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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

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FOREWORD

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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.

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- withdrawn,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.

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:

<u>System planning and design:</u> 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.

<u>System installation:</u> 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.

<u>Commissioning and system handover:</u> 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.

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

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)

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

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;

– 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;

– 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: