Valefod DC 6-30V Timer Relay Programmable Delay Relay Module User Guide

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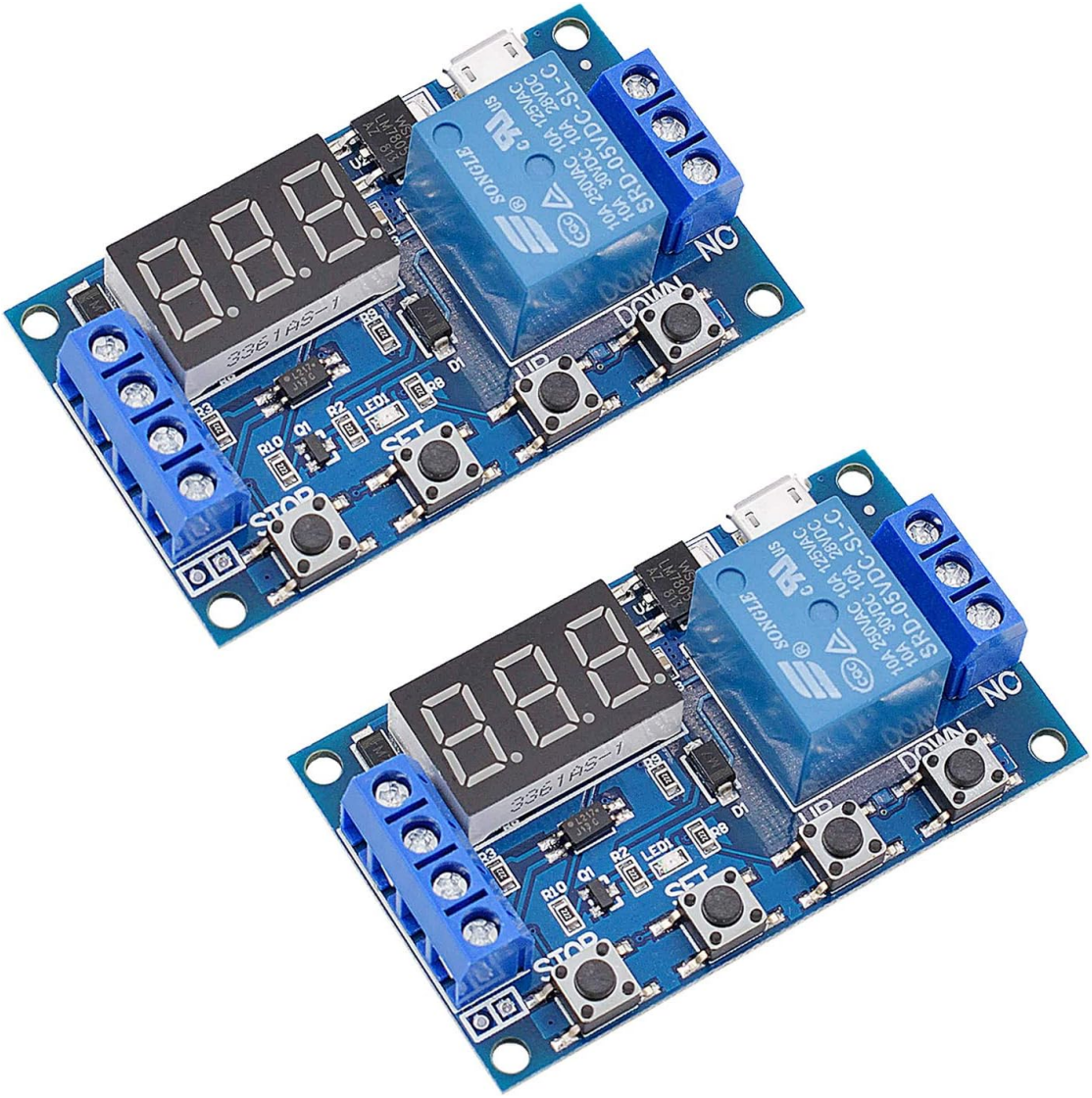
Valefod

Valefod DC 6-30V Timer Relay Programmable Delay Relay Module



Product Information

Specifications:

- Operating voltage: DC 6V – 30V, supporting micro USB 5V power supply
- Operating current: 50mA, static current: 20mA
- Working temperature: -20°C to 60°C
- Maximum load:
  - AC: 250V/10A
  - DC: 30V/10A
- Size: 6.4cm x 3.8cm x 1.7cm

Product Overview:
The Valefod DC 6-30V Timer Relay Programmable Delay Relay Module is a multifunctional relay control module designed to meet the timing and control needs of users. It is suitable for a wide range of applications, from hobby projects to industrial controls.

Operation Modes:

P1:
Upon signal trigger, the relay remains on for the OP (on-time) period and then turns off. There are different sub-

modes within P1:

- P1.1: Signal re-triggering is ignored.
- P1.2: Signal re-triggering will reclock the relay.
- P1.3: Signal re-triggering will reset the relay, disconnect the relay contact, and stop timing.
- P1.4 (random mode): The relay conducts the OP time only once when power is turned on.

P2:
Feed a trigger signal to the relay, and it remains off for the CL (off-time) period. After timing, the relay turns off. There is also a P2.2 sub-mode where re-triggering the signal will cause the relay to remain off for CL time and then conduct the OP time again.

P3:
Feed a trigger signal to the relay, and it conducts the OP time. The relay then remains off for the CL time and repeats the above actions. In P3.1, re-triggering the signal within the timing cycle will disconnect the relay contact and stop timing. In P3.2, no trigger signal is needed when power is turned on.

P4:
This mode uses a remaining signal to reset the timing when triggered. The relay contacts stay connected when the timing is reset. When there is no signal, the relay turns off after the OP time. Re-triggering the signal during the timing period will reset the timing.

Timing Range:
The timing range of the relay module is continuously adjustable from 0.1 seconds (min.) to 999 minutes (max.).

How to Choose a Timing Range:
To choose a timing range, follow these steps:

1. Set the parameter value in the mode selection interface.
2. Short press the STOP button to select the timing range.

The timing range selection is based on the position of the decimal point on the digital tube display:

- XXX: Decimal point at single digit, timing range = 1 second to 999 seconds.
- XX.X: Decimal point at tens digit, timing range = 0.1 seconds to 99.9 seconds.
- X.X.X: All decimal points appear, timing range = 1 minute to 999 minutes.

For example, if you want to set the OP to 3.2 seconds, move the decimal point to the tenth digit, and the digital tube will display 03.2.

Parameter Explanation:
The parameters used in the relay module are independent of each other but are shared by all operation modes. The parameters are as follows:

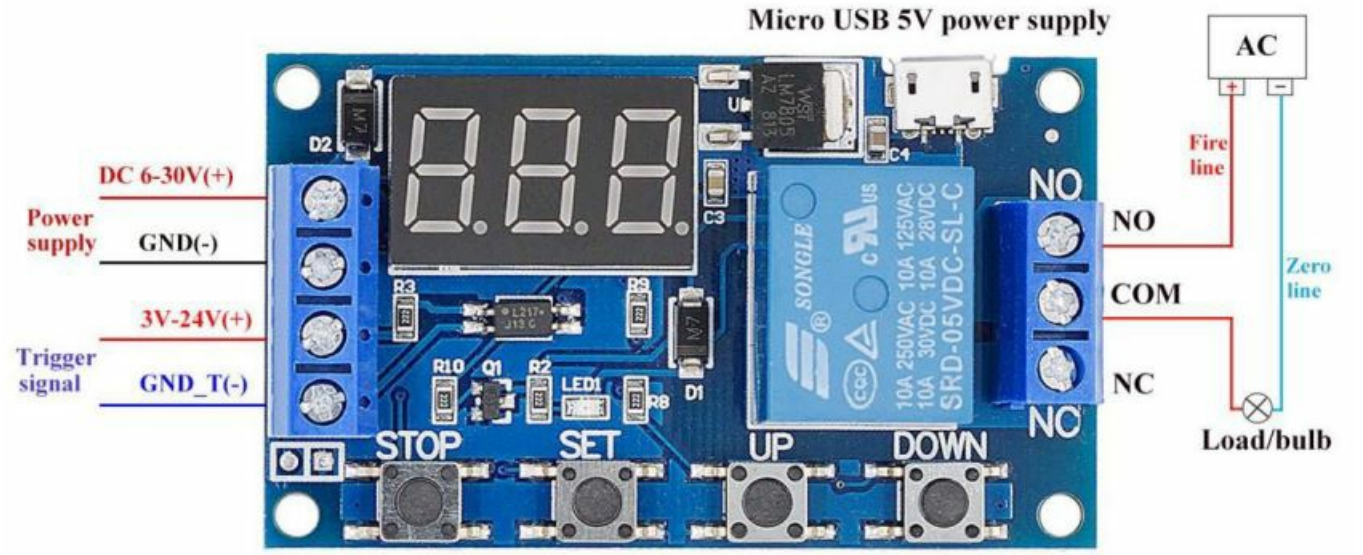
- OP: On-time
- CL: Off-time
- LOP: Cycle times (1 – 999 times, “—” stands for infinite cycles)

For example, when setting the OP to 5 seconds in P1.1 mode, if you switch to P1.2 mode, the corresponding

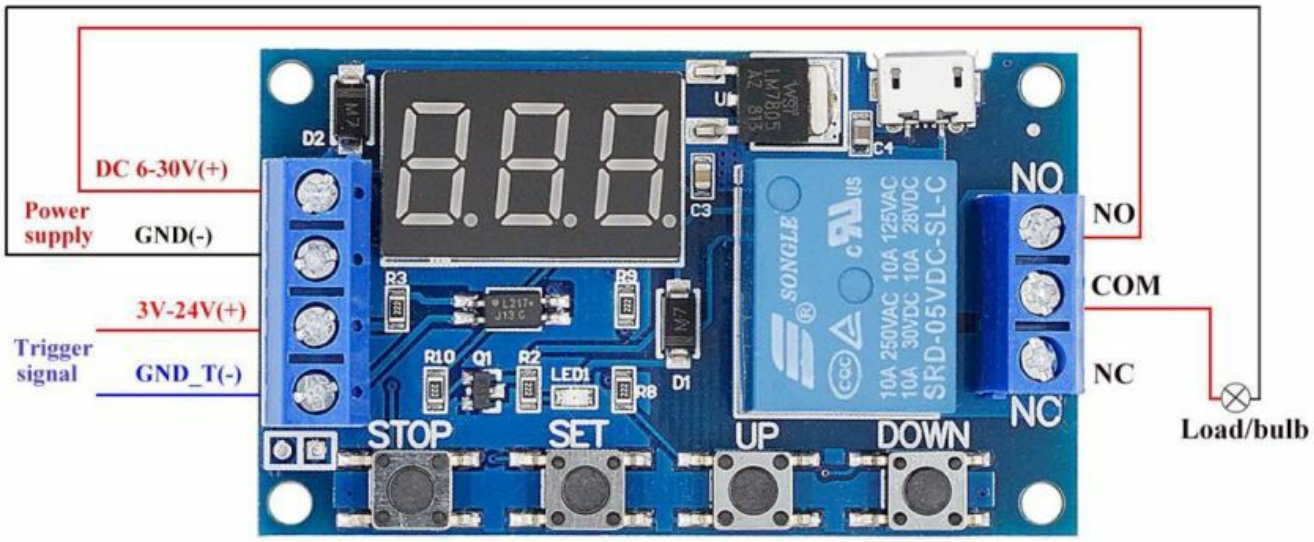
parameters will also be set with an OP of 5 seconds. In the main interface (digital tube displays 000), short press the SET button to show OP (CL, LOP) and the corresponding time XXX. If there is only an OP time in the mode (e.g., P1.1, P1.2, P1.3), a short press of the SET button will only display OP and the corresponding time.

Product Overview

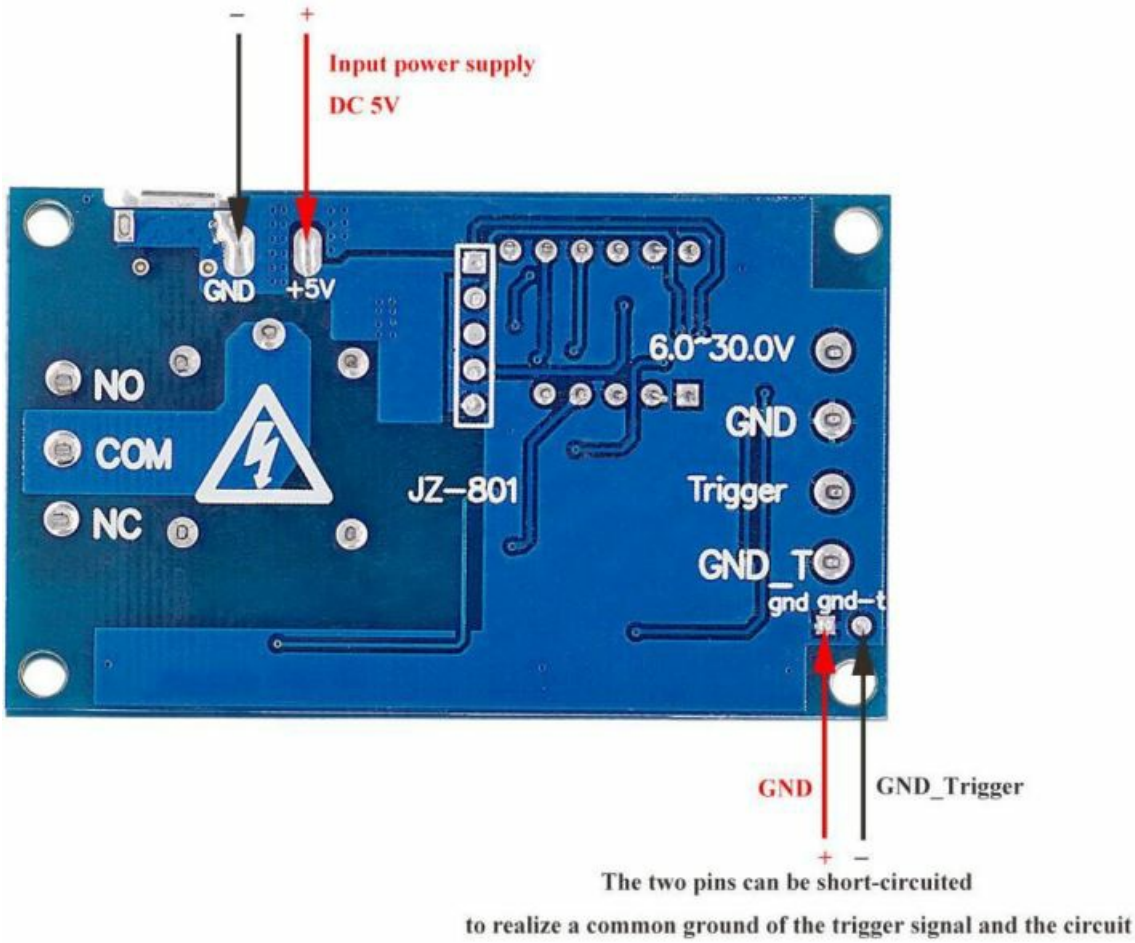
The multifunctional relay control module is designed for people with different timing and control needs. It’s perfect for many applications from hobby to industrial controls.



Wiring diagram of weak current controling strong current



Wiring diagram of sharing one power supply



Specifications

- Specifications are subject to change without notice.
- Operating voltage: DC 6V – 30V, supporting micro USB 5V power supply Operating current: 50mA, static current: 20mA
- Working temperature: -20—60°C
- NO maximum load: < AC 250V/10A, < DC 30V/10A
- Size: 6.4*3.8*1.7cm

Operation Modes:

1. Upon signal is triggered(application of input voltage), the relay remains on for OP time, then turns off. Operate within the OP period as follows.
    - The signal being re-triggered is ignored
    - The signal being re-triggered to reclock
    - The signal was re-triggered to reset, the relay contact disconnected, and stop timing
        - (random mode): The relay conducts OP time only once when the power is on.
2. Feed trigger signal, the relay remains off for CL time, then conducts OP time. After timing, the relay turns off.
    - (random mode): Feed trigger signal, the relay remains off for CL time, then conducts OP time. Signal being re-triggered, the relay remains off for CL time and conducts OP time again.
3. Feed trigger signal, the relay conducted OP time, the relay remains off for CL time, then repeat above actions, re-trigger signal within the timing cycle, the relay contact disconnected, stop timing. The circuit times(LOP) can be set.

- No need to trigger the signal when power is on, the relay conducts OP time, then the relay remains off for CL time, and then repeats the above actions. The circuit times(LOP) can be set.

4. The function of the remaining signal: the timing will be reset upon the signal is triggered, and relay contacts stay connected. when no signal, turn off the relay after timing OP. During the period of timing, the timing will be reset upon the signal being re-triggered.
    - **Timing Range**: 0.1 seconds (min.) ~ 999 minutes (max.) continuously adjustable

How to choose a timing range:
Upon setting the parameter value in the mode selection interface, select the timing range by short-pressing the STOP button.

- XXX. Decimal point at single digit, timing range = 1 second ~ 999 seconds.
- XX.X Decimal point at tens digit. timing range = 0.1 second ~ 99.9 seconds
- X.X.X. All the decimal points appear, timing range = 1 minute ~ 999 minutes.

For example, if you want to set the OP to 3.2 seconds, and then move the decimal point to the tenth digit, the digital tube displays 03.2

Parameter explanation: OP = on time, CL = off time, LOP = cycle times (1 – 999 times, "—" stands for infinite cycles) These parameters are independent of each other, while they are shared by all operation modes. For example, when the OP(on-time) is set to 5 seconds in P1.1, the user wants P1.2 mode and then enters P1.2 to set the corresponding parameters, OP will also be 5 seconds. In the main interface (digital tube displays 000), short press the SET button, and it will show OP (CL, LOP) and the corresponding time XXX

- If there is only OP (such as mode P1.1, P1.2, P1.3) time in the mode, then a short press SET button will only display OP and the corresponding time.
- If there are OP, CL, and LOP in the mode (such as mode P3.1, P3.2), the short press SET button will display OP and corresponding time, CL and corresponding time, LOP and corresponding times.

After setting the operation mode, you can easily view and change the parameters by pressing the SET button in the main interface.

How to Set Parameters

1. First of all, determine the working mode of the relay.
2. Upon the working mode of the relay, in the main interface (when the module is powered on, it will flash the current working mode – default P1.1 mode, and then enter the main interface)
    - Long press the SET button for 2 seconds and release to enter the mode selection interface, select and set the mode (P1.1 ~ P-4) by short pressing the UP and DOWN buttons.
3. Select a setting mode you want (Eg. P3.2), and short-press the SET button to set the parameter. At that time, the parameter you set will flash (OP – ON time, CL – OFF time, LOP – cycle number). You could adjust the parameter by pressing the UP and DOWN buttons.
    - Long press (increase or reduce rapidly) and short press (increase or decrease by 1 unit) are supported.
    - After setting the parameter, select the position of the unit point by short-pressing the "STOP" button to choose a timing range (corresponding time 0.1 seconds~999 minutes).
    - Short press the "SET" button to set the next parameter of the current mode, and the progress is as has

been mentioned above.

4. After selecting the mode's parameter, long press the "SET" button for 2 seconds and release. The current setting mode will flash and return to the main interface, and the parameter setting is finished. It's very simple!

Main interface:
It will appear as "000" without decimal points when at "OFF" status, while appears with decimal points clearly at "ON" status.

Mode selecting interface:
Long press the "SET" button to set the parameter, while long press the "SET" button to return to the main interface. It's very simple!

Relay Using Mode:

- ON: Relay is allowed to be conducted within OP time (on time).
- Relay is banned conducting and it is always at closing status.

Short pressing the "STOP" button in the main interface, you will realize the shift between "ON" and "OFF". It will flash and return to the main interface. (This is an acute stop function, one-button turn on and off the relay)

Sleep Mode:

- C-P sleeping mode: When not using the relay for 5 minutes, the digital tube will turn off the display automatically, and the program will keep working.
- O-d normal mode: Display of digital tube always on. Long press the "STOP" button for 2 seconds and release to shift the status of C-P and O-d. It will flash and return to the main interface.
- Sleep mode will automatically switch to normal mode when the power is cut off.

Package List:
2 x DC 6-30V Timer Relay Module with LED display

Kindly Note:
If the timer relay board does not energize, or when the timer relay board energizes but the load in the circuit can not be triggered to start, please try to apply some more power than expected. Especially for use with trigger signals and load on the wiring diagram of sharing one power supply, as they require additional power to actuate.

The above product usage instructions are the content for the Amazon buyer page. Below is a newly written usage instruction from a helpful customer, hoping it will be useful to you. I like this timer, it seems usable for many situations, and many probably past my needs. Some uses I might just invent for the fun of it. The only thing I miss is a good manual explaining the programs in plain English. So I wrote my own:

- Press the set button for a few seconds then use the up/down buttons to select the program you need. Press the set button shortly to cycle to the various OP(en) and CL(ose) timers and LO(O)P counter. OP(en) timers can be programmed in increments of a second, and CL(osed) timers can be programmed in increments of 1/10th of a second.
- The trigger circuit (Trigger and GND_T connectors) is galvanically separated from all circuitry using an optocoupler with a 2.2K resistor in series. While the board needs at least 6V, the trigger is activated with voltages as low as 1.5V over the Trigger and GND-T pins.

- **WARNING**: Although the relay states it can handle up to 250V the circuit board is not designed well enough to safely handle anything above maybe 48V. (It is missing its air gaps to make it safe.)

Abbreviations used in display:

P -> Program

- OP -> Open – no power to relay
- CL -> Close – relay is powered
- LOP -> Loop – number of cycles turning off and on before staying off.

Abbreviations used on board

- COM -> Common wire – put power to this wire to then put your load/device on NC or NO.
- NC -> Normally Closed – when the relay is not powered this contact is closed.
- NO -> Normally Closed – when the relay is not powered this contact is open.

Available programs

- P1.1: Run once for CL seconds after the power has been applied to the trigger.
- P1.2: Run for CL seconds each time power has been applied to the trigger.
- P1.3: As 1.2 but turn off when power is re-applied to trigger within the countdown time.
- P1.4: Run once for CL seconds but there is no power to trigger needed.
- P2.1: After applying power to the trigger delay for OP seconds, then run for CL seconds.
- P2.2: After applying or removing power to the trigger delay for OP seconds, then run for CL seconds.
- P3.1: Cycle on and off for OP and CL seconds and LOP cycles when power to trigger is applied momentarily or permanently, restart cycle in “on” phase when power to trigger is re-applied during “off” phase, stop cycle when power to trigger is re-applied in “on” phase.
- P3.2: Cycle on and off for OP and CL seconds for LOP cycles without the need to put power to the trigger.
- P4: Run when power is put to trigger and continue for CL seconds after the power has been removed from the trigger.

Note
The 5v USB connector can be used for programming/exploring but most programs won’t run as the trigger port can’t be self-powered by the board’s 6.0~30V input. However, I have not tried this, but I believe that if you bridge diode D2 and voltage regulator U3 you can have a complete 5V 500mA project going from a standard 5V USB cable.

The usage instructions for this timer relay can also be found on YouTube by searching for “JZ-801”. Perhaps the instructional video will be more helpful in understanding the features and usage of this timer relay.

Programmable triggered timing board 35238 MP
https://www.youtube.com/watch?v=p9u8lrsRrWE
Multifunction Timer On Off circuit
https://www.youtube.com/watch?v=05KWuysRP-Q
Home Automation With Trigger Delay Timer Module JZ-801
https://www.youtube.com/watch?v=vvov8sPxbcM

FAQ’s

One of these timer relay boards doesn’t work it turns on for a few seconds and then turns off. The other one is fine. What can I do about it?
If your timer relay board is not working correctly, please inspect the wiring for any looseness, try testing this timer relay board on different circuits, or utilize an alternate power source. If the timer relay board does not energize, or when the timer relay board energizes but the load in the circuit can not be triggered to start, please try to apply some more power than expected. Especially for use with trigger signals and load on the wiring diagram of sharing one power supply, as they require additional power to actuate.

If the timer relay board still doesn’t work, please contact **valefod-services@hotmail.com**.

Can I use a power supply below 6V or above 30V?

No, the operating voltage range is strictly between DC 6V and 30V. Using a power supply outside this range may damage the relay module.

Can I use an AC power supply?

No, the relay module is designed to work with DC power supply only. Using an AC power supply may damage the module.

Can I adjust the timing range during operation?

No, the timing range can only be adjusted in the mode selection interface before starting the timing process.

What is the maximum load capacity of the relay?

The maximum load capacity is

Can I use the relay module for industrial applications?

Yes, the relay module is suitable for both hobby and industrial controls. However, ensure that the operating conditions and load requirements are within the specified limits.

How do you trigger it? what signal on what pins? i've tried 5v to trigger and it doesn't work?

One way is run a jumper to the trigger circuit fro either the + or the _ and then have a switch make contact with the other side (all from the power side) However this will not work if you are using the USB for power. The board claims to be for 6 to 30 v, however, when testing for ease I plug in with a USB cord and then use an AA 1.5 V battery (I test all before installing). The 1.5V trips the trigger every time...just be sure that you have + going to + and - going to -. It will not harm the board, however, it will not trip the trigger .

Anyone gets sleep mode to work? hold stop for 2secs, the display reads c-p but the screen never turns off.

Press STOP for 2+ sec., shows C-P. Pressing STOP again until it says ON. Allow it to time out, three 000 displayed. +Trigger timer, allow the relay to timeout, wait 3-4 min, 7-seg displays go dark. +trigger and the

timer relay wakes up, but 7-seg displays stay off. All timer functions continue as normal in the background. The display stays off. Great option. Mine is installed on a solar-powered gate. Every mA of battery voltage saved is a bonus. This only works if the timer main supply 6-30VDC stays on. If power is removed, the complete cycle must be repeated.

Does anyone know which types of batteries this is compatible with? Single cell? Multiple cells? Nihm?

Any. You could wire up a potato or lemon series of cells if you wanted to, as long as you feed it 5-30v. I power mine with an old 5.2v diskman power cable. Watch some YouTube videos about batteries in series vs parallel to understand how to achieve proper voltage.

P1.1 set to 3 dots (999 minutes) - it does clock down to 599 after 1 minute but then resets shortly after - help?

Check the voltage. An incorrect voltage may cause the LED to read incorrectly. I had that issue with a similar relay. These are nice little units in general. Check the input voltage reading on the top of the relay.

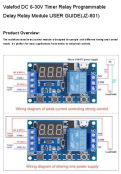
Does this relay open and close power to the load, or does it open and close ground?

That device is an SPDT switch/relay. It does not deliver power. There is one that does, or you can just jump the board power if that suite you or switch 120 V AC like I do.

How do I get a 12 dc blower fan to come on, using the usb 5-volt option

The blower fan power should be attached at the relay end of the unit... power for the timer comes from the 5v usb end... and trips the relay. The relay acts as a switch for any 12v device that you want to turn on or off... There are numerous YouTube videos on how to use these timers.

Documents / Resources

	Valefod DC 6-30V Timer Relay Programmable Delay Relay Module [pdf] User Guide DC 6-30V Timer Relay Programmable Delay Relay Module, DC 6-30V, Timer Relay Programmable Delay Relay Module, Programmable Delay Relay Module, Delay Relay Module, Relay Module

References

- User Manual