

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE

GROUP SAFETY PUBLICATION  
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety requirements for electrical equipment for measurement, control and laboratory use –  
Part 2-202: Particular requirements for electrically operated valve actuators**

**Règles de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire –  
Partie 2-202: Exigences particulières pour les actionneurs à vanne à commande électrique**



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IEC 61010-2-202

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## CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope and object.....	6
2 Normative references.....	7
3 Terms and definitions .....	7
4 Tests.....	7
5 Marking and documentation .....	8
6 Protection against electric shock.....	9
7 Protection against mechanical HAZARDS.....	9
8 Resistance to mechanical stresses.....	10
9 Protection against the spread of fire.....	10
10 Equipment temperature limits and resistance to heat.....	10
11 Protection against HAZARDS from fluids.....	10
12 Protection against radiation, including laser sources, and against sonic and ultrasonic pressure .....	10
13 Protection against liberated gases and substances, explosion and implosion .....	10
14 Components and subassemblies.....	10
15 Protection by interlocks.....	11
16 HAZARDS resulting from application.....	11
17 RISK assessment .....	11
Annexes .....	12
Bibliography .....	13

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT  
FOR MEASUREMENT, CONTROL AND LABORATORY USE –**
**Part 2-202: Particular requirements  
for electrically operated valve actuators**

## 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.
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International Standard IEC 61020-2-202 has been prepared by committee TC 65: Industrial-process measurement, control and automation.

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

FDIS	Report on voting
65/627/FDIS	65/631/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 Part 2-202 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010). Consideration may be given to future editions of, or amendments to, IEC 61010-1.

This Part 2-202 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for electrically operated valve actuators*.

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”, “replacement”, or “deletion”, the relevant requirement, test specification or note in Part 1 should be adapted accordingly.

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

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

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

In this standard:

- 1) the following print types are used:
  - requirements: in roman type;
  - NOTES: in smaller 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. Additional annexes are lettered starting from AA.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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 IEC 61010-2-202 document constitutes Part 2-202 of a planned series of standards on industrial-process measurement, control and automation equipment.

Safety terms of general use are defined in IEC 61010-1. More specific terms are defined in each part.

This part incorporates the safety related requirements of electrically operated valve actuators.

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

## Part 2-202: Particular requirements for electrically operated valve actuators

### 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 by the following paragraphs:*

This part of IEC 61010 specifies the safety requirements for electric ACTUATORS and SOLENOIDS, as applied to valves, intended to be installed in an industrial process or discrete control environment.

This part of IEC 61010 specifies:

- particular safety requirements for general purpose electrically operated valve ACTUATORS and SOLENOIDS,
- related verification tests.

The general purpose electrically operated valve ACTUATORS and SOLENOIDS, covered by this part of IEC 61010 are limited to:

- those rated 600 V alternative current/ 840 V direct current or less,

Service personnel interface to equipment included in the scope of this document.

##### 1.1.2 Equipment excluded from scope

*Addition at the end of the list:*

This standard excludes

- electric ACTUATORS and SOLENOIDS for use in explosive atmospheres, as covered by the IEC 60079 series of standards;
- mechanical parts/aspects of valves;
- ACTUATORS and SOLENOIDS performing a safety function as covered by the IEC 61508 series of standards;
- POSITIONERS.

NOTE A positioner is defined as a "physical unit delivering an additional, often mechanical, feedback to a mechanical final controlling element that improves its velocity and precision" in IEC 60050-351:2013, 351-56-17.



## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

This clause of Part 1 is applicable, except as follows:

No additional references are needed for this document.

## 3 Terms and definitions

This clause of Part 1 is applicable, except as follows:

Additional terms and definitions:

### 3.101.1

#### ACTUATOR

device that controls a valve it is assembled to in response to an external signal

### 3.101.2

#### SERVICE PERSONNEL

person, with the appropriate technical training, experience and awareness of HAZARDS and of measures to minimize danger to themselves, other persons or to the control equipment, in an industrial environment, changing or repairing the control equipment

Note 1 to entry: SERVICE PERSONNEL are persons having the appropriate technical training and experiences necessary to be aware of HAZARDS – e.g, electrical HAZARDS, temperature HAZARDS, fire HAZARDS – to which they are exposed in performing a task and of measures to minimize danger to themselves or to other persons or to the control equipment, in an industrial environment

Note 2 to entry: SERVICE PERSONNEL change or repair the control equipment e.g. hardware configuration or installing software updates provided by the manufacturer.

### 3.101.3

#### SOLENOID

cylindrical coil, the length of which is much greater than its transverse dimensions and which is used to produce a magnetic field

### 3.101.4

#### SWITCH

contact device actuated by the valve mechanism

## 4 Tests

This clause of Part 1 is applicable except as follows:

### 4.4.2.1 General

*Replace the first sentence with the following sentence:*

Fault conditions shall include those specified in 4.4.2.2 to 4.4.2.14 and in 4.4.2.101.

*Addition of a new subclause:*