

# SLOVENSKI STANDARD

## SIST-TS CLC/TS 61643-22:2016

01-maj-2016

Nadomešča:

SIST-TS CLC/TS 61643-22:2007

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**Nizkonapetostne naprave za zaščito pred prenapetostnimi udari - 22. del: Naprave za zaščito pred prenapetostnimi udari, priključene na telekomunikacijska in signalna omrežja - Izbira in načela za uporabo**

Low-voltage surge protective devices - Part 22: Surge protective devices connected to telecommunications and signalling networks - Selection and application principles

**iTeh STANDARD PREVIEW**

Überspannungsschutzgeräte für Niederspannung - Teil 22: Überspannungsschutzgeräte für den Einsatz in Telekommunikations- und signalverarbeitenden Netzwerken - Auswahl und Anwendungsprinzipien

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Parafoudres basse tension - Partie 22: Parafoudres connectés aux réseaux de signaux et de télécommunications - Principes de choix et d'application

**Ta slovenski standard je istoveten z: CLC/TS 61643-22:2016**

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**ICS:**

29.120.50	Varovalke in druga medtokovna zaščita	Fuses and other overcurrent protection devices
29.240.10	Transformatorske postaje. Prenapetostni odvodniki	Substations. Surge arresters

**SIST-TS CLC/TS 61643-22:2016**

**en**

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TECHNICAL SPECIFICATION  
SPÉCIFICATION TECHNIQUE  
TECHNISCHE SPEZIFIKATION

**CLC/TS 61643-22**

March 2016

ICS 29.240.01; 29.240.10

Supersedes CLC/TS 61643-22:2006

English Version

Low-voltage surge protective devices -  
Part 22: Surge protective devices connected to  
telecommunications and signalling networks - Selection and  
application principles  
(IEC 61643-22:2015 , modified)

Parafoudres basse tension -  
Partie 22: Parafoudres connectés aux réseaux de signaux  
et de télécommunications - Principes de choix et  
d'application  
(IEC 61643-22:2015 , modifiée)

Überspannungsschutzgeräte für Niederspannung -  
Teil 22: Überspannungsschutzgeräte für den Einsatz in  
Telekommunikations- und signalverarbeitenden Netzwerken  
- Auswahl und Anwendungsprinzipien  
(IEC 61643-22:2015 , modifiziert)

This Technical Specification was approved by CENELEC on 2016-02-29.

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

**CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels**

**CLC/TS 61643-22:2016****European foreword**

This document (CLC/TS 61643-22:2016) consists of the text of IEC 61643-22:2015 prepared by SC 37A "Low-voltage surge protective devices" of IEC/TC 37 "Surge arresters", together with the common modifications prepared by CLC/TC 37A "Low voltage surge protective devices".

This document supersedes CLC/TS 61643-22:2006.

CLCTS 61643-22:2016 includes the following significant technical changes with respect to CLC/TS 61643-22:2006:

- a) Update the use of multiservice SPDs (Article 8)
- b) Comparison between SPD classification of EN 61643-11 and EN 61643-21 (7.3.3)
- c) Consideration of new transmission systems as PoE (Annex F)
- d) EMC requirements of SPDs (Annex G)
- e) Maintenance cycles of SPDs (Annex I)

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Endorsement notice

The text of the International Standard IEC 61643-22:2015 was approved by CENELEC as a European Standard with agreed common modifications.

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## 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.

EN 61643-21:2001 + A1:2009 + A2:2013, *Low voltage surge protective devices – Part 21: Surge protective devices connected to telecommunications and signalling networks – Performance requirements and testing methods* (IEC 61643-21:2000 + A1:2008, modified + A2:2012)

EN 61643-11, *Low-voltage surge protective devices – Part 11: Surge protective devices connected to low-voltage power systems - Requirements and test methods* (IEC 61643-11)

EN 61643-12, *Low-voltage surge protective devices – Part 12: Surge protective devices connected to low-voltage power distribution systems – Selection and application principles* (IEC 61643-12)

EN 62305-1:2011, *Protection against lightning – Part 1: General principles* (IEC 62305-1:2010, modified)

EN 62305-2:2012, *Protection against lightning – Part 2: Risk management* (IEC 62305-2:2010, modified)

EN 62305-3:2011 *Protection against lightning – Part 3: Physical damage to structures and life hazard* (IEC 62305-3:2010, modified)

EN 62305-4:2011 *Protection against lightning – Part 4: Electrical and electronic systems within structures* (IEC 62305-4:2010, modified)

EN 61000-4-5, *Electromagnetic compatibility (EMC) – Part 4-5: Testing and measurement techniques – Surge immunity test* (IEC 61000-4-5) 643-22:2016

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### 7.2 Coupling mechanisms

Replace Table 2 by the following:

**Table 2 – Coupling mechanisms**

Source of transients	Direct lightning to the structure		Lightning to ground near the structure	Direct lightning to the line	Lightning to ground near the line	AC influence
	(S1)	(S2)	(S2)	(S3)	(S4)	
Coupling	Resistive (1)	Induction (2)	Induction <sup>a</sup> (2)	Resistive (1, 5)	Induction (3)	Resistive (4)
Voltage wave-shape (μs)	–	1,2/50	1,2/50	–	10/700	50 Hz
Current wave-shape (μs)	10/350	8/20	8/20	10/350 <sup>c</sup>	5/320	–
Preferred category <sup>b</sup>	D1	C2	C2	D1	B2	A2

NOTE (1) – (5) see Figure 3, coupling mechanisms.

<sup>a</sup> Also applies for capacitive/inductive couplings of switching in adjoining power supply networks.

<sup>b</sup> See Table 3 of EN 61643-21:2001 + A1:2009 + A2:2013.

<sup>c</sup> The simulated direct lightning strike test impulse is described by the IEC as a peak current value and total charge. A typical waveshape that can achieve these parameters is a double exponential impulse, 10/350 being used in this example.

## CLC/TS 61643-22:2016

## 7.3.1.3 Selection of SPDs to reduce transients

Replace Table 3 by the following:

**Table 3 – Selection aid for rating SPDs for the use in (zone) interfaces according to EN 62305-1**

Lightning protection zone EN 62305-1		LPZ 0/1	LPZ 1/2	LPZ 2/3
Requirements to SPDs (Category from Table 3, EN 61643-21)	SPD (j)*	D1 B2	---	---
	SPD (k)*	---	C2/B2	---
	SPD (l)*	---	---	C1

\* SPD (j, k, l), see Figure 4.

NOTE The range of surge values indicated under LPZ 2/3 includes typical minimum resistibility requirements and might be implemented into the equipment by market.

## Annex B (informative) Current limiting components

## B.2.3.2 Heat coils

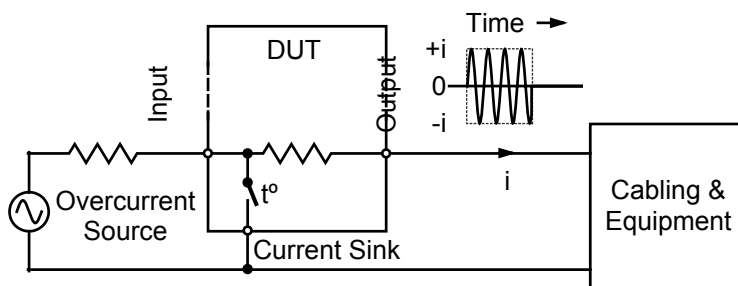
Replace contents under B.2.3.2 as follows:

Heat coils are thermally activated mechanical components with normally a series and shunt connection on the line being protected. Their function is to divert current at the circuit connection point, thereby preventing this current from flowing through the protected equipment, as shown in Figure B.3. Normally they are constructed using a grounding contact held in its non-operative position by solder. A heat source, generally a coil of resistance wire and a spring, force the grounding contact to ground when the solder melts.

The source of heat is the unwanted line current flowing through the coil of resistance wire. The resistance of communication-type heat coils is typically  $4,0 \Omega$ , with a range between  $0,4 \Omega$  and  $21 \Omega$ . The contact arrangement is such that once the heat coil contacts are closed (operated) the current flows to earth directly and bypasses the coils.

Heat coils are normally single-operating component. There is no means to restore the line to its operating state other than the replacement of the item containing the heat coil. Heat coils have been designed that are manually resettable, not requiring replacement of the SPD. Their use is generally restricted for application in areas where induced currents from 50 Hz power systems are frequent.

It is also possible to construct current-interrupting heat coils, which open circuit as a result of overcurrent.



**Figure B.3 – Thermally operated (heat coil) three-terminal shunt current limiter**

**Annex J (informative) Earth potential rise (EPR)****J.2 Causes of EPR**

**Replace** text under J.2 as follows:

Power related EPR is caused by a low frequency, 50 Hz fault current flowing through a ground grid or the earth via a distribution line power cross to a tree or other earthing paths or utility switching of power lines. The duration of this event may last from fractions of a second to many minutes.

Lightning related EPR is caused by a fast rising current of many kA with rise times in nano seconds to micro seconds and pulse widths in micro seconds to milli seconds flowing through a ground grid or the earth.

Electrified railways also cause EPR.

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IEC 61643-22

Edition 2.0 2015-06

# INTERNATIONAL STANDARD

## NORME INTERNATIONALE



**Low-voltage surge protective devices –  
Part 22: Surge protective devices connected to telecommunications and  
signalling networks – Selection and application principles**

**Parafoudres basse tension –  
Partie 22: Parafoudres connectés aux réseaux de signaux et de  
télécommunications – Principes de choix et d'application**

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ELECTROTECHNICAL  
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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LOW-VOLTAGE SURGE PROTECTIVE DEVICES –****Part 22: Surge protective devices connected to  
telecommunications and signalling networks –  
Selection and application principles**

## FOREWORD

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International Standard IEC 61643-22 has been prepared by subcommittee 37A: Low-voltage surge protective devices, of IEC technical committee 37: Surge arresters.

This second edition cancels and replaces the first edition published in 2004. This edition constitutes a technical revision.

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

- a) Update the use of multiservice SPDs (Article 8)
- b) Comparison between SPD classification of IEC 61643-11 and IEC 61643-21 (7.3.3)
- c) Consideration of new transmission systems as PoE (Annex F)
- d) EMC requirements of SPDs (Annex G)

## e) Maintenance cycles of SPDs (Annex I)

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

FDIS	Report on voting
37A/273/FDIS	37A/277/RVD

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

A list of all parts in the IEC 61643 series, published under the general title *Low-voltage surge protector devices*, can be found on the IEC website.

The committee has decided that the contents of this amendment and the base 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

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

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