



BSI Standards Publication

Connectors for electrical and electronic equipment — Product requirements

Part 3-106: Rectangular connectors — Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface

National foreword

This British Standard is the UK implementation of EN IEC 61076-3-106:2023. It is identical to IEC 61076-3-106:2023. It supersedes BS EN 61076-3-106:2006, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/48, Electromechanical components and mechanical structures for electronic equipment.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

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- Exigences de produit - Partie 3-106: Connecteurs rectangulaires - Spécification particulière pour boîtiers de protection utilisés avec des connecteurs blindés et non blindés 8 voies pour des environnements industriels incorporant l'interface série IEC 60603-7 (IEC 61076-3-106:2023)

Steckverbinder für elektrische und elektronische Einrichtungen - Produktanforderungen - Teil 3-106: Rechteckige Steckverbinder - Bauartspezifikation für Schutzgehäuse für die Anwendung mit 8-poligen geschirmten und ungeschirmten Steckverbindern für industrielle Umgebungen zur Aufnahme der Schnittstelle der Reihe IEC 60603-7 (IEC 61076-3-106:2023)

This European Standard was approved by CENELEC on 2023-08-23. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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

European foreword

The text of document 48B/3034/FDIS, future edition 2 of IEC 61076-3-106, prepared by SC 48B "Electrical connectors" of IEC/TC 48 "Electrical connectors and mechanical structures for electrical and electronic equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61076-3-106:2023.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2024-05-23 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2026-08-23 document have to be withdrawn

This document supersedes EN 61076-3-106:2006 and all of its amendments and corrigenda (if any).

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Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61076-3-106:2023 was approved by CENELEC as a European Standard without any modification.

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

IEC 60512-99-001:2012 NOTE Approved as EN 60512-99-001:2012 (not modified)

IEC 60512-99-002:2022 NOTE Approved as EN IEC 60512-99-002:2022 (not modified)

IEC 61076-3-114 NOTE Approved as EN 61076-3-114

IEC 61076-3-115 NOTE Approved as EN 61076-3-115

IEC 61076-3-116 NOTE Approved as EN 61076-3-116

IEC 61076-3-117 NOTE Approved as EN 61076-3-117

ISO 14405 (series) NOTE Approved as EN ISO 14405 (series)

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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.cencenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-1	-	Environmental testing - Part 1: General and guidance	EN 60068-1	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	-
IEC 60068-2-30	-	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	-
IEC 60512-1-1	-	Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination - Test 1a: Visual examination	EN 60512-1-1	-
IEC 60512-1-2	-	Connectors for electronic equipment - Tests and measurements - Part 1-2: General examination - Test 1b: Examination of dimension and mass	EN 60512-1-2	-
IEC 60512-2-1	2002	Connectors for electronic equipment - Tests and measurements - Part 2-1: Electrical continuity and contact resistance tests - Test 2a: Contact resistance - Millivolt level method	EN 60512-2-1	2002
IEC 60512-2-5	-	Connectors for electronic equipment - Tests and measurements - Part 2-5: Electrical continuity and contact resistance tests - Test 2e: Contact disturbance	EN 60512-2-5	-
IEC 60512-3-1	2002	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance	EN 60512-3-1	2002
IEC 60512-4-1	2003	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	EN 60512-4-1	2003

EN IEC 61076-3-106:2023 (E)

IEC 60512-6-3	-	Connectors for electronic equipment - Tests and measurements - Part 6-3: Dynamic stress tests - Test 6c: Shock	EN 60512-6-3	-
IEC 60512-6-4	-	Connectors for electronic equipment - Tests and measurements - Part 6-4: Dynamic stress tests - Test 6d: Vibration (sinusoidal)	EN 60512-6-4	-
IEC 60512-8-1	2010	Connectors for electronic equipment - Tests and measurements - Part 8-1: Static load tests (fixed connectors) - Test 8a: Static load, transverse	EN 60512-8-1	2010
IEC 60512-9-1	2010	Connectors for electronic equipment - Tests and measurements - Part 9-1: Endurance tests - Test 9a: Mechanical operation	EN 60512-9-1	2010
IEC 60512-11-3	-	Connectors for electronic equipment - Tests and measurements - Part 11-3: Climatic tests - Test 11c: Damp heat, steady state	EN 60512-11-3	-
IEC 60512-11-4	-	Connectors for electronic equipment - Tests and measurements - Part 11-4: Climatic tests - Test 11d: Rapid change of temperature	EN 60512-11-4	-
IEC 60512-13-1	2006	Connectors for electronic equipment - Tests and measurements - Part 13-1: Mechanical operation tests - Test 13a: Engaging and separating forces	EN 60512-13-1	2006
-	-		+ corrigendum Dec. 2006	
IEC 60512-13-5	-	Connectors for electronic equipment - Tests and measurements - Part 13-5: Mechanical operation tests - Test 13e: Polarizing and keying method	EN 60512-13-5	-
IEC 60512-15-6	2008	Connectors for electronic equipment - Tests and measurements - Part 15-6: Connector tests (mechanical) - Test 15f: Effectiveness of connector coupling devices	EN 60512-15-6	2008
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May 1993	
IEC 60603-7	-	Connectors for electronic equipment - Part 7: Detail specification for 8-way, unshielded, free and fixed connectors	EN IEC 60603-7	-
IEC 60603-7-1	-	Connectors for electronic equipment - Part 7-1: Detail specification for 8-way, shielded, free and fixed connectors	EN 60603-7-1	-
IEC 60664-1	-	Insulation coordination for equipment within low-voltage supply systems - Part 1: Principles, requirements and tests	EN IEC 60664-1	-
IEC 61076-1	2006	Connectors for electronic equipment - Product requirements - Part 1: Generic specification	EN 61076-1	2006

IEC 61156-2	-	Multicore and symmetrical pair/quad cables for digital communications - Part 2: Symmetrical pair/quad cables with transmission characteristics up to 100 MHz - Horizontal floor wiring - Sectional specification	-	-
IEC 61156-3	-	Multicore and symmetrical pair/quad cables for digital communications - Part 3: Work area cable - Sectional specification	-	-
IEC 61156-4	-	Multicore and symmetrical pair/quad cables for digital communications - Part 4: Riser cables - Sectional specification	-	-

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT –
PRODUCT REQUIREMENTS –****Part 3-106: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface**

FOREWORD

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IEC 61076-3-106 has been prepared by subcommittee 48B: Electrical connectors, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment. It is an International Standard.

This second edition cancels and replaces the first edition published in 2006. This edition constitutes a technical revision.

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

- a) improvement of drawings and addition of dimensions.

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

Draft	Report on voting
48B/3034/FDIS	48B/3045/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. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 61076 series, published under the general title *Connectors for electrical and electronic equipment – Product requirements*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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 in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This document, originally issued in 2006 and including 10 variants, describes now 5 variants of connector housing with different geometries (rectangular or circular) and locking systems (locking lever, snap-in, bayonet coupling) suitable for all the connector interfaces of the IEC 60603-7 series, either shielded or unshielded.

The purpose of this set of variants, now reduced to reflect their market relevance, is to provide several competing ways to upgrade the degree of protection of the resulting data transmission connectors, to IP65/IP67, mainly in view of their use in industrial environments, while maintaining all the original performance of the housed IEC 60603-7 compliant connectors, which can be of different source than these 5 variants of connector housings.

Each variant may be available on the market by multiple sources and based on different materials (i.e. either metallic or thermoplastic insulating, particularly for the main part of the housing, but also regarding the locking means) to suit the needs of various industrial applications.

Some of these variants have been endorsed by other IEC technical committees and/or by external consortia as the reference interface for specific applications.

Being the basic interface of series IEC 60603-7 a rectangular one, this standard document was originally issued as a Part 106 detail product specifications under the IEC 61076-3 sectional specification covering rectangular connectors for electrical and electronic equipment, although half of the original variants described in this document (variants 01, 03, 08, 09 and 10), currently only variant 01 is included in this document – own a circular connector interface, all the variants having nonetheless in common the purpose to upgrade the IP degree of protection to IP65/IP67, and the incorporated IEC 60603-7 series connector interface.

NOTE It is worthwhile to inform users of this document that further variants 11 through 14 referring this document were successively published from 2007 to 2009 as IEC 61076-3-114 through IEC 61076-3-117. Among these variants, for which reference should be made to the relevant publication (see Bibliography), variants 11 and 12 have circular geometry, while variants 13 and 14 have square (rectangular geometry).

CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – PRODUCT REQUIREMENTS –

Part 3-106: Rectangular connectors – Detail specification for protective housings for use with 8-way shielded and unshielded connectors for industrial environments incorporating the IEC 60603-7 series interface

1 Scope

This part of IEC 61076 constitutes a detail product specification for 8-way connectors for data transmission with frequencies up to 600 MHz.

It covers protective housings for upgrading existing 8-way shielded and unshielded connectors utilizing the interface described in the IEC 60603-7 series to IP65/IP67 rating according to IEC 60529, for use in industrial environments.

The housings cover a variety of different locking mechanisms according to this document and a variety of different mounting configurations and termination types which are detailed in the IEC 60603-7 series.

Common mating configurations for all variants are defined in IEC 60603-7. The mating dimensions for the housings under Clause 3 allow the mating conditions under IEC 60603-7 to be fulfilled.

The fully assembled variants (connectors) described in this document incorporate fully compliant IEC 60603-7 series fixed and free connectors.

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

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

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

IEC 60512-1-1, *Connectors for electronic equipment – Tests and measurements – Part 1-1: General examination – Test 1a: Visual examination*

IEC 60512-1-2, *Connectors for electronic equipment – Tests and measurements – Part 1-2: General examination – Test 1b: Examination of dimension and mass*

IEC 60512-2-1:2002, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electrical continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*