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General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 4-1: General functional safety requirements for products intended to be integrated in Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)

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**General requirements for Home and Building Electronic Systems (HBES)
and Building Automation and Control Systems (BACS) -
Part 4-1: General functional safety requirements for products intended to
be integrated in Building Electronic Systems (HBES) and Building
Automation and Control Systems (BACS)**

Exigences générales relatives aux
systèmes électroniques pour les foyers
domestiques et les bâtiments (HBES) et
aux Systèmes de Gestion Technique du
Bâtiment (SGTB) -

Partie 4-1: Exigences générales de
sécurité fonctionnelle pour les produits
destinés à être intégrés dans les
systèmes HBES/SGTB

Allgemeine Anforderungen an die
Elektrische Systemtechnik für Heim und
Gebäude (ESHG) und an Systeme der
Gebäudeautomation (GA) -
Teil 4-1: Anforderungen an die funktionale
Sicherheit für Produkte, die für den Einbau
in ESHG / GA vorgesehen sind

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 50491-4-1:2012) has been prepared by CLC/TC 205, "Home and Building Electronic Systems (HBES)".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2013-02-20
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2015-02-20

This document supersedes EN 50090-2-3:2005.

EN 50491-4-1:2012 includes the following significant technical changes with respect to EN 50090-2-3:2005:

- 3 Definitions
- 5.6 Software and communication

EN 50491-4-1 is part of the EN 50491 series, which comprises the following parts under the generic title *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)*:

- Part 1: General requirements
- Part 2: Environmental conditions
- Part 3: Electrical safety requirements
- Part 4-1: General functional safety requirements for products intended to be integrated in Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)
- Part 5-1: EMC requirements, conditions and test set-up
- Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment
- Part 5-3: EMC requirements for HBES/BACS used in industry environment
- Part 6-1: HBES installations — Installation and planning
- Part 6-3: HBES installations — Assessment and definition of levels [Technical Report]

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC)

Introduction

Homes buildings and similar environments require various electronic devices for several application. These devices when linked via a digital transmission network are called Home and Building Electronic System (HBES) or Building Automation and Control System (BACS).

Examples of HBES/BACS applications are the management, of lighting, heating, energy water, fire alarms, blinds, different forms of security, etc.

A HBES/BACS network may be based on different communication media as power line, twisted pair, coax cable, radio frequency or infrared and may be connected to external networks like telephone, broad band, television, power supply networks and alarm networks.

Several standards of this series serve to implement public interest matters, primarily as reflected in European Commission Directives.

HBES/BACS products integrated in a HBES/BACS should be safe for the use in intended applications.

This European Standard specifies the general functional safety requirements for HBES/BACS following the principles of the basic standard for functional safety EN 61508.

This European Standard identifies functional safety issues related to products and their installation. The requirements are based on a risk analysis in accordance with EN 61508.

The intention of this European Standard is to allocate, as far as possible, all safety requirements for HBES/BACS products in there life cycle.

This European Standard only addresses HBES/BACS products.

This European Standard is addressed to committees that develop or modify HBES /BACS product/system standards or, where no suitable HBES/BACS product standards addressing functional safety exist, to product manufacturers.

HBES/BACS products in this European Standard are for non-safety related applications. Additional requirements for safety related HBES/BACS according to EN 61508 will be defined in part 4-2 of the EN 50491 series.

1 Scope

This European Standard sets the requirements for functional safety for HBES/BACS products and systems, a multi-application bus system where the functions are decentralised, distributed and linked through a common communication process. 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.

The functional safety requirements of this European Standard apply together with the relevant product standard for the device if any.

This European Standard is part of the EN 50491 series of standards.

This European Standard does not provide functional safety requirements for safety-related systems.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 50491-2	<i>General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 2: Environmental conditions</i>
EN 50491-3	<i>General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 3: Electrical safety requirements</i>
EN 50491-5 (all parts)	<i>General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS)</i>
EN 61508 (all parts)	<i>Functional safety of electrical/electronic/programmable electronic safety-related systems</i>
EN 61709:1998	<i>Electronic components — Reliability — Reference conditions for failure rates and stress models for conversion (IEC 61709:1996)</i>
EN ISO 9000	<i>Quality management systems — Fundamentals and vocabulary (ISO 9000)</i>

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

architecture

specific configuration of hardware and software elements in a system

[SOURCE: EN 61508-4:2010, definition 3.3.4]

3.2

authentication

means for certifying that the entity sending a message is what or who it purports to be and confirmation that the message is identical to that which was sent

3.3

authorisation

mechanism to ensure that the entity or person accessing information, functions or services has the authority to do so