



## TEST REPORT

2018TS01015

1/9

CLASSIFICATION Performance Test

TEST OBJECT Recloser control box

DESIGNATION EVRC2A-NT  
AC 1 A AC 4 V Aux. power : AC 220 V

RECEIPT No. TRD17S02958

APPLICANT ENTEC Electric & Electronic Co., Ltd.  
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MANUFACTURER ENTEC Electric & Electronic Co., Ltd.  
255-38 Choerubaek-ro, Bongdam-eup, Hwaseong-si, Gyeonggi-do

DATE OF TESTS 2018-02-05 ~ 2018-02-12

DATE OF ISSUE 2018-05-17

The tests have been carried out strictly in accordance with IEC 62271-111:2012-09, subclauses 6.111.2(Oscillatory and fast transient surge tests). The test object has complied with the relevant requirements.

This Test Report has been issued by KERI.

The test results are shown in the records of tests with the performance of the test object and the observations made during the tests.

The Test Report applies only to the test object. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

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TOTAL No. OF PAGES(9) : records (7), photographs (2), circuit diagrams (0),  
drawings & descriptions (0), attachments(0), oscillograms (0)



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ENTEC Electric &amp; Electronic Co., Ltd.

Drawings : N.A.



**Recloser Control Box**

Applied standard

IEC 62271-111:2012-09

Manufacturer

ENTEC Electric &amp; Electronic Co., Ltd.

Designation

EVRC2A-NT

Serial No.

18010001

Date of manufacture

2018-01

**Ratings of the test object assigned by manufacturer and proved by tests : N.A.****Ratings of the test object assigned by manufacturer :**

CT circuit

AC 1 A, 4 circuit

PT circuit

AC 4 V, 6 circuits

DI circuit

4 circuits

DO circuit

3 circuits

Communication circuit

RS-232C

2 circuit

RS-485

1 circuit

Ethernet

1 circuit

Aux. power

AC 220 V



**List of the tests**

Test items	Standard and clauses	Test date	Sheet No.
1 Control electronic elements surge withstand capability(SWC) tests	IEC 62271-111:2012-09, 6.111	-	5/9
1.1 Oscillatory and fast transient surge tests	IEC 62271-111:2012-09, 6.111.2	2018-02-05	5/9
2 Description of tests	-	-	7/9



# 1 Control electronic elements surge withstand capability(SWC) tests

## 1.1 Oscillatory and fast transient surge tests

### 1.1.1 Oscillatory surge test

Test method and requirements	Test port	Test mode	Test voltage kV	Test results
o Test condition - Voltage rise time : 75 ns $\pm$ 7.5 ns - Voltage oscillation frequency : 1 MHz $\pm$ 100 kHz - Repetition rate : 400 /s $\pm$ 40 /s - Decay rate : 5 <sup>th</sup> peak value > 50 % of 1 <sup>st</sup> peak value 10 <sup>th</sup> peak value < 50 % of 1 <sup>st</sup> peak value - Burst duration : 2 s - Output impedance : 200 $\Omega$ - Relation to power supply : asynchronous - Polarity : positive, negative  o EUT setting - Aux. power : AC 220 V - Pick up setting : 0.5 A (input : 0.45 A)  o Performance criteria Temporary loss of function is permitted, but it shall be self-recoverable.  (Refer to Photo. SG02)	Aux. power	Common	2.5	Good
		Differential	2.5	Good
	PT (phase)	Common	2.5	Good
		Differential	2.5	Good
	CT (phase)	Common	2.5	Good
		Differential	2.5	Good
	DI (open, close, lock)	Common	2.5	Good
		Differential	2.5	Good
	DO (open, close)	Common	2.5	Good
		Differential	2.5	Good



## 1.1.2 Fast transient surge test

Test method and requirements	Test point	Test mode	Test voltage kV	Test results
<p>o Test condition</p> <ul style="list-style-type: none"> <li>- Voltage rise time : <math>5 \text{ ns} \pm 1.5 \text{ ns}</math></li> <li>- Duration time to 50 % peak voltage : <math>50 \text{ ns} \pm 15 \text{ ns}</math></li> <li>- Burst duration : <math>15 \text{ ms} \pm 3 \text{ ms}</math></li> <li>- Burst period : <math>300 \text{ ms} \pm 60 \text{ ms}</math></li> <li>- Repetition rate : <math>2.5 \text{ kHz} \pm 0.5 \text{ kHz}</math></li> <li>- Relation to power supply : asynchronous</li> <li>- Polarity : positive and negative</li> <li>- Test duration : 1 min, each polarity</li> </ul> <p>o EUT setting</p> <ul style="list-style-type: none"> <li>- Aux. power : AC 220 V</li> <li>- Pick up setting : 0.5 A (input : 0.45 A)</li> </ul> <p>o Performance criteria</p> <p>Temporary loss of function is permitted, but it shall be self-recoverable.</p> <p>(Refer to Photo. SG02)</p>	Aux. power	Common	4.0	Good
		Differential	4.0	Good
	PT (phase)	Common	4.0	Good
		Differential	4.0	Good
	CT (phase)	Common	4.0	Good
		Differential	4.0	Good
	DI (open, close, lock)	Common	4.0	Good
		Differential	4.0	Good
	DO (open, close)	Common	4.0	Good
		Differential	4.0	Good
	Communication (Ethernet)	Common	4.0	Good
	Communication (RS-232C)	Common	4.0	Good
	Communication (RS-485)	Common	4.0	Good



## 2 Description of tests

- 2.1 The above tests were carried out on the test objects with submitted and confirmed by the applicant in accordance with IEC 62271-111:2012-09 (Automatic circuit reclosers and fault interrupters for alternating current systems up to 38 kV). The end.



## Photo



(EUT)



(Nameplate)

Apparatus : Recloser control box

Designation : EVRC2A-NT

Ratings : AC 1 A AC 4 V Aux. power : AC 220 V

Manufacturer : ENTEC Electric & Electronic Co., Ltd.

Photo. SG01 : Test object



## Photo



Photo. SG02 : Control electronic elements surge withstand capability(SWC) tests



## INFORMATION SHEET

KERI(Korea Electrotechnology Research Institute) issues a Type Test Certificate and a Test Report as below.

### 1. Type Test Certificate

A Certificate contains a record of a series of type tests carried out strictly in accordance with IEC, and/or regional standard and national standard that are identical to IEC standard. The test object has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KERI. The Certificate is applicable only to the test object. KERI is responsible for the validity and the contents of the Certificate. The responsibility for conformity of any apparatus having the same designation as the one tested rests with the manufacturer. The certificate contains the essential drawings and a description of the equipment tested. Detailed rules are given in KERI's Type Test Certification Procedure.

### 2. Test Report

#### 2.1 Type Test Report

A Type Test Report contains a record of a series of type tests carried out strictly in accordance with a standard recognized by KERI. The test object has fulfilled the requirements of this standard and the relevant ratings assigned by the manufacturer are endorsed by KERI. The Type Test Report is applicable only to the test object. KERI is responsible for the validity and the contents of the Type Test Report. The responsibility for conformity of any apparatus having the same designation as the one tested rests with the manufacturer. The Type Test Report contains the essential drawings and a description of the equipment tested. Detailed rules are given in KERI's Test Procedure.

#### 2.2 Performance Test Report

A Performance Test Report contains a record of one or more tests which have been carried out according to a recognized standard and/or the client's instructions. These tests are not necessarily in accordance with a recognized standard. The test results do not verify ratings of the test object. Detailed rules are given in KERI's Test Procedure.

KERI issues three types of Performance Test Report.

2.2.1 The tests have been carried out strictly in accordance with a recognized standard. The test object has complied with the relevant requirements.

This sentence will appear on the front page of Performance Test Report if the tests have been performed in accordance with a recognized standard, but the series of tests does not completely fulfil the requirements for a Certificate of Compliance (for example, if the number of test series is not a complete series of type tests). The Report contains verified drawings and a description of the test object. The condition of the test object after the tests is assessed and recorded in the Report.

2.2.2 The tests have been carried out in accordance with the client's instructions. Test procedure and test parameters were based on a recognized standard.

This sentence will appear on the front page of Performance Test Report if the number of test duties, the test procedure and the test parameters are based on a recognized standard and related to the ratings assigned by the manufacturer. Verification of the drawings (if submitted) and assessment of the condition after the tests is only done on the client's request.

2.2.3 The tests have been carried out according to the client's instructions.

This sentence will appear on the front page of Performance Test Report if the test shots, test procedure and/or test parameters are not in accordance with a recognized standard.

3 KERI is a member of STL(Short-circuit Testing Liaison) and the accredited testing laboratory under Clause 2 of Article 2 in "Guidelines on certified testing criteria and methods for electrical equipment" (Public Notice, Ministry of Trade, Industry and Energy, Korea).