SLOVENSKI STANDARD
SIST EN IEC 62828-1:2026

01-november-2026

Referenčni pogoji in postopki za preskušanje industrijskih in procesnih merilnih oddajnikov - 1. del: Splošni postopki za vse vrste oddajnikov (IEC 62828-1:2026)

Reference conditions and procedures for testing industrial and process measurement transmitters - Part 1: General procedures for all types of transmitters (IEC 62828-1:2026)

Referenzbedingungen und Testmethoden für Industrie- und Prozessmessgrößenumformer - Teil 1: Allgemeine Testmethoden für alle Arten von Messumformern (IEC 62828-1:2026)

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Ta slovenski standard je istoveten z: **EN IEC 62828-1:2026**

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25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control

SIST EN IEC 62828-1:2026 **en,fr,de**

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EN IEC 62828-1

August 2026

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English Version

Reference conditions and procedures for testing industrial and process measurement transmitters - Part 1: General procedures for all types of transmitters (IEC 62828-1:2026)

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Referenzbedingungen und Testmethoden für Industrie- und Prozessmessgrößenumformer - Teil 1: Allgemeine Testmethoden für alle Arten von Messumformern (IEC 62828-1:2026)

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European foreword

The text of document 65B/1306/FDIS, future edition 2 of IEC 62828-1, 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 62828-1:2026.

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) 2027-08-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-08-31

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In the official version, for Bibliography, the following notes have to be added for the standard indicated:

IEC 60068-2-31	NOTE	Approved as EN 60068-2-31
IEC 60079 (series)	NOTE	Approved as EN IEC 60079-7:2015/A1 (series)
IEC 60529:1989	NOTE	Approved as EN 60529:1991 (not modified)
IEC 60654-2	NOTE	Approved as EN 60654-2
IEC 60654-4	NOTE	Approved as EN 60654-4
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 61158 (series)	NOTE	Approved as EN 61158 (series)
IEC 61508 (series)	NOTE	Approved as EN 61508 (series)
IEC 61511 (series)	NOTE	Approved as EN 61511 (series)
IEC 61784-1 (series)	NOTE	Approved as EN IEC 61784-1 (series)
IEC 61784-2 (series)	NOTE	Approved as EN IEC 61784-2 (series)
IEC 61784-5 (series)	NOTE	Approved as EN IEC 61784-5 (series)

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IEC 61804-2	NOTE	Approved as EN IEC 61804-2
IEC 61918	NOTE	Approved as EN IEC 61918
IEC 61987-1:2024	NOTE	Approved as EN IEC 61987-1:2024 (not modified)
IEC 61987-10:2009	NOTE	Approved as EN 61987-10:2009 (not modified)
IEC 61987-11:2016	NOTE	Approved as EN 61987-11:2017 (not modified)
IEC 61987-12:2016	NOTE	Approved as EN 61987-12:2016 (not modified)
IEC 61987-13	NOTE	Approved as EN 61987-13
IEC 61987-14:2016	NOTE	Approved as EN 61987-14:2016 (not modified)
IEC 61987-15:2016	NOTE	Approved as EN 61987-15:2017 (not modified)
IEC 62061	NOTE	Approved as EN IEC 62061
IEC 62262:2002	NOTE	Approved as EN 62262:2002 (not modified)
IEC 62381	NOTE	Approved as EN IEC 62381
IEC 62382:2024	NOTE	Approved as EN IEC 62382:2024 (not modified)
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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 IEC 60068-2-1	-
IEC 60068-2-2	-	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN IEC 60068-2-2	-
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-27	-	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN IEC 60068-2-78	-
IEC 60654-1	-	Industrial-process measurement and control equipment - Operating conditions - Part 1: Climatic conditions	EN 60654-1	-
IEC 60654-3	-	Operating conditions for industrial-process measurement and control equipment - Part 3: Mechanical influences	EN 60654-3	-
IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	-
IEC 61326	series	Electrical equipment for measurement, control and laboratory use - EMC requirements	-	-
IEC 61499	series	Function blocks -- Part 1: Architecture	-	series
IEC 61804	series	Function blocks (FB) for process control and electronic device description language (EDDL) - Part 2: Specification of FB concept	EN IEC 61804	series

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INTERNATIONAL STANDARD

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Part 1: General procedures for all types of transmitters

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CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviated terms 8
3.1 Terms and definitions 8
3.1.1 Terms related to accuracy 8
3.1.2 Terms related to uncertainty 14
3.1.3 Terms regarding operation and practical installation 15
3.1.4 Terms related to test procedures 16
3.2 Abbreviated terms 16
3.3 Reference to IEC Common Data Dictionary 17
4 General description of the PMT 17
5 Reference test conditions 17
5.1 General 17
5.2 Standard reference test conditions 18
5.2.1 General 18
5.2.2 Environmental test conditions 18
5.2.3 Power supply conditions 18
5.2.4 Load conditions 19
5.2.5 Mounting positions 19
5.3 Reference test conditions for ambient and process quantities influencing operation 19
5.3.1 General 19
5.3.2 Process conditions 19
5.3.3 Environmental atmospheric conditions 19
5.3.4 Mechanical vibration 20
5.3.5 Shock 21
5.3.6 Power supply 21
5.3.7 Electromagnetic compatibility (EMC) 21
6 Test procedures 22
6.1 General 22
6.1.1 Overview 22
6.1.2 Classification of the tests 22
6.1.3 Preparation of the tests 23
6.1.4 Preliminary assessment 24
6.2 Type tests at standard reference test conditions 31
6.2.1 General 31
6.2.2 Accuracy and related factors 31
6.2.3 Static behaviour 37
6.2.4 Dynamic behaviour 41
6.3 Type tests at operating reference test conditions 46
6.3.1 General 46
6.3.2 Ambient temperature effects 46
6.3.3 Ambient relative humidity effects 48
6.3.4 Vibration effects 48

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SIST EN IEC 62828-1:2026 • https://standards.iteh.ai/catalog/standards/sist/b781aebe-9ca2-4428-a1cc-c2c91fa2ac25/sist-en-iec-62828-1-2026

SIST EN IEC 62828-1:2026

6.3.5 Shock effects 50
6.3.6 Accelerated operational life test 50
6.3.7 EMC tests 50
6.3.8 Further test procedures 51
6.3.9 Additional tests for digital transmitters 51
6.4 Routine tests 52
6.5 Acceptance, integration, periodic and maintenance tests 52
6.5.1 General 52
6.5.2 Periodical verification 52
6.5.3 Periodical calibration 52
7 Test report 53
7.1 General 53
7.2 Test documentation 53
7.3 Total probable error 53
Annex A (informative) General description of a PMT 55
A.1 General description of a PMT 55
A.2 Sensor subsystem 56
A.3 Data processing 56
A.4 Output subsystem 56
A.5 Human interface 57
A.6 External system interface 57
A.7 Power supply assembly 57
Annex B (informative) Tests at the standard reference conditions 58
Annex C (Informative) Tests at ambient and process reference conditions for influence quantities 60
Annex D (informative) Function block testing 62
D.1 General 62
D.2 General qualitative checks 62
D.3 Time-dependent function blocks 62
D.4 Time-independent function blocks 62
Annex E (informative) Total probable error calculation 63
Annex F (informative) Product documentation 64
F.1 General 64
F.2 Technical datasheet 64
F.3 User manual 67
F.4 Safety manual 67
F.5 Storage, transportation and installation 67
F.5.1 General 67
F.5.2 Storage conditions 67
F.5.3 Transportation conditions 67
F.5.4 Mounting position 68
F.5.5 Process connections 68
F.5.6 Mechanical connections 68
F.5.7 Output connections 68
F.6 Calibration certificates 68
Annex G (informative) Example of signal current range for a 4 to 20 mA PMT 69
G.1 Measuring span 69
G.2 Underrange 69

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SIST EN IEC 62828-1:2026

G.3 Overrange 69
G.4 Low alarm 70
G.5 High alarm 70
Bibliography 71

Figure 1 – Principle diagram illustrating the definitions of warm-up time, settling time and output signal 12
Figure 2 – Block diagram of a generic PMT 17
Figure 3 – Error curves corresponding to the example of Table 17 35
Figure 4 – Example of limit operation region in terms of output load resistance versus supply voltage 39
Figure 5 – Example of response with overshoot to a step input 42
Figure 6 – Example of response without overshoot to a step input 43
Figure 7 – Example 1 of frequency response 44
Figure 8 – Example 2 of frequency response 45
Figure 9 – Example of diagram of the compensation options 47
Figure 10 – Example of an input signal and the corresponding output signal 50
Figure A.1 – Schematic block diagram of an analogue industrial and process measurement transmitter (example) 55
Figure G.1 – Signal current range of a 4 mA to 20 mA transmitter 69

Table 1 – Environmental test conditions 18
Table 2 – Common ambient temperatures ranges 20
Table 3 – Common ambient relative humidity ranges 20
Table 4 – Vibration test levels 21
Table 5 – Power supply ranges for voltage and frequency 21
Table 6 – Example of number of measurement cycles and number and position of test points 23
Table 7 – Example of settings of span and lower range value adjustments for analogue devices 23
Table 8 – Checklist for assessing functionality 25
Table 9 – Checklist for assessing configurability 26
Table 10 – Checklist for assessing hardware configuration 27
Table 11 – Checklist for assessing adjustment and tuning procedures 27
Table 12 – Checklist for assessing operability 28
Table 13 – Checklist for assessing dependability 29
Table 14 – Checklist for assessing technical support 30
Table 15 – Example of functions listing for a temperature compensated single variable PMT (differential pressure) 30
Table 16 – Example of functions listing for a temperature compensated multi-variable PMT (differential pressure plus pressure and temperature) 31
Table 17 – Example table of PMT errors 34
Table B.1 – Summary of the tests at the reference conditions 58
Table C.1 – Summary of the tests for influence quantities at the operating conditions 60
Table F.1 – Example of compilation of technical data for a generic PMT 65

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Reference conditions and procedures for testing industrial and process measurement transmitters - Part 1: General procedures for all types of transmitters

FOREWORD

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IEC 62828-1 has been prepared by subcommittee 65B: Measurement and control devices, of IEC Technical Committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

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

a) informative Annexes E, F, G and H have been removed;
b) a new informative Annex G “Example of signal current for a 4 mA to 20 mA PMT” has been introduced (it has been moved from IEC 62828-2:2017 to this document);

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c) the definitions of warm-up time, settling time and output signal have been moved from IEC 62828-4:2020 to this document;

d) The definitions of “inaccuracy” and “accuracy” have been reworked;

e) The clause regarding test report has been reworked.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65B/1306/FDIS	65B/1320/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts in the IEC 62828 series, published under the general title *Reference conditions and procedures for testing industrial and process measurement transmitters*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

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INTRODUCTION

Most of the current IEC standards on industrial and process measurement transmitters are rather old and were developed having in mind devices based on analogue technologies. Today's digital industrial and process measurement transmitters are quite different from those analogue transmitters: they include more functions and newer interfaces, both towards the computing section (mostly digital electronic) and towards the measuring section (mostly mechanical). Even if some standards dealing with digital process measurement transmitters already exist, they are not sufficient, since some aspects of the performance are not covered by appropriate test methods.

In addition, existing IEC test standards for industrial and process measurement transmitters are spread over many documents, so that for manufacturers and users it is difficult, impractical and time-consuming to identify and select all the standards to be applied to a device measuring a specific process quantity (pressure, temperature, flow, level, etc.).

To help manufacturers and users, it was decided to review, complete and reorganize the relevant IEC standards and to create a more suitable, effective and comprehensive standard series that provides in a systematic way all the necessary specifications and tests required for different industrial and process measurement transmitters.

To solve the issues mentioned above and to provide an added value for the stakeholders, the new standard series on industrial and process measurement transmitters covers the following main aspects:

– applicable normative references;
– specific terms and definitions;
– typical configurations and architectures for the various types of industrial and process measurement transmitters;
– hardware and software aspects;
– interfaces (to the process, to the operator, to the other measurement and control devices);
– physical, mechanical and electrical requirements and relevant tests; clear definition of the test categories: type tests, acceptance tests and routine tests;
– performance (its specification, tests and verification);
– environmental protection, hazardous areas application, functional safety, etc.;
– structure of the product documentation.

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To cover in a systematic way all the topics to be addressed, the standard series is organized in several parts. At the moment of the publication of this document, the IEC 62828 consists of the following parts:

– *Part 1: General procedures for all types of transmitters;*
– *Part 2: Specific procedures for pressure transmitters;*
– *Part 3: Specific procedures for temperature transmitters;*
– *Part 4: Specific procedures for level transmitters;*
– *Part 5: Specific procedures for flow transmitters.*

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1 Scope

This Part of IEC 62828 establishes a general framework for defining reference conditions and test procedures applicable for assessing the measurement performances of all types of industrial and process measurement transmitters (PMTs) used in measuring and control systems for industrial process and machinery.

For the purpose of this document, an analogue PMT is a process measurement transmitter with only analogue current and/or voltage output(s), irrespective the technology adopted and the complexity of the circuitry. All the other process measurement transmitters, with digital output(s) only or with hybrid analogue and digital output(s), are considered to be digital PMTs.

This document constitutes a common reference for the other parts of the IEC 62828 series.

Specific test procedures and additional requirements for given types of PMTs (pressure, temperature, level, flow, etc.) are covered by other parts of this series.

Sensing devices according to the IEC 60947 series are excluded from the scope of this document.

NOTE 1 In industrial and process applications, to indicate the process measurement transmitters, it is common also to use the terms "industrial transmitters", or "process transmitters".

NOTE 2 For better clarity, when the complete definition "industrial and process measurement transmitter" makes the sentence too long in this document, the short term "transmitter", or PMT, is used instead.

2 Normative references

Sample Document

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.

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

IEC 60068-2-78, *Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state*

IEC 60654-1, *Industrial-process measurement and control equipment - Operating conditions - Part 1: Climatic conditions*

IEC 60654-3, *Operating conditions for industrial-process measurement and control equipment - Part 3: Mechanical influences*

IEC 61010-1, *Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements*

IEC 61326 (all parts), *Electrical equipment for measurement, control and laboratory use - EMC requirements*

IEC 61499 (all parts), *Function blocks*

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SIST EN IEC 62828-1:2026

IEC 61804 (all parts), *Devices and integration in enterprise systems - Function blocks (FB) for process control and electronic device description language (EDDL)*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

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

– IEC Electropedia: available at https://www.electropedia.org/
– ISO Online browsing platform: available at https://www.iso.org/obp

3.1.1 Terms related to accuracy

3.1.1.1
accuracy
<of a measuring instrument> quality which characterizes the ability of a measuring instrument to provide an indicated value close to a true value of the measurand

Note 1 to entry: This term is used in the "true value" approach.

Note 2 to entry: Accuracy is all the better when the indicated value is closer to the corresponding true value.

[SOURCE: IEC 60050-311:2001, 311-06-08]

Sample Document

3.1.1.2
conformity
ability of a measuring instrument to provide an indication having a specified characteristic curve which can be linear, logarithmic, parabolic, etc.

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3.1.1.3
dead band
dead zone
finite range of values within which a variation of the input variable does not produce any measurable change in the output variable

Note 1 to entry: When this type of characteristic is intentional, it is sometimes called neutral zone.

Note 2 to entry: This entry was numbered 351-24-14 in IEC 60050-351:2006.

Note 3 to entry: This value is usually insignificant for the actual instruments.

[SOURCE: IEC 60050-351:2013, 351-45-15, modified – Note 3 has been added.]

3.1.1.4
error
discrepancy between a computed, observed or measured value or condition, and the true, specified or theoretically correct value or condition

Note 1 to entry: An error within a system can be caused by failure of one or more of its components, or by activation of a systematic fault.

[SOURCE: IEC 60050-192:2024, 192-03-02]

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