

**SELEC** **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**

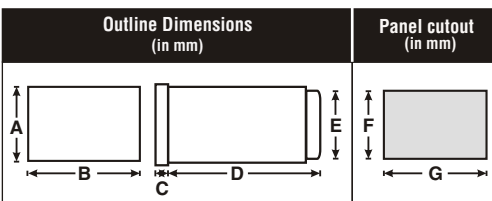
95% RH

**Weight**

approx. 375 grams

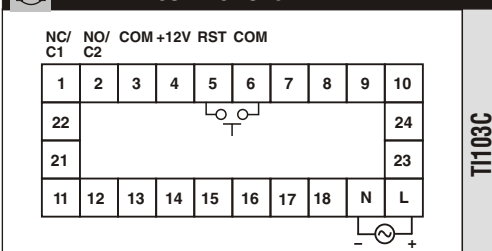
**MECHANICAL INSTALLATION**

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



MODELS	DIM	A	B	C	D	E	F	G
TI103C		50	97.5	10	88	45	46	92

**TERMINAL CONNECTIONS**



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

**DESCRIPTION**

The Selec model TI103C 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, Selection model AV01 can convert the external signals to signals that are compatible with TI103C.

**MODES OF OPERATION (Software selectable)**

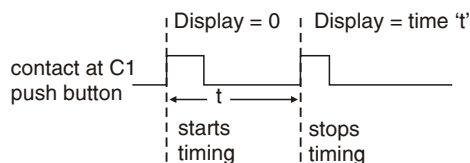
**1) Contact type :**

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) :**

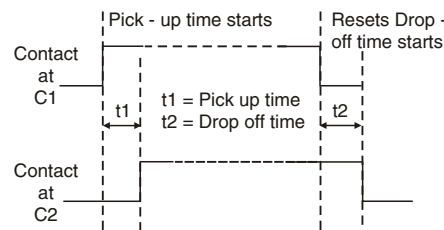
Measures time interval between external contact closing at one input (C1) to another external contact closing at the second input (C2).

**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.









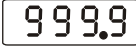

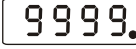
**CONFIGURATION SCHEME**

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

KEY PRESS	DISPLAY	DESCRIPTION
<b>1. To select Range mode</b>		
Range mode	* Blinking 001	→ 0 - Auto ranging
Press ▲	* Blinking 101	→ 1- Non auto ranging
<b>2. Press PRG key to select reset mode</b>		
Reset mode	* Blinking 001	→ 0 - Auto reset
Press ▲	* Blinking 011	→ 1- Non auto reset
<b>3. Press PRG key to select operating mode</b>		
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
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4. Press RST  key to select range  
(valid only if non - auto ranging mode selected)

Range		Least count = .0001 Range = .9999 sec. ★ Blinking
Press 		Least count = 0.001 Range = 9.999 sec. ★ Blinking
Press 		Least count = 0.01 Range = 99.99 sec. ★ Blinking
Press 		Least count = 0.1 Range = 999.9 sec. ★ Blinking
Press 		Least count = 1 Range = 9999 sec. ★ Blinking

5. Press RST  key. Programming completed.

#### TO READ MODE AND RANGE

PRG 		Mode
PRG 		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.

TI103C									
Potential free switch									
1	2	3	4	5	6	7	8	9	10
NC C1	NO C2	COM	+12V	RST	COM				

##### C) Auto reset :

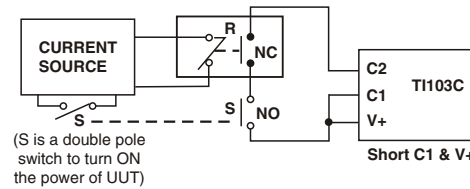
When this mode is selected the unit's display resets automatically when the next measurement begins and the unit records its fresh measurement at the end of the cycle.

#### TYPICAL APPLICATIONS

##### 1) CONTACT TYPE :

Relay trip time (using NC contact of relay).

R = Unit under test (thermal relay)

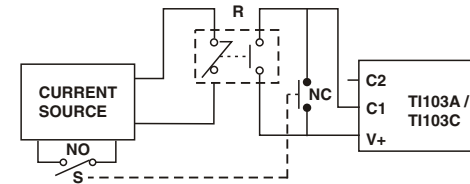


(S is a double pole switch to turn ON the power of UUT)  
External switch S (DPDT) is turned ON to power R. The time between switch S closure to relay NC contact opening is measured across NO (C2) contact of TI103 and NC (C1) contact kept shorted to +V.

##### 2) CONTACT TYPE :

Relay trip time (using NO contact of relay).

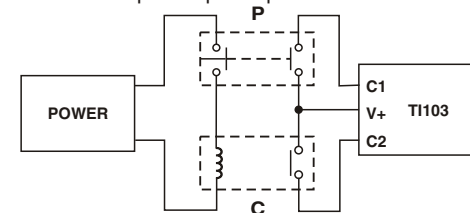
#### THERMAL RELAY




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.

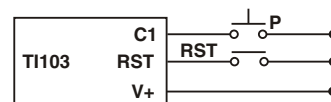
##### 3) PUT / DOT :

Contactor pick - up / drop - off time.



When pushbutton P is pressed and contactor 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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