



National Standards Authority of Ireland

IRISH STANDARD

I.S. EN 12405:2002

ICS 91 140.40

National Standards
Authority of Ireland
Dublin 9
Ireland

Tel (01) 807 3800
Tel (01) 807 3838

**GAS METERS - GAS-VOLUME ELECTRONIC
CONVERSION DEVICES**

This Irish Standard was published under the authority of the National Standards Authority of Ireland and comes into effect on September 13 2002

NO COPYING WITHOUT NSAI
PERMISSION EXCEPT AS
PERMITTED BY COPYRIGHT
LAW

© NSAI 2002

Price Code Q

Údarás um Chaighdeán Náisiúnta na hÉireann

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12405

July 2002

ICS 91.140.40

English version

Gas meters - Gas-volume electronic conversion devices

Compteurs de gaz - Dispositifs électroniques de conversion
de volume de gaz

Gaszähler - Elektronische Zustands-Mengenumwerter

This European Standard was approved by CEN on 25 March 2002.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

EN 12405:2002 (E)

Contents

	page
Foreword	4
1 Scope	5
2 Normative references	5
3 Terms, definitions and symbols	6
3.1 Terms and definitions	6
3.2 Symbols	9
4 Principle of measurement	11
4.1 Conversion as a function of temperature	11
4.2 Conversion as a function of pressure and temperature	11
4.3 Conversion as a function of pressure, temperature and deviation from the ideal gas law	12
4.4 Correction of the volume at measurement conditions	12
5 Rated operating conditions	13
5.1 Specified field of measurement	13
5.1.1 Specified measurement range for gas pressure	13
5.1.2 Specified measurement range for gas temperature	13
5.1.3 Gas characteristics	13
5.2 Environmental class	13
5.2.1 Ambient temperature range	13
5.2.2 Humidity range	13
5.3 Power supply	14
6 Construction requirements	14
6.1 General	14
6.2 Casings	15
6.3 Indications	15
6.3.1 General	15
6.3.2 Electronic indicating device	16
6.4 Inputs for volume conversion	17
6.5 Battery powered conversion device	17
6.6 Security devices and alarms	18
7 Installation requirements	18
7.1 General	18
7.2 Temperature transducer	19
7.3 Pressure transducer	19
8 Performance	19
8.1 Reference conditions	19
8.2 Rated operating conditions	19
8.3 Maximum permissible errors	20
8.3.1 Error of conversion	20
8.3.2 Specific errors for a gas-volume conversion device, type 2	20
8.4 Influence factors	21
8.5 Disturbances	21
8.6 Durability	22
9 Tests of conformity	22
9.1 Test conditions	22
9.2 Tests and their classification	22
9.3 Sample of gas volume conversion device required for testing	22
9.4 Test report	23

10	Marking	23
Annex A (normative) Type test		24
A.1	General conditions	24
A.2	Accuracy tests under reference conditions.....	26
A.3	Effect of ambient temperature.....	27
A.4	Effect of damp heat, steady state test	27
A.5	Effect of damp heat, cyclic test.....	28
A.6	Electrical power variation	29
A.7	Short time power interruption	29
A.8	Electrical bursts.....	30
A.9	Electromagnetic immunity.....	31
A.10	Electrostatic discharges	32
A.11	Effect of an overload of pressure.....	33
A.12	Mechanical resistance to overload of pressure	33
A.13	Effect of vibrations	34
A.14	Effect of shocks	35
A.15	Durability	35
Annex B (informative) Model type test report.....		37
B.1	General.....	37
B.2	Accuracy tests under reference conditions.....	38
B.3	Ambient temperature.....	39
B.4	Effect of damp heat, steady state test	42
B.5	Effect of damp heat, cyclic test.....	43
B.6	Electrical power variation	45
B.7	Short time power interruption	48
B.8	Electrical bursts	48
B.9	Electromagnetic immunity.....	49
B.10	Electrostatic discharges	50
B.11	Effect of an overload of static pressure	50
B.12	Mechanical resistance to overload of static pressure	51
B.13	Effect of vibrations	52
B.14	Effect of shocks	52
B.15	Durability	53
Bibliography		56

EN 12405:2002 (E)

Foreword

This document EN 12405:2002 has been prepared by Technical Committee CEN/TC 237 "Gas meters", 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 January 2003, and conflicting national standards shall be withdrawn at the latest by January 2003.

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.

The metrological aspects of this European Standard may be subject to amendments to bring it into line with the proposed Measuring Instruments Directive (MID).

Annex A is normative and annex B is informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.



This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-