

Programmable controllers - Part 3: Programming languages (IEC 61131-3:2013)

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English version

**Programmable controllers -
Part 3: Programming languages
(IEC 61131-3:2013)**

Automates programmables -
Partie 3: Langages de programmation
(CEI 61131-3:2013)

Speicherprogrammierbare Steuerungen -
Teil 3: Programmiersprachen
(IEC 61131-3:2013)

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

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Foreword

The text of document 65B/858/FDIS, future edition 3 of IEC 61131-3, prepared by IEC TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61131-3:2013.

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) 2013-12-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2016-03-27

This document supersedes EN 61131-3:2003.

EN 61131-3:2013 includes the following significant technical changes with respect to EN 61131-3:2003:

EN 61131-3:2013 is a compatible extension of EN 61131-3:2003. The main extensions are new data types and conversion functions, references, name spaces and the object oriented features of classes and function blocks. See Annex B.

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

Endorsement notice

The text of the International Standard IEC 61131-3:2013 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 60848 | NOTE | Harmonised as EN 60848. |
| IEC 61499 series | NOTE | Harmonised in EN 61499 series. |

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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61131-1	-	Programmable controllers - Part 1: General information	EN 61131-1	-
IEC 61131-5	-	Programmable controllers - Part 5: Communications	EN 61131-5	-
ISO/IEC 10646	2012	Information technology - Universal Coded Character Set (UCS)	-	-
ISO/IEC/IEEE 60559-		Information technology - Microprocessor Systems - Floating-Point arithmetic	-	-

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PROGRAMMABLE CONTROLLERS –

Part 3: Programming languages

1 Scope

This part of IEC 61131 specifies syntax and semantics of programming languages for programmable controllers as defined in Part 1 of IEC 61131.

The functions of program entry, testing, monitoring, operating system, etc., are specified in Part 1 of IEC 61131.

This part of IEC 61131 specifies the syntax and semantics of a unified suite of programming languages for programmable controllers (PCs). This suite consists of two textual languages, Instruction List (IL) and Structured Text (ST), and two graphical languages, Ladder Diagram (LD) and Function Block Diagram (FBD).

An additional set of graphical and equivalent textual elements named Sequential Function Chart (SFC) is defined for structuring the internal organization of programmable controller programs and function blocks. Also, configuration elements are defined which support the installation of programmable controller programs into programmable controller systems.

In addition, features are defined which facilitate communication among programmable controllers and other components of automated systems.

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 61131-1, *Programmable controllers – Part 1: General information*

IEC 61131-5, *Programmable controllers – Part 5: Communications*

ISO/IEC 10646:2012, *Information technology – Universal Coded Character Set (UCS)*

ISO/IEC/IEEE 60559, *Information technology – Microprocessor Systems – Floating-Point arithmetic*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61131-1 and the following apply.

3.1

absolute time

combination of time of day and date information