



Programmable controllers

Part 3: Programming languages

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Australian Standard[®]

Programmable controllers

Part 3: Programming languages

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PREFACE

This Standard was prepared by the Standards Australia Committee IT-006, Industrial Process Measurement, Control and Automation, to supersede AS IEC 61131.3—2004.

The objective of this Standard is to specify syntax and semantics of programming languages for programmable controllers as defined in AS IEC 61131.1.

This Standard should be read in conjunction with the other parts of the AS IEC 61131 series.

This Standard is identical with, and has been reproduced from, IEC 61131-3, Ed. 3.0 (2013), *Programmable controllers—Part 3: Programming languages*.

This edition is a fully compatible extension of the previous (2004) edition. The main extensions are new data types and conversion functions, references, name spaces and the object oriented features of classes and function blocks. For further details, see Annex B.

As this Standard is reproduced from an International Standard, the following apply:

- (a) In the source text ‘this part of IEC 61131’ should read ‘this Australian Standard’.
- (b) A full point substitutes for a comma when referring to a decimal number.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

<i>Reference to International Standard</i>	<i>Australian Standard</i>
IEC	AS IEC
61131 Programmable controllers	61131 Programmable controllers
61131-1 Part 1: General information	61131-1 Part 1: General information
61131-5 Part 5: Communications	61131.5 Part 5: Communications

Only normative references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The terms ‘normative’ and ‘informative’ are used to define the application of the annex to which they apply. A normative annex is an integral part of a standard, whereas an informative annex is only for information and guidance.

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AUSTRALIAN STANDARD

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