SLOVENSKI STANDARD
oSIST prEN ISO 16484-2:2023

01-november-2023

Sistemi za avtomatizacijo in nadzor stavb - 2. del: Strojna oprema (ISO 16484-2:2004)

Building automation and control systems (BACS) - Part 2: Hardware (ISO/DIS 16484-2:2023)

Systeme der Gebäudeautomation - Teil 2: Hardware (ISO/DIS 16484-2:2023)

Systèmes d'automatisation et de contrôle des bâtiments (BACS) - Partie 2: Matériel (ISO/DIS 16484-2:2023)

Ta slovenski standard je istoveten z: **prEN ISO 16484-2**

ICS:

91.140.01	Napeljave v stavbah na splošno	Installations in buildings in general
97.120	Avtomatske krmilne naprave za dom	Automatic controls for household use

oSIST prEN ISO 16484-2:2023 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 16484-2

ISO/TC **205**

Secretariat: **ANSI**

Voting begins on:
2023-09-18

Voting terminates on:
2023-12-11

Building automation and control systems (BACS) —

Part 2:
Hardware

Systèmes de gestion technique du bâtiment —

Partie 2: Équipement

ICS: 35.240.67; 91.040.01

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference number
ISO/DIS 16484-2:2023(E)

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Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 205, Building environment design.

This second edition cancels and replaces the first edition (ISO 16484:2004), which has been technically revised and again reflects the state of the art in the realization of building automation control systems.

A list of all parts in the ISO 16484 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Building automation and control systems (BACS) —

Part 2: **Hardware**

1 Scope

This part of the ISO 16484 series specifies the hardware requirements in order to carry out building automation tasks.

This part of this standard relates to physical devices, i.e.:

— devices for human interaction like management stations or operator panels;

— devices for data storage and analysis like edge or cloud servers;

— devices for control applications like automation stations;

— devices for physical quantities acquisition like sensors and actuators.

This standard includes a generic system topology, based on a building network infrastructure, which includes both the devices inside the building envelope and those outside the building envelope.

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.

IEC 60529, *Degrees of protection provided by enclosures (IP code)*

IEC/TR 62443-3-1, *Industrial communication networks — Network and system security — Part 3-1: Security technologies for industrial automation and control systems*

IEC 62443-3-3, *Industrial communication networks — Network and system security — Part 3-3: System security requirements and security levels*

ISO 52120-1, *Energy performance of buildings — Contribution of building automation, controls and building management — Part 1: General framework and procedures*

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
access control
method for determining or restricting access to system and network resources

Note 1 to entry: Also referred to as security and operator authentication

Note 2 to entry: Data privacy protection is the framework conditions protecting personal data from being used by anyone other than the owner (taking national legal compliance into consideration).

Note 3 to entry: Data security is the framework conditions to protect data from direct or indirect manipulation or unauthorized use. Data manipulation includes loss of data, destruction or falsification of data.

Note 4 to entry: Data security means are the measures and equipment to secure and maintain the safety of data.

3.2
access control system
dedicated security system, including automatic checking of access rights under organizational measures and barrier/door control for buildings/rooms, including registration of events

3.3
alarm
warning of the presence of a hazard to a property or the environment, in security systems also to life

Note 1 to entry: An annunciation either audible or visual or both that alerts an operator to an abnormal condition, which can require corrective action.

Note 2 to entry: An abnormal condition detected by a device or controller that implements a rule or logic specifically designed to look for that condition, e.g. 'frost alarm'.

3.4
analog input/output
part of the hardware pertaining to a control device for measuring or positioning

3.5
application
set of functions that together form a logical unit supporting a process

Note 1 to entry: A BACS supports many different applications.

Note 2 to entry: A set of user information processing requirements.

3.6
binary input/output
BI/BO
hardware pertaining to control devices for state processing or switching

Note 1 to entry: The function is referred to as binary input state and output switching.

3.7
building
large volume individual fixed structure other than industrial structures, i.e. commercial, industrial, or commercial residential premises

Note 1 to entry: BACS can be employed also for other structures, as e.g. house, tunnel, railway, ship.

3.8
building automation and control
BAC
products, software, and engineering services for automatic controls, monitoring and optimization, human intervention, and management to achieve energy – efficient, economical, and safe operation of building services equipment

Note 1 to entry: The trade designation and the industry branch are also referred to as building automation and/or building control.

[SOURCE: ISO 52120-1:2021, modified – Note 1 has been added.]

3.9
building automation and control system
BACS
system, comprising all products, software and engineering services for automatic controls (including interlocks), monitoring, optimization, for operation, human intervention, and management to achieve energy – efficient, economical, and safe operation of building services

Note 1 to entry: BACS is also referred to as BMS (Building Management System).

Note 2 to entry: The use of the word 'control' does not imply that the system/device is restricted to control functions. Processing of data and information is also possible.

Note 3 to entry: If a building control system, building management system, or building energy management system complies with the requirements of the ISO 16484 standard series, it can be designated as a building automation and control system (BACS).

Note 4 to entry: Building services is divided in technical, infrastructural and financial building services and energy management is part of technical building management.

Note 5 to entry: Building energy management system is part of a BMS.

Note 6 to entry: Building energy management system comprising data collection, logging, alarming, reporting, and analysis of energy usage etc. The system is designed to reduce the energy consumption, improve the utilization, increase the reliability, and predict the performance of the technical building systems, as well as optimize energy usage and reducing its cost.

[SOURCE: ISO 52120-1:2021]

3.10
building management
totality of services involved in the management operation and monitoring of buildings (including plants and installations)

Note 1 to entry: BM is structured in technical building management (TBM), infrastructural building management and commercial building management. There are interfaces to area and facility management.

[SOURCE: ISO 52120-1:2021, modified Note 1]

3.11
building network infrastructure
communication infrastructure next to the traditional electrical and sanitary installations in modern buildings

Note 1 to entry: The network is optimally set up for the needs of the building and its use and ensures cyber security, essentially taking legal compliance and the IEC 62443 series in consideration.

3.12
building services
utilities and installations supplied and distributed within a building such as electricity, gas, heating, water, waste, and communications

3.13
cabling
system of cables and connecting hardware that supports the wired connection of BACS and other equipment

3.14
cloud
servers that are accessed over the Internet, the software and databases that run on those servers, located in data centres all over the world

Note 1 to entry: By using cloud computing, users and companies do not need to manage physical servers themselves or run software applications on their own machines.

3.15
communication
act of conveying meanings from one entity or group to another through the use of mutually understood signs, symbols, and semiotic rules

3.16
communication interface
specification of physical and electrical requirements for the connection of components of communicating products

3.17
configuration (in BACS)
site-specific information related to physical and functional units, entered during system engineering resulting in the system configuration

Note 1 to entry: Generally the configuration does not change once the system is functioning.

3.18
configuration (in IT)
host and target computers, operating system(s) and software used to operate a processor

Note 1 to entry: IT refers to devices/systems of information technology providing services at their interfaces.

3.19
controller
automation station
device for regulation and/or logic control as well as monitoring and processing of information, e.g. temperature, humidity, pressure

Note 1 to entry: The use of the word automation/control does not imply that the device/system is restricted to control functions only. Monitoring and processing of other information is possible.

Note 2 to entry: In IT, a device that controls the transfer of data between a computer and a peripheral device also is referred to as a controller.

3.20
counter input
CI
hardware pertaining to a control device for pulse counting

3.21
data
representation of information in a formalized manner suitable for human or automatic processing

Note 1 to entry: Processing includes communication and interpretation

Note 2 to entry: In English, the word "data" is generally used in plural form. For use in singular form, one can use "data item".

3.22
data interface unit
DIU
functional or physical unit for communication between devices of a BACS and devices / systems in other networks

Note 1 to entry: Different types of DIU can exist, e.g. router or gateway.

Note 2 to entry: A data interface unit may be used to comply with the relevant national standards if connected via public data networks.