SLOVENSKI STANDARD
SIST EN 12405-1:2005/kFprA2:2010

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Plinomeri - Korektorji - 1. del: Volumska konverzija - Dopolnilo A2

Gas meters - Conversion devices - Part 1: Volume conversion

Gaszähler - Umwerter - Teil 1 : Volumenumwertung

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

Ta slovenski standard je istoveten z: **EN 12405-1:2005/FprA2**

ICS:

91.140.40 Sistemi za oskrbo s plinom Gas supply systems

SIST EN 12405-1:2005/kFprA2:2010 **en,fr,de**

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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 draft amendment is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 237.

This draft amendment A2, if approved, will modify the European Standard EN 12405-1:2005. If this draft becomes an amendment, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration.

This draft amendment was established by CEN 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 Management Centre has the same status as the official versions.

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

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Foreword

This document (EN 12405-1:2005/FprA2:2010) has been prepared by Technical Committee CEN/TC 237 “Gas meters”, the secretariat of which is held by BSI.

This document is currently submitted to the Unique Acceptance Procedure.

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 2004/22/EEC.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

In the preparation of this European Standard, the content of OIML Publication, “International Document 11”, “International Recommendation 137-1” and “International Recommendation 140” and the content of member bodies’ national standards on gas-volume electronic conversion devices have been taken into account.

1 Modifications to the Foreword

In the 1st paragraph, replace "(EN 12405-1:2005/A1:2006)" *with* "(EN 12405-1:2005+A2:2010)".

In the 2nd paragraph, delete "Amendment to the" *and* "EN 12405-1:2005".

2 Modifications to Clause 2, Normative references

Add the following references:

"EN 61000-4-5, *Electromagnetic compatibility (EMC) — Part 4-5: Testing and measurement techniques — Surge immunity test (IEC 61000-4-5:2005)* ,

"EN 61000-4-8, *Electromagnetic compatibility (EMC) — Part 4: Testing and measurement techniques — Section 8: Power frequency magnetic field immunity test (IEC 61000-4-8:1993 + A1 2001)* and

"EN 61000-4-29, *Electromagnetic Compatibility (EMC) — Part 4-29: Testing and measurement techniques — Voltage dips, short interruptions and voltage variations on d.c. input power port immunity tests (IEC 61000-4-29:2000)*".

Delete the references to EN 50015, EN 50017, EN 50020 and prEN 50039.

Add the following references:

"EN 60079-5, *Explosive atmospheres — Part 5: Equipment protection by powder filling "q" (IEC 60079-5:2007)*

EN 60079-6, *Explosive atmospheres — Part 6: Equipment protection by oil immersion "o" (IEC 60079-6:2007)" and*

"EN 60079-11, *Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i" (IEC 60079-11:2006)*

EN 60079-25, *Electrical apparatus for explosive gas atmospheres — Part 25: Intrinsically safe systems (IEC 60079-25:2003)*".

3 Modification to 6.1.7

Replace "EN 50015, EN 50017, EN 50020, EN 60079-0, EN 60079-1, EN 60079-2, EN 60079-7 and prEN 50039" *with* "EN 60079-0, EN 60079-1, EN 60079-2, EN 60079-5, EN 60079-6, EN 60079-7, EN 60079-11 and EN 60079-25".

4 Modification to 7.1, General

In the 5th paragraph, replace "EN 50015, EN 50017, EN 50020, EN 60079-0, EN 60079-1, EN 60079-2, EN 60079-7 and EN 50039" *with* "EN 60079-0, EN 60079-1, EN 60079-2, EN 60079-5, EN 60079-6, EN 60079-7, EN 60079-11 and EN 60079-25".

5 Modification to 8.3.1.2, Conversion devices type 2

Replace Table 3 with the following: "

Indication or element	Reference conditions	Rated operating conditions
Main indication (e_c) for PT and PTZ conversion	0,5	1
Calculator (e_f)	0,2	0,3
Temperature (e_t)	0,1	0,2
Pressure (e_p)	0,2	0,5
Main indication for T conversion only	0,5	0,7

".

6 Modification to 9.2.1, Test conditions

Replace text of sub-clause with the following paragraphs and table:

"The device shall meet the requirements specified in Table 4.

Clause	Tests	Acceptance criteria	Timing	Test procedure
A.2	Accuracy	*MPE*	D	PR1
A.3	Ambient temperature	*MPE*	D	PR2
A.4	Damp heat, steady state	*MPE*	BDA	PR3
A.5	Cyclic damp heat	*MPE*	BA	PR3
A.6	Electrical power variation	*MPE*	BD	PR3
A.7	Short time AC power reductions	$\Delta e \leq$ *MPE*	BD	PR4
A.8	Electrical bursts	$\Delta e \leq$ *MPE*	BD	PR4
A.9	Electromagnetic immunity	$\Delta e \leq$ *MPE*	BD	PR4
A.10	Electrostatic discharges	$\Delta e \leq$ *MPE*	BD	PR4
A.11	Overload of pressure	$\Delta e \leq$ *MPE*	BA	PR5
A.12	Random vibrations	*MPE*	BA	PR3
A.13	Shocks	$\Delta e \leq$ *MPE*	BA	PR4
A.14	Overload of pressure (mechanical)	operable	A	PR4
A.15	Durability	$\Delta e \leq$ *0,5 MPE*	BA	PR2
A.16	Alarms' operation	operable	D	PR4
A.17	Repeatability	$\Delta e \leq$ *MPE/3*	D	PR2
A.18	Short time DC power variations	$\Delta e \leq$ *MPE*	BD	PR4
A.19	Surges on supply lines and/or signal lines	$\Delta e \leq$ *MPE*	BA	PR4
A.20	Power frequency magnetic field	$\Delta e \leq$ *MPE*	BD	PR4
Test procedure: PR1, PR2, PR3, PR4 (See Annex A) Timing: B: Before, D: During, A: After Δe: see Annex E For the acceptance criteria, Δe needs to be compared with MPE given in Tables 2 and 3.				

The tests shall be performed using reference instruments traceable to national standards. The uncertainties shall be determined, including those arising from their use, and shall not exceed one fifth of the maximum permissible errors.

The conventional true value of the compression factor shall be computed according to EN ISO 12213-3:2005 or outside the limits of this method, with the methods described in EN ISO 12213-2:2005. When used with first family gases it is necessary to check this against a first family gas calculation method.

Following the type approval of a gas-volume conversion device, any modification(s) to the device shall be validated with tests relevant to the modification(s). A complete set of tests per modification is not required.

9.2.3 Samples of gas volume conversion device type 1 required for testing

Replace text of sub clause by the following paragraph and tables:

The number of samples to be tested is indicated in the tables below, according to the number of variants. Each gas volume conversion device tested shall satisfy the performance requirements specified in Clause 8.

The following provisions have to be taken into account:

a) A conversion device may be offered with a choice of different pressure ranges (and/or temperature ranges). Each pressure (and/or temperature) range will invariably be due to the use of different pressure (and/or temperature) transducers. In addition, it may be that the manufacture uses several transducer suppliers, all providing transducers with the same measurement range.

   In this clause, "variant" refers to each different type of transducer, or combination of, transducers howsoever caused.

b) If the conversion device is intended to be used for T conversion and PT conversion, or for T conversion and PTZ conversion, an additional sample shall be submitted for test.

If the number of variants is higher or equal to 2 the number of samples applicable to the testing procedure shall be adapted in accordance with the characteristics of the different types of transducers.

The methods are illustrated through the three different cases as follows:

Case 1:

Where the number of variants is equal to 1 the number of samples shall be at least as given in Table 5:

Table 5 — Conversion devices type 1: test samples where only one variant of device is available (case 1)

Recommended sequence in which tests are carried out		Sample S1	Sample S2	Sample S3 [a]
Clause	**Test**			
A.2	Accuracy	X	X	X
A.16	Alarms' operation	X		X
A.17	Repeatability	X		X
A.3	Ambient temperature	X		X
A.4	Damp heat, steady state	X		X
A.5	Cyclic damp heat	X		X
A.6	Electrical power variation	X		X
A.7	Short time AC power reductions	X		X
A.8	Electrical bursts	X		X
A.9	Electromagnetic immunity	X		X
A.10	Electrostatic discharges	X		X
A.18	Short time DC power variations	X		X
A.19	Surges on supply lines and/or signal lines	X		X
A.20	Power frequency magnetic field	X		X
A.11	Overload of pressure	X		X
A.12	Random vibrations	X		X
A.13	Shocks	X		X
A.14	Overload of pressure (mechanical)	X		X
A.15	Durability		X	

[a] If necessary, see provision b) above.

Case 2:

Where the conversion device includes only one type of pressure transducer (e.g. transducer from the same supplier and from the same family) but the pressure transducer is available for three different measuring ranges R1, R2 and R3. In this case, the test samples are in accordance with Table 6.

Table 6 — Conversion devices type 1: test samples where there are three ranges of pressure transducers from the same family (case 2)

Recommended sequence in which tests are carried out		Sample range R1	Sample range R2	Sample range R3
Clause	**Test**			
A.2	Accuracy	X	X	X
A.16	Alarms' operation	X	X	X
A.17	Repeatability	X	X	X
A.3	Ambient temperature	X	X	X
A.4	Damp heat, steady state	X	X	X
A.5	Cyclic damp heat	X		
A.6	Electrical power variation	X		
A.7	Short time AC power reductions	X		
A.8	Electrical bursts	X		
A.9	Electromagnetic immunity	X		
A.10	Electrostatic discharges	X		
A.18	Short time DC power variations	X		
A.19	Surges on supply lines and/or signal lines	X		
A.20	Power frequency magnetic field	X		
A.11	Overload of pressure	X	X	X
A.12	Random vibrations	X		
A.13	Shocks	X		
A.15	Durability		X	
A.14	Overload of pressure (mechanical)	X	X	X