

EVILUSIONS

Event Sequencer



Details:

This Evilusions Programmable Effect Timer (EPET) controls the timed operation of 3 relays. For each relay there is a delay. The order that the delays and relay triggering is: Delay 1, Relay 1, Delay 2, Relay 2, Delay 3, Relay 3. We will call each of these a Sequence. The time for each Sequence can be set from 0 to 4 minutes 15 seconds in 25ms increments. To set these times and trigger the event, there are 4 pushbuttons. One for Menu, one for Up, one for Down and one for Go. The times for each Sequence are displayed on a removable, backlit LCD display.

When the board is first powered up, it will display “Sequence Timer” for about 2 seconds and then will display “Ready!”. This is the top level of the menu tree. During this startup, the microcontroller reads in the time values for each of the sequences that were previously set from non-volatile memory and the entire event can be triggered by pressing the Go button. Triggering the event can only happen when the board is in “Ready!” Mode. You review and set the times for each of the 6 Sequences by pressing the Menu Button. Pressing it once will display “Delay 1=” on the top line of the LCD and the current time that was stored. You can leave the time unchanged by pressing Menu again (at which time it will display “SAVED!” and step to the next Menu Level) or you can change the time. This is done by pressing either the Up or Down buttons. Pressing either of those buttons momentarily will increment or decrement the displayed time in 25ms increments. To change the times faster, press and hold the button for about 2 seconds and the time will rapidly change by 1 second intervals. Once you have set the desired time, press the Menu Button and “SAVED!” will be displayed and then the time for the next sequence will be displayed. Repeat this procedure for each sequence. When you enter the time for the last sequence, Relay 3, the LCD will display “H-Time” which stands for hold time. Hold time is how

Event Sequencer

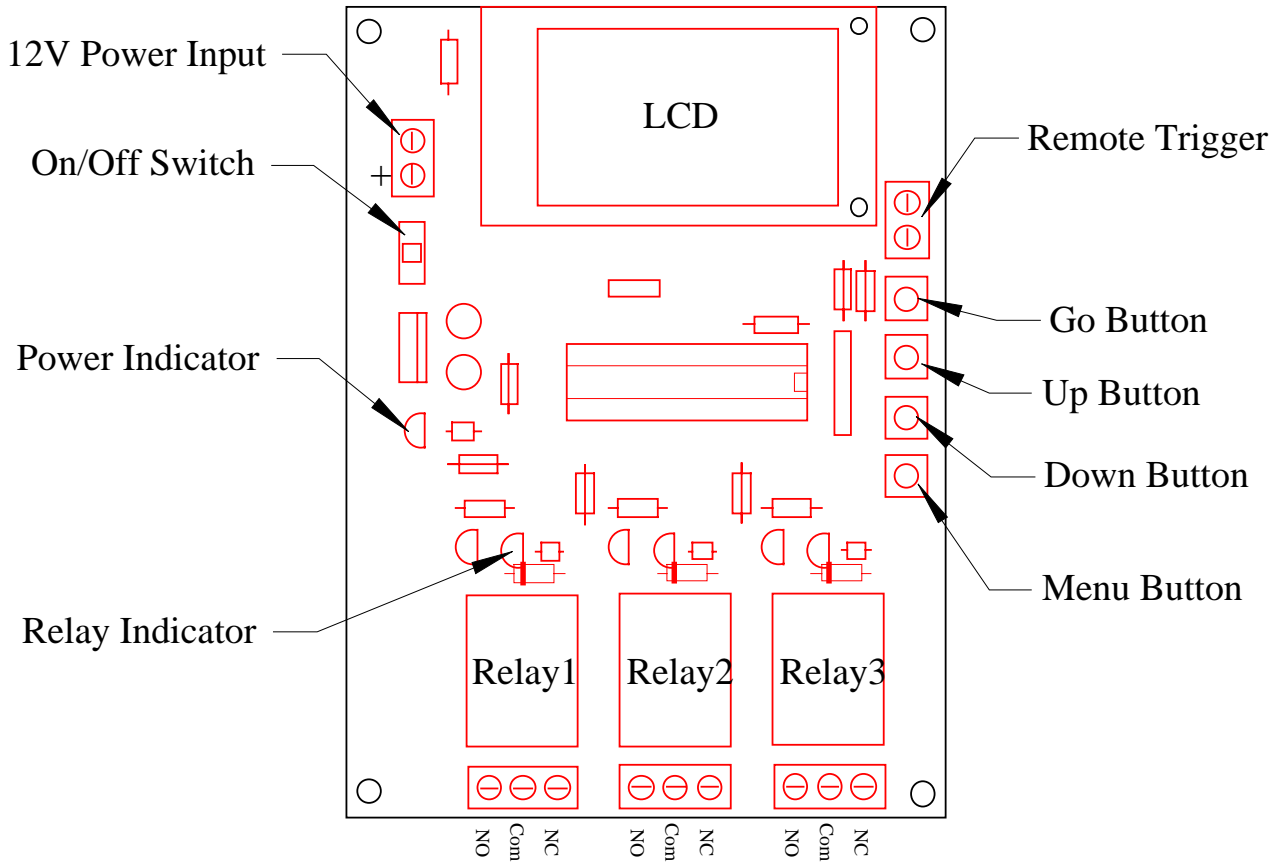
long you would like to prevent retriggering after all repeats have been finished, or between sequences in loop mode. After that you will be asked “Loop?” and “Yes” or “No”. Pressing the Up or Down button will toggle the Yes or No display. This setting tells the microcontroller whether to repeat the entire event over and over or just run through it once. After this, you will be asked how many times you would like to repeat your sequence of delays and relay on times. Pressing the Menu button will save your choice and return to the top menu level, “READY!”. At this time, all of the time values have been saved in memory and will remain there even if power is removed. While in READY! Mode, pressing the Go button will start the event starting with the first delay. When triggered, the LCD will display the current sequence and count down the time remaining for that sequence. When it reaches 0, it will go to the next sequence. After the last sequence has finished, it will loop back to the first sequence if you set the Loop parameter to “Yes” or go back to READY! if it was set to “No” waiting to be triggered again. You can abort the event at anytime during any sequence by pressing the Menu button. Doing this will turn off the relay, if one was on, and return the board to READY! Mode.

Triggering the event can also be accomplished remotely by attaching a normally open (NO) dry contact to the two-position terminal strip next to the Go Button.

Each Relay has Normally Open (NO) and Normally Closed (NC) Contacts and a LED that indicates when Relay is activated.

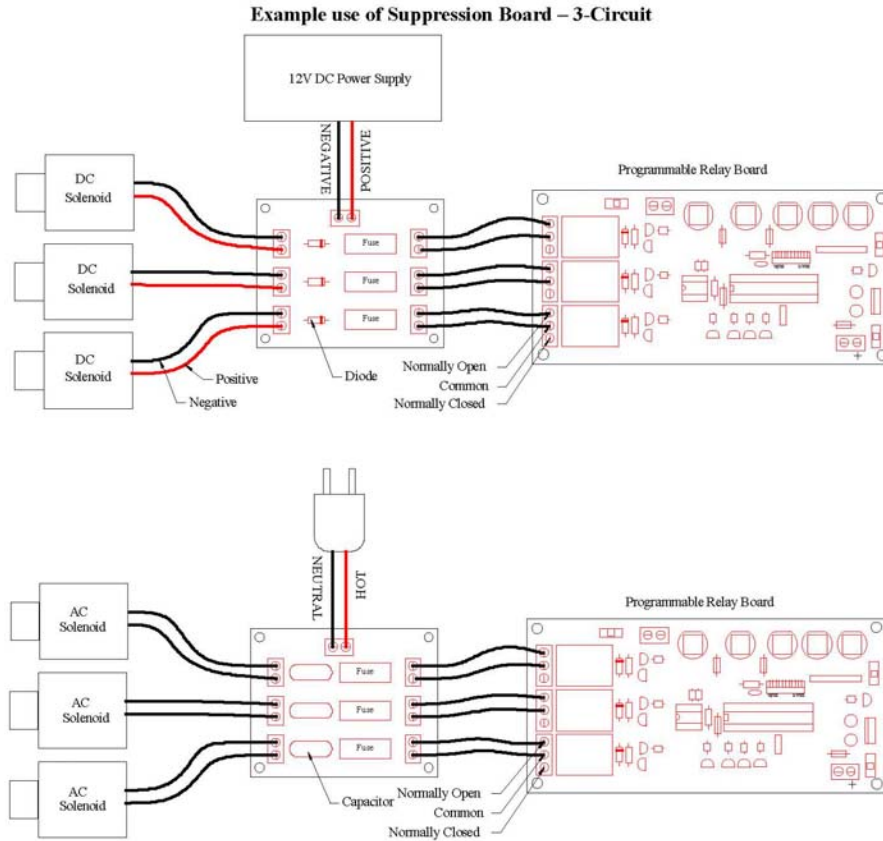
The LCD is backlit to allow setting and monitoring in low light conditions. The LCD can be removed, if not needed. Only remove or attach the LCD when the power is off. The board requires a minimum of 200 mA at 12 VDC for operation (higher mA is better).

Board Layout



Event Sequencer

Anytime you use a relay to control a solenoid valve, you need to suppress the kick back voltage to protect your relay board. We recommend using one of our suppression boards as shown in the diagram below.



Disclaimer:

In no circumstances should these circuit boards be used in critical situations where failure could mean injury, death or property damage.

Please check out our other circuit board designs at www.evilusions.com

For more information, e-mail Brian at:

Gadget@evilusions.com