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STN	**Meranie a riadenie priemyselných procesov Programovateľné regulátory Časť 2: Požiadavky na zariadenia a skúšky**	**STN EN IEC 61131-2 18 7050**

Industrial-process measurement and control - Programmable controllers - Part 2: Equipment requirements and tests

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/26

Obsahuje: EN IEC 61131-2:2025, IEC 61131-2:2017

Oznámením tejto normy sa od 31.12.2030 ruší
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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN IEC 61131-2

December 2025

ICS 25.040.40; 35.240.50

Supersedes EN 61131-2:2007

English Version

Industrial-process measurement and control - Programmable controllers - Part 2: Equipment requirements and tests (IEC 61131-2:2017)

Mesurage et contrôle des processus industriels - Automates programmables - Partie 2: Exigences et essais des équipements
(IEC 61131-2:2017)

Industrielle Leittechnik - Speicherprogrammierbare Steuerungen - Teil 2: Betriebsmittelanforderungen und Prüfungen
(IEC 61131-2:2017)

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 61131-2:2025 E

European foreword

The text of document 65B/1083/FDIS, future edition 4 of IEC 61131-2, prepared by SC 65B "Measurement and control devices" of IEC/TC 65 "Industrial-process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61131-2:2025.

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) 2026-12-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2030-12-31

This document supersedes EN 61131-2:2007 and all of its amendments and corrigenda (if any).

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

This document has been prepared under a standardization request addressed to CENELEC by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 61131-2:2017 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 standard indicated:

IEC 60038	NOTE	Approved as EN 60038
IEC 60068-2-78	NOTE	Approved as EN IEC 60068-2-78
IEC 60721-3-0	NOTE	Approved as EN IEC 60721-3-0
IEC 60721-3-1	NOTE	Approved as EN IEC 60721-3-1
IEC 60721-3-2	NOTE	Approved as EN IEC 60721-3-2
IEC 60721-3-3	NOTE	Approved as EN IEC 60721-3-3
IEC 60721-3-7	NOTE	Approved as EN 60721-3-7
IEC 60947-5-2	NOTE	Approved as EN IEC 60947-5-2
IEC 60947-5-6	NOTE	Approved as EN 60947-5-6
IEC 61300-3-2	NOTE	Approved as EN 61300-3-2
IEC 61300-3-3	NOTE	Approved as EN 61300-3-3

IEC 61000-4-29	NOTE	Approved as EN 61000-4-29
IEC 61010-1:2010	NOTE	Approved as EN 61010-1:2010 (not modified)
CISPR 14-1	NOTE	Approved as EN IEC 55014-1

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Publication	Year	Title	EN/HD	Year
IEC 60068-2-1	-	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-14	-	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN IEC 60068-2-14	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-30	-	Environmental testing - Part 2-30: Tests - Test Db: Damp heat, cyclic (12 h + 12 h cycle)	EN 60068-2-30	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60417	1973	Graphical symbols for use on equipment. Index, survey and compilation of the single sheets.	-	-
IEC 60947-5-1	2016	Low-voltage switchgear and controlgear - Part 5-1: Control circuit devices and switching elements - Electromechanical control circuit devices	EN 60947-5-1	2017
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009
IEC 61000-4-3	2006	Electromagnetic compatibility (EMC) - Part 4-3 : Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test	EN 61000-4-3	2006

Publication	Year	Title	EN/HD	Year
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
IEC 61000-4-6	2013	Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields	EN 61000-4-6	2014
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010
IEC 61000-4-11	2004	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	2004
IEC 61000-4-18	2006	Electromagnetic compatibility (EMC) - Part 4-18: Testing and measurement techniques - Damped oscillatory wave immunity test	EN 61000-4-18	2007
IEC 61000-6-1	2016	Electromagnetic compatibility (EMC) - Part 6-1: Generic standards - Immunity standard for residential, commercial and light-industrial environments	EN IEC 61000-6-1	2019
IEC 61000-6-2	2016	Electromagnetic compatibility (EMC) - Part 6-2: Generic standards - Immunity standard for industrial environments	EN IEC 61000-6-2	2019
IEC 61000-6-4	-	Electromagnetic compatibility (EMC) - Part 6-4: Generic standards - Emission standard for industrial environments	EN IEC 61000-6-4	-
IEC 61010-2-201	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-201: Particular requirements for control equipment	EN IEC 61010-2-201	-
IEC 61131-1	-	Programmable controllers - Part 1: General information	EN 61131-1	-
IEC 61131-3	-	Programmable controllers - Part 3: Programming languages	EN 61131-3	-
IEC 61131-9	-	Programmable controllers - Part 9: Single-drop digital communication interface for small sensors and actuators (SDCI)	EN IEC 61131-9	-
IEC/TR 61131-4	2004	Programmable controllers - Part 4: User guidelines	-	-
IEC 61158	series	Industrial communication networks - Fieldbus specifications	EN IEC 61158	series
IEC 61784	series	Industrial communication networks - Profiles	EN IEC 61784	series
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols	-	-

EN IEC 61131-2:2025 (E)

Publication	Year	Title	EN/HD	Year
ANSI/ISA-50.00.01	1975 - (R2012)	Compatibility of Analog Signals for Electronic Industrial Process Instruments	-	-
HCF_SPEC-13	Rev 7.5	HART (Highway Addressable Remote Transducer) Communication Protocol Specification	-	-

IEC 61131-2

Edition 4.0 2017-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial-process measurement and control – Programmable controllers – Part 2: Equipment requirements and tests

Mesurage et contrôle des processus industriels – Automates programmables – Partie 2: Exigences et essais des équipements

IEC 61131-2:2017-08(en-fr)

IEC 61131-2

Edition 4.0 2017-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Industrial-process measurement and control – Programmable controllers – Part 2: Equipment requirements and tests

Mesurage et contrôle des processus industriels – Automates programmables – Partie 2: Exigences et essais des équipements

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – PROGRAMMABLE CONTROLLERS –

Part 2: Equipment requirements and tests

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 61131-2 has been prepared by subcommittee 65B: Measurement and control devices, of IEC technical committee 65: Industrial-process measurement, control and automation.

This fourth edition cancels and replaces the third edition published in 2007. This edition constitutes a technical revision.

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

a) removal of safety requirements and instead pointing to IEC 61010-2-201;
b) addition of negative logic digital inputs and outputs;
c) addition of Type 3-d digital input;
d) addition of 2,7 GHz to 6 GHz requirement for Radio-frequency electro-magnetic amplitude modulated immunity;

e) clarification of temperature testing;

f) clarification of type testing;

g) deprecation of certain technologies;

h) general update of multiple aspects of functionality and EMC;

i) reorganization of clauses to associate requirements and verifications more closely.

The text of this standard is based on the following documents:

FDIS	Report on voting
65B/1083/FDIS	65B/1091/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

IEC 61131-2 is part of a series of standards on industrial control equipment, including programmable controllers, and their associated peripherals and should be read in conjunction with the other parts of the series. However, it can be read and applied alone.

Where a conflict exists between this and other IEC standards, the provisions of this standard should be considered to govern in the area of industrial control equipment, including programmable controllers, and their associated peripherals.

This standard defines for industrial control equipment the following:

- Testing and verifications methods (Clause 4);
- Operating conditions (5.2);
- Temperature and climatic tests (5.2.1);
- Mechanical requirements and tests (5.3);
- Functional requirements and tests for power supplies, I/Os and other components (Clause 6);
- EMC requirements and tests (Clause 7);
- Marking and documentation requirements (Clause 8).

Product safety requirements for PLC and the other types of industrial control equipment now in the scope of this standard are specified in IEC 61010-2-201, which replaces the requirements of Clauses 11 to 14 of IEC 61131-2:2007.

The operating conditions and the temperature derating for altitudes are aligned with IEC 61010-2-201:–[1].

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1 Under preparation. Stage at the time of publication: IEC /CDV 61010-2-201:2016.

INDUSTRIAL-PROCESS MEASUREMENT AND CONTROL – PROGRAMMABLE CONTROLLERS –

Part 2: Equipment requirements and tests

1 Scope

This part of IEC 61131 specifies functional and electromagnetic compatibility requirements and related verification tests for industrial control equipment of the following types:

- programmable controllers (PLC);
- programmable automation controller (PAC);
- remote I/O;
- programming and debugging tools (PADTs);
- industrial PC (computers) and industrial panel PC;
- displays and human-machine Interfaces (HMI) for industrial use;
- distributed control system (DCS), and DCS components that are listed here in the scope;
- any product where the primary purpose is performing the function of industrial control equipment, including PLC and/or PAC, and/or their associated peripherals which have as their intended use the control and command of machines, automated manufacturing and industrial processes, e.g. discrete, batch and continuous control.

In this document “control equipment” is equivalent to “industrial control equipment” as are PLC and PAC.

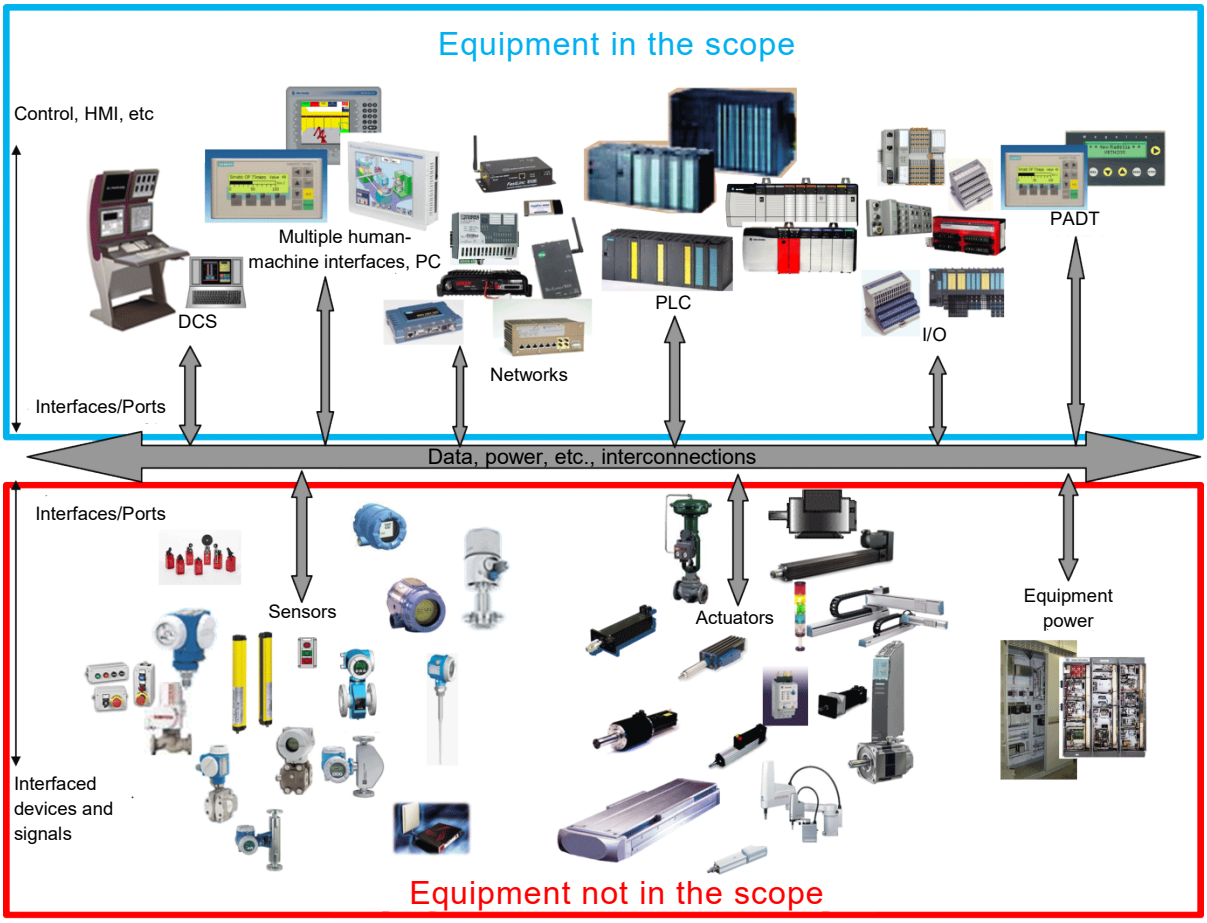

Figure 1 – Equipment in the scope and not in the scope

Components of the above named equipment (see Figure 1) included in the scope of this standard are:

- (auxiliary) stand-alone power supplies;
- peripherals such as digital and analog I/O;
- industrial network equipment.

Control equipment and their associated peripherals are intended to be used in an industrial environment and may be provided as open or enclosed equipment.

If control equipment or its associated peripherals are intended for use in other environments (light industrial, commercial, residential), then the specific requirements, standards and installation practices for those other environments shall be additionally applied to the control equipment and its associated peripherals.

Equipment covered in this standard is intended for use in overvoltage category II (IEC 60664-1) in low-voltage installations, where the rated equipment supply voltage does not exceed AC 1 000 V r.m.s. (50/60 Hz), or DC 1 000 V. If control equipment or their associated peripherals are applied in overvoltage category III installations, then additional analysis will be required to determine the suitability of the equipment for those applications.

The object of this standard is to establish the definitions and identify the principal characteristics relevant to the selection and application of control equipment and their associated peripherals.

This standard also specifies:

a) service (operating, storage and transportation) requirements for control equipment and their associated peripherals (Clause 5);

b) functional requirements for control equipment and their associated peripherals (Clause 6);

c) EMC requirements for control equipment and their associated peripherals (Clause 7);

d) information that the manufacturer is required to supply (Clause 8).

Safety requirements for control equipment and their associated peripherals are specified in IEC 61010-2-201.

The requirements of IEC Guide 106, “Guide for specifying environmental conditions for equipment performance rating”, and IEC Guide 107 “Electromagnetic compatibility – Guide to the drafting of electromagnetic compatibility publications,”are incorporated herein.

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 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 + 12 h cycle)*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60417, *Graphical symbols for use on equipment* (available at http://www.graphical-symbols.info/equipment)

IEC 60947-5-1:2016, *Low-voltage switchgear and controlgear – Part 5-1: Control circuit devices and switching elements – Electromechanical control circuit devices*

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3 : Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4:2012, *Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test*

IEC 61000-4-5:2014, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-6:2013, *Electromagnetic compatibility (EMC) – Part 4-6: Testing and measurement techniques – Immunity to conducted disturbances induced by radio-frequency fields*

IEC 61000-4-8:2009, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11:2004, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61000-4-18:2006, *Electromagnetic compatibility (EMC) – Part 4-18: Testing and measurement techniques – Damped oscillatory waves immunity test*

IEC 61000-6-1:2016, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*

IEC 61000-6-2:2016, *Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments*

IEC 61000-6-4, *Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments*

IEC 61010-2-201:–[2], *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-201: Particular requirements for control equipment*

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

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

IEC 61131-9, *Programmable controllers – Part 9: Single-drop digital communication interface for small sensors and actuators (SDCI)*

IEC TR 61131-4, *Programmable controllers – Part 4: User guidelines*

IEC 61158 (all parts), *Industrial communication networks – Fieldbus specifications*

IEC 61784 (all parts), *Industrial communication networks – Profiles*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols* (available at http://www.iso.org/obp)

ANSI/ISA-50.00.01-1975 – (R2012), *Compatibility of Analog Signals for Electronic Industrial Process Instruments*

HCF_SPEC-13, *HART (Highway Addressable Remote Transducer) Communication Protocol Specification, Rev 7.5*