
Nizkonapetostne naprave za zaščito pred prenapetostnimi udari - 31. del: Zahteve in preskusne metode za SPD za fotonapetostne inštalacije

Low-voltage surge protective devices - Part 31: Requirements and test methods for SPDs for photovoltaic installations

Parafoudres basse tension - Partie 31: Parafoudres pour usage spécifique y compris en courant continu - Exigences et méthodes d'essai des parafoudres pour installations photovoltaïques

Ta slovenski standard je istoveten z: prEN IEC 61643-31:2025

[oSIST prEN IEC 61643-31:2026](https://standards.iteh.ai/catalog/standards/sist/8f470088-3464-4f8e-9483-57ac8fad9af9/osist-pr-en-iec-61643-31-2026)

<https://standards.iteh.ai/catalog/standards/sist/8f470088-3464-4f8e-9483-57ac8fad9af9/osist-pr-en-iec-61643-31-2026>

ICS:

27.160	Sončna energija	Solar energy engineering
29.120.50	Varovalke in druga nadtokovna zaščita	Fuses and other overcurrent protection devices

oSIST prEN IEC 61643-31:2026

en



37A/449/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 61643-31 ED2	
DATE OF CIRCULATION: 2025-11-21	CLOSING DATE FOR VOTING: 2026-02-13
SUPERSEDES DOCUMENTS: 37A/448/RR	

IEC SC 37A : LOW-VOLTAGE SURGE PROTECTIVE DEVICES	
SECRETARIAT: United States of America	SECRETARY: Mr David Richmond
OF INTEREST TO THE FOLLOWING COMMITTEES: TC 64, TC 81	HORIZONTAL FUNCTION(S):
ASPECTS CONCERNED:	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Recipients of this document are invited to submit, with their comments, notification of any relevant "In Some Countries" clauses to be included should this proposal proceed. Recipients are reminded that the CDV stage is the final stage for submitting ISC clauses. (SEE [AC/22/2007](#) OR [NEW GUIDANCE DOC](#)).

TITLE:

Low-voltage surge protective devices - Part 31: Requirements and test methods for SPDs for photovoltaic installations

PROPOSED STABILITY DATE: 2030

NOTE FROM TC/SC OFFICERS:

Copyright © 2025 International Electrotechnical Commission, IEC. All rights reserved. It is permitted to download this electronic file, to make a copy and to print out the content for the sole purpose of preparing National Committee positions. You may not copy or "mirror" the file or printed version of the document, or any part of it, for any other purpose without permission in writing from IEC.

CONTENTS

1			
2			
3	FOREWORD.....		3
4	INTRODUCTION.....		6
5	1 Scope.....		7
6	2 Normative references		7
7	3 Terms, definitions and abbreviated terms		8
8	3.1 Terms and definitions.....		8
9	3.1.8 8		
10	3.1.23 8		
11	3.1.51 8		
12	3.2 Acronyms and symbols		8
13	4 Classification.....		9
14	4.5 Type of SPD		9
15	5 Void.....		9
16	6 Marking and other product information.....		9
17	6.1 General.....		9
18	6.2 List of items		9
19	6.2.100 Markings which are required on the body, or permanently attached to		
20	the body, of the SPD:		10
21	6.2.101 Information to be provided by the manufacturer:		10
22	6.2.102 Information which shall be provided by the manufacturer for type		
23	testing, as applicable:		10
24	7 Service conditions		11
25	7.1 Voltage		11
26	8 Requirements		11
27	8.1 General requirements		11
28	8.3 Electrical requirements		11
29	8.3.6 Safety performance of overstressed SPDs.....		11
30	8.3.9 Behaviour under temporary overvoltages		12
31	8.4 Mechanical requirements		12
32	8.4.3 External connections		12
33	8.6 Additional requirements for specific SPD designs		12
34	8.6.1 One-port SPDs with separate input/output connections.....		12
35	8.6.4 Total Discharge Current I_{Total}		12
36	8.6.5 Two port SPDs		12
37	8.6.6 Short-circuiting SPDs		12
38	9 Tests		12
39	9.1 Type testing procedures.....		13
40	9.1.1 General		13
41	9.3 Electrical tests		17
42	9.3.3 Protective conductor current I_{PE}		17
43	9.3.5 Operating duty test		17
44	9.3.6 Safety performance of overstressed SPDs.....		18
45	9.3.9 Behaviour under temporary overvoltages (TOVs).....		22
46	<i>This test from IEC 61643-01 does not apply.</i>		22

47	9.6 Additional tests for specific SPD designs	22
48	Subclause 9.6 of IEC 61643-01 applies with the following modification:.....	22
49	9.6.1 Test for one-port SPDs with separate input/output connections	22
50	Subclause 9.6.1. of IEC 61643-01 applies with the following modifications:.....	22
51	Subclause 9.6.1.1 of IEC 61643-01 applies with the following modifications:.....	22
52	Subclause 9.6.1.1.1 of IEC 61643-01 is replaced by:.....	22
53	Subclause 9.6.1.2 of IEC 61643-01 does not apply.	22
54	Subclause 9.6.1.3 of IEC 61643-01 does not apply.	22
55	9.6.5 Test for two port SPDs only	22
56	Subclause 9.6.5 of IEC 61643-01 does not apply.	22
57	Annex AA (normative) Application of annexes from IEC 61643-01	23
58	Annex BB (normative) Test to determine the magnitude of the follow current of an	
59	SPD.....	24
60	Annex CC (informative) Transient behaviour of the PV test source	25
61	CC.1 Transient behaviour of the PV test source according to 9.3.5.2.....	25
62	CC.2 Test setup using a semiconductor switch to determine the transient	
63	behaviour of a PV test source	25
64	CC.3 Alternative test setup using a fuse	27
65	Annex DD (normative) Reduced test procedures.....	29
66	Bibliography.....	31
67		
68	Figure 100 – I/U characteristics for the simulated PV-source	15
69	Figure 101 – Example of sample preparation for SPD dedicated overstress test.....	22
70	Figure CC.1 – Test setup using an adjustable semiconductor switch to determine the	
71	transient behaviour of a PV test source.....	27
72	Figure CC.2 – Time behaviour of voltage and current during disconnection operating	
73	time of a semiconductor switch at a PV-source $I_{SC} = 4$ A, open-circuit voltage = 640 V.....	28
74	Figure CC.3 – Semiconductor disconnection behaviour (normalized) with intersection	
75	point $i(t) / u(t)$	28
76	Figure CC.4 – I/U -characteristic of the PV test source calculated from the normalized	
77	current and voltage records in Figure C.3	29
78	Figure CC.5 – Test setup using a fuse to determine the transient behaviour of a PV	
79	test source	29
80	Figure CC.6 – Normalized disconnection behaviour during operation of a fuse rated	
81	$0,1 \times I_{SCPv}$ at a PV test source with intersection point $i(t)$ and $u(t)$	30
82	Figure CC.7 – I/U -characteristic of the PV test source calculated from the normalized	
83	current and voltage records in Figure CC.6.....	30
84		
85	Table 1 – List of Acronyms and symbols	10
86	Table 100 – Type test requirements for SPDs.....	17
87	Table 102 – Specific power source characteristics for dedicated overstress test.....	21
88	Table AA.1 – Application of annexes from IEC 61643-01	25
89	Table DD.1 – Reduced test procedure for SPDs complying with IEC 61643-31:2018.....	32

90

91