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Monitoring and measuring systems used for data collection, gathering and analysis - Part 1: Device requirements

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 11/17

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EUROPEAN STANDARD

EN 62974-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2017

ICS 17.220.20

English Version

**Monitoring and measuring systems used for data collection,
gathering and analysis - Part 1: Device requirements
(IEC 62974-1:2017)**

Systèmes de surveillance et de mesure utilisés pour la
collecte et l'analyse de données - Partie 1: Exigences
relatives aux dispositifs
(IEC 62974-1:2017)

Erfassungs- und Messsysteme zur Datenerfassung, -
Übertragung und -Analyse - Teil 1: Anforderungen an die
Geräte
(IEC 62974-1:2017)

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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.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

European foreword

The text of document 85/587/FDIS, future edition 1 of IEC 62974-1, prepared by IEC/TC 85 "Measuring equipment for electrical and electromagnetic quantities" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62974-1:2017.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2018-03-26
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2020-06-26

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In the official version, for Bibliography, the following notes have to be added for the standard indicated :

IEC 60068-1	NOTE	Harmonized as EN 60068-1.
IEC 60068-2-30	NOTE	Harmonized as EN 60068-2-30.
IEC 60364-8-1	NOTE	Harmonized as HD 60364-8-1.
IEC 60950 (Series)	NOTE	Harmonized as EN 60950 (Series).
IEC 61557-12	NOTE	Harmonized as EN 61557-12.
CISPR 24:2010	NOTE	Harmonized as EN 55024:2010.
ISO 50001	NOTE	Harmonized as EN ISO 50001.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 When 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.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-1	-	Environmental testing -- Part 2-1: Tests Test A: Cold	-EN 60068-2-1	-
IEC 60068-2-2	-	Environmental testing -- Part 2-2: Tests Test B: Dry heat	-EN 60068-2-2	-
IEC 60068-2-14	-	Environmental testing -- Part 2-14: Tests Test N: Change of temperature	-EN 60068-2-14	-
IEC 60068-2-78	-	Environmental testing -- Part 2-78: Tests Test Cab: Damp heat, steady state	-EN 60068-2-78	-
IEC 60529	-	Degrees of protection provided by enclosures (IP Code)	-	-
IEC 60721-3-1	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities -- Section 1: Storage	-EN 60721-3-1	-
IEC 60721-3-2	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities -- Section 2: Transportation	-EN 60721-3-2	-
IEC 60721-3-3	-	Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities -- Section 3: Stationary use at weatherprotected locations	-EN 60721-3-3	-
IEC 61000-4-5	-	Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test	EN 61000-4-5	-
IEC 61000-4-8	-	Electromagnetic compatibility (EMC) -- Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test	EN 61000-4-8	-
IEC 61000-4-11	-	Electromagnetic compatibility (EMC) -- Part 4-11: Testing and measurement techniques - Voltage dips, short interruptions and voltage variations immunity tests	EN 61000-4-11	-
IEC 61010	series	Safety requirements for electrical equipment for measurement, control and laboratory use	EN 61010	series

EN 62974-1:2017

IEC 61131-2	2003	Programmable controllers -- Part 2:- Equipment requirements and tests	-
IEC 61326-1	-	Electrical equipment for measurement, control and laboratory use - EMC requirements -- Part 1: General requirements	-
IEC 62053-31	-	Electricity metering equipment (a.c.) -- Particular requirements -- Part 31: Pulse output devices for electromechanical and electronic meters (two wires only)	-
IEC 62262	-	Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)	-



INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

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



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IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



Monitoring and measuring systems used for data collection, gathering and analysis –

Part 1: Device requirements

Systèmes de surveillance et de mesure utilisés pour la collecte et l'analyse de données –

Partie 1: Exigences relatives aux dispositifs

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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

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

FDIS	Report on voting
85/587/FDIS	85/589/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

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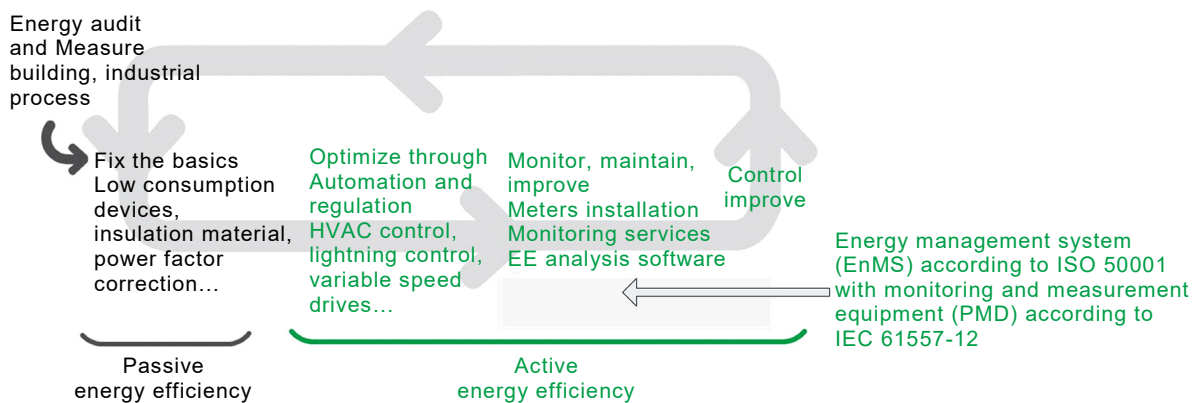
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INTRODUCTION

The use of electrical energy needs to be optimised worldwide to ensure more efficient use of available energy sources, for enhanced competitiveness, and for reducing greenhouse gas emissions and other related environmental impacts.

It implies better energy management leading to a necessary improvement of energy performance, particularly in terms of efficiency, use and consumption. This can be summarized by the lifecycle shown in Figure 1:

Lifecycle solutions for Energy Efficiency



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Figure 1 – Lifecycle solutions for energy efficiency

Standards such as ISO 50001, ISO 50002, ISO 50006 and IEC 60364-8-1 are providing information related to this topic.

What is not known cannot be changed, and what is not measured is not known. Consequently, there is an increasing need to measure energy within the installations in order to:

- monitor performance indicators or to monitor energy baselines, or
- compare energy performance between baseline period and reporting period as described in ISO 50006.

Measurements can be collected by employees at a defined frequency, provided absences are accounted for (vacation, off sick, etc.), provided the measurements are relevant (number of measurement points to collect) and provided measurements can be relatively coherent (synchronism).

This is why more and more devices are used for collection, gathering and sometimes analysis of measured data. Some typical architectures are given in Annex A.

MONITORING AND MEASURING SYSTEMS USED FOR DATA COLLECTION, GATHERING AND ANALYSIS –

Part 1: Device requirements

1 Scope

This part of IEC 62974 specifies product and performance requirements for devices that fall under the heading of “monitoring and measuring systems used for data collection, gathering and analysis”, for industrial, commercial and similar use rated below or equal to 1 kV AC and 1,5 kV DC.

These devices are fixed and are intended to be used indoors as panel-mounted devices, or as modular devices fixed on a DIN rail, or as housing devices fixed on a DIN rail, or as devices fixed by other means inside a cabinet.

These devices are used to upload or download information (energy measured on loads, power metering and monitoring data, temperature information...), mainly for energy efficiency purposes. These devices are known as energy servers, energy data loggers, data gateways and I/O data concentrators.

NOTE These systems are embedded or can be connected to a software application capable of consolidating data and delivering automatic analysis. Automatic analysis can include calculation of energy baselines or energy performance indicators as requested for the energy management system required by ISO 50001, or can be used during energy audits as defined in ISO 50002, or can be used for monitoring an installation complying with IEC 60364-8-1. These devices can also be used for certification according to labels such as LEED, BREEAM, HQE, etc.

This standard does not cover:

- devices used only in the consumer market (living quarters) or household;
- devices used in the smart metering infrastructure (e.g. smart meters);
- devices used in the smart grid infrastructure;
- devices used as IT servers in the information technology business;
- power metering and monitoring devices: PMD with additional functions (e.g. energy data logger function);
- I/O data concentrators already covered by a specific product standard;
- communication protocols and interoperability;
- power quality instruments (PQI);
- software used for the data collection and analysis of the power quality for the supply side.

2 Normative references

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.

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Tests B: Dry heat*

IEC 60068-2-14, *Environmental testing – Part 2-14 – Tests – Test N: Change of temperature*

IEC 60068-2-78, *Environmental testing – Part 2-78 – Tests – Test Cab: Damp heat, steady state*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60721-3-1, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 1: Storage*

IEC 60721-3-2, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 2: Transportation*

IEC 60721-3-3, *Classification of environmental conditions – Part 3: Classification of groups of environmental parameters and their severities – Section 3: Stationary use at weatherprotected locations*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test*

IEC 61000-4-8, *Electromagnetic compatibility (EMC) – Part 4-8: Testing and measurement techniques – Testing and measurement techniques – Power frequency magnetic field immunity test*

IEC 61000-4-11, *Electromagnetic compatibility (EMC) – Part 4-11: Testing and measurement techniques – Voltage dips, short interruptions and voltage variations immunity tests*

IEC 61010 (all parts), *Safety requirements for electrical equipment for measurement, control, and laboratory use*

IEC 61131-2:2003, *Programmable controllers – Part 2: Equipment requirements and tests*

IEC 61326-1, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements*

IEC 62053-31, *Electricity metering equipment (a.c.) – Particular requirements – Part 31: Pulse output devices for electromechanical and electronic meters (two wires only)*

IEC 62262, *Degrees of protection provided by enclosures for electrical equipment against external mechanical impacts (IK code)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org>
- ISO online browsing platform: available at <http://www.iso.org/obp>

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