BRITISH STANDARD

BS EN 60512-16-1: 2008

Connectors for electronic equipment — Tests and measurements —

Part 16-1: Mechanical tests on contacts and terminations — Test 16a: Probe damage

ICS 31.220.10

National foreword

This British Standard is the UK implementation of EN 60512-16-1:2008. It is identical to IEC 60512-16-1:2008.

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 secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

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EUROPEAN STANDARD

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English version

Connectors for electronic equipment - Tests and measurements - Part 16-1: Mechanical tests on contacts and terminations - Test 16a: Probe damage

(IEC 60512-16-1:2008)

Connecteurs
pour équipements électroniques -
Essais et mesures -
Partie 16-1: Essais mécaniques
des contacts et des sorties -
Essai 16a: Endommagement
par sonde d'essai
(CEI 60512-16-1:2008)

Steckverbinder
für elektronische Einrichtungen -
Mess- und Prüfverfahren -
Teil 16-1: Mechanische Prüfungen
an Kontakten und Anschlüssen -
Prüfung 16a: Federung
und Überdehnungsschutz
(IEC 60512-16-1:2008)

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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

Ref. No. EN 60512-16-1:2008 E

Foreword

The text of document 48B/1877/FDIS, future edition 1 of IEC 60512-16-1, 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 60512-16-1 on 2008-07-01.

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)	2009-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2011-07-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60512-16-1:2008 was approved by CENELEC as a European Standard without any modification.

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CONNECTORS FOR ELECTRONIC EQUIPMENT – TESTS AND MEASUREMENTS –

Part 16-1: Mechanical tests on contacts and terminations – Test 16a: Probe damage

1 Scope and object

This part of IEC 60512, when required by the detail specification, is used for testing connectors within the scope of 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 assess the effectiveness of the elastic system of contacts to resist damage from the insertion of a specified test probe.

Although this test is intended for cylindrical contacts, the use for contacts with other geometries is not excluded. In which case, the detail specification should contain sufficient detail, given under the Clause 5 f), to enable the test to be done.

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*

IEC 60512-16-5, *Connectors for electronic equipment – Tests and measurements – Part 16-5: Mechanical tests on contacts and terminations – Test 16e: Gauge retention force (resilient contacts)*[1]

3 Preparations

3.1 Preparation of specimen

The specimen shall consist of the female part of a connector with its terminations, and may be wired if so specified in the detail specification. If the design of the connector does not prevent the rotation of the contact in its cavity, means to ensure this shall be used. Any such means shall not affect the validity of the test. If this is not possible, the contact shall be installed in its insert, and or housing, in the manner specified in the detail specification.

Any preconditioning given in the detail specification shall be applied.

3.2 Equipment

A test pin and handle, such as that shown in Figure 1, shall be provided. They shall conform to the following requirements.

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1 To be published.

a) Length A, shall be 0,75 times the minimum depth specified for the bore of the female contact under test.

b) Diameter B, shall be equal to the nominal diameter of the male mating contact.

c) Length L shall not be less than $10 \times A$.

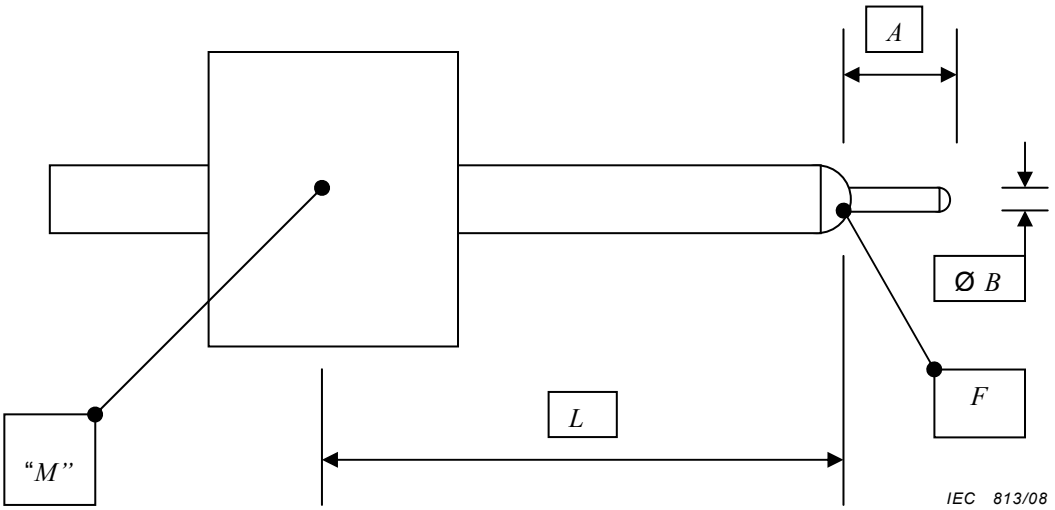
d) Mass M shall be such that $M \times L$ = the specified torque. The mass of the handle shall be taken into account in this calculation.

e) The test pin shall have a hemispherical end.

f) The test pin shall be made from hardened steel and have a polished surface.

g) The handle shall have a spherical radius at the point marked “fulcrum”.

h) Either, an alternative test pin with length A reduced to 0,50 times the minimum depth specified for the bore of the contact under test, or a spacer, which replicates the fulcrum of the handle, to achieve the same effect, shall be provided.



M	centre of mass
F	fulcrum
A	length
L	length
B	diameter

Figure 1 – Test pin, handle and mass

3.3 Mounting

If mounting of the specimen is appropriate, it shall be as specified in the detail specification.

4 Test method

4.1 Procedure

The axis of the contact shall be horizontal at all times during the test.

The specified test probe shall be fully inserted. The connector under test shall then be slowly rotated through 360° such that test load is applied in all possible positions.

This forgoing procedure shall be repeated, either with the reduced length test pin, or the spacer specified in 3.2 h).

Test IEC 60512-16-5, gauge retention force, shall then be carried out.

4.2 Measurements and requirements

4.2.1 Before testing

Visual examination according to IEC 60512-1-1 shall be carried out. The gauge retention requirements defined in the relevant detail specification shall be met.

4.2.2 After testing

The requirements of the detail specification for gauge retention shall be met. Visual examination according to IEC 60512-1-1 shall be carried out. Special attention shall be given to elastic members within the contact under test.

5 Details to be specified

When this test is required by a detail specification, the following shall be given therein:

NOTE It is anticipated that the detail specification will contain sufficient detail to allow calculation required in 3.2 to be carried out.

a) whether preconditioning required;

b) wiring of the specimen;

c) whether special mounting of the specimen is required;

d) torque to be applied;

e) gauge retention requirements;

f) if the contact is not cylindrical, sufficient details of equipment procedure, and measurements, for the test to be done;

g) any deviation from the standard test method.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
IEC 60512-1-1	-[1)]	Connectors for electronic equipment - Tests and measurements - Part 1-1: General examination - Test 1a: Visual examination	EN 60512-1-1	2002[2)]
IEC 60512-16-5	200X[3)]	Connectors for electronic equipment - Tests and measurements - Part 16-5: Mechanical tests on contacts and terminations - Test 16e: Gauge retention force (resilient contacts)	EN 60512-16-5	200X[3)]

[1)] Undated reference.

[2)] Valid edition at date of issue.

[3)] To be published.

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