

<b>STN</b>	<b>Konektory pre elektrické a elektronické zariadenia</b> <b>Skúšky a merania</b> <b>Časť 99-003: Plány záťažových skúšok</b> <b>Skúška 99c: Plán skúšky pre vyvážené jednopárové konektory, ktoré sa oddeľujú (nespájajú) pri elektrickom zaťažení</b>	<b>STN</b> <b>EN IEC</b> <b>60512-99-003</b>  35 4055
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Connectors for electrical and electronic equipment - Tests and measurements - Part 99-003: Endurance test schedules - Test 99c: Test schedule for balanced single-pair connectors separating (unmating) under electrical load

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/24

Obsahuje: EN IEC 60512-99-003:2023, IEC 60512-99-003:2023

EUROPEAN STANDARD

**EN IEC 60512-99-003**

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2023

ICS 13.220.40

English Version

Connectors for electrical and electronic equipment - Tests and measurements - Part 99-003: Endurance test schedules - Test 99c: Test schedule for balanced single-pair connectors separating (unmating) under electrical load  
(IEC 60512-99-003:2023)

Connecteurs pour équipements électriques et électroniques  
- Essais et mesures - Partie 99-003: Programmes d'essais d'endurance - Essai 99c: Programme d'essai des connecteurs à une seule paire symétrique lors de la séparation (désaccouplement) sous charge électrique  
(IEC 60512-99-003:2023)

Steckverbinder für elektrische und elektronische Einrichtungen - Prüfungen und Messungen - Teil 99-003: Dauerprüfpläne - Prüfung 99c: Prüfplan für symmetrische einpaarige Steckverbinder, die unter elektrischer Last getrennt werden  
(IEC 60512-99-003:2023)

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**EN IEC 60512-99-003:2023 (E)****European foreword**

The text of document 48B/3058/FDIS, future edition 1 of IEC 60512-99-003, 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 60512-99-003:2023.

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) 2024-08-03
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2026-11-03

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In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 60512-99-002 NOTE Approved as EN IEC 60512-99-002

## 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](http://www.cencenelec.eu).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-581	-	International Electrotechnical Vocabulary - Part 581: Electromechanical components for electronic equipment	-	-
IEC 60512-1	-	Connectors for electrical and electronic equipment - Tests and measurements - Part 1: Generic specification	EN IEC 60512-1	-
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 60512-2-1	-	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	-
IEC 60512-3-1	-	Connectors for electronic equipment - Tests and measurements - Part 3-1: Insulation tests - Test 3a: Insulation resistance	EN 60512-3-1	-
IEC 60512-4-1	-	Connectors for electronic equipment - Tests and measurements - Part 4-1: Voltage stress tests - Test 4a: Voltage proof	EN 60512-4-1	-
IEC 60512-9-3	2011	Connectors for electronic equipment - Tests and measurements - Part 9-3: Endurance tests - Test 9c: Mechanical operation (engaging and separating) with electrical load	EN 60512-9-3	2011
IEC 60512-11-7	-	Connectors for electronic equipment - Tests and measurements - Part 11-7: Climatic tests - Test 11g: Flowing mixed gas corrosion test	EN 60512-11-7	-

**EN IEC 60512-99-003:2023 (E)**

IEC 63171	series	Connectors for electrical and electronic equipment – Shielded or unshielded free and fixed connectors for balanced single-pair data transmission with current-carrying capacity – General requirements and tests	EN IEC 63171	series
IEEE Std 802.3cg	2019	IEEE Standard for Ethernet - Amendment 5: Physical Layer Specifications and Management Parameters for 10 Mb/s Operation and Associated Power Delivery over a Balanced single-pair of Conductors	-	-



# IEC 60512-99-003

Edition 1.0 2023-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Connectors for electrical and electronic equipment – Tests and measurements – Part 99-003: Endurance test schedules – Test 99c: Test schedule for balanced single-pair connectors separating (unmating) under electrical load**

**Connecteurs pour équipements électriques et électroniques – Essais et mesures – Partie 99-003: Programmes d'essais d'endurance – Essai 99c: Programme d'essai des connecteurs à une seule paire symétrique lors de la séparation (désaccouplement) sous charge électrique**



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IEC 60512-99-003

Edition 1.0 2023-09

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



**Connectors for electrical and electronic equipment – Tests and measurements – Part 99-003: Endurance test schedules – Test 99c: Test schedule for balanced single-pair connectors separating (unmating) under electrical load**

**Connecteurs pour équipements électriques et électroniques – Essais et mesures – Partie 99-003: Programmes d'essais d'endurance – Essai 99c: Programme d'essai des connecteurs à une seule paire symétrique lors de la séparation (désaccouplement) sous charge électrique**

INTERNATIONAL  
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COMMISSION  
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INTERNATIONALE

ICS 13.220.40

ISBN 978-2-8322-7561-0

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## CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references .....	5
3 Terms, definitions and acronyms .....	6
3.1 Terms and definitions.....	6
3.2 Acronyms.....	6
4 General .....	6
5 Preparation of specimens .....	6
6 Test circuit requirements .....	6
6.1 General.....	6
6.2 Voltage and current .....	7
6.3 Auxiliary equipment .....	8
7 Test methods.....	8
7.1 Mechanical operations with electrical load .....	8
7.2 Flowing mixed gas corrosion.....	8
8 Test and test schedule – Test group UEL 1 .....	8
Annex A (informative) Test voltage and current setting instructions.....	11
A.1 General.....	11
A.2 Rationale .....	11
A.3 Suggested setting instructions .....	11
Annex B (informative) Discussion of the test circuit elements.....	12
B.1 General.....	12
B.2 The test circuit elements .....	12
B.2.1 Power supply .....	12
B.2.2 Inductors .....	12
B.2.3 PD load .....	12
B.3 An example of calculating voltage and load.....	12
Annex C (informative) Development of the test circuit .....	13
C.1 Model of the PSE and the PD.....	13
C.2 Removal of the semiconductors .....	13
C.3 Combination of the elements.....	14
C.4 Further adjustments .....	14
C.5 Final schematic for unmating under load .....	15
Bibliography.....	16
Figure 1 – Test circuit diagram for one pole .....	7
Figure C.1 – PSE and PD model.....	13
Figure C.2 – Removal of the semiconductors .....	13
Figure C.3 – Combination of the elements .....	14
Figure C.4 – Removal of the capacitors and concentration of the inductors .....	14
Figure C.5 – Final schematic .....	15
Table 1 – Remote powering test requirements .....	7
Table 2 – Test group UEL 1 .....	9

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**CONNECTORS FOR ELECTRICAL AND ELECTRONIC  
EQUIPMENT – TESTS AND MEASUREMENTS –**
**Part 99-003: Endurance test schedules –  
Test 99c: Test schedule for balanced single-pair connectors  
separating (unmating) under electrical load**

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IEC 60512-99-003 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.

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

Draft	Report on voting
48B/3058/FDIS	48B/3065/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.

A list of all parts in the IEC 60512 series, published under the general title *Connectors for electrical and electronic equipment – Tests and measurements*, can be found on the IEC website.

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](http://www.iec.ch/members_experts/refdocs). The main document types developed by IEC are described in greater detail at [www.iec.ch/standardsdev/publications](http://www.iec.ch/standardsdev/publications).

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## CONNECTORS FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

### Part 99-003: Endurance test schedules – Test 99c: Test schedule for balanced single-pair connectors separating (unmating) under electrical load

#### 1 Scope

This part of IEC 60512 is used for the assessment of connectors within the scope of SC 48B that are used in balanced single-pair communication cabling with remote power, in support of e.g., IEEE 802.3 remote powering applications for point-to-point connections.

The object of this document is to detail a test schedule to determine the ability of sets of single-pair connectors as defined in the IEC 63171 series to withstand a minimum of 100 mechanical operations with electrical load, where an electrical current is being passed through the connector in accordance with IEC 60512-9-3 during the separation (unmating) step.

This document does not cover multidrop powering applications of single-pair 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 60050-581, *International Electrotechnical Vocabulary (IEV) – Part 581: Electromechanical components for electronic equipment*

IEC 60512-1, *Connectors for electrical and electronic equipment – Tests and measurements – Part 1: Generic specification*

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

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

IEC 60512-3-1, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance*

IEC 60512-4-1, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof*

IEC 60512-9-3:2011, *Connectors for electronic equipment – Tests and measurements – Part 9-3: Endurance tests – Test 9c: Mechanical operation (engaging and separating) with electrical load*

IEC 60512-11-7, *Connectors for electronic equipment – Tests and measurements – Part 11-7: Climatic tests – Test 11g: Flowing mixed gas corrosion test*