SLOVENSKI STANDARD

SIST EN 61175:2006

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Industrijski sistemi, inštalacije, oprema in industrijski proizvodi – Oznake signalov (IEC 61175:2005)

Industrial systems, installations and equipment and industrial products – Designation of signals (IEC 61175:2005)

ICS 29.020

Referenčna številka
SIST EN 61175:2006(en)

EUROPEAN STANDARD **EN 61175**

NORME EUROPÉENNE

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ICS 29.020 Supersedes EN 61175:1993

English version

Industrial systems, installations and equipment and industrial products - Designation of signals
(IEC 61175:2005)

Systèmes, installations, appareils et produits industriels - Désignation des signaux (CEI 61175:2005)

Industrielle Systeme, Anlagen und Ausrüstungen und Industrieprodukte - Kennzeichnung von Signalen (IEC 61175:2005)

This European Standard was approved by CENELEC on 2005-11-01. 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.

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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

Ref. No. EN 61175:2005 E

Foreword

The text of document 3/753/FDIS, future edition 2 of IEC 61175, prepared by IEC TC 3, Information structures, documentation and graphical symbols, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61175 on 2005-11-01.

This European Standard supersedes EN 61175:1993.

It includes the following significant technical changes with respect to EN 61175:1993:

The structure of the signal designation has been extended and specified in more detail:

– the term “item designation” has been replaced by “reference designation” with the same meaning as before;

– the term “basic signal name” has been extended. It has been replaced by “signal name”; then subsequently consisting of “class”, “short name” and “basic signal name”, where “basic signal name” has the same meaning as before;

– classification codes have been introduced in order to facilitate the understanding of the signal name, for example the type of signal and hence the “signal direction” can be recognized by the code;

– the concept of “signal name domain” has been introduced for improved identification of signal name in relation to an applicable object;

– the term “version identifier” has been changed to “variant” with the same meaning as before;

– the earlier possibility to provide additional information on “signal level” has been generalized to an area of “additional information” to be used to supplement information on “version”, “time stamp”, “level” and other system related parameters. The additional information is stated to belong to a variant of the signal (not to the signal designation in general).

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)	2006-08-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2008-11-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61175:2005 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 60227	NOTE	The HD 21 series is related to, but not directly equivalent with the IEC 60227 series.
IEC 61355	NOTE	Harmonized as EN 61355:1997 (not modified).
IEC 61850-4	NOTE	Harmonized as EN 61850-4:2002 (not modified).

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

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

Publication	Year	Title	EN/HD	Year
IEC 60417	data-base	Graphical symbols for use on equipment	-	-
IEC 60445	- [1)]	Basic and safety principles for man-machine interface, marking and identification - Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system	EN 60445	2000 [2)]
IEC 60447	- [1)]	Basic and safety principles for man-machine interface, marking and identification - Actuating principles	EN 60447	2004 [2)]
IEC 61082-1	- [3)]	Preparation of documents used in electrotechnology Part 1: Rules	EN 61082-1	- [3)]
IEC 61131	Series	Programmable controllers	EN 61131	Series
IEC 61346	Series	Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations	EN 61346	Series
ISO/IEC 646	1991	Information technology - ISO 7-bit coded character set for information interchange	-	-
ISO/IEC 8859-1	1998	Information technology - 8-bit single-byte coded graphic character sets Part 1: Latin alphabet No.1	-	-

[1)] Undated reference.

[2)] Valid edition at date issue.

[3)] To be published.

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
61175

Deuxième édition
Second edition
2005-09

Systèmes, installations, appareils et produits industriels – Désignation des signaux

Industrial systems, installations and equipment and industrial products – Designation of signals

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL SYSTEMS, INSTALLATIONS AND EQUIPMENT AND INDUSTRIAL PRODUCTS – DESIGNATION OF SIGNALS

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.
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International Standard IEC 61175 has been prepared by IEC technical committee 3: Information structures, documentation and graphical symbols.

This second edition cancels and replaces the first edition published in 1993. This edition constitutes a technical revision.

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

The structure of the signal designation has been extended and specified in more detail:

– the term "item designation" has been replaced by "reference designation" with the same meaning as before;
– the term "basic signal name" has been extended. It has been replaced by "signal name"; then subsequently consisting of "class", "short name" and "basic signal name", where "basic signal name" has the same meaning as before;

– classification codes have been introduced in order to facilitate the understanding of the signal name, for example the type of signal and hence the “signal direction” can be recognized by the code;

– the concept of “signal name domain” has been introduced for improved identification of signal name in relation to an applicable object;

– the term “version identifier” has been changed to “variant” with the same meaning as before;

– the earlier possibility to provide additional information on “signal level” has been generalized to an area of “additional information” to be used to supplement information on “version”, “time stamp”, “level” and other system related parameters. The additional information is stated to belong to a variant of the signal (not to the signal designation in general).

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

FDIS	Report on voting
3/753/FDIS	3/779/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.

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

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

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

INTRODUCTION

The intention of this International Standard is to make rules and requirements for the designation of signals, and furthermore to make recommendations on useful presentations of these.

Basically, a signal designation is associated to the signal over its whole lifetime, which means: from the beginning of the design stage until the signal is no more needed.

Designation of a signal, in accordance with this standard, means that the source and the destination of the signal are identified, also in intermediate interfaces where the signal is delivered from one system/media to another, but the identification itself is independent of the media used for transfer of the signal.

To comply with rules and procedures for different systems and media transferring signals, it is described in this standard how to handle special information in a system and/or in between systems as “additional information” if needed.

The change of medium for the transfer of a signal because of a physical rebuilding of an installation will not cause a change of the identification of this signal if its meaning is maintained. The kind of physical transportation of a signal has no influence on the identification of it, unless this physical transportation is a part of the signal purpose.

Rebuilding of installations might lead to wishes to transfer more signals in the same physical medium. All of such additional signals will be identified in accordance with their purpose and the rules stated in this standard.

As the identification of a signal has nothing to do with the physical transportation of it, the lines in the figures in this standard will be read as “signals” more than “connections”.

INDUSTRIAL SYSTEMS, INSTALLATIONS AND EQUIPMENT AND INDUSTRIAL PRODUCTS – DESIGNATION OF SIGNALS

1 Scope

This International Standard provides rules for the composition of designations and names for the identification of signals and signal connections. This includes the designation of power supply circuits.

The standard is applicable to all types of signals within an industrial system, installation and equipment.

The standard is not applicable for the identification of wiring, terminals and other hardware for connections.

The standard does not establish rules for

- the graphical/physical representation of a signal on devices, nor
- the graphical representation of signals in documentation.

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.

IEC 60417, *Graphical symbols for use on equipment*

IEC 60445, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals and of terminations of certain designated conductors, including general rules for an alphanumeric system*

IEC 60447, *Basic and safety principles for man-machine interface, marking and identification – Actuating principles*

IEC 60747, *Semiconductor devices - Discrete devices*

IEC 61082-1[1], *Preparation of documents used in electrotechnology – Part 1: Rules*

IEC 61131 (all parts), *Programmable controllers*

IEC 61346 (all parts), *Industrial systems, installations and equipment and industrial products Structuring principles and reference designations*

ISO/IEC 646: 1991, *Information technology ISO 7-bit coded character set for information processing interchange*

ISO/IEC 8859-1: 1998, *Information technology – 8-bit single-byte coded graphic character sets – Part 1: Latin alphabet No. 1*

[1] To be published.

3 Terms and definitions

For the purposes of this document, the following definitions apply.

3.1
signal
unit of information conveyed from one *object* to another

NOTE Messages (units of signals) may be sent in a communication network in the form of telegrams. Such messages may represent one or several signals.

3.2
signal designation
unambiguous identifier of a *signal* within a system

3.3
signal connection
path on which the *signal* is transferred between the interface points

NOTE The connection can be identified as logical or physical, and can be realized in different connection media. A complete signal connection chain may include different media.

3.4
signal connection chain
group of coherent *signal connections* belonging to the same *signal*

NOTE The signal connection chain will typically describe the complete connection of the signal transfer.

3.5
signal connection medium
medium in which the *signal* is transferred from one point to an other

NOTE The medium can be identified as logical or physical, and a complete signal connection chain may include different media.

Examples:

- Physical media: electric wire, optic fibre.

- Logical media: single data transfer, communication bus or network.

3.6
signal name domain
chosen *object* in which each signal name is unambiguous without using the *reference designation*

3.7
signal presentation
way of presentation of a reporting signal

NOTE 1 Example: digital display, analogue indication, lamp, semaphore.

NOTE 2 The complete signal designation does not have to be used in the presentation (but it can be). It is recommended that the complete signal designation should be possible to find from the signal presentation.

3.8
signal kind
super-type of the *signal class* defining direction of information in the *signal connection*

NOTE Two signal kinds are used:

- reporting signals; and

- controlling signals.

3.9
signal class
groups of *signals* defined in accordance with a classification scheme based on the purpose of the signals

NOTE The signal class is indicated by a code in the signal designation.

3.10
signal variant
identified section of the *signal connection chain*

NOTE There is always at least one variant in a signal connection chain.

3.11
object
entity treated in the process of design, engineering, realization, operation, maintenance and demolition

[IEC 61346-1:1996, definition 3.1]

3.12
object designation
identifier of a specific *object*

[IEC 61355:1997, definition 3.12]

3.13
reference designation
identifier of a specific *object* with respect to the system of which the *object* is a constituent, based on one or more aspects of that system

[IEC 61346-1:1996, definition 3.7]

3.14
data point
physical point in the *signal connection chain*, where a message can be inspected and the current value of a *signal* can be accessed

3.15
data object
signal group composed of one or more data items (signals)

NOTE A data object is used to represent the specific elements of functionality of a device.

3.16
version
identification of a specific edition/version of the information

NOTE Example:

- Version 1 is the message for time 0; and
- Version 2 is the message for time 0 + 1 s.

4 Basic rules

4.1 Structure of the signal designation

A signal designation shall unambiguously identify a signal among a set of points (terminal, junction, data point) within a system (see IEC 61346-1) and may also classify the signal..