

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Mechanical structures for electrical and electronic equipment – Outdoor enclosures –

Part 3: Environmental requirements, tests and safety aspects

Structures mécaniques pour équipement électrique et électronique – Enveloppes de plein air –

Partie 3: Exigences et essais d'environnement, et aspects liés à la sécurité



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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MECHANICAL STRUCTURES FOR ELECTRICAL AND
ELECTRONIC EQUIPMENT – OUTDOOR ENCLOSURES –****Part 3: Environmental requirements, tests and safety aspects**

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. For 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 Publications”). 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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IEC 61969-3 has been prepared by subcommittee 48D: Mechanical structures for electrical and electronic equipment, of IEC technical committee 48: Electrical connectors and mechanical structures for electrical and electronic equipment. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2020. This edition constitutes a technical revision.

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

- a) alignment with the content of ETSI EN 300 019 and IEC 60721 series latest editions, particularly with the actualization of climate conditions;
- b) rationale for the selected operating conditions from IEC 60721-3-4 are added;

- c) tests are grouped according to the classification of conditions in IEC 60721-3-4;
- d) test severities for vibration and shock tests are aligned with ETSI EN 300 019-2-4;
- e) addition of pass/fail criteria for each test.

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

Draft	Report on voting
48D/765/FDIS	48D/766/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This International Standard is to be used in conjunction with IEC 61969-1:2023.

A list of all parts in the IEC 61969 series, published under the general title *Mechanical structures for electrical and electronic equipment – Outdoor enclosures*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under www.ore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The products covered by IEC 61969 series are empty enclosures for outdoor locations, to be equipped with application-specific combinations of electrical and electronic equipment, and to be used at non-weatherprotected locations above ground.

IEC 61969 series consists of:

- a design guidelines general part: IEC 61969-1;
- a coordination dimensions standard: IEC 61969-2;
- an environmental requirements and tests, safety aspects standard: IEC 61969-3.

This document provides basic environmental requirements and tests, as well as safety aspects, to be used for outdoor enclosures in absence of local regulatory documents, or of application-specific environmental test requirements.

This document provides manufacturers and users of generic outdoor enclosure with minimum performance compliance criteria. The thermal management solution depends on the specific environment of the outdoor enclosure.

Since forced air heat dissipation and acoustic noise are closely related, noise limitations are typically defined by local regulatory documents.

It is responsibility of the outdoor enclosure vendor to provide a solution for thermal management within the local regulatory noise limitations.

MECHANICAL STRUCTURES FOR ELECTRICAL AND ELECTRONIC EQUIPMENT – OUTDOOR ENCLOSURES –

Part 3: Environmental requirements, tests and safety aspects

1 Scope

This part of IEC 61969 specifies a set of basic environmental requirements and tests, as well as safety aspects for outdoor enclosures for electrical and electronic equipment, under conditions of non-weatherprotected locations above ground.

The purpose of this document is to define a minimum level of environmental performance in order to meet requirements of storage, transport and final installation. The intention is to establish basic environmental performance criteria for outdoor enclosure compliance.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-1, *Environmental testing – Part 2-1: Tests – Test A: Cold*

IEC 60068-2-2, *Environmental testing – Part 2-2: Tests – Test B: Dry heat*

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-10, *Environmental testing – Part 2-10: Tests – Test J and guidance: Mould growth*

IEC 60068-2-11, *Environmental testing – Part 2-11: Tests – Test Ka: Salt mist*

IEC 60068-2-14, *Environmental testing – Part 2-14: Tests – Test N: Change of temperature*

IEC 60068-2-27, *Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock*

IEC 60068-2-30, *Environmental testing – Part 2-30: Tests – Test Db: Damp heat, cyclic (12 h + 12 h cycle)*

IEC 60068-2-60, *Environmental testing – Part 2-60: Tests – Test Ke: Flowing mixed gas corrosion test*

IEC 60529, *Degrees of protection provided by enclosures (IP Code)*

IEC 60721-3-2, *Classification of environmental conditions – Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling*

IEC 60721-3-4, *Classification of environmental conditions – Part 3-4: Classification of groups of environmental parameters and their severities – Stationary use at non-weatherprotected locations*