

SLOVENSKI STANDARD

SIST EN 60917-1:2002

01-september-2002

Mechanical structures for electronic equipment - Part 1: Generic standard (IEC 60917-1:1998)

Modular order for the development of mechanical structures for electronic equipment practices -- Part 1: Generic standard

Modulordnung für die Entwicklung von Bauweisen für elektronische Einrichtungen -- Teil 1: Fachgrundnorm

Ordre modulaire pour le développement des structures mécaniques pour les infrastructures électroniques -- Partie 1: Norme générique

Ta slovenski standard je istoveten z: EN 60917-1:1998

ICS:

31.240

Mehanske konstrukcije za elektronsko opremo

Mechanical structures for electronic equipment

SIST EN 60917-1:2002

en

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 60917-1

November 1998

ICS 31.240

Supersedes HD 550 S1:1989, EN 60917:1990 + A1:1994 and EN 60917-0:1992

English version

**Modular order for the development of mechanical structures
for electronic equipment practices
Part 1: Generic standard
(IEC 60917-1:1998)**

Ordre modulaire pour le développement
des structures mécaniques pour les
infrastructures électroniques
Partie 1: Norme générique
(CEI 60917-1:1998)

Modulordnung für die Entwicklung von
Bauweisen für elektronische
Einrichtungen
Teil 1: Fachgrundnorm
(IEC 60917-1:1998)

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This European Standard was approved by CENELEC on 1998-10-01. 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.

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.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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 48D/159/FDIS, future edition 1 of IEC 60917-1, prepared by SC 48D, Mechanical structures for electronic equipment, 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 60917-1 on 1998-10-01.

This European Standard supersedes HD 550 S1:1989, EN 60917:1990 and its amendment A1:1994 and EN 60917-0:1992.

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) 1999-07-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2001-07-01

Annexes designated "normative" are part of the body of the standard.

In this standard, annex ZA is normative.

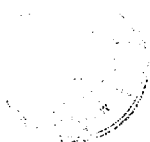
Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 60917-1:1998 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)**Normative references to international publications
with their corresponding European publications**

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050(581)	1978	International Electrotechnical Vocabulary (IEV) - Chapter 581: Electromechanical components for electronic equipment	-	-
IEC 60297-1	1986	Dimensions of mechanical structures of the 482,6 mm (19 in) series Part 1: Panels and racks	HD 493.1 S1	1988
IEC 60297-2	1982	Part 2: Cabinets and pitches of rack structures	HD 493.2 S1	1988
IEC 60297-3 + A1	1984 1992	Part 3: Subracks and associated plug-in units	HD 493.3 S2	1993
IEC 60297-4	1995	Part 4: Subracks and associated plug-in units - Additional dimensions	EN 60297-4	1995
IEC 60473	1974	Dimensions for panel-mounted indicating and recording electrical measuring instruments	-	-
IEC 60629	1978	Standard sheets for a modular system (for installation accessories for use in domestic and similar installations)	-	-
IEC 60668	1980	Dimensions of panel areas and cut-outs for panel and rack-mounted industrial-process measurement and control instruments	-	-
IEC 60917-2	1992	Modular order for the development of mechanical structures for electronic equipment practices Part 2: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice	EN 60917-2	1994

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60917-2-1	1993	Part 2: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice -- Section 1: Detail specification - Dimensions for cabinets and racks	EN 60917-2-1	1995
IEC 60917-2-2	1994	Part 2: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice -- Section 2: Detail specification - Dimensions for subracks, chassis, backplanes, front panels and plug-in units	EN 60917-2-2	1996
IEC Guide 103	1980	Guide on dimensional co-ordination	-	-
ISO 31	1992	Quantities and units	-	-
ISO 1000	1992	SI units and recommendations for the use of their multiples and of certain other units	-	-
ISO 1006	1983	Building construction - Modular coordination - Basic module	-	-
ISO 1040	1983	Building construction - Modular coordination - Multimodules for horizontal coordinating dimensions	-	-
ISO 3827-1	1977	Shipbuilding - Coordination of dimensions in ship's accommodation Part 1: Principles of dimensional coordination	-	-

NORME INTERNATIONALE INTERNATIONAL STANDARD

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Ordre modulaire pour le développement des structures mécaniques pour les infrastructures électroniques –

Partie 1: Norme générique

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Modular order for the development of mechanical structures for electronic equipment practices –

Part 1: Generic standard

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MODULAR ORDER FOR THE DEVELOPMENT OF MECHANICAL
STRUCTURES FOR ELECTRONIC EQUIPMENT PRACTICES –****Part 1: Generic standard****FOREWORD**

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60917-1 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

This standard cancels and replaces IEC 60916 (1988), IEC 60917 (1988), its amendment 1 (1993) and IEC 60917-0 (1989).

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

FDIS	Report on voting
48D/159/FDIS	48D/177/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.

INTRODUCTION

The trend towards constantly increasing functional integration and ever smaller volume and space requirements for electronic components and integrated circuits, as well as the advent of new manufacturing methods, automatic manufacturing and testing equipment and the use of Computer Aided Engineering (CAE) systems offer users considerable technical and economic advantages.

In order to ensure that, when using newly developed components, manufacturing methods and CAE systems, the advantages can be fully exploited during planning, design, manufacture and testing, it is necessary for equipment practices to meet the following requirements (see *IEC Guide 103*):

- arrangement of products with a minimum loss of area and space;
- dimensional interchangeability of products, e.g. regarding overall dimensions, mounting dimensions (fixing holes, cut-outs, etc.);
- dimensional compatibility and determination of interface dimensions of products which:
 - are combined with other products, e.g. instruments, racks, panels and cabinets, etc.;
 - are used in buildings that have been built in accordance with a modular system, e.g. column spacing, room height, door height, etc.

An obstacle arises from the use of two systems of dimensioning (inch – metre) that are not compatible with each other. The use of an interface between both dimensioning systems represents one way around this obstacle. The recommendation is:

- to use only one dimensioning system and to use SI units.

The dimensions given in 5.3 of this standard have been taken from system I of *IEC Guide 103* in consideration with other documents on dimensional coordination.

MODULAR ORDER FOR THE DEVELOPMENT OF MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT PRACTICES –

Part 1: Generic standard

1 Scope and object

This International Standard relates to equipment practices. The modular order is applicable to the main structural dimensions of electronic equipment mounted in various installations where dimensional interfaces have to be considered.

It refers to basic design parameters and is not intended to be used for manufacturing tolerances or clearances.

In addition, information on interfaces to other technical fields, on technology and advanced design aspects is included.

This standard also covers standard terms for parts and assemblies of mechanical structures for electronic equipment.

This generic standard gives the definitions of a modular order for mechanical structures of electronic equipment and provides for dimensional compatibility at mechanical interfaces with related engineering applications, e.g. printed boards, components, instrumentation, furniture, rooms, buildings, etc.

Furthermore, it supports the introduction and application of the modular order rules considering that:

- compatibility of interface dimensions is aimed at the electronic field on the basis of the SI unit metre;
- technical and economic advantages can be achieved when using the rules.

The terms in this standard should be used in all standards for mechanical structures of electronic equipment and in related technical documents.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60050(581):1978, *International Electrotechnical Vocabulary (IEV) – Chapter 581: Electro-mechanical components for electronic equipment*

IEC 60297-1:1986, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 1: Panels and racks*

IEC 60297-2:1982, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 2: Cabinets and pitches of rack structures*

IEC 60297-3:1984, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3: Subracks and associated plug-in units*