

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical equipment for measurement, control and laboratory use – EMC requirements –

Part 2-3: Particular requirements – Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

Matériel électrique de mesure, de commande et de laboratoire – Exigences relatives à la CEM –

Partie 2-3: Exigences particulières – Configurations d'essai, conditions de fonctionnement et critères de performance des transducteurs avec un système de conditionnement du signal intégré ou à distance



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL EQUIPMENT FOR MEASUREMENT,
CONTROL AND LABORATORY USE –
EMC REQUIREMENTS –****Part 2-3: Particular requirements –
Test configuration, operational conditions and performance
criteria for transducers with integrated or remote signal conditioning**

FOREWORD

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This International Standard IEC 61326-2-3 has been prepared by subcommittee 65A: System aspects, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2006. This edition constitutes a technical revision.

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

- update of the document with respect to IEC 61326-1:2012.

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

FDIS	Report on voting
65A/629/FDIS	65A/638/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.

This part of the IEC 61326 series is to be used in conjunction with IEC 61326-1:2012 and follows the same numbering of clauses, subclauses, tables and figures.

When a particular subclause of IEC 61326-1 is not mentioned in this part, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in IEC 61326-1 is to be adapted accordingly.

NOTE The following numbering system is used:

- subclauses, tables and figures that are numbered starting from 101 are additional to those in IEC 61326-1;
- unless notes are in a new subclause or involve notes in IEC 61326-1, they are numbered starting from 101 including those in a replaced clause or subclause;
- additional annexes are lettered AA, BB, etc.

A list of all parts of the IEC 61326 series, under the general title *Electrical equipment for measurement, control and laboratory use, control and laboratory use – EMC requirements*, 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 web site 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.

ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL AND LABORATORY USE – EMC REQUIREMENTS –

Part 2-3: Particular requirements – Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning

1 Scope

In addition to the requirements of IEC 61326-1, this part specifies more detailed test configurations, operational conditions and performance criteria for transducers with integrated or remote signal conditioning.

This standard applies only to transducers characterized by their ability to transform, with the aid of an auxiliary energy source, a non-electric quantity to a process-relevant electrical signal, and to output the signal at one or more ports. This standard includes transducers for electrochemical and biological measured quantities.

The transducers covered by this standard may be powered by a.c. or d.c. voltage and/or by battery or with internal power supply.

Transducers referred to by this standard comprise at least the following items (see Figures 101 and 102):

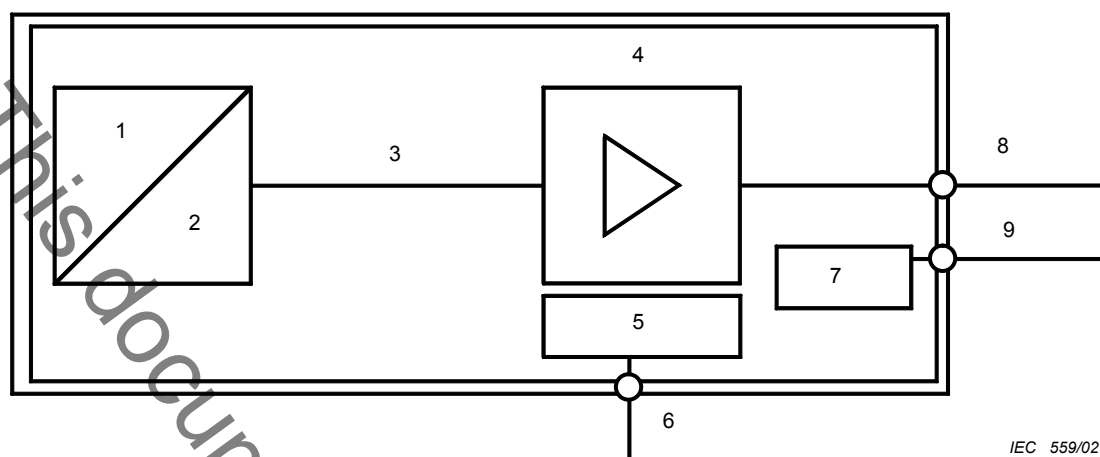
- one or more elements for transforming a non-electrical input quantity to an electrical quantity;
- a transmission link for transferral of the electrical quantity to a component for signal conditioning;
- a unit for signal conditioning that converts the electrical quantity to a process-relevant electrical signal;
- an enclosure for enclosing the above-stated components fully or in parts.

Transducers referred to by this standard may also have the following items (see Figures 101 and 102):

- a communication and control unit;
- a display unit;
- control elements such as keys, buttons, switches, etc.;
- transducer output signals (for example, switch outputs, alarm outputs) which are clearly assigned to the input signal(s);
- transducers with signal conditioning which may be integrated or remote.

The manufacturer specifies the environment for which the product is intended to be used and utilizes the corresponding test levels of IEC 61326-1.

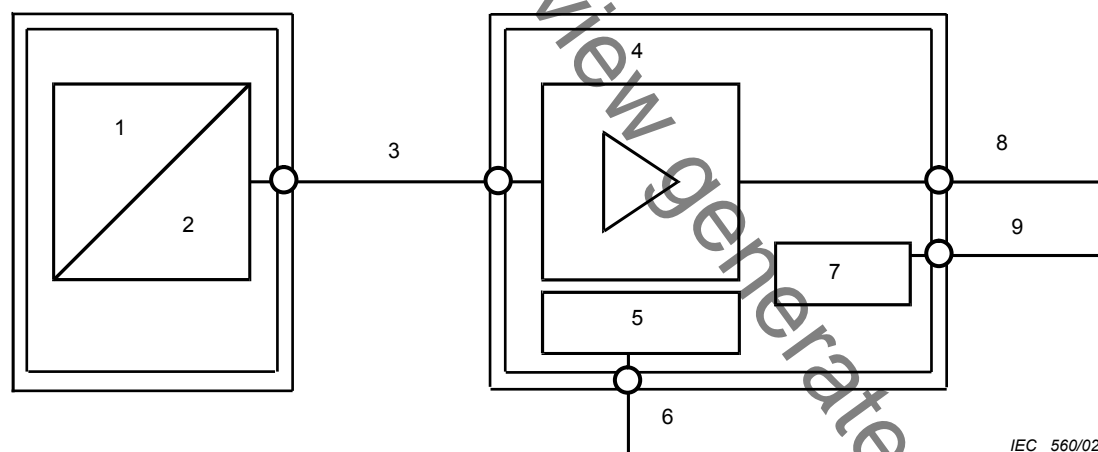
Additional requirements and exceptions for specific types of transducers are given in the annexes to this standard.



IEC 559/02

Key

- 1 Non-electrical quantity
- 2 Electrical quantity
- 3 Transmission link
- 4 Signal conditioning
- 5 Communication and control unit
- 6 Input/output ports
- 7 Power supply
- 8 Signal port
- 9 AC/DC power port

Figure 101 – Example of a transducer with integrated signal conditioning

IEC 560/02

Key

- 1 Non-electrical quantity
- 2 Electrical quantity
- 3 Transmission link
- 4 Signal conditioning
- 5 Communication and control unit
- 6 Input/output ports
- 7 Power supply
- 8 Signal port
- 9 AC/DC power port

Figure 102 – Example of a transducer with remote signal conditioning

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.

Clause 2 of IEC 61326-1:2012 applies, except as follows:

Addition:

IEC 61326-1:2012, *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 of IEC 61326-1 apply, except as follows.

Addition:

3.101 transducer with integrated signal conditioning

transducer in which all components for signal conditioning are integrated in the enclosure (see Figure 101)

3.102 transducer with remote signal conditioning

transducer whose components for signal conditioning are installed in separate enclosures (see Figure 102)

3.104 transmission link

connection between the individual components of a transducer with remote signal conditioning

3.105 (nominal) range

range of indications obtainable with a particular setting of the controls of a measuring instrument

Note 1 to entry: The nominal range is normally stated in terms of its lower and upper limits. Where the lower limit is zero, the nominal range is commonly stated solely in terms of its upper limit.

[SOURCE: IEC 60050-300:2001, 311-03-14]

3.106 measuring range (of a transducer)

range defined by two values of the measured quantity within which the relationship between the output and input signals complies with the accuracy requirements

[SOURCE: IEC 60050-300:2001, 314-04-04, modified]

Note 1 to entry: For a 4 mA to 20 mA system, the output current 4 mA represents the lower limit for the measured quantity and 20 mA represent the upper limit.

3.107 span

algebraic difference between the values of the upper and lower limits of the measuring range