

### SLOVENSKI STANDARD SIST IEC 62642-2-4:2024

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Alarmni sistemi - Sistemi za javljanje vloma in ropa - 2-4. del: Detektorji vloma - Kombinirani pasivni infrardeči/mikrovalovni javljalniki (IEC 62642-2-4:2010)

Alarm systems - Intrusion and hold-up systems - Part 2-4: Intrusion detectors - Combined passive infrared / Microwave detectors

### iTeh Standards

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up - Partie 2-4: Détecteurs d'intrusion - Détecteurs combinés à infrarouges passifs et à hyperfréquences

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#### ICS:

13.310 Varstvo pred kriminalom Protection against crime13.320 Alarmni in opozorilni sistemi Alarm and warning systems

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

Alarm systems – Intrusion and hold-up systems –
Part 2-4: Intrusion detectors – Combined passive infrared / Microwave detectors

Systèmes d'alarme – Systèmes d'alarme contre l'intrusion et les hold-up – Partie 2-4: Détecteurs d'intrusion – Détecteurs combinés à infrarouges passifs et à hyperfréquences

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#### INTERNATIONAL ELECTROTECHNICAL COMMISSION

## ALARM SYSTEMS – INTRUSION AND HOLD-UP SYSTEMS –

## Part 2-4: Intrusion detectors – Combined passive infrared / Microwave detectors

#### **FOREWORD**

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International Standard IEC 62642-2-4 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

This standard is based on EN 50131-2-4 (2008).

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

FDIS	Report on voting		
79/323/FDIS	79/329/RVD		

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

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

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A list of all parts of the IEC 62642 series can be found, under the general title *Alarm systems* – *Intrusion and hold-up systems*, on the IEC website.

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

- · reconfirmed,
- withdrawn,
- · replaced by a revised edition, or
- · amended.

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#### INTRODUCTION

This part 2-4 of the IEC 62642 series of standards gives requirements for passive infrared and microwave detectors used in intrusion and hold-up alarm systems. The other parts of this series of standards are as follows:

System requirements				
Intrusion detectors – Passive infrared detectors				
3 Intrusion detectors – Microwave detectors				
Intrusion detectors – Combined passive infrared / Microwave detectors				
Intrusion detectors – Combined passive infrared / Ultrasonic detectors				
Intrusion detectors – Opening contacts (magnetic)				
Intrusion detectors – Glass break detectors – Acoustic				
Intrusion detectors – Glass break detectors – Passive				
Intrusion detectors – Glass break detectors – Active				
Control and indicating equipment				
Warning devices				
Requirements for interconnections equipment using radio frequency techniques				
Power supplies				
Application guidelines				
Part 8 Security fog devices/systems 2000 2000 S				

This standard deals with combined passive infrared and microwave 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 the detector is to detect the broad spectrum infrared radiation emitted by an intruder, to emit microwave radiation and analyse signals that are returned 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 International Standard is only concerned with the requirements and tests for the detector. Other types of detector are covered by other documents identified as in IEC 62642-2 series.

If a combined detector can be operated in each technology individually, it also meets the grade-dependant requirements of the standards having relevance to those technologies.

### ALARM SYSTEMS – INTRUSION AND HOLD-UP SYSTEMS –

## Part 2-4: Intrusion detectors – Combined passive infrared / Microwave detectors

#### 1 Scope

This part of the IEC 62642 is for combined passive infrared and microwave detectors installed in buildings and provides for security Grades 1 to 4 (see IEC 62642-1), specific or non-specific wired or wire-free detectors, and uses environmental classes I to IV (see IEC 62599-1).

This standard does not include requirements for detectors intended for use outdoors.

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 International Standard does not apply to system interconnections.

#### 2 Normative references

The following referenced documents are indispensable for the application 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 60068-1:1988, Environmental testing – Part 1: General and guidance

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

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

IEC 62599-1, Alarm systems – Part 1: Environmental test methods

IEC 62599-2, Alarm systems – Part 2: Electromagnetic compatibility – Immunity requirements for components of fire and security alarm systems

IEC 62642-1, Alarm systems – Intrusion and hold-up systems – Part 1: System requirements

IEC 62642-6, Alarm systems - Intrusion and hold-up systems - Part 6: Power supplies

#### 3 Terms, definitions and abbreviations

For the purposes of this document, the terms, definitions and abbreviations given in IEC 62642-1, as well as the following apply.

#### 3.1 Terms and definitions

#### 3.1.1

#### basic detection target

heat source and/or microwave reflector designed to verify the operation of a detector

#### 3.1.2

#### combined passive infrared and microwave detector

detector of the broad-spectrum infrared emitted by a human being, with an active microwave emitter and detector installed in the same casing

#### 3.1.3

#### incorrect operation

physical condition that causes an inappropriate signal from a detector

#### 3.1.4

#### masking

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

#### 3.1.5

#### microwave detector

detector having an active microwave emitter and receiver installed in the same casing

#### 3.1.6

#### passive infrared detector

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

#### SIST IEC 62642-2-4:2024

### **3.1.7**ards.iteh.ai/catalog/standards/sist/b7dd867b-e85e-456f-b1e4-9db353691b7d/sist-jee-62642-2-4-2024 simulated walk test target

non-human or synthetic heat source or microwave reflector designed to simulate the standard walk test target

#### 3.1.8

#### standard walk test target

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

#### 3.1.9

#### walk test

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

#### 3.1.10

#### walk test attitude, crawling

attitude that consists of the standard walk test target moving with hands and knees in contact with the floor

#### 3.1.11

#### walk test attitude, upright

attitude that consists of the standard walk test target standing and walking with arms held at 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 electromagnetic compatibility

SWT standard walk-test target

BDT basic detection target

FOV field of view

#### 4 Functional requirements

#### 4.1 Indication signals or messages

Detectors shall process the events shown in Table 1. Detectors shall generate signals or messages as shown in Table 2.

Table 1 - Events to be processed by grade

	Event en Sta	Grade			
		1	2	3	4
	Intrusion detection	M	SMI	S.M.S	M
	Tamper detection	Ор	М	М	М
	Masking detection	Ор	Op	М	М
	Significant reduction of range	Ор	Ор	Ор	М
1 // . 1 1 1 1 1	Low supply voltage	Ор	Ор	M	M
https://standards.iteh.ai	Total loss of power supply	Ор	M M	-90055 M	M M
	Local self test	Ор	Ор	М	М
	Remote self test	Ор	Ор	Ор	М
	M = mandatory Op = optional				

Table 2 - Generation of signals or messages

Event	Signals or Messages			
Event	Intrusion	Tamper	Fault	
No event	NP	NP	NP	
Intrusion	М	NP	NP	
Tamper	NP	М	NP	
Masking <sup>a</sup>	М	Ор	M	
Significant reduction of range <sup>a</sup>	М	Ор	М	
Low supply voltage	Ор	Ор	M	
Total loss of power supply <sup>b</sup>	М	Ор	Ор	
Local self test pass	NP	NP	NP	
Local self test fail	NP	NP	М	
Remote self test pass	М	NP	NP	
Remote self test fail	NP	NP	М	

M = mandatory

NP = not permitted

NOTE 1 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, eg 1 Intrusion, 2 Fault, 3 Masking.

NOTE 2 When, in Table 1, an event may optionally generate signals or messages, they areas 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.

Op = optional

An independent signal or message may be provided instead.

Alternatively total loss of power supply shall be determined by loss of communication with the detector.