

Alarm systems - Intrusion and hold-up systems - Part
2-2: Intrusion detectors - Passive infrared detectors

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 50131-2-2:2017 sisaldab Euroopa standardi EN 50131-2-2:2017 ingliskeelset teksti.	This Estonian standard EVS-EN 50131-2-2:2017 consists of the English text of the European standard EN 50131-2-2:2017.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 17.11.2017.	Date of Availability of the European standard is 17.11.2017.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 13.310

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Alarm systems - Intrusion and hold-up systems - Part 2-2:
Intrusion detectors - Passive infrared detectors**

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up - Partie 2-2: Détecteurs d'intrusion - Détecteurs à infrarouges passifs

Alarmanlagen - Einbruch- und Überfallmeldeanlagen - Teil 2-2: Einbruchmelder - Passiv-Infrarotmelder

This European Standard was approved by CENELEC on 2017-09-11. 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

Contents	Page
European foreword	4
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions	7
3.2 Abbreviations	8
4 Functional requirements	8
4.1 Event Processing	8
4.2 Detection	10
4.3 Operational requirements	12
4.4 Immunity to incorrect operation	12
4.5 Tamper security	13
4.6 Electrical requirements	14
4.7 Environmental classification and conditions	15
5 Marking, identification and documentation	15
5.1 Marking and/or identification	15
5.2 Documentation	15
6 Testing	16
6.1 General	16
6.2 General test conditions	16
6.3 Basic detection test	17
6.4 Walk testing	18
6.5 Switch-on delay, time interval between signals and indication of detection	20
6.6 Self-tests	20
6.7 Immunity to incorrect operation	21
6.8 Tamper security	21
6.9 Electrical tests	23
6.10 Environmental classification and conditions	25
6.11 Marking, identification and documentation	26
Annex A (normative) Dimensions and requirements of the standardised test magnets	27
A.1 Introduction	27
A.2 Requirements	27
Annex B (normative) General testing matrix	30
Annex C (normative) Walk test diagrams	32

Annex D (normative) Procedure for calculation of average temperature difference	36
D.1 Measurement and calculation of the real average temperature difference between the SWT and the background	36
D.2 Adjustment of average temperature difference between the SWT and the background.....	36
Annex E (informative) Basic detection target for the basic test of detection capability	37
Annex F (informative) Equipment for walk test velocity control	38
F.1 General	38
F.2 Moving light source guiding system	38
F.3 Metronome	38
Annex G (informative) Immunity to visible and near infrared radiation - Notes on calibration of the light source	39
Annex H (informative) Example list of small tools.....	40
Annex I (informative) Test for resistance to re-orientation of adjustable mountings	41
Annex J (informative) Delta-T film adjustment Lookup table	43
Annex K (informative) Immunity to hot air flow fan heater setup	44
Bibliography	45

European foreword

This document (EN 50131-2-2:2017) has been prepared by CLC/TC 79, "Alarm systems".

The following dates are fixed:

- latest date by which this document has (dop) 2018-09-11
to be implemented at national level by
publication of an identical national
standard or by endorsement
- latest date by which the national (dow) 2020-09-11
standards conflicting with this document
have to be withdrawn

This document supersedes EN 50131-2-2:2008 and EN 50131-2-2:2008/IS1:2014.

EN 50131-2-2:2017 includes the following significant technical changes with respect to EN 50131-2-2:2008 and EN 50131-2-2:2008/IS1:2014:

- Editorial changes and refinement of wording;
- Clarification to significant reduction of range requirements;
- Clarification to the Electrical requirements section and certain environmental conditions;
- Improvement of the requirements of the supplied documentation;
- Improvement of the standard conditions for testing;
- Added chapter which defines the condition for the mounting height while the tests are performed;
- Refinement of the standard requirements for the Testing procedures;
- Refinement of the Immunity to air flow test to allow for better repeatability of the test results;
- Verified and clarified the wording of the test for resistance to or detection of re-orientation of adjustable mountings;
- Update the test magnet specification for resistance to magnetic field interference;
- Verified and clarified wording for the detection of detector masking in regards to the conditions and the test material;
- Review and optimization of the methods for temperature adjustments for the test environment;
- Review Sample Testmatrix;
- Review and verify references to other standards.

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

EN 50131 will consist of the following parts, under the general title *Alarm systems - Intrusion and hold-up systems*:

Part 1 System requirements

Part 2-2	Intrusion detectors – Passive infrared detectors
Part 2-3	Intrusion detectors – Microwave detectors
Part 2-4	Intrusion detectors – Combined passive infrared / Microwave detectors
Part 2-5	Intrusion detectors – Combined passive infrared / Ultrasonic detectors
Part 2-6	Intrusion detectors – Opening contacts (magnetic)
Part 2-7-1	Intrusion detectors – Glass break detectors – Acoustic
Part 2-7-2	Intrusion detectors – Glass break detectors – Passive
Part 2-7-3	Intrusion detectors – Glass break detectors – Active
Part 3	Control and indicating equipment
Part 4	Warning devices
Part 5-3	Requirements for interconnections equipment using radio frequency techniques
Part 6	Power supplies
Part 7	Application guidelines
Part 8	Security fog devices

Introduction

This European Standard deals with passive infrared detectors (to be referred to as the detector), used as part of intrusion alarm systems installed in buildings. It includes four security grades and four environmental classes.

The purpose of a detector is to detect the broad spectrum infrared radiation emitted by an intruder and to provide the necessary range of signals or messages to be used by the rest of the intrusion alarm system.

The number and scope of these signals or messages will be more comprehensive for systems that are specified at the higher grades.

This European Standard is only concerned with the requirements and tests for the passive infrared detectors. Other types of detectors are covered by other documents identified as in EN 50131-2 series.

1 Scope

This European Standard is for passive infrared detectors installed in buildings and provides for security grades 1 to 4 (see EN 50131-1), specific or non-specific wired or wire-free detectors, and uses environmental classes I to IV (see EN 50130-5). This European Standard does not include requirements for passive infrared detectors intended for use outdoors.

It is essential that a detector fulfils all the requirements of the specified grade.

Functions additional to the mandatory functions specified in this standard may be included in the detector, providing they do not influence the correct operation of the mandatory functions.

This European Standard does not apply to system interconnections.

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.

EN 50130-4, *Alarm systems — Part 4: Electromagnetic compatibility — Product family standard: Immunity requirements for components of fire, intruder, hold up, CCTV, access control and social alarm systems*

EN 50130-5, *Alarm systems — Part 5: Environmental test methods*

EN 50131-1, *Alarm systems — Intrusion and hold-up systems — Part 1: System requirements*

EN 50131-6, *Alarm systems — Intrusion and hold-up systems — Part 6: Power supplies*

EN 60068-2-52, *Environmental testing — Part 2: Tests — Test Kb: Salt mist, cyclic (sodium chloride solution) (IEC 60068-2-52)*

EN 60404-5, *Magnetic materials — Part 5: Permanent magnet (magnetically hard) materials — Methods of measurement of magnetic properties (IEC 60404-5)*

EN 60404-8-1, *Magnetic materials — Part 8-1: Specifications for individual materials — Magnetically hard materials (IEC 60404-8-1)*

EN 60404-14, *Magnetic materials — Part 14: Methods of measurement of the magnetic dipole moment of a ferromagnetic material specimen by the withdrawal or rotation method (IEC 60404-14)*

3 Terms, definitions and abbreviations

For the purposes of this document, the terms, definitions and abbreviations given in EN 50131-1 and the following apply.

3.1 Terms and definitions

3.1.1

basic detection target

heat source designed to verify the operation of a detector

3.1.2

incorrect operation

physical condition that causes an inappropriate signal or message from a detector