



159-048-982
Issue A (29/11/94)
Sheet 1 of 5

Order Number

Serial Number

2C48K382 TEST PROCEDURE

INSTANTANEOUS OVERCURRENT RELAY

1. TEST EQUIPMENT REQUIRED

DC Auxiliary Supply, AC Variable Current Supply, Ammeter, Oscilloscope, HV Test Equipment, Electronic Counter (for measuring operate & release times).

2. ASSOCIATED DRAWINGS:

- 159-048-082 Descriptive Manual 2C48K382
- 159-048-182 Circuit Diagram 2C48K382
- 651-293-201 Circuit Diagram PCB Current Sensing
- 651-293-301 Loading Diagram PCB Current Sensing
- 660-009-301 Loading Diagram Mother Board

3. HIGH VOLTAGE TESTING

- (a) Apply 3 5KV 1/50us impulses of each polarity between terminal groups 1 and 2 in table 1 below.

TABLE 1	
GROUP 1	GROUP 2
1 - 6 incl, joined	frame
1 - 6 incl, joined	9 & 10 joined
7, 8, 11 - 20 incl joined	frame
7, 8, 11 - 20 incl joined	9 & 10 joined

- (b) Apply 3 5KV 1/50 impulses of each polarity across Auxiliary Supply terminals (9 and 10).
- (c) Apply 2KV RMS 50Hz for 1 minute between all terminals excluding 9 & 10, tied together, and frame.

4. CALIBRATION PROCEDURE

- * NOTE. The calibration of only one phase of the circuit will be described in full (Input A). Component references are for Circuit Diagram 651-293-201.
- (a) Adjust pot knob for equal over travel at scale ends if necessary.
 - (b) Apply 0.25A through input A (terminals 1 & 2).
 - (c) Connect an oscilloscope between the junction of D2 and R19 (651-293-201 reference) and pin 10 of the plug-in board to monitor the 3-phase bridge output.
 - (d) Connect a decade box across R4 avlugs located on Current Sensing Board, and adjust until the most even three phase full wave rectified type ripple is achieved (as observed on CRO)
 - (e) Replace decade box with nearest preferred value of fixed resistor and re-check waveform.
 - (f) Connect 125V DC Auxiliary power supply to terminals 9 (+) and 10 (-).
 - (g) Connect decade boxes across R19x and R21x avlugs.
 - (h) Set input current and dial pot setting to 0.4A.
 - (i) Set R21 decade box to approximately 20K and adjust R19 decade box until output relay just picks up at 0.4A.
 - (j) Set input current and dial pot setting to 0.1A.
 - (k) Adjust R19 decade box so that relay just picks up at 0.1A.
 - (l) Repeat steps (h) to (m) until calibration of the scale is achieved.
 - (m) Replace decade boxes with nearest preferred value of fixed 0.5W resistors, and check the following scale calibration points:



CALIBRATION PROCEDURE (Cont'd)

SETTING	MIN	MAX	NOM	ACTUAL	UNITS
0.1	.09	.11	.10	_____	A
0.2	.19	.21	.20	_____	A
0.3	.29	.31	.30	_____	A
0.4	.39	.41	.40	_____	A

(n) Check that hysteresis is between 80% and 87%. Repeat (d) if not.

MIN	MAX	NOM	ACTUAL	UNITS
80	87	80	_____	

(o) Set input A dial to 0.4A and input A current to 2A, and record pickup and dropout times

TIME	Vaux	MAX	ACTUAL	UNITS
PU	77V	30	_____	ms
DO	150V	30	_____	ms

(p) Repeat steps (a) to (m) for input B:
 Ref (b) Terminals 3 & 4
 Ref (c) D8 & R22
 Ref (d) R5
 Ref (g) R22 & R24

SETTING	MIN	MAX	NOM	ACTUAL	UNITS
0.1	.09	.11	.10	_____	A
0.2	.19	.21	.20	_____	A
0.3	.29	.31	.30	_____	A
0.4	.39	.41	.40	_____	A



CALIBRATION PROCEDURE (Cont'd)

(q) Check that hysteresis is between 80% and 87%. Repeat (f) if not.

MIN	MAX	NOM	ACTUAL	UNITS
80	87	80	_____	%

(r) Set input B dial to 0.4A and input B current to 2A, and record pickup and dropout times

TIME	Vaux	MAX	ACTUAL	UNITS
PU	77V	30	_____	ms
DO	150V	30	_____	ms

(s) Repeat steps (a) to (m) for input C:
 Ref (b) Terminals 5 & 6
 Ref (c) D14 & R25
 Ref (d) R6
 Ref (g) R25 & R27

SETTING	MIN	MAX	NOM	ACTUAL	UNITS
0.1	.09	.11	.10	_____	A
0.2	.19	.21	.20	_____	A
0.3	.29	.31	.30	_____	A
0.4	.39	.41	.40	_____	A

(t) Check that hysteresis is between 80% and 87%. Repeat (f) if not.

MIN	MAX	NOM	ACTUAL	UNITS
80	87	80	_____	%

CALIBRATION PROCEDURE (Cont'd)

- (u) Set input C dial to 0.4A and input C current to 2A, and record pickup and dropout times

TIME	Vaux	MAX	ACTUAL	UNITS
PU	77V	30	_____	ms
DO	150V	30	_____	ms

5. GENERAL & FUNCTIONAL

Check that unit operates satisfactorily over the range of 77 to 150 Volts Auxiliary Supply.

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

PASS

TESTED BY : _____ DATE : _____