

SLOVENSKI STANDARD

SIST EN IEC 60917-1:2020

01-januar-2020

Nadomešča:

SIST EN 60917-1:2002

SIST EN 60917-1:2002/A1:2002

Razpored modulov za razvoj mehanske zgradbe elektronske opreme - 1. del:
Osnovni standard (IEC 60917-1:2019)

Modular order for the development of mechanical structures for electronic equipment
practices - Part 1: Generic standard (IEC 60917-1:2019)

Modulordnung für die Entwicklung von Bauweisen für elektronische Einrichtungen - Teil
1: Fachgrundnorm (IEC 60917-1:2019)

Ordre modulaire pour le développement des structures mécaniques pour les
infrastructures électroniques - Partie 1: Norme générique (IEC 60917-1:2019)

Ta slovenski standard je istoveten z: EN IEC 60917-1:2019

ICS:

31.240

Mehanske konstrukcije za
elektronsko opremo

Mechanical structures for
electronic equipment

SIST EN IEC 60917-1:2020

en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 60917-1:2020

<https://standards.iteh.ai/catalog/standards/sist/69cc9978-b7cb-4d64-8c04-14a753fb038c/sist-en-iec-60917-1-2020>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60917-1

November 2019

ICS 31.240

Supersedes EN 60917-1:1998 and all of its amendments
and corrigenda (if any)

English Version

**Modular order for the development of mechanical structures for
electrical and electronic equipment practices - Part 1: Generic
standard
(IEC 60917-1:2019)**

Ordre modulaire pour le développement des structures
mécaniques pour les infrastructures électriques et
électroniques - Partie 1: Norme générique
(IEC 60917-1:2019)

Modulordnung für die Entwicklung von Bauweisen für
elektrische und elektronische Einrichtungen - Teil 1:
Fachgrundnorm
(IEC 60917-1:2019)

This European Standard was approved by CENELEC on 2019-10-18. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60917-1:2019 (E)**European foreword**

The text of document 48D/703/FDIS, future edition 2 of IEC 60917-1, prepared by SC 48D "Mechanical structures for electrical and electronic equipment" 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 60917-1:2019.

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) 2020-07-18
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2022-10-18

This document supersedes EN 60917-1:1998 and all of its amendments and corrigenda (if any).

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Endorsement notice

<https://standards.iteh.ai/catalog/standards/sist/69cc9978-b7cb-4d64-8c04-14a753fb038c/sist-en-iec-60917-1-2020>

The text of the International Standard IEC 60917-1:2019 was approved by CENELEC as a European Standard without any modification.

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.cenelec.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 60297	series	Dimensions of mechanical structures of the 482,6 mm (19 in) series	-	-
IEC 60297-3-100	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-100: Basic dimensions of front panels, subracks, chassis, racks and cabinets	EN 60297-3-100	-
IEC 60297-3-101	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-101: Subracks and associated plug-in units	EN 60297-3-101	-
IEC 60297-3-102	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-102: Injector/extractor handle	EN 60297-3-102	-
IEC 60297-3-103	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-103: Keying and alignment pin	EN 60297-3-103	-
IEC 60297-3-104	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-104: Connector dependent interface dimensions of subracks and plug-in units	EN 60297-3-104	-

EN IEC 60917-1:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60297-3-105	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-105: Dimensions and design aspects for 1U high chassis	EN 60297-3-105	-
IEC 60297-3-106	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-106: Adaptation dimensions for subracks and chassis applicable with metric cabinets or racks in accordance with IEC 60917-2-1	EN 60297-3-106	-
IEC 60297-3-107	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-107: Dimensions of subracks and plug-in units, small form factor	EN 60297-3-107	-
IEC 60297-3-108	-	Mechanical structures for electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-108: Dimensions of R-type subracks and plug-in units	EN 60297-3-108	-
IEC 60297-3-109	-	Mechanical structures for electrical and electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-109: Dimensions of chassis for embedded computing devices	EN 60297-3-109	-
IEC 60297-3-110	-	Mechanical structures for electrical and electronic equipment - Dimensions of mechanical structures of the 482,6 mm (19 in) series - Part 3-110: Residential racks and cabinets for smart houses	EN IEC 60297-3-110	-
IEC/TR 60668	-	Dimensions of panel areas and cut-outs for panel and rack-mounted industrial-process measurement and control instruments	-	-
IEC 60917-2	-	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	-
IEC 60917-2-1	-	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 - Section 1: Detail specification - Dimensions for cabinets and racks	EN 60917-2-1	-

EN IEC 60917-1:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60917-2-2	-	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 - Section 2: Detail specification - Dimensions for subracks, chassis, backplanes, front panels and plug-in units	EN 60917-2-2	-
IEC 60917-2-3	-	Modular order for the development of mechanical structures for electronic equipment practices - Part 2-3: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice - Extended detail specification - Dimensions for subracks, chassis, backplanes, front panels and plug-in units	EN 60917-2-3	-
IEC 60917-2-4	-	Modular order for the development of mechanical structures for electronic equipment practices - Part 2-4: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice - Adaptation dimensions for subracks or chassis applicable in cabinets or racks in accordance with IEC 60297-3-100 (19 in)	EN 60917-2-4	-
IEC 60917-2-5	-	Modular order for the development of mechanical structures for electronic equipment practices - Part 2-5: Sectional specification - Interface co-ordination dimensions for the 25 mm equipment practice - Cabinet interface dimensions for miscellaneous equipment	EN 60917-2-5	-
IEC 61554	-	Panel mounted equipment - Electrical measuring instruments - Dimensions for panel mounting	-	-
IEC 61587	series	Mechanical structures for electronic equipment - Tests for IEC 60917 and IEC 60297 series	EN 61587	series
IEC 61969-1	-	Mechanical structures for electronic equipment - Outdoor enclosures - Part 1: Design guidelines	EN 61969-1	-
IEC 61969-2	-	Mechanical structures for electronic equipment - Outdoor enclosures - Part 2: Coordination dimensions	EN 61969-2	-
IEC 61969-3	-	Mechanical structures for electronic equipment - Outdoor enclosures - Part 3: Environmental requirements, tests and safety aspects	EN 61969-3	-
IEC 62194	-	Method of evaluating the thermal performance of enclosures	EN 62194	-

EN IEC 60917-1:2019 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC/TS 62454	-	Mechanical structures for electronic equipment - Design guide: Interface dimensions and provisions for water cooling of electronic equipment within cabinets of the IEC 60297 and IEC 60917 series	-	-
IEC 62610	series	Mechanical structures for electrical and electronic equipment – Thermal management for cabinets in accordance with IEC 60297 and IEC 60917 series	EN 62610	series
IEC Guide 103	1980	Guide on dimensional co-ordination	-	-
ISO 1006	-	Building construction; Modular coordination; Basic module	-	-
ISO 1040	-	Building construction - Modular coordination - Multimodules for horizontal coordinating dimensions	-	-
ISO 1791	-	Building construction - Modular co-ordination - Vocabulary	-	-
ISO 2848	-	Building construction - Modular coordination - Principles and rules	-	-
ISO 3394	-	Dimensions of rigid rectangular packages; Transport packages	-	-
ISO 3676	-		-	-
ISO 6514	-	Building construction - Modular coordination - Sub-modular increments	-	-
ISO 80000-1	2009	Quantities and units -- Part 1: General	EN ISO 80000-1	2013
ISO 80000-3	2006	Quantities and units -- Part 3: Space and time	EN ISO 80000-3	2013



IEC 60917-1

Edition 2.0 2019-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

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

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 31.240

ISBN 978-2-8322-7164-3

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

CONTENTS

FOREWORD	4
INTRODUCTION	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	9
4 Fundamentals and background information	19
4.1 General	19
4.2 Structures of electrical and electronic equipment practices	20
4.3 Dimensional co-ordination with adjacent technical fields	20
4.4 Preparation of standards for new equipment practices	21
5 Modular order details	24
5.1 Modular grid	24
5.2 Pitches	24
5.2.1 Base and multiple pitches for equipment practice	24
5.2.2 Mounting pitches example	25
5.3 Co-ordination dimensions	26
5.4 Illustration of the modular order	27
Figure 1 – Pitch	10
Figure 2 – Grid	11
Figure 3 – Rack	12
Figure 4 – Cabinet	12
Figure 5 – Case	13
Figure 6 – Swing frame	13
Figure 7 – Subrack	14
Figure 8 – Chassis	14
Figure 9 – Plug-in unit	15
Figure 10 – Console	15
Figure 11 – Plug-in unit guide	15
Figure 12 – Slides	16
Figure 13 – Telescopic slides	16
Figure 14 – Mounting frame	17
Figure 15 – Mounting plate	17
Figure 16 – Front panel	17
Figure 17 – Backplane	18
Figure 18 – Cabinet panel	18
Figure 19 – Door	19
Figure 20 – Mounting section	19
Figure 21 – Structures of electrical and electronic equipment practices	20
Figure 22 – Structure of equipment practice standards	23
Figure 23 – Modular grid	24
Figure 24 – Partitioning of co-ordination dimensions C_0 with the same mounting pitch mp	26

iteh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN IEC 60917-1:2020

<https://standards.iteh.ai/catalog/standards/sist/69cc9978-b7cb-4d64-8c04-14a753fb038c/sist-en-iec-60917-1-2020>

Figure 25 – Examples of the application of the modular order	28
--	----

Table 1 – Publications containing standardized modular dimensions and/or related documents	21
--	----

Table 2 – Co-ordination dimensions C_i	26
--	----

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN IEC 60917-1:2020

<https://standards.iteh.ai/catalog/standards/sist/69cc9978-b7cb-4d64-8c04-14a753fb038c/sist-en-iec-60917-1-2020>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 1: Generic standard

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. 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 electrical and electronic equipment, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment.

This second edition cancels and replaces the first edition published in 1998 and its Amendment 1:2000. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) added information on newly developed detail specification standards of mechanical structures for the electrical and electronic equipment practices;
- b) added information on newly developed performance test standards for the verifications of environmental performances and safety aspects and issues of the thermal performance and thermal management for the electrical and electronic equipment practices;