



SIRIM QAS International Sdn. Bhd. (Company No.: 410334-X)
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TEST REPORT

REPORT NO.: 2016EEA0774

PAGE : 1 OF 20

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Applicant : DELAB SCIENTIFIC SDN BHD
NO. 20-22, JALAN TEMBAGA SD 5/2D,
BANDAR SRI DAMANSARA,
52200 KUALA LUMPUR, MALAYSIA.

Manufacturer : - SAME AS ABOVE -

Product : COMBINED OVER CURRENT / EARTH FAULT RELAY

Reference Standard / Method of test : IEC 60529 (Edition 2.1): 2001

Description of sample : Brand : DELAB
Model : Refer page 2
Type : Refer page 2
Dimension : Depth : 45 mm
Width : 99.20 mm
Height : 99.20 mm
IP Rating : IP 54

Date received of complete application : 15 AUGUST 2016

Job no. / Ref. no. : J20161420726

Overall test results : **COMPLIED (See page 3 for details)**

Issued date : 15 SEPTEMBER 2016

Approved Signatories


.....
(EFFAHAKAL BIN MD. MAHMUDI)
Testing Executive



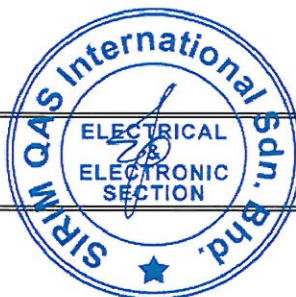

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(M. ZAMRI BIN MUSTAFFA)
Head
Electrical & Electronic Section 1
Testing Services Department

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SUMMARY OF TESTS:

1. This is a type test report.
2. All tests were carried out at ambient temperature of 25 ± 10 °C and relative humidity of 50 ± 25 %, unless otherwise specified.
3. The submitted sample was subjected to test in accordance with the requirement for IP 54 as the designated IP numbers of that sample.
4. It should be noted that the standard IEC 60529 applies to the classification of degrees of protection provided by enclosure for electrical equipment with a rated voltage not exceeding 72.5kV.
5. The submitted test sample was called 'Combined Over Current / Earth Fault Relay'. The tests were carried out to check and prove the IP classification provided by this product. However, the present of any component and accessories (**if any**), were to facilitate the testing and evaluation process. This is to take into account that in normal or actual application, the components and accessories will be fixed to the test sample.
6. Additional models with same casing design and dimension as declared by the applicant were described as follows;

No	Model	Type	Comment
1	DP-34	IDMT	Tested model
2	DP-10	-	Verification on additional model
3	DP-21	DTL	Verification on additional model
4	DP-23	1 LTI Inverse + 1 Definite Time Delay	Verification on additional model
5	DP-31	IDMT	Verification on additional model
6	DP-33	IDMT	Verification on additional model



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7. The abbreviation used in this test report denotes as follows;

Pass: Complied with the requirement

Fail: Did not comply with the requirement

NA: Not applicable with the requirement

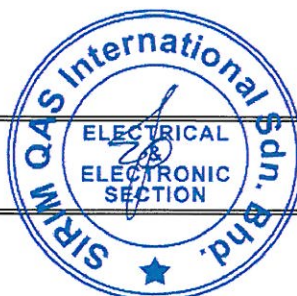
NC: Not conducted

SUMMARY OF RESULT(S):

The submitted test samples as described in this test report complied with the requirement of those test conducted.

ADDITIONAL INFORMATION(S);

1. Tested by: Effahaikal Bin Md Mahmudi
2. Checked by: Nurul Akmal Binti Mohamed Izhar
3. Date of test sample(s) received;
 - a) 1st submission: 15 AUGUST 2016



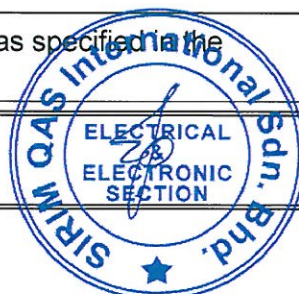
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IEC 60529: 2001

Clause	Requirement - Test	Result-Remark	Verdict
10	Marking		NA

11	General Requirement for Tests		
11.1	Atmospheric conditions for water or dust tests		
	The tests should be carried out under the atmospheric conditions as follows;		
	Temperature range: 15°C to 35°C	26°C	Pass
	Relative humidity: 25 % to 75 %.	62 %	Pass
11.2	Test sample		
	The test samples for each test shall be in clean and new condition with all parts in place and mounted in the manner stated by the manufacturer.		Pass
	If impracticable to test in complete equipment, representative parts or smaller equipment having the same full-scale design shall be tested.		NA
11.3	Application of test requirements and interpretation of test results		Pass
11.4	Combination of test conditions for the 1 st characteristic numeral. Tests for protection against:		
	Protection against access to hazardous parts.	See Clause 12	Pass
	Protection against solid foreign objects.	See Clause 13	Pass
11.5	Requirement for test on empty enclosure		
	If enclosure is tested without equipment inside, manufacturer shall indicate which parts might be affected by test condition of 1 st characteristic numeral.		Pass

12	Test For Protection Against Access To Hazardous Parts Indicated By The 1st Characteristic Numeral		
12.1	Access probe		
	Access probes to test are as specified in the standard.	Test wire Ø 1.0 mm	Pass



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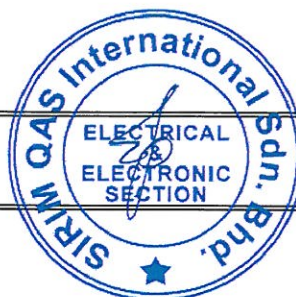
IEC 60529: 2001			
Clause	Requirement - Test	Result-Remark	Verdict
12.2	Test conditions		
	Access probe is pushed against or inserted through any openings of the enclosure with a specified force.	1 N \pm 10%	Pass
12.3	Acceptance conditions		
	Adequate clearance is kept between the access probe and hazardous parts.	Access probe not touch hazardous live part	Pass
12.3.1	Low-voltage equipment (rated voltage <1000VAC and 1500 VDC)		
	Access probe shall not touch hazardous live parts. If the test using a signal circuit, the lamp shall not light.		Pass
12.3.2	High-voltage equipment (rated voltage > 1000VAC and 1500 VDC)		
	When the access probe is placed in the most unfavourable positions, the equipment shall withstand the dielectric test as specified in the relevant product standard.		NA
12.3.3	Equipment with hazardous mechanical parts		
	Access probe shall not touch hazardous live parts. If the test using a signal circuit, the lamp shall not light.		NA

13	Test For Protection Against Solid Foreign Objects Indicated By The 1st Characteristic Numeral		
13.1	Test means		
	Test means and main test conditions as specified in the standard.	Dust chamber	Pass
13.2	Test conditions for 1 st characteristic numerals 1, 2, 3 & 4		
	Object probe is pushed against any openings of the enclosure with a specified force.		NA

		
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IEC 60529: 2001			
Clause	Requirement - Test	Result-Remark	Verdict
13.3	Acceptance conditions for 1 st characteristic numerals 1, 2, 3 & 4		
	The protection is satisfactory if the full diameter of the probe does not pass through any opening.		NA
13.4	Dust test for 1 st characteristic numeral 5 or 6		
	Test is made using a dust chamber as specified in the standard.		Pass
13.5	Special conditions for 1 st characteristic numeral 5		
13.5.1	Test conditions for 1 st characteristic numeral 5		
	Enclosure shall be of category 1 or 2 as specified in the standard.	Category 2	Pass
13.5.2	Acceptance conditions for 1 st characteristic numerals 5		
	The protection is satisfactory if; a) talcum powder not accumulated in a quantity/location such that it could interfere with correct operation/impair safety. b) no dust shall deposit where it could lead to tracking along the creepage distances.	No dust visible in the enclosure.	Pass
13.6	Special conditions for 1 st characteristic numeral 6		
13.6.1	Test conditions for 1 st characteristic numeral 6		
	Enclosure shall be of category 1 as specify in the standard.		NA
13.6.2	Acceptance conditions for 1 st characteristic numerals 6		
	The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.		NA



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IEC 60529: 2001			
Clause	Requirement - Test	Result-Remark	Verdict
14	Test For Protection Against Water Indicated By The 2nd Characteristic Numeral		
14.1	Test means		
	Test means and main test conditions as specified in the standard.		Pass
14.2	Test conditions		
	Tests are conducted with fresh water.		Pass
14.2.1	Test for 2 nd numeral characteristic numeral 1 with drip box		
	Test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure. Enclosure is placed on the turntable.		NA
14.2.2	Test for 2 nd numeral characteristic numeral 2 with drip box		
	Test is made with a device which produces a uniform flow of water drops over the whole area of the enclosure. Enclosure is tilted at 15° at 4 fixed positions.		NA
14.2.3	Test for 2 nd numeral characteristic numeral 3 with oscillating tube or spray nozzle		
	Test is made by using oscillating tube as specified in standard. Spray ± 60° from vertical.		NA
	Test is made by using spray nozzle as specified in standard. Spray ± 60° from vertical.		NA
14.2.4	Test for 2 nd numeral characteristic numeral 4 with oscillating tube or spray nozzle		
	Test is made by using oscillating tube as specified in standard. Spray ± 180° from vertical.		NA
	Test is made by using spray nozzle as specified in standard. Spray ± 180° from vertical.	See Table 1	Pass



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IEC 60529: 2001			
Clause	Requirement - Test	Result-Remark	Verdict
14.2.5	Test for 2 nd numeral characteristic numeral 5; with the 6.3 mm nozzle		
	Test is made by spraying the enclosure from all practicable direction with a stream of water from a test nozzle as specified in the standard.		NA
14.2.6	Test for 2 nd numeral characteristic numeral 6; with the 12.5 mm nozzle		
	Test is made by spraying the enclosure from all practicable direction with a stream of water from a test nozzle as specified in the standard.		NA
14.2.7	Test for 2 nd numeral characteristic numeral 7; temporary immersion between 0.15 m and 1 m		
	Test is made by completely immersing the enclosure in water.		NA
14.2.8	Test for 2 nd numeral characteristic numeral 8; continuous immersion subject to agreement		
	Test is made by completely immersing the enclosure in water. Test is subject to agreement between manufacturer and user.		NA
14.3	Acceptance conditions		
	The enclosure shall be inspected for ingress of water.	See Table 1	Pass

15	Test for protection against access to hazardous parts indicated by the additional letter	NA
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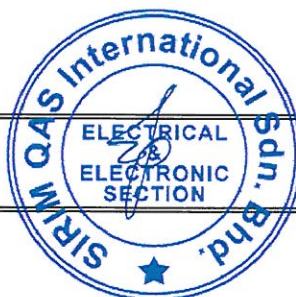


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TABLE 1: ACCEPTANCE CONDITIONS

1) For 2nd Characteristic Numerals - Degree of protection against ingress of water.

No.	By inspection	Result-Remark	Verdict
1	Appliance has the ventilation opening.	No	—
2	Appliance has the drain-holes.	No	—
3	If it has drain-holes; any water which enters does not accumulate and that it drains away without doing any harm to the appliance.		NA
4	Ingress of water	Small amount of water visible in the enclosure. Functionality test was conducted by energized the test samples. The test sample operates as normal condition.	Pass
5	If water has entered, it shall not;		
a)	Interfere with the correct operation of the appliance or impair the safety.		Pass
b)	Deposit on insulation parts which could lead to tracking along the creepage distances.		Pass
c)	Reach live parts or windings not designed to operate when wet.		Pass
d)	Accumulate near the cable end / enter the cable.		Pass

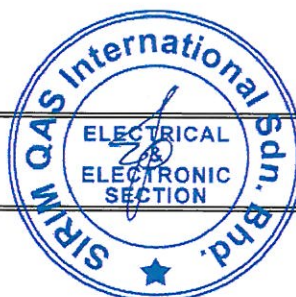


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2) Dielectric strength test, if any

No.	For low voltage electrical appliance, high voltage test applied between;	Result-Remark	Verdict
1	Live parts and accessible parts separated by;		
a)	Basic insulation		
	Test voltage		—
	No breakdown shall occur		NA
b)	Reinforced insulation		
	Test voltage		—
	No breakdown shall occur		NA
2	Accessible parts and supply cord wrapped with metal foil.		
	Test voltage		—
	No breakdown shall occur		NA
3	Metal foil on knobs / handles / grips and their shaft.		
	Test voltage		—
	No breakdown shall occur		NA

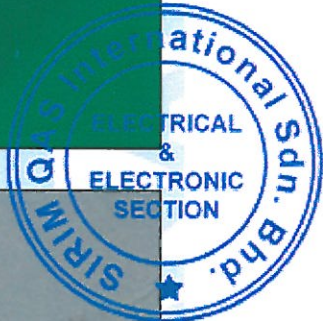


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PHOTOGRAPHS OF TEST SAMPLE

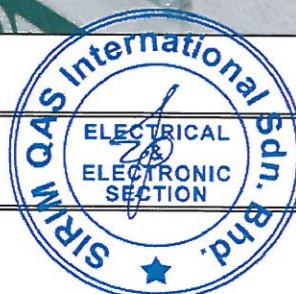
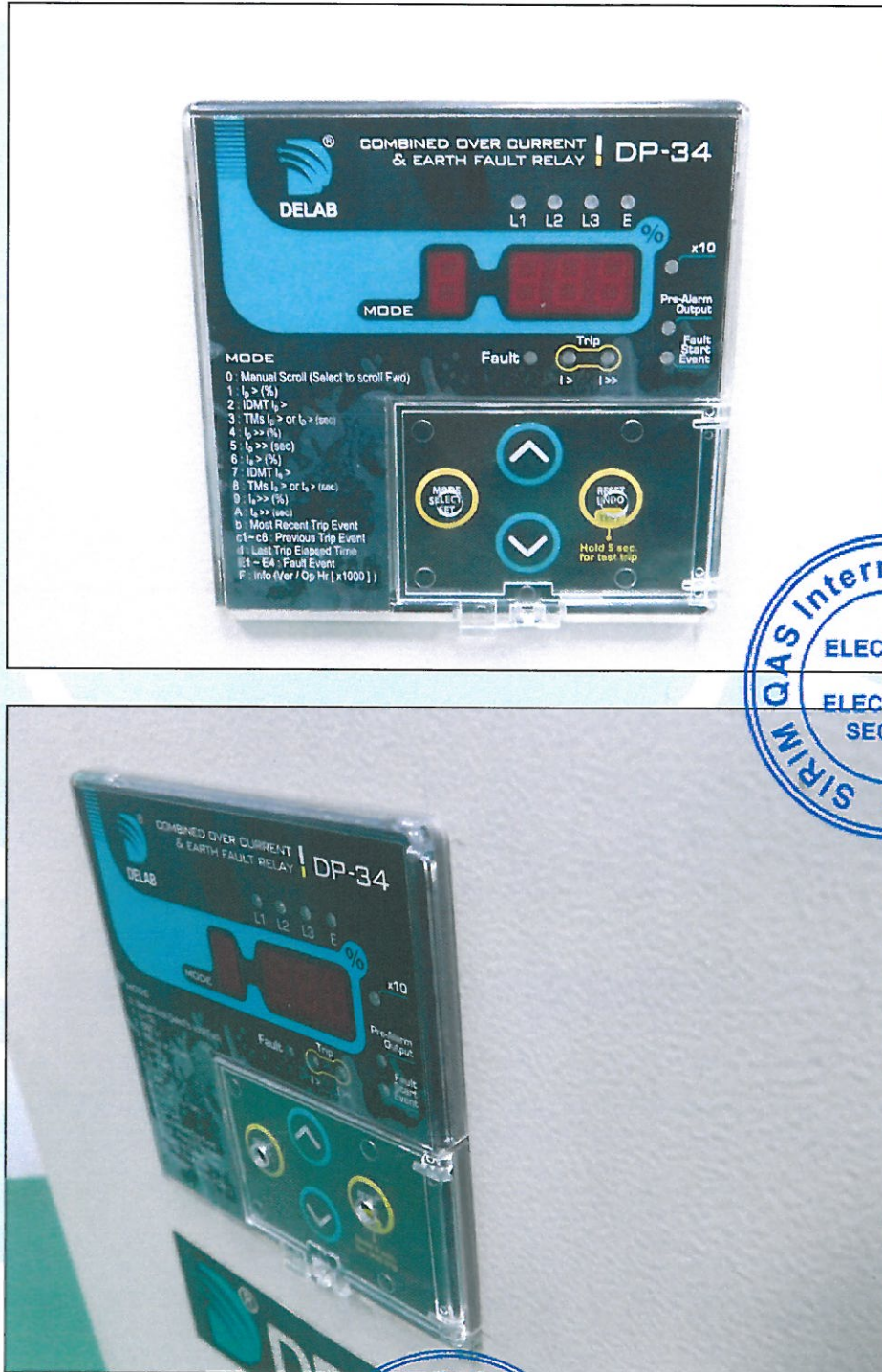


The enclosure were used to facilitate the testing and evaluation process



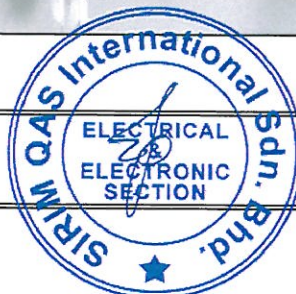
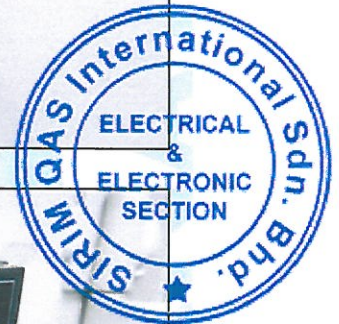
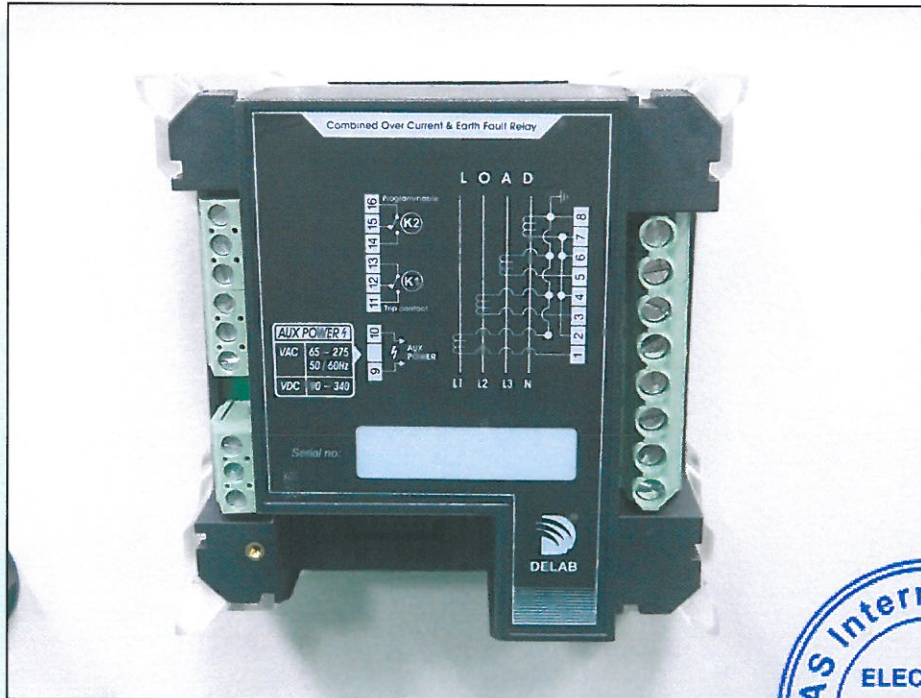
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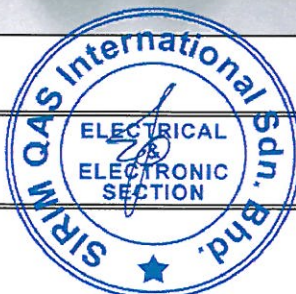
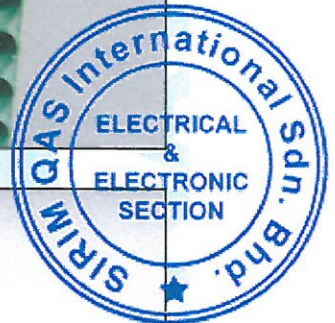
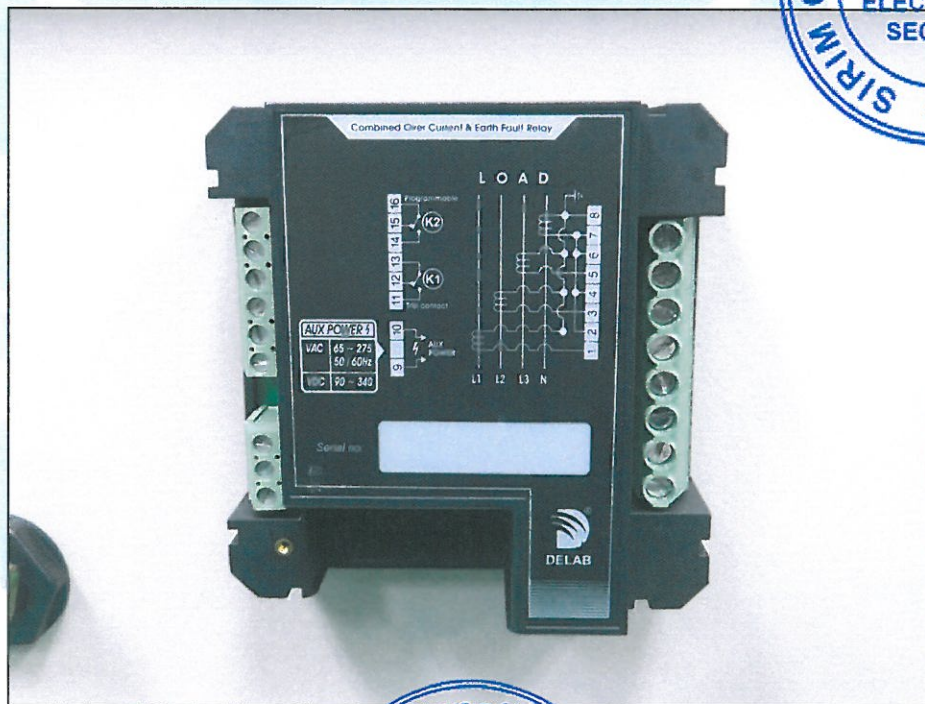
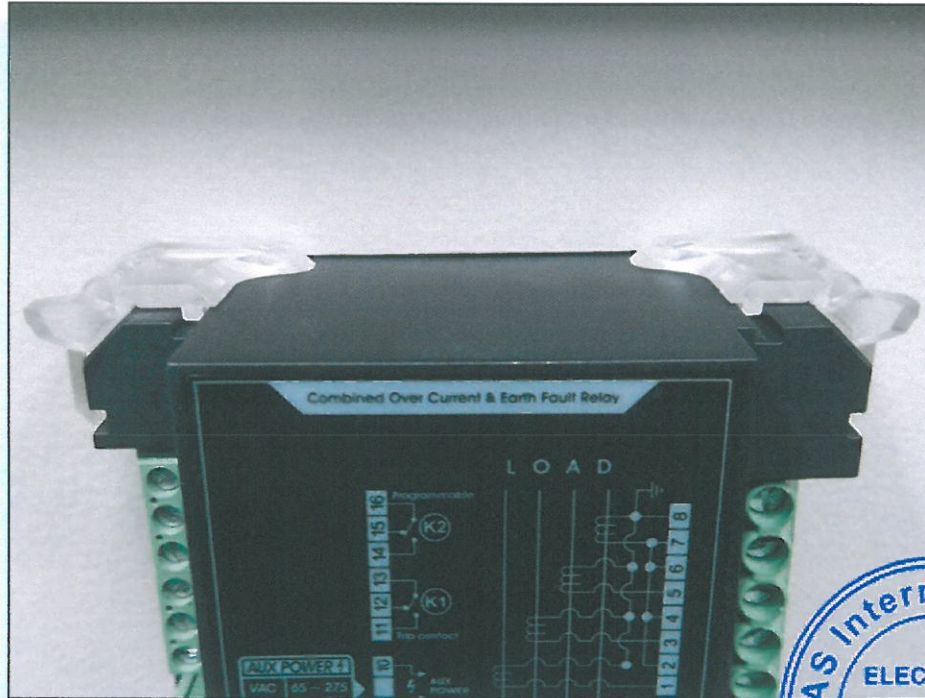
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PHOTOGRAPHS OF TEST SAMPLE



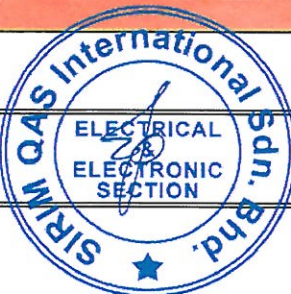
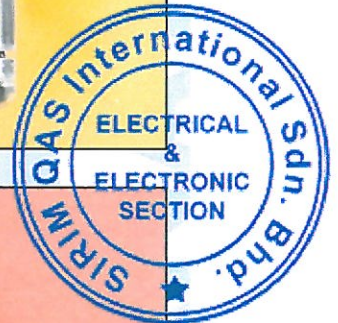
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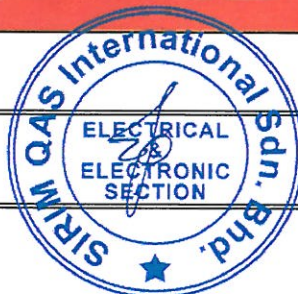
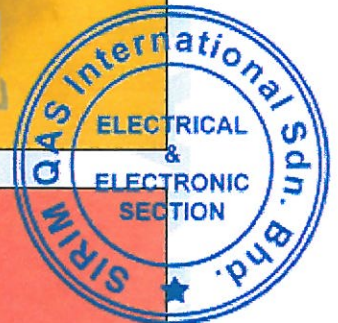
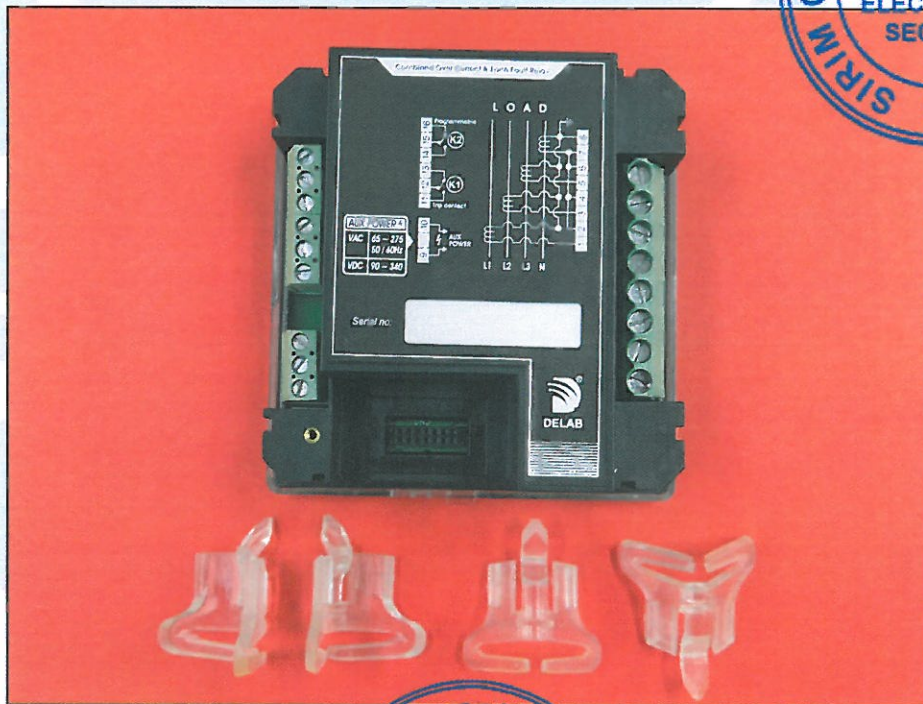
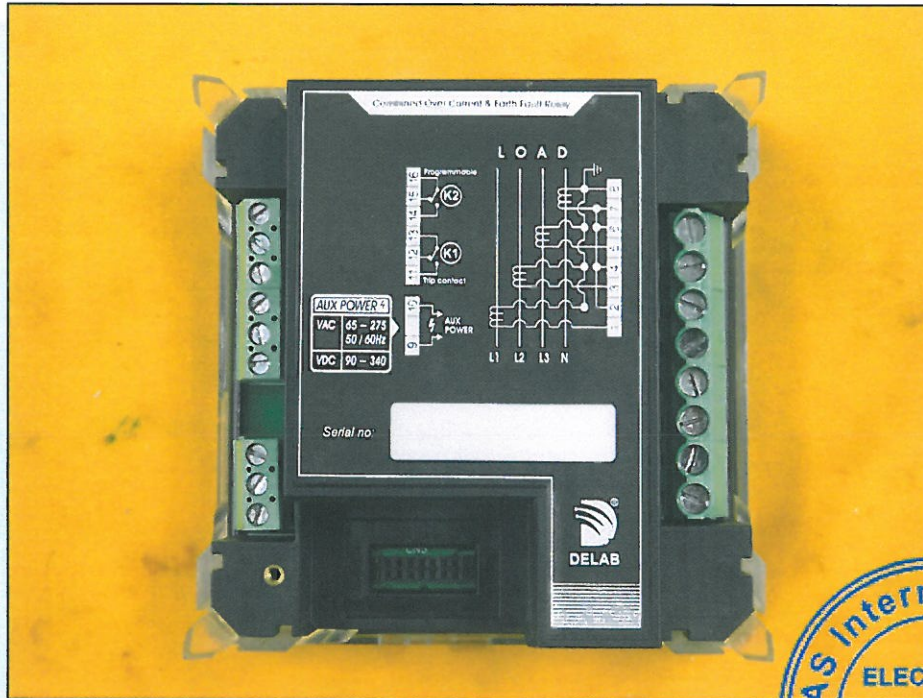
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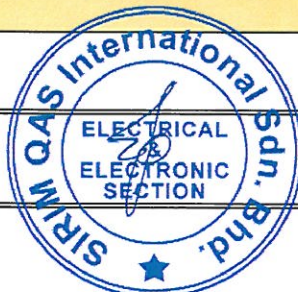
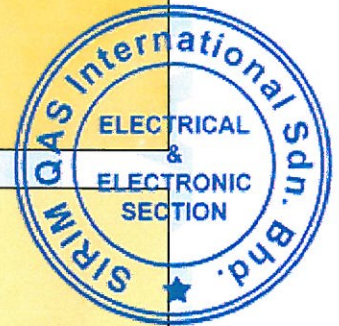
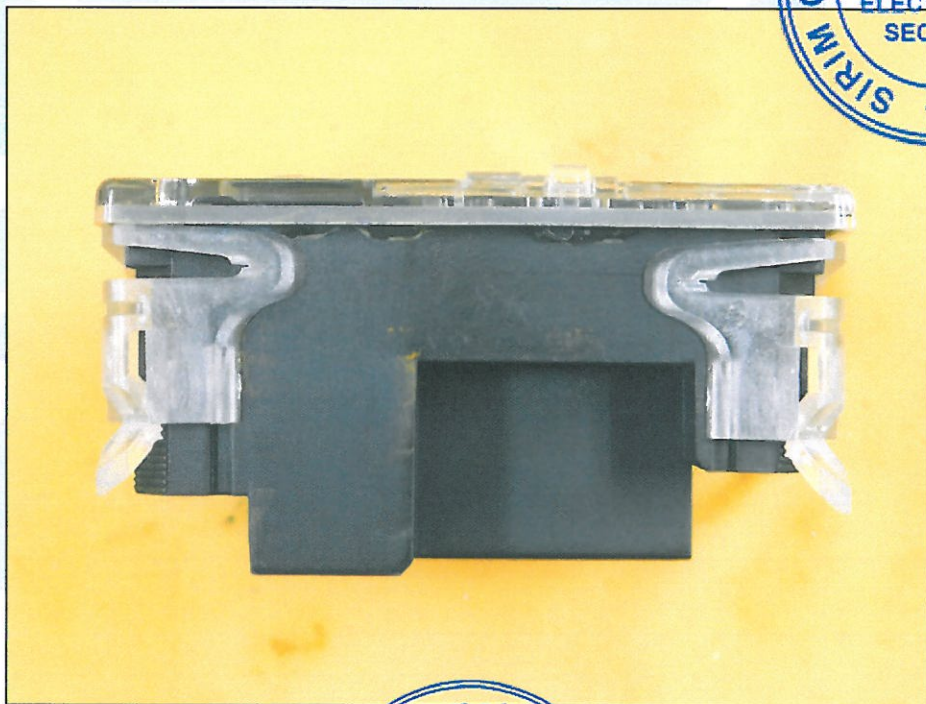
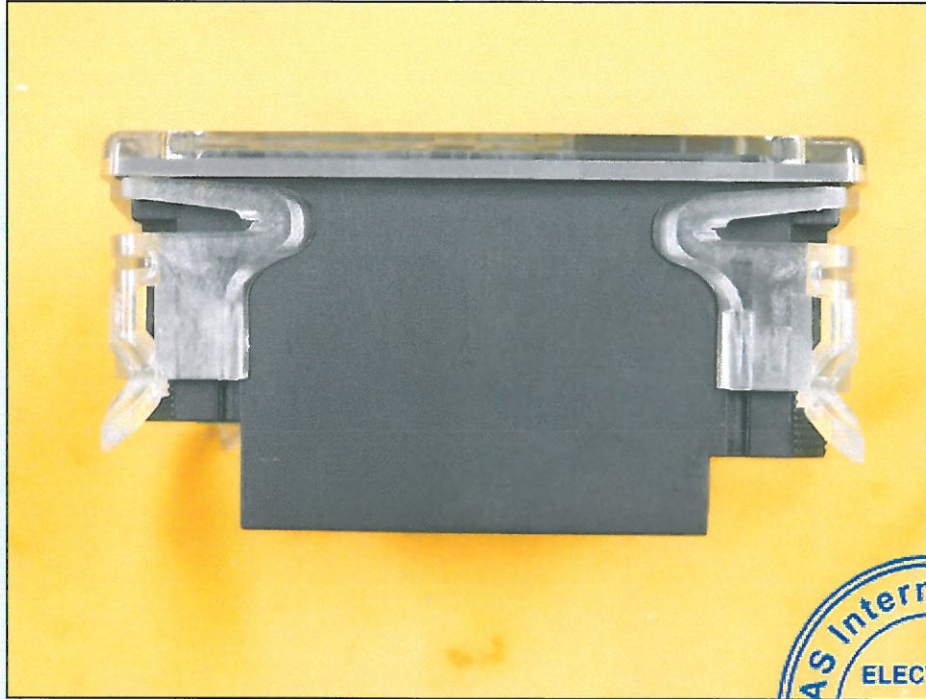
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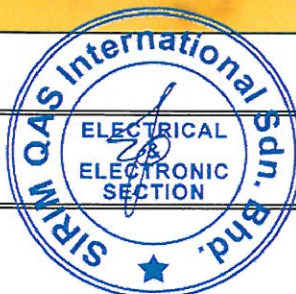
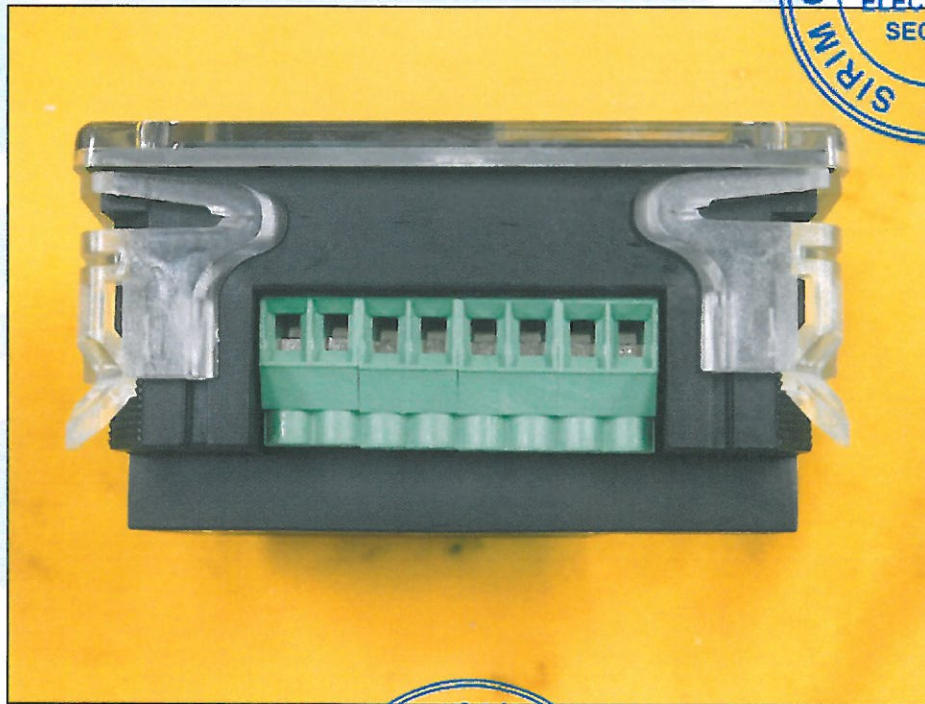
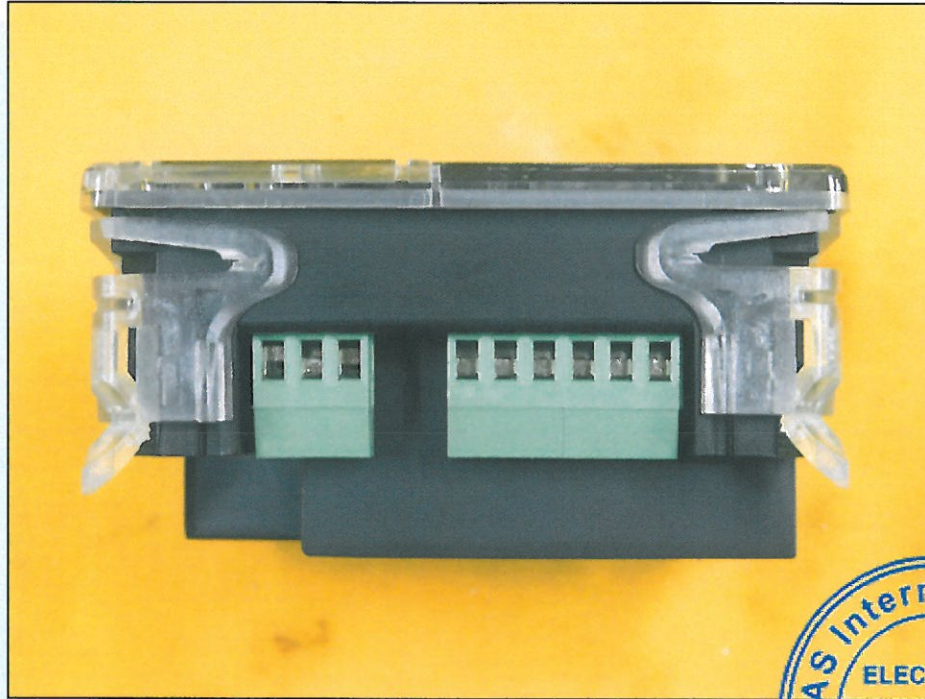
PHOTOGRAPHS OF TEST SAMPLE



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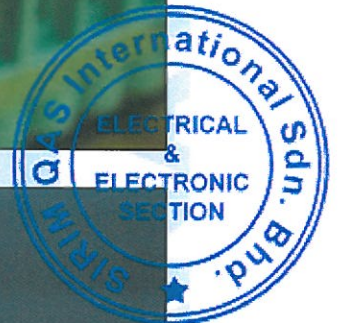
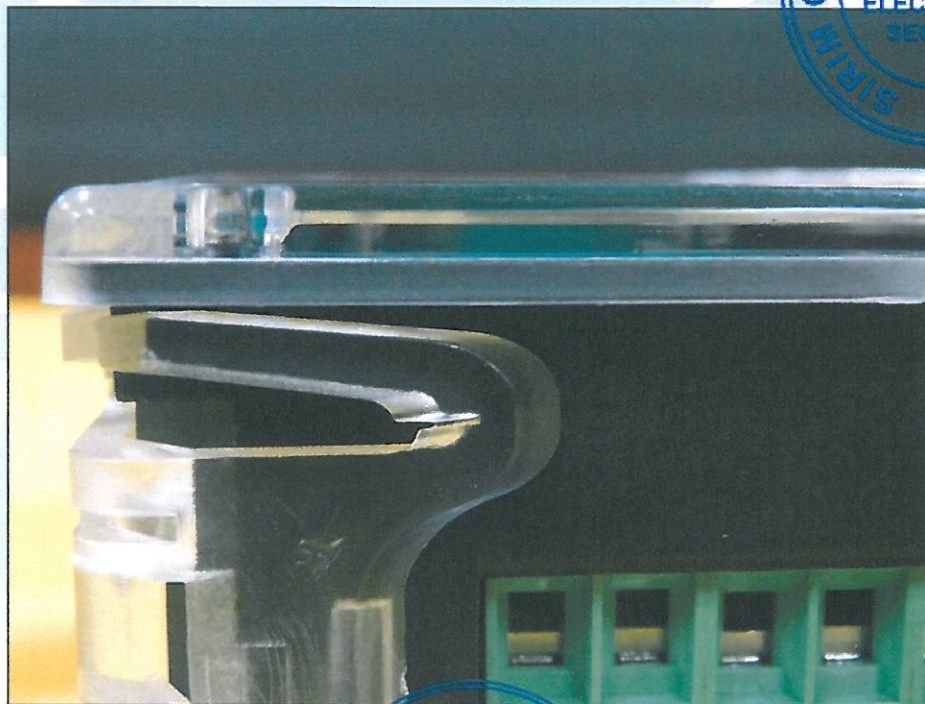
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PHOTOGRAPHS OF TEST SAMPLE



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PHOTOGRAPH OF TEST SAMPLE



CONDITIONS RELATING TO THE USE OF SIRIM QAS INTERNATIONAL TEST REPORT

1. A Test Report will be issued in respect of Testing Services conducted and shall relate only to the Sample actually tested. SIRIM QAS International makes no warranty whatsoever and the Applicant shall not represent in any manner that any duplication or mass production of the Product is same as the Sample actually tested or that SIRIM QAS International has tested any of the duplicated or mass produced Product.
2. The Test Report shall not be amended, changed, varied or modified in any manner whatsoever by the Applicant or otherwise.
3. If the Test Report is to be furnished to any third party or to the public, each such Test Report shall be furnished in full, legible and in its entirety.
4. The Test Report shall not be reproduced and shall not in any event be used for any advertising purposes or whatsoever without written approval from the Managing Director of SIRIM QAS International of No 1, Persiaran Dato Menteri, Building 8, Section 2, P.O. Box 7035, 40700 Shah Alam, Selangor Darul Ehsan.
5. Customer (Applicant/Manufacture/Factory, etc.) is not permitted to use any SIRIM QAS International, SIRIM or other SIRIM's subsidiaries logo or words on packaging, sample's manual, technical specification, brochures/flyers or any other means without the prior written approval from the Managing Director of SIRIM QAS International.
6. If such approval is obtained from the Managing Director of SIRIM QAS International, the Applicant may only include the phrase, "A sample of this product has been tested by SIRIM QAS International ... (Test Report No) ... (dated) (for what test) ... (to which standard)" or such similar words which stress that only the Sample was actually tested. This phrase shall only be used for the purpose of product advertisement or product promotion (eg; brochures). For avoidance of doubt, the statement shall not be used on the sample and packaging of the sample.
7. In the event there is an investigation from a Government Regulatory Agency concerning the Applicant's Test Report, SIRIM QAS International may disclose the information pertaining to the Test Report for purposes of such investigation.
8. Further or in the alternative, it is strictly forbidden unless with prior written approval from the Managing Director of SIRIM QAS International, to represent in any manner whatsoever that SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries has endorsed, approved or validated the Product of the Applicant in any manner whatsoever.
9. In the event the Applicant is found in breach of this provision, SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries without prejudice to any other rights and remedies may take whatever action necessary including but not limited to:
 - a) Informing and placing a notice in the media;
 - b) Obtaining an injunction from Court (cost on a solicitor-client basis to be borne by the Applicant);
 - c) Refusing to accept any further Product for Testing Services from the Applicant or whosoever related to the Applicant, whether subsidiary or otherwise;
 - d) Instructing the Applicant to withdraw and recall the advertisement, statement or document in question and advertise a clarification and apology to SIRIM QAS International, SIRIM and/or other SIRIM's subsidiaries twice in a national publication of SIRIM QAS International's choice at the Applicant's sole cost; and
 - e) Informing or lodging a report pertaining the Applicant's Test Report with the relevant authorities.
10. Certified true copies of the Test Report may be issued upon request by the Applicant upon payment of the relevant fee.
11. Corrections to test report shall only be allowed within 6 months from issuance date of the test report and shall be limited to maximum 3 times, after either case whichever occurs earlier, a new test report shall be issued and replace the previous one (having error(s) or lack of information). Issuance of Supplementary Report to the original Test Report shall be for the followings;
 - a) Misprints and typo errors
 - b) Missing technical information
 - c) Test data not reported
 - d) Mistake in reporting of test data