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Sensing devices for non-intrusive load monitoring (NILM) systems

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

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**Sensing devices for non-intrusive load monitoring (NILM)
systems
(IEC 63297:2025)**

Dispositifs de détection pour les systèmes de surveillance
non intrusive de la charge (NILM)
(IEC 63297:2025)

Abtasteinrichtungen für Systeme zur berührungslosen
Lastüberwachung (Non-Intrusive Load Monitoring - NILM)
(IEC 63297:2025)

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EN IEC 63297:2025 (E)**European foreword**

The text of document 85/933/CDV, future edition 1 of IEC 63297, 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 63297:2025.

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Annex ZA (normative)

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<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61010-1	-	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1	-



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NORME INTERNATIONALE

Sensing devices for non-intrusive load monitoring (NILM) systems

Dispositifs de détection pour les systèmes de surveillance non intrusive de la charge (NILM)

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

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

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CONTENTS

FOREWORD	3
INTRODUCTION	5
1 Scope	6
2 Normative references	6
3 Terms, definitions and abbreviated terms	6
3.1 Terms and definitions	6
3.2 Abbreviated terms	8
4 Elements of a NILM system	8
4.1 General	8
4.2 NILM sensing device	9
4.3 NILM analytics	9
5 Classification of NILM sensing devices (NSD)	10
5.1 General	10
5.2 Definition of essential NSD parameter classes	10
5.2.1 General	10
5.2.2 Sampling frequency class definition	10
5.2.3 Output data rate class definition	11
5.2.4 Data bit rate class definition	11
6 Documentation requirements	12
7 Operation of NILM systems	12
Annex A (informative) Introduction of NILM process	14
A.1 Example of NILM process	14
A.2 Data and techniques for NILM	14
A.3 Examples of NILM sensing devices (NSDs)	15
Annex B (informative) Data bit rate	16
Annex C (informative) Measuring equipment compared to NILM sensing devices	17
C.1 General	17
C.2 Types of measuring equipment	17
C.3 Overview of requirements for measuring equipment	17
C.4 Relationship between NILM sensing devices and measuring equipment	19
Bibliography	20
Figure 1 – Principle of non-intrusive load monitoring (NILM)	5
Figure 2 – Elements of a NILM system	8
Figure 3 – Component view of a NILM sensing device (NSD)	10
Figure 4 – Framework for NILM systems operation	13
Figure A.1 – Example of NILM System implementation	14
Figure A.2 – Example of NILM sensing device installed in a home panel board	15
Figure C.1 – Notion of accuracy class	18
Table 1 – Classification of NSDs according to the sampling frequency	10
Table 2 – Classification of NSDs according to output data rate	11
Table 3 – Classification of NSDs according to the data bit rate	11
Table A.1 – Example of data and techniques used in NILM systems	14

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Table A.2 – Examples of NILM sensing devices and typical specification.....	15
Table B.1 – Examples of data bit rate calculation.....	16
Table C.1 – Overview of measuring equipment.....	17

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Sensing devices for non-intrusive load monitoring (NILM) systems

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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.

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INTRODUCTION

Non-intrusive load monitoring (NILM), or non-intrusive appliance and load monitoring (NIALM), is a process for providing estimated energy usage, for example by type of use (heating, cooling, etc.) or type of appliance (microwave, etc.) based on load signatures at a single point in the installation.

NILM systems can be used to survey the specific uses of electrical power in homes, buildings or industrial areas (see Figure 1).

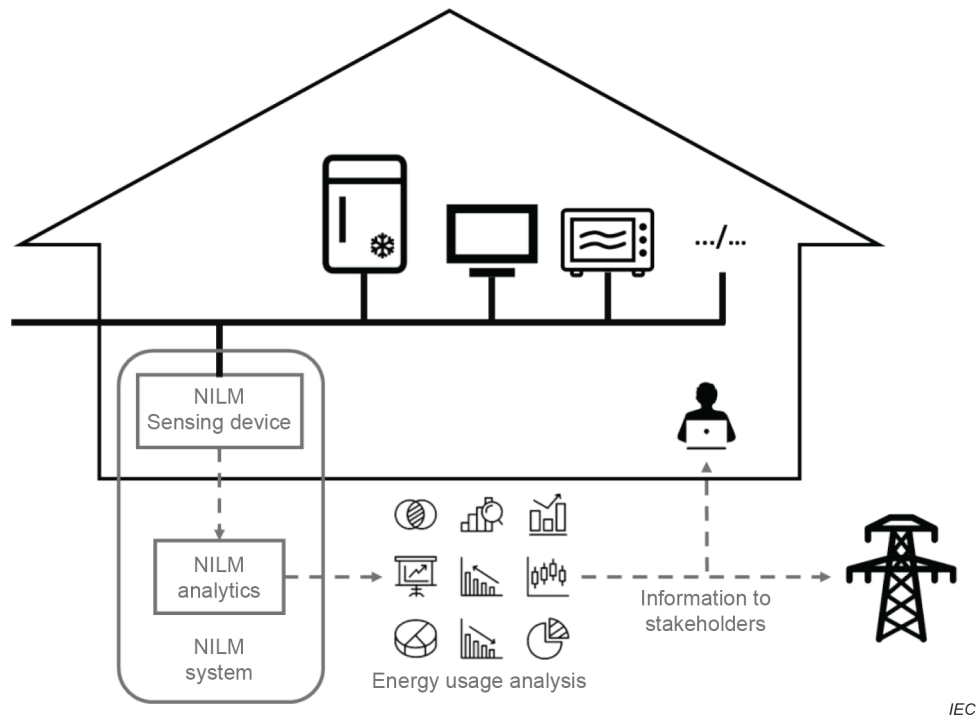


Figure 1 – Principle of non-intrusive load monitoring (NILM)

At the moment, NILM systems are essentially used in AC distribution networks, but DC networks are not excluded.

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1 Scope

This document provides a classification of NILM sensing devices for use in NILM systems, according to the state of the art of NILM technologies.

The classification of NILM analytics and NILM systems, as well as performance indicators for NILM systems, can be considered in the future.

NILM systems produce estimated disaggregation into energy usages. When accurate measurement and analysis of energy consumption or other electrical parameters, or both, are necessary (e.g. for monitoring the electrical installation), systems based on standardized measuring devices (e.g. power metering and monitoring devices (PMDs), power quality instruments (PQIs) or meters) are used.

NOTE Standardized measuring devices have guaranteed accuracy over a specified range and have limited deviations in presence of influence quantities (temperature, frequency deviations...) in addition to safety and constructional requirements. See Annex C for more information.

2 Normative references

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