

# INTERNATIONAL STANDARD



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

IEC 63044-1:2017

<https://standards.iteh.ai/catalog/standards/sist/6d189c2a-433f-43e4-8045-24bc72c6bb6c/iec-63044-1-2017>



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CONSOLIDATED VERSION

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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 .....	7
4 General requirements .....	7
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 .....	8
5.4 Part 5: EMC requirements .....	8
5.4.1 Overview .....	8
5.4.2 Part 5-1: EMC requirements, conditions and test set-up .....	8
5.4.3 Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light-industrial environments .....	8
5.4.4 Part 5-3: EMC requirements for HBES/BACS used in industrial environments .....	8
5.5 Part 6: Planning and installation of HBES .....	9
<del>6 HBES/BACS applications and clusters overview .....</del>	<del>11</del>
Bibliography .....	11
<u>IEC 63044-1:2017</u>	
<del>Table 1 — Summary of the most relevant application requirements .....</del>	<del>11</del>
<del>Table 2 — Applications and clusters of services for HBES/BACS .....</del>	<del>11</del>

## 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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**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].**

**In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted 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

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- 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 is applicable (but not limited) to~~

- ~~— operator stations and other human-system interface devices,~~
  - ~~— devices for management functions,~~
  - ~~— control devices, automation stations and application specific controllers,~~
  - ~~— field devices and their interfaces, and~~
  - ~~— cabling and interconnection of devices~~
- ~~used within a dedicated HBES/BACS network.~~

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

#### ~~home and building electronic/building automation and control products~~

#### ~~HBES/BACS products~~

~~devices intended to be used for control, monitoring, operation or management of building services and/or home electronic systems which can interact via a dedicated HBES/BACS network~~

#### **gateway**

functional unit that connects different networks through interfaces

### 3.1.2

#### **HBES/BACS network**

~~interconnection between HBES/BACS products used for communication~~

~~Note 1 to entry:— An HBES/BACS network can carry digital data as well as analogue signals.~~

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**

~~combination of HBES/BACS products (including their separate connected/detachable devices) linked together via one or more HBES/BACS networks~~

~~Note 1 to entry:— Other names used such as "home control network", "home control systems", "home and building electronic systems", "building systems", "building automation system", etc. describe types of HBES/BACS system.~~

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, Modbus, 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

#### **interface**

~~shared boundary between two implementations of functions belonging to one or more functional groupings~~

#### **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

~~benefit provided by an interapplication binding, or a local controller or remotely by a service provider to a consumer, and using entities and functions of applications that are available to it~~

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

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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 ~~in the product documentation~~ (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 all devices connected to HBES/BACS and defines the general requirements for devices operating in weather protected and non-weather protected locations, sea environments, portable use and also for storage and transport.~~

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

~~IEC 63044-3 provides the electrical safety requirements related to the HBES/BACS network in addition to the product safety standards for HBES/BACS devices.~~

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