



IEC 61535

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# INTERNATIONAL STANDARD



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**Installation couplers intended for permanent connection in fixed installations**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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### INSTALLATION COUPLERS INTENDED FOR PERMANENT CONNECTION IN FIXED INSTALLATIONS

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International Standard IEC 61535 has been prepared by IEC technical committee 23: Electrical accessories.

This second edition cancels and replaces the first edition published in 2009 and Amendment 1:2012. This edition constitutes a technical revision.

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

- a) enlargement of the scope to DC application;
- b) addition of further requirements as regards DC application (marking, etc.), no additional test procedures were deemed necessary; however some modifications were necessary in the normative text;
- c) changes and enhancement of the field of application of installation couplers into outdoor applications;
- d) addition of a suitable temperature range;
- e) updating of the list of normative references, modified to undated references, where possible.

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

CDV	Report on voting
23/792/CDV	23/848/RVC

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.

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

In this standard, the following print types are used:

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://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- withdrawn,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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## INTRODUCTION

AC and DC installation couplers according to this document may be used, for example, in prefabricated buildings, commercial showrooms, 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.

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

Particular requirements for installation couplers, for example, 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.

National rules can have requirements concerning the accessibility of installation couplers.

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

National rules can have requirements concerning installation couplers with metal conduits.



# INSTALLATION COUPLERS INTENDED FOR PERMANENT CONNECTION IN FIXED INSTALLATIONS

## 1 Scope

This document applies to two-wire, 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 mm<sup>2</sup> for permanent connection in indoor electrical installations. Installation couplers with additional contacts for voltages other than mains voltages are outside the scope of this document.

~~NOTE 1 Installation couplers according to this standard are used e.g. in prefabricated buildings, installation cavities, such as suspended floors and ceilings, or cable tray systems, cable ladder systems, cable ducting systems and cable trunking systems or in commercial show rooms, in partition walls and in any similar application 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 (all parts) or in place of 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 1 Additional tests for use in cold climates are under consideration.

~~NOTE 2 For lower limits of in-service~~ other temperatures, necessary information ~~is~~ can 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~~ can be required.

~~NOTE 6 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 7 National rules may have requirements concerning the accessibility of installation couplers.~~

~~NOTE 8~~ 3 Installation couplers are intended to be installed by instructed or skilled persons.

~~NOTE 9 National rules may specify who is allowed to carry out the connection and disconnection of installation couplers.~~

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

IEC 60112:~~2003~~, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

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

IEC 60529:~~2004~~1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013

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

IEC 60695-2-11:~~2000~~, *Fire hazard testing – Part 2-11: Glowing/hot-wire based test methods – Glow-wire flammability test method for end-products (GWEPT)*

IEC 60998-2-3:~~2002~~, *Connecting devices for low-voltage circuits for household and similar purposes – Part 2-3: Particular requirements for connecting devices as separate entities with insulation-piercing clamping units*

IEC 60999-1:1999, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm<sup>2</sup> up to 35 mm<sup>2</sup> (included)*

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

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

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**Installation couplers intended for permanent connection in fixed installations**

**Coupleurs d'installation pour connexions permanentes dans les installations fixes**

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

#### FOREWORD

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- a) enlargement of the scope to DC application;
- b) addition of further requirements as regards DC application (marking, etc.), no additional test procedures were deemed necessary; however some modifications were necessary in the normative text;
- c) changes and enhancement of the field of application of installation couplers into outdoor applications;
- d) addition of a suitable temperature range;



- e) updating of the list of normative references, modified to undated references, where possible.

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

CDV	Report on voting
23/792/CDV	23/848/RVC

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.

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

In this standard, the following print types are used:

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://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.

## INTRODUCTION

AC and DC installation couplers according to this document may be used, for example, in prefabricated buildings, commercial showrooms, 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.

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

Particular requirements for installation couplers, for example, 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.

National rules can have requirements concerning the accessibility of installation couplers.

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

National rules can have requirements concerning installation couplers with metal conduits.

## INSTALLATION COUPLERS INTENDED FOR PERMANENT CONNECTION IN FIXED INSTALLATIONS

### 1 Scope

This document applies to two-wire, 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 mm<sup>2</sup> for permanent connection in electrical installations. Installation couplers with additional contacts for voltages other than mains voltages are outside the scope of this document.

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 (all parts) or in place of 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 1 Additional tests for use in cold climates are under consideration.

NOTE 2 For other temperatures, necessary information can 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 can be required.

NOTE 3 Installation couplers are intended to be installed by instructed or skilled persons.

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

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

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

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

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

IEC 60999-1:1999, *Connecting devices – Electrical copper conductors – Safety requirements for screw-type and screwless-type clamping units – Part 1: General requirements and particular requirements for clamping units for conductors from 0,2 mm<sup>2</sup> up to 35 mm<sup>2</sup> (included)*

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

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## COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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### COUPLEURS D'INSTALLATION POUR CONNEXIONS PERMANENTES DANS LES INSTALLATIONS FIXES

#### AVANT-PROPOS

- 1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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- 3) Les Publications de l'IEC se présentent sous la forme de recommandations internationales et sont agréées comme telles par les Comités nationaux de l'IEC. Tous les efforts raisonnables sont entrepris afin que l'IEC s'assure de l'exactitude du contenu technique de ses publications; l'IEC ne peut pas être tenue responsable de l'éventuelle mauvaise utilisation ou interprétation qui en est faite par un quelconque utilisateur final.
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- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 61535 a été établie par le comité d'études 23 de l'IEC: Petit appareillage.

Cette deuxième édition annule et remplace la première édition parue en 2009 et l'Amendement 1:2012. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) extension du domaine d'application à l'application en courant continu;
- b) ajout des exigences supplémentaires en matière d'application en courant continu (marquage, etc.), aucune procédure d'essai supplémentaire n'a été jugée nécessaire; toutefois, certaines modifications du texte normatif étaient nécessaires;
- c) modifications et amélioration du champ d'application des coupleurs d'installation aux applications extérieures;

- d) ajout d'une plage de températures appropriée;
- e) mise à jour de la liste des références normatives, modifiée pour inclure des références non datées, lorsque cela était possible.

Le texte de cette Norme internationale est issu des documents suivants:

CDV	Rapport de vote
23/792/CDV	23/848/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Dans la présente norme, les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- *modalités d'essais: caractères italiques;*
- indication de nature informative: petits caractères romains.

Le comité a décidé que le contenu de ce document ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives au document recherché. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

## INTRODUCTION

Les coupleurs d'installation en courant alternatif et en courant continu conformément au présent document peuvent être utilisés, par exemple, dans les bâtiments préfabriqués, les salles d'exposition commerciales, les vides d'installation, tels que les planchers et les plafonds suspendus, dans les cloisons de séparation et dans toute application similaire, ou les systèmes de chemin de câbles, les systèmes d'échelle à câble, les systèmes de conduits-profilés et les systèmes de goutte ou encore dans tout mobilier conforme à l'IEC 60364-7-713.

Le présent document peut être utilisé comme guide pour les coupleurs d'installation avec contacts supplémentaires pour des tensions autres que la tension d'alimentation du réseau.

Des exigences particulières pour des coupleurs d'installation destinés par exemple à un usage à des températures ambiantes plus élevées, avec des résistances mécaniques plus élevées (par exemple, en enveloppe métallique), avec une résistance au feu plus importante et des coupleurs d'installation pour les circuits de commande (par exemple TBTS), sont à l'étude.

Les règles d'installation nationales peuvent comporter des exigences concernant l'accessibilité des coupleurs d'installation.

Les règles nationales d'installation peuvent spécifier qui est autorisé à effectuer le branchement et le débranchement des coupleurs d'installation.

Les règles nationales peuvent comporter des exigences concernant les coupleurs d'installation avec des conduits métalliques.

## COUPLEURS D'INSTALLATION POUR CONNEXIONS PERMANENTES DANS LES INSTALLATIONS FIXES

### 1 Domaine d'application

Le présent document s'applique aux coupleurs d'installation comportant de deux à cinq conducteurs, y compris le conducteur de terre (le cas échéant), de tension assignée jusqu'à 500 V inclus en courant alternatif ou en courant continu et de capacité de connexion assignée jusqu'à 10 mm<sup>2</sup> inclus, pour connexion permanente dans les installations électriques. Les coupleurs d'installation avec des contacts supplémentaires pour des tensions autres que la tension d'alimentation du réseau ne relèvent pas du domaine d'application du présent document.

Un coupleur d'installation est constitué d'un connecteur femelle d'installation et d'un connecteur mâle d'installation pour connexion permanente non destinés à être connectés ou déconnectés en charge ni destinés à être connectés ou déconnectés autrement que pendant la première installation ou au cours de la reconfiguration ou de la maintenance de la canalisation dans laquelle les coupleurs d'installation ont été installés. Cela signifie que les coupleurs d'installation sont prévus uniquement pour un usage non fréquent.

Les coupleurs d'installation ne sont pas adaptés pour être utilisés en remplacement des systèmes de prises de courant. Les coupleurs d'installation ne sont pas adaptés pour être utilisés pour remplacer les dispositifs de connexion pour luminaires (DCL) selon l'IEC 61995 (toutes les parties) ou pour remplacer les dispositifs de suspension pour luminaires (LSC).

Les coupleurs d'installation conformes au présent document conviennent à une utilisation aux températures ambiantes ne dépassant normalement pas +40 °C, mais dont la moyenne sur une certaine période ne dépasse pas +35 °C, avec une limite inférieure de température de l'air ambiant de –5 °C, que ce soit pour une utilisation à l'intérieur ou à l'extérieur.

NOTE 1 Des essais supplémentaires pour une utilisation dans les climats froids sont à l'étude.

NOTE 2 Pour d'autres températures, les informations nécessaires peuvent être données dans les instructions d'installation du fabricant.

Dans les endroits où des conditions spéciales prédominent, comme dans les navires, les véhicules et les lieux à risques, par exemple où des explosions sont susceptibles de se produire, des constructions spéciales peuvent être exigées.

NOTE 3 Les coupleurs d'installation sont prévus pour être installés par des personnes averties ou qualifiées.

### 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60068-2-31:2008, *Essais d'environnement – Partie 2-31: Essais – Essai Ec: Choc lié à des manutentions brutales, essai destiné en premier lieu aux matériels*

IEC 60112, *Méthode de détermination des indices de résistance et de tenue au cheminement des matériaux isolants solides*

IEC 60529:1989, *Degrés de protection procurés par les enveloppes (Code IP)*  
IEC 60529:1989/AMD1:1999  
IEC 60529:1989/AMD2:2013

IEC 60664-1:2007, *Coordination de l'isolement des matériels dans les systèmes (réseaux) à basse tension – Partie 1: Principes, exigences et essais*

IEC 60695-2-11, *Essais relatifs aux risques du feu – Partie 2-11: Essais au fil incandescent/chauffant – Méthode d'essai d'inflammabilité pour produits finis (GWEPT)*

IEC 60998-2-3, *Dispositifs de connexion pour circuits basse tension pour usage domestique et analogue – Partie 2-3: Règles particulières pour dispositifs de connexion en tant que parties séparées avec organes de serrage à perçage d'isolant*

IEC 60999-1:1999, *Dispositifs de connexion – Conducteurs électriques en cuivre – Prescriptions de sécurité pour organes de serrage à vis et sans vis – Partie 1: Prescriptions générales et particulières pour les organes de serrage pour les conducteurs de 0,2 mm<sup>2</sup> à 35 mm<sup>2</sup> (inclus)*

IEC 61032:1997, *Protection des personnes et des matériels par les enveloppes – Calibres d'essai pour la vérification*