

# **Stikpropper, stikkontakter, ladestik og ladeindtag til elkøretøjer – Konduktiv opladning af elkøretøjer – Del 1: Generelle krav**

Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 1: General requirements



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EUROPÄISCHE NORM

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English Version

Plugs, socket-outlets, vehicle connectors and vehicle inlets  
- Conductive charging of electric vehicles - Part 1:  
General requirements  
(IEC 62196-1:2025)

Fiches, socles de prise de courant, prises mobiles de  
véhicule et socles de connecteurs de véhicule - Charge  
conductive des véhicules électriques - Partie 1:  
Exigences générales  
(IEC 62196-1:2025)

Stecker, Steckdosen, Fahrzeugkupplungen und  
Fahrzeugstecker - Konduktives Laden von  
Elektrofahrzeugen - Teil 1: Allgemeine Anforderungen  
(IEC 62196-1:2025)

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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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## European foreword

The text of document 23H/579/FDIS, future edition 5 of IEC 62196-1, prepared by SC 23H "Plugs, Socket-outlets and Couplers for industrial and similar applications, and for Electric Vehicles" of IEC/TC 23 "Electrical accessories" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62196-1:2026.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2027-01-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2029-01-31 document have to be withdrawn

This document supersedes EN IEC 62196-1:2022 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60068-2-75:2014	NOTE	Approved as EN 60068-2-75:2014 (not modified)
IEC 60309-1:2021	NOTE	Approved as EN IEC 60309-1:2022 (not modified)
IEC 60309-2	NOTE	Approved as EN IEC 60309-2
IEC 60512-2-2	NOTE	Approved as EN 60512-2-2
IEC 60947-1:2020	NOTE	Approved as EN IEC 60947-1:2021 (not modified)
IEC 60947-7-4	NOTE	Approved as EN IEC 60947-7-4
IEC 60999-1:1999	NOTE	Approved as EN 60999-1:2000 (not modified)
IEC 60999-2:2003	NOTE	Approved as EN 60999-2:2003 (not modified)
IEC 61008-1	NOTE	Approved as EN 61008-1
IEC 61009-1	NOTE	Approved as EN 61009-1
IEC 61140	NOTE	Approved as EN 61140

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IEC 61300-2-6	NOTE	Approved as EN IEC 61300-2-6
IEC 61300-2-7	NOTE	Approved as EN 61300-2-7
IEC 61439-1:2020	NOTE	Approved as EN IEC 61439-1:2021 (not modified)
IEC 61540	NOTE	Approved as HD 639 S1
IEC 61851 (series)	NOTE	Approved as EN IEC 61851 (series)
IEC 61851-1	NOTE	Approved as EN IEC 61851-1
IEC 62196-2:2022	NOTE	Approved as EN IEC 62196-2:2022 (not modified)
IEC 62196-3:2022	NOTE	Approved as EN IEC 62196-3:2022 (not modified)
ISO 1456	NOTE	Approved as EN ISO 1456
ISO 2081	NOTE	Approved as EN ISO 2081
ISO 2768-1	NOTE	Approved as EN 22768-1

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# INTERNATIONAL STANDARD

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**Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive  
charging of electric vehicles -  
Part 1: General requirements**

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**Plugs, socket-outlets, vehicle connectors and vehicle inlets -  
Conductive charging of electric vehicles -  
Part 1: General requirements**

**FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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IEC 62196-1 has been prepared by IEC subcommittee 23H: Plugs, socket-outlets and couplers for industrial and similar applications, and for electric vehicles, of IEC technical committee 23: Electrical accessories. It is an International Standard.

This fifth edition cancels and replaces the fourth edition published in 2022. This edition constitutes a technical revision.

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

- a) addition of new tests for latching devices and retaining means;
- b) inclusion of type 4 accessories.

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Draft	Report on voting
23H/579/FDIS	23H/586/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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

Subsequent parts of IEC 62196 deal with the requirements of particular types of accessories. The clauses of those particular requirements supplement or modify the corresponding clauses in this document.

In this document, the following print types are used:

- requirements proper: in roman type;
- *test specifications: in italic type;*
- notes: in smaller roman type.

A list of all parts in the IEC 62196 series, published under the general title *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles*, 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](http://webstore.iec.ch) in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
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The IEC 61851 series specifies requirements for electric vehicle (EV) conductive charging systems.

The IEC 62196 series specifies the requirements for plugs, socket-outlets, vehicle connectors, vehicle inlets and cable assemblies as described in the IEC 61851 series and in IEC 62752.

In some situations, a cable assembly is used to directly connect an electric vehicle to a standard socket-outlet connected to a supply network (mains or electrical grid). In other situations, the electric vehicle is connected to a supply network through EV supply equipment that incorporates control and communication circuits. The IEC 62196 series covers the mechanical, electrical and performance requirements for

- vehicle connectors and vehicle inlets for the direct connection between an electric vehicle and a standard socket-outlet, and
- EV plugs, EV socket-outlets, vehicle connectors and vehicle inlets for the connection between the EV supply equipment and the electric vehicle.

The IEC 62196 series consists of the following parts:

- IEC 62196-1: General requirements, comprising clauses of a general character;
- IEC 62196-2: Dimensional compatibility requirements for AC pin and contact-tube accessories;
- IEC 62196-3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers;
- IEC TS 62196-4: Dimensional compatibility and interchangeability requirements for DC pin and contact-tube accessories for class II or class III applications;
- IEC 62196-6: Dimensional compatibility requirements for DC pin and contact-tube vehicle couplers intended to be used for DC EV supply equipment where protection relies on electrical separation.
- IEC TS 62196-7<sup>1</sup>: Vehicle adapter.

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<sup>1</sup> Under preparation. Stage at the time of publication: IEC TS/ADTS 62196-7:2025.

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This part of IEC 62196 is applicable to EV plugs, EV socket-outlets, vehicle connectors, vehicle inlets, herein referred to as "accessories", and to cable assemblies for electric vehicles (EV) intended for use in conductive charging systems which incorporate control means, with a rated operating voltage not exceeding

- 690 V AC 50 Hz to 60 Hz, at a rated current not exceeding 250 A, and
- 1 500 V DC at a rated current not exceeding 800 A.

These accessories and cable assemblies are intended to be installed by instructed persons (IEV 195-04-02) or skilled persons (IEV 195-04-01) only.

These accessories and cable assemblies are intended to be used for circuits specified in the IEC 61851 series, which operate at different voltages and frequencies, and which can include extra-low voltage circuits, such as control and communication circuits.

These accessories and cable assemblies are anticipated to be used at an ambient temperature between  $-30\text{ °C}$  and  $+40\text{ °C}$ .

NOTE 1 In some countries, other requirements can apply.

NOTE 2 In the following country,  $-40\text{ °C}$  applies: SE.

NOTE 3 The manufacturer can enlarge the temperature range on the condition that the specified range information is provided.

These accessories are intended to be connected only to cables with copper or copper-alloy conductors.

The accessories covered by this document are intended for use in electric vehicle supply equipment in accordance with IEC 61851 (all parts).

This document does not apply to standard plugs and standard socket-outlets used for mode 1 and mode 2 according to IEC 61851-1:2017, 6.2.

NOTE 4 In the following countries, mode 1 is not allowed: UK, US, CA, SG.

## **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 60068-2-14, *Environmental testing - Part 2-14: Tests - Test N: Change of temperature*

IEC 60068-2-20, *Environmental testing - Part 2-20: Tests - Test Ta and Tb: Test methods for solderability and resistance to soldering heat of devices with leads*

IEC 60068-2-30, *Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60227 (all parts), *Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V*

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IEC 60245-4, *Rubber insulated cables - Rated voltages up to and including 450/750 V - Part 4: Cords and flexible cables*

IEC 60269-1, *Low-voltage fuses - Part 1: General requirements*

IEC 60269-2, *Low-voltage fuses - Part 2: Supplementary requirements for fuses for use by authorized persons (fuses mainly for industrial application) - Examples of standardized systems of fuses A to K*

IEC 60309-4:2021, *Plugs, fixed or portable socket-outlets and appliance inlets for industrial purposes - Part 4: Switched socket-outlets with or without interlock*

IEC 60352-5, *Solderless connections - Part 5: Press-in connections - General requirements, test methods and practical guidance*

IEC 60417, *Graphical symbols for use on equipment*, available at <http://www.graphical-symbols.info/equipment>

IEC 60529:1989, *Degrees of protection provided by enclosures (IP code)*  
IEC 60529:1989/AMD1:1999  
IEC 60529:1989/AMD2:2013

IEC 60664-1:2020, *Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests*

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60695-2-11, *Fire hazard testing - Part 2-11: Glowing/hot-wire based test methods - Glow-wire flammability test method for end products (GWEPT)*

IEC 60695-10-2, *Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test method*

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

IEC 60947-5-1, *Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices*

IEC 61032:1997, *Protection of persons and equipment by enclosures - Probes for verification*

IEC 61058-1:2016, *Switches for appliances - Part 1: General requirements*

IEC 61851-1:2017, *Electric vehicle conductive charging system - Part 1: General requirements*

IEC 61851-23:2023, *Electric vehicle conductive charging system - Part 23: DC electric vehicle supply equipment*

IEC 62196-2:2025, *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 2: Dimensional compatibility requirements for AC pin and contact-tube accessories*

This is a preview of DS/EN IEC 62196-1:2026. Click here to purchase the full version from the ANSI store.

*charging of electric vehicles - Part 3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers<sup>2</sup>*

IEC 62752, *In-cable control and protection device (IC-CPD) for mode 2 charging of electric road vehicles*

ISO 12103-1, *Road vehicles - Test contaminants for filter evaluation - Part 1: Arizona test dust*

ISO 4521:2008, *Metallic and other inorganic coatings - Electrodeposited silver and silver alloy coatings for engineering purposes - Specification and test methods*

ISO 5474 (all parts), *Electrically propelled road vehicles - Functional and safety requirements for power transfer between vehicle and external electric circuit*

### 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:

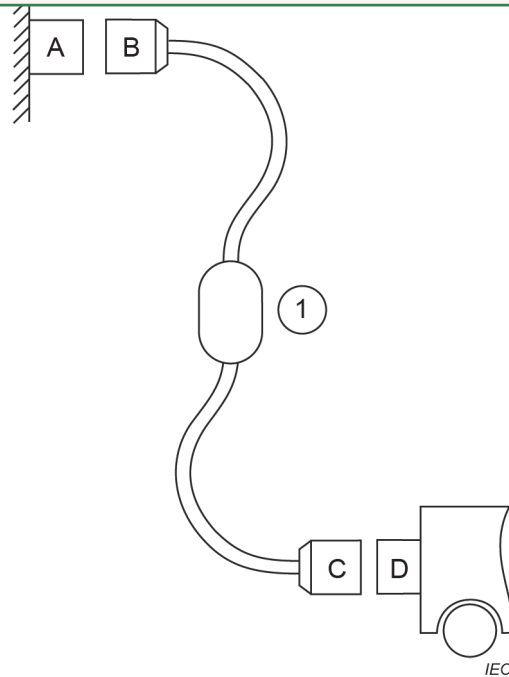
- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

NOTE The application of accessories is shown in Figure 1.

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<sup>2</sup> Under preparation. Stage at the time of publication: IEC/AFDIS 62196-3:2025.

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#### Key

- 1 in-cable control and protective device (IC-CPD)
- A standard socket-outlet or EV socket-outlet
- B standard plug or EV plug
- C vehicle connector
- D vehicle inlet

**Figure 1 – Diagram showing the use of the accessories**

#### 3.1 accessory

EV plug, EV socket-outlet, vehicle connector or vehicle inlet, with cable (forming a cable assembly) or without cable, for use in conductive charging systems for electric vehicles

#### 3.2 auxiliary power

external electrical energy power supply used for purposes other than charging of the electric vehicle propulsion battery

Note 1 to entry: In French, the resulting assembly when a plug is inserted into a socket-outlet is called "prise de courant".

#### 3.3 cable assembly

assembly consisting of a flexible cable or cord fitted with a standard plug or EV plug and/or a vehicle connector, which is used to establish the connection between the EV and the supply network or an EV charging station

Note 1 to entry: A cable assembly can be detachable or be a part of the EV or of the EV charging station.

Note 2 to entry: A cable assembly can include one or more cables, with or without a fixed jacket, which can be in a flexible tube, conduit or wire way.

[SOURCE: IEC 61851-1:2017, 3.5.2, modified – "plug" has been replaced with "standard plug or EV plug".]

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**cap**

part separated or attached, which may be used to provide the degree of protection of an EV plug or vehicle inlet, when it is not engaged with an EV socket-outlet or a vehicle connector

**3.5**

**clamping unit**

part of a terminal necessary for the clamping and the electrical connection of the conductor

**3.6**

**compatibility**

**compatible**

ability of accessories to couple with their counterpart and be functional

Note 1 to entry: Non-compatible accessories can physically couple with their counterpart, but not be functional.

**3.7**

**conditional short-circuit current**

prospective current that an accessory, protected by a specified short-circuit protective device, can withstand satisfactorily for the total operating time of that device under specified conditions of use and behaviour

[SOURCE: IEC 60050-441:1984, 441-17-20, modified – The concept of current-limiting device has been broadened into a short-circuit protective device, the function of which is not only to limit the current.]

**3.8**

**conductive part**

part that can carry electric current

[SOURCE: IEC 60050-195:2021, 195-01-06]

**3.9**

**connection**

single conductive path

**3.10**

**cord extension set**

assembly consisting of a flexible cable or cord fitted with an EV plug that is intended to mate with a vehicle connector as covered by the IEC 62196 series

**3.11**

**control circuit device**

electrical device intended for the controlling, signalling, interlocking, etc. of switchgear and controlgear

Note 1 to entry: See IEC 60947-1:2020, 3.4.16.

[SOURCE: IEC 60309-4:2021, 3.406]

**3.12**

**cover**

means of providing a degree of protection for an accessory when it is not engaged with its counterpart

Note 1 to entry: A cover can be used as the retaining means or as part of the retaining means.

Note 2 to entry: Caps, lids, shutters and similar devices can perform the function of a cover.

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**double insulation**

insulation comprising both basic insulation and supplementary insulation

[SOURCE IEC 60050-195:2021, 195-06-08]

**3.14**

**electric vehicle**

**EV**

**electric road vehicle**

vehicle, propelled by an electric motor drawing current from a RESS, intended primarily for use on public roads

[SOURCE: IEC 61851-1:2017, 3.4.1, modified – The word “any” was deleted and note has been omitted.]

**3.15**

**EV plug**

accessory connected to the end of a cable assembly and which is intended to mate with an EV socket-outlet at the output of equipment

Note 1 to entry: An EV plug is not intended to connect directly to standard socket-outlets provided in the building installation.

**3.16**

**EV socket-outlet**

accessory located on EV supply equipment which is connected to the electrical infrastructure and intended to be mated with an EV plug in order to connect a cable assembly

Note 1 to entry: An EV socket-outlet is not intended to be installed as a standard socket-outlet in building installations and is not intended to connect to standard plugs.

**3.17**

**EV supply equipment**

equipment or a combination of equipment, providing dedicated functions to supply electric energy from a fixed electrical installation or supply network to an EV for the purpose of charging

[SOURCE: IEC 61851-1:2017, 3.1.1, modified – The examples have been omitted.]

**3.18**

**extra-low voltage**

**ELV**

voltage not exceeding the relevant voltage limit as specified in IEC 61140

**3.19**

**field-serviceable accessory**

accessory constructed so that it can only be rewired, repaired or replaced by the manufacturer’s authorized personnel or a skilled person in accordance with national regulations

**3.20**

**hazardous-live-part**

live part which, under certain conditions, can give a harmful electric shock

[SOURCE: IEC 60050-195:2021, 195-06-05, modified – The note to entry has been omitted.]

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**IC-CPD**

mode 2 cable assembly that complies with IEC 62752

[SOURCE: IEC 61851-1:2017, 3.5.6]

**3.22**

**insulated end cap**

part made of insulating material, located at the tip of a contact, ensuring protection against access to hazardous-live-parts

**3.23**

**insulation**

all the materials and parts used to insulate conductive elements of a device, or a set of properties which characterize the ability of an insulation to provide its function

[SOURCE: IEC 60050-151:2001, 151-15-41 and 151-15-42, modified – Both definitions are combined together into one definition and joined by "or a".]

**3.24**

**interlock**

device that prevents the power contacts of an EV socket-outlet/vehicle connector from becoming live before it is in proper engagement with an EV plug/vehicle inlet, and which either prevents the EV plug or vehicle connector from being withdrawn while its power contacts are live or makes the power contacts dead before separation

**3.25**

**isolation monitor**

**IM**

electrical circuit to monitor the vehicle to EV supply equipment earth isolation function

**3.26**

**latching device**

part of the interlock mechanism provided to hold an EV plug in the EV socket-outlet or to hold a vehicle connector in the vehicle inlet and to prevent its intentional or unintentional withdrawal

**3.27**

**lid**

means to ensure the degree of protection on an accessory

Note 1 to entry: A lid is generally hinged.

**3.28**

**live part**

conductive part intended to be energized under normal operating conditions, including the neutral conductor and mid-point conductor, but excluding the PEN conductor, PEM conductor and PEL conductor

[SOURCE: IEC 60050-195:2021, 195-02-19]

**3.29**

**locking mechanism**

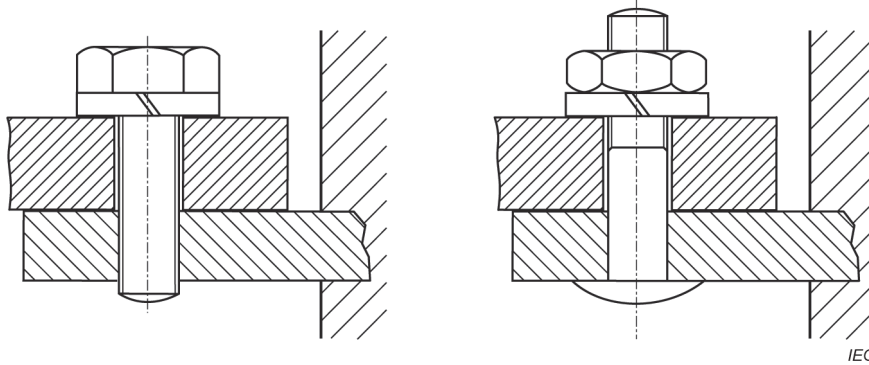
means intended to reduce the likelihood of tampering with, or the unauthorized removal of, the accessories

EXAMPLE A provision for padlocking.

**lug terminal**

screw terminal or stud terminal, designed for clamping a cable lug or bar by means of a screw or nut

Note 1 to entry: See Figure 2.



**Figure 2 – Lug terminals**

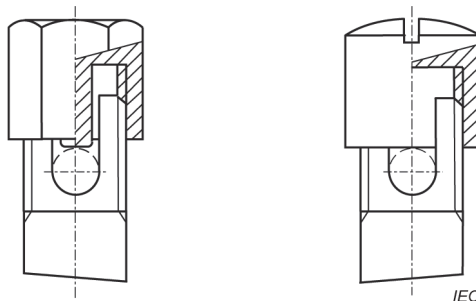
**3.31**

**mantle terminal**

terminal in which the conductor is clamped against the base of a slot in a threaded stud by means of a nut

Note 1 to entry: See Figure 3.

Note 2 to entry: The conductor is clamped against the base of the slot by a suitably shaped washer under the nut, by a central peg if the nut is a cap nut, or by equally effective means for transmitting the pressure from the nut to the conductor within the slot.



**Figure 3 – Mantle terminals**

**3.32**

**maximum allowed pressure**

maximum pressure assigned by the manufacturer to the thermal transport coolant liquid of a cable assembly

**3.33**

**mechanical switching device**

switching device designed to close and open one or more electric circuits by means of separable contacts

[SOURCE: IEC 60050-441:1984, 441-14-02, modified – The note to entry has been removed.]

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**non-rewirable accessory**

accessory so constructed that the flexible cable or wiring cannot be separated from the accessory without making it permanently useless

EXAMPLE EV plug which is integrally moulded to the cable.

[SOURCE: IEC 60050-581:2008, 581-26-33, modified – "connector" has been replaced with "accessory", "or wiring" has been added, and "unusable" has been replaced with "useless"; an example has also been added.]

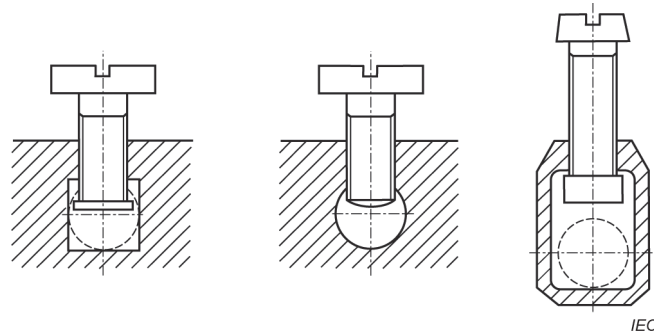
**3.35**

**pillar terminal**

terminal in which the conductor is inserted into a hole or cavity, where it is clamped under the shank of the screw or screws

Note 1 to entry: See Figure 4.

Note 2 to entry: The clamping pressure can be applied directly by the shank of the screw or through an intermediate clamping member to which pressure is applied by the shank of the screw.



**Figure 4 – Pillar terminals**

[SOURCE: IEC 60050-442:1998, 442-06-22, modified – In the definition, "screw-type terminal" has been replaced with "terminal" and "or screws" has been added. Note 1 to entry has been added together with Figure 4; in Note 2 to entry, "part" has been replaced with "clamping member".]

**3.36**

**pilot contact**

auxiliary electric contact for use in a control, signalling, monitoring, communication or interlock function

Note 1 to entry: Pilot contact is not considered to be a pole.

[SOURCE: IEC 60309-1:2021, 3.25, modified – "communication" has been added.]

**3.37**

**protective conductor**

conductor provided for purposes of safety, for example protection against electric shock

EXAMPLE Protective bonding conductor, protective earthing conductor, earthing conductor when used for protection against electric shock.

[SOURCE: IEC 60050-195:2021, 195-02-09, modified – In the definition, "electrical safety" has been replaced with "safety", and the last part starting with "for example" has been added. The example has been added.]

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**protective earthing**  
**protective grounding, US**  
earthing for purposes of electrical safety

[SOURCE: IEC 60050-195:2021, 195-01-11]

**3.39**  
**protective earthing conductor**  
**PE conductor**  
**protective grounding conductor, US**  
protective conductor provided for protective earthing

[SOURCE: IEC 60050-195:2021, 195-02-11]

**3.40**  
**rated current**  
current assigned to the accessory by the manufacturer for a specified operating condition of an accessory

**3.41**  
**rated operating voltage**  
nominal voltage of the supply(ies) for which the pole of the accessory is intended to be used

**3.42**  
**rated pressure**  
maximum pressure assigned by the manufacturer to the thermal transport coolant liquid of a cable assembly under normal and continuous operating conditions

**3.42.1**  
**reinforced insulation**  
insulation that provides a degree of protection against electric shock equivalent to double insulation

Note 1 to entry: Reinforced insulation can comprise several layers that cannot be tested singly as basic insulation or supplementary insulation.

[SOURCE IEC 60050-195:2021, 195-06-09]

**3.43**  
**retaining means**  
device which holds an EV plug or vehicle connector in position when it is in proper engagement, and prevents its unintentional withdrawal

EXAMPLE Mechanical or electromechanical device.

Note 1 to entry: See standard sheets in IEC 62196-2:2022 and in IEC 62196-3:2022.

**3.44**  
**rewirable accessory**  
accessory so constructed that the supply flexible cable, cord or wiring can be replaced

[SOURCE: IEC 60050-442:1998, 442-01-17, modified – "wiring" has been added to the definition.]

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### saddle terminal

terminal in which the conductor is clamped under a saddle by means of two or more screws or nuts

Note 1 to entry: See Figure 5.

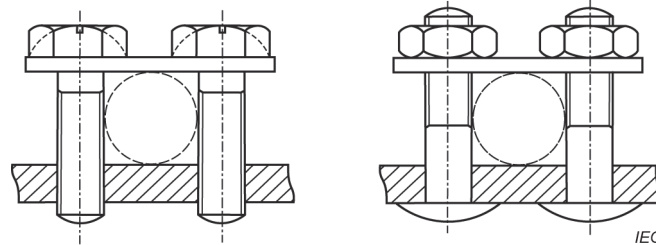


Figure 5 – Saddle terminals

### 3.46

#### safety extra-low voltage system SELV system

electric system in which the voltage cannot exceed the value of extra-low voltage

- under normal conditions, and
- under single fault conditions, including earth faults in other electric circuits

[SOURCE: IEC 60050-195:2021, 195-06-28, modified – The term "safety extra-low voltage system" has been added and the note omitted.]

### 3.47

#### screw terminal

terminal in which the conductor is clamped under the head of the screw

Note 1 to entry: See Figure 6.

Note 2 to entry: The clamping pressure can be applied directly by the head of the screw or through an intermediate part, such as a washer, clamping plate or anti-spread device.

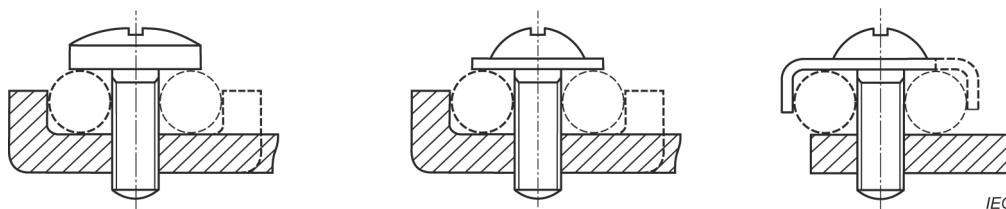


Figure 6 – Screw terminals

[SOURCE: IEC 60050-442:1998, 442-06-08, modified – The second half of the definition has been included in Note 2 to entry and Figure 6 has been added together with Note 1 to entry.]

### 3.48

#### shutter

movable part incorporated into an accessory arranged to automatically shield at least the live contacts when the accessory is withdrawn from the complementary accessory

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### **standard plug and socket-outlet**

plug and socket-outlet which meets the requirements of any IEC and/or any national standard that provides interchangeability by standard sheets, excluding the specific EV accessories as defined in the IEC 62196 series

Note 1 to entry: IEC 60309-1, IEC 60309-2, IEC 60884-1 and IEC TR 60083 define standard plugs and socket-outlets.

[SOURCE: IEC 61851-1:2017, 3.5.11]

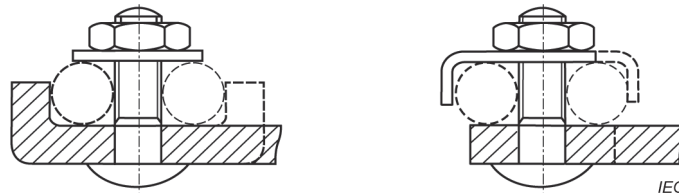
### **3.50**

#### **stud terminal**

terminal in which the conductor is clamped under a nut

Note 1 to entry: See Figure 7.

Note 2 to entry: The clamping pressure can be applied directly by a suitably shaped nut or through an intermediate part, such as a washer, clamping plate or anti-spread device.



**Figure 7 – Stud terminals**

[IEC 60050-442:1998, 442-06-23, modified – Figure 7 has been added together with Note 1 to entry.]

### **3.51**

#### **switched vehicle connector**

accessory intended to mate with a vehicle inlet and provided with an integral switch that directly interrupts power lines

### **3.52**

#### **switched EV socket-outlet**

accessory intended to mate with an EV plug and provided with an integral switch that directly interrupts power lines

### **3.53**

#### **switching device**

device designed to make or break the current in one or more electric circuits

[SOURCE: IEC 60050-441:1984, 441-14-01]

### **3.54**

#### **terminal**

conductive part provided for the connection of a conductor to an accessory

### **3.55**

#### **termination**

part of an accessory to which a conductor is permanently attached

[SOURCE: IEC 60050-442:1998, 442-06-06]

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**thermal cut-out**

temperature sensitive device which limits the temperature of an accessory, or of parts of it, during operation by automatically opening the circuit or by reducing the current, and which is so constructed that its settings cannot be altered by the user

**3.57****thermal exchange**

method for cooling and dissipating thermal energy from the thermal transport

**3.58****thermal exchange device**

means for cooling of dissipating thermal energy form the thermal transport

**3.59****thermal management system**

combination of thermal sensing, thermal transport and thermal exchange in order to regulate temperature

**3.60****thermal sensing**

method for obtaining temperature data of accessories, cable assemblies, or parts thereof

**3.61****thermal sensing device**

means for providing temperature data of accessories, cable assemblies or parts thereof

**3.62****thermal transport**

method of managing the heat dissipation of accessories, cable assemblies, or parts thereof, independent of changing the current

**3.63****thermal transport device**

means of managing the heat dissipation of accessories, cable assemblies, or parts thereof, independent of changing the current

**3.64****user**

party who will specify, purchase, use and/or operate the EV supply equipment, or someone acting on their behalf

[SOURCE: IEC 61439-1:2020, 3.11, modified – "assembly" has been replaced with "EV supply equipment".]

**3.65****user-serviceable accessory**

accessory so constructed that it can be rewired, or parts can be replaced, using commonly available tools and without having to replace individual parts of the accessory

EXAMPLE An ordinary, standard plug, which can be disassembled and wired using a common screwdriver.

**3.66****vehicle connector****electric vehicle connector**

part integral with, or intended to be attached to, one flexible cable

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**vehicle inlet**

**electric vehicle inlet**

part incorporated in, or fixed to, the electric vehicle

Note 1 to entry: The resulting assembly when a vehicle connector is inserted into a vehicle inlet is called a "vehicle coupler".