

Order Number

Serial Number

## PRODUCT/TEST MANUAL

**2V46K1**

**CT SUPERVISION RELAY**

<b>Issue Level</b>	<b>Date</b>	<b>Summary of changes</b>
A	22/02/99	Initial issue.

Due to RMS continuous product improvement policy this information is subject to change without notice.

<b>Document updated</b>	<b>Checked</b>	<b>Registered</b>	<b>.pdf file created</b>	<b>.pdf uploaded to web site</b>

## 1. DESCRIPTION OF OPERATION

The 2V46 is a current transformer supervision relay. The relay has a very high overvoltage withstand capability that could be present in current transformer secondary circuits. The output contacts will change state if the sensing voltage remains outside the set limits for the time of the fixed timer setting. A linear regulated power supply provides the voltage needed for operation of the internal electronics. A Ferranti magnetic indicator shows for an overvoltage condition.

## 2. SPECIFICATIONS

Auxiliary Supply (nominal)	125 volts DC
Operating range	87.5 – 137.5 VDC
Auxiliary Burden	Approx 10 watts operated.
Sensing Voltage	110 volts AC
Sensing withstand	>300 VAC
Hysteresis	>85% nominal
Sensing setting range	2 - 14 volts AC
Time setting range	3 seconds (fixed)
Output contacts	2 normally open contacts

## 3. TEST EQUIPMENT REQUIRED

Adjustable AC Supply	C R O
Digital Multimeter	Timer

## 4. ASSOCIATED DRAWINGS

165-046-101	Wiring Diagram
660-045-201	Schematic Diagram Voltage PCB
660-045-301	Loading Diagram Voltage PCB
660-044-201	Schematic Diagram Timer PCB
660-044-301	Loading Diagram Timer PCB
660-042-301	Loading Diagram Mother Board

## 5. HIGH VOLTAGE TESTING

- a) Apply 2KV 50Hz test for 1 minute between terminal Groups A and B.
- b) Apply three 5KV 1/50 impulses of each polarity between terminal Groups A and B.

<u>Group A</u>	<u>Group B</u>
9,10,11,12,19,20	1,2,3,4,5,6,E
9,10,19,20,1,2	11,12,3,4,5,6,E
9,10,3,4,5,6	19,20,E

## 6. CALIBRATION & TEST PROCEDURE

### Voltage calibration

The calibration of only one phase of the circuit will be described (input no. A). Component reference numbers refer to 660.045.201.

- a) Adjust pot knob for equal overtravel at scale ends if necessary.
- b) Connect a decade box across R1 (165-046-101 reference) avlugs located on voltage sensing board 660/45-1. The value of R1 determines the value of pickup current at a particular dial setting.
- c) Adjust decade box so that relay just picks up at 14 volts for dial setting of 14.
- d) Check that at the 2 volt dial setting, pickup occurs at this value.
- e) Replace decade box with nearest preference value of fixed resistor, and check the following scale calibration points.
- f) Record results below.

Nom	Min	Max	A	B	C	A Hyst	B Hyst	C Hyst
2	.6	3.4						
4	2.6	5.4						
6	4.6	7.4						
8	6.6	9.4						
10	8.6	11.4						
12	10.6	13.4						
14	12.6	15.4						

### Overvoltage timer calibration

- a) Set sensing input voltage to 20 and "Voltage set" control to 10
- b) Cut links B & D on the timer IC (1024 count).
- c) Monitor pin 2 of the MC14541 oscillator IC and pin 7 of the same IC (negative) with a frequency counter set to monitor period. Adjust R10 to obtain a period of 5.86mS.
- d) Record results at nominal time settings below.

Nominal	Minimum	Maximum	Actual
3	2.7	3.3	

## 7. GENERAL & FUNCTIONAL

- a) Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.
- b) Check relay operates satisfactorily at 87.5 and 137.5 VDC.

PASS

TESTED BY: \_\_\_\_\_

DATE: \_\_\_\_\_

165-046-901

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8. CONNECTION DIAGRAM

