



**International
Standard**

ISO 16484-4

**Building automation and control
systems (BACS) —**

**Part 4:
Control applications**

*Systèmes d'automatisation et de contrôle des bâtiments
(BACS) —*

Partie 4: Applications de contrôle

**First edition
2025-08**

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

ISO 16484-4:2025

<https://standards.itih.ai/catalog/standards/iso/490e849a-7fe4-4d68-b860-830ffbe963c4/iso-16484-4-2025>

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

ISO 16484-4:2025

<https://standards.itih.ai/catalog/standards/iso/490e849a-7fe4-4d68-b860-830ffbe963c4/iso-16484-4-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	vi
Introduction	vii
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Abbreviated terms	3
5 Functional specifications having an impact on energy performance, comfort, and operational requirements of buildings	3
5.1 Heating control	3
5.1.1 Emission control	3
5.1.2 Emission control for TABS (heating mode)	6
5.1.3 Control of distribution network hot water temperature (supply or return)	9
5.1.4 Control of distribution pumps in networks	10
5.1.5 Intermittent control of emission and/or distribution	13
5.1.6 Heat generator control (combustion and district heating)	16
5.1.7 Heat generator control (heat pump)	18
5.1.8 Heat generator control (outdoor unit)	19
5.1.9 Sequencing of different heat generators	20
5.1.10 Control of Thermal Energy Storage (TES) charging	23
5.1.11 Hydronic balancing heating distribution (including contribution to balancing to the emission side)	24
5.2 Domestic hot water (DHW) supply control	26
5.2.1 Control of DHW storage charging with direct electric heating or integrated electric heat pump	26
5.2.2 Control of DHW storage charging using hot water generation	27
5.2.3 Control of DHW storage charging with solar collector and supplementary heat generation	29
5.2.4 Control of DHW circulation pump	31
5.3 Cooling control	32
5.3.1 Emission Control	32
5.3.2 Emission control for TABS (cooling mode)	35
5.3.3 Control of distribution network chilled water temperature (supply or return)	37
5.3.4 Control of distribution pumps in hydraulic networks	38
5.3.5 Intermittent Control of Emission and/or Distribution	41
5.3.6 Interlock between heating and cooling control of emission and/or distribution	44
5.3.7 Generator control for cooling	45
5.3.8 Sequencing of different chillers (generators for chilled water)	46
5.3.9 Control of Thermal Energy Storage (TES) charging	48
5.3.10 Hydronic balancing cooling distribution (including contribution to balancing to the emission side)	49
5.4 Ventilation and air conditioning control	51
5.4.1 Supply air flow control at the room level	51
5.4.2 Room air temperature control by the ventilation system (all-air systems; combination with static systems as cooling ceiling, radiators etc.)	53
5.4.3 Coordination of room air temperature control by ventilation and by static systems	55
5.4.4 Outside air flow control	56
5.4.5 Air flow or pressure control at the air handler level	57
5.4.6 Heat recovery control (icing protection)	60
5.4.7 Heat recovery control (prevention of overheating)	61
5.4.8 Free mechanical cooling	62
5.4.9 Supply air temperature control at the air handling unit level	64
5.4.10 Humidity control	65

5.5	Lighting control	66
5.5.1	Occupancy control	66
5.5.2	Light level/Daylight control (daylight harvesting)	69
5.6	Blind control	71
5.6.1	Type 1 — Motorized operation of blind with manual control	71
5.6.2	Type 2 — Motorized operation of blind with automatic control	72
5.6.3	Type 3 — Combined light/blind/HVAC control	73
6	Functional elements	74
6.1	Sensor functions	74
6.1.1	Air quality measurement	74
6.1.2	Air temperature measurement	75
6.1.3	Dewpoint monitoring	76
6.1.4	Humidity measurement	77
6.1.5	Brightness measurement	78
6.1.6	Precipitation detection	78
6.1.7	Presence detection	79
6.1.8	Window monitoring	80
6.1.9	Wind speed measurement	81
6.1.10	Real-time clock	82
6.1.11	Air volume flow measurement	82
6.1.12	Partition wall position sensor	83
6.2	Actuator functions	84
6.2.1	Solar protection actuator	84
6.2.2	Drive actuator	85
6.2.3	Lighting actuator	86
6.3	Display and user operation functions	88
6.3.1	Operate lighting	88
6.3.2	Operate solar protection	89
6.3.3	Operate Drive	89
6.3.4	Set Temperature setpoint	90
6.3.5	Display Current Temperature	91
6.3.6	Select room utilisation type	92
6.3.7	Set presence	93
6.4	Control functions	94
6.4.1	Presence evaluation	94
6.4.2	Predefined operation setting (scenario)	95
6.4.3	Schedule	96
6.4.4	Manual lighting control	97
6.4.5	Timed lighting control	98
6.4.6	Partition wall control	99
6.4.7	Occupancy dependent lighting control	100
6.4.8	Daylight-dependent lighting	101
6.4.9	Constant-light control	103
6.4.10	Twilight control	105
6.4.11	Priority control	106
6.4.12	Automatic twilight control	108
6.4.13	Automatic solar control (simple solar protection)	109
6.4.14	Slat tracking (complex solar protection)	111
6.4.15	Shadow correction	113
6.4.16	Automatic thermal control	114
6.4.17	Weather protection	115
6.4.18	Energy mode selection	117
6.4.19	Energy mode selection with start optimisation	118
6.4.20	Setpoint calculation	120
6.4.21	Function selection	122
6.4.22	Temperature control (heating/cooling)	124
6.4.23	Room supply air temperature cascade control	126
6.4.24	Fan control	128

ISO 16484-4:2025(en)

6.4.25	Sequence control	130
6.4.26	Control value limiting	131
6.4.27	Air quality control	133
6.4.28	Night-time cooling	135
6.4.29	Volume flow control	136
6.4.30	Sun position calculation	138
6.4.31	Weather hazard assessment	138
6.4.32	Wind hazard detection	139
6.4.33	Icing hazard detection	140
6.4.34	Rain hazard detection	141
6.4.35	Solar edge tracking	141
6.4.36	Solar edge and slat tracking	142
6.4.37	Window state evaluation/Window group monitoring	143
6.4.38	Electric heating actuator	144
6.5	Data types and notation of identifiers and types used in function blocks	145
Bibliography		147

iTeh Standards (<https://standards.itih.ai>) Document Preview

[ISO 16484-4:2025](https://standards.itih.ai/catalog/standards/iso/490e849a-7fe4-4d68-b860-830ffbe963c4/iso-16484-4-2025)

<https://standards.itih.ai/catalog/standards/iso/490e849a-7fe4-4d68-b860-830ffbe963c4/iso-16484-4-2025>

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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 247, *Building Automation, Controls and Building Management*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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.

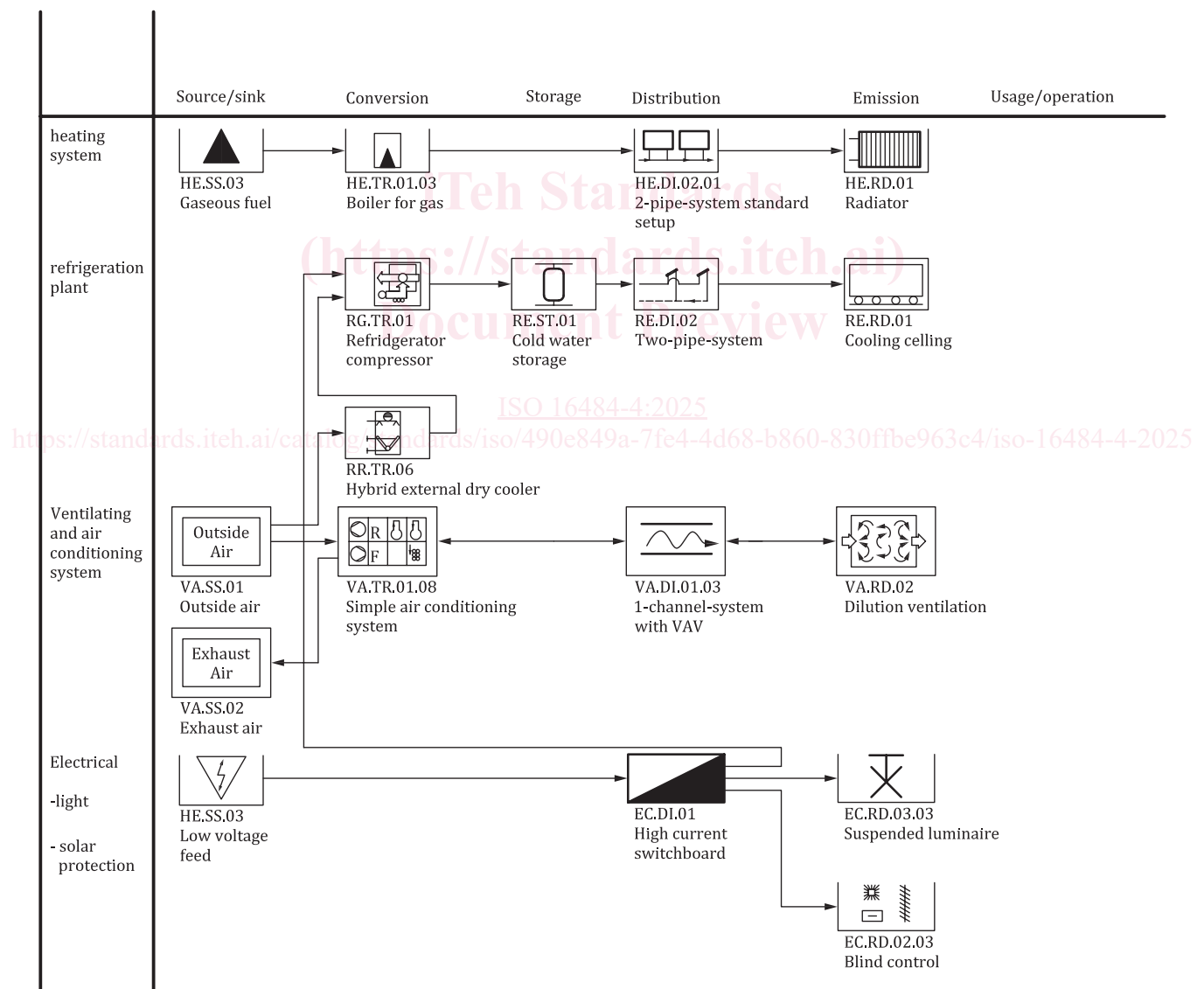
Introduction

Buildings are built and operated to serve a specific purpose, e.g. as an office workspace, a manufacturing floor, or a data centre. In each case, the usage of the space requires specific environmental conditions, e.g. temperature, light level or air quality.

Increasing the efficient usage of energy to provide these environmental conditions is a key aspect of building design as addressed in ISO 52120-1.

Energy efficiency requirements cannot be fulfilled by optimizing the primary systems of a building alone. A holistic view on the building and especially on the room control systems for lighting, solar protection and heating, ventilation and air conditioning (HVAC) is the basis for optimizing the energy efficiency of buildings. This requires integration of the room and building controls and management systems from the design phase through installation and commissioning to the building operation.

The planning process for the technical infrastructure of a building and its spaces includes several steps starting with a rough set of requirements. With each step in the planning process the design becomes more detailed. Firstly, basic design choices or decisions allow for a budget estimate. These first design choices can be documented as depicted in [Figure 1](#).



SOURCE SN 502411:2016 / SIA 411:2016

Figure 1 — Example for documentation of design choices for technical infrastructure of a building