

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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

**Part 2-4: Particular requirements – Test configurations, operational conditions and
performance criteria for insulation monitoring devices according to IEC 61557-8 and
for equipment for insulation fault location according to IEC 61557-9**

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

**Partie 2-4: Exigences particulières – Configurations d'essai, conditions de
fonctionnement et critères de performance pour les contrôleurs d'isolement conformes
à la CEI 61557-8 et pour les dispositifs de localisation de défaut d'isolement conformes
à la CEI 61557-9**



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL EQUIPMENT FOR MEASUREMENT,
CONTROL AND LABORATORY USE –
EMC REQUIREMENTS –****Part 2-4: Particular requirements –
Test configurations, operational conditions and performance
criteria for insulation monitoring devices according to IEC 61557-8
and for equipment for insulation fault location according to IEC 61557-9**

FOREWORD

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International Standard IEC 61326-2-4 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/630/FDIS	65A/639/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 2-4: Particular requirements – Test configurations, operational conditions and performance criteria for insulation monitoring devices according to IEC 61557-8 and for equipment for insulation fault location according to IEC 61557-9

1 Scope

In addition to IEC 61236-1, this part of IEC 61326 specifies more detailed test configurations, operational conditions and performance criteria than IEC 61326-1 for equipment for:

- insulation monitoring according to IEC 61557-8;
- insulation fault location according to IEC 61557-9.

This applies to insulation monitoring devices and insulation fault location systems permanently or semi-permanently connected to the distribution system.

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*

IEC 61557-8:2007, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 8: Insulation monitoring devices for IT systems*

IEC 61557-9:2009, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 9: Equipment for insulation fault location in IT systems*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61326-1 apply, except as follows.

Addition:

3.101

insulation resistance

R_F

resistance in the system being monitored, including the resistance of all the connected appliances to earth

[SOURCE: IEC 61557-8:2007, 3.2]

3.102

specified response value

R_{an}

value of the insulation resistance, permanently set or adjustable, on the device and monitored if the insulation resistance falls below this limit

[SOURCE: IEC 61557-8:2007, 3.3]

3.103

response sensitivity

value of the evaluating current or insulation resistance at which the evaluator responds under specified conditions

[SOURCE: IEC 61557-9:2009, 3.4]

3.104

nominal voltage of the distribution system

U_n

voltage by which a distribution system or equipment is designated and to which certain operating characteristics are referred

[SOURCE: IEC 61557-1:2007, 3.1]

3.105

supply voltage

U_s

voltage at a point where the measuring equipment does or can accept electric energy as a supply

[SOURCE: IEC 61557-1:2007, 3.8, modified]

3.106

system leakage capacitance

C_e

maximum permissible value of the total capacitance to earth of the system to be monitored, including any connected appliances, up to which value the insulation monitoring device can work as specified

[SOURCE: IEC 61557-8:2007, 3.6]

4 General

Clause 4 of IEC 61326-1:2012 applies.

5 EMC test plan

5.1 General

Subclause 5.1 of IEC 61326-1:2012 applies.

5.2 Configuration of EUT during testing

5.2.1 General

Subclause 5.2.1 of IEC 61326-1:2012 applies, except as follows.

Addition:

During the tests, the EUT is supplied as specified by the manufacturer.

For EUT having several ratings, the EUT shall be connected

- to the lowest nominal supply voltage U_S ;
- to the highest nominal voltage of the distribution system U_n , but not more than 400 V.

If the EUT has only a combined terminal for the supply voltage and the voltage of the distribution system, it shall be connected to the highest nominal voltage, but not more than 400V.

If the EUT has interfaces for remote functions, they shall be connected during the tests as specified by the manufacturer for normal installation.

Insulation monitoring devices and equipment for insulation fault location shall be tested separately.

5.2.2 Composition of EUT

Subclause 5.2.2 of IEC 61326-1:2012 applies.

5.2.3 Assembly of EUT

Subclause 5.2.3 of IEC 61326-1:2012 applies.

5.2.4 I/O ports

Subclause 5.2.4 of IEC 61326-1:2012 applies.

5.2.5 Auxiliary equipment

Subclause 5.2.5 of IEC 61326-1:2012 applies.

5.2.6 Cabling and earthing (grounding)

Subclause 5.2.6 of IEC 61326-1:2012 applies.

5.3 Operation conditions of EUT during testing

Subclause 5.3 of IEC 61326-1:2012 applies, except as follows.

Addition:

5.3.101 Operational conditions

The EUT shall be set as specified by the manufacturer for normal operation.

If the EUT has adjustable specified response values, tests shall be performed as follows: