



**NSAI**  
Standards

Irish Standard

I.S. EN IEC 61010-2-061:2021&A11:2021

Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization

**I.S. EN IEC 61010-2-061:2021&A11:2021**

*Incorporating amendments/corrigenda/National Annexes issued since publication:*

EN IEC 61010-2-061:2021/A11:2021

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard — national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation — recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

*This document replaces/revises/consolidates the NSAI adoption of the document(s) indicated on the CEN/CENELEC cover/Foreword and the following National document(s):*

*NOTE: The date of any NSAI previous adoption may not match the date of its original CEN/CENELEC document.*

*This document is based on:*

EN IEC 61010-2-061:2021

*Published:*

2021-09-10

*This document was published  
under the authority of the NSAI  
and comes into effect on:*

2021-10-04

ICS number:

19.080

71.040.20

NOTE: If blank see CEN/CENELEC cover page

NSAI  
1 Swift Square,  
Northwood, Santry  
Dublin 9

T +353 1 807 3800  
F +353 1 807 3838  
E standards@nsai.ie  
W NSAI.ie

Sales:  
T +353 1 857 6730  
F +353 1 857 6729  
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

## National Foreword

I.S. EN IEC 61010-2-061:2021&A11:2021 is the adopted Irish version of the European Document EN IEC 61010-2-061:2021, Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization

This document does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

For relationships with other publications refer to the NSAI web store.

**Compliance with this document does not of itself confer immunity from legal obligations.**

*In line with international standards practice the decimal point is shown as a comma (,) throughout this document.*

This page is intentionally left blank

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN IEC 61010-2-  
061:2021/A11**

September 2021

ICS 19.080; 71.040.20

English Version

**Safety requirements for electrical equipment for measurement,  
control and laboratory use - Part 2-061: Particular requirements  
for laboratory atomic spectrometers with thermal atomization and  
ionization**

Exigences de sécurité pour appareils électriques de  
mesurage, de régulation et de laboratoire - Partie 2-061:  
Exigences particulières pour spectromètres atomiques de  
laboratoire avec vaporisation et ionisation thermiques

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,  
Regel- und Laborgeräte - Teil 2-061: Besondere  
Anforderungen an Labor-Atomspektrometer mit thermischer  
Atomisierung und Ionisation

This amendment A11 modifies the European Standard EN IEC 61010-2-061:2021; it was approved by CENELEC on 2021-08-02. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment 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 CEN-CENELEC Management Centre or to any CENELEC member.

This amendment 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

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

EUROPEAN STANDARD

**EN IEC 61010-2-061**

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2021

ICS 19.080; 71.040.20

Supersedes EN 61010-2-061:2015 and all of its  
amendments and corrigenda (if any)

English Version

**Safety requirements for electrical equipment for measurement,  
control and laboratory use - Part 2-061: Particular requirements  
for laboratory atomic spectrometers with thermal atomization and  
ionization  
(IEC 61010-2-061:2018)**

Règles de sécurité pour appareils électriques de mesurage,  
de régulation et de laboratoire - Partie 2-061: Exigences  
particulières pour spectromètres atomiques de laboratoire  
avec vaporisation et ionisation thermiques  
(IEC 61010-2-061:2018)

Sicherheitsbestimmungen für elektrische Mess-, Steuer-,  
Regel- und Laborgeräte -Teil 2-061: Besondere  
Anforderungen an Labor-Atomspektrometer mit thermischer  
Atomisierung und Ionisation  
(IEC 61010-2-061:2018)

This European Standard was approved by CENELEC on 2018-10-26. 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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



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

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

## **EN IEC 61010-2-061:2021 (E)**

### **European foreword**

The text of document 66/643/CDV, future edition 4 of IEC 61010-2-061, prepared by IEC/TC 66 "Safety of measuring, control and laboratory equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61010-2-061:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-08-02
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-08-02

This document supersedes EN 61010-2-061:2015 and all of its amendments and corrigenda (if any).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a Standardization Request given to CENELEC by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For the relationship with EU Directive(s) / Regulation(s), see informative Annex ZZ, which is an integral part of EN IEC 61010-2-061:2021/A11:2021.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

### **Endorsement notice**

The text of the International Standard IEC 61010-2-061:2018 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:

IEC 62061	NOTE	Harmonized as EN 62061
ISO 13849 (series)	NOTE	Harmonized as EN ISO 13849 (series)



IEC 61010-2-061

Edition 4.0 2018-09

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety requirements for electrical equipment for measurement, control, and laboratory use –  
Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization**

**Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –  
Partie 2-061: Exigences particulières pour spectromètres atomiques de laboratoire avec vaporisation et ionisation thermiques**





**THIS PUBLICATION IS COPYRIGHT PROTECTED**  
**Copyright © 2018 IEC, Geneva, Switzerland**

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

#### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

#### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

##### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

##### IEC publications search - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

##### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

##### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing 21 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

##### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

##### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [sales@iec.ch](mailto:sales@iec.ch).

---

#### A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

#### A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

##### Catalogue IEC - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

##### Recherche de publications IEC - [webstore.iec.ch/advsearchform](http://webstore.iec.ch/advsearchform)

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

##### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

##### Electropedia - [www.electropedia.org](http://www.electropedia.org)

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 21 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

##### Glossaire IEC - [std.iec.ch/glossary](http://std.iec.ch/glossary)

67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

##### Service Clients - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: [sales@iec.ch](mailto:sales@iec.ch).



**IEC 61010-2-061**

Edition 1.0 2018-09

# **INTERNATIONAL STANDARD**

## **NORME INTERNATIONALE**

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety requirements for electrical equipment for measurement, control, and laboratory use –  
Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization**

**Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –  
Partie 2-061: Exigences particulières pour spectromètres atomiques de laboratoire avec vaporisation et ionisation thermiques**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

COMMISSION  
ELECTROTECHNIQUE  
INTERNATIONALE

ICS 19.080; 71.040.20

ISBN 978-2-8322-6040-1

**Warning! Make sure that you obtained this publication from an authorized distributor.  
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

## CONTENTS

FOREWORD.....	3
1 Scope and object.....	5
2 Normative references.....	5
3 Terms and definitions .....	5
4 Tests.....	6
5 Marking and documentation .....	6
6 Protection against electric shock.....	9
7 Protection against mechanical HAZARDS.....	9
8 Resistance to mechanical stresses.....	9
9 Protection against the spread of fire.....	10
10 Equipment temperature limits and resistance to heat.....	10
11 Protection against HAZARDS from fluids and solid foreign objects.....	10
12 Protection against radiation, including laser sources, and against sonic and ultrasonic pressure .....	11
13 Protection against liberated gases and substances, explosion and implosion .....	12
14 Components and subassemblies .....	13
15 Protection by interlocks.....	14
16 HAZARDS resulting from application.....	14
17 RISK assessment .....	14
Annexes .....	15
Annex A (normative) Routine tests .....	16
Annex L (informative) Index of defined terms.....	17
Bibliography .....	18
 Figure 101 – Example of a GAS LOCK .....	 12
 Table 101 – Time-temperature conditions.....	 9

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

### **SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –**

#### **Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization**

### FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). 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. 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 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 IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61010-2-061 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

It has the status of a group safety publication in accordance with IEC Guide 104.

This fourth edition cancels and replaces the third edition published in 2015. This edition constitutes a technical revision.

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

- a) adaptation of changes introduced by Amendment 1 of IEC 61010-1;
- b) added tolerance for stability of AC voltage test equipment to Clause 6;

- c) added requirement for interlock systems containing electric/electronic or programmable components to Clause 15.

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

CDV	Report on voting
66/643/CDV	66/668/RVC

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

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

A list of all parts of the IEC 61010 series, under the general title, *Safety requirements for electrical equipment for measurement, control, and laboratory use*, may be found on the IEC website.

This Part 2-061 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010) and its Amendment 1 (2016).

This Part 2-061 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization*.

Where a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where this part states “addition”, “modification” or “replacement”, or “deletion”, the relevant requirement, test specification or note in Part 1 should be adapted accordingly.

In this standard:

- 1) the following print types are used:
  - requirements: in roman type;
  - NOTES: in small roman type;
  - *conformity and test: in italic type*;
  - terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN CAPITALS;
- 2) subclauses, figures, tables and notes which are additional to those in Part 1 are numbered starting from 101. The additional annexes are lettered starting from AA and additional list items are lettered from aa).

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

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

## **SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –**

### **Part 2-061: Particular requirements for laboratory atomic spectrometers with thermal atomization and ionization**

#### **1 Scope and object**

This clause of Part 1 is applicable except as follows:

##### **1.1 Scope**

###### **1.1.1 Equipment included in scope**

*Replacement:*

*Replace the text, except the first paragraph, with the following new text:*

This part of IEC 61010 applies to electrically powered laboratory atomic spectrometers with thermal atomization.

NOTE 1 Examples include atomic absorption spectrometers, emission flame photometers, atomic fluorescence spectrophotometers, inductively coupled plasma spectrometers, microwave coupled plasma spectrometers and mass spectrometers, all with thermal atomization and ionization (including tubing and connectors which are provided by the manufacturer for connection to external supplies).

NOTE 2 If all or part of the equipment falls within the scope of one or more other Part 2 documents of IEC 61010 as well as within the scope of this document, consideration is given to those other Part 2 documents.

###### **1.1.2 Equipment excluded from scope**

*Addition:*

*Add, before the first paragraph, the following new text:*

This document does not apply to thermal atomization detectors (flame ionization detectors) used in gas chromatography.

#### **2 Normative references**

This clause of Part 1 is applicable.

#### **3 Terms and definitions**

This clause of Part 1 is applicable except as follows:

*Addition:*

*Add the following new terms:*

##### **3.2.101**

###### **SPRAY CHAMBER**

chamber in which droplets of sample in aerosol are allowed to separate so that the droplets of necessary size can be passed onward to the burner, with the remainder draining to waste

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
-