AS IEC 61131.4—2004
IEC/TR3 61131-4:1995

Australian Standard™

Programmable controllers

Part 4: User guidelines

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee IT-006, Information Technology for Industrial Automation. It was approved on behalf of the Council of Standards Australia on 15 January 2004 and published on 22 March 2004.

The following are represented on Committee IT-006:

Association of Consulting Engineers Australia

Australian Electrical and Electronic Manufacturers Association

CSIRO Centre for Planning and Design

CSIRO Manufacturing and Infrastructure Technology

Department of Defence, Australia

Institute of Instrumentation, Control and Automation, Australia

Institution of Engineers Australia

Monash University

RMIT University

University of Melbourne

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about Standards can be found by visiting the Standards Web Shop at www.standards.com.au and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed Catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards™ and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to the Chief Executive, Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001.

This Standard was issued in draft form for comment as DR 03590.

Australian Standard™

Programmable controllers

Part 4: User guidelines

First published as AS IEC 61131.4—2004.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 5773 1

PREFACE

This Standard was prepared by the Standards Australia Committee IT-006, Information Technology for Industrial Automation.

This Standard is identical with, and has been reproduced from, IEC/TR3 61131-4:1995, *Programmable controllers—Part 4: User guidelines*.

The objective of this Standard is to provide guidelines that address the application of the programmable controllers (PC) and associated peripherals. It also deals with the integration of PCs into the automated system.

This Standard is Part 4 of AS IEC 61131 *Programmable controllers*, which consists of the following:

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

AS IEC 61131 does not have a Part 6. A project to develop IEC 61131-6 *Programmable controller communications via field bus* was deleted in September 2000 by the IEC.

In this Standard, the following print types are used:

– requirements proper: in arial type;

– *test specifications: in italic type;*

– explanatory matter: in smaller arial type.

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

(a) Its number does not appear on each page of text and its identity is shown only on the cover and title page.

(b) In the source text ‘this part of IEC 61131’ should read ‘this part of AS IEC 61131’.

(c) A full point should be substituted for a comma when referring to a decimal marker.

CONTENTS

Page

INTRODUCTION

This Technical Report provides guidelines that address the application of the programmable controllers (PC) and associated peripherals. It also deals with the integration of PCs into the automated system. Overall automated system safety, including installation and application, is beyond the scope of this part of the report.

The terms in upper case are defined either in IEC 61131-1 if of general use, or in 2.2 of this report.

Annexes provide explanations or further information on subject items.

User guidelines are written to assist the USER in the specification and implementation of the PC system. The document is primarily intended for the USER responsible for all system level design, installation and final commissioning. The guideline covers the control system in general, and the programmable controller portion of the system in particular (see figures 1a and 1b).

The PC application process (the specification, design, development, and installation of a PC-based system for a particular application) may be a reiterative process to understand and address all system requirements. This reiteration can occur at any portion of the system life cycle, e.g., user system analysis, PC system selection and application engineering, safety and protection considerations, pre-installation system testing, installation, commissioning and maintenance.

STANDARDS AUSTRALIA

Australian Standard

Programmable controllers
Part 4: User guidelines

Any table, figure or text of the international standard that is struck through is not part of this standard. Any Australian/New Zealand table, figure or text that is added is part of this standard and is identified by shading.

1 General

1.1 Scope

The complete programmable controller standard applies to PROGRAMMABLE CONTROLLERS and their associated PERIPHERALS such as PROGRAMMING and DEBUGGING TOOLS (PADTs), TEST EQUIPMENT (TE) and MAN-MACHINE INTERFACES (MMIs), etc.

This Technical Report refers to equipment for the control and command of machines and industrial processes used in OVERVOLTAGE CATEGORY II (IEC 60664), in low-voltage installations, where the rated mains supply voltage does not exceed 1 000 V a.c. (50 Hz/60 Hz), or 1 500 V d.c.

PROGRAMMABLE CONTROLLERS and associated PERIPHERALS (PC system) are considered COMPONENTS of a control system and may be provided as ENCLOSED or OPEN EQUIPMENT. This report deals with the PC and interfaces to the other parts of the AUTOMATED SYSTEM and does not deal with the whole automated system itself (see figure 1a).

1.2 Object

The purpose of IEC 61131-4 is to provide information that assists the user in:

– utilizing the other parts of the programmable controller standard;

– specifying the requirements for PC applications;

– selecting and implementing PC systems.

The following topics are covered in this Technical Report:

– references to pertinent information in other parts of the programmable controller standard. This information is useful in obtaining a better understanding of the environment and application of the PC;

– description of supplemental information, helpful in making use of other parts of this standard;

– system level functional analysis of the user's process;

– specification of a programmable controller system;

– programmable controller installation, commissioning and maintenance.

IEC 61131-4 does not provide a comprehensive analysis of a complete automated system. It is intended as a source of information about programmable controllers, their specifications, and selection. The reader may also refer to other parts of IEC 61131.