SLOVENSKI STANDARD
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Nadomešča:
SIST EN 50131-2-2:2008
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Alarmni sistemi - Sistemi za javljanje vloma in ropa - 2-2. del: Javljalniki vloma - Pasivni infrardeči javljalniki

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

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

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

Ta slovenski standard je istoveten z: **EN 50131-2-2:2017**

ICS:

13.310	Varstvo pred kriminalom	Protection against crime
13.320	Alarmni in opozorilni sistemi	Alarm and warning systems

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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

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European Committee for Electrotechnical Standardization
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CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2020-09-11

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

3.1.3
masking
interference with the detector input capability by the introduction of a physical barrier such as metal, plastics, paper or sprayed paints or lacquers in close proximity to the detector

3.1.4
passive infrared detector
detector of the broad-spectrum infrared radiation emitted by a human being

3.1.5
simulated walk test target
non-human heat source designed to simulate the standard walk test target

3.1.6
standard walk test target
human being of standard weight and height clothed in close fitting clothing appropriate to the simulation of an intruder

3.1.7
walk test
operational test during which a detector is stimulated by the standard walk test target in a controlled environment

3.1.8
walk test attitude, crawling
crawling attitude shall consist of the standard walk test target moving with hands and knees in contact with the floor

3.1.9
walk test attitude, upright
upright attitude shall consist of the standard walk test target standing and walking with arms by the sides of the body. The standard walk test target begins and ends a traverse with feet together

3.2 Abbreviations

HDPE	High Density PolyEthylene
PIR	Passive InfraRed
EMC	Electro Magnetic Compatibility
SWT	Standard Walk-test Target
BDT	Basic Detection Target
FOV	Field Of View

4 Functional requirements

4.1 Event Processing

Detectors shall process the events shown in Table 1.

Table 1 — Events to be processed by grade

Event	Grade			
	1	2	3	4
Intrusion detection	M	M	M	M
Tamper detection	Op	M	M	M
Masking detection	Op	Op	M	M
Significant reduction of range	Op	Op	Op	M
Low supply voltage	Op	Op	M	M
Total loss of power supply	Op	M	M	M
Local self-test	Op	Op	M	M
Remote self-test	Op	Op	Op	M
M = mandatory Op = optional				

Detectors shall generate signals or messages as shown in Table 2.

Table 2 — Generation of Signals or Messages

Event	Signals or Messages		
	Intrusion	**Tamper**	**Fault**
No event	NP	NP	NP
Intrusion	M	NP	NP
Tamper	NP	M	NP
Masking [a]	M	Op	M
Significant reduction of range [a]	M	Op	M
Low supply voltage	Op	Op	M
Total loss of power supply [b]	M	Op	Op
Local self-test pass	NP	NP	NP
Local self-test fail	NP	NP	M
Remote self-test pass	M	NP	NP
Remote self-test fail	NP	NP	M

M = mandatory
NP = not permitted
Op = optional

[a] An independent signal or message may be provided instead.

This permits two methods of signalling a masking or reduction of range event: either by the intrusion signal and fault signal, or by a dedicated masking or reduction of range signal or message. Use of the intrusion signal and fault signal is preferable, as this requires fewer connections between CIE and detector. If multiple events overlap there will be some signal combinations that may be ambiguous. To overcome this ambiguity it is suggested that detectors should not signal ‘intrusion‘ and ‘fault‘ at the same time except to indicate masking. This implies that the detector should prioritise signals, e.g. 1 Intrusion, 2 Fault, 3 Masking.

[b] Alternatively Total loss of Power Supply shall be determined by loss of communication with the detector.

When, in Table 1, an event may optionally generate signals or messages, they need to be as shown in this table.

4.2 Detection

4.2.1 Detection performance

The detector shall generate an intrusion signal or message when the standard or simulated walk-test target moves at velocities and attitudes specified in Table 3. For detection across the boundary the walk-test distance shall be 1,5 m either side of the boundary. For detection within the boundary the walk-test distance shall be 3,0 m.

Table 3 — General walk test velocity and attitude requirements

Test	Grade 1	Grade 2	Grade 3	Grade 4
Detection across the boundary	Required	Required	Required	Required
Velocity	1,0 ms^{-1}	1,0 ms^{-1}	1,0 ms^{-1}	1,0 ms^{-1}
Attitude	Upright	Upright	Upright	Upright
Detection within the boundary	Required	Required	Required	Required
Velocity	0,3 ms^{-1}	0,3 ms^{-1}	0,2 ms^{-1}	0,1 ms^{-1}
Attitude	Upright	Upright	Upright	Upright
Detection at high velocity	Not required	Required	Required	Required
Velocity	N/A	2,0 ms^{-1}	2,5 ms^{-1}	3,0 ms^{-1}
Attitude	N/A	Upright	Upright	Upright
Close-in detection performance	Required	Required	Required	Required
Distance	2,0 m	2,0 m	0,5 m	0,5 m
Velocity	0,5 ms^{-1}	0,4 ms^{-1}	0,3 ms^{-1}	0,2 ms^{-1}
Attitude	Upright	Upright	Crawling	Crawling
Intermittent movement detection performance [a]	Not required	Not required	Required	Required
Velocity	N/A	N/A	1,0 ms^{-1}	1,0 ms^{-1}
Attitude	N/A	N/A	Upright	Upright
Significant reduction of specified range [b]	Not required	Not required	Not required	Required
Velocity	N/A	N/A	N/A	1,0 ms^{-1}
Attitude	N/A	N/A	N/A	Upright

[a] For grade 3 and 4 detectors, the intermittent movement shall consist of the SWT walking 1 m at a velocity of 1,0 ms-1 then pausing for 5 s before continuing. The sequence shall be maintained until the SWT has traversed through the entire detection area. This constitutes one walk test. The test shall be repeated in each of the directions shown in Figure C.3.

[b] The means to detect a significant reduction in range may be met either by detectors having the appropriate function (4.2.3) or by suitable system design. Two or more devices (e.g. a detector in conjunction with a camera, active transmitter or additional detector), may cooperate and interconnect with the system to provide means to detect a significant reduction of range.

4.2.2 Indication of detection

An indicator shall be provided at the detector to indicate when an intrusion signal or message has been generated. At grades 1 and 2 this indicator shall be capable of being enabled and disabled either remotely at Access Level 2 and/or locally after removal of cover which provides tamper detection as described in Tables 1 and 4. At grades 3 and 4 this indicator shall be capable of being enabled and disabled remotely at Access Level 2.

4.2.3 Significant reduction of range

Grade 4 detectors shall detect significant reduction of range or coverage area due, for example, to deliberate or accidental introduction of objects or obstructions into the coverage area.

Range reduction along the principal axis of detection of more than 50 % shall generate a signal or message within 180 s, according to the requirements of Table 2 and Table 3.

The signals or messages shall remain for at least as long as the significant reduction of range condition is present. A significant reduction of range signal or message shall not be reset while the significant reduction of range condition is still present. Alternatively the significant reduction of range