i-therm KTC-44 Digital Preset Timer Counter User Manual

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i-therm KTC-44 Digital Preset Timer Counter

User’s Operating Manual for Digital Preset Timer Counter

Product Specifications

- **Models**: KTC-44 (48 x 48), KTC-77 (72 x 72), KTC-99 (96 x 96)
- **Display:** Dual 4 Digit 7-segment LED
- **Status Indication:** Relay status (OP1/OP2), Auto Reset / EOC Time (RT), Time Unit (Hrs. / Min. / Sec.)
- **Control Inputs**: Count Input (For Counter), Start Input (For Timer), Reset Input
- **Timing Accuracy**: 0.05% Full Scale
- **Repeat Accuracy**: 0.01%
- **Outputs**: Relay (1C/O) x 2
- **Supply**: 90 to 270 VAC
- **Mounting**: Panel
- **Housing**: ABS Plastic
- **Operating Temperature:** 0 ~ 50o C
- **Humidity**: 95% Rh (Non Condensing)

Product Usage Instructions

1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from Controller.
3. Push the Timer through panel cut-out and secure the Controller in its place by tightening the side clamp.
4. Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limits.
5. The Controller in its installed state must be protected against excessive electrostatic or electromagnetic interferences.
6. The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
7. The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

8. For Count Input & Remote Start, follow the wiring instructions as per the diagram provided.
9. **Programming**:
    1. To enter in this mode, press and hold `SET & UP' key for 5 sec. at Power On. `CNFG' & `V.6.0.0′ Message will display for 5 Sec.
    2. Press `SET' Key to move on to the next parameter.
    3. Press `UP / DOWN / SHIFT' Key to scroll / change parameter options.

Models: KTC – 44 / 77 / 99

KTC - 44
(48 X 48)

KTC - 77
(72 X 72)

KTC - 99
(96 X 96)

SPECIFICATIONS

Display : Dual 4 Digit 7-segment LED

Model no.	KTC-44	KTC-77	KTC-99	Display Colour
Display height (PV)	0.36"	0.56"	0.80"	White
Display height (SV)	0.36"	0.39"	0.56"	Green

- **Status Indication**
    - **a**] Relay status (OP1/OP2)
    - **b**] Auto Reset / EOC Time (RT)
    - **c**] Time Unit (Hrs. / Min. / Sec.)
- **Control Inputs**
    - **a**] Count Input (For Counter)
    - **b**] Start Input (For Timer)
    - **c**] Reset Input
- **Reset time** : < 100 ms
- **Timing Accuracy** : 0.05% Full Scale
- **Repeat Accuracy** : 0.01%
- **Outputs** : 5 Amp @ 230VAC Relay (1C/O) x 2
- **Reset**
    - **a**] Front switch (Programmable)
    - **b**] Remote Reset (via rear terminals)
    - **C**] At On power (Programmable)
- **Supply** : 90 to 270 VAC

- **Mounting** : Panel
- **Housing** : ABS Plastic
- **Operating temp**. : 0 ~ 50o C
- **Humidity** : 95% Rh (Non Condensing).

Configurable Parameters:

- **Mode**
  - **a**] Counter
  - **b**] Timer

Counter Parameters :

- **Count Input** : AC / DC
- **Count Frequency (For DC Input only)** Various selectable frequencies
- **Count direction** : Up / Down
- **Function** : On Delay / Off Delay

Timer Parameters :

- **Count direction** : Up / Down
- **Timer Start** : Various selectable start mode
- **Timer Function** :
  - **a**] ON / OFF delay
  - **b**] Cyclic mode
- **Output 2 Function** :
  - **a**] Auxiliary
  - **b**] End of Cycle (EOC)
  - **c**] Off
  - **d**] Invert

INSTALLATION GUIDELINES

1. Prepare the cut-out with proper dimension as shown in figure.
2. Remove clamp from Controller.
3. Push the Timer through panel cut-out and secure the Controller in its place by tightening the side clamp.

SAFETY INSTRUCTION

MECHANICAL

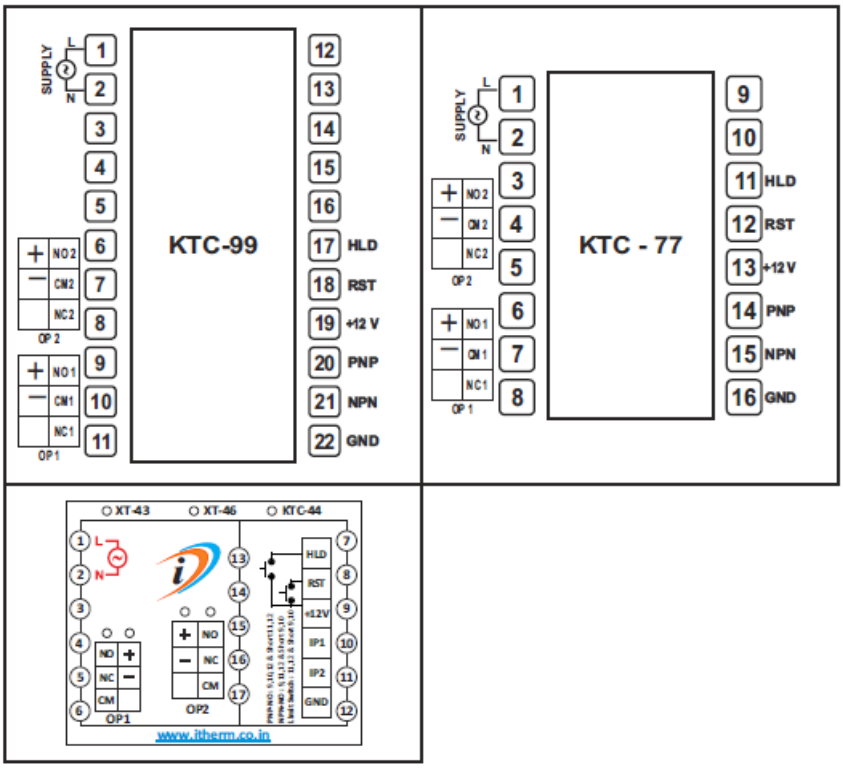
- Ambient temperature and relative humidity surrounding the Controller must not exceed the maximum specified limits.
- The Controller in its installed state must be protected against excessive electrostatic or electromagnetic

interferences.

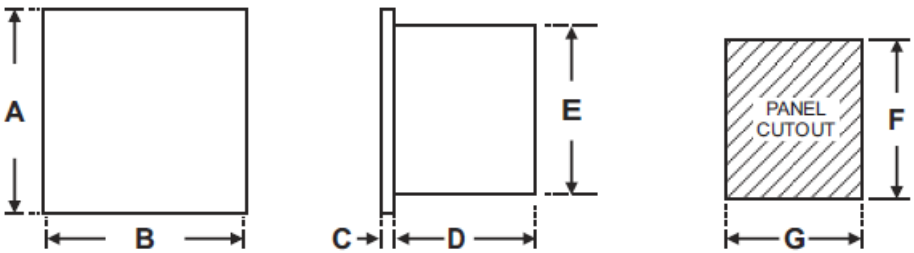
ELECTRICAL

- The Controller must be wired as per wiring diagram & it must comply with local electrical regulation.
- The Electrical noise generated by switching inductive loads might create momentary Fluctuation in display, latch up, data loss or permanent damage to the instrument. To reduce this use snubber circuit across the load.

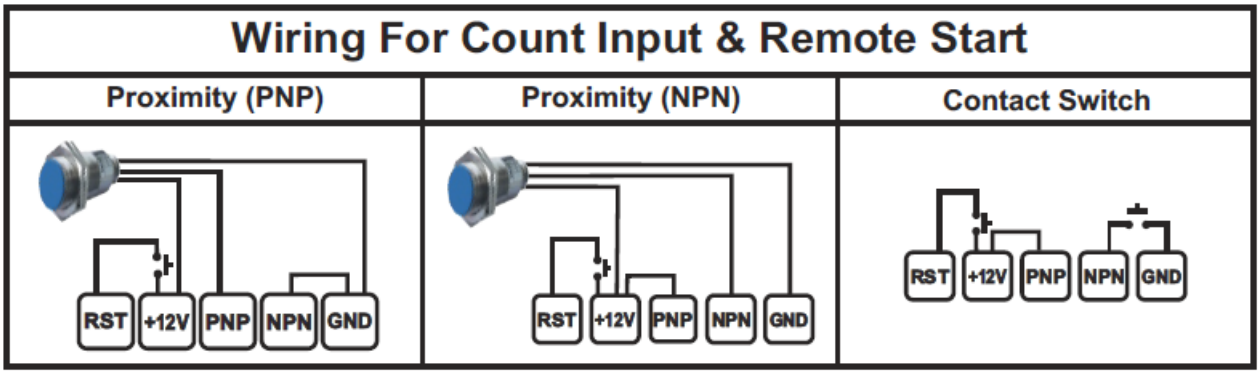
TERMINAL CONNECTIONS



OVER ALL DIMENSIONS & PANEL CUT OUT (IN MM)



Dim Model	A	B	C	D	E	F	G
KTC – 99	96	96	14	80	90	92	92
KTC – 77	72	72	14	80	70	68	68
KTC – 44	48	48	14	86	44	44	44



Programming

Mode Selection

1. To Enter in this mode Press & Hold ‘SET & UP’ key for 5 sec. at Power On. ‘CNFG’ & ‘V.6.0.0′ Message will display for 5 Sec.
2. Press ‘SET’ Key to move on to next parameter.
3. Press ‘UP / DOWN / SHIFT’ Key to scroll / change parameter options.

Parameter	Lower Display	Upper Display	Description	Default
Lock Code	LoCK	0000	**Lock Code :- Set this parameter to 15(Default Lock Code) to view or edit Selected Mode. User has choice to set different Lock Code from User Lock Code Parameter.**	0
Mode Selection	nodE	Cnt ⌄ ⌃ tIME	**KTC Mode :- Key Board Timer / Counter Mode Selection.** **Counter :- If Selected, Controller will work as Counter. Ref. Page No. 2 to 4** **Timer :- If Selected, Controller will work as Timer. Ref. Page No. 4 to 7**	Counter
User Lock Code	ULCK	0015	**User Lock Code :- Default User Lock Code is 15. User has choice to set its own Lock Code in between 1 to 9999, This parameter is to prevent unauthorized access of Mode Selection.**	15

Programming as Counter Mode

Configuration List

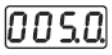
1. To Enter in this mode Press & Hold ‘SET’ key for 5 sec. at Power On. ‘CNFG’ & ‘V.6.0.0′ Message will display for 5 Sec.
2. Press ‘SET’ Key to move on to next parameter.
3. Press ‘UP / DOWN / SHIFT’ Key to scroll / change parameter options

Parameter	Lower Display	Upper Display	Description	Default
Count Input Type	C.inP	AC dC	**Count Input Type :- By this parameter lets the user select Input type for counting.** **AC : If selected count input from 230V AC mains supply.** **DC : If selected count input from Proximity or Potential free contact.**	DC
Input Frequency	FrEQ	U.Lo Lo nEd HIGH U.HIG	**Input Frequency :- User can select the frequency of count pulse at the input terminal. This feature is useful in avoiding noise signal.** **Very Low :- If selected count input frequency is 3Hz.** **Low :- If selected count input frequency is 30Hz.** **Medium :- If selected count input frequency is 100Hz.** **High :- If selected count input frequency is 1000Hz.** **Very High :- If selected count input frequency is 2500Hz.**	Medium
Output 1 Function	1-Fn	On OFF	**On Delay :- During Counter is in run mode; Output 1 still remain OFF. At the completion of count; Output 1 change its state(ON) & remain in that state until user press RESET or next cycle begins(in auto reset mode & TPR mode).** **Off Delay (Interval) :- During Counter is in run mode; Output 1 get energised(ON). At the completion of count; Output 1 change its state(OFF) & remain in that state until user press RESET or next cycle begins(in auto reset mode & TPR mode).**	On Delay
Count Direction	dIr	UP dn	**Count Direction :- This parameter allows user to set count direction in run mode as follows** **Up Count :- If selected counting starts from 0000 up to set count in ascending order.** **Down Count :- If selected; counting starts from set count to 0000 in descending order.**	Down
Counter Mode	Cn	Lo ArSt tPr	**Latch Output Mode :- If selected; When actual counts reaches its set value ,Relay O/Ps changes its state & remains in this state until reset key or rear reset pressed.** **Auto Reset Output Mode :- If selected; When relay contacts change its state after the set value of count has been reached; it will remain in same position & wait for end of auto reset time. On completion of this time, counter will reset i.e. relay contact positions initialize depending on 'ON' or 'OFF' Delay mode selected &counter will start counting again.** **TPR Output Mode :- If selected; when relay contacts change its state after the set value of count has been reached; Relays will remain in this state for 'TPR' time. On completion of this time, relay contact positions initialize depending on 'ON' or 'OFF' Delay mode selected. Unlike Auto reset mode, counting continues during the TPR time.**	Latch Output Mode (LO)

Parameter	Lower Display	Upper Display	Description	Default
Over Run Mode	OrUn	EnbL dSbL	**Over Run Mode :- This parameter occurs only if Latch Output mode with UP Counting Selected.** **Enable :- If selected; Counting continues after the set value of count is reached. Only the Output remains latched thereafter until count is reset.** **Disable :- If selected; Counting stops after the set value of count is reached. The o/p & count remains latched thereafter until count is reset.**	Enable
Front Reset	Frt	EnbL dSbL	**Front Reset :- This parameter allows the user to Enable or Disable front Reset function. This feature prevents un-authorized attempt to Reset the Counter during Run mode.** **Enable :- If selected; The Counter can be reset through front panel by pressing Down key** **Disable :- If selected; The Counter can not be reset through front panel by pressing Down key. Only Remote Reset at back terminal is allowed.**	Enable
Memory Backup	nEn	EnbL dSbL	**Memory Backup :- This parameter allows the user to Enable or Disable Memory Backup function.** **Enable :- If selected; At the time of Power Failure Running Count value is Stored in Memory.** **Disable :- If selected; At the time of Power Failure Running Count will not be Stored in Memory. Counter will be Reset at next power On.**	Enable
Select Decimal Point	SdP	0000. 000.0 00.00 0.000	**Select Decimal Point :- User can set position of decimal point for scale factor. Position of decimal point can be shifted by using the shift key.**	0000.
Scale Factor	FACt	0001	**Scale Factor :- User can set the value of scale factor. The last stored value of scale with decimal position will be display. Use Up / Down / Shift Key to change scale factor value. In run mode, on receiving Count Pulse the counter will Increment or Decrement count value by the scale factor & Count Direction provided by the user.**	0001
Resolution	rES	0000. 000.0 00.00 0.000	**Resolution :- This parameter doesn't appear if the Selected Decimal position for scale is at 4th position (0000.). User can set screen resolution for RUN Mode.** **Note: Max screen Resolution is equal to resolution for scale factor.**	0000.
Output 2 Function	2-Fn	OFF AUC bACH inUt	**OFF: If selected , OP2 will be completely OFF.** **AUXILIARY: If selected , OP2 can be used as Auxiliary contact. Both the relay output will ON/OFF together as per the ON/OFF Delay.** **BATCH: If selected , Output2 used as a Batch mod. When Batch count EQUAL S.Bch output2 will on & the output of second relay will remain ON until user press the reset key for 3second when Batch count displayed.** **INVERT: If selected , OP2 logic will be inverse of OP1. Both the relay output will ON/OFF visa-versa as per the ON/OFF Delay.**	Auxiliary

User List

1. To access the User List Press ‘SET’ key.
2. Press ‘UP / DOWN’ Key to change the value.
3. Press ‘SET’ Key to store the data & move on to next parameter

Parameter	Lower Display	Upper Display	Description	Default
Set Count			**In RUN mode, Press 'Set' key to set count value. 'S.CNT' will be displayed on lower display & last stored/default value of 'set count' will be displayed on upper display. User can change this value by using Up/Down/Shift key. Press ''Set' key to store Set value & move to next parameter.**	5
Set Batch			**Set Batch :- This parameter will appears only if Op2 is selected as Batch Mode. After achieving Batch set point output 2 will be turned On (Range from 1 to 9999).**	5
Auto Reset Time			**Auto Reset Time :- It will appears only if Selected counter mode is Auto Reset or TPR. User can set Auto Reset time form 0.1Sec to 99.9Sec. via SET & RST Key.**	5.0

View List :-

To access the View List press & release 'SHIFT' key Once.

Parameter	Lower Display	Upper Display	Description	Default
Batch View			**Batch View :- This parameter will appears only if OP2 is selected as Batch Mode.** **Total Batch Count will be shown here. Press Reset Key for 3 Sec to Reset Batch Count.**	5

Programming as Timer Mode

Configuration List

1. To Enter in this mode Press & Hold 'SET' key for 5 sec. at Power On. 'CNFG' & 'V.6.0.0′ Message will be toggle for 5 sec. Now unit will allow the user to configure different parameters with options as described below.
2. Press 'SET' Key to move on to next parameter.
3. Press 'UP / DOWN' Key to scroll between parameter options

Parameter	Lower Display	Upper Display	Description	Default
Timer Function	Fn	On	**ON DELAY** : Outputs are de-energized at power on. It remains De-energized after start of timing cycle. After completions of timing cycle outputs are energized.	On Delay
		OFF	**OFF DELAY**: Outputs are energized at the start of timing cycle. After completions of timing cycle outputs are de-energized.	
		CYC1	**CYCLIC WITH OFF TIME FIRST** : St1 : Off-time St2 : On-time	
		CYC2	**CYCLIC WITH ON TIME FIRST** : St1 : On-time St2 : Off-time	
		CYC3	**CYCLIC WITH HOLD TIME** : StH : Hold Time St1 : Forward-Time ; St2 : Reverse-Time	
Range 1	rnG1	99.99	**TIMER RANGE & RESOLUTION** : Range : 99.99 Sec. Resolution : 0.01 Sec.	9999 Sec.
		999.9	Range : 999.9 Sec. Resolution : 0.1 Sec.	
		9999	Range : 9999 Sec. Resolution : 1 Sec.	
		99.59	Range : 99 Min. 59 Sec. Resolution : 1 Sec.	
		999.9	Range : 999.9 Min. Resolution : 0.1 Min.	
		9999	Range : 9999 Min Resolution : 1 Min.	
		99.59	Range : 99 Hrs. 59 Min. Resolution : 1 Min.	
		999.9	Range : 999.9 Hrs. Resolution : 0.1 Hrs.	
		9999	Range : 9999 Hrs. Resolution : 1 Hrs.	
Range 2	rnG2	99.99	**TIMER RANGE & RESOLUTION** : Range : 99.99 Sec. Resolution : 0.01 Sec.	9999 Sec.
		999.9	Range : 999.9 Sec. Resolution : 0.1 Sec.	
		9999	Range : 9999 Sec. Resolution : 1 Sec.	
		99.59	Range : 99 Min. 59 Sec. Resolution : 1 Sec.	
		999.9	Range : 999.9 Min. Resolution : 0.1 Min.	
		9999	Range : 9999 Min Resolution : 1 Min.	

Parameter	Lower Display	Upper Display	Description	Default
Range 2	rnG2	99.59	Range : 99 Hrs. 59 Min. Resolution : 1 Min.	
		999.9	Range : 999.9 Hrs. Resolution : 0.1 Hrs.	
		9999	Range : 9999 Hrs. resolution : 1 Hrs.	
Hold Range	HdrG	99.99	TIMER RANGE & RESOLUTION : Range : 99.99 Sec. Resolution : 0.01 Sec.	9999 Sec.
		999.9	Range : 999.9 Sec. Resolution : 0.1 Sec.	
		9999	Range : 9999 Sec. Resolution : 1 Sec.	
		99.59	Range : 99 Min. 59 Sec. Resolution : 1 Sec.	
		999.9	Range : 999.9 Min. Resolution : 0.1 Min.	
		9999	Range : 9999 Min Resolution : 1 Min.	
		99.59	Range : 99 Hrs. 59 Min. Resolution : 1 Min.	
		999.9	Range : 999.9 Hrs. Resolution : 0.1 Hrs.	
		9999	Range : 9999 Hrs. resolution : 1 Hrs.	
Timer Direction	dIr	UP	Timer Counting Direction:-	Down
			Up Counting:- If Selected, timer starts counting from 0 to set time in ascending order. (Up direction)	
		dn	Down Counting:- If Selected, timer starts counting from Set time to 0 in descending order. (Down direction)	
Timer Start	tSt	P.St	Timer Start Mode :- This parameter defines the Start mode for the timer.	Power On Start
			Power On Start :- If Selected, timer starts counting from Power On.	
		F.St	Front Start :- If Selected, Timer starts only after user presses START key. If the cycle is incomplete at the time of power fail , It will continue after power is restored without need for re-issuing the Start command from front key (If MEM=On).	
		r.EtP	Remote Edge Positive Trigger Start :- If Selected, Timer starts counting only when it detects high to low pulse at back terminal from external Input.	
		r.Etn	Remote Edge Negative Trigger Start :- If Selected, Timer starts counting only when it detects low to high pulse at back terminal from external Input.	
		r.ELo	Remote Edge Trigger + Level Start :- If Selected, Timer starts counting only when it detects high to low pulse at back terminal from external Input. The input signal must remain high during timing cycle otherwise timer will Reset.	
		r.ELC	Remote Edge Trigger + Level Start :- If Selected, Timer starts counting only when it detects low to high pulse at back terminal from external Input. The input signal must remain low during timing cycle otherwise timer will Reset.	
Timer Mode	tn	Art	Timer Mode:- This parameter will be prompted if other than power on start selected.	Latch Output
			Latched Mode :- In this mode once the timing cycle is over, User must issue a Reset signal from front key or Ext. Reset input to Re-Start the timer.	
		Lo	Auto Reset Mode :- In this mode once the timing cycle is over, Next start input through External Input signal will Re-Start the timer. No need to issue Reset Signal.	

Parameter	Lower Display	Upper Display	Description	Default
Repeat Cycle	rCYC	Cont. nC tot	Repeat Cycle :- This parameter will be prompted only when the timer function is selected as CY1, CY2 or CY3. Continue :- The cycle will be continuously executed till a reset pulse is given either from rear terminal or front reset. Number of Cycle:- The cycle will be executed for the value fed in nC parameter in the user list. Total Time:- The cycle will be executed for the total time fed in the TOT parameter in the user list.	Continue
Start Cycle 3 from	StC3	Hold Frwd	Start Cycle 3 from :- This parameter will be prompted only when the timer function is selected as CY3. Hold :- Starts the operation from Hold time. Forward:- Starts the operation from Forward time.	Hold
Gate Input	GAtE	EnbL dSbL	Gate Input :- Prompted only if Timer is configured as Power On Start. When Enabled (Set to yes) the External Input can work as a Gate input. Enable :- The External Input can be used as a Gate input. Disable :- The External Input can not be used as a Gate input.	Disable
Front Reset	FrSt	EnbL dSbL	Front Reset :- This parameter allows the user to Enable or Disable front Reset function. This feature prevents un-authorized attempt to Reset the Timer during Run mode. Enable :- The Timer can be reset through front panel. Disable :- The Timer can not be reset through front panel.	Enable
Memory Backup	nEn	EnbL dSbL	Memory Backup :- This parameter allows the user to Enable or Disable memory backup function. Enable :- Memory backup for run time value. Disable :- No memory backup for run time value.	Disable
Output 2 Function	2-Fn	OFF AUC EoC inUt	2-Fn parameter will NOT be prompted in CY3 mode. OFF:- If selected , OP2 will completely OFF. AUXILIARY:- If selected , OP2 can be used as Auxiliary contact. Both the relay output will ON/OFF together as per the ON/OFF Delay. End of Cycle Output :- The OP2 is energized for EOC period programmed by user via EOC time in User list in Seconds only. INVERT:- If selected , OP2 logic will be inverse of OP1. Both the relay output will ON/OFF vice-versa as per the timer function.	Auxiliary
StartUp Delay	StdL	EnbL dSbL	Startup Delay :- This time will always be executed if ENABLED before the start of every timing cycle. The outputs will remain OFF during this time. Enable :- This will enable the startup delay. Disable :- This will disable the startup delay.	Disable
Startup Delay Time	tdLY	10.0	Startup Delay Time :- This parameter is prompted only when the Startup Delay Time is ENABLED Startup Delay Time :- Range: 0.1 to 999.9 seconds	10.0

USER LIST : To access the user list press & release SET key once

1. **a**) For On & Off Delay Mode

Parameter	Lower Display	Upper Display	Range	Description	Default
SET TIME 1	St 1	010	0.01 - 999.9	SET TIME 1 : Set time for On delay & Off delay modes.	10.0
EOC TIME	EoC	5.0	0.01 - 999.9	EOC TIME : OP2 function is set to EOC. This parameter sets the End of cycle time (Fixed in seconds)	5.0

2. **b**) For CY1 & CY2

Parameter	Lower Display	Upper Display	Range	Description	Default
ON TIME	t.On	0.10	1 - 9999	ON TIME : Prompted only if selected timer mode is CY1 or CY2. It sets On time for CY1 & CY2 modes.	10.0
OFF TIME	t.oFF	0.10	1 - 9999	OFF TIME: Prompted only if selected timer mode is CY1 or CY2 . It sets Off time for CY1 & CY2 modes.	10.0
NUMBER OF CYCLES	nC	5	1 - 9999	NUMBER OF CYCLES : Prompted only if selected timer mode is CY1, Cy2 or CY3. This parameter is enabled only when Repeat cycle is selected as "NC". It sets the number of cycles after which both the Relays will be OFF.	0
TOTAL TIME	tOt	15.	1 - 9999	TOTAL TIME : Available for CY1, CY2 or CY3 mode. This parameter will be prompted only if "TOT" is selected in repeat cycle. In This mode when Total time is over (Programmed in Min. only); Both relays will be off.	0

NOTE:

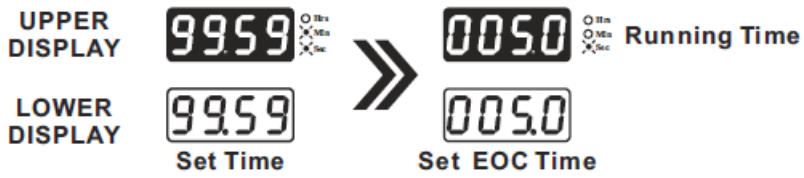
1. In CY1 mode the OFF time will be executed first followed by the ON time.
2. In CY2 mode the ON time will be executed first followed by the OFF time.

For CY3:

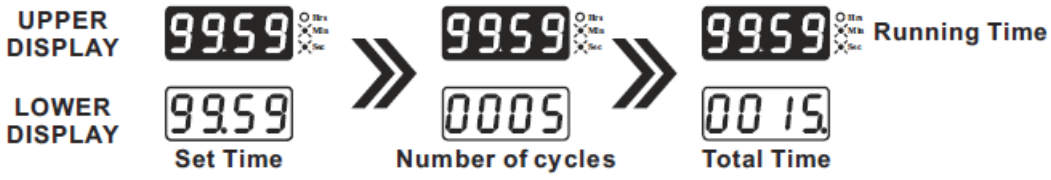
Parameter	Lower Display	Upper Display	Range	Description	Default
FORWARD TIME	Fr.d	5.0	0.01 - 999.9	FORWARD TIME : Prompted only if selected mode is CY3 (Cyclic with Hold). Sets the FORWARD time for motor.	5.0
REVERSE TIME	rEu	5.0	0.01 - 999.9	REVERSE TIME : Prompted only if selected mode is CY3 (Cyclic with Hold). Sets the REVERSE time for motor.	5.0
HOLD TIME	Hold	5.0	0.01 - 999.9	HOLD TIME : Prompted only if selected mode is CY3 (Cyclic with Hold). Sets the HOLD time between motor Forward & Reverse.	5.0
TOTAL TIME	tOt	15.	1 - 9999	TOTAL TIME : Available for CY1, CY2 or CY3 mode. This parameter will be prompted only if "TOT" is selected in repeat cycle. In This mode when Total time is over (Programmed in Min. only); Both relays will be off.	0
NUMBER OF CYCLES	nC	5	1 - 9999	NUMBER OF CYCLES : Prompted only if selected timer mode is CY1, Cy2 or CY3. This parameter is enabled only when Repeat cycle is selected as "NC". It sets the number of cycles after which both the Relays will be OFF.	0

Run Mode

For On & Off Delay Mode



For Cyclic Mode:



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338, New Sonal Link Service Industrial Premises Co-op Society Ltd, Building No.2, Link Road, Malad (W), Mumbai – 400064.

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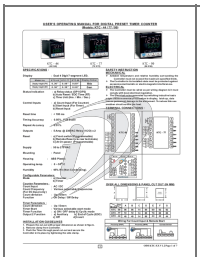
Documents / Resources

	i-therm KTC-44 Digital Preset Timer Counter [pdf] User Manual KTC-44, KTC-77, KTC-99, KTC-44 Digital Preset Timer Counter, Digital Preset Timer Counter, Preset Timer Counter, Timer Counter, Counter

References

- Home - Itherm