



**한국전기안전공사
안전인증센터**

KESCO Safety Test Center
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**시험 성적서
TEST REPORT**

성적서 번호: STC-B09-307
(Report No.)

페이지(Page of) : (1)/(총 6)



1. 신청자 :

Customer

☐ 기 관 명 : 건흥전기(주)
Name

☐ 주 소 : 서울 동대문구 장안동 113-4
Address

☐ 의뢰일자 : 2009. 10. 06
Date of Receipt

2. 시험성적서 용도 : 품질관리용
Use of Test Report

3. 시험대상품목 : 리미트스위치
Product(s)

☐ 모델명 : KLCA2
Type Designation(s)

☐ 제조번호 : Not applicable
Serial No(s).

4. 시험기간 : 2009. 10. 12 ~ 2009. 10. 13
Date(s) of performance of test

5. 시험항목/방법 : IEC 60529: 2001 / IP67
Test Item(s)/Method(s)

6. 시험환경

Test Environment

☐ 온 도 : (22 ± 1) °C
Temperature

☐ 상대습도 : (50 ± 5) % R. H.
Relative Humidity

7. 시험결과 : 적합
Test Result Pass

확 인
Conformation

작성자
Tested by

성명 오 정 훈 (서명)
Name J. H. Oh Signature

승인자

Approved by

성명 김 용 혁 (서명)
Name Y. H. Kim Signature

직책: 기술책임자
Position

2009. 10. 13

한국전기안전공사 안전인증센터장

The head of Korea Electrical Safety Corporation Safety Test Center

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This is certified that the above mentioned products have been tested for the sample provided by customer and forbid the use except for original purpose.

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TEST DATA

IEC 60529: 2001



Safety Test Center

Report No.: STC-B09-307
Page No.: 2 / 6

Customer: 건흥전기
Product: 리미트스위치
Model: KLCA2

1. 시험 환경 (Test Environment)

- 온도 (Temperature): $(22 \pm 1) ^\circ\text{C}$, 습도 (Relative Humidity): $(50 \pm 5) \% \text{ R. H.}$
- 시험장소 (Location): Dust Chamber, IP 주수 시험장(IP Water Test Lab.)

2. 시험에 사용된 장비 명세 (List of Used Equipment)

장비번호 Equipment	사용장비명 Description	제조회사 Manufacturer	형식 Model	제조번호 Serial No.	교정유효일자 Calibration Valid Until
A-74-01	Dust Chamber	PTL	P14	5040172	2010. 07. 08
B-01-01	Stop Watch	Time Art	PC-80A	TPST002	2009. 11. 05
B-03-02	Vernier Calipers	MITUTOYO	DIGMATIC	88297	2009. 11. 05
B-03-03	Tape Measure	HIBO	-	-	2010. 05. 27

3. 시험일자 (Test Date)

Date of receipt of test item.....:	2009. 10. 06
Date(s) of performance test.....:	2009. 10. 12 ~ 2009. 10. 13

4. 시험 조건 (Test Condition): IP67

5. 시험 결과 (Test Result): Pass

1) Dust Test

Test results for dust protection (first characteristic numeral 6)

Description of test:

1. Degree of protection.

No ingress of dust

2. Category for enclosure;

☒ Category 1

☐ Category 2

☐ Category 1 and Category 2

3. Testing method:

- The talcum powder used shall be able to pass through a square-meshed sieve the nominal wire diameter of which is $50 \mu\text{m}$ and the nominal width between wires was $75 \mu\text{m}$
- The amount of talcum powder was 2 kg per cubic meter of the chamber volume.
- The amount of talcum powder to be used is 2 kg per cubic metre of the test chamber volume.

Category 1

☐ If an extraction rate of 40 to 60 volumes per hour is obtained the duration of the test is 2 h

☒ If, with a maximum depression of 2 kPa (20 mbar), the extraction rate is less than 40

TEST DATA

IEC 60529: 2001



Safety Test Center

Report No.: STC-B09-307

Page No.: 3 / 6

Customer: 건흥전기

Product: 리미트스위치

Model: KLCA2

volumes per hour, the test is continued until 80 volumes have been drawn through, or a period of 8 h has elapsed.

4. Test condition

The enclosure shall be deemed category 1 whether reductions in pressure below the atmospheric pressure are present or not.

5. Acceptance conditions

The protection is satisfactory if no deposit of dust is observable inside the enclosure at the end of the test.

6. Test result: Pass

2) Water Test

Test results for water protection (second characteristic numeral 7)

Description of test

1. Degree of protection.

Ingress of water in quantities causing harmful effects shall not be possible when the enclosure is temporarily immersed in water under standardized conditions of pressure and time

2. Testing method:

☒ Enclosure height: 40 mm

A) The lowest point of enclosures with a height less than 850 mm is located 1 000 mm below the surface of the water.

B) The highest point of enclosures with a height equal to or greater than 850 mm is located 150 mm below the surface of the water.

Duration of the test is 30 min

The water temperature does not differ from that of the equipment by more than 5 K.

3. Acceptance conditions:

Dielectric strength test: N/A

It shall not;

- be sufficient to interfere with the correct operation of the equipment for impair safety;
- deposit on insulation parts where it could lead to tracking along the creepage distances;
- reach live parts or windings not designed to operate when wet;
- accumulate near the cable end or enter the cable if any.

4. Test result: Pass

Photo Documentation

Report No.: STC-B09-307

Page No.: 4 / 6

Customer: 건흥전기

Product: 리미트스위치

Model: KLCA2



[Specimen]

1. Test Condition (IP Test)

- Test Date: 2009. 10. 12 ~ 2009. 10. 13
- IP Code: IP67
 - 1) Dust test for first characteristic numeral 6
 - Depression: 20 mbar
 - Duration of time: 8 h
 - 2) Water test for second characteristic numeral 7
 - Duration of time: 30 min

2. Applicant & Model

- 건흥전기 / 리미트스위치 (KLCA2)

3. Test Equipment

- A-74-01, A-75-04, B-01-01, B-03-02, B-03-03

Photo Documentation

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Report No.: STC-B09-307
Page No.: 5 / 6

Customer: 건흥전기
Product: 리미트스위치
Model: KLCA2

4. Test Figure

1) Dust Test



[Before Test]



[After Test]

Photo Documentation

KECO
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Report No.: STC-B09-307

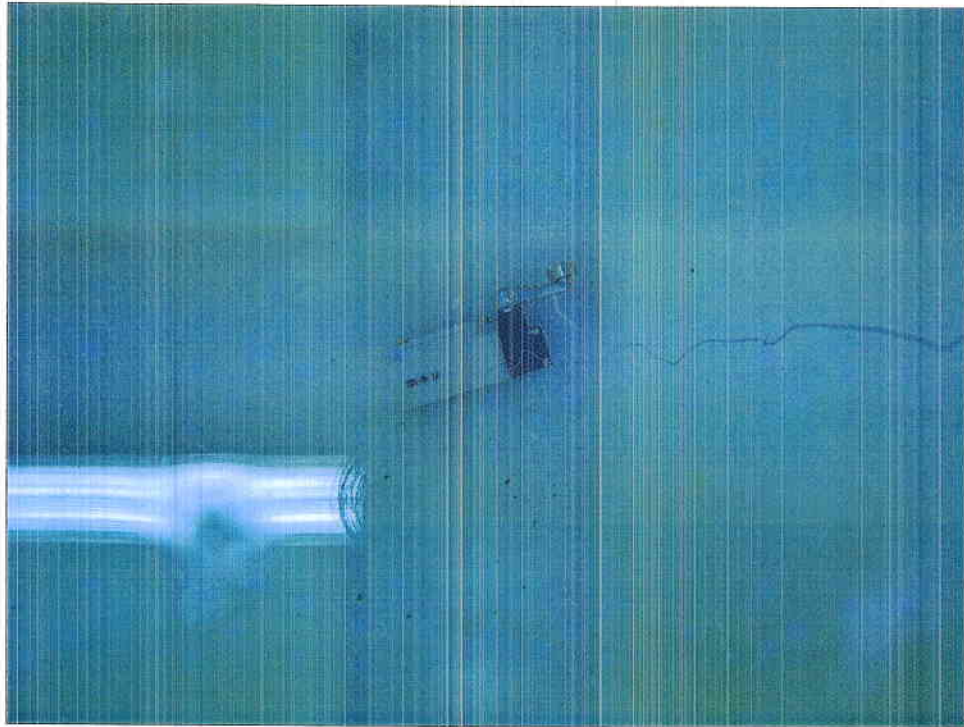
Page No.: 6 / 6

Customer: 건흥전기

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Model: KLCA2

2) Water Test



[During Test]