

USER'S OPERATING MANUAL FOR DIGITAL PRESET TIMER

(Models: KTM-446 / 776 / 996 / 666)



KTM - 446
(48 X 48)



KTM - 776
(72 X 72)



KTM - 996
(96 X 96)



KTM - 666
(96 X 48)

SPECIFICATIONS :

Display : Double 3 Digit 7-segment LED,
3 Digit Bright White (Running Time)
3 Digit Luminous Green (Set Time)

Model no.	KTM - 446	KTM - 776	KTM - 996	KTM - 666
Display height (PV)	0.39"	0.56"	0.80"	0.39"
Display height (SV)	0.24"	0.39"	0.56"	0.39"

Status Indication : Time unit (Hrs. / Min. /Sec.)
Relay status (RL1/RL2)
Auto Reset / Hold Time

Time settings : Through Keyboard

Control Inputs : a) Start Input b) Reset

Reset time : < 100 ms

Timing Accuracy : 0.05% Full Scale

Repeat Accuracy : 0.01%

Outputs : 5 Amp @ 230VAC Relay (1C/O) x 2
12 VDC@30mA for SSR Drive (by order)

Reset : a) Front switch (Programmable)
b) Remote Reset (via rear terminals)
c) On power interruption (Programmable)

Supply : 90 to 270 VAC

Mounting : Panel

Housing : ABS Plastic

Operating temp. : 0 ~ 50° C

Humidity : 95% Rh (Non Condensing).

Configurable Parameters

Mode : On delay/Off delay/CY1/CY2/CY3

Range 1 & 2 : 9.99 Sec. to 999 Hrs. (Programmable)

Count direction : Up / Down

Timer Start : Refer Programming

Timer Function : Auto Reset / Latched output

Front Reset : Enable / Disable

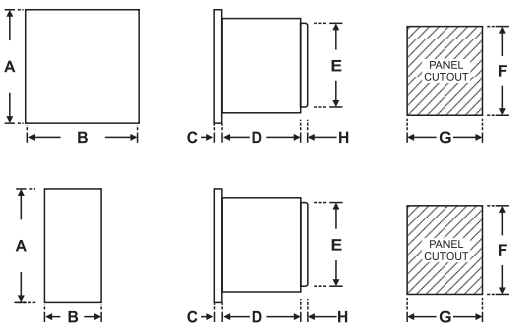
Gate Input : Enable / Disable

Memory Backup : Enable / Disable

Output 2 Function : Refer Programming

OVER ALL DIMENSIONS & PANEL CUT OUT (IN MM)

MODEL:- KTM-446/ KTM-776/ KTM-996/ KTM-666

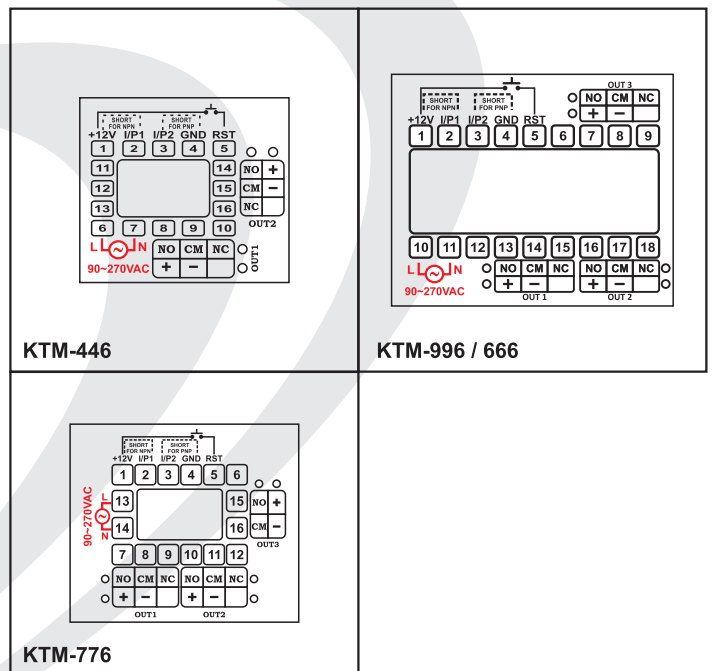


Dim Model	A	B	C	D	E	F	G	H
KTM-446	48	48	8	75	43	44	44	9
KTM-776	72	72	10	65	66	68	68	9
KTM-996	96	96	10	45	89	92	92	9
KTM-666	96	48	10	45	89	92	44	9

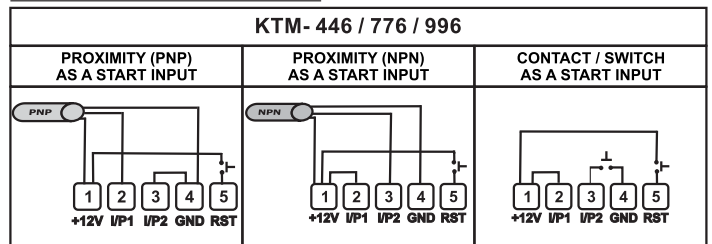
INSTALLATION GUIDELINES

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

TERMINAL CONNECTIONS :



TYPICAL APPLICATION :



SAFETY INSTRUCTION

All safety related instruction appearing in this manual must be followed to ensure safety of the operator as well as the unit..

MECHANICAL

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

ELECTRICAL

- ❖ The Timer 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.

PROGRAMMING


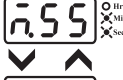




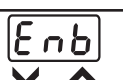





























USER LIST : To access the user list press & release SET key once.

PARAMETER	DISPLAY		RANGE	DESCRIPTION	DEFAULT
HOLD TIME	StH	50	0 - 99.9 S	HOLD TIME : Prompted only if selected mode is CY3 (Cyclic with Hold). Sets the HOLD time between motor Forward & Reverse.	5.0
SET TIME 1	St1	010	0 - 999	SET TIME 1 : Set time for On delay & Off delay modes. On time for CY1 & CY2 modes. Forward time for CY3 mode.	10.0
SET TIME 2	St2	010	0 - 999	SET TIME 2 : Prompted only if selected timer mode is CY1, CY2 or CY3. It sets Off time for CY1 & CY2 modes & reverse time for CY3 mode.	10.0
NUMBER OF CYCLES	nC	0	0 - 999	NUMBER OF CYCLES : Prompted only if selected timer mode is CY1, CY2. It sets the number of cycles after which both the Relays will be OFF.	0
EOC TIME	rt	50	0 - 999	EOC TIME : OP2 function is set to EOC. This parameter sets the End of cycle time (Fixed in seconds)	5.0
TOTAL TIME	tOt	0	0 - 999	TOTAL TIME : Available for CY3 mode only. In This mode when Total time is over (Programmed in Min. only); Both relays will be off.	0

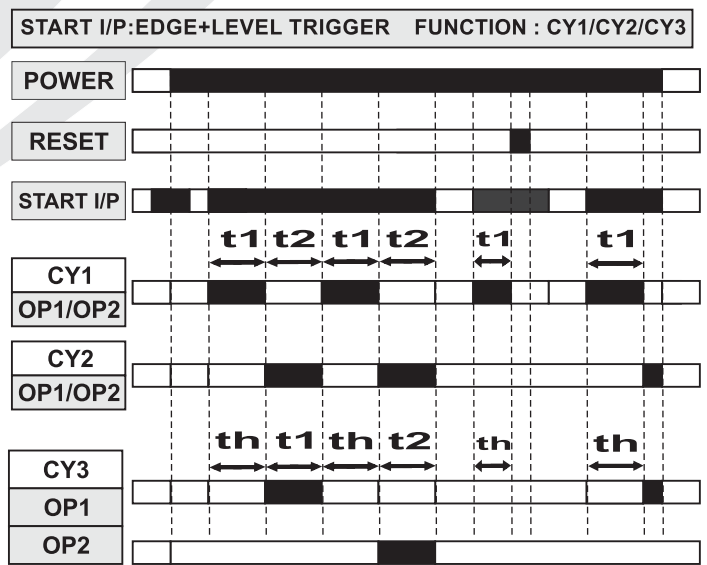
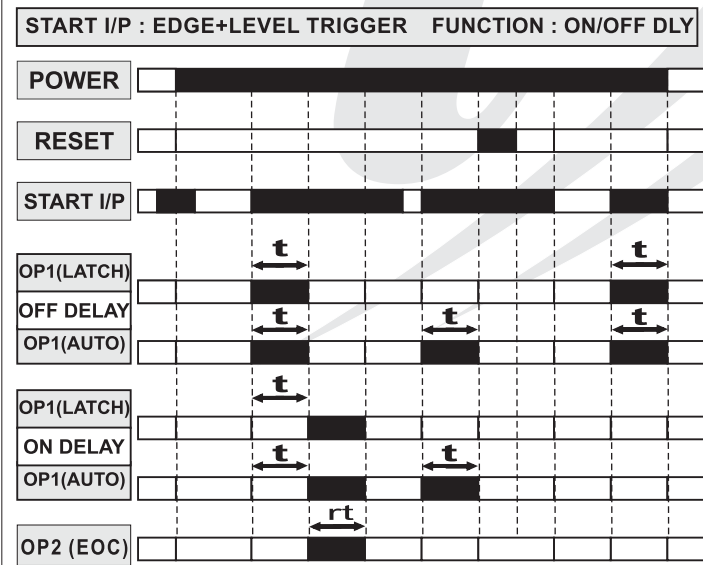
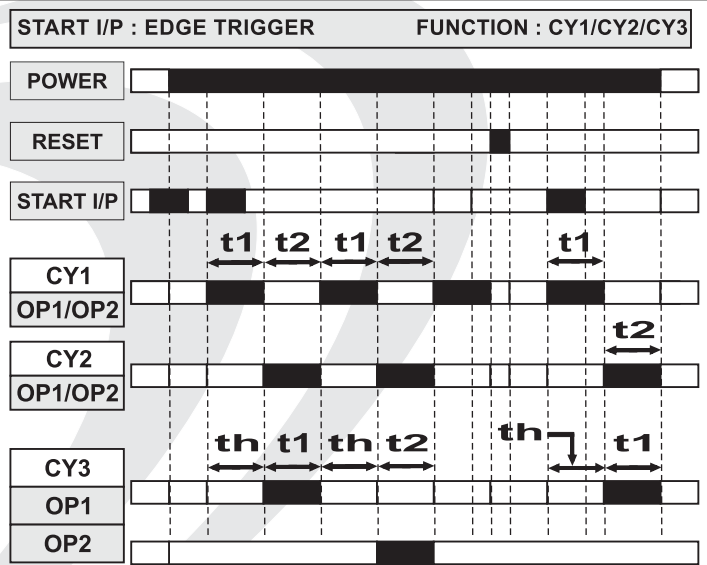
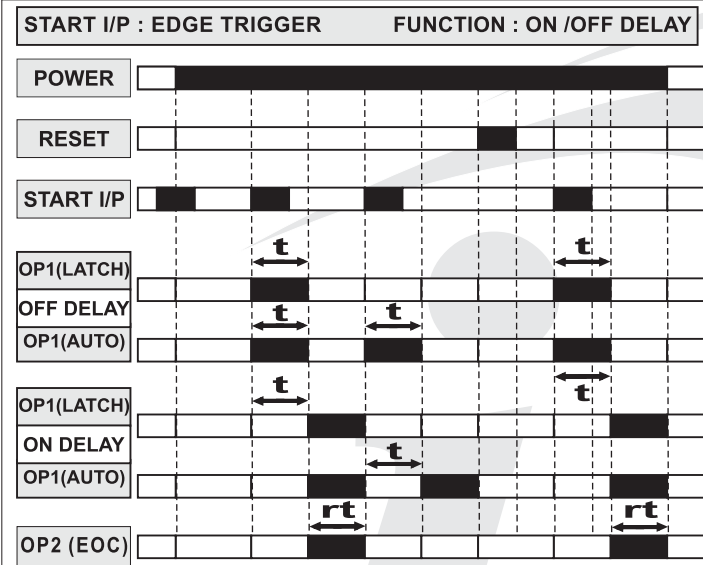
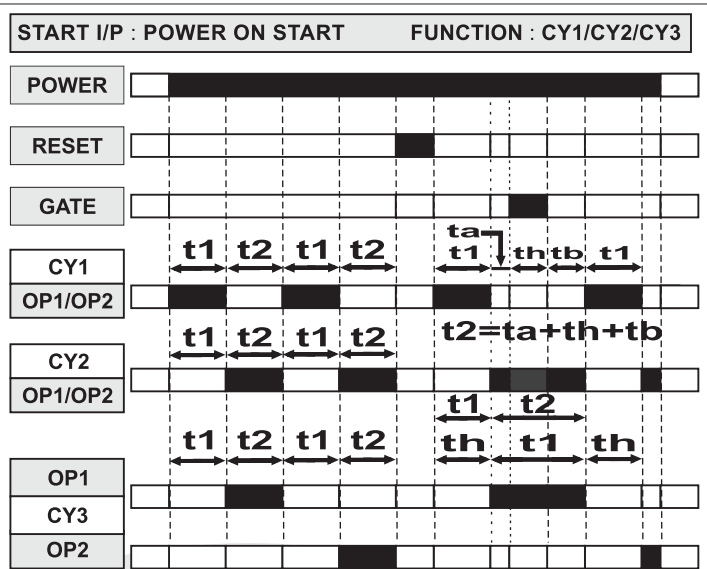
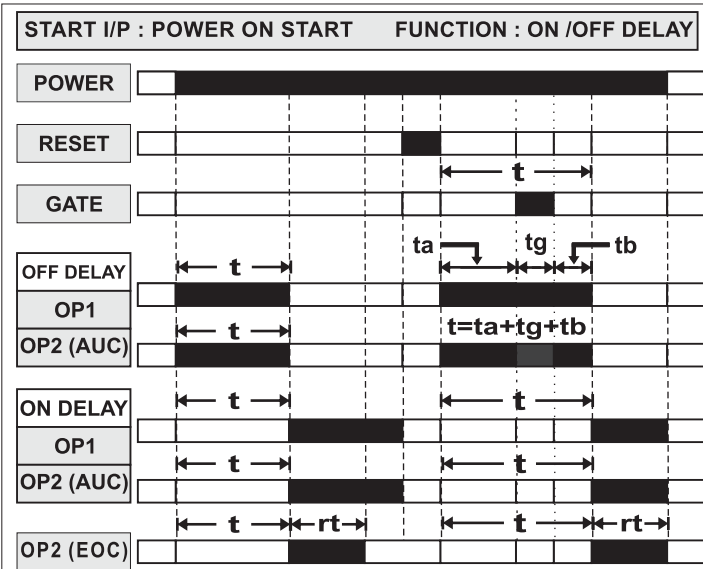
CONFIGURATION LIST :

1. To Enter in this mode press SET key for 6 sec. at Power On. "----" Message will be displayed for 6 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 or DOWN Key to scroll between parameter options.
4. All following parameters as shown in the shaded will be displayed on Lower Display

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.	
		CY1	CYCLIC WITH OFF TIME FIRST : St1 : Off-time St2 : On-time	
		CY2	CYCLIC WITH ON TIME FIRST : St1 : On-time St2 : Off-time	
		CY3	CYCLIC WITH HOLD TIME : StH : Hold Time St1 : Forward-Time ; St2 : Reverse-Time	
RANGE 1	rn1	5.55 <small>0 Hrs 0 Min X Sec</small>	TIMER RANGE & RESOLUTION : Range : 9.99 Sec. Resolution : 0.01 Sec.	999 SEC.
		55.5 <small>0 Hrs 0 Min X Sec</small>	Range : 99.9 Sec. Resolution : 0.1 Sec.	
		555 <small>0 Hrs 0 Min X Sec</small>	Range : 999 Sec. Resolution : 1 Sec.	
		5.55 <small>0 Hrs X Min X Sec</small>	Range : 9 Min. 59 Sec. Resolution : 1 Sec.	
		55.5 <small>0 Hrs X Min 0 Sec</small>	Range : 99.9 Min. Resolution : 0.1 Min.	
		555 <small>0 Hrs X Min 0 Sec</small>	Range : 999 Min Resolution : 1 Min.	
		5.55 <small>X Hrs X Min X Sec</small>	Range : 9 Hrs. 59 Min. Resolution : 1 Min.	
		55.5 <small>X Hrs 0 Min 0 Sec</small>	Range : 99.9 Hrs. Resolution : 0.1 Hrs.	
555 <small>X Hrs 0 Min 0 Sec</small>	Range : 999 Hrs. resolution : 1 Hrs.			
RANGE 2	rn2	5.55 <small>0 Hrs 0 Min X Sec</small>	TIMER RANGE & RESOLUTION : Range : 9.99 Sec. Resolution : 0.01 Sec.	
		55.5 <small>0 Hrs 0 Min X Sec</small>	Range : 99.9 Sec. Resolution : 0.1 Sec.	

RANGE 2			Range : 999 Sec. Resolution : 1 Sec.	999 SEC.
			Range : 9 Min. 59 Sec. Resolution : 1 Sec.	
			Range : 99.9 Min. Resolution : 0.1 Min.	
			Range : 999 Min. Resolution : 1 Min.	
			Range : 9 Hrs. 59 Min. Resolution : 1 Min.	
			Range : 99.9 Hrs. Resolution : 0.1 Hrs.	
			Range : 999 Hrs. resolution : 1 Hrs.	
HOLD TIME		 	Hold Time :- This parameter will be prompted ONLY when timer function selected as CY3. Enable : If selected, user can view & edit Hold time in user list. Disable : If selected, user can only view th Hold Time but cannot edit it in user list.	ENABLE
TIMER DIRECTION		 	TIMER COUNTING DIRECTION : UP COUNTING : If Selected, timer starts counting from 0 to set time in ascending order. (Up direction) DOWN COUNTING : If Selected, timer starts counting from Set time to 0 in descending order. (Down direction)	DOWN COUNT
TIMER START		    	TIMER START MODE : This parameter defines the Start mode for the timer. POWER ON START : If Selected , Timer starts counting at Power On. FRONT START : 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). Not valid for CY3 mode FRONT START : Timer starts only after user presses START key. If the cycle is not over at the time of power fail, It will not start till the START command is issued from the front panel (If MEM=On). Not valid for CY3 mode. REMOTE START (EDGE TRIGGERING) : Timer starts counting only when it detects high to low pulse at back terminal from external Input. REMOTE START WITH LEVEL SENSING : Timer starts counting only when it detects high to low pulse at back terminal from external Input. The input signal must remain low during timing cycle otherwise timer will Reset.	POWER ON START
TIMER MODE		 	TIMER MODE : Prompted only if selected function is ON/OFF Delay & start input is other than power on start. For power on start this function is always set to LO mode. LATCHED MODE : In this mode once the timing cycle is over, User must issue a Reset signal from front key(if F.rt= On) or Ext. Reset input to re-start the timer. AUTO RESET MODE : In this mode once the timing cycle is over, Next start input either thro' Front panel or thro' external input signal will re-start the timer.	LATCH OUTPUT
GATE INPUT		 	GATE INPUT : Prompted only if Timer is configured for either power on start or front start. When enabled (Set to yes) the external input can work as a Gate input. DISABLE (n0) : The external input can not be used as a Gate input. ENABLE (YES) : The external input can be used as a Gate input.	NO
FRONT RESET		 	FRONT RESET ENABLE/DISABLE : 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. DISABLE (n0) : The Timer can not be reset through front panel. ENABLE (YES) : The Timer can be reset through front panel.	YES
MEMORY BACKUP		 	MEMORY BACKUP ENABLE/DISABLE : This parameter allows the user to Enabe or Disable memory backup function. DISABLE (n0) : No memory backup for run time value. ENABLE (YES) : Memory backup for run time value.	NO
OUTPUT 2 FUNCTION		   	OUTPUT 2 FUNCTION : This parameter will be prompted only if selected Timer function is either ON or OFF delay. Not applicable for Cyclic modes. END OF CYCLE OUTPUT : The OP2 is energized for rt period set in user list at the end of timing cycle. AUXILLIARY CONTACT : The OP2 will operate simultaneously with OP1. This function is required when user needs 2 changeover Relay contacts. INSTANT CONTACT : The OP2 function as a instant contact which operates immediately when timer starts & remains in that state till the start of next cycle. OFF : The OP2 is not used & can be kept reserve for future use.	AUC

Function / Timing Waveforms



ABBREVIATION

EOC : END OF CYCLE
LATCH : LATCHED O/P MODE
AUTO : AUTO RESET MODE

t : SET TIME
 rt : END OF CYCLE TIME
 t_g : GATE PULSE PERIOD

CY1
 t_1 : ON TIME
 t_2 : OFF TIME

CY2
 t_1 : OFF TIME
 t_2 : ON TIME

t_h : HOLD TIME
CY3
 t_1 : FORWARD TIME
 t_2 : REVERSE TIME



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