# MADALPINGELISED LIIGPINGEKAITSEVAHENDID. OSA 21: TELEKOMMUNIKATSIOONI- JA SIGNALISATSIOONIVÕRGUGA ÜHENDATUD LIIGPINGEKAITSEVAHENDID. NÕUDED JA KATSETUSMEETODID

# Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks - Requirements and test methods

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN IEC 61643-21:2026 sisaldab Euroopa standardi EN IEC 61643-21:2026 ingliskeelset teksti. | This Estonian standard EVS-EN IEC 61643-21:2026 consists of the English text of the European standard EN IEC 61643-21:2026. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 09.01.2026. | Date of Availability of the European standard is 09.01.2026. |
| Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest. | The standard is available from the Estonian Centre for Standardisation and Accreditation. |

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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EUROPEAN STANDARD

NORME EUROPÉENNE

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English Version

# Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks - Requirements and test methods (IEC 61643-21:2025)

Parafoudres basse tension - Partie 21: Parafoudres connectés aux réseaux de signaux et de télécommunications - Exigences et méthodes d'essai (IEC 61643-21:2025)

Überspannungsschutzgeräte für Niederspannung - Teil 21: Überspannungsschutzgeräte für den Einsatz in Telekommunikations- und signalverarbeitenden Netzwerken - Leistungsanforderungen und Prüfverfahren (IEC 61643-21:2025)

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Comité Européen de Normalisation Electrotechnique
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Ref. No. EN IEC 61643-21:2026 E

# European foreword

The text of document 37A/432/FDIS, future edition 2 of IEC 61643-21, prepared by SC 37A "Low-voltage surge protective devices" of IEC/TC 37 "Surge arresters" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61643-21:2026.

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) 2027-01-31
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2029-01-31

This document supersedes EN 61643-21:2001 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 is read in conjunction with EN IEC 61643-01:2025[1].

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 61643-21:2025 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 standard indicated:

| | | |
|---|---|---|
| IEC 60364-5-51 | NOTE | Approved as HD 60364-5-51 |
| IEC 60721-3-3:2019 | NOTE | Approved as EN IEC 60721-3-3:2019 (not modified) |
| IEC 61643-22 | NOTE | Approved as CLC/TS 61643-22 |
| IEC 61643-311:2013 | NOTE | Approved as EN 61643-311:2013 (not modified) |
| IEC 61643-321:2001 | NOTE | Approved as EN 61643-321:2002 (not modified) |
| IEC 61643-331:2020 | NOTE | Approved as EN IEC 61643-331:2020 (not modified) |
| IEC 61643-341:2020 | NOTE | Approved as EN IEC 61643-341:2020 (not modified) |
| IEC 62368-1 | NOTE | Approved as EN IEC 62368-1 |
| IEC 62475:2010 | NOTE | Approved as EN 62475:2010 (not modified) |

[1] As impacted by EN IEC 61643-01:2025/A11 2025.

IEC 61643-21

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE



## Low voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks - Requirements and test methods

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# Low-voltage surge protective devices - Part 21: Surge protective devices connected to telecommunications and signalling networks - Requirements and test methods

## FOREWORD

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IEC 61643-21 has been prepared by subcommittee 37A: Low-voltage surge protective devices, of IEC technical committee 37: Surge arresters. It is an International Standard.

This second edition cancels and replaces the first edition published in 2000, Amendment1:2008 and Amendment 2:2012. This edition constitutes a technical revision.

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

a) New structure of IEC 61643-21 based on IEC 61643-01:2024;
b) Several safety requirements based on IEC 61643-01:2024 have been added.

This International Standard is to be used in conjunction with IEC 61643-01:2024.

The requirements of this part of IEC 61643 supplement, modify or replace certain of the general requirements contained in IEC 61643-01 and are to be read and applied together with IEC 61643-01:2024.

Numbering of clauses follows the numbering of IEC 61643-01, but, dependent on the application of clauses from part 01, does not necessarily follow sequentially.

If a clause in IEC 61643-01 is not explicitly called up or referred to in this document, then this clause does not apply to SPDs covered by this document. Any instructions in this document calling up clauses from IEC 61643-01 are written in Italic type.

NOTE In other words, if e.g. Clause 4 is called up in this document all subclauses of Clause 4 of IEC 61643-01 are applied without modification. But, if e.g. some modifications are required on subclauses of Clause 9 of IEC 61643-01, then the relevant second level subclauses of IEC 61643-01 (e.g. 9.3, 9.5 etc.) are called up separately and it is indicated how they are applied.

The numbering of additional subclauses, figures and tables to IEC 61643-01 in this document starts with the number 100 in the last section of the subclauses added (e.g. 4.100 or 6.2.100). The numbering of additional tables and figures to IEC 61643-01 in this document starts with the number 100.

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

| Draft | Report on voting |
|---|---|
| 37A/432/FDIS | 37A/445/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.

A list of all parts in the IEC 61643 series, published under the general title *Low-voltage surge protective devices*, 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 webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

# INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This document recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of SPDs when operated as in normal use taking into account the manufacturer's instructions.

The purpose of this document is to identify the requirements for Surge Protective Devices (SPDs) used in protecting telecommunications and signalling networks, for example, low-voltage data, voice, and alarm circuits.

If the intended applications of an SPD are covered by different parts of the IEC 61643-X1 series, all relevant parts are applied.

This part of the IEC 61643 series addresses safety and performance tests for surge protective devices (SPDs) for telecommunications and signalling networks in conjunction with IEC 61643-01:2024.

This document addresses SPDs containing voltage-limiting components only, or a combination of voltage-limiting components and current-limiting components. Protection devices containing current-limiting components only are not within the coverage of this document.

This document covers a wide range of testing conditions and requirements; the use of some of these is at the discretion of the user. How the requirements of this document relate to the different types of SPD is described in Table 100.

Selection and application principles are covered in IEC 61643-22.

# 1 Scope

This document, together with IEC 61643-01:2024, is applicable to devices for surge protection against indirect and direct effects of lightning or other transient overvoltages.

These devices are intended to be connected to telecommunications and signalling networks, and equipment rated up to 1 000 V RMS and 1 500 V DC.

These telecommunications and signalling networks can also provide power on the same line, e.g. Power over Ethernet (PoE).

Performance and safety requirements, tests and ratings are specified in this document. These devices contain at least one voltage-limiting component (clamping or switching) and are intended to limit surge voltages and divert surge currents.

# 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 61643-01:2024, *Low-voltage surge protective devices - Part 01: General requirements and test methods*

# 3 Terms and definitions

*Clause 3 of IEC 61643-01:2024 applies with the following additions, modifications and replacements:*

## 3.1 Terms and definitions

*Subclause 3.1 of IEC 61643-01:2024 applies with the following additions, modifications and replacements:*

**3.1.8**
**continuous current**
**$I_C$**

*Subclause 3.1.8 of IEC 61643-01:2024 applies with the following replacement:*

Replace $U_{test}$ by $U_C$.

**3.1.25**
**means for short- circuiting the SPD**
**SC-means**

*Subclause 3.1.25 of IEC 61643-01:2024 applies with the following replacement:*

Replace short-circuit current rating $I_{SCCR}$ by n times $I_L$.

**3.1.28**
**mode of protection**

*Subclause 3.1.28 of IEC 61643-01:2024 applies with the following addition:*

Add in Note 2 the examples "line to earth and shield to earth".