent to areas where there is snow clearance by ploughing, are subject to agreement between manufacturer and user.

8 Constructional requirements

This clause of Part 1 applies except as follows.

8.1 Strength of materials and parts

8.1.1 General

Addition:

A PENDA-O shall be arranged for ground mounting, transformer mounting, pole mounting, surface wall mounting or mounting within a recess within a wall, as agreed between user and manufacturer.

A PENDA may be direct coupled to a transformer by means of a flange coupling or it may connect to its supply by means of cable or via busbars as agreed between user and manufacturer. Outgoing circuits shall be suitable for connection by means of cables.

A reliable locking device shall be provided on outdoor enclosures which prevents access by unauthorized persons. Doors, lids and covers shall be so designed that, after they are locked, they do not open due to subsequent moderate ground settlement, nor due to exposure to vibration arising from traffic and/or ground excavation and reinstatement works.

8.1.3.2 Resistance of insulating materials to heat and fire

Additional subclause:

8.1.3.2.101 Verification of category of flammability

The insulating materials used for enclosures, barriers and other insulating parts shall have flame retardant properties in accordance with 10.2.3.102 of this standard.

8.1.5 Mechanical strength

Additional subclause:

8.1.5.101 Verification of mechanical strength

The mechanical properties of a PENDA-O shall comply with 10.2.101 of this standard.