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**BS EN 12098-3:2013**



**BSI Standards Publication**

## **Controls for heating systems**

Part 3: Control equipment for electrical heating systems

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This British Standard is the UK implementation of EN 12098-3:2013. It supersedes BS EN 12098-3:2002 and BS EN 12098-4:2005 which are withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/16, Performance requirements for control systems.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

© The British Standards Institution 2013.  
Published by BSI Standards Limited 2013

ISBN 978 0 580 75431 9  
ICS 97.100.10; 97.120

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 October 2013.

**Amendments/corrigenda issued since publication**

Date	Text affected
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## EUROPÄISCHE NORM

October 2013

ICS 97.100.10; 97.120

Supersedes EN 12098-3:2002, EN 12098-4:2005

English Version

## Controls for heating systems - Part 3: Control equipment for electrical heating systems

Régulation pour les systèmes de chauffage - Partie 3:  
Équipement de régulation pour les systèmes de chauffage  
électrique

Mess-, Steuer- und Regeleinrichtungen für Heizungen - Teil  
3: Regeleinrichtungen für Elektroheizungen

This European Standard was approved by CEN on 14 September 2013.

CEN 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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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.

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**

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## Foreword

This document (EN 12098-3:2013) 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 April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.

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

This document supersedes EN 12098-3:2002 and EN 12098-4:2005.

The following modifications have been made:

- update of the state of the art of the platform used for the controllers (between first edition – still analogical technology – to day full DDC with  $\mu$ C);
- test specification has been revised and described more precisely;
- block diagram for functions has been added;
- graphical symbols have been added.

This standard is for products for Outside Temperature Compensated Controls for mechanical building services and covers Outside Temperature Compensated Controls in residential and non-residential buildings. This standard is part of a series of European Standards for Control for HVAC Applications. This standard, therefore, contributes to the general European policy for energy saving, particularly in the fields of the Construction Products Directive (89/106/EEC) Essential Requirements n°6 "Energy economy and heat retention" (and its interpretative document) and of the Energy Performance of Building Directive (2002/91/CE).

EN 12098, *Controls for heating systems*, consists of the following parts:

- *Part 1: Control equipment for hot water heating systems*
- *Part 3: Outside temperature compensated control equipment for electrical heating systems* (the present document)
- *Part 5: Start-stop schedulers for heating systems*

According to the CEN-CENELEC Internal Regulations, the national standards organizations 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, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## **Introduction**

Equipment which controls the heating supply in buildings according to outside temperature and time is necessary for the reduction of the energy consumption of heating plants. This equipment can bring about improved comfort and energy savings.

For this purpose, an outside temperature compensated function like that provided by an outside temperature compensated (OTC) controller is necessary.

This standard describes the main equipment characteristics and functions for reaching energy saving and comfort objectives.

This standard covers also controllers which contain an integrated optimum start or an optimum start-stop control function.

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## 1 Scope

This European Standard applies to electronic control equipment for heating systems with direct electrical emission, which do not have an integrated outdoor compensated function and or optimum start/stop function.

This control equipment controls and regulates the distribution and/or the generation of heat in relation to the outside temperature and time and other reference variables.

This European Standard also covers controllers which contain an integrated optimum start or an optimum start-stop control function. The controller modulates heating or control modes of electronic individual zone or emitter control equipment.

Safety requirements on heating systems remain unaffected by this standard. The dynamic behaviour of the local thermostats, sensors, or actuators is not covered in this standard.

A multi-distribution and/or multi-generation system needs a coordinated solution to prevent undesired interaction and is not part of this 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.

CEN/TS 15810, *Graphical symbols for use on integrated building automation equipment*

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

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

EN 60730-1, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1)*

## 3 Terms and definitions

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

### 3.1

#### **outside temperature compensated controller**

#### **OTC controller**

controller optimising and/or regulating the generation of heat in relation to the outside temperature, time and optionally other reference variables (e.g. room temperature)

Note 1 to entry: The outside temperature compensated function calculates the heating power in relation to the outside temperature, based on the heating curve.

Note 2 to entry: The outside temperature optimum start-stop function calculates the pre-heat time and/or stop time to reach the comfort temperature level in relation with the outside temperature, switch time and several parameters (e.g. room temperature, tariff).

### 3.2

#### **control equipment**

equipment, consisting of OTC controller sensor input signals and output signals but not including the sensors and actuating equipment (see Figure 1)