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Time Delay Relay

Here is a board that, when triggered, will activate a relay for a specified period of time. This time is controlled by a “timing resistor” which is easily replaceable by the user. See below for a table of resistor values and associated time delays. Time delays can range from less than a second to about 50 minutes. The trigger can be a switch closure (supplied by User) or if you remove the “pullup resistor” (see diagram below), the board can be triggered by touching your finger to wires coming from the trigger terminals.



An LED indicates when the NO contacts of the relay are closed.

This board is based on the 555 Timer and the relay is rated for up to 10 amps. The relay has Normally Open (NO) and Normally Closed (NC) terminal connections.

The board requires 12VDC for operation. Other voltages are available upon request.

Miscellaneous Information:

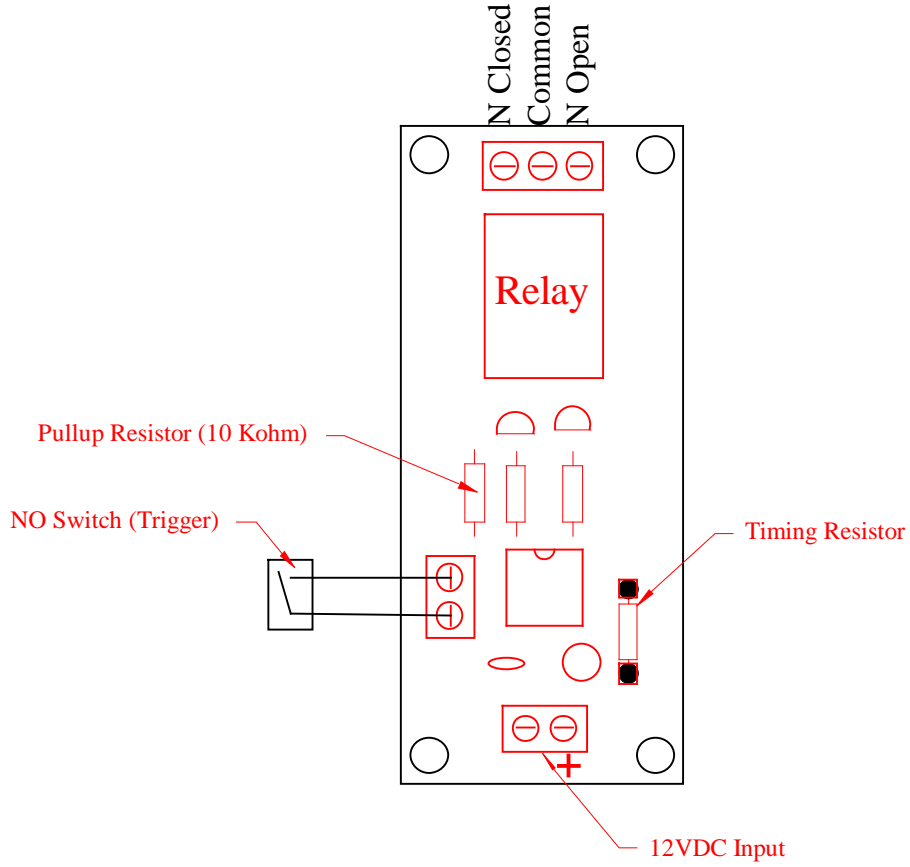
- The relay activates as soon as the trigger occurs but timing begins as soon as the trigger is interrupted. For example, if you have a timing resistor installed to give a delay of 10 seconds and you hold the trigger switch down for 5 seconds, the relay will be activated for 15 seconds.

Specifications:

- Input Power: 12 VDC
- Output: NO and NC Contacts
- Relay Rating: 10A Max
- Board Dimensions: 1.5 x 3.5 inches

Example Hook-Up

Below is an example of how this board might be hooked up:



Resistor Values / Time Delay* Chart

Resistor Value (K)	Seconds	+5%	-5%	Resistor Value (K)	Minutes	+5%	-5%
10 K	2.2	2.1	2.3	220 K	1.02	0.97	1.07
11 K	2.5	2.4	2.6	240 K	1.11	1.06	1.17
12 K	2.8	2.6	2.9	270 K	1.26	1.19	1.32
13 K	3.1	2.9	3.2	300 K	1.40	1.33	1.47
15 K	3.6	3.4	3.8	330 K	1.54	1.46	1.61
16 K	3.9	3.7	4.1	360 K	1.68	1.59	1.76
18 K	4.5	4.2	4.7	390 K	1.82	1.73	1.91
20 K	5.0	4.8	5.3	430 K	2.01	1.91	2.11
22 K	5.6	5.3	5.9	470 K	2.19	2.08	2.30
24 K	6.2	5.8	6.5	510 K	2.38	2.26	2.50
27 K	7.0	6.6	7.3	560 K	2.61	2.48	2.75
30 K	7.8	7.5	8.2	620 K	2.90	2.75	3.04
33 K	8.7	8.3	9.1	680 K	3.18	3.02	3.34
36 K	9.5	9.1	10.0	750 K	3.51	3.33	3.68
39 K	10.4	9.9	10.9	820 K	3.83	3.64	4.02
43 K	11.5	10.9	12.1	910 K	4.25	4.04	4.47
47 K	12.6	12.0	13.3	1.0 M	4.68	4.44	4.91
51 K	13.7	13.1	14.4	1.1 M	5.15	4.89	5.40
56 K	15.2	14.4	15.9	1.2 M	5.61	5.33	5.89
62 K	16.8	16.0	17.7	1.3 M	6.08	5.78	6.39
68 K	18.5	17.6	19.5	1.5 M	7.02	6.67	7.37
75 K	20.5	19.5	21.5	1.6 M	7.49	7.11	7.86
82 K	22.5	21.3	23.6	1.8 M	8.43	8.00	8.85
91 K	25.0	23.7	26.2	2.0 M	9.36	8.90	9.83
100 K	27.5	26.2	28.9	2.2 M	10.30	9.79	10.82
110 K	30.3	28.8	31.9	2.4 M	11.24	10.68	11.80
120 K	33.2	31.5	34.8	2.7 M	12.64	12.01	13.28
130 K	36.0	34.2	37.8	3.0 M	14.05	13.35	14.75
150 K	41.6	39.5	43.7	3.3 M	15.46	14.68	16.23
160 K	44.4	42.2	46.6	3.6 M	16.86	16.02	17.71
180 K	50.0	47.5	52.5	3.9 M	18.27	17.35	19.18
200 K	55.6	52.9	58.4	4.7 M	22.02	20.92	23.12
				5.1 M	23.89	22.70	25.09
				5.6 M	26.24	24.92	27.55
				6.2 M	29.05	27.60	30.50
				6.8 M	31.86	30.27	33.45
				7.5 M	35.14	33.38	36.90
				8.2 M	38.42	36.50	40.34
				9.1 M	42.64	40.51	44.77
				10.0 M	46.86	44.51	49.20

* Above time values are calculated and are approximate. You may have to experiment a little to get the exact time you want. Use ¼ watt resistors – available at any electronics supply store (i.e., Radio Shack). The +/- 5% Values above show approximate range expected when using 5% resistors.

Disclaimer:

These boards are designed for educational use only. In no circumstances should these circuit boards be used in critical situations where failure could mean injury or property damage.

For more information, contact me at:

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