

Order Number

Serial Number

PRODUCT / TEST MANUAL

2T103K5

DIGITAL TIMER

Issue Level	Date	Summary of changes
A	30/08/1999	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. BROAD DESCRIPTION

The 2T03 time delay on energisation relay is particularly suitable for use in protection and control schemes where precision time delays are required.

A crystal oscillator and digital dividing circuit are employed to provide the timebase for a pre-settable down counter chain. When positive supply is applied to the control input, the down counter is loaded with the thumbwheel switch setting and begins counting down. When zero is detected, the output relay picks up and the down counter stops. The three time ranges can be selected via a front panel switch which changes the divide ratio of the timebase circuit. Front panel LED's indicate the relay status.

2. SPECIFICATIONS

INITIATE INPUT	75 - 150 Volts DC Energise initiate input to actuate timer functions
FLAG REMOTE RESET	75 - 150 Volts DC Energise to reset flag
ACCURACY	The setting and repeat accuracy is: $\pm 0.5\%$ of setting (plus the inherent minimum time).
AUXILIARY SUPPLY	40 - 300 V DC Switchmode power supply
RESET TIME	Electronic reset time is between 20 and 50 millisecond. Output relay dropout time is less than 20 millisecond and removal of auxiliary supply will reset the relay in this time.
INSULATION WITHSTAND	In accordance with AS2481-1981 (clause 5-4), IEC 255-5: 2KV RMS between input and frame, output and frame, and output and input. 1.2/50 5KV impulse between each terminal and earth, between circuits not normally connected together and between terminals of the same circuit.
NOISE IMMUNITY	Withstands the high frequency interference test detailed in AS2481-1981 (clause 5-5 App. D), IEC 255-22-1.
STANDARD OUTPUT CONTACTS	The output relay is fitted with 2 changeover self reset contacts as standard.

STANDARD OUTPUT RELAY CONTACT RATINGS

Make & Carry Continuously

1,700 VA AC resistive with maximums of 380V & 8A

1,700 VA DC resistive with maximums of 250V & 8A

Maximum Contact Capacity (Amps)

	DC			AC		
	30	125	250	110	220	250
Voltage	30	125	250	110	220	250
Resistive	10	2.4	1.2	10	7	6.6
Inductive L/R 7 ms	7.5	1.8	.9	7.5	5	4.4

OPERATION INDICATOR	The standard relay has a hand resettable magnetic disc (permanent memory) indicator fitted to give visual indication that the output relay element has operated..
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3. TEST EQUIPMENT REQUIRED

- DC Auxiliary Supply
- Frequency Counter
- Digital Voltmeter
- Oscilloscope
- Electronic Counter (for measuring operate times)
- High Voltage Test Equipment

4. ASSOCIATED DRAWINGS

- 164-103-001 Descriptive Manual
- 164-103-105 Wiring Diagram
- 660-283-204 Circuit Diagram
- 660-283-301 Loading Diagram

5. HIGH VOLTAGE TESTING

- a) Apply 2KV RMS 50 Hz between terminal groups 1 and 2 in Table 1 for 1 minute.
- b) Apply 3 5KV 1/50us pulses of each polarity between terminal groups 1 and 2 in Table 1.

TABLE 1

Group 1	Group 2
All terminals	Frame
Inputs	Outputs

6. CALIBRATION & TEST PROCEDURE

- a) Connect timing apparatus to measure interval between energisation of the initiate input and output relay contact closure. Set JO5 jumper N/O (Pins 1 & 2)
- b) Set range switch to range A and time to 000.
- c) Record pick-up time for auxiliary voltage of 40 V.

Maximum	Actual	Unit
20	<input style="width: 100px; height: 20px;" type="text"/>	ms

- d) Record drop-out time for auxiliary voltage of 300 V

Maximum	Actual	Unit
20	<input style="width: 100px; height: 20px;" type="text"/>	ms

- e) Record times for the following settings (range A)

Setting	Minimum	Maximum	Nominal	Actual	Unit
111	121	131	123	<input style="width: 100px; height: 20px;" type="text"/>	ms
222	232	242	234	<input style="width: 100px; height: 20px;" type="text"/>	ms
444	454	464	456	<input style="width: 100px; height: 20px;" type="text"/>	ms
888	898	908	900	<input style="width: 100px; height: 20px;" type="text"/>	ms

6. CALIBRATION & TEST PROCEDURE (Cont)

f) Set time to 100 and set range to B.

Minimum	Maximum	Nominal	Actual	Unit
1.01	1.02	1.01	<input type="text"/>	s

g) Set range switch to C and record pick-up time.

Minimum	Maximum	Nominal	Actual	Unit
10.01	10.02	10.01	<input type="text"/>	s

7. GENERAL & FUNCTIONAL

a) Check for correct operation of magnetic disc flag.

OK

b) Check operation of the, relay fail alarm

OK

c) Check that the Time initiate functions at 75 V and 150 VDC

OK

d) Check that the remote reset flag resets at 75 V and 150 VDC

OK

e) 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

