

FINAL VERSION

**Home and building electronic systems (HBES) and building automation and control systems (BACS) –
Part 1: General requirements**

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CONTENTS

FOREWORD.....	3
1 Scope.....	5
2 Normative references	5
3 Terms, definitions and abbreviated terms	5
3.1 Terms and definitions.....	5
3.2 Abbreviated terms.....	6
4 General requirements	6
5 Standardization structure.....	7
5.1 Part 2: Environmental conditions.....	7
5.2 Part 3: Electrical safety requirements.....	7
5.3 Part 4: Functional safety	7
5.4 Part 5: EMC requirements.....	7
5.4.1 Overview	7
5.4.2 Part 5-1: EMC requirements, conditions and test set-up	7
5.4.3 Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light-industrial environments.....	7
5.4.4 Part 5-3: EMC requirements for HBES/BACS used in industrial environments.....	7
5.5 Part 6: Planning and installation of HBES.....	8
Bibliography.....	9

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

HOME AND BUILDING ELECTRONIC SYSTEMS (HBES) AND BUILDING AUTOMATION AND CONTROL SYSTEMS (BACS) –

Part 1: General requirements

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC 63044-1 edition 1.1 contains the first edition (2017-01) [documents 23/734/CDV and 23/746/RVC] and its amendment 1 (2021-05) [documents 23/913/CDV and 23/962A/RVC].

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.

International Standard IEC 63044-1 has been prepared by IEC technical committee 23: Electrical accessories.

A list of all parts in the IEC 63044 series, published under the general title *Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)*, can be found on the IEC website.

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

The committee has decided that the contents of the base publication and its amendment 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

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- withdrawn,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

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HOME AND BUILDING ELECTRONIC SYSTEMS (HBES) AND BUILDING AUTOMATION AND CONTROL SYSTEMS (BACS) –

Part 1: General requirements

1 Scope

This part of IEC 63044 applies to all Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) and specifies the general requirements for these systems and products.

This document provides an overview of the IEC 63044 series.

To enable integration of a wide spectrum of applications, the IEC 63044 series covers

- electrical safety,
- functional safety,
- environmental conditions,
- EMC requirements, and
- installation and cabling rules and topologies.

IEC 63044 is a series of product family standards

2 Normative references

There are no normative references in this document.

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

gateway

functional unit that connects different networks through interfaces

3.1.2

HBES/BACS network

network based on one physical layer that facilitates the communication in HBES/BACS

Note 1 to entry: Examples of HBES/BACS networks are RF, twisted pair, PLC.

Note 2 to entry: HBES/BACS can be supported by different networks.

3.1.3 HBES/BACS

system consisting of control devices, processing equipment, network interfaces, and gateways, where the functions are distributed and linked through a common communication process, managing multiple applications in home and building premises

Note 1 to entry: Examples of applications are heating, alarming, shading and lighting.

Note 2 to entry: The term "managing" includes one or more activities such as measuring, monitoring and controlling.

Note 3 to entry: Other terms that are used in the market to refer to HBES/BACS include the following: "home control network", "home control system", "smart home", "building system" and "building automation system"

Note 4 to entry: The principles of HBES/BACS can also be used for single application systems if no specific standards are available.

Note 5 to entry: A common communication process is a process using a common data model (such as KNX, LON, Bacnet, Dotted, etc.), independent of the physical layer.

Note 6 to entry: An application can comprise individual products or systems.

Note 7 to entry: The controlled device is not part of HBES/BACS except for the interface to the HBES/BACS network.

3.1.4 network interface

boundary between two functional units, defined by functional characteristics, signal characteristics, or other characteristics as appropriate

Note 1 to entry: This concept includes the specification of the connection of two devices having different functions.

3.1.5 interoperability

ability of devices to exchange commands via the higher layers resulting in meaningful actions

Note 1 to entry: This includes aspects of the application domain, which by definition is beyond the OSI domain.

3.1.6 service

action or function of a system creating an added value for customers, controlled locally, or remotely by a service provider

[SOURCE: IEC 60050-871:2018, 871-01-04, modified – deletion of "AAL" from the term and from the definition, deletion of the example and note, and addition of "controlled locally, or remotely by a service provider".]

3.1.7 cluster

group of applications using the same type of HBES for approximately the same type of information to be exchanged driven by the same industrial and market sector

3.2 Abbreviated terms

BACS	Building Automation and Control Systems
HBES	Home and Building Electronic Systems
HVAC	Heating, Ventilation and Air Conditioning

4 General requirements

A product claiming compliance with IEC 63044 shall comply with all applicable parts listed under Clause 5 in the framework of its intended use as declared by the manufacturer.

Compliance with single parts of IEC 63044 shall be notified individually (e.g. compliant with IEC 63044-3, IEC 63044-5-1 and IEC 63044-5-2, etc.).

5 Standardization structure

5.1 Part 2: Environmental conditions

This part is under consideration.

IEC 63044-2 provides the environmental conditions for HBES/BACS devices, when declared in the manufacturer's documentation for use in one or more of the environment classes.

5.2 Part 3: Electrical safety requirements

This document specifies the electrical safety requirements for HBES/BACS.

In addition, IEC 63044-3 defines safety requirements for the interface of equipment intended to be connected to an HBES/BACS. It does not apply to interfaces to other networks.

NOTE An example of other networks is a dedicated ICT network covered by IEC 62949.

5.3 Part 4: Functional safety

This part is under consideration.

IEC 63044-4 sets the requirements for functional safety for HBES/BACS products and systems. The requirements may also apply to the distributed functions of any equipment connected in a home or building control system if no specific functional safety standard exists for this equipment or system. IEC 63044-4 does not provide functional safety requirements for safety-related systems.

5.4 Part 5: EMC requirements

5.4.1 Overview

This product family standard specifies the EMC requirements for HBES/BACS.

In addition, it defines EMC requirements for the interface of equipment intended to be connected to an HBES/BACS network.

NOTE An example of other networks is a dedicated ICT network covered by CISPR 32.

5.4.2 Part 5-1: EMC requirements, conditions and test set-up

IEC 63044-5-1 provides the general performance requirements and test set-ups.

5.4.3 Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light-industrial environments

IEC 63044-5-2 specifies EMC requirements for HBES/BACS to be installed in residential, commercial and light-industrial environments, according to the definition given in IEC 61000-6-1.

5.4.4 Part 5-3: EMC requirements for HBES/BACS used in industrial environments

IEC 63044-5-3 specifies EMC requirements for HBES/BACS to be installed in industrial environments, according to the definition given in IEC 61000-6-2.

NOTE Industrial environment covers the office spaces that may be present in industrial premises.

Industrial automation systems are outside the scope of IEC 63044-5-3.

5.5 Part 6: Planning and installation of HBES

This part is under consideration.

IEC 63044-6 specifies the additional specific HBES requirements for the common rules for the planning and the installation of HBES/BACS.

Power line systems are outside the scope of IEC 63044-6.

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