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**Konektorji za elektronsko opremo – Preskusi in meritve – 13-1. del: Mehansko preskušanje – Preskus 13a: Sile za stikanje in raztikanje (IEC 60512-13-1:2006)**

Connectors for electronic equipment - Tests and measurements - Part 13-1:  
Mechanical operation tests - Test 13a: Engaging and separating forces (IEC 60512-13-1:2006)

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English version

**Connectors for electronic equipment -  
Tests and measurements  
Part 13-1: Mechanical operation tests -  
Test 13a: Engaging and separating forces  
(IEC 60512-13-1:2006)**

Connecteurs pour équipements  
électroniques -  
Essais et mesures  
Partie 13-1: Essais de fonctionnement  
mécanique -  
Essai 13a: Forces d'accouplement  
et de désaccouplement  
(CEI 60512-13-1:2006)

Steckverbinder für elektronische  
Einrichtungen -  
Mess- und Prüfverfahren  
Teil 13-1: Prüfungen der mechanischen  
Bedienbarkeit -  
Prüfung 13a: Kupplungs- und Trennkraft  
(IEC 60512-13-1:2006)

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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

## Foreword

The text of document 48B/1581/FDIS, future edition 2 of IEC 60512-13-1, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60512-13-1 on 2006-03-01.

This European Standard supersedes EN 60512-13-1:1997.

This standard is to be read in conjunction with EN 60512-1 and EN 60512-1-100 which explains the structure of the EN 60512 series.

The following dates were fixed:

- latest date by which the EN has to be implemented  
at national level by publication of an identical  
national standard or by endorsement (dop) 2006-12-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2009-03-01

This European Standard makes reference to International Standards. Where the International Standard referred to has been endorsed as a European Standard or a home-grown European Standard exists, this European Standard shall be applied instead. Pertinent information can be found on the CENELEC web site.

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### Endorsement notice

The text of the International Standard IEC 60512-13-1:2006 was approved by CENELEC as a European Standard without any modification.

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**NORME  
INTERNATIONALE  
INTERNATIONAL  
STANDARD**

**CEI  
IEC**

**60512-13-1**

Deuxième édition  
Second edition  
2006-02

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**Connecteurs pour équipements électroniques –  
Essais et mesures –**

**Partie 13-1:  
Essais de fonctionnement mécanique –  
Essai 13a: Forces d'accouplement  
et de désaccouplement**

**Connectors for electronic equipment –  
Tests and measurements –**

**Part 13-1:  
Mechanical operation tests –  
Test 13a: Engaging and separating forces**

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Commission Electrotechnique Internationale  
International Electrotechnical Commission  
Международная Электротехническая Комиссия

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**CONNECTORS FOR ELECTRONIC EQUIPMENT –  
TESTS AND MEASUREMENTS –****Part 13-1: Mechanical operation tests –  
Test 13a: Engaging and separating forces**

## FOREWORD

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International Standard IEC 60512-13-1 has been prepared by subcommittee 48B: Connectors, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This standard cancels and replaces IEC 60512-13-1, issued in 1996, and constitutes a technical revision. This standard is to be read in conjunction with IEC 60512-1 and IEC 60512-1-100 which explains the structure of the IEC 60512 series.

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

FDIS	Report on voting
48B/1581/FDIS	48B/1614/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.

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

IEC 60512-13 consists of the following parts, under the general title *Connectors for electronic equipment – Tests and measurements*:

Part 13-1: Mechanical operation tests – Test 13a: Engaging and separating forces

Part 13-2: Mechanical operation tests – Test 13b: Insertion and withdrawal forces

Part 13-5: Mechanical operation tests – Test 13e: Polarizing and keying method

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

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

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## CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

### Part 13-1: Mechanical operation tests – Test 13a: Engaging and separating forces

#### 1 Scope and object

This part of IEC 60512, when required by the detail specification, is used for testing connectors within the scope of IEC technical committee 48. It may also be used for similar devices when specified in a detail specification.

The object of this part of IEC 60512 is to detail a standard test method to measure the force to fully engage or separate mating connectors, including the effect of any locking, latching, sealing, engaging, separating or similar device, that assists or resists such operation.

This test method may also be used to measure separate parts of the force(s) required to fully engage or separate mating connectors; e.g. the locking force of a (separate) coupling device.

NOTE 1 If the force(s) are composed of two or more parts, it may not be possible to express these as an overall value. In which case, the detail specification should give requirements in a manner to identify such separate parts.

NOTE 2 The term force is used in its generic sense, and will therefore include lateral and oblique force, torque and leverage moments. These may in some cases have a negative value. For example, a locking device may 'pull-on'.

[SIST EN 60512-13-1:2006](https://standards.iteh.ai/catalog/standards/sist/994087cb-95b9-4b40-b1d6-f50c9dc1065a/sist-en-60512-13-1-2006)

#### 2 Normative references

The following referenced documents are indispensable for the application 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 60512-1-1, *Connectors for electronic equipment – Tests and measurements – Part 1-1: General examination – Test 1a: Visual examination*

#### 3 Preparations

##### 3.1 Preparation of specimen

The specimen shall consist of a mating pair of connectors with their terminated contacts, as given in the detail specification. Any tools necessary for this test, whether general or specific shall be provided, as and if, required by the detail specification.

##### 3.2 Lubricant

If the detail specification so requires, the specified lubricant shall be applied in the manner given in the connector detail specification.