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Alarmni sistemi - Sistemi za javljanje vloma in ropa - 2-10. del: Javljalniki vloma - Magnetni kontakti

Alarm systems - Intrusion and hold-up systems - Part 2-10: Intrusion detectors - Lock state contacts (magnetic)

Alarmanlagen - Einbruch- und Überfallmeldeanlagen - Teil 2-10: Einbruchmelder -
Verschluss- und Öffnungsüberwachungskontakte (magnetisch)

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up - Partie 2-10:
DéTECTEURS d'intrusion - Contact d'état de verrouillage (magnétique)

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**Alarm systems - Intrusion and hold-up systems - Part 2-10:
Intrusion detectors - Lock state contacts (magnetic)**

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up - Partie 2-10: Détecteurs d'intrusion - Contact d'état de verrouillage (magnétiques)

Alarmanlagen - Einbruch- und Überfallmeldeanlagen - Teil 2-10: Einbruchmelder - Verschluss- und Öffnungsüberwachungskontakte (magnetisch)

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EN 50131-2-10:2018

European foreword

This document (EN 50131-2-10:2018) has been prepared by CLC/TC 79 "Alarm systems".

The following dates are fixed:

- latest date by which this document has (dop) 2019-03-28 to be implemented at national level by publication of an identical national standard or by endorsement
- latest date by which the national (dow) 2021-09-28 standards conflicting with this document have to be withdrawn

This document supersedes CLC/TS 50131-2-10:2014.

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 50131-2 is currently composed of the following parts:

- EN 50131-2-2, *Alarm systems — Intrusion and hold-up systems — Part 2-2: Intrusion detectors — Passive infrared detectors*;
- EN 50131-2-3, *Alarm systems — Intrusion and hold-up systems — Part 2-3: Requirements for microwave detectors*;
- EN 50131-2-4, *Alarm systems — Intrusion and hold-up systems — Part 2-4: Requirements for combined passive infrared and microwave detectors*; [standards/sist/89a74d8-890a-462f-ac93-de5d8d13910b/sist-en-50131-2-10-2018](https://standards.sist.it/89a74d8-890a-462f-ac93-de5d8d13910b/sist-en-50131-2-10-2018)
- EN 50131-2-5, *Alarm systems — Intrusion and hold-up systems — Part 2-5: Requirements for combined passive infrared and ultrasonic detectors*;
- EN 50131-2-6, *Alarm systems — Intrusion and hold-up systems — Part 2-6: Opening contacts (magnetic)*;
- CLC/TS 50131-2-8, *Alarm systems — Intrusion and hold-up systems — Part 2-8: Intrusion detectors — Shock detectors*;
- CLC/TS 50131-2-9, *Alarm systems — Intrusion and hold-up systems — Part 2-9: Intrusion detectors — Active infrared beam detectors*;
- EN 50131-2-10, *Alarm systems — Intrusion and hold-up systems — Part 2-10: Intrusion detectors — Lock state contacts (magnetic)* [the present document];
- EN 50131-2-7-1, *Alarm systems — Intrusion and hold-up systems — Part 2-7-1: Intrusion detectors — Glass break detectors (acoustic)*;
- EN 50131-2-7-2, *Alarm systems — Intrusion and hold-up systems — Part 2-7-2: Intrusion detectors — Glass break detectors (passive)*;
- EN 50131-2-7-3, *Alarm systems — Intrusion and hold-up systems — Part 2-7-3: Intrusion detectors — Glass break detectors (active)*.

Introduction

This European Standard applies to lock state contacts (magnetic) used as part of intrusion and hold-up alarm systems (I&HAS) installed in buildings. It includes four security grades and four environmental classes.

The purpose of a lock state contact (magnetic) is to detect the lock/unlock state only or the lock/unlock state combined with the opening status/displacement from the defined closed position of a window or door simultaneously. The lock state contact comprises two separate contact-less units, the active connection between these units is at least one magnetic or electromagnetic based field. Separating the two units disturbs the connection and produces an intruder signal or message.

The scope for lock state contacts (magnetic) and the number and types of generated 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 lock state contacts (magnetic). Other types of detectors are covered by other documents identified as in the EN 50131-2 series.

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EN 50131-2-10:2018**1 Scope**

This European Standard provides for security grades 1 to 4, (see EN 50131-1) specific or non-specific wired or wire-free lock state contacts, and includes the requirements for four environmental classes covering applications in internal and outdoor locations as specified in EN 50130-5.

Lock state contacts are installed in windows or doors and windows or doorframes to allow to monitor the lock/unlock status only or the lock/unlock status combined with the open/close status of a window/door simultaneously and are as such located in supervised premises. They provide the necessary range of signals or messages to be used by the rest of the intrusion alarm system.

A detector fulfils all the requirements of the specified grade.

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

The combination of the two separate units of the lock state contact is referred to in the body of this European Standard as the detector.

This European Standard does not apply to system interconnections.

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.

EN 10130, *Cold rolled low carbon steel flat products for cold forming — Technical delivery conditions*

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*

3 Terms, definitions and abbreviations**3.1 Terms and definitions**

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

3.1.1**connecting field**

one or more generated magnetic or electromagnetic field(s) (e.g. magnetic, inductive, RFID, NFC) connecting actively the two units of the detector

Note 1 to entry: Separating the two units disturbs the connection and produces an intrusion signal or message.

3.1.2**prohibited area**

mounting arrangement, as stated by the manufacturer, of the two units of the detector in which the detector no longer meets the requirements of this European Standard

3.1.3**incorrect operation**

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

3.1.4**wire free detector**

detector connected to convey information to the control and indicating equipment without using wires, such as radio frequency signals

3.1.5**approach distance/make distance**

separation distance between the two units of a detector that are being brought together at which an intrusion signal or message is reversed

3.1.6**removal distance/break distance**

separation distance between the two units of a detector that are being moved apart at which an intrusion signal or message is generated

3.1.7**corresponding unit**

part of the detector, comprising one or more components, to act and/or react via one or more connecting field(s) and is as such related to the process unit of the detector

3.1.8**process unit**

part of the detector, comprising one or more components, analysing the connecting field(s) and/or their content(s) towards the corresponding unit and which generates an appropriate signal or message

3.1.9**lock state contact**

detector which consists usually out of two separate units, where each of the units (process unit and corresponding unit) is mounted within one of the two parts of the monitored object (fixed and moving parts) while allowing to monitor the lock state only or the lock and the open state simultaneously

Note 1 to entry: The active connection between the two units is at least one connecting field. Separating the two units disturbs the connection and produces an intrusion signal or message.

3.1.10**sealed contact**

type of detector construction, whereby there is no direct access to the internal components or connections, e.g. a "potted" unit usually supplied with integral connecting cable

3.1.11**reverse signal**

signal or message generated by a detector to indicate that there is no longer an intrusion event, e.g. change of state or cancellation of an intrusion signal or message

3.1.12**intrusion event**

abnormal condition indicating the presence of a hazard

3.1.13**low supply voltage**

supply voltage level below which the operation of the detector can no longer be guaranteed

EN 50131-2-10:2018**3.1.14****interference test unit**

unit(s) (e.g. magnet(s), RFID tag(s)) - similar to the corresponding unit - used for verifying the behaviour of the detector in the presence of external connecting field(s), at least one of which is identical to the corresponding unit supplied with the detector, whereas technology depending internal different states are valid

3.1.15**external connecting field**

deliberately induced connecting field generated by a source other than the corresponding or process unit (e.g. sabotage magnet, RFID Tag)

3.1.16**immunity**

characteristic of a detector such that only a limited change in its detection performance is permitted in the presence of one of the interference test unit(s)

3.1.17**pure interference test magnet**

unsealed magnetic field generating component (pure magnet) of the corresponding unit not mounted or build into the corresponding unit housing which is used for mounting or installation

3.2 Abbreviations

For the purposes of this document, the abbreviations given in EN 50131-1:2006 and the following apply.

— AC	Alternative Current;
— BTD	Basic Test of Detection capability;
— DC	Direct Current;
— EMC	Electromagnetic Compatibility;
— RFID	Radio Frequency Identification;

4 Functional requirements**4.1 Events**

The detector shall respond to events in accordance with Table 1 and as defined in this Clause 4.

Table 1 — Events to be processed and main functions to be provided by grade

Event to be processed and functions to be provided	Grade			
	1	2	3	4
Break distance exceeded	M	M	M	M
Inside make distance	M	M	M	M
Remote enable of detection indication ^a	Op	Op	M	M
Connecting field interference	Op	Op	M	M
Prevention and detection of access to the inside of the detector	Op ^b	M ^c	M ^c	M ^c
Removal from the mounting surface ^d	Op	M	M	M
Low power supply voltage ^e	Op	Op	M	M
Total loss of external power ^f	M	M	M	M
Matched pairs, coding and encryption	Op	Op	M ^g	M ^g
Key M = Mandatory Op = Optional				
^a Only required if detection indicator present. ^b Generation of a tamper signal for opening by normal means is not required. ^c Not required for sealed lock state contacts according to 4.5.2. ^d Mandatory for wire-free at grades 2, 3 and 4; mandatory for all grade 4 types, optional for wired grades 1, 2 and 3. ^e See 4.6.7. ^f See 4.6.6. ^g See 4.5.5.				

4.2 Signals or messages

The response to the signals or messages generated by the detector is determined by the I&HAS. The detector shall generate signals or messages in accordance with Table 2, based on the events listed in Table 1. The response of a detector to events defined as optional in Table 1 shall be in accordance with Table 2.

Table 2 — Generation of signals or messages

Event	Signals or messages		
	Intrusion	Tamper	Fault
Break distance exceeded	M	NP	NP
Inside make distance	NP	NP	NP
Magnetic interference grade 3 ^a	Op	Op	Op
Magnetic interference grade 4 ^b	M	Op	M
Detection of access to the inside of the detector	NP	M	NP
Removal from the mounting surface	NP	M	NP
Low power supply voltage ^c	Op	Op	M
Total loss of external power ^d	M	Op	Op
Key M = Mandatory NP = Not Permitted Op = Optional			
^a Required only if the make and break distances are greater than twice the distances specified by the manufacturer (see 6.6.4); at least one of these signals or messages (Intrusion or/and Tamper or/and Fault) shall be generated or an independent signal or message shall be generated.			
^b Required only if the make and break distances are greater than twice the distances specified by the manufacturer (see 6.6.4); either intrusion AND fault signals or messages, OR an independent signal or message shall be generated.			
^c See 4.6.7.			
^d See 4.6.6.			

4.3 Detection

4.3.1 Detection performance

4.3.1.1 Generalities

The operating parameters of the detector shall be verified as specified by the manufacturer for the axes of movement shown in Annex D. The operating parameters shall be defined under the condition that a successful locking position is ensured.

The manufacturer shall clearly state in the product documentation all removal/break and approach/make distances including their tolerance range for each distance in order to specify all potential variances due to product design and manufacturing.

Furthermore, the manufacturer shall clearly state as well in the product documentation any special limitation concerning installation e.g. a prohibited area between a surface on the detector and the minimum make distance.

4.3.1.2 Removal/break distance

The detector shall generate an intrusion signal or message at the removal/break distance specified by the manufacturer. This distance shall be specified for all normal operating axes. If the detector is designed for installation on ferromagnetic surfaces or in ferromagnetic material, the removal/break distance shall also be