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Expression of performance of gas analyzers - Part 2: Measuring oxygen in gas utilizing high-temperature electrochemical sensors

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Expression of performance of gas analyzers - Part 2: Measuring
oxygen in gas utilizing high-temperature electrochemical sensors
(IEC 61207-2:2019)**

Expression des qualités de fonctionnement des analyseurs
de gaz - Partie 2: Mesure de l'oxygène contenu dans le gaz
en utilisant des capteurs électrochimiques à haute
température
(IEC 61207-2:2019)

Angabe zum Betriebsverhalten von Gasanalysatoren - Teil
2: Sauerstoffmessung in Gas unter Verwendung von
elektrochemischen Hochtemperatur-Sensoren
(IEC 61207-2:2019)

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Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 61207-2:2019 (E)**European foreword**

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IEC 60654 (series)	NOTE	Harmonized as EN 60654 (series)
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Annex ZA (normative)

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NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61207-1	2010	Expression of performance of gas analyzers - Part 1: General	EN 61207-1	2010



IEC 61207-2

Edition 2.0 2019-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Expression of performance of gas analyzers –
Part 2: Measuring oxygen in gas utilizing high-temperature electrochemical
sensors**

**Expression des qualités de fonctionnement des analyseurs de gaz –
Partie 2: Mesure de l'oxygène contenu dans le gaz en utilisant des capteurs
électrochimiques à haute température**



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IEC 61207-2

Edition 2.0 2019-06

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Expression of performance of gas analyzers –
Part 2: Measuring oxygen in gas utilizing high-temperature electrochemical
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**Expression des qualités de fonctionnement des analyseurs de gaz –
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CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions, and concepts	6
3.1 Terms and definitions.....	6
3.2 Concepts	7
3.2.1 High-temperature electrochemical sensor	7
3.2.2 Reference gas	10
3.2.3 In situ analyzer	10
3.2.4 Extractive analyzer	11
3.2.5 Hazardous area	11
3.2.6 Flame trap	11
3.2.7 Essential ancillary units	11
4 Procedures for specification	11
4.1 General.....	11
4.2 Specification of essential units and ancillary services	11
4.2.1 General	11
4.2.2 Rated range of reference gas pressure	11
4.2.3 Rated range of calibration gas pressure.....	12
4.2.4 Rated range of aspirator gas pressure	12
4.3 Additional terms related to the specification of performance.....	12
4.4 Important terms related to the specification of performance	12
4.4.1 General	12
4.4.2 Rated range of sample gas temperature	12
4.4.3 Rated range of sample gas pressure	12
4.4.4 Rated range of interfering components	12
5 Procedures for compliance testing.....	13
5.1 General.....	13
5.2 Testing procedures	14
5.3 Output fluctuation	14
5.4 Delay time, rise time and fall time	15
Bibliography.....	21
Figure 1 – Flow through tube sensor	15
Figure 2 – Test tube sensor	16
Figure 3 – Disc sensor	16
Figure 4 – Twin chamber design	16
Figure 5 – Sealed reference design	17
Figure 6 – Limiting current design	17
Figure 7 – Fixed volume design	18
Figure 8 – General test arrangement: In situ analyzer	19
Figure 9 – General test arrangement: Extractive analyzer	20

INTERNATIONAL ELECTROTECHNICAL COMMISSION

EXPRESSION OF PERFORMANCE OF GAS ANALYZERS –

Part 2: Measuring oxygen in gas utilizing high-temperature electrochemical sensors

FOREWORD

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International Standard IEC 61207-2 has been prepared by sub-committee 65B: Measurement and control devices of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 1994. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition.

- a) all the terms and definitions relating to the document have been updated where appropriate;
- b) the description of the principle of the galvanic cell has been expanded and clarified;

- c) new definitions and illustrations have been added for different measurement methods for oxygen using solid electrolytes for galvanic cells;
- d) new illustrations have been added for existing descriptions for ion pump cells;
- e) a more detailed description of the effect of the presence of oxidizable gases has been added;
- f) all references to “errors” have been replaced by “uncertainties” and appropriate updated definitions applied.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
65B/1156/FDIS	65B/1158/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.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This International Standard is to be used in conjunction with IEC 61207-1:2010.

A list of all parts in the IEC 61207 series under the general title *Expression of performance of gas analyzers*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This part of IEC 61207 includes the terminology, definitions, statements and tests that are specific to oxygen analyzers, which utilise high-temperature electrochemical sensors.

Oxygen analyzers employing high-temperature electrochemical sensors operating at temperatures usually in excess of 500 °C, have a wide range of applications for the measurement of oxygen in gas samples. Such samples are typically the result of a combustion process or oxygen impurity measurements.

Two main types of analyzer exist, the in situ analyzer, where the sensor is positioned within the process duct work, and the "extractive" analyzer, where the sample is drawn from the duct via a simple sample system and presented to the sensor.

An analyzer will typically comprise a sensor head, mounted on the process duct, and a control unit remotely mounted, with interconnecting cable.

EXPRESSION OF PERFORMANCE OF GAS ANALYZERS –

Part 2: Measuring oxygen in gas utilizing high-temperature electrochemical sensors

1 Scope

This part of IEC 61207 applies to all aspects of analyzers using high-temperature electrochemical sensors for the measurement of oxygen in gas.

It applies to in-situ and extractive analyzers and to analyzers installed indoors and outdoors.

The object of this part is:

- to specify the terminology and definitions related to the functional performance of gas analyzers, utilizing a high-temperature electrochemical sensor, for the continuous measurement of oxygen concentration in a sample of gas;
- to unify methods used in making and verifying statements on the functional performance of such analyzers;
- to specify what tests are performed to determine the functional performance and how such tests are carried out;
- to provide basic documents to support the application of internationally recognized quality management standards.

2 Normative references

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IEC 61207-1:2010, *Expression of performance of gas analyzers – Part 1: General*

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