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NSAI Standards

Irish Standard
I.S. EN 15500-1:2017

Energy Performance of Buildings - Control for heating, ventilating and air conditioning applications - Part 1: Electronic individual zone control equipment - Modules M3-5, M4-5, M5-5

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I.S. EN 15500-1:2017

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National Foreword

I.S. EN 15500-1:2017 is the adopted Irish version of the European Document EN 15500-1:2017, Energy Performance of Buildings - Control for heating, ventilating and air conditioning applications - Part 1: Electronic individual zone control equipment - Modules M3-5, M4-5, M5-5

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 15500-1

May 2017

ICS 91.140.30; 97.120

Supersedes EN 15500:2008

English Version

Energy Performance of Buildings - Control for heating, ventilating and air conditioning applications - Part 1: Electronic individual zone control equipment - Modules M3-5, M4-5, M5-5

Performance énergétique des bâtiments - Régulation pour les applications de chauffage, de ventilation et de climatisation (CVC) - Partie 1 : Régulateur électronique de zone pour le chauffage - Modules M3-5, M4-5, M5-5

Energieeffizienz von Gebäuden - Automation von HLK-Anwendungen - Teil 1: Elektronische Regel- und Steuereinrichtungen für einzelne Räume oder Zone - Module M3-5, M4-5, M5-5

This European Standard was approved by CEN on 27 February 2017.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 15500-1:2017) has been prepared by Technical Committee CEN/TC 247 "Building Automation, Controls and Building Management", the secretariat of which is held by SNV.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2017, and conflicting national standards shall be withdrawn at the latest by November 2017.

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

This document supersedes EN 15500:2008.

The most important changes are:

— Respect the presentation of this project in the frame EPB in accordance with the drafting rules;

— Non-normative content is in CEN/TR 15500-2:2016;

— Function blocks and block diagrams (informative) removed;

— Individual zone control applications: new structured and clearly arranged.

This document is part of the set of standards on the energy performance of buildings (the set of EPB standards) and has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480, [15]), and supports essential requirements of EU Directive 2010/31/EC on the energy performance of buildings (EPBD, [16]).

In case this standard is used in the context of national or regional legal requirements, mandatory choices may be given at national or regional level for such specific applications, in particular for the application within the context of EU Directives transposed into national legal requirements.

Further target groups are users of the voluntary common European Union certification scheme for the energy performance of non-residential buildings (EPBD art.11.9) and any other regional (e.g. Pan European) parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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Introduction

This standard is part of a series of standards aiming at international harmonization of the methodology for the assessment of the energy performance of buildings, called “EPB set of standards”.

As part of the “EPB set of standards” it complies with the requirements for the set of basic EPB documents EN ISO 52000-1:2017 (see Normative references), CEN/TS 16628 and CEN/TS 16629 (see bibliography [2] and [3]) developed under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480), and supports essential requirements of EU Directive 2010/31/EU on the energy performance of buildings (EPBD).

The standards issued by TC 247 for M/480 belong to the EPB set of standards and are in line with the over-arching standard (EN ISO 52000-1:2017) and drafted in accordance with the basic principles and detailed technical rules developed in the Phase I of the mandate.

Also these standards are clearly identified in the modular structure developed to ensure a transparent and coherent EPB standard set. BAC (Building Automation and Control) is identified in the modular structure as Technical Building System M10. However, the standards of TC 247 deal with control accuracy, control functions and control strategies using standards communications protocol (these last standards do not belong to the EPB standards set).

To avoid a duplication of calculation due to the BAC (avoid double impact), no calculation are done in BAC EPB standard set, but in each underlying standard of EPB set of standards (from M1 to M9 in the Modular Structure), an IDENTIFIER developed and present in the M10 covered by EN 15232-1:2015 is used where appropriate. These way of interaction is described in detailed in the Technical Report (CEN ISO/TR 52000-2:2017) accompanying the over-arching standard. As consequence, the Annex A and Annex B concept as EXCEL sheet with the calculation formulas used in the EPB standards are not applicable for the standards issued by TC 247 for M/480.

The main target groups of this standard are all the users of the set of EPB standards (e.g. architects, engineers, regulators).

Further target groups are parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

More information is provided in the Technical Report accompanying this standard (CEN/TR 15500-2:2016 [5]).

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1 Scope

The purpose of this European Standard is to specify the applications, functionality set and application performance for electronic individual zone control equipment.

The applications are for cooling and hot water or electrical heating. This European Standard applies specifically to individual zone control equipment for maintaining temperature, humidity and air flow as a function of occupancy and demand operated with auxiliary electrical energy.

Information required for the operation of the equipment may be processed using either analogue or digital techniques or a combination of both. Safety requirements remain unaffected by this European Standard.

This European Standard refers to the input and output requirements of the controller and not of the input and output devices as e.g. sensors and actuators.

This European Standard covers fixed-function, configurable and programmable controllers. The control equipment may or may not be connected to a data-network however communications aspects are not covered by this standard. These devices could be applied for any kind of building, intermittent or non-intermittent occupation, residential or non-residential.

Table 1 shows the relative position of this standard within the set of EPB standards in the context of the modular structure as set out in EN ISO 52000-1:2017.

NOTE 1 In CEN ISO/TR 52000-2:2017 the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation.

NOTE 2 The modules represent EPB standards, although one EPB standard may cover more than one module and one module may be covered by more than one EPB standard, for instance a simplified and a detailed method respectively.

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Table 1 — Position of this standard (in casu M3–5, M4–5, M5–5), within the modular structure of the set of EPB standards

	Over-arching	Building (as such)	Technical Building System									
Submodule	**Descriptions**	**Descriptions**	**Descriptions**	**Heating**	**Cooling**	**Ventilation**	**Humidification**	**Dehumidification**	**Domestic Hot waters**	**Lighting**	**Building automation and control**	**PV, wind, ..**
sub 1	**M1**	**M2**		**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M 9**	**M10**	**M11**
1	General	General	General									
2	Common terms and definitions; symbols, units and subscripts	Building Energy Needs	Needs									
3	Application	(Free) Indoor Conditions without Systems	Maximum Load and Power									
4	Ways to Express Energy Performance	Ways to Express Energy Performance	Ways to Express Energy Performance									
5	Building Functions and Building Boundaries	Heat Transfer by Transmission	Emission and control	x	x	x						
6	Building Occupancy and Operating Conditions	Heat Transfer by Infiltration and Ventilation	Distribution and control									
7	Aggregation of Energy Services and Energy Carriers	Internal Heat Gains	Storage and control									
8	Building Partitioning	Solar Heat Gains	Generation and control									
9	Calculated Energy Performance	Building Dynamics (thermal mass)	Load dispatching and operating conditions									

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	Over-arching	Building (as such)	Technical Building System									
Submodule	**Descriptions**	**Descriptions**	**Descriptions**	**Heating**	**Cooling**	**Ventilation**	**Humidification**	**Dehumidification**	**Domestic Hot waters**	**Lighting**	**Building automation and control**	**PV, wind, ..**
sub 1	**M1**	**M2**		**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M 9**	**M10**	**M11**
10	Measured Energy Performance	Measured Energy Performance	Measured Energy Performance									
11	Inspection	Inspection	Inspection									
12	Ways to Express Indoor Comfort		BMS									
13	External Environment Conditions											
14[a]	Economic Calculation											

[a] The shaded modules are not applicable.

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 ISO 52000-1:2017, *Energy performance of buildings - Overarching EPB assessment - Part 1: General framework and procedures*

CEN/TR 15500-2:2016, *Control for heating, ventilating and air-conditioning applications - Part 2: Accompanying TR prEN 15500-1:2015 - Modules M3-5,M4-5,M5-5*

EN 12098-1, *Controls for heating systems - Part 1: Control equipment for hot water heating systems*

EN 12098-3, *Controls for heating systems - Part 3: Control equipment for electrical heating systems*

EN 12098-5, *Controls for heating systems - Part 5: Start-stop schedulers for heating systems*

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

EN 60730 (all parts), *Automatic electrical controls for household and similar use (IEC 60730)*

EN ISO 7345:1995, *Thermal insulation - Physical quantities and definitions (ISO 7345:1987)*

EN 60038, *CENELEC standard voltages (IEC 60038)*

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