Order Number | | Serial Number | |

PRODUCT / TEST MANUAL

2T643K2

DELAY OPERATE TIMER

Issue Level	Date	Summary of Changes
A	24/04/1996	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 2T643K2 is a solid state timer with electromechanical output relay and a mechanical flag to indicate if time-out has occurred. Time-out is initiated by the application of auxiliary voltage to the initiate input. The time is set by means of thumbhweel switches, which avoids dial setting errors and also permits "0.00" to be set. This gives true instantaneous operation (except for approx. 2.5ms delay inbuilt into the timer initiate circuitry and mechanical operate time of the output relay).

2. SPECIFICATION

Auxiliary Supply Voltage	125V DC +10% -30%
Ambient Temperature Range	-5°C to 55°C
Time Range	.00 to .99 seconds in .01 second steps
Accuracy	±1% of full scale at rated voltage
Initiate Time	2.5ms
Reset Time	50ms
Operate Time	50ms ±5 (N/O Contact)
Release Time	15ms maximum
Operation Indicator	Hand reset mechanical operate flage on Output Relay

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**	**125 V**	**250V**
Resistive rating		**a** **b**	12 12	1.5 12	0.5 10	0.25 5
L/R=40 mS	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

164-643-102	2T643K2 Wiring Diagram
660-084-203	Circuit Diagram Current Sensing PCB
660-084-303	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**
All Terminals	Frame
Inputs	Outputs & Frame

6. CALIBRATION & TEST PROCEDURE

6.1 Current Sensing

a) Cut links E, C.

b) Short out R7 avlugs.

c) Let C4 be 2.2nF initially.

d) Apply 125V DC auxiliary supply.

e) Initiate the timer via terminal 19 and an external initiate contact.

f) Connect a period counter to IC2 pin 8 and pad C4 and/or R7 to give a period of 10 msec.

Minimum	**Maximum**	**Nominal**	**Actual**	**Unit**
9.9	10.1	10		ms

g) Check for correct operation of both the tens and units thumbwheels.

h) Check and adjust the 6R output relay to the following specification:

	Minimum	**Maximum**	**Nominal**	**Actual**	**Unit**
PU	35	45	40		ms
DO		30			ms

6.1 Current Sensing (Cont)

i) Check for the correct operate time over the following auxiliary supply voltage range (timer set to .99 seconds (+40ms relay time)).

Minimum	**Maximum**	**Nominal**	**Actual**	**Unit**

110V	1.02	1.04	1.03		Sec
88V	1.00	1.06	1.03		Sec
132V	1.00	1.06	1.03		Sec

7. GENERAL & FUNCTIONAL

a) 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