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NSAI Standards

Irish Standard
I.S. EN 16830:2017

Safety and control devices for burners and appliances burning gaseous or liquid fuels - Control functions in electronic systems - Temperature Control function

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NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 16830

March 2017

ICS 91.140.40; 97.100.20

English Version

Safety and control devices for burners and appliances burning gaseous or liquid fuels - Control functions in electronic systems - Temperature Control function

Équipements auxiliaires pour brûleurs et appareils utilisant des combustibles gazeux ou liquides - Dispositifs de contrôle des systèmes électroniques - Dispositifs de régulation de la température

Sicherheits- und Regeleinrichtungen für Brenner und Brennstoffgeräte für gasförmige oder flüssige Brennstoffe - Regelfunktionen in elektronischen Systemen - Temperaturüberwachungsfunktion

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European foreword

This document (EN 16830:2017) has been prepared by Technical Committee CEN/TC 58 "Safety and control devices for burners and appliances burning gaseous or liquid fuels", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2017, and conflicting national standards shall be withdrawn at the latest by September 2017.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.

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Introduction

The generic requirements for controls are given in EN 13611 and methods for classification and assessment for new controls and control functions are given in EN 14459 (see Figure 1).

The requirements for controls are given in the specific control standard (see Figure 1).

Multifunctional Controls (MFC) according to EN 126:2012 and EN 126:2012/prA1:2014 with two or more controls and Application Control Functions, e .g. the Gas Shut-off Control Function, being inherently multifunctional controls. Each control integrated in the MFC should meet the applicable requirements of the relevant control standard(s). In addition, EN 126:2012 and EN 126:2012/prA1:2014 cover requirements for the safety related interactions between the different devices.

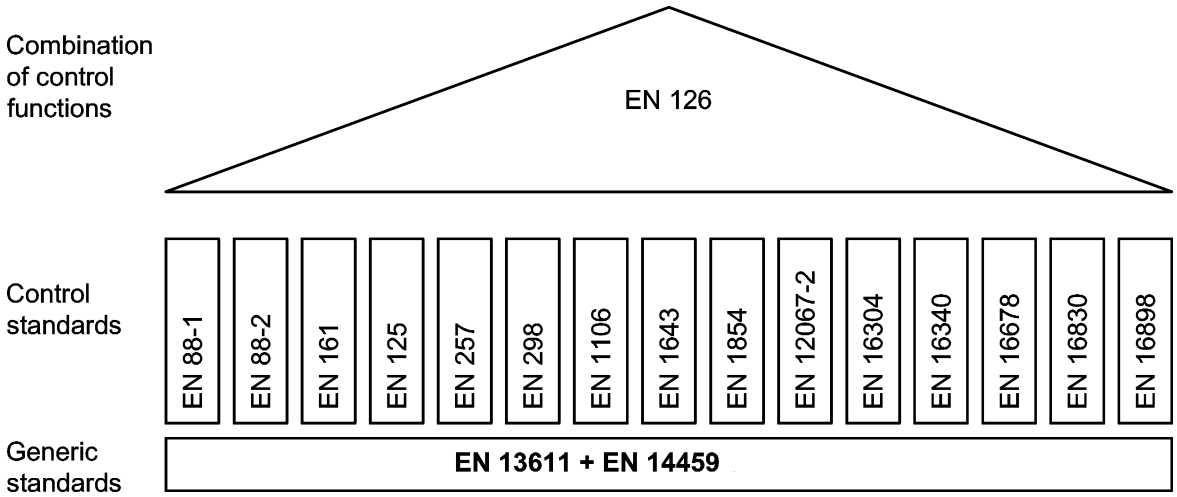

Figure 1 — Standards house

This control standard refers to clauses of EN 13611:2015 or adapts it by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “is not applicable” in the corresponding clause. This document adds clauses or subclauses to the structure of EN 13611:2015 which are particular to this European Standard, i.e. subclauses or annexes that are additional to those in EN 13611:2015 are numbered starting from 101 or are designated as Annex AA, BB, CC etc. It should be noted that these clauses and subclauses are not indicated as an addition.

This control standard describes requirements for two types of temperature based Appliance Control Functions.

1) Temperature Control Function

The temperature control function (in the following called TCF) is a system that consists of temperature sensing, signal processing, switching actions (on/off or protective action) and reset (see Figure 2).

The purpose of a TCF is to control the temperature (temperature regulator) and to prevent the risk of excessive temperature (temperature limiter) which could lead to the hazard of overheating for gas and liquid fuel burning appliances. A TCF requires a safety class C system, based on a comparison, made between an automatic burner controller and a temperature control function, the implication on safety of either function being considered equivalent. Gas and liquid fuel appliance standards can allow a lower safety class in combination with constructional measures, as long as the overall result for TCF is a safety class C.

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Traditional solutions, using a combination of mechanical thermostats as specified in the appliance standards (e.g. EN 15502-1) have been considered to fulfil the requirements. This assumption is based on specific mechanical solutions, originating from practice over many years and relying on redundancy as the principle.

2) TTB

The Appliance Control Function TTB (Combustion Product Discharge Safety Device) is intended to provide protection against poisoning and suffocation in case of a (partially) blocked flue. This clause provides the requirements for electronic TTBs consisting of:

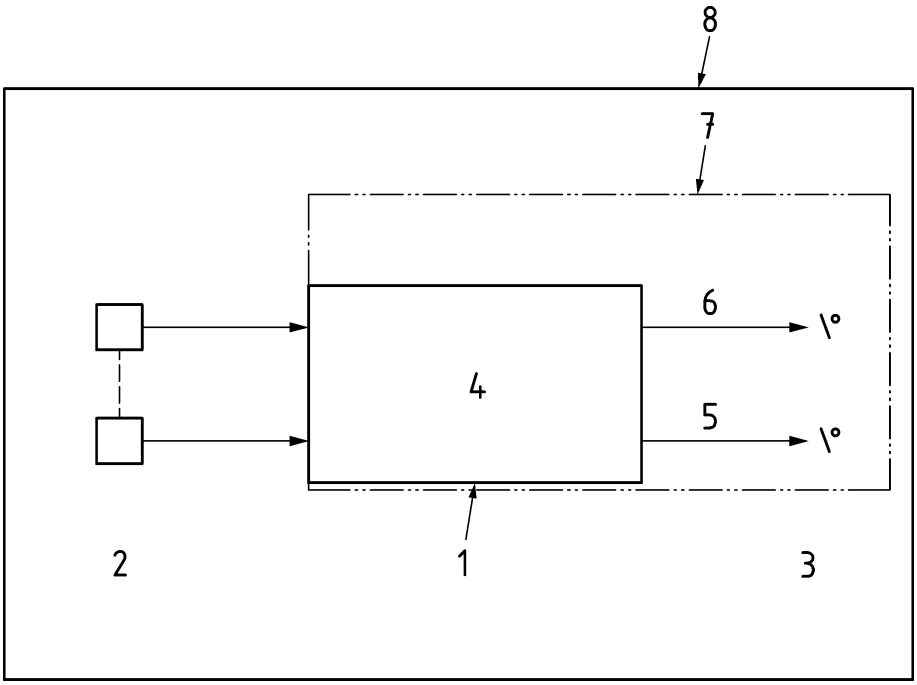
— a control that can take a protective action and

— a sensing element that monitors a significant physical value in relation to the spillage of combustion products into the environment where the gas appliance is installed.

If the spillage reaches a pre-set level, the TTB should initiate a protective action. Allowable spillage is determined by the application standard.

NOTE Instead of TTB, the term “Combustion Product Discharge Safety Device” is used in EN 15502–2–2.

For both TTB and TCF, the requirements in this European Standard are applicable to the combination of sensing element and control.



Key

1	reset	5	protective action
2	sensing element(s)	6	on/off
3	switching action(s)	7	control
4	temperature regulator and protective controller	8	temperature control function

Figure 2 — Temperature control function

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1 Scope

This European Standard specifies the safety, design, construction and performance requirements for Temperature Control Function (TCF) and Combustion Product Discharge Safety Device (TTB) intended for use with burners and appliances using gaseous or liquid fuels.

It also describes the test procedures for checking compliance with these requirements.

This European Standard is applicable to AC and DC supplied TCF and TTB (for TCF and TTB supplied by stand-alone battery system, battery systems for mobile applications or systems which are intended to be connected to DC supply networks, see Annex I).

This European Standard is applicable to electronically based TTB and TCF only.

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 13611:2015, *Safety and control devices for burners and appliances burning gaseous and/or liquid fuels - General requirements*

EN 60730-2-9:2010, *Automatic electrical controls for household and similar use — Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2008, modified)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13611:2015 and the following apply.

3.101
control
device that provides functionality as described in the specific control standard

3.102
multifunctional control
MFC
combination of two or more controls and/or Application Control Function(s) whereby the functional parts cannot operate if separated

3.103
application control function
ACF
function to protect against harm(s) originating from a specific hazard by providing safe operation of gas burners and gas burning appliances

Note 1 to entry: The assembly to provide this function may consist of a combination of controls and/or multifunctional control(s) (e.g. actuators, sensors and control electronics).

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