

# TECHNICAL SPECIFICATION

---

**Alarm systems – Intrusion and hold-up systems –  
Part 7: Application guidelines**



## **THIS PUBLICATION IS COPYRIGHT PROTECTED**

**Copyright © 2011 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester.

If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de la CEI ou du Comité national de la CEI du pays du demandeur.

Si vous avez des questions sur le copyright de la CEI ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de la CEI de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland  
Email: [inmail@iec.ch](mailto:inmail@iec.ch)  
Web: [www.iec.ch](http://www.iec.ch)

### **About IEC publications**

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: [www.iec.ch/online\\_news/justpub](http://www.iec.ch/online_news/justpub)

Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: [www.iec.ch/webstore/custserv](http://www.iec.ch/webstore/custserv)

If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: [csc@iec.ch](mailto:csc@iec.ch)  
Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00

# TECHNICAL SPECIFICATION

---

**Alarm systems – Intrusion and hold-up systems –  
Part 7: Application guidelines**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**XA**

---

ICS 13.320

ISBN 978-2-88912-348-3

## CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	8
2 Normative references .....	8
3 Terms, definitions and abbreviations .....	8
3.1 Terms and definitions .....	8
3.2 Abbreviations .....	13
4 Security grade of I&HAS.....	13
5 Environmental classification .....	14
5.1 Environmental Class I – Indoor.....	14
5.2 Environmental Class II – Indoor – General .....	14
5.3 Environmental Class III – Outdoor – Sheltered or indoor extreme conditions .....	14
5.4 Environmental Class IV – Outdoor – General.....	14
6 General .....	15
6.1 Other components .....	15
6.2 Electrical safety .....	15
6.3 Unwanted alarms .....	15
6.4 Responsibility.....	15
6.5 Qualifications .....	15
6.6 Competence .....	15
6.7 Tools.....	15
6.8 Confidentiality .....	15
6.9 Consultation .....	15
6.10 Compatibility .....	16
7 System design.....	16
7.1 Location survey – Risk .....	16
7.1.1 Contents.....	16
7.1.2 Building .....	16
7.1.3 Minimum supervision levels for IAS .....	16
7.1.4 Minimum supervision levels for HAS .....	16
7.2 Location survey – Other influences.....	17
7.3 System design proposal .....	17
7.3.1 Selection of components .....	17
7.3.2 Siting of equipment.....	17
7.3.3 Interconnections .....	18
7.3.4 Setting and unsetting.....	19
7.3.5 Entry and exit routes .....	20
7.3.6 Indication.....	21
7.3.7 Grouping of detectors .....	21
7.3.8 Notification .....	21
7.3.9 Power supplies .....	21
7.3.10 Response to I&HAS .....	22
8 Installation planning .....	22
8.1 General .....	22
8.2 Manufacturer's recommendations .....	22
8.3 Environmental considerations.....	22

8.4	Technical survey .....	22
8.4.1	Operation of I&HAS .....	22
8.4.2	Selection of components .....	23
8.4.3	Interconnections .....	23
8.4.4	Amendment to system design proposal.....	23
8.5	Installation plan and equipment schedule .....	23
9	System installation .....	23
10	Inspection, functional testing and commissioning.....	23
10.1	Inspection .....	23
10.2	Functional testing .....	24
10.3	Commissioning.....	24
10.4	Handover .....	24
10.5	Test period.....	24
10.6	Acceptance .....	25
10.7	As-fitted document .....	25
10.8	Certificate of conformance.....	25
11	Documentation and records.....	25
11.1	Documentation .....	25
11.2	Records .....	26
12	Operation of I&HAS .....	26
13	Maintenance and repair of I&HAS.....	26
13.1	General.....	26
13.2	Inspection and servicing.....	27
13.2.1	Maintenance routine .....	27
13.2.2	Prevention of unwanted alarms during routine testing.....	27
13.3	Repair .....	27
Annex A (informative)	Special national conditions.....	28
Annex B (informative)	System design – Location survey – Contents .....	29
Annex C (informative)	Systems design – Location survey – Building.....	30
Annex D (informative)	Location survey – Influences affecting I&HAS originating within the supervised premises .....	32
Annex E (informative)	Location survey – Influences affecting I&HAS originating outside the supervised premises.....	35
Annex F (informative)	Levels of supervision.....	37
Annex G (normative)	Information to be included in the system design proposal .....	38
Annex H (informative)	Technical survey.....	40
Annex I (informative)	System record (log book).....	50
Annex J (informative)	Maintenance .....	51
Annex K (informative)	Flow chart .....	52
Bibliography.....		53
Figure K.1 – Flow chart.....		52
Table F.1 – Levels of supervision.....		37

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ALARM SYSTEMS –  
INTRUSION AND HOLD-UP SYSTEMS –****Part 7: Application guidelines**

## FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC 62642-7, which is a technical specification, has been prepared by IEC technical committee 79: Alarm and electronic security systems.

This standard is based on EN/TS 50131-7 (2010).

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
79/315/DTS	79/332/RVC

Full information on the voting for the approval of this technical specification 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.

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 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 be

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

## INTRODUCTION

This part 7 of the IEC 62642 series of standards gives requirements for intrusion and hold-up alarm systems. The other parts of this series of standards are as follows:

- 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 2-71   Intrusion detectors – Glass break detectors – Acoustic
- Part 2-72   Intrusion detectors – Glass break detectors – Passive
- Part 2-73   Intrusion detectors – Glass break detectors – Active
- Part 3     Control and indicating equipment
- Part 4     Warning devices
- Part 5-3    Interconnections – Requirements for equipment using radio frequency techniques
- Part 6     Power supplies
- Part 7     Application guidelines
- Part 8     Security fog devices/systems

In order to insure the consistency of the whole IEC 62642 series, the terminology is defined at one place that is the master document IEC 62642-1 that gives general requirements concerning the intrusion system. Exception is made for specific terms to installation and where repetition is deemed essential for the clarity of this document.

A number of requirements are contained in this standard for which a formal test procedure can only be written by defining (and hence restricting) the technology by which the requirement is achieved. Accordingly, it has been recognised that such functions can be tested only by agreement between installers and test house, according to documented information relating to how the required functionality has been achieved.

These application guidelines are intended to provide advice relating to the design, installation, operation and maintenance of Intruder and Hold-up Alarm Systems (I&HAS). The purpose of this document is to ensure, as far as is practical, that I&HAS provide the required performance with a minimum of unwanted alarms.

These application guidelines are set out in the logical order in which an I&HAS would normally be designed and installed. Each procedure is set out separately in the guideline but it is accepted that, in practice, some of the procedures may be carried out simultaneously. Annex K describes in the form of a flowchart the main processes and documentation included in this application guideline.

Those responsible for the design, installation planning, system installation, commissioning, operation and maintenance of I&HAS should be conversant with other International Standards relating to I&HAS, particularly those relating to system performance, control and indicating equipment, detectors, warning devices, power supplies and alarm transmission systems.

These application guidelines are set out in seven main clauses; a brief explanation of each section is shown below.

- a) Clause 7 – System design



This clause is intended to assist those responsible for designing I&HAS to design I&HAS suitable for the premises to be supervised in relation to the perceived risk(s). The design of I&HAS will depend on many factors, all of which will influence more or less the design of I&HAS. Consideration of these factors will result in a system design proposal for an I&HAS with the appropriate extent, security grade and environmental class.

b) Clause 8 – Installation planning

This clause is intended to help those responsible for installing I&HAS by highlighting issues which should be considered prior to commencing the installation of the I&HAS.

c) Clause 9 – System installation

In this clause, guidance is given with regard to issues arising during the installation of I&HAS. This clause is intended to ensure I&HAS is correctly installed as specified at the design stage.

d) Clause 10 – Inspection, functional testing and commissioning

In this clause, guidance is given on issues arising after I&HAS has been installed. The clause is intended to ensure I&HAS has been installed as specified and also provides the level of performance intended at the design stage. Guidance is also provided with regard to the proper commissioning and handing over of the system to the user and to the documents, records and operating instructions which should be provided.

e) Clause 11 – Documentation and records

This clause describes the documentation which should be provided to the client on completion of I&HAS. The documents are intended to provide a history of modifications to I&HAS, based on the as-fitted document, prepared when I&HAS installation was completed.

The records are intended to chronicle any corrective action carried out following unwanted alarm conditions and details of any repairs or modifications to I&HAS. The record should also include details of temporary fault conditions.

f) Clause 12 – Operation of I&HAS

This clause describes the responsibility of the client or user of I&HAS to properly maintain I&HAS and to ensure it is operated correctly.

g) Clause 13 – Maintenance and repair of I&HAS

This clause describes how I&HAS should be maintained and repaired to ensure I&HAS continues to provide the level of performance intended at the design stage.

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

### Part 7: Application guidelines

#### 1 Scope

This Technical Specification provides guidance on the design, planning, operation, installation, commissioning and maintenance of intrusion and hold-up alarm system (I&HAS) installed in buildings. Requirements for I&HAS are specified in IEC 62642-1:2010.

The recommendations of this Technical Specification (TS) also apply to intruder alarm system (IAS) and hold-up alarm system (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 1 Unless otherwise stated, the abbreviation I&HAS is also intended to mean IAS and HAS.

These application guidelines are intended to assist those responsible for establishing an I&HAS to ascertain the appropriate design of I&HAS both in terms of the extent of the supervision required and in determining the grade of system performance necessary to provide the degree of supervision considered appropriate.

These application guidelines are also intended to assist those responsible for selecting equipment appropriate to both the level of performance required and the environmental conditions in which the equipment will be required to operate.

These application guidelines are relevant to all classes and grades of I&HAS of any size and complexity. These application guidelines should be read in conjunction with IEC 62462-1:2010.

NOTE 2 It has been assumed in the drafting of these application guidelines that the execution of its provisions will be entrusted to appropriately qualified and experienced persons. However, the guidance is also appropriate to other persons who may be required to purchase or use an I&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.

IEC 62642-1:2010, *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 following terms and definitions apply.