IEC 62820-3-1

Edition 1.0 2017-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Building intercom systems – Part 3-1: Application guidelines – General

Systèmes d'interphone de bâtiment – Partie 3-1: Lignes directrices d'application – Généralités

IEC 62820-3-1:2017-12(en-fr)

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2017 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 l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

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.

IEC Catalogue - webstore.iec.ch/catalogue
The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue
Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

IEC 62820-3-1

Edition 1.0 2017-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Building intercom systems – Part 3-1: Application guidelines – General

Systèmes d'interphone de bâtiment – Partie 3-1: Lignes directrices d'application – Généralités

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.320

ISBN 978-2-8322-5142-3

Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.

® Registered trademark of the International Electrotechnical Commission
Marque déposée de la Commission Electrotechnique Internationale

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

CONTENTS

FOREWORD 4
INTRODUCTION 6
1 Scope 7
2 Normative references 7
3 Terms, definitions and abbreviated terms 7
3.1 Terms and definitions 7
3.2 Abbreviated terms 8
4 System planning and design 9
4.1 General 9
4.2 System type selection 9
4.2.1 General 9
4.2.2 Functional requirement 9
4.2.3 Performance 9
4.2.4 Maintenance 9
4.3 System component selection 10
4.3.1 General 10
4.3.2 URU selection 10
4.3.3 VCU selection 10
4.3.4 SMU selection 10
4.3.5 Additional AUX 11
4.4 Operational considerations 11
4.4.1 General 11
4.4.2 Regulatory requirements 11
4.4.3 Door unlocking 11
4.4.4 System management 12
4.4.5 Intercom controlled building entrances 12
4.4.6 System integration and interoperability 12
5 System architecture 13
6 System installation 13
6.1 General 13
6.2 Installation 14
6.2.1 Equipment 14
6.2.2 Medium connections 14
6.2.3 Inspection and functional testing 15
7 Commissioning and system handover 15
7.1 Commissioning 15
7.2 System handover 16
8 System operation and maintenance 16
9 Documentation 17
9.1 General 17
9.2 Documentation for commissioning/ system handover 17
9.3 Documentation for maintenance 18
10 Environmental and EMC considerations 18
10.1 General 18

Documents
Document Sharing Hub
Full document details: IEC 62820-3-1 2017

10.2 Environmental considerations 18
10.2.1 Enclosure protection capability considerations 18
10.2.2 Anti-vandalism capability considerations 18
10.3 EMC considerations 18
Bibliography 20

Figure 1 – Architecture of a BIS 13

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

INTERNATIONAL ELECTROTECHNICAL COMMISSION

BUILDING INTERCOM SYSTEMS –

Part 3-1: Application guidelines – General

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.

International Standard IEC 62820-3-1 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
79/599/FDIS	79/600/RVD

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

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

A list of all parts in the IEC 62820 series, published under the general title *Building intercom systems*, can be found on the IEC website.

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

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

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

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

INTRODUCTION

This part 3-1 of the IEC 62820 series of standards provides application guidelines for building intercom systems. The other parts of this series of standards are as follows:

Part 1-1: System requirements – General

Part 1-2: System requirements – Building intercom systems using the Internet Protocol (IP)

Part 2: Requirements for advanced security building intercom systems (ASBIS)

Part 3-1: Application guidelines – General

Part 3-2: Application guidelines – Advanced security building intercom systems (ASBIS)

This part describes general recommendations for planning, installation, operation, maintenance and documentation for the application of building intercom systems. The recommendations of part 3-1 are specifically intended for large-scale systems.

Where an installation is intended to meet the requirements of IEC 62820-2, the recommendations of IEC 62820-3-2 should also be applied.

The implementation of building intercom systems (BIS) should be in accordance with the following sequence:

– system planning and design;
– system installation;
– commissioning and system handover;
– system operation and maintenance.

Separate guidance is provided for each activity along with recommendations for documentation needed. A brief description of each clause covering the activities is provided below:

System planning and design: this clause is intended to assist the designer with the selection of the type of BIS and system component of the BIS which best meet the BIS implementation and user requirement.

System installation: this clause is intended to help those responsible for installing BIS by identifying issues that should be considered prior to start of installation and during the installation of the system in order to ensure the BIS is implemented correctly as specified during system planning.

Commissioning and system handover: this clause provides guidance to ensure that the functions required in the system planning are obtained and that the system owner is provided with the necessary documentation, records and operating instructions during the handover of the BIS.

System operation and maintenance: this clause includes the guidelines of the implementation to ensure the system is operated correctly and maintained adequately.

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

BUILDING INTERCOM SYSTEMS –

Part 3-1: Application guidelines – General

1 Scope

This part of IEC 62820 series gives guidelines for planning, installation, commissioning, operation and maintenance of Building Intercom Systems (BIS), for use in security applications. The different technical requirements for BIS are specified in IEC 62820-1-1 and IEC 62820-1-2.

The objectives of this document are to:

a) provide a framework to assist system integrators, installers, consultant engineers and system owners in establishing their requirements;

b) assist specifiers and system owners in determining the appropriate equipment required for a given application.

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.

IEC 62820-1-1:2016, *Building intercom systems – Part 1-1: System requirements – General*

IEC 62820-1-2, *Building intercom systems – Part 1-2: System requirements – Building intercom systems using the Internet Protocol (IP)*

IEC 62820-2, *Building intercom systems – Part 2: Requirements for advanced security building intercom systems (ASBIS)*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions 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
contact list
list of all connected subscribers

3.1.2
IP system
building intercom systems that use the Internet Protocol (IP)

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

3.1.3
non-IP system
building intercom systems that do not use the Internet Protocol (IP) as communication connection and/or have a mixture of IP and non-IP communication connections

3.1.4
qualified person
person who can deal with the allocated work due to his technical training, knowledge and experience and familiarity with relevant standards, requirements and guidelines

3.1.5
service personnel
persons that are responsible for the maintenance services of a BIS and keep it in good condition

3.1.6
system component
component that can include visitor call unit (VCU), user receiver unit (URU), security management unit (SMU) or auxiliary device (AUX), which can be chosen by the application of system type selection

3.1.7
system operator
person who is responsible for the configuration and management services of a BIS and keeps it running as specified

3.1.8
system owner
person who has an ownership or ownership-type interest in a BIS and is responsible for the availability and maintenance of a BIS, ensuring that the system and its operation is in compliance with applicable standards and is dimensioned for the intended use

3.1.9
system type
classification according to architecture, communication and application functions of a system

Note 1 to entry: BIS can be non-IP system or IP system.

3.1.10
user
person who uses URU, VCU or SMU of the BIS to communicate with another

3.2 Abbreviated terms

AUX auxiliary device

BIS building intercom system

EMC electromagnetic compatibility

SMU security management unit

URU user receiver unit

VCU visitor call unit

VSS video surveillance system

AVA Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

4 System planning and design

4.1 General

The objectives of the system planning stage are to determine the extent of BIS and select system component of the appropriate functionality/performance criteria and environmental classification and to prepare a system design proposal.

The system design proposal may be subjected to alteration at various stages in the implementation of the system, e.g. during the installation planning and installation implementation stages. Any such changes should be agreed between the relevant parties and the documentation amended accordingly.

Particular care should be taken to minimize inconvenience to the users.

4.2 System type selection

4.2.1 General

According to architecture, communication, application and functions of system, the complexity of BIS should be considered. Subclauses 4.2.2 to 4.2.4 provide guidance for the system type selection.

4.2.2 Functional requirement

The following functional requirements should be considered in the system type selection:

– general functions;
– system network topology in installation location and quantity of system components;
– system communication capacity for data transmission in operation;
– other security communication functions;
– integration with other security systems functions.

4.2.3 Performance

The following items should be considered in the system type selection:

– intercom methods (e.g. audio or video intercom system);
– the signal quality of audio or video;
– system scale;
– communication distance;
– communication mode;
– the number of simultaneous communications;
– network structure, structure cabling and extension;
– convenience for installation, configuration and functional testing;
– remote software upgrade capability.

4.2.4 Maintenance

The following items should be considered in system type selection:

– the future availability and replacement for AUX;
– self-check and fault monitoring for device;
– fault monitoring for communication line or AUX;
– system upgrade;

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

– after-sale service;
– life cycle of product.

4.3 System component selection

4.3.1 General

URU, VCU and SMU should be selected according to the functions of the intercom based on the system type selection.

All system components should be suitable for the environmental conditions in which they have to operate.

Care should be taken during the selection of system components to ensure that all the system components are compatible. If uncertainty arises, the appropriate consultation should take place, e.g. with the system component manufacturer, supplier, installer or another relevant third party.

4.3.2 URU selection

The following items should be considered:

– intercom methods (e.g. audio or video intercom);
– audio intercom types: handsfree (simultaneous, non-simultaneous conversation [automatic or manual]), handset or both;
– video types and attributes (e.g. black and white video or colour video, screen size);
– audio attributes (e.g. adjustable volume);
– operating modes (e.g. buttons or touch screen operation);
– additional functions (e.g. video and image recording and replaying function);
– additional functional interfaces (e.g. alarm interface, lift control interface and communication interface to home and building electronic systems and building automation and control systems).

4.3.3 VCU selection

The following items should be considered:

– intercom methods (e.g. audio or video intercom);
– video types (e.g. black and white or colour video);
– appropriate lighting and viewing angle of camera;
– audio attributes (e.g. audio levels);
– operating modes (e.g. individual push-buttons, keypad, touch screen);
– calling modes (e.g. push a button, input room number or select from the contact list to call resident);
– warning function (if the unsecured state of the controlled entrance lasts beyond the configured time, the VCU send a warning message to SMU);
– enclosure protection capability (according to installation environment requirement to select the appropriate IP degree);
– anti-vandalism (according to installation environment requirement to select the appropriate protection degree).

4.3.4 SMU selection

The following items should be considered:

– handsfree / handset / both;

Documents
Document Sharing Hub
Full document details: IEC 62820-3-1 2017

– video display;
– camera option;
– contact list of VCUs, URUs or SMUs;
– call receiving from URU, VCU and SMU;
– VCU call interception (e.g. SMU may intercept incoming calls from a VCU directed to an URU and then redirect the call to desired URU);
– flexibility to switch between different management modes (e.g. switch the call from one SMU to another SMU, or SMU intercept calls from VCU to URU);
– special functions (e.g. logging and reporting).

4.3.5 Additional AUX

AUX should be included according to system type. The following devices should be considered according to the manufacturer's technical documentation:

– power supplies, including Power over Ethernet (PoE);
– video distributors;
– floor decoders;
– VCU switchers;
– other devices.

4.4 Operational considerations

4.4.1 General

The operational considerations in this section are guidelines for relevant persons (e.g. designers, installers, operators and maintenance providers) and give installation recommendations.

The following items should be considered:

– system scale;
– visitor management for intercom and access;
– selection of gate lock and its unlocking method;
– management center establishment (location, device configuration, etc.);
– location of the equipment installation;
– safety requirements (e.g. emergency exits, fire detection, fire alarm);
– environmental and EMC conditions of the site;
– unlocking method in fault conditions;
– the communication routes, the type of communication medium, the maximum communication distance;
– the availability and reliability of the communication network;
– alarm/alert reporting method;
– training of operators.

4.4.2 Regulatory requirements

Attention should be paid to any applicable international, national and local regulatory requirements.

4.4.3 Door unlocking

The following unlocking methods can be selected:

Documents
Document Sharing Hub

Full document details: IEC 62820-3-1 2017

– resident user control (including enabling of the auto-unlocking function);
– central administrator control;
– user password;
– proximity card;
– biometric identification;
– mechanical.

NOTE In case of access control systems, IEC 60839 (all parts) are taken into consideration.

4.4.4 System management

To maintain the continued and reliable operation of the BIS, consideration should be given to the following system management functions:

– system authentication and access control;
– skills and training of system operators;
– management and record of visitor calling;
– management and record of security event;
– management and record of information distribution from management centre to URUs;
– management and maintenance of data backup for system recovery;
– management and maintenance of system devices.

4.4.5 Intercom controlled building entrances

For proper installation and operation of access points of buildings, the following items should be considered:

– access location and installation of intercom device;
– lock selection and unlocking method to be operated by the intercom device;
– forced entrance or abnormal operation;
– safety requirements (e.g. emergency exits, fire detection/alarm);
– method of returning the building entrance to the closed condition (e.g. automatic door closing equipment);
– operational indications;
– alternative power source (e.g. battery).

4.4.6 System integration and interoperability

Consideration should be given to the following items when designing a BIS to interoperate or integrate with other systems (e.g. access control, intruder alarm systems, VSS, home automation, elevator control):

– interface for a BIS to link with other systems;
– interface for URU to link with other systems;
– communication interface of management centre;
– type of communication links and security of transmitted data associated with those links;
– network infrastructure requirements.

Documents
Document Sharing Hub
Full document details: IEC 62820-3-1 2017