



SLOVENSKI STANDARD SIST EN IEC 62974-1:2025

01-marec-2025

Sistemi za nadzorovanje in merjenje, namenjeni za zbiranje podatkov, nabiranje in analizo podatkov - 1. del: Zahteve za napravo (IEC 62974-1:2017)

Monitoring and measuring systems used for data collection, gathering and analysis - Part 1: Device requirements (IEC 62974-1:2024)

Erfassungs- und Messsysteme zur Datenerfassung, -Übertragung und -Analyse - Teil 1: Anforderungen an die Geräte (IEC 62974-1:2024)

Systèmes de surveillance et de mesure utilisés pour la collecte et l'analyse de données - Partie 1: Exigences relatives aux dispositifs (IEC 62974-1:2024)

Ta slovenski standard je istoveten z: EN IEC 62974-1:2024

[SIST EN IEC 62974-1:2025](https://standards.sist.si/standards/sist/en-iec/62974-1:2025)

ICS:

17.220.20	Merjenje električnih in magnetnih veličin	Measurement of electrical and magnetic quantities
27.015	Energijska učinkovitost. Ohranjanje energije na splošno	Energy efficiency. Energy conservation in general
35.080	Programska oprema	Software

SIST EN IEC 62974-1:2025

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 62974-1

December 2024

ICS 17.220.20

Supersedes EN 62974-1:2017

English Version

**Monitoring and measuring systems used for data collection,
aggregation and analysis - Part 1: Device requirements
(IEC 62974-1:2024)**

Systèmes de surveillance et de mesure utilisés pour la
collecte, l'agrégation et l'analyse de données - Partie 1:
Exigences relatives aux dispositifs
(IEC 62974-1:2024)

Erfassungs- und Messsysteme zur Datenerfassung, -
Übertragung und -Analyse - Teil 1: Anforderungen an die
Geräte
(IEC 62974-1:2024)

This European Standard was approved by CENELEC on 2024-10-16. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

[SIST EN IEC 62974-1:2025](https://standards.iteh.ai/catalog/standards/sist/a4501110-6e7d-4040-ab0a-562ffe4a3a/sist-en-iec-62974-1-2025)

<https://standards.iteh.ai/catalog/standards/sist/a4501110-6e7d-4040-ab0a-562ffe4a3a/sist-en-iec-62974-1-2025>



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 62974-1:2024 (E)**European foreword**

The text of document 85/920/FDIS, future edition 2 of IEC 62974-1, prepared by TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62974-1:2024.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2025-12-31 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2027-12-31 document have to be withdrawn

This document supersedes EN 62974-1:2017 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62974-1:2024 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 60068-1:2013	NOTE Approved as EN 60068-1:2014 (not modified)
IEC 60068-2-30	NOTE Approved as EN 60068-2-30
IEC 60364-8-1:2019	NOTE Approved as HD 60364-8-1:2019 (not modified)
IEC 60950 (series)	NOTE Approved as EN 60950 (series)
IEC 61557-12	NOTE Approved as EN IEC 61557-12
ISO 50001:2018	NOTE Approved as EN ISO 50001:2018 (not modified)

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.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	2007	Environmental testing - Part 2-1: Tests - Test A: Cold	EN 60068-2-1	2007
IEC 60068-2-2	2007	Environmental testing - Part 2-2: Tests - Test B: Dry heat	EN 60068-2-2	2007
IEC 60068-2-6	2007	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	2008
IEC 60068-2-14	2009	Environmental testing - Part 2-14: Tests - Test N: Change of temperature	EN 60068-2-14	2009
IEC 60068-2-27	2008	Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock	EN 60068-2-27	2009
IEC 60068-2-78	2012	Environmental testing - Part 2-78: Tests - Test Cab: Damp heat, steady state	EN 60068-2-78	2013
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May	1993
+ A1	1999		+ A1	2000
+ A2	2013		+ A2	2013
IEC 61000-4-4	2012	Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test	EN 61000-4-4	2012
IEC 61000-4-5	2014	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	2014
+ A1	2017		+ A1	2017
IEC 61000-4-8	2009	Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	2010

EN IEC 62974-1:2024 (E)

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61000-4-11	2020	Electromagnetic compatibility (EMC) - Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests for equipment with input current up to 16 A per phase	EN IEC 61000-4-11	2020
IEC 61010-1	2010	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	2010
+ A1 (mod)	2016		+ A1	2019
IEC 61131-2	2017	Industrial-process measurement and control - Programmable controllers - Part 2: Equipment requirements and tests	-	-
IEC 61326-1	2020	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN IEC 61326-1	2021
IEC 62052-11	2020	Electricity metering equipment - General requirements, tests and test conditions - Part 11: Metering equipment	EN IEC 62052-11	2021
-	-		+ A12	2024
IEC 62262	2002	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	EN 62262	2002
+ AMD1	2021		+ A1	2021

iteh standards
<https://standards.iteh.ai>
 Document Preview

[SIST EN IEC 62974-1:2025](https://standards.iteh.ai/catalog/standards/sist/a4501110-6e7d-4040-ab0a-562ffe4a3a/sist-en-iec-62974-1-2025)

<https://standards.iteh.ai/catalog/standards/sist/a4501110-6e7d-4040-ab0a-562ffe4a3a/sist-en-iec-62974-1-2025>



IEC 62974-1

Edition 2.0 2024-08

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Monitoring and measuring systems used for data collection, aggregation and analysis –
Part 1: Device requirements**

**Systèmes de surveillance et de mesure utilisés pour la collecte, l'agrégation et
l'analyse de données –
Partie 1: Exigences relatives aux dispositifs**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 17.220.20

ISBN 978-2-8322-9483-3

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references	8
3 Terms and definitions	9
3.1 General definitions.....	10
3.2 Definitions related to devices	11
3.3 Definitions related to inputs and outputs	12
4 Normal environmental conditions	13
5 Ratings.....	13
6 Requirements for design and construction	13
6.1 General.....	13
6.2 General architecture of devices.....	13
6.3 Product classification	14
6.4 General data processing	15
6.5 Requirements on minimum functions embedded in devices	15
6.5.1 General requirements	15
6.5.2 Management of digital and/or analogue input(s) or output(s).....	16
6.5.3 Communication connectivity features.....	17
6.5.4 Data time stamping.....	17
6.5.5 Management of logged data.....	17
6.5.6 Management of aggregated data	18
6.5.7 Analysis of aggregated data	18
6.5.8 Local visualisation on an HMI	18
6.5.9 Configuration management.....	18
6.6 Safety requirements.....	18
6.6.1 Protection against electrical hazards	18
6.6.2 Protection against mechanical hazards	19
6.6.3 Protection against other hazards	19
6.6.4 Safety-related security (cybersecurity).....	19
6.7 EMC requirements	20
6.7.1 Immunity requirements	20
6.7.2 Emission requirements	21
6.8 Climatic requirements	21
6.9 Mechanical requirements	21
6.9.1 Vibrations	21
6.9.2 Shocks	21
6.9.3 Enclosure robustness (IK code)	21
6.9.4 Degree of protection by enclosures (IP code)	21
6.10 Requirements for marking and documentation	22
6.10.1 General	22
6.10.2 Device marking.....	22
6.10.3 Documentation	22
7 Type tests	23
7.1 Performance criteria for type tests	23
7.2 Safety tests.....	24

7.3	EMC tests plan	24
7.3.1	General	24
7.3.2	Configuration of EUT during testing	24
7.3.3	Operation conditions of EUT during testing	25
7.3.4	Specification of functional performance	25
7.3.5	Test description	25
7.3.6	EMC test result and test report	25
7.3.7	EMC instructions for use	25
7.4	Climatic tests	25
7.5	Mechanical tests	26
7.5.1	Vibration	26
7.5.2	Shock tests	26
7.5.3	Degree of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	26
7.5.4	Degree of protection by enclosure (IP code)	26
8	Routine tests	26
	Annex A (informative) Example of system architectures	27
	Annex B (informative) Example of device processing	29
	Bibliography	30
	Figure 1 – Plan-Do-Check-Act Cycle	7
	Figure 2 – General architecture of devices	14
	Figure A.1 – Basic local monitoring and measuring system architecture	27
	Figure A.2 – Advanced local monitoring and measuring system architecture	27
	Figure A.3 – Remote monitoring and measuring system architecture	28
	Figure B.1 – General data processing of the general device	29
	Table 1 – Normal environmental conditions	13
	Table 2 – Devices classification	15
	Table 3 – List of minimum functions embedded in devices	16
	Table 4 – Additional EMC tests for class 2 devices	20
	Table 5 – Minimum IP requirements	21
	Table 6 – Marking to apply to devices	22
	Table 7 – Specific performance criteria	23
	Table 8 – Climatic requirements	25

iTeh Standards

<https://standards.itih.ai>

Document Preview

<https://standards.itih.ai/catalog/standards/sist/a4501110-6e7d-4040-ab0a-562ffe4a3a/sist-en-iec-62974-1-2025>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MONITORING AND MEASURING SYSTEMS USED
FOR DATA COLLECTION, AGGREGATION AND ANALYSIS –****Part 1: Device requirements**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) IEC draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at <https://patents.iec.ch>. IEC shall not be held responsible for identifying any or all such patent rights.

IEC 62974-1 has been prepared by IEC technical committee 85: Measuring equipment for electrical and electromagnetic quantities. It is an International Standard.

This second edition cancels and replaces the first edition published in 2017. This edition constitutes a technical revision.

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

- a) the performance criteria have been reviewed;
- b) EMC and safety requirements have been improved;
- c) mechanical requirements have been clarified and amended.

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

Draft	Report on voting
85/920/FDIS	85/929/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.

A list of all parts in the IEC 62974 series, published under the general title *Monitoring and measuring systems used for data collection, aggregation and analysis*, can be found on the IEC website.

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.

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

IMPORTANT – The "colour inside" logo on the cover page of this document indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.