
Industrial-process control systems - Instruments with analogue inputs and two- or multi-state outputs - Part 1: Methods of evaluating performance

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EUROPEAN STANDARD

EN 61003-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2004

ICS 32.240.50; 25.040.40

Supersedes EN 61003-1:1993

English version

**Industrial-process control systems -
Instruments with analogue inputs
and two- or multi-state outputs
Part 1: Methods of evaluating performance
(IEC 61003-1:2004)**

Processus industriels -
Instruments avec entrées analogiques
et sorties à deux ou plusieurs états
Partie 1: Méthodes d'évaluation
des performances
(CEI 61003-1:2004)

Systeme der industriellen
Prozessleittechnik -
Geräte mit analogen Eingängen
und Zwei- oder Mehrpunktverhalten
Teil 1: Verfahren zur Bewertung
des Betriebsverhaltens
(IEC 61003-1:2004)

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This European Standard was approved by CENELEC on 2004-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 65B/516/FDIS, future edition 2 of IEC 61003-1, prepared by SC 65B, Devices, of IEC TC 65, Industrial-process measurement and control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61003-1 on 2004-03-01.

This European Standard supersedes EN 61003-1:1993.

It takes into account the common standardized basis specified in the EN 61298 series. Any test method or procedure specified and described herein is referred to the corresponding Clause of the EN 61298 series. Any particular method or procedure not covered by the EN 61298 series is developed and specified in this standard in accordance with the criteria stated in the EN 61298 series, as far as they are applicable.

The following dates were fixed:

- latest date by which the EN has to be implemented
at national level by publication of an identical
national standard or by endorsement (dop) 2004-12-01
- latest date by which the national standards conflicting
with the EN have to be withdrawn (dow) 2007-03-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61003-1:2004 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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 Where an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-351	1998	International Electrotechnical Vocabulary Part 351: Automatic control	-	-
IEC 60381-1	1982	Analogue signals for process control systems Part 1: Direct current signals	HD 452.1 S1	1984
IEC 60382	1991	Analogue pneumatic signal for process control systems	EN 60382	1993
IEC 61010-1	2001	Safety requirements for electrical equipment for measurement, control, and laboratory use Part 1: General requirements	EN 61010-1 + corr. June 2002	2001 2002
IEC 61298-1	1995	Process measurement and control devices - General methods and procedures for evaluating performance Part 1: General considerations	EN 61298-1	1995
IEC 61298-2	1995	Part 2: Tests under reference conditions	EN 61298-2	1995
IEC 61298-3	1998	Part 3: Tests for the effects of influence quantities	EN 61298-3	1998
IEC 61298-4	1995	Part 4: Evaluation report content	EN 61298-4	1995
IEC 61326	2002	Electrical equipment for measurement, control and laboratory use - EMC requirements	-	-

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INTERNATIONAL STANDARD

IEC
61003-1

Second edition
2004-01

Industrial-process control systems – Instruments with analogue inputs and two- or multi-state outputs –

Part 1: Methods of evaluating performance

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL-PROCESS CONTROL SYSTEMS –
INSTRUMENTS WITH ANALOGUE INPUTS AND
TWO- OR MULTI-STATE OUTPUTS –****Part 1: Methods of evaluating performance**

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 61003-1 has been prepared by subcommittee 65B: Devices, of IEC technical committee 65: Industrial-process measurement and control.

This second edition cancels and replaces the first edition issued in 1991 and constitutes a technical revision. It takes into account the common standardized basis specified in the IEC 61298 series. Any test method or procedure specified and described herein is referred to the corresponding Clause of the IEC 61298 series. Any particular method or procedure not covered by the IEC 61298 series is developed and specified in this standard in accordance with the criteria stated in the IEC 61298 series, as far as they are applicable.

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

FDIS	Report on voting
65B/516/FDIS	65B/524/RVD

Full information on the voting for the approval of this standard 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.

The committee has decided that the contents of this publication will remain unchanged until 2012. 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

The methods of evaluation specified in this part of IEC 61003 are intended for use by manufacturers to determine the performance of their products and by users, or independent testing establishments, to verify the manufacturer's performance specifications.

The test conditions in this standard, for example the range of ambient temperatures and power supply, represent those, which commonly arise in use. Consequently, the values specified herein shall be used where the manufacturer specifies no other values.

The tests specified in this standard are not necessarily sufficient for instruments specifically designed for unusually arduous duties. Conversely, a restricted series of tests may be suitable for instruments designed to perform within a more limited range of conditions.

It will be appreciated that the closest communication should be maintained between the evaluating body and the manufacturer. Note shall be taken of the manufacturer's specifications for the instrument, when the test programme is being decided, and the manufacturer should be invited to comment on both the test programme and the results. His comments on the results should be included in any report produced by the testing organisation.

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INDUSTRIAL-PROCESS CONTROL SYSTEMS – INSTRUMENTS WITH ANALOGUE INPUTS AND TWO- OR MULTI-STATE OUTPUTS –

Part 1: Methods of evaluating performance

1 Scope

This part of IEC 61003 is applicable to pneumatic and electric industrial-process instruments using measured values that are continuous signals in accordance with IEC 60382, or IEC 60381-1. The other input value (i.e. the set point value) may be either a mechanical (position, force, etc.) or a standard signal.

It should be noted that tests specified herein may be applied to instruments which have other continuous measured values, provided that due allowance is made for such differences.

These instruments may be used as controllers or as switches for alarm and other similar purposes.

Instruments with feedback are not covered by this standard.

Electronic security issues may impact only a few products covered by this document. Consequently this document does not address such security issues.

This standard is intended to specify uniform testing methods for performance evaluation of industrial-process instruments with analogue measured values and two- or multi-state outputs.

Considerations other than the performances are listed in Clause 10.

2 Normative references

The following referenced documents are indispensable for the application 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 60050-351:1998, *International Electrotechnical Vocabulary (IEV) – Part 351 Automatic control*

IEC 60381-1:1982, *Analogue signals for process control systems – Part 1: Direct current signals*

IEC 60382:1991, *Analogue pneumatic signals for process control systems*

IEC 61010-1:2001, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 1: General requirements*

IEC 61298-1:1995, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 1: General considerations*

IEC 61298-2:1995, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 2: Tests under reference conditions*