

# ELSAFE INDIA

Leading The Way To Safety

Cochin - Chennai - Bangaluru - Hyderabad - UAE

www.elsafeindia.com, info@elsafeindia.com

Ph No: 0484-2575199-210, Fax: 0484-2575211

ALL INDIA TOLL FREE  
NUMBER

**1800-121-9092**



## QUOTATION

Project Name: LSG ESE PKG

Quote #: 12121 LSG ESE PKG

Company: Residential-Total Protection



These are Residential Packages for Houses at Kerala State only, ALL KERALA FREE DELIVERY, NO HIDDEN CHARGES, FIXED RATE

Revision:

Terms: \*\*\*

Ship via: Land Cargo

FOB: Ex-Factory

Weight: \*\*\* As applicable

MAKE-FRANCE

Coverage -75 mtr radius

### LSG Protect-TGD30

Supply of External Lightning Protection System LSG PROTECT – Thunderguard® ESEs are made of non-corrosive materials, utilize advance and sustainable technologies, maintain a 15 Yrs warranty, are independently tested certified to NFC 17102 and UNE 21186 standards. Level IV 75 mtrs by capturing dangerous lightning discharges and safely channelling it to earth. All mounting mast connected with FRP mast for Protection of Side Flash Lightning Current and Test link Joint Kit IP 55/65 weather proof enclosure for testing the earth pit. Insulation material should be used to electrically isolate the panels, The lightning air terminal shall be maintenance free type & frequent testing should not be necessary for ensuring the working of it. The central finial shall be elevated above the spheroid and it should be sharp pointed & made-up of stainless steel material for long and reliable operations. An air gap shall be provided between the individual electrically isolated 4 panels and the finial tip of the central rod.

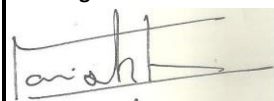
Number	Item	Description	Qty.	Unit	Unit Cost		Total Cost	
		Lightning Protection System			(in INR)		(in INR)	
1	TGD 30	LSG ThunderGuard 30 Lightning Arrester with SS ADAPTOR	1	No	INR	35,750	INR	35,750
2	Earthing	Maintenance free Earthing For Lightning Arrestor: Using 2 no's of 2 Mtr long / 250 micron, 14.2mm Dia DOLPHIN UL Listed Copper bonded Steel Rod & ELECTRON Fill, a low resistivity, RoHS certified & Maintenance free Grounding Enhancement backfill Compound for ESE Lightning protection earthing : 25 KGS	1	Set	INR	8,000	INR	8,000
3	Elevation Mast	Specially designed 3 mtrs GI mast Setting, and 1 mtr FRP top section insulation mast; Roof top/Tower side mounting arrangement & fixing accessories (anchoring rope & anchoring plate, Base -for roof top installation). The mast coated with paint for additional protection, Cable connector Adaptor	1	Set	INR	8,000	INR	8,000
4	Down Conductor	50 Sq MM V Guard Insulated Copper Cable	25	Mtrs	INR	650	INR	16,250
5	SPD	LSG France Class 1+2 spd	1	No	Complementary		Complementary	
6	Installation	Installation of ESE Lightning Protection System, SPDs with Down conductor routing from the LA terminal to the earth pit. Earth termination, fixing & Backfilling	1	Job	INR	7,000	INR	7,000
Quotation Valid For 20 days			GRAND TOTAL				INR 75,000.00	

**Terms & Conditions**

- 1 **Gst extra if Applicable**
- 2 **Customers Scope: Material safety will be customer scope after delivery**
- 3 **Height arrangement -customer scope.EXTRA CABLE 650/MTR**
- 4 **Pit digging-Normal soil condtion only.Extra fitting /work charged extra**
- 5 **Approvals /Permission of work/storage of tools & equipment/safety/ etc : At customers scope**

*Thank you,*

**Best Regards**



**ELSAFE INDIA**

**Ph No 0484-2575199**



Doc. No. : ES220407

Rev. No. :

Rev. Date :

*Sales and Service Provider of ALLTEC USA / LSG FRANCE/ TEKSAI-INDIA, Lightning Arresters, Surge Arresters, Maintenance free Earthing*

**THUNDER** **GUARD®**





## ESE LIGHTNING ARRESTERS

### THUNDER GUARD

ThunderGuard series ESE Lightning Arresters Developed and designed in our highly advanced labs is specially designed with unique design philosophy as per NFC-French Standard.

Thunderguard adopts synthesis techniques of leader discharge, impedance to limit current, air-gap discharge etc to produce leader channel in advance, improve lightning effect, reduce discharge voltage and change the discharge process of lightning current.

Thus it broaden the lightning wave, flatten the leading wave, decrease the amplitude and enlarge the scope of protection avoiding side striking and shielding failure then finally actively suppress the damage of Ground Potential Counter attack. Therefore it is an ideal device to prevent direct lightning.

ThunderGuard Series ESE lightning Arresters come in with widest Protection coverage area. Find Our protection radius coverage table for reference.



LSG THUNDERGUARD PROTECTION RADIUS			
	H(m)	ThunderGuard 30	ThunderGuard 60
LEVEL 1	2	20	32
	3	30	48
	4	40	65
	5	50	79
	6	50	79
	8	51	79
	10	51	81
LEVEL 2	2	23	38
	3	35	55
	4	47	74
	5	58	89
	6	58	90
	8	59	92
	10	60	92
LEVEL 3	2	27	42
	3	40	62
	4	53	82
	5	66	99
	6	66	99
	8	68	101
	10	69	101
LEVEL 4	2	30	45
	3	45	65
	4	59	87
	5	74	108
	6	74	108
	8	76	110
	10	77	111



## ESE LIGHTNING ARRESTERS

### THUNDER GUARD

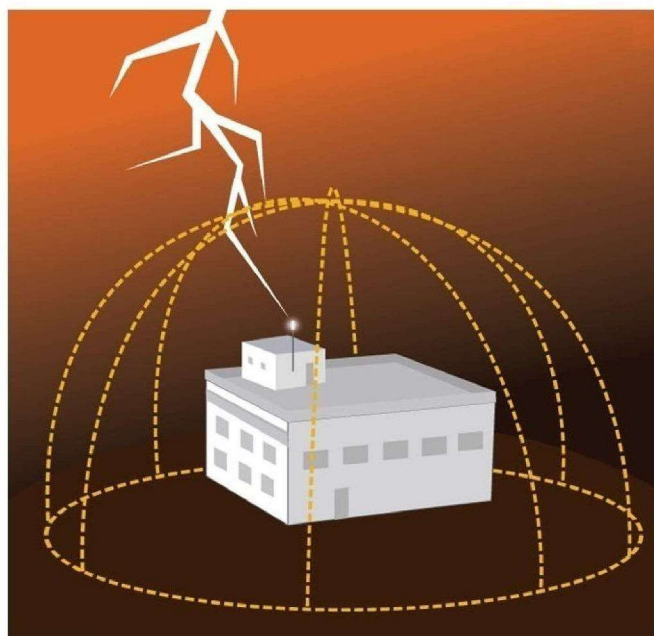
#### Product Structure:

- Central bar
- Reflector
- Trigger gear
- Exciter
- Dead plate of exciter
- Trigger gear, reflector and central bar all are insulating
- Reflector and central bar show good electrical connection to the earth
- The base of exciter is made up of synthetic resin thus applicable to any corrosion environment



#### Advantages:

- Non-electronic type, long life.
- Guaranteed electrical continuity and sustainability after repeated lightning strike.
- High radius of protection for user selection.
- Non-electrical system, will not be effected by surge impact.
- Only self-activated during lightning strike and initiative intervene the lightning protection system.

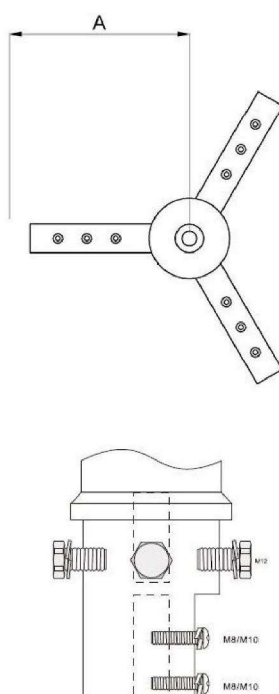
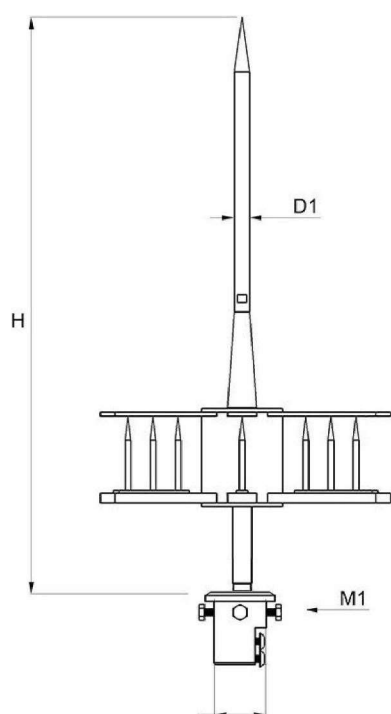






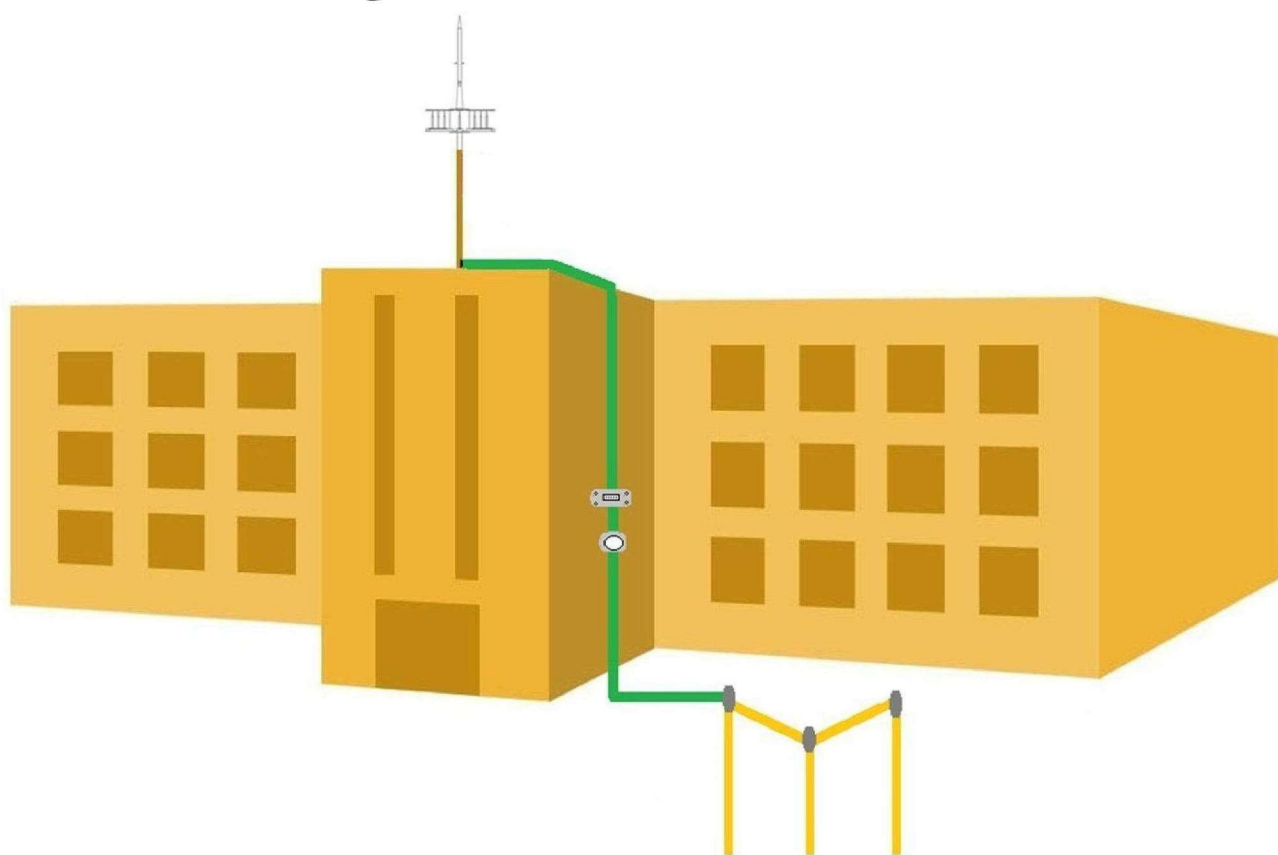
## ESE LIGHTNING ARRESTERS **THUNDERGUARD**

### Thunderguard 30



LSG TGD30® protection (UNE 21.186:2011, NFC 17.102:2011 and NP 4426:2013)

Content No	Material	Hight (mm)	Dimension (mm)	Weight (mm)
232111	Stainless Steel	650	18	3700



**LSG PROTECT**

No.1 avenue de Luxembourg, Europa tower, 94320 Thiais, France  
[www.lsgprotect.com](http://www.lsgprotect.com), [cs@lsgprotect.com](mailto:cs@lsgprotect.com)  
Contact No 0033-7-61-52-75-00

**CPRI**

## **TEST REPORT**



**Central Power Research Institute**

**(A Govt. of India Society,)  
P.B. No. 8066, Sadashivanagar, P.O.  
Prof. Sir. C.V. Raman Road,  
Bangalore - 560 080**





# केन्द्रीय विद्युत अनुसंधान संस्थान

(भारत सरकार की सोसाइटी, विद्युता मंत्रालय)

प्रो.सर.सी.वी. रामन रोड, सदाशिवनगर डाक घर, पो.बा.सं. 8066, बेंगलूरु - 560 080

## CENTRAL POWER RESEARCH INSTITUTE

(A.Govt.of India Society, Ministry of Power)

Prof. Sir C.V. Raman Road, Sadashivanagar Post Office, P.B. No. 8066, Bengaluru - 560 080 India

वेब साइट / website :http://www.cpri.in

सं./No. CPRI BLRHVDMISC19T0151

दिनांक/Date: 07-03-2019

सेवामें /To

म/एस. एनरटेक पावर सॉल्यूशन,  
15/513 (59), पहली मंजिल, तीन सितारा प्लाजा,  
स्टेडियम बायपास, पलक्कड़, केरल- 678013.

M/s. Enertek Power Solution,  
No 15/513(59),1st Floor, Three Star Plaza,  
Stadium Bypass, Palakkad, Kerala- 678013.

विषय/ Sub:-परीक्षणरिपोर्ट/ Test Report

महोदय /Dear Sir(s),

आपके दिनांक 18-12-2018 के अनुरोध पर रिपोर्ट सं CPRI BLRHVDMISC19T0151 दिनांक 07-03-2019 इसके साथ संलग्न है।

With Reference to your request dated 18-12-2018 we are enclosing herewith report No./s CPRI BLRHVDMISC19T0151 dated 07-03-2019 कृपया पावती भेजे / kindly acknowledge the receipt of the same.

कृपया ध्यान दें कि संलग्न परीक्षण रिपोर्ट में विषमताएँ/विसंगतियाँ, यदि कोई पाई गई तो इस पत्र की प्राप्ति के 45 दिनों के अंदर सीपीआरआई के ध्यान में लाएँ।

Please note that anomalies/discrepancies in the test report enclosed, if any, shall be brought to the notice of CPRI within 45 days of receipt of this letter.

साथ ही, कृपया ध्यान दें कि इस पत्र के जारी दिनांक से 15 दिनों के भीतर परीक्षण के लिए लाए गए नमूने तथा उनके साथ लाई गई अतिरिक्त सामग्री उच्च वोल्टता प्रयोगशाला के परिसर से हटा दी जाएँगी। उपरोक्त अवधि के बाद किसी भी दावे पर विचार नहीं किया जाएगा तथा कुछ और दिनों के लिए नमूनों को रखने के लिए इस अवधि के अंदर कोई लिखित अनुरोध की अनुपलब्धि पर सीपीआरआई के मानकों के अनुसार नमूनों का निपटारा किया जाएगा।

Also, please note that the samples and any additional material brought along with them for the testing shall be removed from the High Voltage Laboratory premises within 15 days from the date of issue of this letter. No claims will be entertained after the above period and samples will be disposed off as per CPRI norms, unless written request is received within this period for retaining the samples for a few more days.

भविष्य में भी हमारी सर्वोत्तम सेवाओं का आश्वासन तथा धन्यवाद के साथ।

Thanking you and assuring you of the best of our services in the future also.

भवदीय / Yours faithfully,

07.03.19

(यू.आर.शेषगिरिराव)

U. R. SHESHAGIRI RAO

संयुक्त निदेशक और एचओडी / JOINT DIRECTOR & HOD

उच्चवोल्टताप्रभाग / HIGH VOLTAGE DIVISION

**CENTRAL POWER RESEARCH INSTITUTE**  
(MEMBER STL)

**TEST REPORT**



**Test Report Number** : CPRIBLRHVDMISC19T0151 **Dated:** 07-03-2019

**Name & Address of the customer** : Enertek Power Solution,  
No 15/513(59), 1<sup>st</sup> Floor, Three Star Plaza,  
Stadium Bypass, Palakkad, Kerala-678013.  
Ref: e-mail **Dated:** 18-12-2018

**Name & Address of the Manufacturer** : LSG Protect India,  
#204, Lake view complex Nallasopara,  
Palghar, Mumbai, Maharashtra 401209.

**Particulars of Samples tested**  
**Condition of the sample on Receipt** : New.

Type : Thunderguard 60 ESE Lightning Arrester.  
Description : Nil.  
Serial Number : TGD 60/001.  
Number of samples tested : One.  
Date(s) of Test(s) : 18-12-2018 & 20-02-2019.  
CPRI Sample Code Number : HVD18S0243.

**Particulars of tests conducted** : **Lightning Impulse Current withstand Test 8/20 $\mu$ s (60kA).**

Test in accordance with standard/ Specification : As per Customer's Request.  
Sampling Plan : Not Applicable  
Customer's requirement : As per the Test Procedure declared by the Customer (See Page 2).

Deviations if any : Nil.

**Name of the witnessing persons**  
Customer's representatives : Shri. Sreenath .S.  
Shri. Manish. J.  
Other than customer's representatives : None.  
Test subcontracted with Address of the laboratory : None.

**Documents constituting this report (in words)**  
Number of sheets : Five.  
Number of oscillogram/s : Six (Plus Two Sheets of Oscillograms).  
Number of graphs : Nil.  
Number of photo/s : Nil.  
Number of Test Circuit Diagrams : Nil.  
Number of drawings : One (1812001 REV 0).

  
(PRABHAKAR C.)  
Test Engineer



  
(U. R. SHESHAGIRI RAO)  
Joint Director/HOD  
Approved By

**CENTRAL POWER RESEARCH INSTITUTE**  
(MEMBER STL)

**TEST REPORT**



**Test Report No.** CPRI BLRHVDMISC19T0151

**Dated:** 07-03-2019

**TEST PROCEDURE**

Three positive & Three negative lightning impulse current shots of  $8/20\mu\text{s}$  wave shape with a magnitude of 60kA (less than one pulse for three minutes) shall be applied through the input. The Sample should be checked for any physical deformation or discoloration after testing. The test was conducted as per the above procedure and the results are tabulated below.

**Lightning Impulse Current Withstand Test:**

Sl. No.	Polarity	Current Applied (kA)	Osc. No
1	+Ve	61.0	58400
2		59.0	58401
3		59.3	58402
4	- Ve	60.5	58403
5		59.4	58404
6		60.3	58405

(PRABHAKAR C.)  
**Test Engineer**



**CENTRAL POWER RESEARCH INSTITUTE**  
(MEMBER STL)

**TEST REPORT**



Test Report No. CPRIBLRHVDMISC19T0151

Dated: 07-03-2019

Photo 1. Before the Test

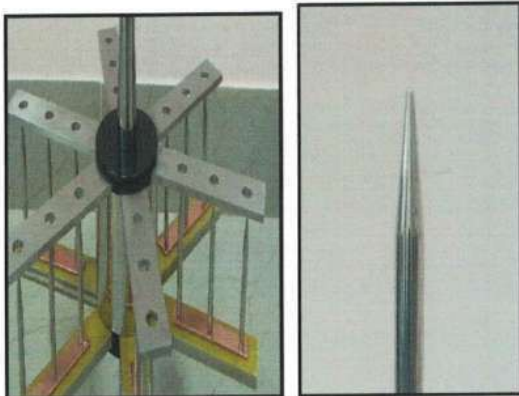


Photo 2. After the Test

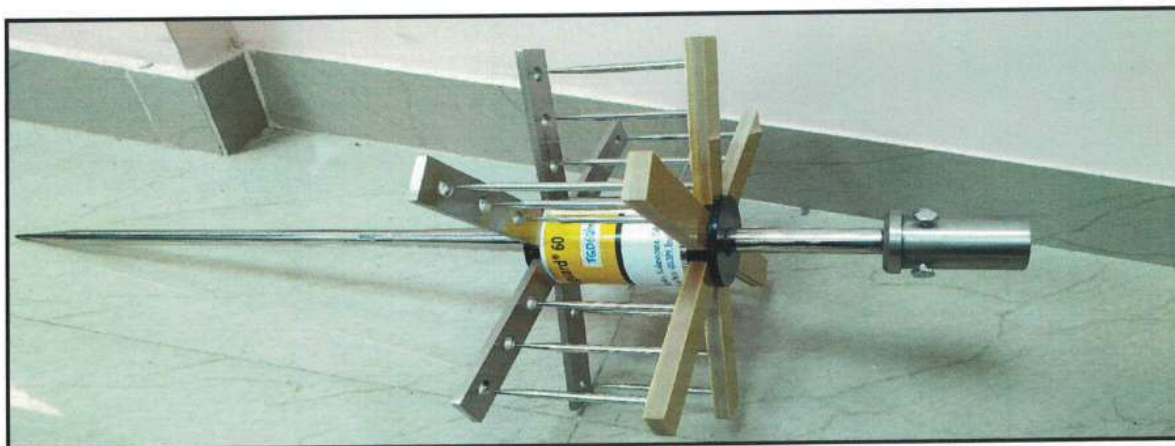
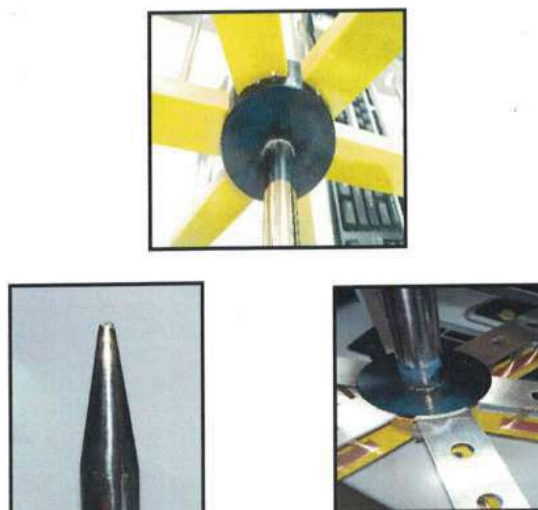


Photo 3.

(PRABHAKAR C.)  
Test Engineer

**CENTRAL POWER RESEARCH INSTITUTE**  
(MEMBER STL)

**TEST REPORT**



**Test Report No.** CPRIBLRHVDMISC19T0151

**Dated:** 07-03-2019

**Observations:** Sample is subjected to the required current impulses.

No physical deformation observed.

**Laboratory Atmospheric conditions during the above tests.**

Temperature in Degree Celsius			Atmospheric Pressure in mm of Hg.
Date	Dry Bulb	Wet Bulb	
18-12-2018	23.5	19.0	684.5
20-02-2019	28.0	22.0	683.5

(PRABHAKAR C.)  
**Test Engineer**

**CENTRAL POWER RESEARCH INSTITUTE**  
(MEMBER STL)

**TEST REPORT**



**Test Report No.** CPRI BLRHVDMISC19T0151

**Dated:** 07-03-2019

**NOTE:**

- a) The Test results relate only to the item(s) tested.
- b) Publication or reproduction of the test report /Certificate in any form other than by complete set of the whole test report /Certificate and in the language written is not permitted without the written consent of CPRI.
- c) Any Corrections/erasure invalidates the test Report/Certificate
- d) Any anomaly/discrepancy in the test report /Certificate should be brought to the notice of CPRI within 45 days from the date of issue.
- e) The verification of the sample drawings by CPRI is limited to dimensional checks only wherever possible.

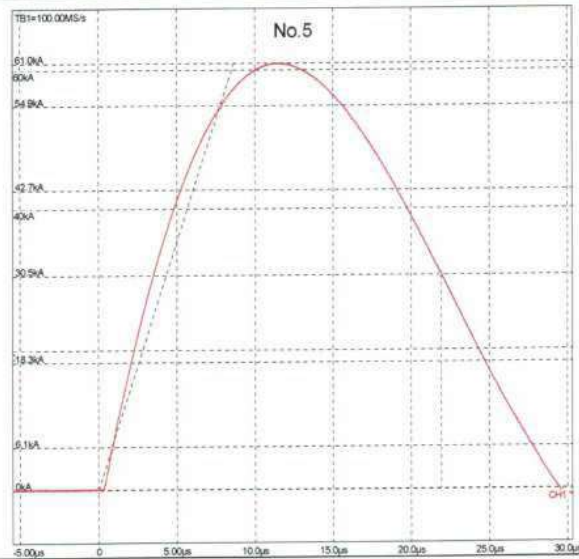
(PRABHAKAR C.)  
**Test Engineer**





CPRI

# Lightning Impulse Current Withstand Test – Positive polarity



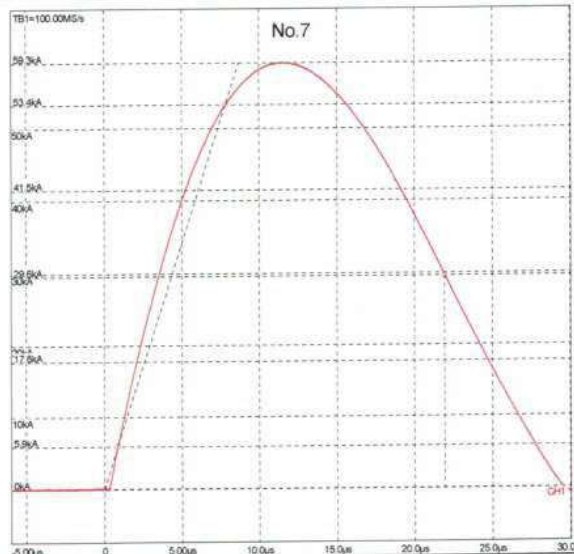
No.: 58400  
CH1 No. 58400  
Eval.: IC  
Ip= 51kA  
T1= 8.66μs  
T2= 21.9μs  
RESULTS  
Q= 0.9872C

## Shot No. 1



No.: 58401  
CH1 No. 58401  
Eval.: IC  
Ip= 59kA  
T1= 8.67μs  
T2= 21.9μs  
RESULTS  
Q= 0.9582C

## Shot No. 2



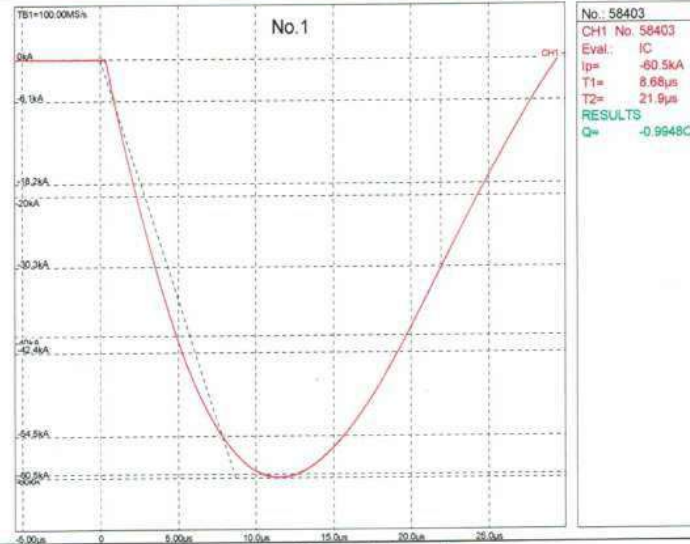
No.: 58402  
CH1 No. 58402  
Eval.: IC  
Ip= 59.3kA  
T1= 8.68μs  
T2= 21.9μs  
RESULTS  
Q= 0.9611C

## Shot No. 3

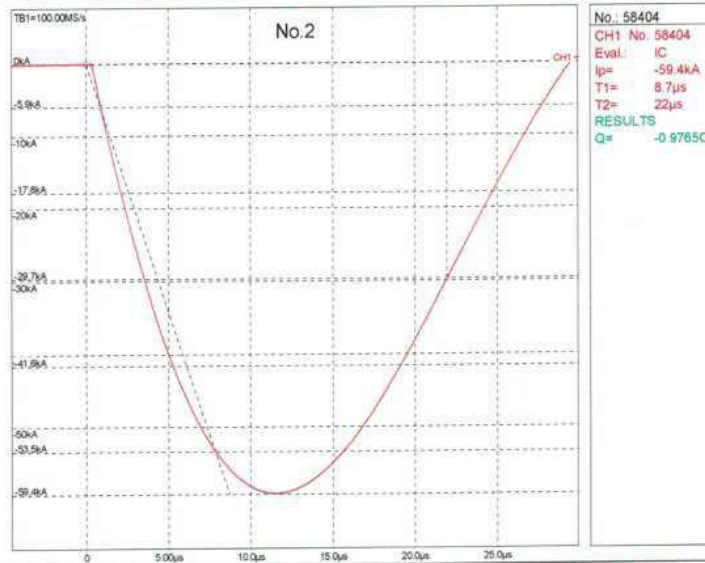


CPRI

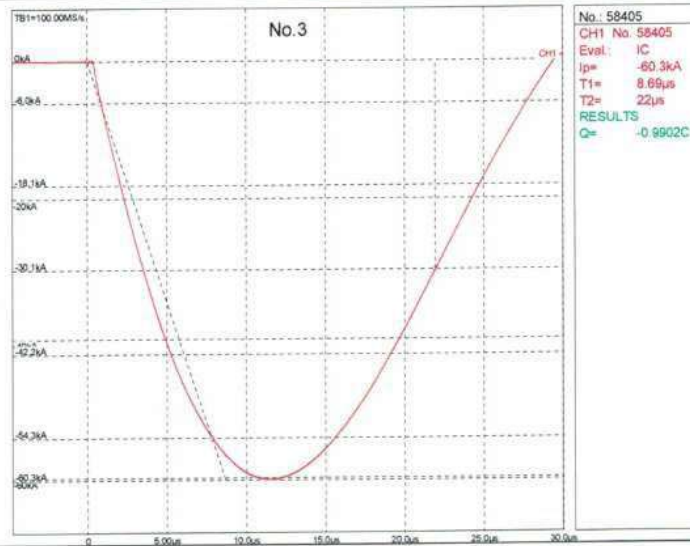
# Lightning Impulse Current Withstand Test – Negative polarity]



Shot No. 1



Shot No. 2

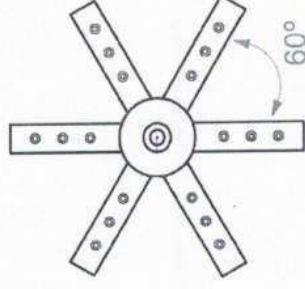


Shot No. 3

Model: THUNDERGUARD® 60

1. MATERIAL: Stainless steel-302
2. PRODUCT : Lightning Arrester

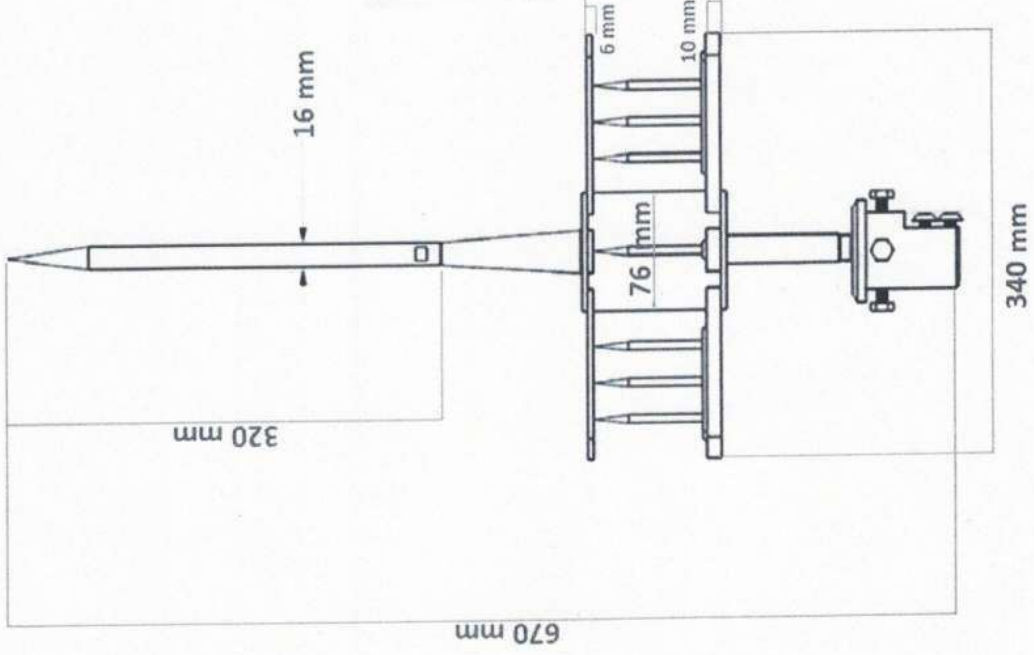
इस रेखाचित्र परीक्षण दस्तावेज  
सं. सीआरआईवीएलआरएचवी.....से संबंधित है।  
THIS DRAWING PERTAINS TO TEST REPORT  
No. CPRI/BLRHV/MIS/19.T.01.51.....  
Dated.....07.03.2019.....



*[Signature]*

संयुक्त निदेशक  
Joint Director  
उच्च वोल्टेज प्रभाग  
High Voltage Division  
केन्द्रीय विद्युत अनुसंधान संस्थान  
Central Power Research Institute  
पो. बा. सं. 8066  
P.B. No. 8066  
बेंगलूर - 560 080  
Bangalore-560 080

“यह चित्र को मॉडिफाई करने पर  
आमोषी की ज़ांत तक ही सीमित रहे।”  
“ATTESTATION OF THIS DRAWING IS  
LIMITED TO THE CHECKING OF  
IMPORTANT DIMENSIONS ONLY”



Material: <b>SEE NOTES</b>		This drawing and any information or descriptive material set out on it are the confidential property of LSG PROTECT INDIA and MUST NOT BE DISCLOSED, COPIED, LOANED or used for any purpose without the written permission		Description: THUNDERGUARD® 60 Lightning rod with ESE (Early Streamer Emission) system	
<b>SEE NOTES</b>		Document Type: Company Confidential		Drawn by: MANISH SINGH	
Height (H) 670 mm Width 340 mm		Legal Owner: LSG PROTECT INDIA		Checked/Approved by: KRISHNAKUMAR	
Drawing Scale: 1:1		Sheet Size: 204, Lake view Complex, Nallasopara, Palghar, Mumbai		Drawn Date: 18/12/2018	
Approx Weight: 5.20 KG		Projection Method:		Checked/Approved Date: 18/12/2018	
Part Number: 1		Drawing Number: 1812001		Revision: 1 of 1	
Sheet: 1 of 1		Revision: 0		0	

Dimensional Tolerance: +/- 5%





# ACCREDIUM CERTIFICATIONS

ASSESSMENT SERVICES INTERNATIONAL



The American National Standards Institute (ANSI) empowers its members and constituents to strengthen the U.S. marketplace position in the global economy while helping to assure the safety and health of consumers and the protection of the environment.

## Certificate of Compliance

Appendix-I to Certificate No: AC1599

This Appendix shall be an integral part of the Certificate. All expressions and terms defined or used in the Certificate shall have the same meaning in this Addendum, unless the context clearly requires otherwise.

**Manufacturer :** LSG PROTECT  
**Brand Name :** TGD  
**Product Group :** LIGHTNING PROTECTION SYSTEM, SURGE PROTECTION-LOW, MEDIUM & HIGH VOLTAGE DEVICES.

This certificate referred to above covers the following products:

- TGD 20/40/60
- EPB SERIES
- LSC SERIES
- LSG - LOW VOLTAGE DIN RAIL (AC SERIES)
- LSG - LOW VOLTAGE DIN RAIL (DC SERIES)
- LSG - LOW VOLTAGE WALL MOUNT (AC SERIES)
- LSG - LOW VOLTAGE WALL MOUNT (DC SERIES)
- LSG - MEDIUM VOLTAGE SERIES
- LSG - DATA LINE SERIES

The CE mark as shown above can be used, under the responsibility of the manufacturer, after completion of an EC declaration of conformity & Compliance with all relevant EC Directives. This statement is based on a single evaluation of one sample of above mentioned product. It does not imply an assessment of the whole production.

This certificate is issued under the condition that the quality system maintained in the manufacture of above referenced Models/ Products & it is remains valid until the manufacturing conditions or the quality systems are changed is subject to continuous surveillance according to the CE Guidelines further. Certificate validity is conditioned by positive results of surveillance audits.



*[Signature]*  
**Authorised Signatory**

This is an Accredited Certificate Authorized for issue by the Global Accrediting of Certification Bodies Europe Limited in accordance with "ISO17021 Conformity Assessment Requirement for Bodies provides certification of Management Systems. Certificate holders are listed in the Register of [www.gacbeu.com](http://www.gacbeu.com) & [www.accert.com](http://www.accert.com)

Such Products: Production Services shall be issued only to those who have been issued with a certificate of conformity with the relevant standards. The certificate shall be issued only to those who have been issued with a certificate of conformity with the relevant standards. The certificate shall be issued only to those who have been issued with a certificate of conformity with the relevant standards.

This certificate is not a certification, nor is it a certification of the product. It is a statement of the manufacturer's responsibility for the product's conformity with the relevant standards. The certificate shall be issued only to those who have been issued with a certificate of conformity with the relevant standards.

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# Test Certificate

Test report No. 7/1-3 from 07.01.2014

**Applicant** LSG PROTECT

**Address** No.1 Avenue de Luxembourg, Europa Tower, 94320  
Thiais, France

**Product** EARLY STREAMER EMISSION TERMINAL

**M/N** ThunderGuard

**TGD**

**Applied Standards:** NF C 17-102-1995 (Appendix C)

**Brand Name** ThunderGuard

The products have been tested by us in conformity with a procedure required by NF C 17-102-1995 (Appendix C). The ESE Terminal TGD Series confirm such resultates:

ESE Type	Average time-to-breakdown for the ESE arrester, $T_{ESE}$ , $\mu s$	Average time-to-breakdown for the reference arrester FLR, $T_{FLR}$ , $\mu s$	Difference between the average times $T_{FLR} - T_{ESE}$ , $\mu s$	Triggering advance of the ESE, $\mu s$
LSG TGD 20	571,1	631,8	60,7	60,0
LSG TGD 40	589,9		41,9	41,0
LSG TGD 60	609,7		22,1	22,0

Note: Uncertainty associated to results  $\pm 5 \mu s$

Director R&D Institute “Molniya”,  
Professor

V. Kravchenk

signature



The statement is based on an evaluation of three samples of above mentioned products. It does not imply an assessment of the whole production and does not permit the use of the Test laboratory logo.



Ministry of Science and Education of Ukraine  
National Technical University “Kharkiv Polytechnic Institute”  
Research & Design Institute “Molniya”  
47, Shevchenko Street, Krarkiv, 61013, Ukraine  
Phone/Fax: +38 057 7076868; <http://www.kpi.kharkov.ua>



FORM NO : NTH/CHN/F5

भारत सरकार Government of India  
राष्ट्रीय परीक्षण शाला (द.क्षे.)  
NATIONAL TEST HOUSE (SR)

347218

तरमणी, चेन्नई - 600 113. Taramani, Chennai - 600 113.  
Phone : 22432374, 22431157 Fax : 22433158 email : nthsr@tn.nic.in

परीक्षण प्रमाण पत्र

## TEST CERTIFICATE

INTERIM/FINAL REPORT

परीक्षण प्रमाण पत्र नं  
Test Certificate No  
NTH(SR)/EL(C)/2014/00176A

जारी होने की तिथि  
Date of Issue  
23/04/2014

कोड नं  
Code No  
1396938243840

पृष्ठ  
Page  
1

पृष्ठों की संख्या  
No of Pages  
2

जिसे जारी करना है  
Issued To

TEKSAI POWER SECURE SOLUTION PVT.LTD.

पता  
Address

3/860, BLUE STAR INDUSTRIES COMPOUND,  
PUDUSSERY, KANJIKODE, PALLAKKAD, KERALA-678623

ग्राहक का सन्दर्भ सं एवं दिनांक  
Customer's Ref. No.

TPSS/2014

Date: 25/01/2014

पंजिका सं एवं दिनांक  
Register No & Date

00176/NTH(SR)/EL(C)/08/04/2014

परीक्षण सामग्री का विवरण  
Description of Test Item

Earthing material

परीक्षण सामग्री का पहचान  
Identification of Test Item

Printing marking on the bag: "Teksai-Ultra"

नमूना का विशिष्टि (यदि हों)  
Product Specification (if any)

Electrical Resistivity test as per customer's specification

नमूना प्राप्ति की तिथि  
Date of Receipt of the Test Item

08/04/2014

कार्य सम्पादन की तिथि  
Date(s) of Performance of Tests

From: 08/04/2014 To: 23/04/2014

व्यावहृत प्रणाली का पहचान  
Method(s) used for Test

Electrical Resistivity test as per customer's specification

नमूना प्रक्रिया जहाँ प्रासंगिक हों  
Sampling Procedure where relevant

NA

Tested By

N. Joseph Kalaiselvan  
Natarajan Joseph kalaiselvan

SO Electrical

Checked By

K. Jeyaraj  
K. Jeyaraj

SO Electrical

Approved By

S.B. Nanda Kumar  
S.B. Nanda Kumar

Scientist-SC(Electrical)



**ARBRO™**PHARMACEUTICALS LIMITED  
(ANALYTICAL DIVISION)

ISO 9001 : 2008 Certified

**Govt. Approved Test House**

4/9, Kirti Nagar Industrial Area, New Delhi-110 015

Tele : 011-45754575 Fax : 011-45754545

e-mail : arbrolab@arbropharma.com, Website : www.arbropharmaindia.com

**CERTIFICATE OF ANALYSIS**

P

Sample : **EARTHING BACKFILL COMPOUND**

Report No. : NR-11060906

Supplied By : N.S.

Received On : 09/06/2011

Submitted By : GENIUS PROTECTION SYSTEM. (P) LTD.

Mfg.Lic.No. : N.S.

Address : 248A, RATI COMPLEX, RAMA MKT., MUNIRKA, N DELHI.

Ref. No. : N.S.

Batch No. Mfg. Date Expiry Date Batch Size

Sample Qty

N.S.

N.S.

N.S.

N.S.

100GM.

**RESULTS OF ANALYSIS**

Date of start of analysis 10-06-11 Date of Completion of analysis 13-06-11.

Description :- Black powder.

<Sl.No.>	<Parameters>	<Results>	<Limit (MAX)>
B - TOXIC METALS	:		
1.	Mercury(as Hg)	:- 0.251ppm	1000.0ppm
2.	Lead(as Pb)	:- 8.225ppm	1000.0ppm
3.	Cadmium(as Cd)	:- 0.128ppm	100.0ppm
4.	Hexa-Chromium(as Cr):-	Less than 1.0ppm	1000.0ppm

Remark :- Observed value for Pb,Cd,Hg & Cr+6 are very low from the max limit,  
Hence sample complies the ROHS.

REMARKS : PARTY ASKED FOR THE ABOVE TESTS ONLY

Page 1 of 1

Date : Monday, June 13, 2011

Person In Charge



**CPRI**

**CENTRAL POWER RESEARCH INSTITUTE**  
(Member of STL)

Sheet 1 of 4

**TEST REPORT**

<b>Test Report Number</b>	SC11376A	<b>Dated:</b> 29 <sup>th</sup> August, 2011
<b>Name &amp; Address of the Customer</b>	M/s. Teksai Power Secure Solution Pvt. Ltd., 3/860, Blue Star Industrial Compound, Pudussery, Kanjikodu, Palaghat, Kerala - 678 029.	
<b>Name &amp; Address of the Manufacturer</b>	M/s. Teksai Power Secure Solution Pvt. Ltd., 3/860, Blue Star Industrial Compound, Pudussery, Kanjikodu, Palaghat, Kerala - 678 029.	
<b>Particulars of sample tested</b>	GI Earthing Electrode	
<b>Condition of the sample on Receipt</b>	New	
<b>Type</b>	---	
<b>Designation</b>	Teksai	
<b>Serial Number(s)</b>	---	
<b>Number of samples tested</b>	One	
<b>Date (s) of test (s)</b>	10 <sup>th</sup> August, 2011	
<b>CPRI sample code no(s)</b>	SC11S1323	
<b>Particulars of tests conducted</b>	Short-Time current	
Test in accordance with	Customer's instruction	
Standard / specification	Not applicable	
Sampling plan	20 kA rms for 1.0 s	
Customer's requirement	---	
Deviations if any	---	
<b>Name of the witnessing persons</b>		
Customer's representative	Mr. Praveen.P.V	
Other than customer's representative	Mr. Jacob George	
<b>Test subcontracted with address of the laboratory</b>	None	
<b>Documents constituting this report (In words)</b>		
Number of sheets	Four	
Number of oscillograms	One	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	One	
Number of drawings	One	

  
(N. Maheswara Rao)  
**Test Engineer**



  
(Swaraj Kumar Das)  
**Joint Director**

**AUTHORISED SIGNATORIES**

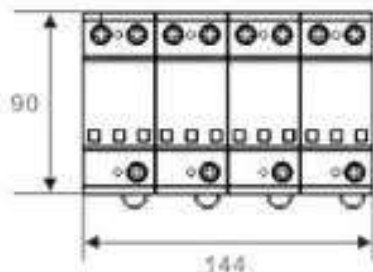
## ALTERNATE CURRENT

### LSGBC50



## APPLICATIONS

- B+C class Surge Protective Device for AC Power System.
- Sensitive electronic equipment
- Telecom centers
- Automatic control centers
- Intelligent buildings
- Industrial enterprises
- Medical institutes



Dimensions

## FEATURES:

- DIN rail mounting for easy installation
- Plug connectors for quick and easy connection or rewiring
- 50kA lightning impulse current Iimp
- Thermal disconnect device
- Status indicators visually verify protection level

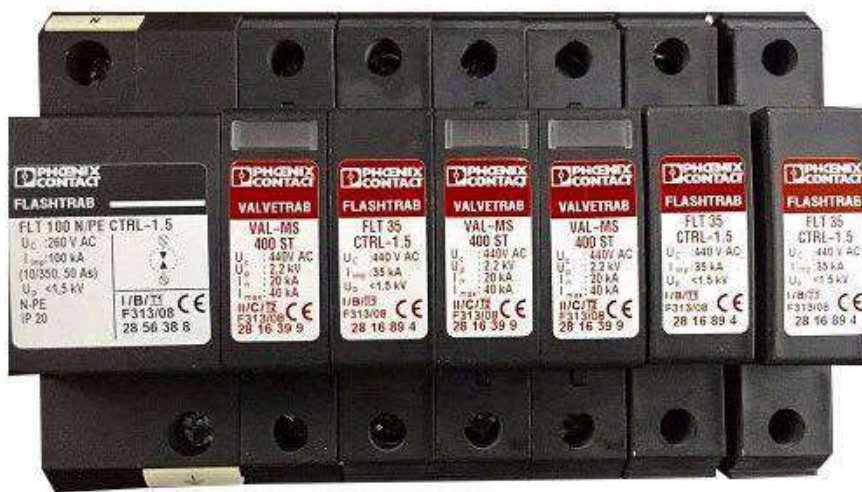
## TECHNICAL PARAMETER:

Model	LSGBC50
Electrical Parameter	
Nominal working voltage Un	50/60Hz 220/380V,
Max. continuous operating voltage Uc	385V
Nominal discharge current (8/20μs) In	50kA
Lightning impulse current(10/350μs) Iimp	15kA
Protection level @20kA , 8/20μs Up	2000V
Response time tA	100ns



PHOENIX CONTACT GERMANY

### CTRL 1.5 Surge Arrester - Flashtab FLT 35 CTRL 1.5



#### Features:-

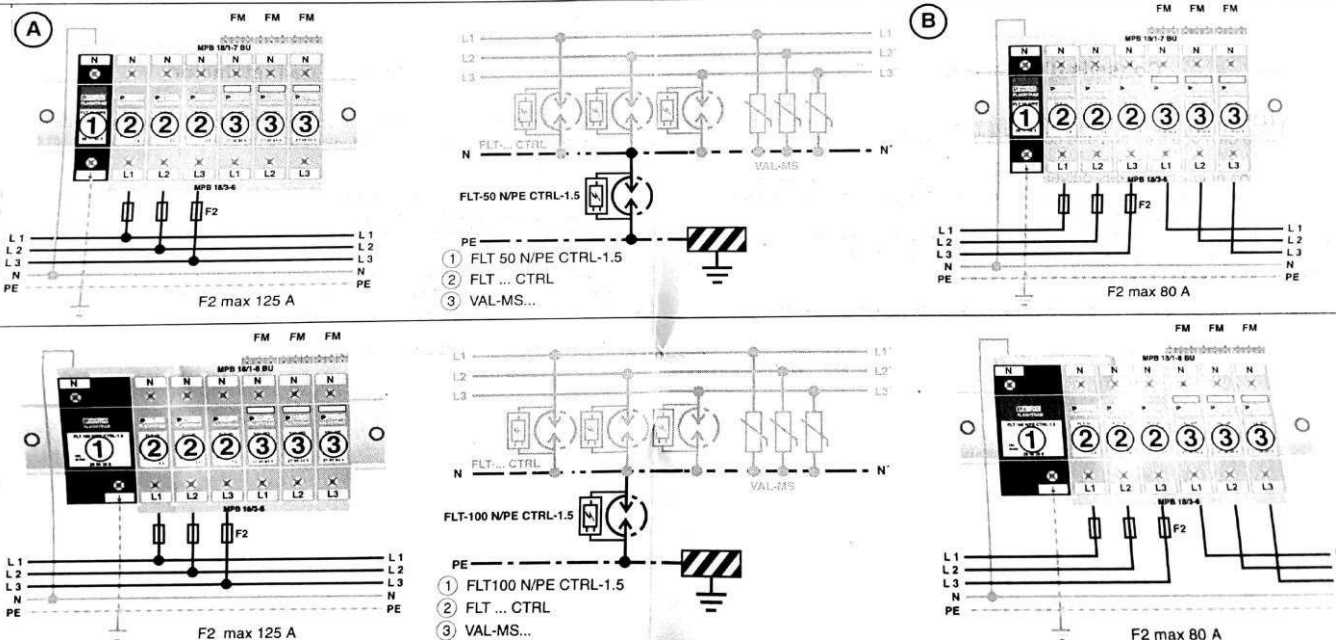
- Lighting current arrester with encapsulated N-PE spark gap and ignition electronics
- 2 Channel Protection level 1.5 KV
- Housing width 40 mm (3 Div)

## Specification:-

Un	230 V
Uc	440 V, 260 V
Up	≤1.5 kV
I <sub>imp</sub>	100 kA
T°C	-40...+85

### TN / TT 3+1

DIN V VDE 0100-534:1999-04; IEC 60364-5-534





# Confirmation on quality assurance according to nuclear standard KTA 1401

On behalf of the German nuclear power plant operators,  
**E.ON Kernkraft GmbH** as a partner of the VGB PowerTech e.V. working group Assessment of Contractors confirms



## Phoenix Contact Group

valid for the sites

**Phoenix Contact GmbH & Co. KG**  
**Flachsmarktstraße 8, D-32825 Blomberg**  
**Phoenix Contact Electronics GmbH**  
**Dringenauer Straße 30, D-31812 Bad Pyrmont**  
**Phoenix Contact Deutschland GmbH**  
**Flachsmarktstraße 8, D-32825 Blomberg**  
**Phoenix Contact Power Supplies GmbH**  
**Oberes Feld 1, 33106 Paderborn**

EnBW

and the scope of supply and services

**Design, manufacturing and sale of electrical and electronic  
connecting elements, power supply and surge voltage  
protection modules, as well as electronic interface systems**



the qualification for system- and product related quality assurance.

The assessment was performed on **April 20<sup>th</sup> and 21<sup>st</sup>, 2016** by

**EUROCERT®**  
**Gesellschaft zur Qualifizierung von Unternehmen mbH**



based on the standard **KTA 1401** as well as on the assessment documents of the VGB PowerTech e.V. working group Assessment of Contractors in consideration of product related requirements.

Details of the assessment are given in the report Eurocert 2016/02.

This confirmation is valid until **March 08th, 2019** provided that the conditions on which the assessment was based have not been changed.

Vattenfall Europe  
Nuclear Energy



Hanover, April 29<sup>th</sup>, 2016

*i.v. [Signature]*

*i.v. Blißmüller*



## Deutsche Akkreditierungsstelle GmbH

**Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV**

Signatory to the Multilateral Agreements of  
EA, ILAC and IAF for Mutual Recognition

# Accreditation



The Deutsche Akkreditierungsstelle GmbH attests that the calibration laboratory

**Phoenix Contact GmbH & Co. KG**  
**Flachsmarkstraße 8, 32825 Blomberg**

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out calibrations in the following fields:

### Dimensional quantities

#### Length

- Length measuring instruments
- Diameter
- Thread

### Electrical quantities

#### DC and low frequency quantities

- Voltage
  - DC voltage
  - AC voltage
- Current
  - DC current
  - AC current
- DC resistance

#### Time and frequency

- Frequency
- Time interval

The accreditation certificate shall only apply in connection with the notice of accreditation of 24.01.2018 with the accreditation number D-K-12161-01 and is valid until 23.02.2020. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 7 pages.

Registration number of the certificate: **D-K -12161-01-00**