International Standard

ISO 23552-1

Second edition
2026-01

Control and protective devices for gaseous and liquid fuels — Particular requirements —

Part 1: Electronic fuel/air ratio control systems, including associated sensors and mechanical actuators

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Dispositifs de commande et de protection pour combustibles gazeux et liquides — Exigences particulières — Partie 1: Systèmes électroniques de commande des dispositifs de régulation du rapport air y compris les capteurs associés et les actionneurs mécaniques

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 161, *Controls and protective devices for gaseous and liquid fuels*.

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This second edition cancels and replaces the first edition (ISO 23552-1:2007), which has been technically revised. It also incorporates the Amendment ISO 23552-1:2007/Amd 1:2010.

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The main changes are as follows:

— the title and scope have been modified;

— the document has been aligned with ISO 23550 and IEC 60730-1;

— the requirements for fuel/air ratio using oil as the fuel have been integrated;

— the control types ERS and ERT have been added;

— the terms and definitions clause has been expanded and updated;

— the accuracy requirements have been updated;

— Clause 7 “Endurance” has been updated;

— subclause 7.9 “Data exchange” has been added;

— update 7.11 “Protection against internal faults for the purpose of functional safety”;

— update Clause 9 “Electromagnetic compatibility”.

A list of all parts in the ISO 23552 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

This document is designed to be used in combination with ISO 23550. Together with ISO 23550, this document establishes the full requirements as they apply to the product covered by this document.

Where needed, this document adapts ISO 23550 by stating in the corresponding clause:

— “with the following modification”;

— “with the following addition”;

— “is replaced by the following”;

— “is not applicable”.

In order to identify specific requirements that are particular to this document and that are not already covered by ISO 23550, this document contains clauses or subclauses that are additional to the structure of ISO 23550. These subclauses are indicated by the introductory sentence: “Subclause (or Annex) specific to this document.”

To ensure the global relevance of this document, the differing requirements resulting from practical experience and installation practices in various regions of the world have been taken into account.

The variations in basic design associated with gas controls and appliances have also been recognized, some of which are addressed in Annexes F, G and H. This document intends to provide a basic framework of requirements that recognize these differences.

For electronic fuel/air ratio control/supervision systems, there are numerous solutions for specific applications in the market. For this reason, ISO/TC 161, *Controls and protective devices for gaseous and liquid fuels*, decided to draft an International Standard for type testing for electronic fuel/air ratio control systems (ERC), electronic fuel/air ratio supervision systems (ERS) and electronic fuel/air ratio trim systems (ERT) intended for use with burners and appliances burning gaseous or liquid fuels.

NOTE Trim function is a special design of electronic fuel/air ratio control function.

This document does not override requirements of relevant appliance standards. It is the intention of this document that the safety of the appliance will not be reduced by any normal or abnormal operation of the ERC, ERS or ERT.

In this document, there is no classification, either by heat input or by applications.

The accuracy of actual fuel/air ratio is not specified as a fixed value.

This document specifies which parameters are declared in the instruction and under what conditions this declaration is considered fulfilled. These parameters relate to the fuel/air ratio control/supervision systems rather than the combustion process.

This document does not include a standard test rig. However, the purpose of the tests is to verify the manufacturer's declaration under the conditions required in this document.

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