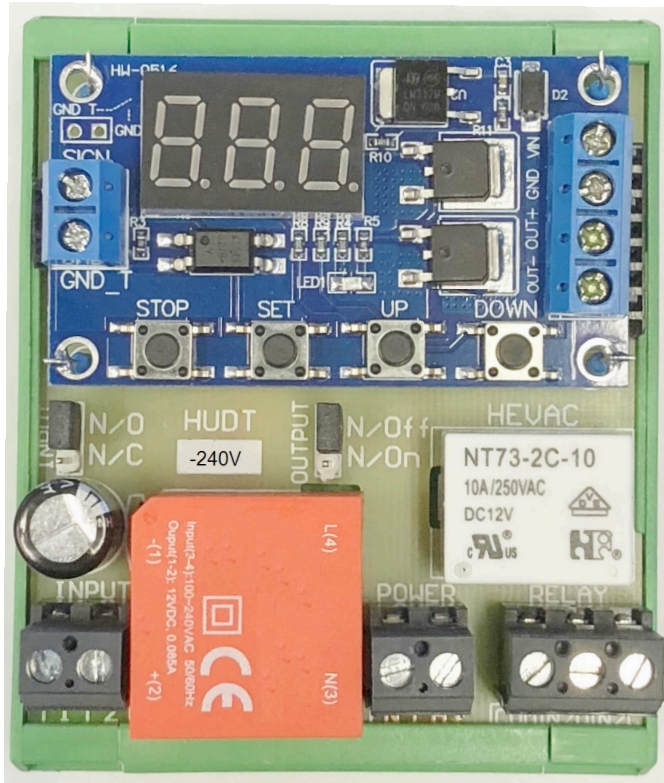


HEVAC

Control Agencies



HUDT-240v

(24v VERSION ALSO AVAILABLE)

UNIVERSAL PROGRAMMABLE

DELAY TIMER . 1s~16HR

- 240vAC Powered (24v version also available)
- Low Voltage Trigger I/P
- SPDT 10A Relay voltage free Output
- 12vDC optional Lamp output
- Input default state can be set as N/O or N/C
- Output Relay can be set for Delay ON or OFF
- Din rail mount
- Complies to Australian electrical safety standards

DESCRIPTION OF OPERATION

The HUDD module makes use of a low cost 3rd party multi function timer (blue) PCB fitted to a HEVAC purpose built support (green) PCB allowing operation & switching of 240vAC whilst still fully complying with Australian electrical safety standards. Jumpers on the HEVAC support board allow setting the default input switch state as N/C or N/O (the blue timer is designed to trigger in response to a N/O input closing), With the use of the input select jumper on the Hevac green support board, N/C inputs can also be used and are electronically inverted to act as N/O inputs into the blue timer PCB to allow it to operate as designed. The blue timer is also designed to turn ON a normally OFF output, so to cater for applications requiring the output relay to be normally energised in its default state and turning off in response to the input, a relay mode jumper on the Hevac green support PCB allows the timer output to be inverted. With the relay jumper set to "N/OFF", the Support Boards Relay will mimic the Timer PCB action of being a normally OFF output changing to an ON state in response to an input change, if the jumper is set to "N/ON" (inverting the timer PCB's output state) the output relay will be normally energised changing to an OFF state in response to the input.

The timer PCB also has an onboard 12vdc output connection that can optionally be used to drive an external 24vdc indication lamp (max 20mA), this lamp output is active when the (blue) timer PCB output is energised & not necessarily reflective of the state of the support board PCB relay (if the relay action is selected as "N/ON", which as stated above inverts the timer PCB's output).

The timer PCB & external lamp ON output state is indicated by a red led on the timer PCB.

Four push buttons on the timer PCB are used to set the mode of operation and delay times.

Most modes of operation of this timer module are tailored to responding to a **momentary input** switch or button but some modes can be used to respond to a on/off semi permanent input switch, See the input / output response & affect table on page 3 to help in selection of the mode that best suits your application.

The Timer has 4 Basic Modes of Operation (with modes P1 & P3 having extra variation selections)

*****Note : as stated above timer PCB output can be inverted on the green support PCB for inverse relay O/P so outputs mentioned below will be opposite if this feature is used*****

P1 : Timer PCB module instantly turns ON with trigger with Delay OFF timing function.

- 1.1 Timer ignores fresh triggers until timed out
- 1.2 Fresh triggers resets timing function to zero and starts timing again with each fresh input.
- 1.3 Fresh input stops timing and resets output & timers to default state (toggle on, toggle off)

P2 : Timer PCB module acts as a Delay ON timer followed by Delay OFF action.

(ignores fresh inputs whilst timing)

P3 : Timer PCB instantly turns ON with I/P for a Delay ON period followed by a delay OFF period

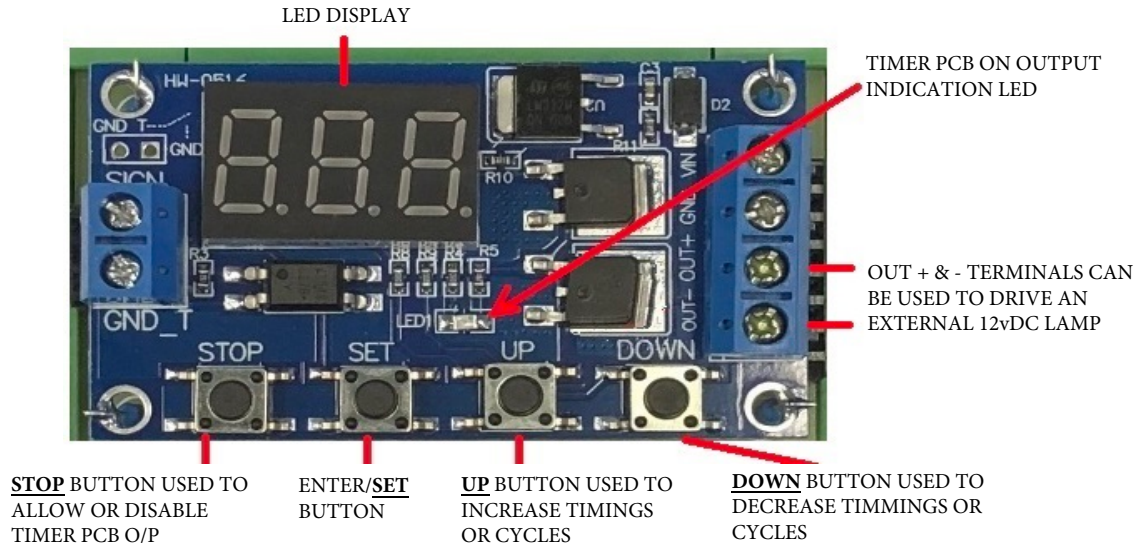
+ can be set to automatically repeat this cycle for a number of executions.

- 3.1 Timer pcb output turns on with trigger for ON time , then off for off time & repeats for settable number of cycles
- 3.2 As above but Timer module automatically triggers with power , no trigger input required.

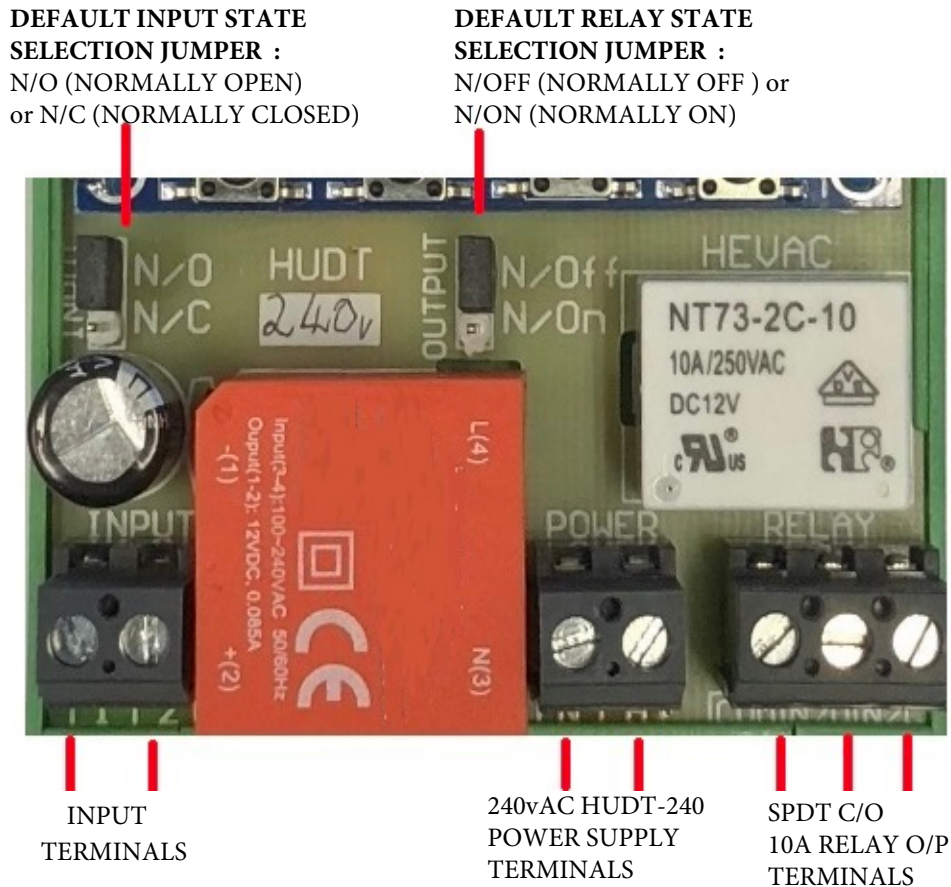
P4 : Timer PCB module acts as Delay OFF timer from a semi permanent switch input

Timer PCB output instantly turns on with trigger, with a delay off action triggered after input switch returns to default state. During timing if the input turns off & back on the timing restarts from zero.

TIMER PCB LEGEND



HEVAC SUPPORT PCB BOARD LEGEND



PROGRAMMING PROCEDURE

The "SET" button is used to enter & exit programming and the "UP" & "DOWN" buttons are used to alter the settings. The "STOP" button has two functions , 1.) to act as an emergency stop button for the blue PCB timer output, which if not later returned to ON mode of operation will cause the timer pcb output to remain in its off state indefinitely, and 2.) in programming mode it allows the choice of 3 time setting ranges : 0.1 to 99.9 seconds, 1 to 999 seconds or 1minute to 999 minutes.

From the running screen (000) a short press of the SET button will cause the display to briefly display the existing time delay settings : "OP"= 1st timing period, "CL"=2nd timing period & "LOP"= # of Cycles

Common to all modes

Press & Hold the SET button for 1 seconds then release > LED will display current MODE choice. Press SET to accept the existing displayed mode choice, or to change selection, scroll up or down the mode choice list using the UP or DOWN buttons, then press SET to accept > LED will display "OP" which will flash for a few seconds and then display the existing time delay.

Modes 1 & 4 have one time delay setting (OP): Press the UP or DOWN button to alter this time delay then Press & Hold SET for ~2 seconds to accept & escape programming (selected mode of operation will flash for a few seconds) then display 000. Timer is ready for operation.

Mode 2 has two sequenced time delay settings [ie blue pcb's OFF delay (OP) followed by an ON delay(CL)] : Press the UP or DOWN button to alter the 1st time period "OP" then press SET > "CL" will flash for a few seconds which will then display the existing 2nd time setting. Alter its value with the UP or DOWN buttons then Press & Hold the SET button to accept and exit programming (selected mode of operation will flash for a few seconds) then 000 will be displayed . Timer is ready for operation

Mode 3 has two sequenced time delay settings + the choice to repeat this on/off cycle for a settable number of executions : Press the UP or DOWN button to alter the 1st time period "OP" then press SET > "CL" will flash for a few seconds which will display the existing 2nd time setting, alter with the UP or DOWN buttons then Press SET > "LOP" will flash for a few seconds and display the existing number of cycles the off/on cycle will repeat ...in most cases this would be set to 000. Alter its value with the UP or DOWN buttons then **Press & Hold** the SET button to accept and exit programming (selected mode of operation will flash for a few seconds) then 000 will be displayed . Timer is ready for operation. Note to set the loop (cycle) feature to infinite loops set its value to "---"

Timing Scale : 0.1 seconds to 999 minutes adjustable in 3 available ranges

The time setting range for the delay times is by default settable from 0 to 99.9 seconds, to alter this default time range note the following procedure: Whilst a delay time is being displayed, Press the "STOP" button to allow selection of a new time range :

XXX. Decimal point in the unit place, time range: 1 second to 999 seconds.

XX. X Decimal point in decade place, Timing range: 0.1 seconds to 99.9 seconds (default).

X. X. X. 3 Decimal points, Timing range: 1 minute to 999 minutes.

For example, if you want to set "OP" to 360 seconds, then choose the setting that has the decimal point to far right position, display = "360." Note for this example you could have alternatively used the 0~999 minute scale choice in which case the display would have shown (360 seconds = 6 minutes) "0.0.6."

Display Sleep Mode

Press the "STOP" button for two seconds and then release to allow selection of the "C-P" or the "O-d" state, the current state will flash and then return to the main screen if not altered within a few seconds.

"C-P" = Sleep mode : After five minutes without any operation, the digital display automatically turns off but the program runs as usual.

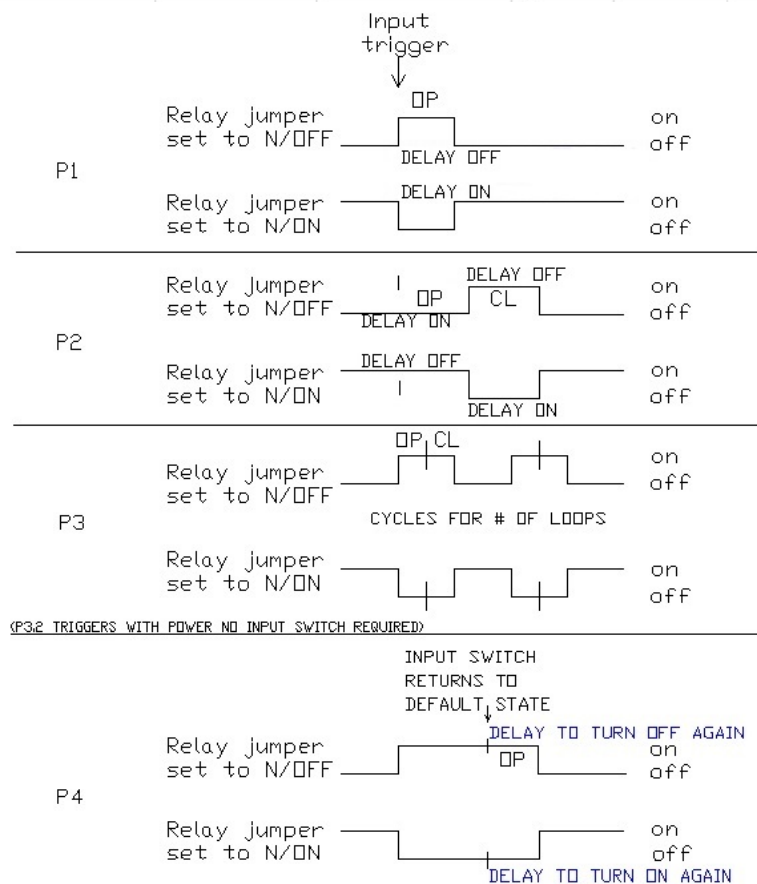
"O-d" = Normal mode : Digital display always on (default)

Timer Module Emergency Stop (Output Inhibit)

The "STOP" button should generally not be used as a stop button as this setting can be forgotten to be reset, Pressing the button in normal operation will act as an instant timer module (blue PCB) output OFF control (emergency stop), which if not returned to the normal ON state of operation (ON = Automatic) will cause the timer PCB output to remain in a permanent OFF state until reset to ON. Momentarily pressing the STOP button again toggles the state it will operate in between "ON" & "OFF" .

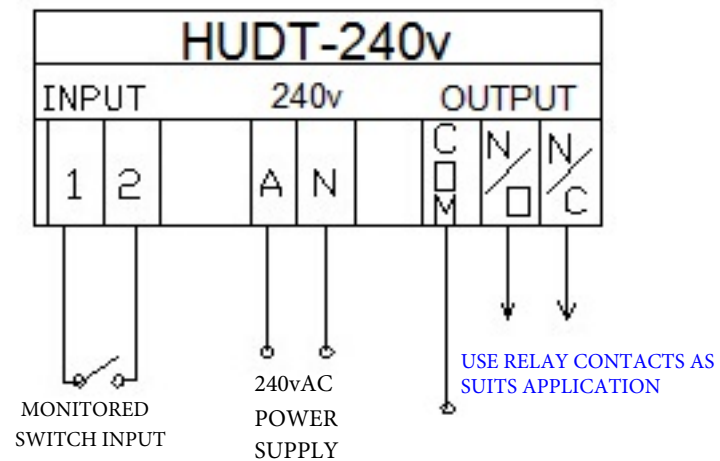
Input / Output & Jumper setting cause & affect Table

DEFAULT INPUT JUMPER SETTING	OUTPUT RELAY JUMPER SETTING	MOMMENTARY INPUT	=	OUTPUT AFFECT	OR	ON/OFF SW. INPUT	=	OUTPUT AFFECT	COMMENTS
TIMER MODE P1.1									
N/O	N/OFF	OPEN		OFF		OPEN		OFF	-USE P4 INSTEAD if on/off switch used
		CLOSED PULSE		instant ON with delayed OFF		CLOSED		O/P timing triggers at both I/P ON & OFF	
N/C	N/OFF	CLOSED		OFF		CLOSED		OFF	
		OPEN PULSE		instant ON with delayed OFF		OPEN		instant ON then delay OFF	
N/O	N/ON	OPEN		ON		OPEN		ON	
		CLOSED PULSE		instant OFF with delayed ON				instant OFF then delay ON (from initial sw change of state)	
N/C	N/ON	CLOSED		ON		CLOSED		ON	
		OPEN PULSE		instant OFF with delayed ON		OPEN		instant OFF then delay ON (from initial sw change of state)	
TIMER MODE P1.2	as above but new trigger	restarts timing							
TIMER MODE P1.3	as above but new trigger	toggles to default state							
TIMER MODE P2									
N/O	N/OFF	OPEN		OFF		OPEN		OFF	-USE P4 INSTEAD if on/off switch used
		CLOSED PULSE		delay ON then delay OFF		CLOSED		O/P timing triggers at both I/P ON & OFF	
N/C	N/OFF	CLOSED		OFF		CLOSED		OFF	
		OPEN PULSE		delay ON then delay OFF		OPEN		delay ON then delay OFF	
N/O	N/ON	OPEN		ON		OPEN		ON	
		CLOSED PULSE		delayed OFF then delay ON		CLOSED		delay OFF then delay ON (from initial sw change of state)	
N/C	N/ON	CLOSED		ON		CLOSED		ON	
		OPEN PULSE		delayed OFF then delay ON		OPEN		delayed OFF then delay ON (from initial sw change of state)	
TIMER MODE 3.1	Same as MODE 1 but can be	set to repeat for # of		cycles					
TIMER MODE 3.2	Same as MODE 1 but timing	is triggered with power		(no I/P sw. required)					
TIMER MODE 4	O/P Delay timer for ON/OFF or	momentary I/P							
N/O	N/OFF	OPEN		OFF		OPEN		OFF	P4 FOR BASIC DELAY TIMER APPS FROM AN ON/OFF SWITCH (or momentary I/P)
		CLOSED PULSE		instant ON then delay OFF		CLOSED		delay off	
N/C	N/OFF	CLOSED		OFF		CLOSED		OFF	
		OPEN PULSE		instant ON then delay OFF		OPEN		instant ON then delay OFF	
N/O	N/ON	OPEN		ON		OPEN		ON	
		CLOSED PULSE		instant OFF then delay ON		CLOSED		instant OFF then delay ON (from initial sw change of state)	
N/C	N/ON	CLOSED		ON		CLOSED		ON	
		OPEN PULSE		instant OFF then delay ON		OPEN		instant OFF then delay ON (from initial sw change of state)	

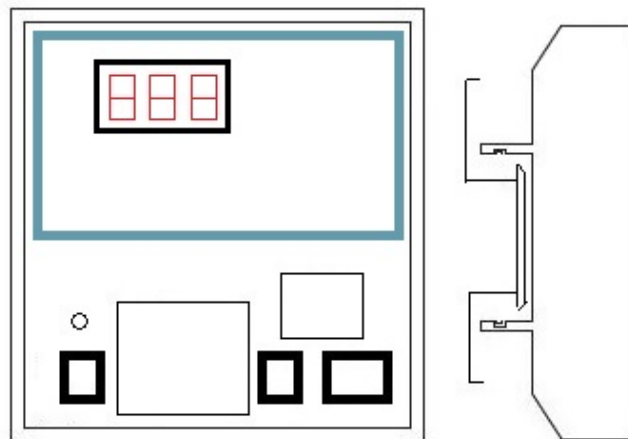


OP = TIMING PERIOD 1
CL = TIMING PERIOD 2
LOOP = # OF CYCLES TO REPEAT

ELECTRICAL CONNECTIONS



DIMENSIONS



68mmW x 77mmHx50mmD