



BSI Standards Publication

## Industrial-process measurement and control — Programmable controllers

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Part 8: Guidelines for the application and implementation of programming languages

## National foreword

This Published Document is the UK implementation of IEC TR 61131-8:2017. It supersedes PD IEC TR 61131-8:2003, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee GEL/65/2, Elements of systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

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## TECHNICAL REPORT



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**Industrial-process measurement and control – Programmable controllers –  
Part 8: Guidelines for the application and implementation of programming  
languages**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL –  
PROGRAMMABLE CONTROLLERS –****Part 8: Guidelines for the application  
and implementation of programming languages**

## FOREWORD

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IEC 61131-8, which is a technical report, has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition published in 2003. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

This third edition is a compatible extension of the second edition. The main extensions are new data types and conversion functions, references, name spaces and the object oriented features of classes and function blocks (see listing in Annex B of IEC 61131-3:2013).

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

DTR	Report on voting
65B/1058/DTR	65B/1073/RVDTR

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.

A list of all parts in the IEC 61131 series, published under the general title *Industrial-process measurement and control – Programmable controllers*, can be found on the IEC website.

Future standards in this series will carry the new general title as cited above. Titles of existing standards in this series will be updated at the time of the next edition.

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

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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

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## INTRODUCTION

This part of IEC 61131 is being issued as a technical report in order to provide guidelines for the implementation and application of the programming languages defined in IEC 61131-3:2013.

The content of this document answers a number of frequently asked questions about the intended application and implementation of the normative provisions of IEC 61131-3.

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# INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – PROGRAMMABLE CONTROLLERS –

## Part 8: Guidelines for the application and implementation of programming languages

### 1 Scope

This part of IEC 61131, which is a technical report, applies to the programming of programmable controller systems using the programming languages defined in IEC 61131-3. The scope of IEC 61131-3 is applicable to this part.

This document provides

- a) guidelines for the application of IEC 61131-3,
- b) guidelines for the implementation of IEC 61131-3 languages for programmable controller systems,
- c) programming and debugging tool (PADT) recommendations.

For further information IEC 61131-4 describes other aspects of the application of programmable controller systems, e.g. electromagnetic compatibility or functional safety.

NOTE Neither IEC 61131-3 nor this document explicitly addresses safety issues of programmable controller systems or their associated software. The various parts of IEC 61508 can be consulted for such considerations.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61131-3:2013, *Programmable controllers – Part 3: Programming languages*

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

### 3 Terms and definitions

No terms and definitions are listed in this document.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 4 Abbreviated terms

ED	Early Detection
ETrig	Edge triggered function
EW	Early Warning