






Test Report issued under the responsibility of:



TEST REPORT IEC 61643-11 Low-voltage surge protective devices Part 11: Surge-protective devices connected to low-voltage power systems- Requirements and test methods	
Report Number.	211201972SHA-001
Date of issue	2022-08-29; Modification 1: 2022-11-15
Total number of pages	8
Name of Testing Laboratory preparing the Report	INTERTEK TESTING SERVICES Shanghai.
Applicant's name	ZHEJIANG ETEK Electrical technology CO.,LTD.
Address	NO.288 Wei 17th Road Yueqing Economic Development Zone Yueqing, Wenzhou, Zhejiang, China.
Test specification:	
Standard	IEC 61643-11:2011
Test procedure	CB Scheme
Non-standard test method	N/A
TRF template used	IECEE OD-2020-F1:2021, Ed.1.4
Test Report Form No.	IEC61643_11C
Test Report Form(s) Originator	OVE
Master TRF	Dated 2021-10-07
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This report is not valid as a CB Test Report unless signed by an approved IECEE Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.	
General disclaimer:	
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Test item description	Surge Protective Device	
Trade Mark(s)		
Manufacturer	Same as applicant	
Model/Type reference	EKU5-T2-40-1P275, EKU5-T2-40-2P275, EKU5-T2-40-3P275, EKU5-T2-40-4P275, EKU5-T2-40-1PN275, EKU5-T2-40-3PN275, EKU5-T2-40-1P385, EKU5-T2-40-2P385, EKU5-T2-40-3P385, EKU5-T2-40-4P385, EKU5-T2-40-1PN385, EKU5-T2-40-3PN385, totally 12 models	
Ratings	TYPE 2 SPD, Uc: 275V/385V~, In:20kA, Imax: 40kA, Up: 1.3kV/1.5kV/1.8kV	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	
Testing location/ address	INTERTEK TESTING SERVICES Shanghai. Building No.86,1198 Qinzhou Road (North), Shanghai 200233, China	
Tested by (name, function, signature)	Klaus Liu (Engineer)	
Approved by (name, function, signature) ..	Young Wu (Reviewer)	
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

List of Attachments (including a total number of pages in each attachment):

N/A

Summary of testing:

See amendment 1 on page 7.

Tests performed (name of test and test clause):

Test item	clause
Identification and marking	8.2
Reliability of screws, current carrying parts and connections	8.4.1
Terminals and external conductors	8.4.2
protection against direct contact	8.3.1
Resistance to ingress of solid objects and harmful ingress of water	8.5.1
Verifications of air clearances and creepage distances	8.4.3
Ball pressure test	8.5.3
Resistance to abnormal heat and fire	8.5.4
Tracking resistance	8.5.5
Insulation resistance	8.3.6
Dielectric withstand	8.3.7
Mechanical strength	8.4.4
Temperature withstand test	8.3.5.1
Heat resistance	8.5.2

Below tests are subcontracted:

Residual Current I _{PE}	8.3.2
Operation duty test	8.3.4
Residual voltage with 8/20 current impulses	8.3.3.1
Font of wave sparkover voltage	8.3.3.2
Thermal stability Test	8.3.5.2
TOV caused by faults in lower voltage system	8.3.8.1
TOV caused by faults in high voltage system	8.3.8.2
Short circuit current behaviour test	8.3.5.3
Additional test for SPD's failure mode simulation	8.3.5.3.2

Subcontractor information:

Guangdong LNP Electrical Testing Technology Co., Ltd
 No.101, Building B, Xinyongsheng Technology Park, No.70,
 Wenquan South Road, Xinwei, Shilong, Dongguan,
 Guangdong,P.R. China

Testing location:

clause	location
8.2	TL
8.4.1	
8.4.2	
8.3.1	
8.5.1	
8.4.3	
8.5.3	
8.5.4	
8.5.5	
8.3.6	
8.3.7	
8.4.4	
8.3.5.1	
8.5.2	

Summary of compliance with National Differences:

The product mentioned in this test report complies with IEC 61643-11: 2011(First Edition) and EN 61643-11: 2012+A11:2018.

Use of uncertainty of measurement for decisions on conformity (decision rule):

No decision rule is specified by the IEC standard, when comparing the measurement result with the applicable limit according to the specification in that standard. The decisions on conformity are made without applying the measurement uncertainty ("simple acceptance" decision rule, previously known as "accuracy method").

Other: (to be specified, for example when required by the standard or client, or if national accreditation requirements apply)

Information on uncertainty of measurement:

The uncertainties of measurement are calculated by the laboratory based on application of criteria given by OD-5014 for test equipment and application of test methods, decision sheets and operational procedures of IECEE.

IEC Guide 115 provides guidance on the application of measurement uncertainty principles and applying the decision rule when reporting test results within IECEE scheme, noting that the reporting of the measurement uncertainty for measurements is not necessary unless required by the test standard or customer.

Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.

Copy of marking plate:

EKU5-T2-40-3PN275 (as an example)



Test item particulars	
Number of ports	One port / Two port
SPD design topology	Voltage switching (for N-PE mode) / Voltage limiting (for L-N mode) / Combination
SPD classified for test class	I / II / III
Location	Indoor / Outdoor
Accessibility	Accessible (partially) / Inaccessible
Mounting method	Fixed / Portable
SPD Disconnecter	Internal / External / Both
Protection functions	Thermal / Leakage current / Overcurrent
Overcurrent protection	Specified / Not specified
Degree of protection (IP code)	IP 20
Temperature range	Normal / Extended
Required SPD-disconnectors	Internal thermal disconnecter / 100A gL/gG External fuse (as external disconnecter)
SPD failure behaviour:	open circuit / short circuit
Possible test case verdicts:	
- test case does not apply to the test object	N/A (not applicable)
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	2021-12-20
Date (s) of performance of tests	2021-12-20 to 2022-08-10
General remarks:	
<p>The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory. "(See Enclosure #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.</p> <p>This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.</p>	
Manufacturer's Declaration per Sub-clause 4.2.5 of IEC61643-11:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided.....	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) :

Same as applicant

General product information:

Type 2 SPD, partially accessible, with mechanical indicator, with internal disconnect, with fusible metal Sn alloy, should be used together with 100A gL/gG external fuse, other information see page 8 for details

Modification 1:

The original test report 211201972SHA-001, which issued on 2022-08-29, was modified on 2022-11-15 to include the following changes:

Add "N-PE" protection mode for model: EKU5-T2-40-2P275, EKU5-T2-40-3P275, EKU5-T2-40-4P275, EKU5-T2-40-2P385, EKU5-T2-40-3P385, EKU5-T2-40-4P385

After reviewed, due to "N-PE" protection mode with the same construction and components to "L-PE" mode, no test should be performed again.

Model list (totally 12 models):

Model	Protected mode	I_n (kA)	I_{max} (kA)	U_c (V)	U_p (kV)	LV System
EKU5-T2-40-1P275	L-PE	20	40	275	1.3	TN
EKU5-T2-40-2P275	L/N-PE					
EKU5-T2-40-3P275						
EKU5-T2-40-4P275						
EKU5-T2-40-1PN275	L-N	20	40	275	1.3	
	N-PE	20	40	255	1.5	
EKU5-T2-40-3PN275	L-N	20	40	275	1.3	
	N-PE	20	40	255	1.5	
EKU5-T2-40-1P385	L-PE	20	40	385	1.8	TN
EKU5-T2-40-2P385	L/N-PE					
EKU5-T2-40-3P385						
EKU5-T2-40-4P385						
EKU5-T2-40-1PN385	L-N	20	40	385	1.8	
	N-PE	20	40	255	1.5	
EKU5-T2-40-3PN385	L-N	20	40	385	1.8	
	N-PE	20	40	255	1.5	