SLOVENSKI STANDARD
SIST EN 3708-001:2009

01-september-2009

Aeronavtika - Modularni medsebojno povezljivi sistemi - Razdelilni moduli - 001. del: Tehniļ na specifikacija

Aerospace series - Modular interconnection systems - Terminal junction systems - Part 001: Technical specification

Luft- und Raumfahrt - Verteilersysteme in modularer Bauweise - Verteilermodule - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Systèmes d'interconnexions modulaires - Barrettes de raccordement - Partie 001 : Spécification technique

Ta slovenski standard je istoveten z: **EN 3708-001:2006**

ICS:

49.060	Letalska in vesoljska elektriļ na oprema in sistemi	Aerospace electric equipment and systems

SIST EN 3708-001:2009 **en,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 3708-001

May 2006

ICS 49.060

English Version

Aerospace series - Modular interconnection systems - Terminal junction systems - Part 001: Technical specification

Série aérospatiale - Systèmes d'interconnexions modulaires - Barrettes de raccordement - Partie 001 : Spécification technique

Luft- und Raumfahrt - Verteilersystem in modularer Bauweise - Verteilermodule - Teil 001: Technische Lieferbedingungen

This European Standard was approved by CEN on 9 March 2006.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard (EN 3708-001:2006) has been prepared by the European Association of Aerospace Manufacturers - Standardization (AECMA-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2006, and conflicting national standards shall be withdrawn at the latest by November 2006.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard specifies the general characteristics of terminal junction systems for modular interconnection systems as well as test conditions, test programme and groups for quality assurance.

It applies to products specially adapted to provide connections within a very reduced space for variable extendable, divisible, transformable and interchangeable combinations of equipment within a temperature range from – 55 °C to 175 °C, and for altitudes up to 21 000 m for sealed modules or up to 13 700 m for unsealed modules. The conditions of use shall be in accordance with EN 2282.

It also applies to interconnections incorporating components.

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.

EN 2266-002, *Aerospace series — Cables, electrical, for general purpose — Operating temperatures between – 55 °C and 200 °C — Part 002: General.*

EN 2282, *Aerospace series — Characteristics of aircraft electrical supplies.*

EN 2591-100*, *Aerospace series — Elements of electrical and optical connection — Test methods — Part 100: General.*

EN 3155-016, *Aerospace series — Electrical contacts used in elements of connection — Part 016: Contacts, electrical, male, type A, crimp, class S — Product standard.* 1)

EN 3708-002, *Aerospace series — Modular interconnection systems — Terminal junction systems — Part 002: Performance specification.*

EN 9133, *Aerospace series — Quality management systems — Qualification Procedure for aerospace standard parts.*

MIL-PRF-7870C, *Lubricating oil, general purpose, low temperature.* 2)

MIL-PRF-23699F, *Lubricating oil, aircraft turbine engine, synthetic base, nato code number O-156.* 2)

MIL-PRF-87937D, *Cleaning compound, aerospace equipment.* 2)

MIL-HDBK-454A, *General guidelines for electronic equipment (Guideline 4: Fungus - Inert materials).* 2)

AMS 1424, *Deicing/anti-icing fluid, aircraft — SAE Type I.* 3)

AS 1241C, *Fire resistant phosphate ester hydraulic fluid for aircraft.* 3)

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* Including all its parts quoted.

1) Published as AECMA Prestandard at the date of publication of this standard.

2) Published by: Department of Defense (DOD), the Pentagon, Washington, D.C. 20301 USA.

3) Published by: Society of Automotive Engineers, Inc. (SAE) 400 Commonwealth Drive, Warrendale, PA 15096-001 USA.

3 Terms and definitions

For the purposes of this standard, the following terms and definitions apply.

3.1
modular interconnection system
an arrangement permitting the interconnection of contacts according to a predetermined design

NOTE 1 The female contacts are fitted in the module or extension piece and the male contacts are removable and crimped on.

NOTE 2 Climatic category and assembly are defined in EN 3708-002.

3.2
removable module terminal junction system
assembly of associated removable modules with their components, which are also removable, assembled on a frame

3.3
frame
generally metal parts of a specified shape constituting both the assembly system for removable modules and removable components and the mounting system for the whole

3.4
removable module
connector device composed of one or more groups of defined contacts, disposed inside an insulating box and connected together according to a predefined design

NOTE 1 It can readily be positioned, repositioned or removed from the frame for ease of connection or modification of a terminal junction system.

NOTE 2 A removable module may be either of the feedback or feed-through type.

3.4.1
removable feedback module
module on which access to the contacts is on one face of the module only

3.4.2
removable feed-through module
module on which access to the contacts is on two opposite faces of the module

3.5
removable components
accessories generally associated with the module, such as end plates, module clamps, etc.

3.6
group of contacts
assembly of several contacts electrically interconnected

3.7
interconnection diagram
electrical arrangement of the group or groups of contacts within a modular interconnection system

3.8
module clamp
appropriate device for mounting an assembly of modules on a frame

3.9
insulator
removable wall of insulating material for insertion between two modules to provide supplementary insulation between them

3.10
mounting carrier
device suitable for mounting one, two or three modules

3.11
connector - extension piece
device with one or more quick-release feed-through connections inside an insulating sleeve

3.12
individual connector terminals
individual quick-release terminals generally used for earthing

3.13
earth module
module with a group of electrically interconnected contacts and mounted with a bolt or a carrier and earthed by a metal plate

3.14
modules for or with components
removable feedback or feed-through modules, the contacts of which are electrically connected to one or more electrical components in different combinations

3.15
connectors - extension pieces with components
devices with the same function as standard extension piece connectors except that components such as resistors, diodes, or fuses are incorporated in them

See also EN 2591-100.

4 Description

4.1 General

A modular interconnection system comprises one or more insulating boxes fitted with contacts, which may or may not be mounted in a support or frame in conformity with its product standard.

Its cavities take crimped contacts as defined in EN 3155-016 and, on request, blanking devices.

4.2 Products

The products covered by this standard shall include:

a) removable module terminal junction systems mounted on various supports or frames, in sealed and unsealed versions:

   1) feedback type;

   2) feed-through type.

b) frames with accessories for removable modules;

c) mounting carriers for modules;

d) connectors - extension pieces;

e) individual terminals;

f) earth modules;

g) modules for or with components;

h) connectors - extension pieces with components.

4.3 Contacts

See EN 3155-016.

Contacts exist in four sizes: 22, 20, 16, 12.

Unsealed modules do not include contacts of sizes 16 and 12.

5 Design

Materials not specified and not specially described shall be the lightest possible for the required application.

When dissimilar metals are in close contact, adequate protection against corrosion shall be used for the electromotive force of the cell which shall not exceed 0,25 V.

Insertion and extraction of contacts shall be through sockets located on the access surface or surfaces.

If tools are necessary for insertion and extraction of contacts, their use shall not impair the product characteristics.

6 Definition drawings and masses

The general dimensions and masses of the different components and the interconnection diagrams constituting a modular interconnection system are defined in the product standards.

7 Tests

7.1 General

See Table 1.

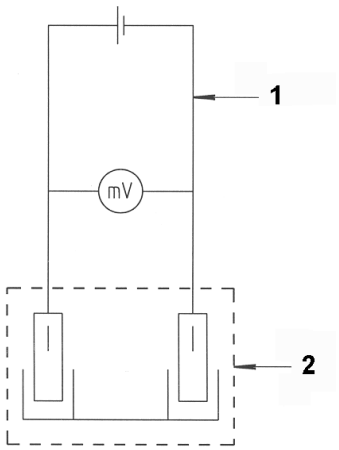
Table 1

<table>
<tr><th>EN 2591-</th><th>Designation of the test</th><th>Details</th></tr>
<tr><td>101</td><td>Visual examination</td><td>Initial examination: examination of components (modules, extension pieces, etc.), detached parts (contacts, mounting components, supports, etc.)
Details to be examined:
- identification;
- appearance;
- marking;
- surface finish.</td></tr>
<tr><td>102</td><td>Examination of dimensions and mass</td><td>See product standard.</td></tr>
<tr><td>201</td><td>Contact resistance - low level</td><td>The contact resistance shall not exceed the value shown in the table below. The values recorded shall be divided by two to give the contact resistance of one contact.
<table>
<tr><th>Contact size</th><th>Contact resistance
mΩ</th></tr>
<tr><td>22</td><td>5</td></tr>
<tr><td>20</td><td>4</td></tr>
<tr><td>16</td><td>3</td></tr>
<tr><td>12</td><td>2</td></tr>
</table></td></tr>
<tr><td>202</td><td>Contact resistance at rated current</td><td>See Figures 1 and 2.
The contact resistance shall not exceed the value shown in the table below. The values recorded shall be divided by two to give the contact resistance of one contact.
<table>
<tr><th>Contact size</th><th>Contact resistance
mΩ</th><th>Rated current
A</th></tr>
<tr><td>22</td><td>5</td><td>5</td></tr>
<tr><td>20</td><td>4</td><td>7,5</td></tr>
<tr><td>16</td><td>3</td><td>13</td></tr>
<tr><td>12</td><td>2</td><td>23</td></tr>
</table></td></tr>
</table>

continued

Table 1 *(continued)*

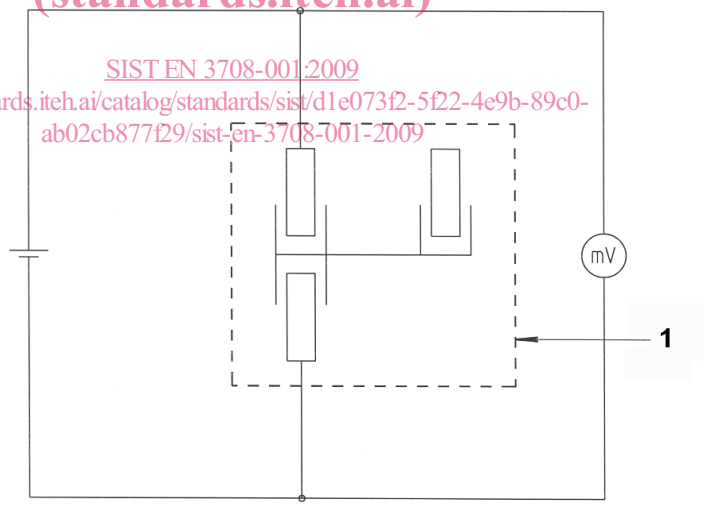
EN 2591-	Designation of the test	Details
202 *(continued)*		



Key

1 Maximum section
2 Feedback module

Figure 1 — Resistance test for feedback module



Key

1 Feed-through module

Figure 2 — Resistance test for feed-through module

continued