SLOVENSKI STANDARD
SIST EN IEC 61514:2026

01-november-2026

Sistemi za upravljanje industrijskih procesov - Postopki za ocenjevanje zmogljivosti pozicionirnikov z ventili s pnevmatskimi izhodi (IEC 61514:2026)

Industrial-process control systems - Methods of evaluating the performance of valve positioners with pneumatic outputs (IEC 61514:2026)

Systeme der industriellen Prozesstechnik - Methoden der Beurteilung des Betriebsverhaltens von Ventilstellungsreglern mit pneumatischen Ausgängen (IEC 61514:2026)

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Systèmes de commande des processus industriels - Méthodes d'évaluation des performances des positionneurs de vannes à sorties pneumatiques (IEC 61514:2026)

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ICS:

23.060.99	Drugi ventili	Other valves
25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control

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EUROPEAN STANDARD

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EN IEC 61514

August 2026

ICS 23.060.99; 25.040.40

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English Version

Industrial-process control systems - Methods of evaluating the performance of valve positioners with pneumatic outputs (IEC 61514:2026)

Systèmes de commande des processus industriels - Méthodes d'évaluation des performances des positionneurs de vannes à sorties pneumatiques (IEC 61514:2026)

Systeme der industriellen Prozesstechnik - Methoden der Beurteilung des Betriebsverhaltens von Ventilstellungsreglern mit pneumatischen Ausgängen (IEC 61514:2026)

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Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 65B/1309/FDIS, future edition 2 of IEC 61514, 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 61514:2026.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-08-31

This document supersedes EN 61514:2002 and all of its amendments and corrigenda (if any).

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The text of the International Standard IEC 61514:2026 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 60079 (series)	NOTE	Approved as EN IEC 60079-7:2015/A1 (series)
IEC 60534-1	NOTE	Approved as EN IEC 60534-1
IEC 60534-6-1	NOTE	Approved as EN 60534-6-1
IEC 60534-6-2	NOTE	Approved as EN 60534-6-2
IEC 60534-9	NOTE	Approved as EN 60534-9
IEC 61987-24-1	NOTE	Approved as EN 61987-24-1

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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 60050-311	-	International electrotechnical vocabulary - Electrical and electronic measurements - Part 311: General terms relating to electrical measurements	-	-
IEC 60050-351	-	International Electrotechnical Vocabulary - Part 351: Control technology	-	-
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 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment-type specimens	EN 60068-2-31	-
IEC 60068-2-78	-	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN IEC 60068-2-78	-
IEC 60381-1	-	Analogue signals for process control systems. Part 1: Direct current signals	HD 452.1 S1	-
IEC 60381-2	-	Analogue signals for process control systems. Part 2: Direct voltage signals	-	-
IEC 60382	-	Analogue pneumatic signal for process control systems	EN 60382	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60654	series	Industrial-process measurement and control equipment - Operating conditions	EN 60654	series
IEC 60721-3	series	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities	EN IEC 60721-3	series

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IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	-
IEC 61032	-	Protection of persons and equipment by enclosures - Probes for verification	EN 61032	-
IEC 61298-4	-	Process measurement and control devices - General methods and procedures for evaluating performance - Part 4: Evaluation report content	EN 61298-4	-
IEC 61326-1	-	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN IEC 61326-1	-

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IEC 61514

Edition 2.0 2026-06

INTERNATIONAL STANDARD

Industrial-process control systems - Methods of evaluating the performance of valve positioners with pneumatic outputs

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Industrial-process control systems - Methods of evaluating the performance of valve positioners with pneumatic outputs

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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IEC 61514 has been prepared by subcommittee 65B: Devices, of IEC technical committee 65: Industrial-process measurement and control. It is an International Standard.

This second edition cancels and replaces the first edition published in 2000. This edition constitutes a technical revision.

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

a) in 6.6.8 and Table 5, the magnetic field has been changed from 100 A/m to of 30 A/m (Mean Root Square);

b) 6.10.4 and Figure 9 have been modified for better understandability;

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c) in 7.4, the reference to IEC 61187 has been deleted and replaced with a new Table 4: Document information.

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

Draft	Report on voting
65B/1309/FDIS	65B/1321/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.

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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1 Scope

This International Standard specifies tests designed to determine the static and dynamic performance of single-acting or double-acting analogue positioners. The tests apply to positioners which receive standard analogue input signals (as specified in IEC 60381-1, IEC 60381-2 and IEC 60382) and have a pneumatic output.

Positioners with pulsed or digital input signals, positioners with digital controllers and positioners with pulsed outputs are outside the scope of this document.

Testing is conducted either on a positioner alone, independently of an actuator, or on a positioner mounted and connected to a specific actuator, as a combined unit. The text makes clear where different approaches are required.

The methods of evaluation given in this document are intended for use by manufacturers to determine the performance of their products, and by users, or independent testing establishments, to verify manufacturers' performance specifications.

The closest liaison between the evaluating body and the manufacturer is indispensable during the tests, including the possibility for the manufacturer to influence the test programme based on the manufacturer's specifications for the instrument and comment on both the test programme and the results.

This document is intended to provide definitions of positioner elements, actions, and characteristics, to specify uniform methods of measuring performance errors and effects of influence quantities on those characteristics, and to describe methods of reporting and evaluating the results of the measurement data obtained.

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The test conditions described in this publication (for example range of ambient temperatures and power supply) relate to conditions which commonly arise in use. Consequently, the values specified are used where no other values are specified by the manufacturer or user. If other values are used, they will be stated. It is recognized that the manufacturer's specifications and instructions for installation and operation apply during all steps.

The tests specified in this document are not necessarily sufficient for instruments specifically designed for unusually arduous conditions. Conversely, a reduced series of tests can serve adequately for instruments designed to perform within a more limited range of conditions.

When a full evaluation, in accordance with this document, is not required or possible, only the tests which are required are performed and the results reported in accordance with the relevant parts of this document. In such cases, the test report will state that it does not cover the full number of tests specified 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 60050-311, *International electrotechnical vocabulary - Electrical and electronic measurements - Part 311: General terms relating to electrical measurements*

IEC 60050-351, *International electrotechnical vocabulary - Part 351: Control technology*

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

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

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

IEC 60381-1, *Analogue signals for process control systems - Part 1: Direct current signals*

IEC 60381-2, *Analogue signals for process control systems - Part 2: Direct voltage signals*

IEC 60382, *Analogue pneumatic signal for process control systems*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60654 (all parts), *Industrial-process measurement and control equipment - Operating conditions*

IEC 60721-3 (all parts), *Classification of environmental conditions - Part 3 Classification of groups of environmental parameters and their severities*

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

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IEC 61032, *Protection of persons and equipment by enclosures - Probes for verification*

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IEC 61298-4, *Process measurement and control devices - General methods and procedures for evaluating performance - Part 4: Evaluation report content*

IEC 61326-1, *Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60050-311 and IEC 60050- 351 and the following 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
positioner
position controller connected to the moving part of a final control element or its actuator; automatically adjusts its output signal Y to the actuator in order to maintain a desired travel signal X that bears a predetermined relationship to the input signal W

Note 1 to entry: In this document, only positioners with pneumatic output signals Y are considered. The input signal W may be an air pressure (pneumatic positioner), or an electric current or voltage (electro-pneumatic positioner).

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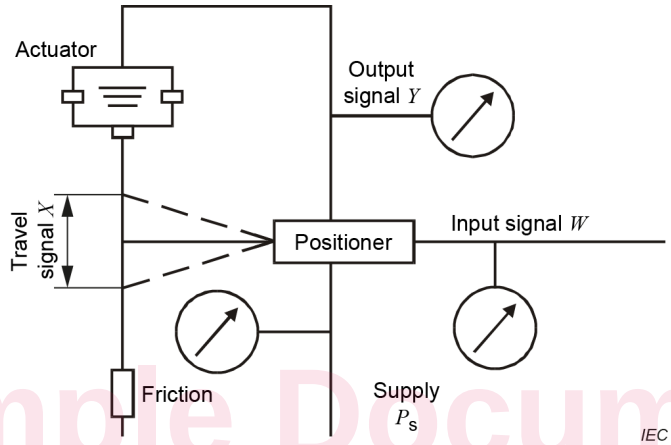
3.1.1
single-acting positioner
positioner having one output signal Y which acts on one side of the actuator

SEE: Figure 1 a).

Note 1 to entry: The returning force for the actuator is usually provided by springs.

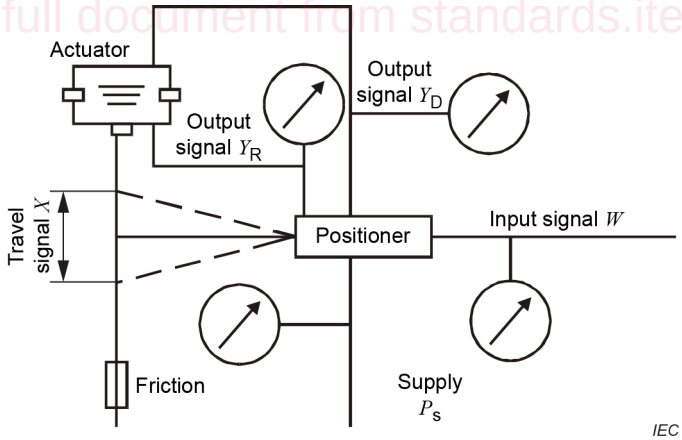
3.1.2
double-acting positioner
positioner providing two output signals Y_D and Y_R connected to opposite sides of the actuator diaphragm or piston

SEE: Figure 1 b).



a) Single-acting positioner/actuator

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b) Double-acting positioner/actuator

Figure 1 – Single- and double-acting positioner/actuator

3.2
input signal W
reference input signal which represents the desired position of the associated control element

3.3
travel signal X
signal which results from the linear or angular travel caused by movement of the final control element or its actuator

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