159-058-951
Sheet 1 of 6

Order Number | | Serial Number | |

PRODUCT / TEST MANUAL

2C58K51

INSTANTANEOUS OVERCURRENT

Issue Level	Date	Summary of changes
A	01/10/1998	Initial issue.

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

Document updated	Checked	Registered	.pdf file created	.pdf uploaded to web site

1. DESCRIPTION OF RELAY

The 2C58K51 is a single-pole single output instantaneous overcurrent relay having less than 20ms operate and 15ms release times at 20X setting current. Heavy duty output contacts capable of breaking 0.5A at 125V DC resistive are provided. An air-cored current transformer is used to enable fast operate times to be maintained regardless of previous current offsets which may have occurred.

2. SPECIFICATION

Auxiliary Supply Voltage	125V DC +20% -30%
Auxiliary Supply Burden (at 125V)	4W output relay dropped out 15W output relay picked up
Nominal Input Current	1A
Sensing Supply Burden (at 1A)	<0.1VA
Nominal Setting Range	5% - 20% continuously variable
Number of Poles	1
Frequency Tolerance	-6% to +2% of 50Hz
Ambient Temperature Range	-5^{o}C to 55^{o}C
Accuracy	$\pm$5% of maximum setting
Dropout/Pickup Ratio	85% +/- 5%
Withstand Current (independent of setting)	10A continuous 40A for 3 seconds
Operate Time	<20ms Symmetrical or fully offset
Release Time	<15ms Symmetrical or fully offset with current interruption at a zero current crossing

2. SPECIFICATION (Cont)

Output Relay Contact Ratings

Make and Carry Continuously
3000 VA AC resistive with maximums of 660 Volt and 12 Amp
3000 VA DC resistive with maximums of 660 Volt and 12 Amp

Make and Carry of 0.5 Second
7500 VA AC resistive with maximums of 660 Volt and 30 Amp
7500 VA DC resistive with maximums of 660 Volt and 30 amp

AC Break Capacity
3000 VA AC resistive with maximums of 660 Volt and 12 Amp

DC Break Capacity (Amps)

Voltage			**24V**	**48V**	**125V**	**250V**
Resistive rating		**a** **b**	12 12	1.5 12	0.5 10	0.25 5
L/R=40mS	Maximum break	**a** **b**	12 30	1 15	0.4 5.5	0.2 3.5
	1K operations (N3 Rating)	**b**	12	12	5	2.5

a = Without magnetic blowouts b = With magnetic blowouts
* As tested by Powernet Yarraville laboratories in Victoria.

3. TEST EQUIPMENT REQUIRED

DC Auxiliary Supply
AC Current Supply
AC Ammeter
Electronic Counter (for measuring operate and release times)
Oscilloscope
Decade Boxes
High Voltage Test Equipment

4. ASSOCIATED DRAWINGS

159-058-151	2C58K51 Wiring Diagram
660-093-203	Circuit Diagram Current Sensing PCB
660-093-303	Loading Diagram Current Sensing PCB

5. HIGH VOLTAGE TESTING

a) Apply 2KV RMS 50 Hz between terminal groups as listed in A & B below for 1 minute.

b) Apply 3 5KV 1/50us pulses of each polarity as listed in A & B below.

Group A	**Group B**
43,44,18,22	7,8,10,11 & frame
43,44,7,8,10,11	18,22 & frame

6. CALIBRATION & TEST PROCEDURE

6.1 Current Sensing

Note: The calibration of the single phase will be described here. Component reference numbers refer to 660.093.203.

a) Adjust pot knob for equal overtravel at scale ends if necessary.

b) Apply scale minimum current through input A (terminals 43 & 44).

c) Connect a decade box across R2 (158.058.151 reference) avlugs located on Motherboard 660/094-401. The value of R2 determines the value of pickup current at a particular dial setting.

d) Apply auxiliary supply voltage of 125V DC.

e) Check that TP"C" waveform is clean and varies by a factor of four to one in amplitude as the dial pot is moved from minimum to maximum setting. R21 may be decreased if the scale span is too small or increased if the scale span is too large.

f) Check that TP"D" waveform is as smooth as possible (ie. symmetrical 3 phase ripple). If percentage ripple is too great C15 may be altered to achieve best symmetry.

g) Adjust decade box so that relay just picks up at 0.2A for a dial setting of 0.2A.

h) Check that at the 0.05A dial setting pickup occurs at this value.

6.1 Current Sensing (Cont)

Minimum	Maximum	Nominal	Actual	Unit
40	60	50		mA
90	110	100		mA
140	160	150		mA
190	210	200		mA

i) Check that hysteresis is 85% +/- 5% of pick up on above settings Repeat f) if not.

Actual _____ %

6.2 Operate Time Check

Set input dial to 0.05A and input current to 1A.

PU time <19 ms @ aux. supply 87V	ms
DO time <14 ms @ aux. supply 150V.	ms

7. GENERAL & FUNCTIONAL

a) Check that unit operates satisfactorily over the range of 87 to 150 auxiliary supply.

b) Check that R7 and R8 have been correctly loaded on mother board.

c) Check that quiescent current at 125 V is 26mA +10% with output relay dropped out and less than 115mA with output relay picked up.

d) Check that the relay is electrically sound and mechanically robust as per Standard Inspection & Test Schedule 903-000-026.

PASS _____

TESTED BY :_____DATE :_____

8. CONNECTION DIAGRAM