



SLOVENSKI STANDARD

SIST EN 50491-1:2014

01-september-2014

Splošne zahteve za stanovanjske in stavbne elektronske sisteme (HBES) ter sisteme za avtomatizacijo in krmiljenje stavb (BACS) - 1. del: Splošne zahteve

General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 1: General requirements

Allgemeine Anforderungen an die elektrische Systemtechnik für Heim und Gebäude (ESHG) und an Systeme der Gebäudeautomation (GA) - Teil 1: Allgemeine Anforderungen

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Exigences générales pour systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) et pour systèmes de gestion technique du bâtiment (SGTB) - Partie 1: Exigences générales

Ta slovenski standard je istoveten z: EN 50491-1:2014

ICS:

97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use
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SIST EN 50491-1:2014

en,de

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<https://standards.iteh.ai/catalog/standards/sist/d65c7aa6-d41d-4a40-873a-508870af2534/sist-en-50491-1-2014>

EUROPEAN STANDARD

EN 50491-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

June 2014

ICS 97.120

English Version

General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 1: General requirements

Exigences générales pour systèmes électroniques pour les foyers domestiques et les bâtiments (HBES) et pour systèmes de gestion technique du bâtiment (SGTB) - Partie 1: Exigences générales

Allgemeine Anforderungen an die Elektrische Systemtechnik für Heim und Gebäude (ESHG) sowie an Systeme der Gebäudeautomation (GA) -Teil 1: Allgemeine Anforderungen

This European Standard was approved by CENELEC on 2014-03-10. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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SIST EN 50491-1:2014

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

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Foreword

This document (EN 50491-1:2014) 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) 2015-03-10
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2017-03-10

EN 50491-1 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 6-3: HBES installations — Assessment and definition of levels [Technical Report];*
- *Part 11: Smart Metering — Application Specifications — Simple External Consumer Display; (under development);*
- *Part 12: Smart grid — Application specification — Interface and framework for customer (under development).*

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.

1 Scope

This European Standard applies to all Home and Building Electronic Systems (HBES) and Building Automation Control Systems (BACS) and specifies the general requirements for these systems and products covering the following functionalities:

- HBES class 1: simple control and command;
- HBES class 2: simple voice and stable video transmission including class 1;
- HBES class 3: video transfers including class 2.

This European Standard provides an overview of this series of European Standards.

To enable integration of a wide spectrum of applications, EN 50491 series covers:

- electrical safety,
- functional safety,
- environmental conditions,
- EMC requirements,
- installation and cabling rules and topologies,
- Smart Metering – Application specification (under development),
- Smartgrid — Application specification — Interface and framework (under development).

EN 50491 series is a product family standard.

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 50174-2, *Information technology — Cabling installation — Part 2: Installation planning and practices inside buildings*

EN 50491-2, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 2: Environmental conditions*

EN 50491-3, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) - Part 3: Electrical safety requirements*

EN 50491-4-1, *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)*

EN 50491-5-1, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 5-1: EMC requirements, conditions and test set-up*

EN 50491-5-2, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 5-2: EMC requirements for HBES/BACS used in residential, commercial and light industry environment*

EN 50491-5-3, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 5-3: EMC requirements for HBES/BACS used in industry environment*

CLC/TR 50491-6-3, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 6-3: HBES installations — Assessment and definition of levels*

prEN 50491-11, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 11: Smart Metering — Application Specifications — Simple External Consumer Display*

prEN 50491-12, *General requirements for Home and Building Electronic Systems (HBES) and Building Automation and Control Systems (BACS) — Part 12: Smart grid — Application specification — Interface and framework for customer*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

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

3.1.1

HBES/BACS network

interconnection between HBES/BACS products, carrying digital data, analogue signals or both. A HBES/BACS system is a combination of HBES/BACS products including their separate connected/detachable devices linked together via one or more HBES/BACS networks.

Note 1 to entry: Commonly used names to describe HBES/BACS are “home control network”, “home control systems”, “home and building electronic systems”, “building systems”, “building automation system”, “home automation system” etc.

3.1.2

interface

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

3.1.3

interoperability

ability of devices to exchange commands via the higher layers resulting in meaningful actions, including aspects of the application domain, which by definitions is beyond the OSI domain

3.1.4

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

3.1.5

cluster

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

3.2 Abbreviations

For the purposes of this document, the following abbreviations apply.

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 the EN 50491 series shall comply with all applicable parts of EN 50491 listed under Clause 2 in the framework of its intended use as declared by the manufacturer. Compliance with single parts of the EN 50491 series shall be notified individually in the product documentation (e.g. compliant with EN 50491-3, EN 50491-5-1 and -5-2; etc).

5 Elements of the HBES Open Communication System Architecture

5.1 EN 50491-2, Environmental conditions

Part 2 of EN 50491 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.

Part 2 of EN 50491 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,
- cabling and interconnection of devices,
- dedicated devices for engineering and commissioning tools for HBES/BACS.

5.2 EN 50491-3, Electrical safety requirements

Part 3 of EN 50491 provides the electrical safety requirements for all devices connected to HBES/BACS, and covers the following requirements and compliance criteria:

- protection from hazards in the device;
- protection from overvoltages on the network;
- protection from touch current;
- protection from hazards caused by different type of circuits;
- protection of the communication wiring from overheating caused by excessive current.

5.3 EN 50491-4, Functional safety — EN 50491-4-1, General requirements

Part 4 of EN 50491 sets the requirements for functional safety for HBES/BACS products and systems, a multi-application bus system where the functions are decentralized, 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. This European Standard does not provide functional safety requirements for safety-related systems.

5.4 EN 50491-5, EMC requirements

5.4.1 EN 50491-5-1, EMC general requirements, conditions and test set-up

Part 5-1 of EN 50491 provides the general performance requirements and test setups for EMC for all products connected to HBES/BACS.

NOTE This connection can be wired (e.g. communication cable, powerline) or wireless (e.g. radiofrequency, infrared).

5.4.2 EN 50491-5-2, EMC requirements for residential, commercial and light industry environments

Part 5-2 of EN 50491 gives the specific EMC requirements for HBES/BACS used in residential, commercial and light industry environment, based on the general performance and tests setup of EN 50491-5-1.

5.4.3 EN 50491-5-3, EMC requirements for building industry environments

Part 5-3 of EN 50491 gives the specific EMC requirements for HBES/BACS used in industry environment, based on the general performance and tests setup of EN 50491-5-1.

The environment covered by Part 5-3 of EN 50491 is industrial, according to the definition in EN 61000-6-3.

5.5 EN 50491-6, Installation of HBES

5.5.1 CLC/TR 50491-6-2, Inspection and testing (under consideration)

This European Standard specifies the additional specific HBES requirements for the common rules for the planning and the installation of HBES home cabling systems. The structure is in accordance with EN 50174-2.

For the time being CLC/TR 50090-9-2 may be used.

5.5.2 CLC/TR 50491-6-3, Definition of levels of HBES installations

Part 6-3 specifies the assessment and definition of levels and establishes the general rules for assessing HBES installations, according to its complexity and energy performance.

5.5.3 prEN 50491-11, Smart metering — Application specification — Home display;

This standard is under development and will specify Metering Functional Blocks for use by a simple external consumer display. Lay down the format of metering data communicated by a data collector, typically part of the meter communication functions. The functional blocks specified in this standard may also be accessed by the LNAP or NNAP through the C or M interface.