

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial-process control systems – Instruments with analogue inputs and two-
or multi-position outputs –
Part 1: Methods for evaluating performance**

**Systèmes de commande de processus industriels – Instruments avec entrées
analogiques et sorties à deux ou plusieurs positions –
Partie 1: Méthodes d'évaluation des performances**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 1: Methods for evaluating performance

FOREWORD

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International Standard IEC 61003-1 has been prepared by subcommittee SC 65B: Measurement and control devices, of IEC technical committee TC 65: Industrial-process measurement, control and automation.

This third edition cancels and replaces the second edition published in 2004. This edition constitutes a technical revision.

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

- a) use of the term “two-position output” instead of “two-state instrument” (see 3.2);
- b) use of the term “differential gap” instead of “switching differential” (see 3.4);
- c) use of “fast transient/burst immunity requirements” instead of “power supply transient overvoltages”, and revision of the test method (see 6.2.10);

- d) deletion of 6.2.12 “common mode interference” and 6.2.13 “normal mode interference (series mode) ”tests of the previous edition;
- e) use of the term “electromagnetic field” instead of “radiated electromagnetic interference”, the test method remained the same (see 6.2.16);
- f) use of the term “dielectric strength” instead of “isolation test”, and revision of the reference (see 6.3.4);
- g) deletion of Subclauses “8.2 Design features”, “10.1 Routine maintenance and adjustment” and “10.2 Repair” of the previous edition.

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

FDIS	Report on voting
65B/1040/FDIS	65B/1050/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.

A list of all parts of the IEC 61003 series, published under the general title *Industrial-process control systems – Instruments with analogue inputs and two or multi-position outputs*, can be found on the IEC website.

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.

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.

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 should be taken of the manufacturer's specifications for the instrument, when the test program is being decided, and the manufacturer should be invited to comment on both the test program and the results. His comments on the results should be included in any report produced by the testing organization.

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

Part 1: Methods for evaluating performance

1 Scope

This part of IEC 61003 is applicable to pneumatic and electric industrial-process instruments or control device using measured values that are continuous signals either a mechanical (position, force, etc.) or a standard electric signal.

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

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

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

Considerations other than the performances are listed in Clause 10.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050 (all parts), *International Electrotechnical Vocabulary* (available at <http://www.electropedia.org>)

IEC 60050-300, *International Electrotechnical Vocabulary – Electrical and electronic measurements and measuring instruments* (comprising Parts 311, 312, 313 and 314)

IEC 60050-351, *International Electrotechnical Vocabulary – Part 351: Control technology*

IEC 61298-1:2008, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 1: General considerations*

IEC 61298-2:2008, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 2: Tests under reference conditions*

IEC 61298-3:2008, *Process measurement and control devices – General methods and procedures for evaluating performance – Part 3: Tests for the effects of influence quantities*

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