



.फार्म स	० : टीआरएफ-2	014 Form No	SGLS .:TRF-2014
	. 02, मई-2016		
परीक्षण	रिपोर्ट सं. /Certi	ficale No	
ई.क्षे.प.प्र	.(उ.) . /90 (4) -2वे	ī	
ERTL(N	.(उ.) - /90 (4) -2 वे !)/90(4)-2K	0032	6
	/Date :		

# परीक्षण रिपोर्ट TEST REPORT





भारत सरकार

Government of India इलेक्ट्रॉनिकी और जूचना प्रौद्योगिकी मंत्रालय Ministry of Electronics & Information Technology

मानकीकरण परीक्षण एवं गुणवत्ता प्रमाणन निदेशालय Standardisation, Testing and Quality Certification Directorate

इलेक्ट्रॉनिकी क्षेत्रीय परीक्षण प्रयोगशाला (उत्तर) ELECTRONICS REGIONAL TEST LABORATORY (NORTH)

(एन ए बी एल द्वारा प्रत्यापित प्रयोगशाला) [NABL Accredited Laboratory] एस-ब्लॉक, ओखला औद्योगिक क्षेत्र फेज-।।, नई दिल्ली 110020 (भारत) S-Block, Okhla Industrial Area, Phase-II, New Delhi-110020 (INDIA)

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26386118, 26384400, 26386219

## ज्ञापन

## <u>MEMORANDUM</u>

- I. यह मरीवर्ष निर्मत है के ब्रूटिकी वैद्योग परीक्षण प्रदेशका (वतर) क्षेत्रेप प्रदेश (विदेश किया कि क्षेत्र) मान्युत्र विदेशालया है के ब्रूटिकि ए जुन्ता भीकोषाली दिवान, संबार ए शुक्ता संबोधिकी पंचायन, सन्त अध्यान हान गरी की पूर्व है।
  This Test Report is issued by ELECTROHICS RECEIPERAL रिटेक्ट (A Report CORY (NORTH) (EXTERNAL MORE) कि Control (M), ander STQC Officionals, Department of Electronics and Managina Technology, Minking of Communications and Information Technology.
- 2. यह रिलेर्ड प्रचीतकाला में जमा किये गए विशेष उत्पाद के उद्योक्ति के गरिएक्स का लिए हैं है। 25 स्थान उत्तर रिलेर्ड के महिल्क का लिए हैं। 25 स्थान उत्तर रिलेर्ड के महिल्क किये हैं। 25 स्थान के स्थान भी दिले किये हैं। 35 स्थान के स्थान भी दिले किये हैं। 35 सिंग्ड किये कि 180 (180 कि 180 कि 18
- 3. इ.च.प.ट. (१) आहे परीक्षण दिनोर्ट अंदिया सम हैं है इस निवेशक इ.धे.चल. (ब.) को लिखित अनुसरित (चे ची के उपनाल से दुकार जाती किया जा एकता है। एवं ची के उपनाल से दुकार जाती किया जा एकता है। एक्ट निका तिम्ला shall are be reproduced, seeing in fell, unless (virtue premission for the product obstance has been obtained from the Observe, EUFCTRONICS REPRODUCT TEST (NEW CONTRA), New Tests.
- सरीक्षण विशेषि हैं दिए परिचाम केवल अब्दे समय एवं मान्य सकता के लगद हो देव होंगे।
   This results reported, in this few report on wild of the time of and under the savie repolition of masses and
- ्र भागत जोकाहर्षे में परिवर्णन के लिये इ.से.च.मू. (हेंच्), भई दिल्ली, उत्तरकायों वहीं होती। हाराम्प्रोम, Yew Delbishad parks (क्षेत्रिकील क्ष्युटीक के कारण कराया है। हा
- a । यह प्रतिष्ठाण विषोदी किली किलूनी उद्देश्य में प्रयोग किये लामे के लिए नहीं है तथा इसे कियलर में प्रस्तुद नहीं किया जा सकता। This Dat Report is not to be used for my logal grup as well about a subsection of incoming law.
- ा. इ.जे.प.म. (प्रो) नष्ट्रं जिल्ली अन्य पार्टी उत्तेष्ठम ए अशांद्रभ सेवाई शुटिक स्वयत्त्व कृतती है इस्त क्रिकी जन्म व की स्वीकृति प्रदेश गरी कृतती है। क्षित्री (५) (१००%) क्षेत्रीय के दिल्ली क्षेत्रीय क्षे
- विजी २०११ में दिन्द के नकने में निर्देशन इसेंद्रद्र (व) मई दिन्ती का निर्देश हैं। अन्तिन व प्रत्य देशा।
- $^{\circ}$  . In this confunction, the destricts of the Director, ERTLAND, New Quitt data by first and  $y_0 y_0 y_0 y_0$
- सामान्यतः याहकार्ये। लड़पटि के जिला उक्तकं द्वारा प्रयोगशाला में दी गई स्थापिक सम्वेतिए जलकारी, किसी अन्य भट की नहीं भी लाती, जर गढ़ कि शहम सिर्फारी अंगहित में दस जानकारी की दिये लाने के लिए चलुन्द न हो।
  - In general proprietary Information submitted by extremen in the inhospicary may not be provided to any first purpose without the consecut of explorate unless until the comparison unformity is extraited that the business wearant the first hours.
- (1) ज्योग्याल( कें,इ.स. दी क्षणे क्षणे संदाज के नुष्ट्र के लिए जुन्य अपनी प्रतिदेश्या एवं जुनाव वाक्षण तथा क्षणे के १४(तथ्य/दिपोर्ट के काम लंतन्त्र प्रतिक्रिया करों में अपना इं-मेन्/केंन्य/भव के द्वारा ज्ञान करें।आरणे द्वारा दी १ई ७नस्ट जानकारी गोन्नीय लंडी जाएगी।

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# Ministry of Electronics & Information Technology Standardisation Testing & Quality Certification Directorate ELECTRONICS REGIONAL TEST LABORATORY (NORTH) New Delhi-110020

TEST REPORT IEC 60127- 6

Fuse-holders for miniature cartridge fuse-links

Report Reference No	ERTL(N)/90(4)-2018-19/Q0326
Date of issue:	07/01/2019
No. of Pages	22
Testing Laboratory:	Electronics Regional Test Laboratory (North),
Address ::	S-Block, Okhla Industrial Area, Phase-II, New Delhi-110020
Applicant's name:	M/s Protectron Electromech Pvt. Ltd.
Address:	No. 44, 29th Cross, 7th Main Road, BSK Industrial Area, BSK 2nd Stage, Bangalore – 560070
Test specification:	
Standard:	IEC 60127-6, Edition 2.0 2014-09
Test procedure:	FS Compliance
Non-standard test method:	N/A
Test Report Form No	IEC60127 6A
Test Report Form(s) Originator:	ERTL(North), Delhi, India
Master TRF:	Dated 2015-10
Test item description:	Panel Mount Fuse Holder
Trade Mark:	الله الله الله الله الله الله الله الله
Manufacturer:	M/s Protectron Electromech Pvt. Ltd. No. 44, 29th Cross, 7th Main Road, BSK Industrial Area, BSK 2nd Stage, Bangalore – 560070
Model/Type reference:	P8028-A1-4
Ratings:	10A, 250V
Test item particulars	
Classification of installation and use	Panel mount Fuse Holder for (5x 20)mm fuse links as per IEC 60127-2
Terminal	Screw / Solder / Quick connect/ other solder less terminal
Type	Unexposed / Exposed
Mounting	Panel Mounted /Base / Printed Circuit Board
Fastening (on panel)	Fixing nut /-snap-in
Fastening (on PCB)	Solder / Plug in
Insertion of fuse carrier	Screw / Bayonet / plug in
Class of Construction	Class I Class II
Protection against electric shock Category :	Without integral protection ( PC1) / with integral protection ( PC2) / with enhanced protection ( PC3)
Pollution degree (PD)	□ PD 1
Over voltage category (OVC)	OVCI OVCII OVCIII
Summary of testing:	Fuse-holders designed for panel mounting complies to all relevant requirements of IEC 60127-6, 2014

Tested by:
DEEPIKA GAHLOT
SCIENTIST 'B'

TRF No. IEC60127\_6A

Approving Authority
MANOJ KUMAR
SCIENTIST 'C'





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Tests performed (name of test and test clause):

6. Marking

- 9. Protection against electric shock
- 10. Clearances and creepage distances
- 11. Electrical requirements
- 11.1.2 Humidity preconditioning
- 11.1.3 Measurement of insulation resistance
- 11.1.4 Dielectric strength test
- 11.2 Contact resistance
- 12. Mechanical requirements
- 13. Thermal requirements
- 14. Endurance
- 15.1 Resistance to rusting

Testing	
Date of receipt of test item	09/10/2018
Date(s) of performance of tests	09/10/2018 to 31/12/2018
Laboratory conditions:	
Ambient Temperature	15-35°C
Ambient Humidity	45-75% RH
Sample Conditions	Good
Date (s) of performance of tests:	
General remarks:	

The test results presented in this report relate only to the object tested.

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"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

General product information: Panel Mount Fuse Holder for 5mm x 20mm fuse links as per IEC 60127-2. Fuse holder fasten on panel by Fixing nut and fuse inserted by screw cap.

#### PHYSICAL DATA

INSULATOR BODY BAKELITE

**TERMINALS** COPPER ALLOY, TIN-PLATED

CAP DESIGN SCREW-IN FUSE LINK SIZE 5.20x20mm

PANEL THICKNESS 1.5-3.0mm MAX

#### ELECTRICAL DATA

10A 250V AC MAXIMUM RATED VALUE

DIELECTRIC WITHSTANDING 2K VAC. 3K VDC

INSULATION RESISTANCE 1000 MΩ AT 500VDC

CONTACT RESISTANCE 20 mΩ MAX

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MANOJ KUMAR Many Lu SCIENTIST 'C'

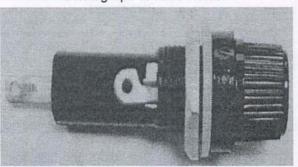


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Clause	Requirement + Test	Result - R	emark	Verdict

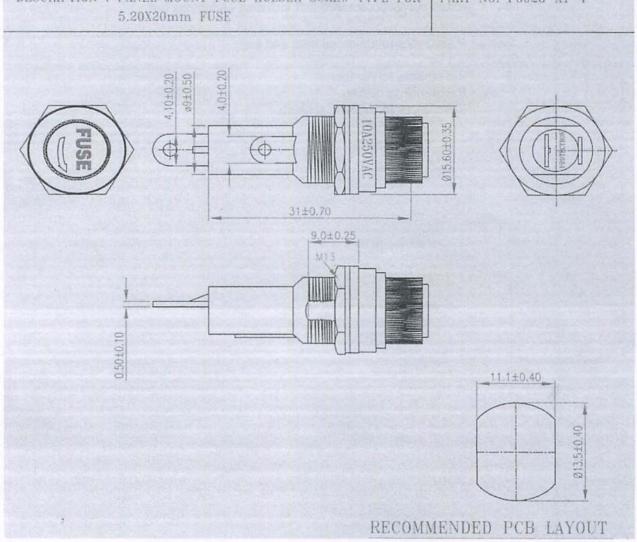
Photograph of Fuse Holder



Marking & Details on Fuse Holder

DESCRIPTION : PANEL MOUNT FUSE HOLDER SCREW TYPE FOR

PART NO: P8028-A1-4



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**TEST PLAN** 

T	Test No. of		Parameters	
Group	No.	samples		Sub- clause
0		15 (1-15)	Marking	6
1	1.1 1.2 1.3 1.4	<b>3</b> (1-3)	Protection against electric shock Clearance, creepage distance Insulation resistance, dielectric strength ,impulse withstand voltage Mechanical strength of the fuse-holder fastening on panels	9 10 11.1 12.6
2	2.1 2.2 2.3 2.4 2.5	<b>3</b> (4-6)	Contact resistance Compatibility between fuse-holder and fuse-link Mechanical strength of the connection between fuse-base and fuse- carrier Impact test Terminals of fuse-bases	11.2 12.3 12.4 12.5 12.7
3	3.1	<b>3</b> (7 -9)	Rated power acceptance test including endurance test	13.1
4	4.1	<b>3</b> (10-12)	Resistances to abnormal heat and fire	13.2
5	5.1 5.2 5.3	<b>3</b> (13-15)	Resistances to vibration Resistance to rusting Resistances to cleaning solvents	12.8 15.1 15.2

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	TEST FOR GROUP - 0 (SAMPLE NO. 1 - 15)		
6	MARKING		P
	Name or trade mark of the manufacturer	þ	Р
	Catalogue or type reference	P8028-A1-4	Р
	Additional marking	See Below	
	Rated voltage in Volts	250VAC	P
	Power acceptance in watts together with the rated current in amperes (/)	10A	P
	Additional marking is not placed on the front of the fuse-holder	In compliance	P
	Marking easily legible and indelible; test of indelibility with water & petroleum spirit	In compliance	Р
	Colour coding: if colour coding is used, it is in accordance with Appendix A (IEC 60127-1)	No colour coding	N/A

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	Result -	Remark Verdict

	TEST FOR GROUP 1		
9	(SAMPLE NO. 1 - 3 ) PROTECTION AGAINST ELECTRIC SHOCK		
9.1	Category PC1:		
			N/A
9.2	Additional means are provided to protect against electric shock  Category PC2		N/A
9.2.1	The fuse-holder so designed that	In compliance	P
7.2.1	live parts not accessible when the first live is	See Below	P
	- live parts not accessible when the fuse-holder is properly assembled and correctly installed on the front panel of equipment with fuse-carrier and gauge No. 3 or No. 6 according table 3 or table 4 inserted into the fuse-base	Compliance verified with Gauge No. 3	Р
0.0	- live parts not accessible either during insertion or removal of the fuse-carrier by hand or with the aid of a tool or after the fuse-carrier has been removed	In compliance	Р
.2.2	Compliance with standard test finger	In compliance	Р
.3	Category PC3		N/A
	- live parts not accessible when the fuse-holder is properly assmbled and correctly installed on the front panel of equipment with fuse-carrier and gauge No. 3 or No. 6 according table 3 or table 4 inserted into the fuse-base		N/A
	- live parts not accessible either during insertion or removal of the fuse-carrier by hand or after the fuse-carrier has been removed		N/A
0	Compliance with a rigid test wire of 1 mm diameter		N/A
0.1	CLEARANCES AND CREEPAGE DISTANCES		P
0.3	GENERAL		
0.3	Clearances	In compliance	P
	Minimum clearances with regard to the rated voltage, the overvoltage category and the specified degree of pollution shall not be less than as specified in Table 9 / Table 10	In compliance (refer appended table)	Р
	Impulse voltage test, 11.1.2 if minimum clearance less than as specified table 9/ table 10.		N/A
	Clearances shall not be smaller according to Table F.2 (IEC 60664-1:2007)	In compliance	Р
	Rated voltage below 125V , comply to impulse voltage as per Table 8		N/A
0.4	Creepage distances	In compliance	P
	Minimum creepage distances with regard to the rated voltage, pollution degree, insulation material are not be less than as specified Table11	In compliance ( refer appended table)	P
	Rated voltage below 125V, comply to impulse voltage as per Table 11		N/A
1	ELECTRICAL REQUIREMENTS		Р
1.1	Insulation resistance, dielectric strength and impulse withstand voltage		P
1.1.1	Mounting		P
a)	Fuse-holder for panel or base mounting: Mounted on a metal plate with the thickness (s) specified by the manufacturer. A test gauge according table 9 and with or without the fuse-carrier inserted into the fuse-base.	Fuse-holder for panel mounting	P
	Fuse-holder with screw-in fuse-carrier. Fitted in normal way with following torque:	Fuse-holder with screw-in fuse-carrier	Р
	Diameter of fuse-carrier: Torque:		
	Up to and including 16 mm 0,268 Nm	In compliance	Р
	Over 16 mm, up to and including 25 mm 0,402 Nm		N/A
b)	Fuse-holder for PC board, mounted on a test PC board according to annex A.	Fuse-holder for panel mounting	N/A
	If also for panel use, with a front panel metal plate of thickness (s)	mm	N/A
	A test gauge according to table 12 and with or without the fuse-carrier inserted into the fuse-base		N/A
	Fuse-holder for PC board mounting by soldering (through-hole types) have a pin-spacing of n ×	mm	N/A

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Clause	Pequireme		-1-0	Rec	sult - Rer	mark	Verdict
				In compliance			Р
.1.2		preconditioning	parata not incorted	In com			P
	Mounted fuse-bases according to clause 11.1.1 and seperate, not inserted fuse-carriers are submitted to the humidity preconditing			III COM	pliance		
		midity between 91 % and 95 %		In com	nliance		Р
		e t = (40 ±2) °C	A la la Settina Set	In com		CONTRACT.	P
		chamber for 48 h		In com		A SHALL SEE	P
1.1.3		ent of insulation resistance between		In com			P
1.1.5	DC Test voltage of 2X·U <sub>N</sub> (min. 100 V) for one minute			500Vd		17 (37)	P
		posed fuse-holder		00014			N/A
	the termin		III SIB MESI SIK III DANG	THE REAL		3	N/A
		or functional, basic or supplementary insulation	n .	PER SPIN			N/A
		or reinforced or double insulation	JII .	TUN UT		11 5115 1 1 1	N/A
		nals and the metal mounting or frontpanel plat	re de la company				N/A
		or functional, basic or supplementary insulation		1000	-		N/A
		r reinforced or double insulation	JII.				N/A
	220 IVIS2 10	reinforced or double insulation	n contact with the		10000		
	mounting	the terminals and any other metal parts which may be in contact with the mounting plate, e.g. base fixing devices					N/A
	$\geq$ 10 M $\Omega$ for functional, basic or supplementary insulation				1414		N/A
	$\geq$ 10 MΩ for reinforced or double insulation						N//
		inals and a metal foil covering the whole	of the accessible	DO TO SE			N/A
		or functional, basic or supplementary insulation	on ·	The same			N/A
		or reinforced or double insulation		1			N/A
	Fuse-holder with a rated voltage of < 125 V are in accordiance with the						
	requirements of Table 12.					N/A	
	For Exposed fuse-holder		In com	pliance		P	
	the terminals					P	
	≥10 MΩ fo	r functional, basic or supplementary insulation	on				N/A
	≥ 20 MΩ fo	or reinforced or double insulation	THE RESERVE OF THE PARTY OF THE	1.8GΩ	1.8GΩ	1.8GΩ	P
	the term	inals and the mounting plate		In com	pliance		P
	≥10 MΩ fo	r functional, basic or supplementary insulation	on		Table 1	The same	N/A
		or reinforced or double insulation		1.9GΩ	1.9GΩ	1.8GΩ	P
	Fuse-holde	er with a rated voltage of < 125 V are in acco	ordiance with the			. N. E. T.	N/
		nts of Table 12		Lette Tip			IN/
1.1.4		strength test	COMPRISA TURNSTON	In com	pliance	ord name	P
1.1.5	AC Test vo	oltage as per Table 12 for one minute applied	d between				-
	For Unex	posed fuse-holder			MED OF	witiia	N/
	the term						N/
	for functional, basic or supplementary insulation			V	District Control	N/	
		ced or double insulation			V		N/
	the terminals and the metal mounting or front-panel plate			a de la	History	N/	
	for functional, basic or supplementary insulation			V	manua La	N/	
		ced or double insulation			V	1965	N/
		inals and any other metal parts which ma ig plate, e.g. base fixing devices	ay be in contact with te				N/
		nal, basic or supplementary insulation				LINE BOILE	N/
	for reinford	ced or double insulation			V		N/
	surface		of the accessible				N/
	for function	nal, basic or supplementary insulation	A CONTRACTOR OF THE PARTY OF TH			disalehi	N/
		ced or double insulation	illen segminten dann			1	N/
	No breakd	own or flashover shall occur			100		N/

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lause	Requirement + Test		Don't D	1
	For Exposed fuse-holder		Result - Remark	Verdic
	the terminals		In compliance	P
	for functional, basic or supplementary insulation			P
	for reinforced or double insulation		V	N/A
	the terminals and the mounting plate		3000 V	P
	for functional, basic or supplementary insulation			P
	for reinforced or double insulation		V	N/A
	No breakdown or flashover shall occur		3000 V	P
			No breakdown or flashover occured	Р
	Fuse-holder with a rated voltage of < 125 V are in accordia requirements of Table 12.	nce with the		N/A
	Impulse Withstand Voltage Test		In compliance	P
	Impulse withstand voltage as per Table 8		Specified as OVC- III	
	Three impulses of each polarity		Withstand impulse	P
	For Unexposed fuse-holder, between		Test	
	the terminals			N/A
	for functional, basic or supplementary insulation			N/A
- 1	for reinforced or double insulation		V	N/A
	the terminals and the metal mounting or front-panel p	lata	V	N/A
	for functional, basic or supplementary insulation	nate		N/A
	for reinforced or double insulation		V	N/A
1	the terminals and any other metal parts which may be		V	N/A
	mounting plate, e.g. base fixing devices	in contact with te		N//
-	for functional, basic or supplementary insulation		V	N/A
-	for reinforced or double insulation		V	N/A
-	.the terminals & a metal foil covering the whole of the a	ccessible surface		N/A
-	for functional, basic or supplementary insulation		V	N/A
	for reinforced or double insulation		V	N/A
-	No breakdown or flashover shall occur			N/A
-	For Exposed fuse-holder , between		In compliance	P
-	the terminals		In compliance	P
	for functional, basic or supplementary insulation		V	N/A
	for reinforced or double insulation		6000 V	P
	the terminals and the mounting plate		In compiiance	P
	for functional, basic or supplementary insulation		V	N///
	for reinforced or double insulation		6000 V	P
	No breakdown or flashover shall occur		No breakdown or flashover occured	P
	Fuse-holder with a rated voltage of < 125 V are in accordiar requirements of Table 12.			N/A
	Mechanical strength of the fuse-holder fastening on par	nels		P
1	Fixing nut fastening			P
	The fuse-base was mounted with supplied fixing elements, in a steel-plate according to the manufacturer's instructions		In compliance	P
	The fixing nut of a one-hole mounted fuse-base was screwe times with following torque:	ed on and off five	In compliance	P
	Thread diameter:	Torque:	In compliance	P
	Up to and including 12 mm	0,6 Nm	In compliance	P
-	greater than 12 mm, up to and including 18 mm	1,2 Nm	in compliance	N/A
13		1.4 1111		IVIP
	greater than 18 mm, up to and including 30 mm	2,4 Nm		N/A

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12.6.2	Fixing screw fastening			N/A
	Fixing screws, bolts or nuts of a multi-hole mounted fuse-base we and off five-times with following torque:	ere screwed on		N/A
	Thread diameter:	Torque:	Reliaszen guillane	
	2 mm	0,25 Nm		N/A
	2,5 mm	0,4 Nm		N/A
	3 mm	0,5 Nm		N/A
	3,5 mm	0,8 Nm		N/A
	4 mm	1,2 Nm		N/A
	5 mm	2,0 Nm	CTP SEE LAND CO.	N/A
	6 mm	2,5 Nm	Howard and the state of the sta	N/A
	≥ 8 mm	3,5 Nm		N/A
	After the test, no changes which would impair its further use.	and and other		N/A
12.6.3	Snap-in fastening		Fixing by nut on Panel	N/A
12.6.3.2	Tests and requirements		langs book of the or	N/A
2.6.3.2.	Verification of Mechanical strength of the fuse-holder fasteni	ng on panels	DOWN AND WAR THE BOOK	N/A
	They was performed with an engaged snap-in fastening and the f has lie flat on the surface of the mounting plate.	use-holder	THE STATE OF ALL PROPERTY.	N/A
	The thickness of the mounting plate and the diameter of the mounting to the specifications of the manufacturer	nting-hole		N/A
	The mounting plate was positioned in any convenient orientation			N/A
12.6.3.2.	Insertion force F1			N/A
2	Insertion Force ≤ 20N or as specified by manufacturer		N	N/A
2.6.3.2.	Withdrawal force F2		Trigles (Int. 1992)	N/A
3	Withdrawl Force increased from N to 50N	CONTRACTOR OF THE PARTY OF THE		N/A
12.6.3.2.	Acceptance criteria in the above tests			N/A
4	Cracks, chipping and breakage of the fuse-holder base due to the stress of F1 and F2 shall not appear	e mechanical	TCHOSTALL	N/A

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Claus	e Requirement + Test	0 00 121-0		Por	sult - Ren	nark	Verdict
				I Kes	ouit - Ken	IIdIK	verdict
44.0	(SAM	OR GROUP 2 PLE NO. 4-6)					
11.2	Contact resistance				Museum		P
	If fuse link , IEC 60127-2			See be	low (mΩ	)	P
	- average value shall not exceed		5mΩ	3.94	4.08	4.12	P
	- individual value shall not exceed		10mΩ	4.76	4.82	4.72	P
	If fuse link , IEC 60127-3						N/A
	- average value shall not exceed		10mΩ		Ω		N/A
12	- individual value shall not exceed  MECHANICAL REQUIREMENTS		15mΩ		Ω		N/A
12.3				In com			P
12.0	Compatibility between fuse-holder and fuse-li	nk		In com			P
	The maximum gauge No. 1 or gauge No. 4 according table 3 or table 4 was inserted in and withdrawn from the fuse-holder and fuse-carrier, if amy, 10 times			with Ga	ance ver luge No. ng table	1	P
	For fuse-holders having screw-in fuse-carriers:The normal way for each operation with following torq	ue:		In comp	oliance	Him	Р
	Diameter of fuse-carrier:	specfied in	Torque ( 2/3 of values specfied in Table 13):				
	Up to and including 16 mm		0,268 Nm		oliance		P
	Over 16 mm, up to and including 25 mm 0,402 Nm					N/A	
	For fuse-holders having bayonet fuse carriers there are no special torque requirements.  - No visible damage						N/A
	<ul> <li>No looseing of parts</li> <li>In the most unfavourable position, the minimum shall not fall from the fuse- carrier.</li> </ul>	gauge No. 2 or	gauge No. 5				N/A
11.2	Contact resistance						Р
	If fuse link , IEC 60127-2			See be	ow (mΩ	)	P
	- average value shall not exceed	5mΩ		4.12	4.17	4.19	P
	- individual value shall not exceed		10mΏ	4.88	4.89	4.74	P
	If fuse link , IEC 60127-3				Telegraph .		N/A
	- average value shall not exceed		10mΩ				N/A
	- individual value shall not exceed		15mΩ	9000			N/A
	The screw-in fuse-carrier: Was screwed in with following torque( 2/3 of value in Table 13):			In comp	oliance		Р
12.4	Mechanical strength of the connection betwee carrier	en fuse-base an	d fuse-	In comp	oliance		Р
12.4.1	Screw and bayonet connections			In compliance			Р
	For the following test the fuse-carrier is fitted with the maximum gauge No. 1 or gauge No. 4 according to table 3 and inserted in the fuse-base, mounted according to 12.1.		In comp	oliance		Р	
12.4.1	Torque test on fuse-carriers	DER LEGISLA	N Figure	In comp	liance		Р
1)	Fuse-carrier was screwed on five times with following torque:			In comp	liance		Р
	up to and including 16 mm	0,4 Nm			liance, o		Р
	Greater than 16 mm, up to and including 25 mm		0,6 Nm				N/A
2.4.1	Tensile test on fuse-carriers			Incomp	liance		P
0)	Screw-in or bayonet fuse-carrier:Was subjected for	or 1 min to follow	ing axial pull:	Incompliance			Р
	Diameter of fuse-carrier:		Axial pull:	Incomp	liance		P

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Clause				
	Up to and including 16 mm	25 N	Incompliance, dia. of fuse carrier 7.0mm	Р
	Over 16 mm, up to and including 25 mm	50 N		N/A
	For fuse-holders where fuse-carriers are flush with the fi is not required.	use: The axial pull test		N/A
1-1-9	During and after the tests:		Incompliance	P
	- the fuse-carrier has securely held in the fusebase.		all manufacture long to be	
	- do not show any damage impairing its further use.			
2.4.2	Plug-in connections			N/A
	Insertion & withdrawl forces: 10 times as specified by m	anufacturer		N/A
	Contact resistance			N/A
- (31)	If fuse link , IEC 60127-2		THE RESERVE TO SECURITION	N/A
	- average value shall not exceed	5mΩ		N/A
	- individual value shall not exceed	10mΏ		N/A
57 [11]	If fuse link , IEC 60127-3			N/A
	- average value shall not exceed	10mΏ	ΩmΩ	N/A
	- individual value shall not exceed	15mΏ	Ω	N/
12.5	Impact test ( for panel mounted fuse holders only)	for other break such	- Maritimo Salt Inc. A. Lord	P
	The front of the fuse-holder is then subjected to 3 blows hammer with impact energy of 0,35 ± 0,03 J	Withstand the test	Р	
	After test,		In compliance	P
	- no serious damage - live parts have not become exposed - no distortion as to impair compliance with clause10			
A 64	If doubt, compliance with 11.1,5			N/A
12.7	Terminals of fuse-base			P
12.7.1	Terminals with screw-type clamping or Screwless	clamping		N/A
	Test and requirements: According IEC 60999-1			N//
12.7.2	Terminals for soldering		In compliance	P
12.7.2.	Tag terminals	THE PERSON NAMED IN	In compliance	P
1	Designed for being soldered with a soldering iron		In compliance	P
12.7.2. 1.1	Size	Jenna de Blent	Min. Hole dia. 1.4mm Observed dia. 1.66mm	P
	Terminals of the fuse-base allows connection of rigid constrained and flexible conductors as per Table 17	onductors, solid or	And it can accomodate max. Cross section of conductor 1.5mm <sup>2</sup>	
	soldering terminals shall have hole to pass the conduction	ctor	In compliance	Р
12.7.2.	Robustness of termination		In compliance	P
1.3 a)	Test Ua1 of IEC600 68-2-21 : axial force of 20 N		In compliance	P
	No damage which would impair normal operation	S POINT POUR LAND	In compliance	P
	Bending test according to test Ub of IEC 60068-2-21	THE PERSON NAMED IN COLUMN TO SERVICE OF SER	method 2 used	P
	If applicable method 1, otherwise method 2	THE PARTY OF THE P		P
	No damage which would impair normal operation		In compliance	P
12.7.2.	Solderability, wetting (soldering iron method):		In compliance	P
1.3 b)	Test Ta, IEC 60068-2-20		In compliance	P
	accelerated ageing 155°C , 4h/16h		Accelerated ageing 155°C , 4h	Р
	Method 2 Soldering iron size "B"		Method 2, Soldering iron size "B" Bit dia. 3mm	P
	Temperature 350°C, Immersion time:: 2-3s		In compliance	P

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Clause		Result - Remark	Verdic
	- the solder have wetted the test area - no droplets	In compliance	P
12.7.2.	non-ing mon incured	In compliance	P
1.3 c)	Test Tb of IEC 68-2-20:	In compliance	P
	Method 2 Soldering iron size "B"	In compliance	P
	Temperature 350°C / 370°C , Immersion time: 10s	In compliance	P
	No damage which would impair normal operation	In compliance	P
12.7.2.	Wire and pin terminals	elitari eleka kangani e	N/A
2.7.2.	General		N/A
2.1	For use with printed boards or other applications		N/A
2.7.2.	Size		N/A
2.2	No special requirements		N/A
12.7.2.			N/A
2.3 a)	Test Ua1 of IEC 60068-2-21: axial force of 20 N		N/A
	No damage which would impair normal operation		N/A
	Bending test according to test Ub of IEC 60068-2-21		N/A
	If applicable method 1, otherwise method 2		N/A
	No damage which would impair normal operation		N/A
2.7.2.	Solderability, wetting, solder bath method		N/A
2.3 b)	Test Ta, IEC 60068-2-20		N/A
	accelerated ageing 155°C , 4h/16h		N/A
	Method 1		N/A
	Immersion temperature and Immersion time as per Table1		N/A
	The dipped coating surface shall be covered with a solder coating with a than small amount of scattered imperfections such as pin holes or unwe areas. These imperfections shall not be concentrated in one area.	no more tted	N/A
2.7.2.	Resistance to soldering heat, solder bath method:		N/A
.3 c)	Test Ta, IEC 60068-2-20		N/A
-	Method		N/A
	Immersion temperature : 260°C and Immersion time : 5 s		N/A
	No damage which would impair normal operation		N/A
2.7.3	Quick-connect male tab terminals		N/A
ADMINISTRAÇÃO DE	Size		N/A
	Dimensions according to:IEC 61210.		N/A
	Robustness of termination		N/A
	Tensile test		N/A
	Test Ua1 of IEC 600 68-2-21		N/A
	Tensile force F1 , Table18 ( IEC 60127-6)		N/A
	Compressive test		N/A
	Compressive force F2 , Table18 ( IEC 60127-6)		N/A
274	No damage which would impair normal operation		N/A
2.7.4	Quick connect male tab terminals combined with solder tag terminal	als	N/A
	Tag terminals		N/A
272	Designed for being soldered with a soldering iron	A STATE OF THE PARTY OF THE PAR	N/A
	Size	THE RESERVE TO BE A STATE OF THE PARTY.	N/A
.1	Terminals of the fuse-base allows connection of rigid conductors, solid o stranded and flexible conductors as per Table 17	r	N/A
070	soldering terminals shall have hole to pass the conductor		N/A
	Robustness of termination		N/A
	Test Ua1 of IEC600 68-2-21 : axial force of 20 N		N/A
	No damage which would impair normal operation		N/A

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- Clarace			N/A
	Bending test according to test Ub of IEC 60068-2-21 If applicable method 1, otherwise method 2		N/A
			N/A
4070	No damage which would impair normal operation		N/A
12.7.2.	Solderability, wetting (soldering iron method):	Heal of Children College Colle	N/A
1.3 b)	Test Ta, IEC 60068-2-20		N/A
	accelerated ageing 155°C , 4h/16h		N/A
	Method 2 Soldering iron size "B"		122000000000
	Temperature 350°C, Immersion time:: 2-3s		N/A
345	- the solder have wetted the test area		N/A
	- no droplets		NI/A
12.7.2.			N/A
1.3 c)	Test Tb of IEC 68-2-20:		N/A
	Method 2 Soldering iron size "B"		N/A
17	Temperature 350°C / 370°C , Immersion time: 10s		N/A
	No damage which would impair normal operation		N/A
12.7.3	Quick-connect male tab terminals		N/A
12.7.3.	Size		N/A
2	Dimensions according to:IEC 61210.		N/A
12.7.3.	Robustness of termination	the grant and the state of the	N/A
3	Tensile test		N/A
	Test Ua1 of IEC 600 68-2-21		N/A
	Tensile force F1, Table18 (IEC 60127-6)	REGION ENERVIEWED IN	N/A
	Compressive test		N/A
	Compressive force F2 , Table18 ( IEC 60127-6)	Balling State of the State of t	N/A
	No damage which would impair normal operation		N/A

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Clause	Requirement + Test	Re	sult - Re	mark	Verdic
	TEST FOR GROUP 3				
13	THERMAL REQUIREMENTS (SAMPLE NO. 7 - 9)	1.			
13.1	Rated power acceptance test	In com	P		
3.1.1	Genaral		In compliance		
13.1.2	Mounting		pliance		P
	As specified in 13.1.2		Mounting	g	P
13.1.3	Dummy Fuse- links		pliance		P
	Fuse-link with defined resistance Table 19 / Table 20	A1/251			P
13.1.4	Tanananatina	25 mΩ			P
	Ambient Terre		23°C	23°C	P
	T C		30.2	30.5	P
	Tana a Facility Fold and a second		33.8		Р
	Town on Free Held T. 1.			33.7	P
	Temp. on Fuse Holder Terminals T <sub>T1</sub> Maximum allowable temerature as per Table 21		44.5	44.5	P
13.1.5	Power acceptance at T <sub>A1</sub> : 23°C	85°C			P
	Power acceptance at higher ambient temperature T <sub>A1</sub> , assigned by the manufacturer T <sub>A1</sub> :	T <sub>A1</sub> : 23°C, 2.5 W			P
3.1.7	Test current (AC/DC)	10 A		P	
	Temperature stability reached	In com	pliance		P
4	ENDURANCE				P
4.1	GENERAL				P
110	fuse holders shall be sufficiently resistance to heat & to mechanical stress			THE SECTION	P
14.2	Rated power acceptance test, 13.1, for 500h fuse-holder shall be in a satisfactory condition. It shall not have suffered any deformation that would impair its correct operation				Р
1.1.3	Measurement of insulation resistance between	In com	pliance		P
	DC Test voltage of 2X·U <sub>N</sub> (min. 100 V) for one minute	500Vdc			P
	For Unexposed fuse-holder				N/A
	the terminals				N/A
	≥ 10 MΩ for functional, basic or supplementary insulation				N/
	≥ 20 MΩ for reinforced or double insulation				N/
	the terminals and the metal mounting or frontpanel plate				N/
	≥ 10 MΩ for functional, basic or supplementary insulation				N/
	≥20 MΩ for reinforced or double insulation				N/A
	the terminals and any other metal parts which may be in contact with the mounting plate, e.g. base fixing devices				N/A
	≥ 10 MΩ for functional, basic or supplementary insulation				N/A
	≥ 20 MΩ for reinforced or double insulation				N/A
	the terminals and a metal foil covering the whole of the accessible surface				N/A
	≥ 10 MΩ for functional, basic or supplementary insulation				NI/
	≥ 20 MΩ for reinforced or double insulation				N/A
	Fuse-holder with a rated voltage of < 125 V are in accordiance with the requirements of Table 12.				N/A
-	For Exposed fuse-holder	In see	oliones		
	the terminals	In com	pilance		P
	≥10 MΩ for functional, basic or supplementary insulation		Т		P
	≥ 20 MΩ for reinforced or double insulation	1 500	4.400	4 500	N//
	220 MIZ for reinforced or double insulation	1.5GΩ	1.460	1.5GΩ	P

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Cidase			•		In comp			Р
	the termi	nals and the mounting plat	entant inculation		III comp	liance		N/A
		functional, basic or supplementation			1.8GΏ	1.8GΩ	1 960	P
		reinforced or double insulation reinforced or double insulation reinforced or double insulation reinforced or double insulation.		o with the	1.0012	1.0012	1.0012	
		ts of Table 12	o v ale ili accordiano	e with the	11			N/A
1.1.4		strength test			In comp	liance	Mare I	Р
1.1.4			minute applied betw	een	In comp		Wilson.	P
	AC Test voltage as per Table 12 for one minute applied between  For Unexposed fuse-holder			III COM	marioc		N/A	
	the termi							N/A
		al, basic or supplementary in	sulation			\/		N/A
		ed or double insulation	Sulation			V V		N/A
		nals and the metal mounting	og or front-nanel nis	ato		V		N/A
				110		V	-	N/A
	for functional, basic or supplementary insulation for reinforced or double insulation						N/A	
	the terminals & any other metal parts which may be in contact with te			***************************************	•		- Constant	
		g plate, e.g. base fixing dev		contact with to				N/A
		al, basic or supplementary in				V		N/A
	for reinforced or double insulation				V		N/A	
	the terminals & a metal foil covering the whole of the accessible surface						N/A	
	for functional, basic or supplementary insulation				V		N/A	
	for reinforced or double insulation					3 - 1	N/A	
	No breakdown or flashover shall occur						N/A	
	For Exposed fuse-holder			In comp	oliance		P	
	the terminals						Р	
		for functional, basic or supplementary insulation			V			N/A
	for reinforced or double insulation			3000 V			Р	
		the terminals and the mounting plate						P
		for functional, basic or supplementary insulation			V			N/A
	for reinforced or double insulation			3000 V			Р	
	No breakdown or flashover shall occur			In com		Towns in	Р	
	Fuse-holder with a rated voltage of < 125 V are in accordiance with the requirements of Table 12.						N/A	
12.3		lity between fuse-holder an	nd fuse-link	THE STATE OF THE S				P
	The maximum gauge No. 1 or gauge No. 4 according table 3 or table 4 was inserted in & withdrawn from the fuse-holder and fuse-carrier, if amy, 10 times			Gauge	No. 1 us	ed	P	
	For fuse-holders having <b>screw-in fuse-carriers</b> :These carriers was fitted in the normal way for each operation with following torque:			In comp	pliance		P	
		f fuse-carrier:	Torque (2/3 as spe	cfied in Table 13):	In com	pliance		Р
		ncluding 16 mm		8 Nm	In com			P
		m, up to & including 25 mm		2 Nm				N/A
	For fuse-horrequirement	olders having bayonet fuse of				olders ha		N/A
	- No visible - No loosei - In the mo	damage	minimum gauge No.	2 or gauge No. 5				N//

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SCIENTIST 'C'
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Issued by: VED PRAKASH \$ 8.1.19 SCIENTIST 'B'



Ministry of Electronics & Information Technology Standardisation Testing & Quality Certification Directorate ELECTRONICS REGIONAL TEST LABORATORY (NORTH)

New Delhi-110020

TEST REPORT NUMBER		ATE	THE	DΔ	GE NO.	
ERTL(N)/90(4)-2018-19/Q0326					16 of 22	
IEC 60				1 10	01 22	
		Re	esult - Re	mark	Verdict	
Contact resistance				THE THE	-	
If fuse link , IEC 60127-2		See h	alow (mi	))	P	
- average value shall not exceed	10m'O			_	P	
					P	
If fuse link , IEC 60127-3	To Think	0.20	0.52	0.44	10.00	
- average value shall not exceed	10m'O		m'O		N/A	
- individual value shall not exceed	15mΩ		AND DESCRIPTION OF THE PARTY OF		N/A N/A	
	Requirement + Test  Contact resistance  If fuse link , IEC 60127-2  - average value shall not exceed - individual value shall not exceed  If fuse link , IEC 60127-3  - average value shall not exceed	ERTL(N)/90(4)-2018-19/Q0326 07/0  IEC 60127-6  Requirement + Test  Contact resistance  If fuse link , IEC 60127-2  - average value shall not exceed 10m $\Omega$ - individual value shall not exceed 15m $\Omega$ If fuse link , IEC 60127-3  - average value shall not exceed 10m $\Omega$	ERTL(N)/90(4)-2018-19/Q0326  IEC 60127-6  Requirement + Test  Contact resistance  If fuse link , IEC 60127-2  - average value shall not exceed - individual value shall not exceed - average value shall not exceed - average value shall not exceed - individual value shall not exceed	ERTL(N)/90(4)-2018-19/Q0326   07/01/2019     IEC 60127-6     Requirement + Test   Result -	ERTL(N)/90(4)-2018-19/Q0326   07/01/2019   16     IEC 60127-6       Requirement + Test   Result - Remark     Contact resistance       If fuse link , IEC 60127-2   See below (mΩ)     - average value shall not exceed   10mΩ   5.59   5.61   5.88     - individual value shall not exceed   15mΩ   6.29   6.32   6.44     If fuse link , IEC 60127-3   - average value shall not exceed   10mΩ	

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	IEC 60127	7-6		
Clause F	Requirement + Test		Result - Remark	Verdict

	TEST FOR GROUP 4 (SAMPLE NO. 10-12)		
13.2	Resistance to abnormal heat and fire		P
13.2.1	Needle-flame test according to IEC 60695-11-5 Duration of application of flame: (10 ± 1)s	In compliance	Р
	No ignition of the tissue paper or scorching of white pine board	In compliance	P
13.2.2		In compliance	P
	GWIT & GWFI as per IEC 60695-2-12 & IEC 60695-2-13 respectively	In compliance	P
	GWIT: 775°C	Withstood GWFI	N/A
	GWFI: 850°C	In compliance	P

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IEC 60127-	6	
Clause Requirement + Test	Result -	Remark Verdict

	Desistance to Mile of				
12.8	Resistance to Vibration test Fc of IEC 60068-2-6	107.14			P
12.8.1	Mounting		pliance		P
12.0.1	The fuse-holder mechanically connected to the test apparatus according IEC 68-2-47		pliance		P
	by ist normal mounting method	In com	pliance		P
12.8.3	Measurement and requirements	In com	pliance		P
12.8.3.1	Severity (minimum level)		pliance		P
	- Freqency range: 10 to 55 Hz		pliance		P
	- Displacement amplitude 0,35 mm or acceleration 5 g	_	pliance		P
	- Number of sweep cycles: 5 in each axis		pliance		P
12.8.3.2	Axis of vibration		pliance		P
	3 mutually perpendicular axes		pliance		P
12.8.3.3	Functional checks		pliance		F
	During vibration, the electrical continuity between the contacts not interrupted		pliance		P
12.8.2.4	Final measurements		pliance		P
	the fuse-holder shows no serious damage in the sense of the standard	and the land of th	pliance		F
11.2	Contact resistance	0011	Pilarioc		F
	If fuse link , IEC 60127-2	See h	elow (m's	2)	F
	- average value shall not exceed 5mΩ	4.07	4.22	4.10	F
	- individual value shall not exceed 10mΩ	4.77	4.97	4.64	F
	If fuse link , IEC 60127-3	1	17.07	7.04	N/
	- average value shall not exceed 10mΩ				N/
	- individual value shall not exceed 15mΩ				N/
15	ADDITIONAL REQUIREMENTS				F
15.1	Resistance to rusting	In com	pliance		F
	Ferrous parts are adequately protected against rusting	In compliance			F
	Traces of rust on sharp edges and any yellowish film removable by rubbing	Traces of rust neither			-
	are ignored	on spring nor on fixing			
		nut			P
15.2	Resistance to cleaning solvents (fuse holders for PC board mounting				
	only)	1			N/
	Test according to IEC600 68-2-45 clause 3.1.1, cleaning solvents				N/
	cleanig solvent : propan-2-ol (isopropyl alcohol) or similar solvent exept for				1
	solvent containing freon.				N/
	Solvent temperature : (23 ± 5)°C				N/
	Duration of immersion (5 ± 0,5)min				N/
	Conditioning : Method 2 (without rubbing)				N/
	Recovery time: not less than 1 h				IN/.
1111	Final measurement : -visual inspection	and the same			N/
1.1.4	Dielectric strength test				N/
	AC Test voltage as per Table 12 for one minute applied between				N/
	For Unexposed fuse-holder		-114		N/
	the terminals				N/
	for functional, basic or supplementary insulation		V		N/
	for reinforced or double insulation		V		N/
	the terminals and the metal mounting or front-panel plate				N/
	for functional, basic or supplementary insulation		V		N/
	for reinforced or double insulation		V		N/
	the terminals and any other metal parts which may be in contact with	********			1.47

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	IEC 60127-	6	
Clause	Requirement + Test	Result - Rema	rk Verdict

	IEC 60127-6		11/
Clause	Requirement + Test	Result - Remark	Verdict
	for functional, basic or supplementary insulation	V	N/A
	for reinforced or double insulation	V	N/A
	the terminals and a metal foil covering the whole of the accessible surface		N//
	for functional, basic or supplementary insulation	V	N/A
	for reinforced or double insulation	V	N/
	No breakdown or flashover shall occur		N/
	For Exposed fuse-holder		N/
	the terminals		N/
	for functional, basic or supplementary insulation	V	N/
	for reinforced or double insulation		N/
	the terminals and the mounting plate		N/
	for functional, basic or supplementary insulation		N/
	for reinforced or double insulation	PER TOTAL ME	N/
	No breakdown or flashover shall occur		N/
	Fuse-holder with a rated voltage of < 125 V are in accordiance with the requirements of Table 12.		N/

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Clause   Requirement + Test		
Clause   Requirement + Test	Result - Remark	Verdict

11.2	TABL	E : Cont	act Resi	stance								D
0 1		1.		2.		3.		4.	5	j	Average	Max.
Sample	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	(mΩ)	mΩ)	$(m\Omega)$	mΩ)	(mΩ)	mΩ)	
4	3.35	4.32	3.34	3.89	3.56	4.76	3.43	4.78	- /	-		(mΩ)
5	3.38	4.42					(4.5)	100000	3.68	4.59	3.94	4.76
			3.49	4.45	3.48	4.82	3.91	4.92	3.67	4.27	4.08	4.82
6 CDOUD	3.29	4.37	4.55	4.72	3.52	4.49	3.27	4.61	3.69	4.69	4.12	4.72

#### **GROUP 2**

## After Compatibility between fuse-holder and fuse-link (12.3)

11.2	TABL	E : Cont	act Resi	stance								D
0 1		1.		2.		3.		4.	5	j.	Average	Max.
Sample	mΩ)	$(m\Omega)$	mΩ)	(mΩ)	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	(mΩ)
4	3.35	4.32	3.38	3.92	4.59	3.96	4.47	4.88	3.68	4.67	-	The same of the sa
5	3.38	4.41	2.52					The second second	3.00	4.07	4.12	4.88
170	3.30	4.41	3.53	4.45	4.68	3.89	4.89	4.49	3.67	4.27	4.17	4.89
6	3.21	4.35	4.58	4.74	4.62	3.69	3.49	4.71	3.99	4.49	4.19	4.74

#### **GROUP 3**

## After Rated power acceptance test including endurance test( 13.1 and 14)

11.2	TABLE	: Contact	Resista	nce.		- Annual Control						P
		1.		2.		3.		4.	5	j.	Average	Max.
Sample	mΩ)	(mΩ)	mΩ)	$(m\Omega)$	mΩ)	(mΩ)	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	(mΩ)
7	5.34	5.47	5.43	5.48	5.56	6.29	5.41	5.58	5.62	5.69	5.59	6.29
8	5.29	6.32	5.55	5.70	5.52	5.49	5.25	5.67	5.39	5.89	5.61	6.32
9	5.37	6.28	5.19	6.44	5.48	5.89	5.94	6.29	5.57	6.39	5.88	6.44

#### **GROUP 5**

#### After Resistance to Vibration (12.8)

11.2	TABLE	: Contac	t Resist	ance.	177.1							P
		1.		2.		3.		4.		5.	Average	Max.
Sample	mΩ)	(mΩ)	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	mΩ)	$(m\Omega)$	ΜΩ)	(mΩ)
13	3.39	4.56	3.42	4.77	3.41	4.61	3.51	4.72	3.57	4.76	4.07	4.77
14	4.36	4.79	3.32	4.44	3.54	4.89	3.95	4.97	3.42	4.56	4.22	4.97
15	3.43	4.36	4.28	4.32	4.62	3.59	3.48	4.64	3.84	4.45	4.10	4.64

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10.3	TABLE: Cle	earances(mm	1)			The state of the s			N/A
	Overvoltage	e category		AST THE	11				N/A
Rated	voltage (V)		Pollu	tion Degree	Type of	insulation			N/A
	onal, basic plementary tion	Reinforced or double insulation	2	3	Basic mm	Functional mm	Supplementary mm	Reinforced/ double mm	Verdict/ Remark
	32	32	0.2	0.8				-	
	63		0.2	0.8		-	-	-	
	125	63	0.5	0.8			-	-	
	250	125	1.5	1.5		- 0115	- 100	-	
		250	3.0	3.0					
Supple	ementary Info	ormation	Consid	ered for Ov	ervoltage	category III		MANAGE STATE	

10.3	TABLE: CI	TABLE: Clearances(mm)									
	Overvoltag	e category		III					Р		
Rated v	oltage (V)		Pollutio	n Degree	Type of	insulation			Р		
Function supplending		Reinforced or double insulation	2	3	Basic	Functional	Supplementary	Reinforced/ double	Verdict/ Remark		
	125		1.5	1.5		22	-	1			
	250	125	3.0	3.0		Bassakee "T		DEVICE LEGISLA			
		250	5.5	5.5			A 100 -	@	P		

16.4 between terminals

10.4	TABLE: Creepag	e distances	(mm)				De la constantina		Va	P		
Rated	Creepage distance Pollution degree											
voltage		3 Material group (mm)			Type of insulation			P				
(V)	Mate											
					(mm)							
		II	IIIa/IIIb	1	П	Illa/IIIb	B*)	S*)	R*)	Verdict		
32	0.53	0.53	0.53	1.3	1.3	1.3						
63	0.63	0.9	1.25	1.6	1.8	2.0						
125	0.75	1.05	1.5	1.9	2.1	2.4						
250	1.25	1.8	2.5	3.2	3.6	4.0			@	P		

B=Basic, S=Supplementary and R=Reinforced @ 8.62 between terminal and accessible nut

16.4 between terminals

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01	Managaratata	Details of Test Equipr		
SI.	Nomenclature	Make	Model/ Type No.	Calibration Validity
01	Digimatic Caliper	Mitutoyo, Japan	CD-6"CSX	03/07/2019
02	AC Power Source	Extech	6730	18/01/2019
03	Test Probe of Ø12mm & Length 80mm	In-house Fabricated		Traceability unscheduled
04	Climatic Chamber	Weiss-Tech	C-340-40	21/11/2018
05	Climatic Chamber	Hot-Pack	1523	02/07/2019
06	Hipot Analyzer	Chroma	19055	09/02/2019
07	Glow Wire Tester	Friborg,	GW1000/4	19/12/2018
08	Adjustable Impact Hammer	Friborg		31/08/2019
09	Digital Multimeter	Rishabh	Rishmulti-18S	02/11/2019
10	Mobile Corder	Yokogawa	MV-230	23/10/2019
11	Temp. Controlled Soldering Iron	ERSA		23/10/2019
12	Torque Meter	Tohnichi	2-OT	21/08/2019
13	Digital Force Gauge	Chattilon	DRC-200N	31/07/2019
14	Needle Flame Burner	In-house		02/11/2019
15	Vibration Test System	Arun Hurley	PA500SM	07/09/2019
16	Dc POWER Supply 10V, 500A	AHR		Traceability unscheduled
17	Impulse Tester	EM Test	VSS500N	23/05/2019
18	Climatic Chamber	Pacific Dynamic	PEDC-3.6-S	10/02/2019

- a) This Test Report pertains to item tested for the parameter(s) mentioned in the test results .
- b) Uncertainty has been taken into consideration while declaring the result of the parameter(s).
- c) The Item meet the requirements of the applicable standard / specification
- d) Any other remarks (if any) :Nil

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TRF No. IEC60127\_6A

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> हरेश के हैं। इस्त ब्रेसिके न्यात कार्यकार, जीवन सं मुख्या कामा निर्देशका

## <u>इम्हर्भ प्रत्यायन</u> <u>OUR ACCREDITATIONS</u>

## राष्ट्रीय NATIONAL - -

- ण राष्ट्रीय प्रतिस्प और व्हेंस्टरीयन प्रयोगन को प्रस्तायन योद्धे (१५००औएस) करेता है. व कहेश्स को / अर्चाई से, 17025: 2003 के समुस्त १८६६१का व्योगहरू ( ) Accardiated Labers (15) under National Accreditation Board for Textus, and Calibration Laboratory (MABL India), separ ISO/ISC 17025: 2005,
- भा जिसेश करें जो के दियों भारतीय आधक स्पूर्ण के द्वार, स्थीरहर प्रयोग शक्ता । रिक्रमुमांटडड़े Eubosalory of Aureus of Entites शिक्षकीर की specific products (स्थितहरू materia, Textinglises, Electronic Realise) ste.
- . भी जो भी आई सी द्वारा ५५% में मोदर के उसेक्षण के लिये उसेक्द प्रयोगकाला ! Approximately subsectory for textury congruency metals by CGIP.
- ः जमनीत्तरः प्रतितिधे विभागः सार् २ भागतः सङ्ग्रीहरूते द्वारा भागीतीत्तकः भशानि के प्रतिसम् के तिथे स्थोप्यतः प्रधानसम्बद्धाः । Apple val leboratory for resimina weighing machine by Veyon most of Constract All'siza-Verigia and Message, New Politic
- ि कंपनी परिष्ठान (एक कार्य) हेर्नु, केपटी जमागत चेलागा के अंतर्गत एस.टो.स्यूक्ती, जिपेशासथ हारा भाग्यक हारा । - Approved by SINCO Diference mothe Secrety Collibration Schome (S. Selluy resting (R Voide)

## अन्तर्राष्ट्रीय PYICRNATIONAE

ा एक तो भी (वेक्सर कम्पूरिकेशन कमोराज) सुएसए हास ई रून के ईं/ हे एन सी प्रीक्ष के शिष् रंगीकृत प्रयोगराजा। Registrated v/1900 (Tedard Committed by Edwards in ), 95A (क EVI) (Edwards)

### <u>Testine / Cultipation Lais</u> Recognised By:

- = SONCAR, SABO for Safety Taxing
- r DG5 & Diffe Equipment Jest<u>ing</u>
- ≠ 95 at Civil Axiation for Calibration

## <u>पर्विध्य/अङ्गंकन प्रधीनसाला</u> <u>नान्यता प्रस्त</u>ः

- न सेनदेष सास्रो (वंनदी उर्दछन हो नेत्र)
- ा जैजीतर एवं जी श्रेषकर परिचय हैं।
- ा १८ विदेशक नारतिक सङ्काम (Salice १५)



फुर्ज 3:0 ° टॉक्सररफ-2:14 | Seer 45.: 135-2014 लारी में.७८, नई-४३५३, ११८, १८,४१५,१२१६,

 $Q_{\rm c}^{\rm tapp}/\sqrt{8}$  RSTTNG: ুট্টাক্ট্রীকলে ও COL/Electrical 70001 ਤੂਜ਼ੇ ਲੀਵਰ ੨ 1572/Elx/Jonies Tl572 Sanch/CALIBRATION: हिन्दुः सुक्रायेहरे. ३: १९१३-५३हिन्स्यक्रियं e± 2000 ត្រីវិទ្ធ នុ ស្លាសស្រីសសង្គ្រប់ការពីត प्रस्कृतिकार्थः, १९९९ एक्ट्राब्लिका १८७६ स्टिट्स 🛂 🖫 🗐 ពីកំពុន នេះ ដែករាសារ។

# प्रदत्त भेवाओं की एक झलक/OUR SERVICES AT GLANCE

## प्रीक्षण संबाधें

### T<u>esting</u> Srrvi<u>ces</u>:

क्रम्योकेल व्हेंडकं (COMPONENT TESTING

- न्ता सुक्तिक (पाई की किंद्रजीय प्रतिकेत करूप रे किएंद्रति)।  $oldsymbol{eta}_{\mathcal{O}_{\mathbf{p}}^{\mathbf{p}} oldsymbol{\omega}_{\mathbf{p}}}$ அர $oldsymbol{\omega}_{\mathbf{p}}^{\mathbf{p}}$   $oldsymbol{\omega}_{\mathbf{p}}^{\mathbf{p}}$   $oldsymbol{\omega}_{\mathbf{p}}^{\mathbf{p}}$   $oldsymbol{\omega}_{\mathbf{p}}^{\mathbf{p}}$   $oldsymbol{\omega}_{\mathbf{p}}^{\mathbf{p}}$
- == क्षीता ५८९ इस की होतो (Pub)t+ (R. C. C. Pubys).
- ना विक्री क्रीसन / Battery क्राविद्य
- न स्थापि के व्यक्ति

 $au_{\mathrm{conf}} = (2\pi / 1) \, \mathrm{Er}(0.777) \, \mathrm{GeV}$ 

- न्ता पुरुष्यो मेहन । केन्द्र, ३ फेल (ﷺ ध्याधकार करोडाइ, 1 फ़ेले
- ≕ा<sub>रिस</sub> इ.सी. इन इन कंपरी3धीध्यक्षतं€GLlampt
- লা ব্যাহৰ মুখ্যমন্ত্ৰ উপন্নত (মুখ্যমত, মু<del>ল্লীহাৰ, প্ৰতি</del>ৰ্ভাৱিকাৰ্ত্ Point Florancies (IPS, Investor, State Read).
- ल । हर्न्य की इसेन्ड्राजेक्स र Constant शिक्तावर्धन
- ना। एक्ट्र केटरेनेन अच्छ प्रभावी देखी किया LT, Profession & Alter Charles
- · बागान्स्पीद विभावनीयण

## analòokatok (\*\* batyyantila

- न्ता <sub>अस्तित्</sub>म् प्रतिकार (२००%) से संस्था हो। सन् १००% (४
- ገ <u>ምራ-</u>ያፈያው በ4700 692**0ር) የ**ዣ 88%
- का उपन्ता सन्दर्भ र ऐक्टम में Wisheldon: Sine के विकासिका
- ৰু (<sub>290</sub>1: 35) উল্লেখ ই 300 নীৰ্নাছৰ (Agency (250))gf to 2000 NgF
- 🛩 ह्युतिहरिक्ती परिश्वमाः बंद व शांध्य दैन्द्र हरायाहि। <u>рын Кү</u>дөн Эмериядерек Талек.

- ना जान क्रुन के कर : कुक्त जाद **अर्थ व मं**त्र सामान ने किए स्वतान <sub>የትበ</sub>ቱ ኤያየያ <u>ታ</u>የቷል ብሽ முத<u>்த நடந்த</u>ை ஒரு வந்திலின் **நடித்து சேற க**ண்டு http://doi.org/1.291.494\
- ई (नुक्र ई/)ई रच के (≥FDDM)2
- ा पुरस्कान नेपाय के सिन्दे एक धीरते नामी भए उद्देशि ទី៥៥៥៩៩៩៩៩៩៩៩៩២២២៩
- লা তেওঁটোড় কমিছল লা লিউ চ<sup>2</sup>ক এক নিজ
- Anechaic Chamber (or Do Pared code disc भा क्षार हुम कुएन हो हिन्दै को बेन बेल पूरी ५२ केंद्र तह
- का Bid : श्रीकृति 342 To for Bid Massus meth त हो है अंदर्भ कुलियों एके प्रकार के देवली अध्यक्त के क्षेत्रक ऐस्टर्केट्ट के टिक्स अध्यक्त FOC रहिन्द को देविये करते नेपटी परंदाय (३४,७%) है।
- লা আছি<u>।</u> ভাৰত যেওঁ মিলেকে ইং বিশ্বসূৰ্বী লাগেৰ
- रा । विक्रियम् हे अमर्तिक उत्तरका (Mathir Copylight कर)
- कुरनाशीवीभिक्षीसम्बद्धाः 📆 🖰 🗝 🚧 🖼
- ना जनमेपूरा सरवार / Сы⊾∨ळाटा "ाव्येध्य≛ः
- ानहोत्ते पाक्तन kau<u>li साम्परित्य</u> Machines & Idea (Altegric) receives
- տ **ազ**ում (<u>հատա</u> է
- क्र<mark>णीत्</mark> हरू व किन्नोत्त ! Сощицера हे देवले क्ष
- का <sub>स्मिन्ने</sub> प्राची, सोमध्य ५७८% अंजन के लिए जन्मकी का ५००% Ţალეკი[დამოდბი მპჩრურიუ BAŽO, 20NGAŠ. 417

#### पिक्कर **उद्य**ाग

#### eevelgamenemE aggistables

=१ । इत्याद क्रिक्टन / प्रतिक्षण सुर्व्यापन की भूतिका Frankling facilities for நாகீய வெய்றனை சி والمعددا وخنيه ولوجو

## <u>असा</u>द्य <u>न</u>्यार

## <u>CALDRAIGON SERVICOS:</u>

- क <sub>जि</sub>ते हुई धेलावल, जिल्लिको न जपीय देव सावता और असे सहस्र अंशोदन के अंच में साम्रोद गत-की की सुनियाल काववर्ध क्ष्मं रह्माको प्रकारकोतिक ए स्थापको सम्प्रताती तिक क्षेत्र कार्यक्र का कार्य के तीन क्या आर्थ करते सामेग्री है। <u> իրաբացիստանան բանիր</u>ական
- का एक भे ही ती (जन्म शुक्षाचिव जोगोलन के पी <u>კუტიი (ენიკ</u>ს შულიცია მაზზელმოი მაანა)
- ন পুতার ধ একজন /০, ৫০৩ শিল্প ন চিম্নাটেইটেই
- का<sub>र स</sub>रकार के स**ामिक ला**न्क क्रियमतक पाईट शहरी (Primary Engine Biss Temperatures) Fixed Point CAT)
- का दहरत को प्राथमिक संवर्भ (55 वेट देखक) देख (5 कम−16) करो <del>्राह्मके</del>का का अभी है हैं है Private Standard for Protocol (Range : 3 Per - 1980) ным-жызжым-18.150 **т**огд

- प्रकृतिक हुन्ते / हो की, करेब, शेल्डे ६ आहेंदै और पटन / पान्दी। յեր են են թում <u>Զանգիրը։ Մվարդ Մարեսկ Բ</u>ագանի ेश्यां के <mark>विकास (श्रीकार</mark>)
- ° अंतिकंदर अंतिकः, अन्ये संन्युतिक∕ गरेकः अन्यि <del>நிதும்ச</del> / இரு வர செய்யார்க, நொ செல்வம் / File septe օկգերությու
- ना अने पुत्र की नामें के देखें <u>कि शिल्</u>य के दे
- या जन एक जनसङ्घ ४० ग्रेमा स्थि AF Calibration 1946 40 State
- : एक्क्क्क् **इंग्रह**, यक्त क्रड<sup>6</sup>श्च Теарытары, Ртускую, Манасий Distreaction.

#### म्राज सेवार्थे / O [[संद्रात स्टार-YICE&

अउंक्षे सम्मा / म (क:र्द्धार्थक सीमार्कस्य एउँगालः 🗸 प्रधानस्यक्षः विकासक् वेद हिन्सुईन प्रमाननः 🗸 Web Design Contribution ब्रावेक्टर (सारकार्यक क्षेत्रक अंग्रेक्टरी प्रमुख्यक र आहेरी) அர்) இவிக்கும் (Colophera Asing, Calibration, 化熔入口能区