BS EN 50131-1:2006+A3:2020
Incorporating corrigendum January 2018

BSI Standards Publication

Alarm systems — Intrusion and hold-up systems

Part 1: System requirements

Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

National foreword

This British Standard is the UK implementation of EN 50131-1:2006+A3:2020. It supersedes BS EN 50131-1:2006+A2:2017, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CENELEC text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee GW/1/2, Installed alarm systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2020
Published by BSI Standards Limited 2020

ISBN 978 0 539 04185 9

ICS 13.310

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 November 2006.

Amendments/corrigenda issued since publication

Date	Text affected
31 August 2009	Implementation of CENELEC amendment A1:2009
31 July 2017	Implementation of CENELEC amendment A2:2017
31 January 2018	Table cross-references corrected
30 June 2020	Implementation of CENELEC amendment A3:2020

AVA Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50131-1:2006+A3

June 2020

ICS 13.310

English version

Alarm systems - Intrusion and hold-up systems Part 1: System requirements

Systèmes d'alarme - Systèmes d'alarme contre l'intrusion et les hold-up Partie 1: Exigences système

Alarmanlagen - Einbruch- und Überfallenmeldeanlagen Teil 1: Systemanforderungen

This European Standard was approved by CENELEC on 2006-04-04. 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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

© 2006 CENELEC - All rights of exploitation in any form and by any means reserved worldwide for CENELEC members.

Ref. No. EN 50131-1:2006 E

AVA Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

European foreword

This European Standard was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50131-1 on 2006-04-04.

This European Standard supersede EN 50131-1:1997.

The following dates were fixed

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2007-05-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-05-01

This standard is part of the EN 50131 series of European Standards and Technical Specifications “Alarm systems - Intrusion and hold-up systems”, written to include the following parts:

Part 1	System requirements
Part 2-2	Requirements for passive infrared detectors
Part 2-3	Requirements for microwave detectors
Part 2-4	Requirements for combined passive infrared and microwave detectors
Part 2-5	Requirements for combined passive infrared and ultrasonic detectors
Part 2-6	Requirements for opening contacts (magnetic)
Part 2-7 [1)]	Intrusion detectors - Glass break detectors
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 [1)]	Security fog devices

Foreword to amendment A1

This amendment to EN 50131-1:2006 was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as amendment A1 to EN 50131-1:2006 on 2009-05-01.

The following dates were fixed:

– latest date by which the amendment has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2010-05-01
– latest date by which the national standards conflicting with the amendment have to be withdrawn	(dow)	2012-05-01

[1)] At draft stage.

Documents
Document Sharing Hub
Full document details: BS EN 50131-1:2006+A3:2020

Foreword to amendment A2

This document (EN 50131-1:2006/A2:2016) 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) 2018-02-20
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2020-02-20

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

———————

Foreword to amendment A3

This document (EN 50131-1:2006/A3:2020) 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) 2021-05-11
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2023-05-11

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.

Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

Contents

Introduction 6
1 Scope 7
2 Normative references 7
3 Definitions and abbreviations 8
3.1 Definitions 8
3.2 Abbreviations 15
4 System functions 15
5 System components 15
6 Security grading 16
7 Environmental classification 16
7.1 Environmental Class I – Indoor 17
7.2 Environmental Class II – Indoor – General 17
7.3 Environmental Class III – Outdoor – Sheltered 17
7.4 Environmental Class IV – Outdoor – General 17
8 Functional requirements 17
8.1 Detection of intruders, triggering, tampering and the recognition of faults 17
8.2 Other functions 18
8.3 Operation 19
8.4 Processing 24
8.5 Indications 27
8.6 Notification 28
8.7 Tamper security 30
8.8 Interconnections 32
8.9 I&HAS timing performance 34
8.10 Event recording 34
9 Power supply 36
9.1 Types of power supply 36
9.2 Requirements 36
10 Operational reliability 37
10.1 I&HAS components 37
11 Functional reliability 37
12 Environmental requirements 37
12.1 General 37
12.2 Environmental 37
12.3 Electromagnetic compatibility 37
13 Electrical safety 38
14 Documentation 38
14.1 Intruder and hold-up alarm system documentation 38
14.2 Intruder and hold-up alarm system component documentation 38
15 Marking/Identification 38

Annex A (normative) Special national conditions 39
Annex B (normative) Requirements applicable when an I&HAS is remotely accessed 40
Annex C (normative) Common cyber security threats 41
Bibliography 42

AVA Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

Table 1 – Faults 18
Table 2 – Levels of access 20
Table 3 – Authorisation code requirements 20
Table 4 – Prevention of setting 21
Table 5 – Overriding of prevention of setting conditions 22
Table 6 – Restoring 23
Table 7 – Processing of intruder, hold-up, tamper alarm and fault signals/messages 26
Table 8 – Indication 27
Table 9 – Indications available during set and unset status at access level 1 28
Table 10 – Notification Requirements 29
Table 11 – Tamper detection – Components to include 30
Table 12 – Tamper detection – Means to be detected 31
Table 13 – Monitoring of substitution 31
Table 14 – Monitoring of substitution – Timing 31
Table 15 – Maximum unavailability of interconnections 32
Table 16 – Verification intervals 33
Table 17 – Maximum time period from last signal or message 33
Table 18 – Security of signals and messages 33
Table 19 – Signals or messages to be generated 34
Table 20 – Event recording – Memory 35
Table 21 – Event recording – Events to be recorded 35
Table 22 – Minimum duration of alternative power supply 36
Table 23 – Alternative power supply– Recharge periods 37

Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

Introduction

This European Standard applies to Intrusion and Hold-up Alarm Systems. The standard is also intended to apply to Intruder Alarm Systems which include only intrusion detectors and to Hold-up Alarm Systems which include only hold-up devices.

This European Standard is a specification for Intrusion and Hold-up Alarm Systems (I&HAS) installed in buildings, it includes four security grades and four environmental classes.

The purpose of an I&HAS is to enhance the security of the supervised premises. To maximise its effectiveness an I&HAS should be integrated with appropriate physical security devices and procedures. This is particularly important to higher grade I&HAS.

This standard is intended to assist insurers, intruder alarm companies, customers and the police in achieving a complete and accurate specification of the supervision required in particular premises, but it does not specify the type of technology, the extent or degree of detection, nor does it necessarily cover all of the requirements for a particular installation.

All references to the requirements for I&HAS refer to basic minimum requirements and the designers of such installed I&HAS should take into account the nature of the premises, the value of the contents, the degree of risk of intrusion, the threat to personnel and any other factors which may influence the choice of grade and content of an I&HAS.

Recommendations for design, planning, operation, installation and maintenance are given in Application Guidelines CLC/TS 50131-7.

This standard is not intended to be used for testing individual I&HAS components. Requirements for testing individual I&HAS components are given in the relevant component standards.

I&HAS and components thereof are graded to provide the level of security required. The security grades take into account the risk level which depends on the type of premises, the value of the contents, and the typical intruder or robber expected.

Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

1 Scope

This European Standard specifies the requirements for Intrusion and Hold-up Alarm Systems installed in buildings using specific or non-specific wired interconnections or wire-free interconnections. These requirements also apply to the components of an I&HAS installed in a building which are normally mounted on the external structure of a building e.g. ancillary control equipment or warning devices. The standard does not include requirements for exterior I&HAS.

This standard specifies performance requirements for installed I&HAS but does not include requirements for design, planning, installation, operation or maintenance.

These requirements also apply to I&HAS sharing means of detection, triggering, interconnection, control, communication and power supplies with other applications. The [A1] functioning [A1] of an I&HAS shall not be adversely influenced by other applications.

Requirements are specified for I&HAS components where the relevant environment is classified. This classification describes the environment in which an I&HAS component may be expected to [A1] function [A1] as designed. When the requirements of the four environmental classes are inadequate, due to the extreme conditions experienced in certain geographic locations, special national conditions are given in Annex A. General environmental requirements for I&HAS components are described in Clause 7.

The requirements of this European Standard also apply to IAS and HAS when these systems are installed independently.

When an I&HAS does not include functions relating to the detection of intruders, the requirements relating to intrusion detection do not apply.

When an I&HAS does not include functions relating to hold-up, the requirements relating to hold-up do not apply.

NOTE Unless otherwise stated the abbreviation I&HAS is intended to also mean IAS and HAS.

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.

[A2] Text deleted [A2]

[A2] EN 50130-5	-	Alarm systems – Part 5: Environmental test methods
EN 50131-6	-	Alarm systems – Intrusion and hold-up systems – Part 6: Power supplies [A2]
[A3] CLC/TS 50131-12	2016	*Alarm systems — Intrusion and hold-up systems — Part 12: Methods and requirements for setting and unsetting of Intruder Alarm Systems (IAS)* [A3]
[A2] EN 50136-1	2012[1]	Alarm systems – Alarm transmission systems and equipment – Part 1: General requirements for alarm transmission systems [A2]

[A3] Text deleted [A3]

[A2] Text deleted [A2]

[1] As impacted by EN 50136-1:2012/A1:2018

Documents
Document Sharing Hub
Full document details: BS EN 50131-1:2006+A3:2020

3 Definitions and abbreviations

3.1 Definitions

For the purposes of this document, the following terms and definitions apply:

3.1.1
action
(relating to setting and unsetting) deliberate operation or act by the user which is part of the setting or unsetting procedure

3.1.2
access level
level of access to particular functions of an I&HAS

3.1.3
active
state of a detector in the presence of a hazard

3.1.4
active period
period during which an alarm signal is present

3.1.5
alarm
warning of the presence of a hazard to life, property or the environment

3.1.6
alarm receiving centre
continuously manned centre to which information concerning the status of one or more I&HAS is reported

3.1.7
alarm company
organisation which provides services for I&HAS

3.1.8
alarm condition
condition of an I&HAS, or part thereof, which results from the response of the system to the presence of a hazard

3.1.9
alarm notification
passing of an alarm condition to warning devices and/or alarm transmission systems

3.1.10
alarm system
an electrical installation which responds to the manual or automatic detection of the presence of a hazard

〈A1〉 **3.1.11**
alarm transmission system
equipment and network used to transfer information from one or more I&HAS to one or more alarm receiving centres

NOTE Alarm transmission systems exclude local direct connections, i.e. interconnections between parts of an I&HAS which do not require an interface to transform the I&HAS information into a form suitable for transmission. 〈A1〉

AVA Documents Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

3.1.12
alert indication
an audible and/or visual indication, available at access level 1, when an I&HAS is in the unset state, indicating that further indication(s) are available to users at access levels 2, 3, or 4

3.1.13
alternative power source
power source capable of powering the [A1] I&HAS [A1] for a predetermined time when a prime power source is unavailable

[A3] Note1 to entry: The alternative power source is typically a battery. [A3]

3.1.14
ancillary control equipment
equipment used for supplementary control purposes

3.1.15
application
electronic security system, EXAMPLE: social alarm, CCTV, access control or fire system or a non-security electronic/electrical system EXAMPLE: heating, air conditioning, lighting

[A1] **3.1.16**
authorisation
[A3] permission for a user to gain access to the various control functions of an I&HAS [A3] [A1]

3.1.17
authorisation codes
[A1] mechanical [A1] or logical keys which permit access to I&HAS functions

3.1.18
availability of interconnection
condition when an interconnection is capable of conveying a signal or message

3.1.19
component substitution
the replacement of I&HAS components with alternative devices which prevent an I&HAS [A1] functioning [A1] as designed

3.1.20
communication
transmission of messages and/or signals between I&HAS components

NOTE The transmission of a signal may include the continual passing of an electrical current through a switch or relay forming the interface between I&HAS components. It is not necessary to change the status of any such switch or relay. Due to the nature of data communication the transmission of a message may require deliberate initiation, e.g. in response to a poll or at specified time intervals, this initiation may or may not require the change of status of a switch or relay.

3.1.21
continually
recurring frequently at regular intervals

3.1.22
control and indicating equipment
equipment for receiving, processing, controlling, indicating and initiating the onward transmission of information

3.1.23
entry/exit route
route by which authorised entry or exit to the supervised premises or part thereof may be achieved

AVA Documents
Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

3.1.24
event
condition arising from the operation of an I&HAS e.g. setting/unsetting or the functioning of an I&HAS, e.g. alarm signal or message

3.1.25
event recording
storage of events arising from the operation e.g. setting or unsetting of an I&HAS or the functioning of an I&HAS for future analysis

3.1.26
fault condition
condition of an alarm system which prevents an I&HAS or parts thereof from functioning normally

3.1.27
fault signal/message
information generated due to the presence of a fault

3.1.28
hold-up alarm system
alarm system providing the means for a user to deliberately generate a hold-up alarm condition

3.1.29
hold-up device
device which when triggered causes a hold-up alarm signal or message to be generated

3.1.30
hold-up alarm condition
condition of an alarm system, or part thereof, which results from the response of an I&HAS to the triggering of a hold-up device

3.1.31
indication
information (in audible, visual or any other form) provided to assist the user in the operation of an I&HAS

3.1.32
inhibit
status of a part of an I&HAS in which an alarm condition cannot be notified, such status remaining until the I&HAS or part thereof passes from the set to the unset status

3.1.33
interconnection
means by which messages and/or signals are communicated between I&HAS components

3.1.34
interconnection media
medium by which signals or messages are conveyed

3.1.35
interference
corruption of signals and/or messages passing between I&HAS components

3.1.36
intruder alarm system
alarm system to detect and indicate the presence, entry or attempted entry of an intruder into supervised premises

AVA Documents
Document Sharing Hub
Full document details: BS EN 50131-1:2006+A3:2020

3.1.37
intruder alarm condition
condition of an I&HAS, or part thereof, which results from the response of the I&HAS to the presence of an intruder

3.1.38
intruder signal or message
information generated by an intruder detector

3.1.39
intrusion detector
device designed to generate an intruder signal or message in response to the sensing of an abnormal condition indicating the presence of a hazard

3.1.40
intrusion and hold-up alarm system
combined intruder and hold-up alarm system

3.1.41
isolation
status of a part of an alarm system in which an alarm condition cannot be notified, such status remaining until A1 cancelled by a user A1

A2 **3.1.42**
masked
condition whereby a detector cannot function as intended as a result of its means of detection being compromised

EXAMPLE The field of view of a movement detector is obscured.

Note 1 to entry: For the purpose of this standard the terms “masked” and “masking” are considered interchangeable. A2

3.1.43
message
series of signals routed via interconnections which include identification, function data and the various means for providing its own integrity, immunity and proper reception

3.1.44
message substitution
intentional or unintentional creation of alternative message between I&HAS components which prevent the correct A1 functioning A1 of an I&HAS

3.1.45
monitoring
process of verifying that interconnections and equipment are functioning correctly

3.1.46
non-specific wired interconnection
A2 physical interconnection conveying information pertaining to an I&HAS and one or more other applications A2

3.1.47
normal condition
state of an I&HAS where no conditions exist which would prevent the setting of an I&HAS

3.1.48
notification
passing of an alarm, tamper or fault condition to warning devices and/or alarm transmission systems

AVA Documents Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020

3.1.49
operator
authorised individual (a user) using an I&HAS for its intended purpose

3.1.50
override
intervention, by a user, to permit setting when an I&HAS is not in a normal condition

3.1.51
part set
status of *text deleted* an I&HAS in which an intruder or hold-up alarm condition can be notified but part of the I&HAS is unset

3.1.52
pending indication
means of indicating that further information is available for display when all information cannot be displayed simultaneously

3.1.53
periodic communication
any valid signal or message

3.1.54
power supply
part of an alarm system which provides power for an I&HAS or any part thereof

3.1.55
prime power source
power source used to support an I&HAS under normal operating conditions

Note 1 to entry: For types A and B PS, the prime power source is equivalent to an external power source (EPS) as defined in EN 50131-6:2017, 3.1.5; also see EN 50131-6:2017 Figure 2.

Note 2 to entry: For Type C PS the prime power source is derived from the PS storage device.

3.1.56
principal prime power source
energy source capable of supporting the I&HAS for extended periods

Note 1 to entry: The principal prime power source may be derived from, e.g. the public electricity (mains) supply or an electricity supply independent of the public electricity supply.

3.1.57
restore
procedure of cancelling an alarm, tamper, fault or other condition and returning an I&HAS to a previous condition

3.1.58
self powered device
device incorporating its own power sources

3.1.59
sensor
part of a detector which senses a change in condition

3.1.60
set
status of an I&HAS or part thereof in which an intruder or hold-up alarm condition can be notified

AVA Documents Document Sharing Hub

Full document details: BS EN 50131-1:2006+A3:2020