SLOVENSKI STANDARD
SIST EN 61207-3:2001

01-april-2001

Gas analyzers - Expression of performance - Part 3: Paramagnetic oxygen analyzers

Gas analyzers - Expression of performance -- Part 3: Paramagnetic oxygen analyzers

Gasanalysatoren - Angabe zum Betriebsverhalten -- Teil 3: Paramagnetische Sauerstoffanalysatoren

Analyseurs de gaz - Expression des qualités de fonctionnement -- Partie 3: Analyseurs d'oxygène paramagnétiques

Ta slovenski standard je istoveten z: **EN 61207-3:1999**

ICS:

71.040.40 Kemijska analiza Chemical analysis

SIST EN 61207-3:2001 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61207-3

January 1999

ICS 29.260.99

Descriptors: Process control, gas analyzer, paramagnetic oxygen, performance

English version

Gas analyzers - Expression of performance
Part 3: Paramagnetic oxygen analyzers
(IEC 61207-3:1998)

Analyseurs de gaz - Expression des qualités de fonctionnement
Partie 3: Analyseurs d'oxygène paramagnétiques
(CEI 61207-3:1998)

Gasanalysatoren - Angabe zum Betriebsverhalten
Teil 3: Paramagnetische Sauerstoffanalysatoren
(IEC 61207-3:1998)

This European Standard was approved by CENELEC on 1999-01-01. CENELEC 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 Central Secretariat or to any CENELEC 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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61207-3:1999 E

Foreword

The text of document 65D/45/FDIS, future edition 1 of IEC 61207-3, prepared by SC 65D, Analyzing equipment, of IEC TC 65, Industrial-process measurement and control, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61207-3 on 1999-01-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2000-10-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2001-10-01

This EN 61207-3 is to be used in conjunction with EN 61207-1.

Annexes designated "normative" are part of the body of the standard.
Annexes designated "informative" are given for information only.
In this standard, annex ZA is normative and annexes A and B are informative.
Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 61207-3:1998 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

ISO 9001	NOTE: Harmonized as EN ISO 9001:1994 (not modified).
ISO 9002	NOTE: Harmonized as EN ISO 9002:1994 (not modified).
ISO 9003	NOTE: Harmonized as EN ISO 9003:1994 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE: When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 60654-1	1993	Industrial-process measurement and control equipment - Operating conditions Part 1: Climatic conditions	EN 60654-1	1993
IEC 61115	1992	Expression of performance of sample handling systems for process analyzers	EN 61115	1993
IEC 61207-1	1994	Expression of performance of gas analyzers Part 1: General	EN 61207-1	1994

NORME INTERNATIONALE

INTERNATIONAL STANDARD

CEI
IEC
61207-3

Première édition
First edition
1998-10

Analyseurs de gaz – Expression des qualités de fonctionnement –

Partie 3: Analyseurs d'oxygène paramagnétiques

Gas analyzers – Expression of performance –

Part 3: Paramagnetic oxygen analyzers

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

CODE PRIX
PRICE CODE U

Pour prix, voir catalogue en vigueur
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FOREWORD

1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.

3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical reports or guides and they are accepted by the National Committees in that sense.

4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.

5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.

6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61207-3 has been prepared by subcommittee 65D: Analyzing equipment, of IEC technical committee 65: Industrial-process measurement and control.

This standard shall be read in conjunction with IEC 61207-1.

The text of this standard is based on the following documents:

FDIS	Report on voting
65D/45/FDIS	65D/51/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

IEC 61207-3 constitutes part 3 of a series of publications under the general title: Gas analyzers – Expression of performance

- part 1: General
- part 2: Oxygen in gas (utilizing high-temperature electrochemical sensors)
- part 3: Paramagnetic oxygen analyzers
- part 6: Photometric analyzers
- part 7: Infra-red analyzers

Parts 4 and 5 are under consideration.

Annexes A and B are for information only.

INTRODUCTION

Paramagnetic oxygen analyzers are used in a wide range of industrial, laboratory and other applications where the rated measuring range of the analyzer is between 0 % and 1 % and between 0 % and 100 %.

Only a few gases display paramagnetism, and oxygen has a particularly strong paramagnetic susceptibility (see annex B). By employing this particular property of oxygen, analyzers have been designed which can be highly specific to measurement in most industrial applications where, for example, high background levels of hydrocarbons may be present.

There are several different techniques described for measuring the paramagnetic properties of oxygen, but three main methods have evolved over many years of commercial application. These are:

– automatic null balance;
– thermomagnetic or magnetic wind;
– differential pressure or "Quinke".

These methods all require the sample gas to be clean and dry, though some versions work at elevated temperatures so that samples that are likely to condense at a lower temperature can be analyzed.

Because of this requirement, analyzers often require a sample system to condition the sample prior to measurement.

GAS ANALYZERS – EXPRESSION OF PERFORMANCE –

Part 3: Paramagnetic oxygen analyzers

1 Scope and object

This part of IEC 61207 applies to the three main methods for measuring paramagnetic properties of oxygen:

– automatic null balance;
– thermomagnetic or magnetic wind;
– differential pressure or "Quinke".

In addition, it deals with essential ancillary units and applies to analyzers installed both indoors and outdoors.

NOTE – Safety critical appliances may require an additional requirement of system and analyzer specifications not covered in this standard.

This standard is intended to

– specify terminology and definitions related to the functional performance of paramagnetic gas analyzers for the measurement of oxygen in a source gas;
– unify methods used in making and verifying statements on the functional performance of such analyzers;
– specify what tests should be performed to determine the functional performance and how such tests should be carried out;
– provide basic documents to support the application of standards of quality assurance ISO 9001, ISO 9002 and ISO 9003.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 61207. At the time of publication, the editions indicated were valid. All normative documents are subject to revision, and parties to agreements based on this part of IEC 61207 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60654-1:1993, *Industrial-process measurement and control equipment, operating conditions – Part 1: Climatic conditions*

IEC 61115:1992, *Expression of performance of sample handling systems for process analyzers*

IEC 61207-1:1994, *Expression of performance of gas analyzers – Part 1: General*