Irish Standard
I.S. EN 12405-1:2005+A2:2010

Gas meters - Conversion devices - Part 1: Volume conversion

I.S. EN 12405-1:2005+A2:2010

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I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

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English Version

Gas meters - Conversion devices - Part 1: Volume conversion

Compteurs de gaz - Dispositifs de conversion - Partie 1: Conversion de volume

Gaszähler - Umwerter - Teil 1: Volumenumwertung

This European Standard was approved by CEN on 15 March 2005 and includes Amendment 1 approved by CEN on 6 July 2006 and Amendment 2 approved by CEN on 19 September 2010.

EUROPEAN COMMITTEE FOR STANDARDIZATION
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Contents

Foreword

[A1] This document [A2] (EN 12405-1:2005+A2:2010) [A2] has been prepared by Technical Committee CEN/TC 237 “Gas meters”, the secretariat of which is held by BSI.

This [A2] *deleted text* [A2] European Standard [A2] *deleted text* [A2] shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by [A2] April 2011 [A2], and conflicting national standards shall be withdrawn at the latest by [A2] April 2011 [A2].

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2004/22 Measuring Instruments Directive (MID).

For relationship with EU Directive 2004/22, see informative Annex ZA, which is an integral part of this document. [A1]

This document includes Amendment 1, approved by CEN on 2006-07-06 and Amendment 2, approved by CEN on 2010-09-19.

This document supersedes [A2] EN 12405-1:2005 [A2].

The start and finish of text introduced or altered by amendment is indicated in the text by tags [A1] [A1] and [A2] [A2].

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.

Due to technical developments the layout of the document has been changed and EN 12405 will appear in parts:

— Part 1: Volume conversion (this European Standard),

— Part 2: Energy conversion (in preparation),

— Part 3: Data loggers.

Further parts are under consideration, following the technical progress.

In the preparation of this European Standard, the content of OIML Publication, “International Document 11”, “International Recommendations 6” and “International Recommendations 32” and the content of member bodies' national standards on gas-volume electronic conversion devices have been taken into account.

[A1] *deleted text* [A1]

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This European Standard specifies the requirements and tests for the construction, performance, safety and conformity of gas-volume electronic conversion devices associated to gas meters, used to measure volumes of fuel gases of the 1st and 2nd families according to EN 437.

This European Standard is intended for type testing, the detailed relevant provisions of which are given in Annex A.

Only three kinds of conversion are treated in this European Standard:

— conversion as a function of temperature only (called T conversion);

— conversion as a function of the pressure and of the temperature with constant compression factor (called PT conversion);

— conversion as a function of the pressure, the temperature and taking into account the compression factor (called PTZ conversion).

[A1] This document is not relevant to temperature conversion integrated into gas meters which only indicate the converted volume. [A1]

EN 12405-2 for energy conversion is in preparation.

Gas-volume conversion devices consist of a calculator and a temperature transducer or a calculator, a temperature transducer and a pressure transducer locally installed.

For application of this European Standard, a conversion device may be, as a choice of the manufacturer, considered as a complete instrument (Type 1) or made of separate elements (Type 2), according to the definitions given in 3.1.18.1 and 3.1.18.2.

In this last case, the provisions concerning pressure transducers, temperature sensors and temperature transducers are given in Annexes B, C and D respectively.

Any conversion device can provide an error curve correction for a gas meter.

NOTE When rendering an account to an end user the readings from the conversion device can be used in conjunction with the readings from a gas meter conforming to EN 1359, EN 12480, or EN 12261, as appropriate, or to any other appropriate and relevant international or national standard for gas meters, without prejudice of national regulations.

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 437, *Test gases — Test pressures — Appliance categories*

EN 1776, *Gas supply systems — Natural gas measuring stations — Functional requirements*

[A2] *deleted text* [A2]

EN 55011, *Industrial, scientific and medical (ISM) radio-frequency equipment — Radio disturbance characteristics — Limits and methods of measurement (CISPR 11:1997, modified)*

EN 60068-2-1, *Environmental testing — Part 2: Tests — Tests A: Cold (IEC 60068-2-1:1990)*