

Teknisk rapport

SIS-CEN/TR 12098-6:2016

Publicerad/Published: 2016-10-31
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 91.140.10; 97.120

Styr- och reglerutrustningar för värmesystem – Del 6: Medföljande TR prEN 12098-1:2015 – Moduler M3-5,6,7,8

Controls for heating systems – Part 6: Accompanying TR prEN 12098-1:2015 – Modules M3-5,6,7,8

This preview is downloaded from www.sis.se. Buy the entire standard via <https://www.sis.se/std-8022489>

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka

Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet

Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standardpaket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete

Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.



Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence

As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work

We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception

With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00



Denna tekniska rapport är inte en svensk standard. Detta dokument innehåller den engelska språkversionen av CEN/TR 12098-6:2016 .

This Technical Report is not a Swedish Standard. This document contains the English version of CEN/TR 12098-6:2016.

© Copyright/Upphovsrätten till denna produkt tillhör SIS, Swedish Standards Institute, Stockholm, Sverige. Användningen av denna produkt regleras av slutanvändarlicensen som återfinns i denna produkt, se standardens sista sidor.

© Copyright SIS, Swedish Standards Institute, Stockholm, Sweden. All rights reserved. The use of this product is governed by the end-user licence for this product. You will find the licence in the end of this document.

Uppllysningar om sakinnehållet i detta dokument lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna uppllysningar om nationell och internationell standard.

Information about the content of this document is available from the SIS, Swedish Standards Institute, telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about national and international standards.

Dokumentet är framtaget av kommittén för Installationer, SIS/TK 189/AG 3.

Har du synpunkter på innehållet i det här dokumentet, vill du delta i ett kommande revideringsarbete eller vara med och ta fram standarder inom området? Gå in på www.sis.se - där hittar du mer information.

TECHNICAL REPORT

CEN/TR 12098-6

RAPPORT TECHNIQUE

TECHNISCHER BERICHT

August 2016

ICS 91.140.10; 97.120

English Version

**Controls for heating systems - Part 6: Accompanying TR
prEN 12098-1:2015 - Modules M3-5,6,7,8**

Begleitender TR zu EN 12098-1

This Technical Report was approved by CEN on 11 April 2016. It has been drawn up by the Technical Committee CEN/TC 247.

CEN members are the national standards bodies of 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword..... 3

Introduction 4

1 Scope..... 7

2 Normative references..... 7

3 Terms and definitions 7

4 Symbols and abbreviations 7

4.1 Symbols..... 7

4.2 Abbreviations 8

5 Control heating systems, main design rules..... 8

5.1 Control heating systems, main design rules, general..... 8

5.2 Partitioning control heating zones in buildings 8

5.2.1 General..... 8

5.2.2 Emission control..... 9

6 Control heating functions and they impact..... 10

6.1 Flow temperature control..... 10

6.1.1 General..... 10

6.1.2 OTC generation and storage impact 10

6.1.3 OTC control distribution impact..... 11

6.1.4 OTC control emission impact..... 11

6.2 Auto tuning heating curve parameters 12

6.3 Compensation by emitters energy demand transmission 12

6.4 Other meteorological variables and forecast 12

6.5 Optimum Start-stop scheduling 12

6.5.1 General..... 12

6.5.2 OSS generation and storage impact..... 12

6.5.3 OSS distribution impact 12

6.5.4 OSS emission impact 13

6.6 Summer-winter switch..... 13

6.7 Pumps control 14

7 Integrated functions in control systems and their impact..... 14

7.1 Integrated functions..... 14

7.2 Central control effect on room temperature control 15

7.2.1 General..... 15

7.2.2 Flow temperature control accuracy 15

7.2.3 Heating curve adaptation..... 15

7.2.4 Calculating contribution of central control to emission control..... 15

Annex A (informative) Applications of heating control functions for buildings 18

Bibliography..... 20

European foreword

This document (CEN/TR 12098-6:2016) has been prepared by Technical Committee CEN/TC 247 “Building Automation, Controls and Building Management”, the secretariat of which is held by SNV.

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

This document is currently divided into the following parts:

- Controls for heating systems — Part 1: Control equipment for hot water heating systems;
- Controls for heating systems — Part 3: Control equipment for electrical heating systems;
- Controls for heating systems — Part 5: Start-stop schedulers for heating systems;
- Controls for heating systems — Part 6: Accompanying TR prEN 12098-1:2016 Modules M3-5,6,7,8 [the present Technical Report; currently at Voting stage];
- Controls for heating systems — Part 7: Accompanying TR prEN 12098-3:2016 Modules M3-5,6,7,8 [Technical Report; currently at Voting stage];
- Controls for heating systems — Part 8: Accompanying TR prEN 12098-5:2016 Modules M3-5,6,7,8 [Technical Report; currently at Voting stage].

Introduction

The CENSE project, the discussion between CEN and the Concerted action highlighted the high page count of the entire package due to a lot of “textbook” information. This resulted in flooding and confusing the normative text.

A huge amount of informative contents shall indeed be recorded and available for users to properly understand, apply and nationally adapt the EPB standards.

The detailed technical rules CEN/TS 16629 ask for a clear separation between normative and informative contents:

- to avoid flooding and confusing the actual normative part with informative content;
- to reduce the page count of the actual standard;
- to facilitate understanding of the package.

Therefore each EPB standard shall be accompanied by an informative technical report, like this one, where all informative content is collected.

Table 1 shows the relative position of this TR within the EPB set of standards.

Table 1 — Relative position of this TR within the EN EPB package standards

| Submodule | Over-arching Descriptions | Building (as such) Descriptions | Technical Building System | | | | | | | | | |
|-----------|---|---|------------------------------------|---------|---------|-------------|----------------|------------------|---------------------|----------|---------------------------------|--------------|
| | | | Descriptions | Heating | Cooling | Ventilation | Humidification | Dehumidification | Domestic Hot waters | Lighting | Building automation and control | PV, wind, .. |
| sub1 | M1 | M2 | | M3 | M4 | M5 | M6 | M7 | M8 | M9 | 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 | | | | | | | | |
| 6 | Building Occupancy and Operating Conditions | Heat Transfer by Infiltration and Ventilation | Distribution and control | x | | | | | | | | |
| 7 | Aggregation of Energy Services and Energy Carriers | Internal Heat Gains | Storage and control | x | | | | | | | | |
| 8 | Building | Solar | Generation | x | | | | | | | | |

| Submodule | Over-arching | Building (as such) | Technical Building System | | | | | | | | | |
|-----------|---------------------------------|----------------------------------|---|---------|---------|-------------|----------------|------------------|---------------------|----------|---------------------------------|--------------|
| | Descriptions | Descriptions | Descriptions | Heating | Cooling | Ventilation | Humidification | Dehumidification | Domestic Hot waters | Lighting | Building automation and control | PV, wind, .. |
| sub1 | M1 | M2 | | M3 | M4 | M5 | M6 | M7 | M8 | M9 | M10 | M11 |
| | Partitioning | Heat Gains | and control | | | | | | | | | |
| 9 | Calculated Energy Performance | Building Dynamics (thermal mass) | Load dispatching and operating conditions | | | | | | | | | |
| 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 | Economic Calculation | | | | | | | | | | | |

1 Scope

This Technical Report refers to EN 12098-1:2016, *Controls for heating systems — Part 1: Control equipment for hot water heating systems — Modules M3-5,6,7,8*.

It contains information to support the correct understanding, use and national adaption of prEN 12098-1:2016.

This Technical Report does not contain any normative provisions.

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 215, *Thermostatic radiator valves - Requirements and test methods*

prEN 12098-1:2016, *Controls for heating systems — Part 1: Control equipment for hot water heating systems — Modules M3-5,6,7,8*

prEN 15232-1:2016, *Energy performance of buildings — Part 1: Impact of Building Automation, Controls and Building Management — Modules M10-4,5,6,7,8,9,10*

EN 15316-2-3:2007, *Heating systems in buildings - Method for calculation of system energy requirements and system efficiencies - Part 2-3: Space heating distribution systems*

prEN 15316-3:2016, *Heating systems and water based cooling systems in buildings — Method for calculation of system energy requirements and system efficiencies — Part 3: Space distribution systems (DHW, heating and cooling)*

prEN 15316-4-1:2016, *Heating systems and water based cooling systems in buildings — Method for calculation of system energy requirements and system efficiencies — Part 4-1: Space heating and DHW generation systems, combustion systems (boilers, biomass)*

prEN 15500-1:2016, *Control for heating, ventilating and air-conditioning applications — Part 1: Electronic individual zone control equipment — Modules M3-5,M4-5,M5-5*

prEN ISO 52000-1:2016, *Energy performance of buildings — Overarching EPB assessment — Part 1: General framework and procedures (ISO/DIS 52000-1:2016)*

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

3 Terms and definitions

For the purposes of this technical report, the terms and definitions given in EN ISO 7345:1995, prEN ISO 52000-1:2016, prEN 12098-1:2016 and prEN 15232-1:2016 apply.

4 Symbols and abbreviations

4.1 Symbols

For the purposes of this European Standard, the symbols given in prEN ISO 52000-1:2016 and prEN 12098-1:2016 (the accompanied EPB standard) apply.