OP190-V01

selec

TI103A / TI103C
Operating Instructions

48x96

SPECIFICATIONS

Display
4 digits, 0.5" height, 7 segment Red LED

Operating mode
a) Contact type
b) Stop watch
c) Pick up timer
d) Drop off timer
e) Pickup / Drop off timer

Range
a) Auto ranging from .0001 to 9999s
b) Fixed range ranging .9999 sec, 9.999 sec, 99.99 sec, 999.9 sec, 9999 sec.

Accuracy
± 0.05 % +1 counts

Inputs
a) Voltage pulse : 3 to 30V DC from proximity switch, or solid state device.
b) Potential free contact from limit switch, relay or micro switch

Sensor Supply
12V DC, 30mA (±10%)

Reset
a) On front panel
b) Via rear terminals(reset time 20 msec)
c) Auto reset (programmable)

Supply
90 to 270V AC / DC, 50 / 60Hz

Mounting
Panel mounting

Housing
ABS

Temperature
0 - 50°C

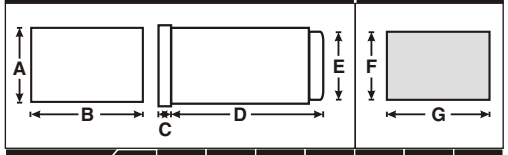
Humidity
95% RH

Weight
approx. 375 grams

MECHANICAL INSTALLATION

Bezel size : 48mm(H) x 96mm(W)
Panel cutout : 46mm(H) x 91mm(W)
Depth behind panel : 123mm3334

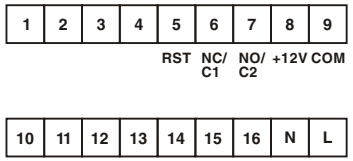
Outline Dimensions (in mm)	Panel cutout (in mm)



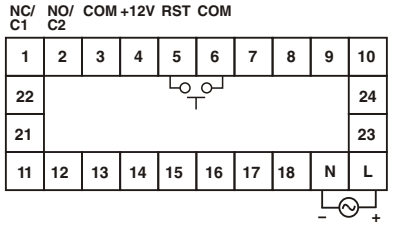
MODELS / DIM	A	B	C	D	E	F	G
TI103A	48	96	10	123	45	46	92
TI103C	50	97.5	10	88	45	46	92

TERMINAL CONNECTIONS

TI103A



TI103C



DESCRIPTION	TERMINAL	
	TI103A	TI103C
NC / C1	6	1
NO / C2	7	2
+12V supply	8	4
Reset Input	5	5 - 6
COM (GND)	9	3 & 6
Live	L	L
Neutral	N	N

DESCRIPTION

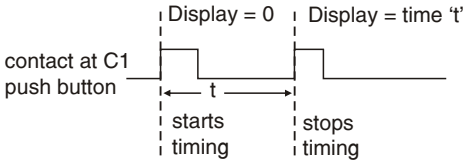
The Selectron model TI103 is a 4 digit time interval meter which is ideally suited to record very short time intervals e.g: trip time of relays, contactors, MCBs, fuses, ELCBs and other similar equipments. It can also be used to measure travel times and event durations in various applications. Time measurements are made by operation of external contacts or electronic sensors across its inputs. It can also be used in the stopwatch mode as a bench stopwatch in laboratories, test benches and other places. When the duration of electrical signals (AC / DC) are to be recorded, Selectron model AV01 can convert the external signals to signals that are compatible with TI103

MODES OF OPERATION (Software selectable)

1) Contact type :
Measures time duration for C2 closed or C1 open. Ceases measurement only when C2 open and C1 closed (shorted with +V).

C2 (NO)	C1 (NC)	DISPLAY
OPEN	OPEN	TIME ON
CLOSE	OPEN	TIME ON
CLOSE	CLOSE	TIME ON
OPEN	CLOSE	TIME OFF

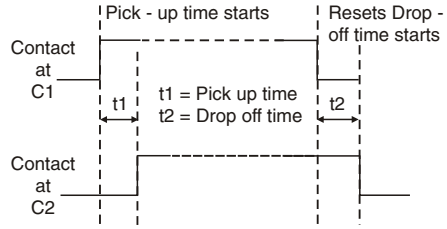
2) Stopwatch :
Starts timing at first contact closure (from ext. push button) across C1 input and stops at second contact closure across the same input.



3) Pick up timer (PUT) :
Measures time interval between external contact closing at one input (C1) to another external contact closing at the second input (C2) .

4) Drop off timer (DOT) :
Measures time interval between closed contact opening across one input (C1) to another external closed contact opening across the second input (C2).

5) Pick up / Drop off timer (PUT / DOT) :
Takes measurement (3) and (4) simultaneously during the operation of external contacts, first through their closing sequence and then during their opening sequence.



CONFIGURATION SCHEME

To enter configuration mode :
Press PRG key continuously for 3 sec.

KEY PRESS	DISPLAY	DESCRIPTION

1. To select Range mode

Range mode — * Blinking — 001 → 0 - Auto ranging
Press ▲ — * Blinking — 101 → 1- Non auto ranging

2. Press PRG key to select reset mode

Reset mode — * Blinking — 001 → 0 - Auto reset
Press ▲ — * Blinking — 011 → 1- Non auto reset

3. Press PRG key to select operating mode

Operating mode — * Blinking — 001 → 1 - Contact input mode
Press ▲ — * Blinking — 002 → 2 - Stopwatch (Auto reset mode is not valid in this mode)
Press ▲ — * Blinking — 003 → 3 - PUT (Pick up timer)
Press ▲ — * Blinking — 004 → 4 - DOT (Drop off timer)
Press ▲ — * Blinking — 005 → 5 - PUT / DOT

KEY PRESS	DISPLAY	DESCRIPTION
4. Press RST ◘ key to select range (valid only if non - auto ranging mode selected)		
Range	.9999 ✶ Blinking	Least count = .0001 Range = .9999 sec.
Press ▷	9.999 ✶ Blinking	Least count = 0.001 Range = 9.999 sec.
Press ▷	99.99 ✶ Blinking	Least count = 0.01 Range = 99.99 sec.
Press ▷	999.9 ✶ Blinking	Least count = 0.1 Range = 999.9 sec.
Press ▷	9999. ✶ Blinking	Least count = 1 Range = 9999 sec.
5. Press RST ◘ key. Programming completed.		

TO READ MODE AND RANGE

PRG ▷	001	Mode
PRG ▷	.9999	Range (valid only if non auto ranging mode selected)

RESETTING THE TI103

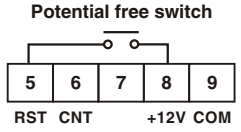
A) By front key :

Press RST ◘ key continuously for 3 sec.

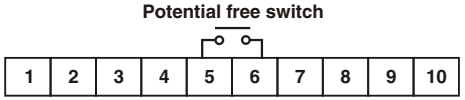
B) Remote reset :

The TI103 can be reset from a remote push button as shown in the figure.

TI103A



TI103C



C) Auto reset :

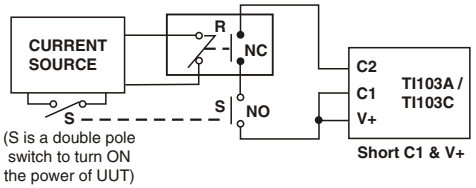
When this mode is selected the unit's display resets automatically when the next measurement begins and the unit records its fresh measurement at the end of the cycle.

TYPICAL APPLICATIONS

1) CONTACT TYPE :

Relay trip time (using NC contact of relay).

R = Unit under test (thermal relay)

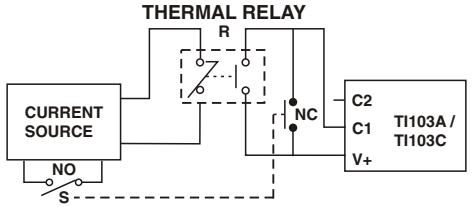


(S is a double pole switch to turn ON the power of UUT)

External switch S (DPDT) is turned ON to power R. The time between switch S closure to relay NC contact opening is measured across NO (C2) contact of TI103 and NC (C1) contact kept shorted to +V.

2) CONTACT TYPE :

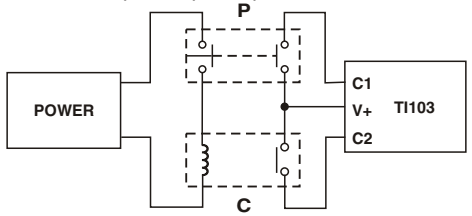
Relay trip time (using NO contact of relay).



External switch S (DPDT) is turned ON to power R. The time between switch S closing to relay NO contact closing is measured across NC (C1) contact of TI103C and NO (C2) contact kept open.

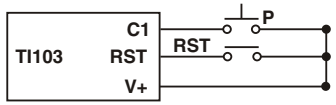
3) **PUT / DOT :**

Contactor pick - up / drop - off time.



When pushbutton P is pressed and contractor C picks up, pick - up time (PUT) is recorded. When pushbutton is released and contactor drops - off time (DOT) is recorded. By pressing ◘ key both values can be seen alternately.

4) STOPWATCH :



When pushbutton P is pressed for first time in stop watch mode, timing starts and when it is pressed second time, timing stops. Auto - reset mode is not valid & the counting starts from last value.

(Specifications are subject to change, since development is a continuous process)

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