



Edition 2.0 2009-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Low-voltage electrical installations - ARD PREVIEW Part 7-717: Requirements for special installations or locations – Mobile or transportable units

Installations électriques à basse tension Partie 7-717: Règles pour les installations ou emplacements spéciaux – Unités mobiles ou transportables





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IEC 60364-7-717:2009

Installations électriques à basse tension stist/5cd2c8ea-3bbb-401a-8d4b-Partie 7-717: Règles pour les installations où emplacements spéciaux – Unités mobiles ou transportables

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

PRICE CODE CODE PRIX



ICS 29.020; 91.140.50

ISBN 978-2-88910-178-8

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 7-717: Requirements for special installations or locations – Mobile or transportable units

FOREWORD

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International Standard IEC 60364-7-717 has been prepared by IEC technical committee 64: Electrical installations and protection against electric shock.

This second edition cancels and replaces the first edition published in 2001 and constitutes a technical revision.

The main changes with respect to the previous edition are as follows:

- The scope has been improved, providing more detail;
- The content of Clause 717.41 has been updated following the new edition of IEC 60364-4-41;
- Clauses concerning protection by automatic disconnection of the supply and additional protection have been introduced;
- All figures have been updated.

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

FDIS	Report on voting
64/1675/FDIS	64/1684/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

IEC 60364 consists of the following parts, under the general title: Low-voltage electrical installations:

Part 1: Fundamental principles, assessment of general characteristics, definitions

- Part 4: Protection for safety
- Part 5: Selection and erection of electrical equipment
- Part 6: Verification

Part 7: Requirements for special installations or locations RVIEW

A list of all the parts in the IEC 60364 series can be found on the IEC website.

Future standards in this series will be updated at the time of the next edition.

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

INTRODUCTION

The requirements of this part of IEC 60364 supplement, modify or replace certain of the general requirements contained in Parts 1 to 6 of IEC 60364.

The clause numbering appearing after 717 refers to the corresponding parts or clauses of IEC 60364, Parts 1 to 6. Numbering of clauses does not, therefore, necessarily follow sequentially. Numbering of figures and tables takes the number of this part followed by a sequential number.

The absence of reference to a part or clause means that the general requirements contained in Parts 1 to 6 of IEC 60364 are applicable.

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<u>IEC 60364-7-717:2009</u> https://standards.iteh.ai/catalog/standards/sist/5cd2c8ea-3bbb-401a-8d4be449e613e8c9/iec-60364-7-717-2009

LOW-VOLTAGE ELECTRICAL INSTALLATIONS –

Part 7-717: Requirements for special installations or locations – Mobile or transportable units

717 Mobile or transportable units

717.1 Scope

The particular requirements as specified in this part of IEC 60364 are applicable to mobile or transportable units.

For the purposes of this part, the term ["]unit" refers to a vehicle and/or mobile or transportable structure in which all or part of an electrical installation is contained.

Units are either of the mobile type or of the transportable type.

Examples are units for television and broadcasting, medical services, advertising, fire fighting, using special information technology, units for disaster relief, catering units and the like.

The requirements of this part also apply where two or more units are connected together to form a single electrical installation (see 717.551.6 and 717.551.7).

The requirements are not applicable to IEC 60364-7-717:2009

- electrical circuits and equipment for automotive purposes. 3bbb-401a-8d4b-
- generating sets,
- units covered by other parts of Part 7 (e.g. caravan and motor-caravan),
- pleasure craft (see IEC 60092-507),
- mobile machinery in accordance with IEC 60204-1,
- traction equipment of electric vehicles,
- mobile or transportable homes, offices and the like for extended use at the same location (see general rules of IEC 60364).

Where applicable, additional requirements as laid down in other clauses of Part 7 are to be taken into consideration, e.g. for showers, medical locations, etc.

717.2 Normative references

The following referenced documents are indispensable for the application 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 60227-3:1993, Polyvinyl chloride insulated cables of rated voltages up to and including 450/750 V – Part 3: Non-sheathed cables for fixed wiring

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

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IEC 60309-1, *Plugs, socket-outlets and couplers for industrial purposes – Part 1: General requirements*

IEC 60309-2, *Plugs, socket-outlets and couplers for industrial purposes – Part 2: Dimensional interchangeability requirements for pin and contact-tube accessories*

IEC 60364-4-41:2005, Low-voltage electrical installations – Part 4-41: Protection for safety – Protection against electric shock

IEC 60364-5-55, Electrical installations of buildings – Part 5-55: Selection and erection of electrical equipment – Other

IEC 60364-7 (all parts) Low-voltage electrical installations – Part 7: Requirements for special installations or locations

IEC 60884-1, Plugs and socket-outlets for household and similar purposes – Part 1: General

IEC 61084 (all parts), Cable trunking and ducting systems for electrical installations

IEC 61140, Protection against electric shock – Common aspects for installation and equipment

IEC 61386-21: Conduit systems for cable management – Part 21: Particular requirements – Rigid conduit systems

IEC 61386-22: Conduit systems for cable management – Part 22: Particular requirements – Pliable conduit systems

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IEC 61386-23: Conduit systems for cable management – Part 23: Particular requirements – Flexible conduit systems

717.30 Assessment of general characteristics

717.31 Purposes, supplies and structure

717.312 Conductor arrangement and system earthing

717.312.2 Types of system earthing

Add the following:

NOTE Where the designation TN or TT or IT is used in this Part 7-717, it means only that the protective principles of these systems apply. If a connection to the earth electrode is not provided, a connection to the conductive enclosure or to the protective bonding of the unit may be sufficient.

717.312.2.1 TN Systems

Add the following:

The use of the TN-C system is not permitted inside any unit.

717.313 Supplies

Add the following:

One or more of the following methods shall be used to supply a unit:

a) connection to a low-voltage generating set in accordance with IEC 60364-5-55 (see Figures 717.1 and 717.2);

- b) connection to a fixed electrical installation in which the protective measures are effective (see Figure 717.3);
- c) connection through means providing simple separation, in accordance with IEC 61140, from a fixed electrical installation (see Figures 717.4, 717.5, 717.6 and 717.7);
- d) connection through means providing electrical separation from a fixed electrical installation (see example in Figure 717.8).

NOTE 1 In cases a), b) and c), an earth electrode may be provided.

NOTE 2 In the case of Figure 717.4, an earth electrode may be necessary for protective purposes (see 717.411.6.2b, second dash).

NOTE 3 Simple separation or electrical separation is appropriate, for example, where information technology equipment is used in the unit or where a reduction of electromagnetic influences is necessary, or if high leakage currents are to be expected (use of frequency converters), and/or if the supply of the unit comes from alternative supply systems (as is the case in disaster management).

The sources, means of connection or separation may be within the unit.

NOTE 4 Where there is a potential hazard due to moving the unit while connected to an external installation, it is recommended to equip the unit with an electric interlock, warning, alarm or other appropriate means to reduce the risk.

NOTE 5 For the purpose of this Part 7-717, power inverters or frequency converters that are supplied by the low-voltage vehicle electrical system or auxiliary drive systems of the combustion engine are also considered as low-voltage generating sets.

Power inverters or frequency converters shall include at least simple separation where both a d.c. system and a.c. system are earthed.

717.4 Protection for safety (standards.iteh.ai)

717.41 Protection against electric shock 7-717:2009

https://standards.iteh.ai/catalog/standards/sist/5cd2c8ea-3bbb-401a-8d4b-

717.411 Protective measure: automatic disconnection of supply

Add the following:

- a) For a supply in accordance with 717.313 a), only TN and IT systems are permitted. Protection shall be provided by automatic disconnection of supply, and
 - in a TN system, 717.411.4.1 applies;
 - in an IT system, 717.411.6.2 applies.
- b) For a supply in accordance with 717.313 b), automatic disconnection of the supply shall be provided by a residual current protective device, with a rated residual operating current not exceeding 30 mA.
- c) In all cases a) to d) of 717.313, any equipment installed between the source of supply and the protective devices providing automatic disconnection of the supply within the unit, including these protective devices themselves, shall be protected by use of class II equipment or by equivalent insulation.

717.411.3 Requirements for fault protection

717.411.3.1 Protective earthing and protective equipotential bonding

717.411.3.1.2 Protective equipotential bonding

Add the following:

Accessible conductive parts of the unit, such as the chassis, shall be connected through the protective bonding conductors to the main earthing terminal within the unit.

The protective bonding conductors shall be finely stranded.

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NOTE Type 227 IEC 02 in accordance with IEC 60227-3 is appropriate.

717.411.4 **TN** system

717.411.4.1

Add the following:

Where a TN system is used within a unit with a conductive enclosure and supplied according to 717.313 a) or c), this enclosure shall be connected to the neutral point or, if not available, a line conductor (see Figures 717.1, 717.2 and 717.6).

For a unit without a conductive enclosure, the exposed-conductive-parts of the equipment inside the unit shall be connected by means of a protective conductor to the neutral point or, if not available, to a line conductor.

717.411.6 IT system

717.411.6.2

Add the following:

Where an IT system is used within a unit with a conductive enclosure, connection of the exposed-conductive-parts of the equipment to the conductive enclosure is necessary.

For a unit without a conductive enclosure, the exposed conductive-parts inside shall be connected to one another and to a protective conductor.

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An IT system can be provided by https://standards.teh.ai/catalog/standards/sist/5cd2c8ea-3bbb-401a-8d4b-

- a) an isolating transformer or a low-voltage generating set, with an insulation monitoring device or an insulation fault location system, both without automatic disconnection of supply in the case of a first fault and without need for a connection to an earthing installation (see Figure 717.7); the second fault shall be automatically disconnected by an overcurrent protective device according to 411.6.4,
- b) an isolating transformer providing electrical separation, e.g. in accordance with IEC 60364-4-41, only
 - where an insulation monitoring device is installed providing automatic disconnection of the supply in case of a first fault between live parts and the frame of the unit (see Figure 717.5), or
 - where a residual current protective device and an earth electrode are installed to provide automatic disconnection in the case of failure in the transformer providing simple separation (see Figure 717.4). Each equipment used outside the unit shall be protected by a separate residual current protective device with a rated residual operating current not exceeding 30 mA.

717.413 Protective measure: electrical separation

Add the following:

(For example see Figure 717.8).

717.415 Additional protection

717.415.1 Additional protection: residual current protective devices (RCDs)

Add the following:

Additional protection by residual current protective devices with a rated residual operating current not exceeding 30 mA is necessary for all socket-outlets intended to supply currentusing equipment outside the unit, with the exception of socket-outlets which are supplied from circuits with protection by

- SELV, or
- PELV, or
- electrical separation.

717.43 Protection against overcurrent

717.431 Requirements according to the nature of the circuits

717.431.1 Protection of line conductors

Add the following:

Where the supply is in accordance with 717.313 a) or c), and where a line conductor is connected to the conductive enclosure of the unit, no overcurrent protective device is required in this line conductor.

717.5 Selection and erection of electrical equipment

717.51 Common rules

717.514 Identification Teh STANDARD PREVIEW (standards.iteh.ai)

Add the following:

A permanent notice of durable material shall 7be fixed to the unit in a prominent position, preferably adjacentitto/sthelasupplyi/inlete/connector/5cThe8enotice4shouldb-state in clear and unambiguous terms the following449e613e8c9/iec-60364-7-717-2009

- the type of supply which may be connected to the unit;
- the voltage rating of the unit;
- the number of phases and their configuration;
- the on-board earthing arrangement;
- the maximum power requirement of the unit.

For socket-outlets individually protected by the protective measure electrical separation (see 413.1.2), a durable indication shall be located adjacent to these socket-outlets stating that only one item of current-using electrical equipment shall be connected to each socket-outlet.

717.52 Wiring systems

Add the following:

717.52.1 Cables of type 245 according to IEC 60245-4 or cables of equivalent design having a minimum cross-sectional area of 2,5 mm² Cu shall be used for connecting the unit to the supply. The flexible cable shall enter the unit by an insulating inlet in such a way as to minimize the possibility of any insulation damage or fault which might energize the exposedconductive-parts of the unit. The cable sheath shall be firmly gripped by the cable gland of the connector or anchored to the unit during operation to prevent stress on the termination.

717.52.2 The wiring systems shall be installed using one or more of the following:

a) insulated single-core cables, with flexible conductors or with stranded conductors (minimum of 7 strands), in

- non-metallic conduits, or
- non-metallic cable trunking systems, or
- non-metallic cable ducting systems;
- b) sheathed flexible cables.

All cables shall, as a minimum, meet the requirements of IEC 60227-3 and IEC 60332-1-2.

Conduits shall comply with IEC 61386-21, IEC 61386-22 or IEC 61386-23.

Trunking and ducting systems in accordance with IEC 61084 may be used.

717.55 Other equipment

717.551.6 Additional requirements for installations where the generating set provides a supply as a switched alternative to the normal supply to the installation

Add the following:

Units with different power supply systems and different earthing systems shall not be interconnected.

717.551.7 Additional requirements for installations where the generating set may operate in parallel with other sources including systems for distribution of electricity to the public standards.iteh.ai)

Add the following:

IEC 60364-7-717:2009

Units with differenttppowerarsupply/csystemsdandisdifferent-3earthing-8systems shall not be interconnected. e449e613e8c9/iec-60364-7-717-2009

717.55.1 Plugs and socket-outlets shall comply with IEC 60309-1, IEC 60309-2 or IEC 60884-1, except those dedicated for special equipment, such as broadcasting equipment where combined connectors for information signals and power supply are used.

Connecting devices used to connect the unit to the supply shall comply with IEC 60309-1 or IEC 60309-2 when interchangeability is required, and with the following requirements:

- plugs shall have an enclosure of insulating material;
- plugs and socket-outlets shall afford a degree of protection of not less than IP44, if located outside;
- appliance inlets with their enclosures shall provide a degree of protection of at least IP55;
- the plug part shall be situated on the unit.

717.55.2 Socket-outlets located outside the unit shall be provided with an enclosure affording a degree of protection not less than IP54.

717.55.3 A generating set, able to produce extra-low voltage and used with protective measures other than SELV or PELV, mounted in the unit, shall be switched off automatically in case of an accident to the unit (e.g. event causing the release of air-bags).

717.62.2.1

Add the following:

For mobile units, it is recommended to verify the unit at least once every 12 months.