

© Copyright SEK. Reproduction in any form without permission is prohibited.

Elektronikkomponenter – Märkning på förpackningar med streckkod och tvådimensionella symboler

Product package labels for electronic components using bar code and two-dimensional symbologies

Som svensk standard gäller europastandarden EN 62090:2017. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62090:2017.

Nationellt förord

Europastandarden EN 62090:2017

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62090, Second edition, 2017 - Product package labels for electronic components using bar code and two-dimensional symbologies**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 62090, utgåva 1, 2003, gäller ej fr o m 2020-05-16.

Standarder underlättar utvecklingen och höjer elsäkerheten

Det finns många fördelar med att ha gemensamma tekniska regler för bl a mätning, säkerhet och provning och för utförande, skötsel och dokumentation av elprodukter och elanläggningar.

Genom att utforma sådana standarder blir säkerhetsfordringar tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

Många standarder inom elområdet beskriver tekniska lösningar och metoder som åstadkommer den elsäkerhet som föreskrivs av svenska myndigheter och av EU.

SEK är Sveriges röst i standardiseringsarbetet inom elområdet

SEK Svensk Elstandard svarar för standardiseringen inom elområdet i Sverige och samordnar svensk medverkan i internationell och europeisk standardisering. SEK är en ideell organisation med frivilligt deltagande från svenska myndigheter, företag och organisationer som vill medverka till och påverka utformningen av tekniska regler inom elektrotekniken.

SEK samordnar svenska intressenters medverkan i SEKs tekniska kommittéer och stödjer svenska experters medverkan i internationella och europeiska projekt.

Stora delar av arbetet sker internationellt

Utformningen av standarder sker i allt väsentligt i internationellt och europeiskt samarbete. SEK är svensk nationalkommitté av International Electrotechnical Commission (IEC) och Comité Européen de Normalisation Electrotechnique (CENELEC).

Standardiseringsarbetet inom SEK är organiserat i referensgrupper bestående av ett antal tekniska kommittéer som speglar hur arbetet inom IEC och CENELEC är organiserat.

Arbetet i de tekniska kommittéerna är öppet för alla svenska organisationer, företag, institutioner, myndigheter och statliga verk. Den årliga avgiften för deltagandet och intäkter från försäljning finansierar SEKs standardiseringsverksamhet och medlemsavgift till IEC och CENELEC.

Var med och påverka!

Den som deltar i SEKs tekniska kommittéarbete har möjlighet att påverka framtida standarder och får tidig tillgång till information och dokumentation om utvecklingen inom sitt teknikområde. Arbetet och kontakterna med kollegor, kunder och konkurrenter kan gynnsamt påverka enskilda företags affärsutveckling och bidrar till deltagarnas egen kompetensutveckling.

Du som vill dra nytta av dessa möjligheter är välkommen att kontakta SEKs kansli för mer information.

SEK Svensk Elstandard

Box 1284
164 29 Kista
Tel 08-444 14 00
www.elstandard.se

English Version

Product package labels for electronic components using bar
code and two- dimensional symbologies
(IEC 62090:2017)

Etiquettes d'emballage de produits pour composants
électroniques, utilisant un code à barres et une symbologie
bidimensionnelle
(IEC 62090:2017)

Etiketten für Verpackungen elektronischer Bauelemente
unter Anwendung von Strichcodierung und
zweidimensionaler Symbologien
(IEC 62090:2017)

This European Standard was approved by CENELEC on 2017-05-16. 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, 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

European foreword

The text of document 91/1394/CDV, future edition 2 of IEC 62090, prepared by IEC/TC 91 "Electronics assembly technology" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62090:2017.

The following dates are fixed:

- latest date by which the document has to be (dop) 2018-02-16
implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-05-16
standards conflicting with the
document have to be withdrawn

This document supersedes EN 62090:2003.

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 62090:2017 was approved by CENELEC as a European Standard without any modification.

IEC 60194	NOTE	Harmonized as EN 60194.
IEC 60286-1	NOTE	Harmonized as EN 60286-1.
IEC 60286-2	NOTE	Harmonized as EN 60286-2.
IEC 60286-3	NOTE	Harmonized as EN 60286-3.
IEC 60286-4	NOTE	Harmonized as EN 60286-4.
IEC 60286-5	NOTE	Harmonized as EN 60286-5.
IEC 60286-6	NOTE	Harmonized as EN 60286-6.
IEC 61760-4	NOTE	Harmonized as EN 61760-4.
ISO/IEC 15416	NOTE	Harmonized as EN ISO/IEC 15416.
ISO/IEC 15438	NOTE	Harmonized as EN ISO/IEC 15438.
ISO 3166-1	NOTE	Harmonized as EN ISO 3166-1.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When 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>
ISO 8601	-	Data elements and interchange formats - Information interchange - Representation of dates and times	-	-
ISO/IEC 15417	-	Information technology - Automatic identification and data capture techniques - Code 128 bar code symbology specification	-	-
ISO/IEC 15418	-	Information technology - Automatic identification and data capture techniques - GS1 Application Identifiers and ASC MH10 Data Identifiers and maintenance	-	-
ISO/IEC 15434	-	Information technology - Automatic identification and data capture techniques - Syntax for high-capacity ADC media	-	-
ISO/IEC 15459	series	Information technology - Automatic identification and data capture techniques - Unique identification	-	series
ISO/IEC 16022	-	Information technology - Automatic identification and data capture techniques - Data Matrix bar code symbology specification	-	-
ISO/IEC 16388	-	Information technology - Automatic identification and data capture techniques - Code 39 bar code symbology specification	-	-
ISO/IEC 18004	-	Information technology - Automatic identification and data capture techniques - QR Code bar code symbology specification	-	-
ISO/IEC 19762	-	Information technology - Automatic identification and data capture (AIDC) techniques - Harmonized vocabulary	-	-
ANSI MH 10.8.2	-	Data Identifier and Application Identifier Standard	-	-

CONTENTS

FOREWORD.....	4
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Label data content and requirements	7
4.1 Data elements – general	7
4.2 Mandatory data elements	8
4.2.1 Manufacturer item identification – DI “1P” and “25P”	8
4.2.2 Customer product code – DI “P”	8
4.2.3 Manufacturer identification – DI “18V” and “21V”	8
4.2.4 Quantity – DI “Q” and “7Q”	8
4.2.5 Traceability identification – DI “S” and “25S”, “1T” and “25T”	9
4.2.6 Country of origin – DI “4L”	9
4.2.7 Production date – DI “16D”	9
4.2.8 Package identification – DI “J” and “3S”	9
4.3 Optional data elements	10
4.3.1 Expiration date – DI “14D”	10
4.3.2 Revision level – DI “2P”	10
4.3.3 EIAJ ID – DI “3N”	10
4.3.4 Manufacturer location – DI “25L”	10
4.3.5 Customer assigned supplier code – DI “V”	10
4.3.6 Moisture sensitivity level – DI “13E”	11
4.3.7 URL – DI “33L” and “34L”	11
4.4 Data semantics and formats defined by the data identifiers	11
4.5 Data representation	13
4.5.1 General formatting	13
4.5.2 General formatting for machine-readable symbols	14
4.5.3 General formatting for human-readable information	14
4.6 Data carrier selection	15
4.6.1 Linear bar code symbols	15
4.6.2 Two-dimensional (2D) symbols	16
4.7 Label size, layout, and location	17
4.7.1 Label size	17
4.7.2 Label layout	17
4.7.3 Examples of label and label layout	17
4.7.4 Label location	18
Annex A (informative) Quality aspects of labels – Adhesive characteristics and durability of marking	20
A.1 General	20
A.2 Recommendations	20
A.2.1 General	20
A.2.2 Adhesion characteristics	20
A.2.3 Use and protection	20
A.2.4 Storage conditions	21
A.2.5 Durability	21
A.2.6 Blank label stock contamination	21
A.3 Method of test	21

A.3.1	Adhesive strength.....	21
A.3.2	Blank label stock contamination.....	21
A.3.3	Recyclability	22
Annex B (informative)	ISO/IEC 15434 Data Transfer Syntax	23
Annex C (informative)	URL	24
C.1	General.....	24
C.2	Principle of using the URL DI “33L”.....	24
C.3	Principle of using the P2P URL DI “34L”	25
C.4	Implementation of product to internet communication by help of P2P data identifier “34L”	25
Annex D (informative)	Examples of data element short titles.....	27
Annex E (informative)	Package levels for component package labels.....	28
E.1	Inner and outer product packages.....	28
E.2	"Unit load packages" / "handling units" / "overpacks"	29
E.3	"Shipping units" / "transport packages"	29
Bibliography		30
Figure 1 – Label with a linear bar code, Data Matrix symbol and human-readable information.....		17
Figure 2 – Label with minimum content, Data Matrix and human-readable information		17
Figure 3 – Label with minimum content, QR Code and human-readable information.....		18
Figure 4 – Typical label locations.....		19
Figure A.1 – Adhesion tester.....		22
Figure B.1 – Example of encoding data elements in a 2D symbol.....		23
Figure C.1 – Smartphone with P2P App for access to P2P information.....		26
Figure E.1 – Examples for intimate/inner packages.....		28
Figure E.2 – Example for outer package with more than one inner package.		28
Figure E.3 – Example of "unit loads" or "handling units" or "overpacks"		29
Figure E 4 – Examples of transport packages		29
Table 1 – Data identifiers.....		11
Table 2 – Mandatory data elements and their representations		13
Table 3 – Valid combinations of representation of optional data elements.....		14
Table 4 – Product package label symbol requirements – Code 39.....		15
Table 5 – Product package label symbol requirements – Code 128.....		16
Table C.1 – How to use the URL DI “33L”.		24
Table C.2 – How to use the P2P URL DI “34L”		25
Table C.3 –ASC DIs used for the P2P code example:		26
Table D.1 – Examples of data element short titles.....		27

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PRODUCT PACKAGE LABELS FOR ELECTRONIC COMPONENTS
USING BAR CODE AND TWO-DIMENSIONAL SYMBOLOGIES**

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 62090 has been prepared by IEC technical committee 91: Electronics assembly technology.

This second edition cancels and replaces the first edition published in 2002. This edition constitutes a technical revision.

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

- a) Applicable data elements have been added. Data identifiers of those data elements are "10D", "14D", "2P", "25L", "18V", "V", "J", "3S", "13E", "33L" and "34L".
- b) The following new informative annexes have been added:
 - Annex C, *URL*;
 - Annex D, *Examples of data element short titles*;
 - Annex E, *Package levels for component package labels*.

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

CDV	Report on voting
91/1394/CDV	91/1430/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.

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.

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

PRODUCT PACKAGE LABELS FOR ELECTRONIC COMPONENTS USING BAR CODE AND TWO-DIMENSIONAL SYMBOLOGIES

1 Scope

This document applies to labels on the packaging of electronic components for automatic handling in B2B processes. These labels use linear bar code and two-dimensional (2D) symbols. Labels for direct product marking and shipping labels are excluded. Labels required on the packaging of electronic components that are intended for the retail channel of distribution in B2C processes are also excluded from this document.

Bar code and 2D symbol markings are used, in general, for automatic identification and automatic handling of components in electronics assembly lines. Intended applications include systems that automate the control of component packages during production, inventory and distribution.

2 Normative references

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.

ISO/IEC 15417, *Information technology – Automatic identification and data capture techniques – Code 128 bar code symbology specification*

ISO/IEC 15418, *Information technology – Automatic identification and data capture techniques – GS1 Application Identifiers and ASC MH 10 Data Identifiers and maintenance*

ISO/IEC 15434, *Information technology – Automatic identification and data capture techniques – Syntax for high-capacity ADC media*

ISO/IEC 15459 (all parts), *Information technology – Automatic identification and data capture techniques – Unique identification*

ISO/IEC 16022, *Information technology – Automatic identification and data capture techniques – Data Matrix bar code symbology specification*

ISO/IEC 16388, *Information technology – Automatic identification and data capture techniques – Code 39 bar code symbology specification*

ISO/IEC 18004, *Information technology – Automatic identification and data capture techniques – QR Code bar code symbology specification*

ISO/IEC 19762, *Information technology – Automatic Identification and data capture (AIDC) techniques – Harmonized vocabulary*

ISO 8601, *Data elements and interchange formats – Information interchange – Representation of dates and times*

ANSI MH10.8.2, *Data Identifier and Application Identifier Standard*