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IEC Publication 61131-4

Programmable Controllers
Part 4: User Guidelines

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Foreword

This Standards Publication is a NEMA Authorized Engineering Information adopted from IEC 61131-4, *Programmable Controllers—Part 4: User Guidelines*. IEC 61131-4 has been published by the International Electrotechnical Commission as a Type 3 Technical Report.

This NEMA Standards Publication was supported and reviewed by the Programmable Controller Technical Committee of the NEMA Automation Products and Systems Section. It was approved in accordance with the bylaws of NEMA and supersedes applicable portions of NEMA Standards Publication ICS 3-1988, Part 3-304.

This Standards Publication represents many years of direct NEMA member participation in IEC Subcommittee 65B/Working Group 7, and reflects the input provided to the IEC from the Programmable Controller Technical Committee.

NEMA Standards Publications are subject to periodic review. They are revised frequently to reflect user input and to meet changing conditions and technical progress. Users should secure the latest editions.

Proposed revisions to this Standards Publication should be submitted to:

Senior Technical Director, Operations
National Electrical Manufacturers Association
1300 North 17th Street, Suite 900
Rosslyn, Virginia 22209
Referenced Standards

This NEMA Standards Publication references standards published by the International Electrotechnical Commission (IEC), the International Organization for Standardization (ISO), and the National Fire Protection Association (NFPA). Copies of these standards are available from:

American National Standards Institute
11 West 42nd Street
New York, NY 10036
Amendments


Authorized Engineering Information

When the phrase "national code" or the like is used in ICS 61131-4, reference to ANSI/NFPA 70, *National Electrical Code*, and other applicable codes is to be understood.

Authorized Engineering Information

Where a conflict exists between the provisions of IA 2.4 and other NEMA Standards Publications, the provisions of IA 2.4 should take precedence in the area of programmable controllers and their associated peripherals.

Authorized Engineering Information
Programmable controllers –
Part 4:
User guidelines
Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

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Programmable controllers –
Part 4:
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FOREWORD

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This part of the International Standard IEC 61131 has been prepared by subcommittee 65B: Devices, of IEC Technical Committee 65: Industrial-process measurement and control.

This second edition cancels and replaces the first edition published in 1995. It constitutes a technical revision.

This second edition of IEC 61131-4 differs extensively from the first edition. The first edition, IEC 61131-4:1995, initiated some twenty years ago, was mainly tutorial in nature. The present revision aims to provide an engineering overview of the IEC 61131 series for the end-user of PLC equipment who may not be expected to delve into the details of the extensive product standard that is IEC 61131.
The purpose of this revision is therefore to assist the end-users of PLCs to make efficient and effective use of the IEC 61131 series, and to realise the benefit of IEC standard compliant programmable controllers. This revised Technical Report serves as a quick reference and roadmap. Many of the IEC 61131 parts have gone through their maintenance cycle revisions. This revision of IEC 61131-4 is based on the latest revisions available.

The text of this technical report is based on the following documents:

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Full information on the voting for the approval of this technical report 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.

IEC 61131 consists of the following parts, under the general title: Programmable controllers

Part 1: General information
Part 2: Equipment requirements and tests
Part 3: Programming languages
Part 4: User guidelines
Part 5: Communications
Part 7: Fuzzy control programming
Part 8: Guidelines for the application and implementation of programming languages

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.

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

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INTRODUCTION

This part of IEC 61131 constitutes the fourth part of a series of standards on programmable controllers and the associated peripherals and should be read in conjunction with the other parts of the series.

Where a conflict exists between this and other IEC standards (except basic safety standards), the provisions of this standard should be considered to govern in the area of programmable controllers and their associated peripherals.

Terms of general use are defined in IEC 61131-1. More specific terms are defined in each part.
1 General

1.1 Scope and object

The object of this Technical report is to introduce the end-users of Programmable Controller (PLC) to the IEC 61131 series, and to assist the end-users in their selection and specification of their PLC equipment according to the IEC 61131 series. This user guideline has as its main audience PLC end-users.

PLCs, their application program and their associated peripherals are considered as components of a control system. Therefore, PLC users should take note that this standard does not deal with the automated system in which the PLC and PLC system is but one component. However, when applying this user guideline, an overall system architecture evaluation is recommended. Functional safety of the overall automated system is beyond the scope of this standard.

An objective of this user guideline is to facilitate communication between the PLC user and PLC supplier according to the specifications of the IEC 61131 series that applies to PLCs and their associated peripherals. This information exchange is illustrated in Figure 1.

![Diagram of information flow between supplier and user](image)

**Figure 1 – Object of user guidelines**