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INTERNATIONAL STANDARD

colour inside

Home and building electronic systems (HBES) and building automation and control systems (BACS) – Part 3: Electrical safety requirements

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Part 3: Electrical safety requirements

IEC 63044-3:2017-01+AMD1:2021-05 CSV(en)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 3: Electrical safety requirements

FOREWORD

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IEC 63044-3 edition 1.1 contains the first edition (2017-01) [documents 23/735/CDV and 23/747/RVC] and its amendment 1 (2021-05) [documents 23/912/CDV and 23/961A/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 63044-3 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 Control Systems (BACS)*, can be found on the IEC website.

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

In this publication, the following print types are used:

– Requirements proper: in roman type.
– *Test specifications: in italic type.*

This document shall be used in conjunction with relevant product safety standards.

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- withdrawn,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.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

The IEC 63044 series deals with developing and testing Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS).

This document deals with electrical safety requirements for HBES/BACS.

This document is based on the philosophy that a device considered electrically safe according to an appropriate product safety standard should also remain safe when connected to a network. This document specifies in addition to the specific product standard the electrical safety requirements necessary in order for an HBES/BACS device connected to a network to remain safe under normal and single-fault conditions of the HBES/BACS network and at the same time under normal and single-fault conditions of one or more HBES/BACS devices connected to the HBES/BACS network. This includes protection from overvoltages on the network, protection from hazards caused by connection of different types of ~~circuit~~ network, the limitation of the touch current to a network and protection of the communication wiring from overheating.

The HBES/BACS network is any interconnection between HBES/BACS ~~products~~ devices. The HBES/BACS networks can be either an ICT network with interfaces classified according to IEC 62949 or a dedicated network classified as a mains, ELV, FELV, SELV or PELV ~~circuit~~ network.

For HBES/BACS ~~products~~ devices connected to an ICT network, the requirements in IEC 62949 apply.

For HBES/BACS ~~products~~ devices connected to a dedicated HBES/BACS network, the requirements for the electrical separation between the device and the network ~~circuit~~ are specified (see Table 1). These specifications of the electrical separations follow the principle in the basic safety publications IEC 60664-1 and IEC 61140, together with the installation requirements of IEC 60364. The following compromises are used.

– According to the principles of IEC 60664-1, the rated impulse voltage for the separation shall be the higher of the impulse voltage on the network and the rated impulse voltage of the device circuit to be connected to the network.
– The overvoltage categories considered by IEC 60664-1 refer to overvoltages derived directly from the mains through the power supply.
– The overvoltages coming from other sources (e.g. capacitive couplings) are not specified in IEC 60664-1. IEC 60664-1 recommends that technical committees specify overvoltage categories or rated impulse voltages as appropriate.

For the purposes of this document, the following impulse voltages have been specified.

- For networks with galvanic electrical separation from mains (FELV, SELV or PELV ~~circuit~~), the impulse overvoltage coming from the network side of the separation has been limited to 2,5 kV for fixed installed networks and 1,5 kV for detachable networks.
- For ICT networks, particular requirements apply (see 6.3.2.1).

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

Part 3: Electrical safety requirements

1 Scope

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

~~It also applies to devices used within an HBES/BACS network for which no specific HBES/BACS product safety standard exists.~~

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

In addition, it defines safety requirements for the interface of equipment intended to be connected to an HBES/BACS ~~network~~. It does not apply to interfaces to other networks.

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

~~This document is applicable 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 covers the following requirements and compliance criteria:

- protection ~~from~~ against hazards ~~in~~ from the device;
- protection ~~from~~ against overvoltages on the network;
- protection ~~from~~ against touch current;
- protection ~~from~~ against hazards caused by different types of ~~circuit~~ network;
- protection of the communication wiring ~~from~~ against overheating caused by excessive current.

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.

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IEC 60364-5-52, *Low-voltage electrical installations – Part 5-52: Selection and erection of electrical equipment – Wiring systems*

IEC 60664-1, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

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IEC 61180, *High-voltage test techniques for low-voltage equipment –Definitions, test and procedure requirements, test equipment*

IEC 62151:2000, *Safety of equipment electrically connected to a telecommunication network*

IEC 62949, *Particular safety requirements for equipment to be connected to information and communication networks*[1]

IEC 63044-1, *Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) – Part 1: General requirements*

[1] Under preparation. Stage at the time of publication: IEC/FDIS 62949:2016.

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