

INTERNATIONAL STANDARD

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HORIZONTAL STANDARD
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**Industrial systems, installations and equipment and industrial products –
Designation of signals –
Part 1: Basic rules**

**Systèmes, installations, appareils et produits industriels –
Désignation des signaux –
Partie 1: Règles de base**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL SYSTEMS, INSTALLATIONS AND
EQUIPMENT AND INDUSTRIAL PRODUCTS –
DESIGNATION OF SIGNALS –****Part 1: Basic rules****FOREWORD**

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International Standard IEC 61175-1 has been prepared by IEC technical committee 3: Information structures and elements, identification and marking principles, documentation and graphical symbols.

It has the status of a horizontal standard in accordance with IEC Guide 108.

This first edition cancels and replaces the second edition of IEC 61175 published in 2005. This edition constitutes a technical revision.

Further parts of IEC 61175 may be added as Technical Specifications relating to different domains. Additional parts may be application guides for designation of signals in specific applications such as communication protocols and other software systems.

This edition includes the following significant technical changes with respect to IEC 61175:2005:

- an improved description of the principles for use; and
- a strict separation between the physical aspect of a signal and its associated information, focusing on the latter.

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

FDIS	Report on voting
3/1214A/FDIS	3/1221/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.

A list of all parts in the IEC 61175 series, published under the general title *Industrial systems, installations and equipment and industrial products – Designation of signals*, can be found on the IEC website.

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

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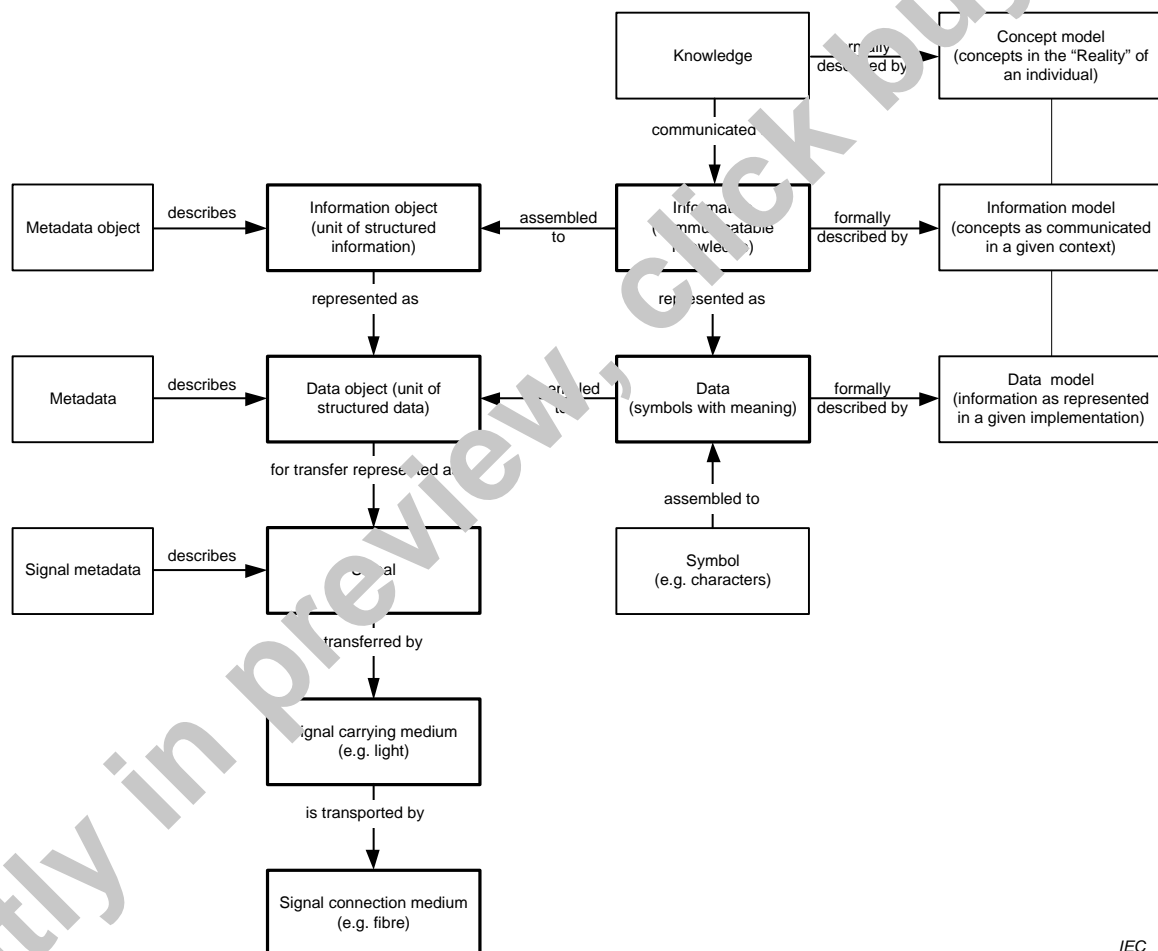
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INTRODUCTION

The intention of this part of IEC 61175 is to establish rules and requirements for the designation of signals, and furthermore to make recommendations on useful presentations of these.

Basically, a signal designation is associated with the signal over its whole lifetime, which means from the beginning of the design stage until the signal is no longer 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 semantic meaning is maintained. Signals represent information. For communication purposes the information has to be represented as data. The information can be more or less complex. In simple cases, the information can be represented as a single Boolean variable, without internal structure. In more complex cases, like in computer communication via data networks, the information can be packaged in more complex objects, with internal structure, which are transferred with suitable protocols. The implementation can be done in different ways depending on which technology, protocol, etc. is being used. Figure 1 illustrates the terminology



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Figure 1 – Illustration of relationship of terminology

The principles described in this part of IEC 61175 are closely related to other International Standards such as IEC 81346-1, IEC 81346-2, IEC 61666 and IEC 81714-3. An information model for the interrelations is provided in IEC TS 62771.

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

Part 1: Basic rules

1 Scope

This part of IEC 61175 provides rules for the composition of designations for the identification of signals and signal connections. This includes the designation of power supply.

This part of IEC 61175 is applicable to all types of signals within an industrial system, installation and equipment and industrial products. It deals with the information aspect of signals and not with their physical implementation.

Excluded from the scope are general rules for the presentation of information in human machine interfaces. This part of IEC 61175 is also not applicable to the identification of wiring, terminals, piping and other hardware connections.

NOTE For the purpose of marking of wires, see IEC 62491.

This horizontal standard is primarily intended for use by technical committees in the preparation of standards in accordance with the principles laid down in IEC Guide 108.

One of the responsibilities of a technical committee is, wherever applicable, to make use of horizontal standards in the preparation of its publications. The contents of this horizontal standard will not apply unless specifically referred to or included in the relevant publications.

2 Normative references

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.

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

IEC 81345-1, *Industrial systems, installations and equipment and industrial products – Structuring, principles and reference designations – Part 1: Basic principles*

IEC 60720, *Identification of units of measurement for computer-based processing*

3 Terms and definitions

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

3.1

object

entity treated in a process of development, implementation, usage and disposal

Note 1 to entry: The object may refer to a physical or non-physical “thing”, i.e. anything that might exist, exists or did exist.