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NSAI Standards

Irish Standard
I.S. EN 62790:2015

Junction boxes for photovoltaic modules - Safety requirements and tests

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This document is based on:	*Published:*
EN 62790:2015	2015-03-13

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
2015-03-31	NOTE: If blank see CEN/CENELEC cover page

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62790

March 2015

ICS 27.160

English Version

Junction boxes for photovoltaic modules - Safety requirements and tests (IEC 62790:2014)

Boîtes de jonction pour modules photovoltaïques - Exigences de sécurité et essais (IEC 62790:2014)

Anschlussdosen für Photovoltaik-Module - Sicherheitsanforderungen und Prüfungen (IEC 62790:2014)

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Ref. No. EN 62790:2015 E

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Foreword

The text of document 82/876/FDIS, future edition 1 of IEC 62790, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62790:2015.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-09-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-12-11

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

IEC 60352-3	NOTE	Harmonized as EN 60352-3.
IEC 60352-4	NOTE	Harmonized as EN 60352-4.
IEC 60364-7-712	NOTE	Harmonized as HD 60364-7-712.
IEC 60512-1	NOTE	Harmonized as EN 60512-1.
IEC 60695-10-2	NOTE	Harmonized as EN 60695-10-2.
IEC 61210	NOTE	Harmonized as EN 61210.
IEC 61215	NOTE	Harmonized as EN 61215.
IEC 61646	NOTE	Harmonized as EN 61646.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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

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

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

Publication	Year	Title	EN/HD	Year
-	-	Electric cables for photovoltaic systems	EN 50618	-
IEC 60060-1	-	High-voltage test techniques - Part 1: General definitions and test requirements	EN 60060-1	-
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-70	-	Environmental testing - Part 2: Tests - Test Xb: Abrasion of markings and letterings caused by rubbing of fingers and hands	EN 60068-2-70	-
IEC 60068-2-75	-	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	-
IEC 60228	-	Conductors of insulated cables	EN 60228	-
IEC 60352-2	-	Solderless connections - Part 2: Crimped connections - General requirements, test methods and practical guidance	EN 60352-2	-
IEC 60512-12-1	-	Connectors for electronic equipment - Tests and measurements - Part 12-1: Soldering tests - Test 12a: Solderability, wetting, solder bath method	EN 60512-12-1	-

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Publication	Year	Title	EN/HD	Year
IEC 60512-12-2	-	Connectors for electronic equipment - Tests and measurements - Part 12-2: Soldering tests - Test 12b: Solderability, wetting, soldering iron method	EN 60512-12-2	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	EN 60529	-
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC/TR 60664-2-1	-	Insulation coordination for equipment within low-voltage systems - Part 2-1: Application guide - Explanation of the application of the IEC 60664 series, dimensioning examples and dielectric testing	-	-
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	-
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)	EN 60695-2-11	-
IEC 60695-11-10	-	Fire hazard testing - Part 11-10: Test flames - 50 W horizontal and vertical flame test methods	EN 60695-11-10	-
IEC 60695-11-20	1999	Fire hazard testing - Part 11-20: Test flames - 500 W flame test methods	EN 60695-11-20	1999
IEC/TR 60943	-	Guidance concerning the permissible temperature rise for parts of electrical equipment, in particular for terminals	-	-
IEC 60947-7-1	-	Low-voltage switchgear and controlgear - Part 7-1: Ancillary equipment - Terminal blocks for copper conductors	EN 60947-7-1	-
IEC 60998-2-1	-	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-1: Particular requirements for connecting devices as separate entities with screw-type clamping units	EN 60998-2-1	-
IEC 60998-2-2	-	Connecting devices for low-voltage circuits for household and similar purposes - Part 2-2: Particular requirements for connecting devices as separate entities with screwless-type clamping units	EN 60998-2-2	-

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Publication	Year	Title	EN/HD	Year
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 mm² up to 35 mm² (included)	EN 60999-1	2000
IEC 60999-2	-	Connecting devices - Electrical copper conductors - Safety requirements for screw-type and screwless-type clamping units - Part 2: Particular requirements for clamping units for conductors above 35 mm² up to 300 mm² (included)	EN 60999-2	-
IEC 61032	-	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	-
IEC 61140	2001	Protection against electric shock - Common aspects for installation and equipment	EN 61140	2002
IEC 61730-1	-	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction	EN 61730-1	-
IEC 61730-2 (mod)	2004	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing	EN 61730-2	2007
IEC 62852	-	Connectors for DC-application in photovoltaic systems - Safety requirements and tests	EN 62852	-
ISO 868	2003	Plastics and ebonite - Determination of indentation hardness by means of a durometer (Shore hardness)	EN ISO 868	2003
ISO 4892-2	2013	Plastics - Methods of exposure to laboratory light sources - Part 2: Xenon-arc lamps	EN ISO 4892-2	2013
ISO 4892-3	2006	Plastics - Methods of exposure to laboratory light sources - Part 3: Fluorescent UV lamps	EN ISO 4892-3	2006

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IEC 62790

Edition 1.0 2014-11

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Boîtes de jonction pour modules photovoltaïques – Exigences de sécurité et essais

IEC 62790:2014-11(en-fr)

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Boîtes de jonction pour modules photovoltaïques – Exigences de sécurité et essais

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ISBN 978-2-8322-1899-0

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

JUNCTION BOXES FOR PHOTOVOLTAIC MODULES – SAFETY REQUIREMENTS AND TESTS

FOREWORD

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International Standard IEC 62790 has been prepared by IEC technical committee 82: Solar photovoltaic energy systems.

The European Standard EN 50548 (first edition, 2011), has served as a basis for the elaboration of this standard.

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

FDIS	Report on voting
82/876/FDIS	82/902/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.

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

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JUNCTION BOXES FOR PHOTOVOLTAIC MODULES – SAFETY REQUIREMENTS AND TESTS

1 Scope

This International Standard describes safety requirements, constructional requirements and tests for junction boxes up to 1 500 V dc for use on photovoltaic modules according to class II of IEC 61140:2001.

This standard applies also to enclosures mounted on PV-modules containing electronic circuits for converting, controlling, monitoring or similar operations. Additional requirements concerning the relevant operations are applied under consideration of the environmental conditions of the PV-modules. This standard does not apply to the electronic circuits of these devices, for which other IEC-standards apply.

NOTE For junction boxes according to classes 0 and III of IEC 61140:2001, in photovoltaic-systems, this standard can be used as a guideline.

2 Normative references

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

IEC 60060-1, *High-voltage test techniques – Part 1: General definitions and test requirements*

IEC 60068-1, *Environmental testing – Part 1: General and guidance*

IEC 60068-2-14:2009, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-70, *Environmental testing – Part 2: Tests – Test Xb: Abrasion of markings and letterings caused by rubbing of fingers and hands*

IEC 60068-2-75, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60068-2-78, *Environmental testing – Part 2-78: Tests – Test Cab: Damp heat, steady state*

IEC 60228, *Conductors of insulated cables*

IEC 60352-2, *Solderless connections – Part 2: Crimped connections – General requirements, test methods and practical guidance*

IEC 60512-12-1, *Connectors for electronic equipment – Tests and measurements – Part 12-1: Soldering tests – Test 12a: Solderability, wetting, solder bath method*

IEC 60512-12-2, *Connectors for electronic equipment – Tests and measurements – Part 12-2: Soldering tests – Test 12b: Solderability, wetting, soldering iron method*

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