

SLOVENSKI STANDARD

SIST EN 61191-4:2019

01-april-2019

Nadomešča:
SIST EN 61191-4:2001

Sestavi plošč tiskanih vezij - 4. del: Področna specifikacija - Zahteve za sestave s spajkalnimi priključki

Printed board assemblies - Part 4: Sectional specification - Requirements for terminal soldered assemblies

Elektronikaufbauten auf Leiterplatten - Teil 4: Rahmenspezifikation - Anforderungen an gelötete Baugruppen mit Lötstützpunkten

Ensembles de cartes imprimées - Partie 4: Spécification intermédiaire - Exigences relatives à l'assemblage de bornes par brasage

Ta slovenski standard je istoveten z: EN 61191-4:2017

ICS:

31.180 Tiskana vezja (TIV) in tiskane Printed circuits and boards
plošče

SIST EN 61191-4:2019

en

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN 61191-4:2019

<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 61191-4

October 2017

ICS 31.240

Supersedes EN 61191-4:1998

English Version

**Printed board assemblies - Part 4: Sectional specification -
Requirements for terminal soldered assemblies
(IEC 61191-4:2017)**

Ensembles de cartes imprimées - Partie 4: Spécification
intermédiaire - Exigences pour les assemblages soudés
des terminaux
(IEC 61191-4:2017)

Elektronikaufbauten auf Leiterplatten - Teil 4:
Rahmenspezifikation - Anforderungen an gelötete
Baugruppen mit Lötstützpunkten
(IEC 61191-4:2017)

This European Standard was approved by CENELEC on 2017-08-30. 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.

SIST EN 61191-4:2019

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, 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: Avenue Marnix 17, B-1000 Brussels

EN 61191-4:2017**European foreword**

The text of document 91/1399/CDV, future edition 2 of IEC 61191-4, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61191-4:2017.

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) 2018-05-30
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-08-30

This document supersedes EN 61191-4:1998.

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.

Endorsement notice

The text of the International Standard IEC 61191-4:2017 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60068-20:2008	NOTE	Harmonized as EN 60068-20:2008 (not modified).
IEC 60068-2-58:2015	NOTE	Harmonized as EN 60068-2-58:2015 (not modified).
IEC 61188-5-1:2002	NOTE	Harmonized as EN 61188-5-1:2002 (not modified).
IEC 61188-5-2:2003	NOTE	Harmonized as EN 61188-5-2:2003 (not modified).
IEC 61188-5-3:2007	NOTE	Harmonized as EN 61188-5-3:2007 (not modified).
IEC 61188-5-4:2007	NOTE	Harmonized as EN 61188-5-4:2007 (not modified).
IEC 61188-5-5:2007	NOTE	Harmonized as EN 61188-5-5:2007 (not modified).
IEC 61188-5-6:2003	NOTE	Harmonized as EN 61188-5-6:2003 (not modified).
IEC 61188-7:2017	NOTE	Harmonized as EN 61188-7:2017 (not modified).
IEC 61189-2:2006	NOTE	Harmonized as EN 61189-2:2006 (not modified).
IEC 61190-1-2:2014	NOTE	Harmonized as EN 61190-1-2:2014 (not modified).
IEC 61193-1:2001	NOTE	Harmonized as EN 61193-1:2002 (not modified).
IEC 61193-3	NOTE	Harmonized as EN 61193-3.
IEC 62326-1:2002	NOTE	Harmonized as EN 62326-1:2002 (not modified).
IEC 62326-4:1996	NOTE	Harmonized as EN 62326-4:1997 (not modified).
IEC 62326-4-1:1996	NOTE	Harmonized as EN 62326-4-1:1997 (not modified).
ISO 9001:2015	NOTE	Harmonized as EN ISO 9001:2015 (not modified).

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 60194	-	Printed board design, manufacture and assembly - Terms and definitions	-	-
IEC 61191-1	2013	Printed board assemblies - Part 1: Generic specification - Requirements for soldered electrical and electronic assemblies using surface mount and related assembly technologies	EN 61191-1	2013

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61191-4:2019

<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>

iTeh STANDARD PREVIEW **(standards.iteh.ai)**

SIST EN 61191-4:2019

<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>



IEC 61191-4

Edition 2.0 2017-07

INTERNATIONAL STANDARD

Printed board assemblies –

Part 4: Sectional specification – Requirements for terminal soldered assemblies

STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 61191-4:2019
<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 31.240

ISBN 978-2-8322-4657-3

Warning! Make sure that you obtained this publication from an authorized distributor.

CONTENTS

FOREWORD.....	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	6
4 General requirements	6
5 General terminal and part mounting requirements.....	6
5.1 General.....	6
5.2 Wire and cable preparation	7
5.2.1 General	7
5.2.2 Tinning of stranded wire	7
5.3 Terminal installation.....	7
5.3.1 General	7
5.3.2 Terminal mounting (mechanical).....	7
5.3.3 Terminal shank discontinuities.....	8
5.3.4 Flange discontinuities	8
5.3.5 Terminal mounting (electrical).....	8
5.3.6 Flange angles.....	9
5.3.7 Shank discontinuities	9
5.3.8 Flared flange discontinuities	9
5.4 Mounting to terminals.....	10
5.4.1 General	10
5.4.2 Wire and lead wrap-around.....	10
5.4.3 Side route connection.....	10
5.4.4 Top and bottom route connection.....	11
5.4.5 Continuous runs	12
5.4.6 Service loops.....	13
5.4.7 Insulation clearance.....	13
5.4.8 Orientation of wire wrap.....	14
5.4.9 Stress relief	14
5.4.10 Pierced or perforated terminals.....	14
5.4.11 Cup and hollow cylindrical terminal soldering.....	15
6 Acceptance requirements	16
6.1 General.....	16
6.2 Control and corrective actions.....	16
6.3 Terminal soldering	16
6.3.1 General	16
6.3.2 Wire-terminal attachment.....	16
6.4 Part marking and reference designations	16
7 Rework of unsatisfactory soldered connections.....	16
Bibliography.....	18
Figure 1 – Rolled flange terminal	8
Figure 2 – Rolled flange discontinuities.....	8
Figure 3 – Flared flange terminals.....	9
Figure 4 – Flared angles	9

Figure 5 – Wire and lead wrap around	10
Figure 6 – Side route connections and wrap on bifurcated terminal	11
Figure 7 – Top and bottom route terminal connection	12
Figure 8 – Continuous run wire wraps	13
Figure 9 – Service loop for lead wiring	13
Figure 10 – Insulation clearance measurement (<i>c</i>)	14
Figure 11 – Stress relief examples	14
Figure 12 – Pierced or perforated terminal wire wrap	15
Table 1 – Nicked or broken strand limits	7
Table 2 – Plated through-holes with terminals, minimum acceptance conditions	16
Table 3 – Defects for terminal attachment and soldering defects	17

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN 61191-4:2019

<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRINTED BOARD ASSEMBLIES –**Part 4: Sectional specification –
Requirements for terminal soldered assemblies****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 61191-4 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition published in 1998. This edition constitutes a technical revision.

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

- The requirements have been updated to be compliant with the acceptance criteria in IPC-A-610F.

The text of this International Standard is based on the following documents:

CDV	Report on voting
91/1399/CDV	91/1434/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

A list of all parts in the IEC 61191 series, published under the general title *Printed board assemblies*, can be found on the IEC website.

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

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

iTeh STANDARD PREVIEW
(standards.iteh.ai)

A bilingual version of this publication may be issued at a later date.

SIST EN 61191-4:2019

<https://standards.iteh.ai/catalog/standards/sist/84bfec80-e897-48fa-a0e9-8acb4712a749/sist-en-61191-4-2019>