

This is a free page sample. Access the full version online.

# 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 FUR NORMUNG

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

© 2002 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. EN 12405:2002 E

### Contents

.

.

Foreword4		
1	Scope	.5
2	Normative references	.5
3 3.1 3.2	Terms, definitions and symbols Terms and definitions Symbols	6
4 4.1 4.2 4.3 4.4	Principle of measurement Conversion as a function of temperature Conversion as a function of pressure and temperature Conversion as a function of pressure, temperature and deviation from the ideal gas law Correction of the volume at measurement conditions	11 11 12
5 5.1 5.1.1 5.1.2 5.1.3 5.2 5.2.1 5.2.2 5.3	Rated operating conditions	13 13 13 13 13 13 13
6 6.1 6.2 6.3 6.3.1 6.3.2 6.4 6.5 6.6	Construction requirements General Casings Indications General Electronic indicating device Inputs for volume conversion Battery powered conversion device Security devices and alarms	14 15 15 15 16 17
7 7.1 7.2 7.3	Installation requirements General Temperature transducer Pressure transducer	18 19
8 8.1 8.2 8.3 8.3.1 8.3.2 8.4 8.5 8.6	Performance Reference conditions Rated operating conditions Maximum permissible errors Error of conversion Specific errors for a gas-volume conversion device, type 2 Influence factors Disturbances	19 19 20 20 20 21 21
9 9.1 9.2 9.3 9.4	Tests of conformity Test conditions Tests and their classification Sample of gas volume conversion device required for testing Test report	22 22 22

.

-

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	
A.7	Short time power interruption	
A.8	Electrical bursts	
A.9	Electromagnetic immunity	
<b>A</b> .10	Electrostatic discharges	
A.11	Effect of an overload of pressure	
A.12	Mechanical resistance to overload of pressure	
A.13	Effect of vibrations	34
<b>A</b> .14	Effect of shocks	
A.15	Durability	
Annex	B (informative) Model type test report	37
B.1	General	
B.2	Accuracy tests under reference conditions	
B.3	Ambient temperature	
B.4	Effect of damp heat, steady state test	
B.5	Effect of damp heat, cyclic test	43
B.6	Electrical power variation	
B.7	Short time power interruption	48
B.8	Electrical bursts	
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	
B.14	Effect of shocks	
B.15	Durability	53
Bibliog	raphy	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** 

S Looking for additional Standards? Visit Intertek Inform Infostore

> Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation