



SLOVENSKI STANDARD
oSIST prEN IEC 61535:2018
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Inštalacijske spojke za trajni spoj v fiksnih napeljavah (inštalacijah)

Installation couplers intended for permanent connection in fixed installations

Installationssteckverbinder für dauernde Verbindung in festen Installationen

Coupleurs d'installation pour connexions permanentes dans les installations fixes

Ta slovenski standard je istoveten z: prEN IEC 61535:2018

<https://standards.iteh.ai/catalog/standards/sist/b9430fb0-aded-43da-a3d1-7eb5d3d87a09/sist-en-iec-61535-2020>

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OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: <input type="checkbox"/> Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: <input type="checkbox"/> EMC <input type="checkbox"/> ENVIRONMENT <input type="checkbox"/> QUALITY ASSURANCE <input checked="" type="checkbox"/> SAFETY	
<input checked="" type="checkbox"/> SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	<input type="checkbox"/> NOT SUBMITTED FOR CENELEC PARALLEL VOTING

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TITLE:

Installation couplers intended for permanent connection in fixed installations

PROPOSED STABILITY DATE: 2021

NOTE FROM TC/SC OFFICERS:

This draft has been prepared by TC23/ MT6 based on the resolved comments received on CD circulated as 23/777/CD. The resolved comments, based on findings in the MT6 meeting in Dusseldorf were circulated with 23/781A/CC.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INSTALLATION COUPLERS INTENDED FOR PERMANENT
CONNECTION IN FIXED INSTALLATIONS****FOREWORD**

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International Standard IEC 61535 has been prepared by MT6 : Installation couplers intended for permanent connection, maintenance of IEC 61535 Ed.1, of IEC technical committee TC23: Electrical accessories.

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

FDIS	Report on voting
XX/XX/FDIS	XX/XX/RVD

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

The second edition constitutes a technical revision and enlargement of scope into Dc application.

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

199 The committee has decided that the contents of this document will remain unchanged until the
200 stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to
201 the specific document. At this date, the document will be

- 202 • reconfirmed,
- 203 • withdrawn,
- 204 • replaced by a revised edition, or
- 205 • amended.

206

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207

INTRODUCTION

208 This is a second edition of IEC 61535, with some changes and enhancement the field of
209 application of installation couplers into DC-applications and into outdoor applications.

210 For DC-application, only further requirements (marking etc.) are added; no additional test
211 procedures were deemed necessary. However some modifications were necessary in the
212 normative text.

213 The suitable temperature range was added in the scope.

214 The list of normative references was updated and modified into undated references, where
215 possible.

216

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INSTALLATION COUPLERS INTENDED FOR PERMANENT CONNECTION IN FIXED INSTALLATIONS

1 Scope

This International Standard applies to two up to five wire installation couplers including earth, if provided, with a rated voltage up to and including 500 V AC or DC and a rated connecting capacity up to and including 10 mm² for permanent connection in electrical installations. Installation couplers with additional contacts for voltages other than mains voltages are outside the scope of this standard.

NOTE 1 AC and DC installation couplers according to this standard may be used, for example, in prefabricated buildings, commercial show rooms, installation cavities, such as suspended floors and ceilings, in partition walls and in any similar applications, or cable tray systems, cable ladder systems, cable ducting systems and cable trunking systems or in furniture complying with IEC 60364-7-713.

NOTE 2 This standard may be used as a guide for installation couplers with additional contacts for voltages other than mains voltages.

NOTE 3 In the UK, where installation couplers have more than 5 wires, they shall meet the requirements of IEC 61535 as though they were included in the scope and shall be tested in such a way that all of the mains voltage pins are subjected to the same level of testing.

NOTE 4 In the USA, these installation couplers are not permitted to be used where they will not be visible after installation.

An installation coupler consists of an installation female connector and an installation male connector for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation or during reconfiguration or maintenance of the wiring system in which installation couplers have been installed. This means that installation couplers are only intended for infrequent use.

Installation couplers are not suitable for use in place of socket-outlet systems. Installation couplers are not suitable for use in place of devices for connecting luminaires (DCLs) according to IEC 61995 or luminaire supporting couplers (LSCs).

Installation couplers complying with this document are suitable for use at ambient temperatures not normally exceeding +40 °C, but their average over a period does not exceed +35 °C, with a lower limit of the ambient air temperature of -5 °C, either for indoor or outdoor use.

NOTE 5 Additional tests for use in cold climates are under consideration.

NOTE 6 For other temperatures necessary information may be given in the manufacturer's installation instructions.

In locations where special conditions prevail, as in ships, vehicles and the like and in hazardous locations, for example where explosions are liable to occur, special constructions may be required.

NOTE 7 Particular requirements for installation couplers e.g. for use at higher ambient temperatures, with higher mechanical durability (e.g. metal housings), with higher fire resistance and for use in control circuits (e.g. SELV), are under consideration.

NOTE 8 National rules may have requirements concerning the accessibility of installation couplers.

NOTE 9 Installation couplers are intended to be installed by instructed or skilled persons.

NOTE 10 National rules may specify who is allowed to carry out the connection and disconnection of installation couplers.

NOTE 11 National rules may have requirements concerning installation couplers with metal conduits.

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

271 cited applies. For undated references, the latest edition of the referenced document (including
272 any amendments) applies.

273 IEC 60068-2-31:2008, *Environmental testing – Part 2-31: Tests - Test Ec: Rough handling*
274 *shocks, primarily for equipment-type specimens*

275 IEC 60112:2003/AMD1:2009, *Method for the determination of the proof and the comparative*
276 *tracking indices of solid insulating materials*

277 IEC 60364 (all parts), *Electrical installations of buildings*

278 IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

279 IEC 60664-1:2007, *Insulation co-ordination for equipment within low-voltage systems – Part 1:*
280 *Principles, requirements and tests*

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

283 IEC 60998-2-3, *Connecting devices for low-voltage circuits for household and similar*
284 *purposes – Part 2-3: Particular requirements for connecting devices as separate entities with*
285 *insulation-piercing clamping units*

286 IEC 60999-1:1999, *Connecting devices - Electrical copper conductors - Safety requirements*
287 *for screw-type and screwless-type clamping units - Part 1: General requirements and*
288 *particular requirements for clamping units for conductors from 0,2 mm² up to 35 mm²*
289 *(included)*

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

291 **3 Terms and definitions**

292 For the purposes of this document, the following terms and definitions apply.

293 ISO and IEC maintain terminological databases for use in standardization at the following
294 addresses:

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

297 Where the terms “voltage” and “current” are used in this standard, they are r.m.s. values,
298 unless otherwise specified.

299 **3.1**

300 **rated voltage**

301 voltage assigned to the installation coupler by the manufacturer

302 **3.2**

303 **rated current**

304 maximum current assigned to the installation coupler by the manufacturer

305 Note 1 to entry: Rated current refers to the installation coupler itself and not to an electric circuit

306 **3.3**

307 **rated connecting capacity**

308 cross-sectional area of the largest conductor(s) to be connected as stated by the
309 manufacturer of the installation coupler

310 **3.4**

311 **permanent connection**

312 connecting method in an installation which is only opened for maintenance or wiring system
313 re-configuration

314 Note 1 to entry: The expression "permanent connection" is to be understood as a connection which is maintained
315 as long as an installation exists

3.5**installation coupler**

connecting device consisting of an installation female connector and an installation male connector provided with retaining means for permanent connection not intended to be engaged or disengaged under load nor to be engaged or disengaged other than during first installation, during maintenance of the wiring system or during re-configuration of the wiring system

3.6**installation male connector**

load side portion of an installation coupler which contains the male contacts

3.7**installation female connector**

supply side portion of an installation coupler which contains the female contacts

3.8**installation coupler system**

family of installation couplers consisting of one or more installation female connectors compatible by mechanical coding features with one or more installation male connectors, with the same ratings produced according to the specification of one manufacturer

Note 1 to entry: The meaning of one manufacturer is in this case of one and the same manufacturer

3.9**wiring system**

assembly made up of a cable or cables or busbars and the parts which secure and if necessary enclose the cables or busbar

Note 1 to entry: See IEC 60364-5-52

3.10**rewirable installation coupler**

installation coupler so constructed that the cable can be replaced

3.11**non-rewirable installation coupler**

installation coupler so constructed that it forms a complete unit with the cable after connection and assembly by the manufacturer

Note 1 to entry: See also 12.15

3.12**non-rewirable moulded-on installation coupler**

non-rewirable installation coupler so constructed that the contacts, terminals or connections and the attached cable end are surrounded by insulating material manufactured by a moulding process

3.13**non-rewirable non-moulded-on installation coupler**

non-rewirable installation coupler so constructed that the contacts, terminals or connections and the attached cable end are surrounded by separate parts of insulating material

3.14**distribution block**

device intended for branching of circuits

3.15**retaining means**

arrangement by which an installation female connector and an installation male connector are held in position when they are properly engaged and prevents unintentional disengagement

Note 1 to entry: The disengagement may be made by hand or by the use of a tool.

3.16**cap**

removable barrier to prevent ready accessibility to an unused installation female connector

3.17**routine test**

test to which each device is subjected during and/or after manufacture to ascertain whether it complies with certain criteria

3.18**type test**

test of one or more devices made to a certain design to show that the design meets certain requirements

3.19**readily accessible**

accessibility to touch extending from any point on a surface where persons usually stand or move about to the limits which a person can reach with the hand, in any direction without assistance

Note 1 to entry: See IEC 60364-4-41 Annex B.

3.20**terminal**

part of an accessory to which a conductor is attached, providing a reusable connection

3.21**termination**

part of an accessory to which a conductor is permanently attached

[SOURCE: IEC 442-06-06]

4 General requirements

Installation couplers shall be so designed and constructed that, in normal use, their performance is reliable and without danger to the user or damage to the surroundings.

Compliance is checked by carrying out all the relevant tests specified.

5 Conditions for tests**5.1 General**

Tests shall be carried out to check compliance with the relevant requirements of this standard.

Only connectors (male and female) of one installation coupler system according the specification of one and the same manufacturer shall be mated together for carrying out the test.

Tests are as follows:

- type tests shall be made on representative specimens of each type of installation coupler;
- routine tests shall be made on each installation coupler as required in this standard.

Tests of 5.2 to 5.6 are applicable to type tests and 5.7 to routine tests.

5.2 Test conditions

Unless otherwise specified, the tests shall be carried out on specimens as delivered and under conditions of normal use at an ambient temperature between 15 °C and 35 °C.

Where the value of the temperature is of importance, the test shall be carried out at 20 °C ± 5 °C.

5.3 Tests on non-rewireable installation couplers

For testing purposes non-rewirable installation couplers shall be provided with cables of at least 1 m length unless otherwise specified in this standard.

5.4 Order of tests

If not otherwise specified in this standard, the tests shall be carried out in the order of the clauses as specified in Table C.1.

5.5 Specification of tests

Installation male connectors, caps, installation female connectors and distribution blocks shall be tested in connection with their matching counterparts complying with this standard.

The sets of test specimens shall undergo the tests as specified in Table C.1.

5.6 Compliance requirements

Specimen are deemed not to comply with this standard if there is more than one specimen failure in any one of the tests.

If one specimen of a given set fails in a test due to an assembly or manufacturing fault, that test and those preceding, which may have influenced the result of that test, are repeated on another set of specimens of the same set number as specified in Table C.1, all of which shall then comply with the repeated tests.

NOTE The applicant may submit, together with the specified number of specimens, the additional set of specimens, which may be required, should one specimen fail. The testing station will then, without further request, test additional specimens and will reject only if a further failure occurs. If the additional set of specimens is not submitted at the same time, the failure of one specimen will entail rejection.

5.7 Routine tests for non-rewirable installation couplers

Routine tests for non-rewirable installation couplers are specified in Annex A.

6 Ratings

6.1 Rated voltage

Installation couplers should preferably have a rated voltage chosen either from Table 1a for AC or from Table 1b for DC application.

All components of the same installation coupler system shall have the same phase to neutral voltage rating.

Table 1a – Voltage rating for installation couplers in AC application

Nominal voltage of power supply system V	Rated voltage V	Rated impulse voltage kV
100	125	2,5
100/200	125/250	2,5
230	250	4,0
230/400	250/400	4,0
277/480	320/500	4,0

Table 1b – Voltage rating for installation couplers in DC application

Nominal voltage of power supply system V	Rated voltage V	Rated impulse voltage kV
12	12	to be defined
60	60	to be defined
120 ^a -240 ^b	125/250	2,5
220 ^a -440 ^b	250/500	4,0
NOTE for DC-Applications up to 60 V, due to load switching also much higher voltages than the rated voltage is possible, therefore the complete circuit has to be considered when defining rating for impulse voltage NOTE ^a Voltage live conductor against reference conductor/ earth NOTE ^b Voltage live conductor (+ / - polarity)		

6.2 Rated current

Installation couplers should preferably have a rated current chosen from the following values:

- 10 A
- 13 A
- 16 A
- 20 A
- 25 A
- 32 A.

6.3 Rated connecting capacity

Installation couplers should preferably have a rated connecting capacity chosen from the following values:

- 1,5 mm²
- 2,5 mm²
- 4 mm²
- 6 mm²
- 10 mm².

6.4 Tests

Compliance of 6.1, 6.2 and 6.3 is checked by inspection of markings according to Clause 8.

7 Classification**7.1 General**

Installation couplers are classified according to table 2.