

# 12 or 24 Volt Digital Charge Controller Unit with PWM

See more about this product on YouTube at: <https://youtu.be/BFaKxd6xyWo>

Model: EZDIGPWM\_12/24

Date: 06/2018

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## Operating Modes:

- P-1: Delay Time And Display OFF Setting
- P-2: Voltage Control Output (OFF first)
- P-3: Voltage Control Output (ON first)
- P-4: Voltage Control Output with PWM

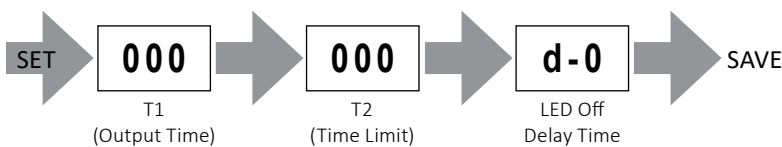
## Product Features:

- Timing Range: 0-999 seconds
- Voltage Display Range: DC 0~99.9 V
- Voltage Detection Error:  $\pm 0.1V$
- Operating Power: DC 8~35V
- Relay Parameters: MOSFET output 3 amp max, 8 amp with additional heatsink
- Operating Temperature:  $-40 \sim 85^{\circ}C$
- Set display OFF, the minimum current values are 7mA/12V
- Pre-set parameters can be saved after power off.

## Operating Modes:

- Connect to power, LED digital displays show “U-3”, then enter the selection state, press the “SET” key to select “P-1~P-4” mode, press “ENTER” to enter into the corresponding mode.
- While any mode running, press the “ENTER” key for 3 seconds, system will return to the mode selection state.
- Press the “SET” key to connect the power, the controller will be restored to factory settings.

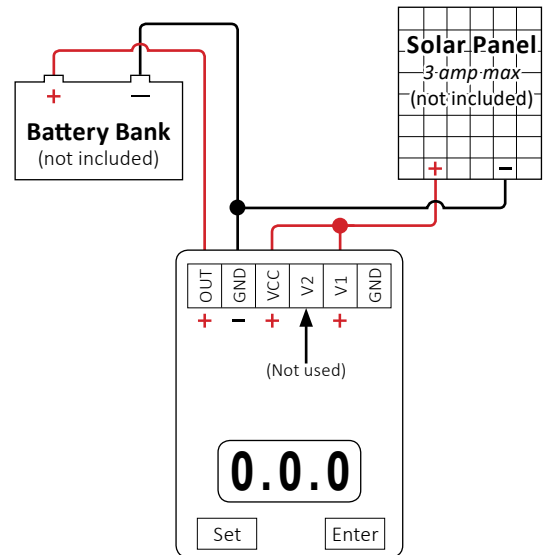
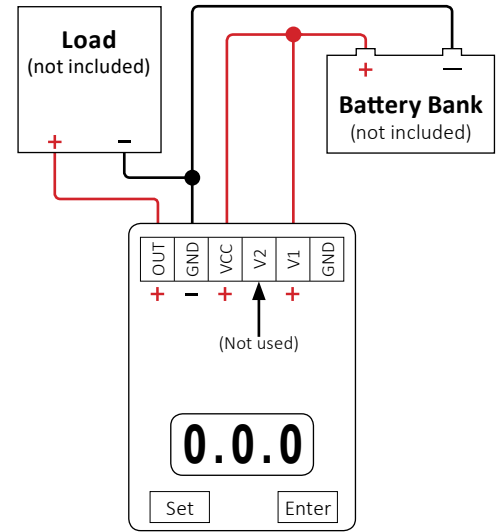
### P-1: Relay Close Delay Time and Display Off Setting



- Press the “SET” key to set the three bit values, first to be set is T1 values, press the “ENTER” button to increase value number “0-9”, T1 is power output time, T2 is output time limit (999 seconds max).

– **For example:** T1 005, T2 010, the algorithm of P2/P3 as: If voltage detection reach condition of setting, Output will keep ON for 5 seconds, then OFF, T2(time limit ) start timing. While T2 timing voltage detection reach condition again, T1 change to 2 times (T1\*2,10s), while T2 timing voltage detection reach condition again, T1 change to 2 times T1\*2 (T1\*22, 20s, 2n), once voltage detection reach condition after T2 time over, T1 changes to 1 times (5s).

- The display shows “d-0” means keep lit, “d-9” means display off after 9 min.



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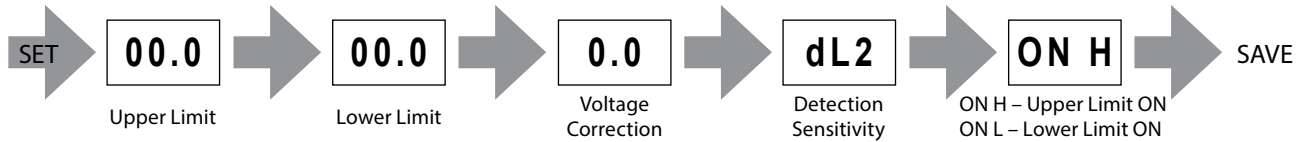
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## P-2: Voltage Control Timer (OFF first)

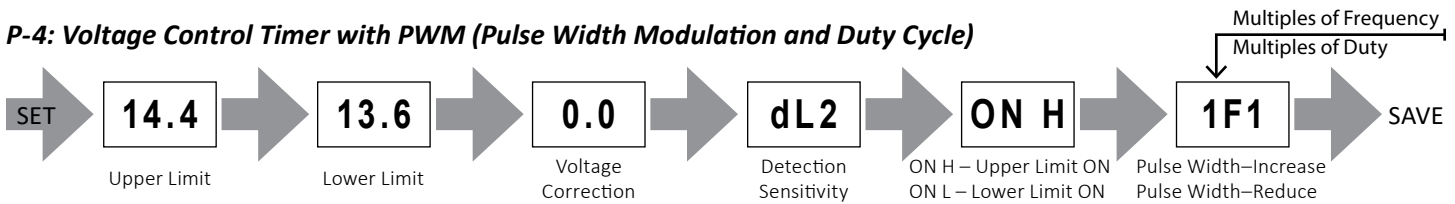


- Enter into P-2 mode, the controller detects voltage from “v1+ GND” Interface (Figure 1) and display values (DC 0-99.9V). The power output ON/OFF by detect voltage exceed the upper limit or below the lower limit.
- Press the “SET “button to set the three bit values, LED displays flashing, first to be set is upper limit values , press the “SET” key three times, lower limit values to be set, press the “ENTER” key to increase value, the lower limit values can not exceed the upper limit, press the “SET” to next group values is voltage correction ( $\pm 0.5V$ ), next group values is detection sensitivity, “dL1” means detect delay 0.1s, “dL9” means detect delay 0.9s, next group values is “ON H/ON L”, set to “ON H” means the output ON (or timer run) when detect values exceed the upper limit until below the lower limit , set to “ON L” means the output OFF (or timer run) when detect values below the lower limit until exceed the upper.
- *If the delay time in P-1 mode has been set, the time relay will act according to setting of P-1 (reference to the P-1 mode algorithm).*
- Short press “ENTER” button, LED displays show countdown of timer (P-1 setting).

## P-3: Voltage Control Timer (ON first)

- The difference between “P-2” and “P-3” is the relay’s Initial state, “P-2” mode output OFF first, but “P-3” mode output ON first. Setting method is the same as or P-2.

## P-4: Voltage Control Timer with PWM (Pulse Width Modulation and Duty Cycle)



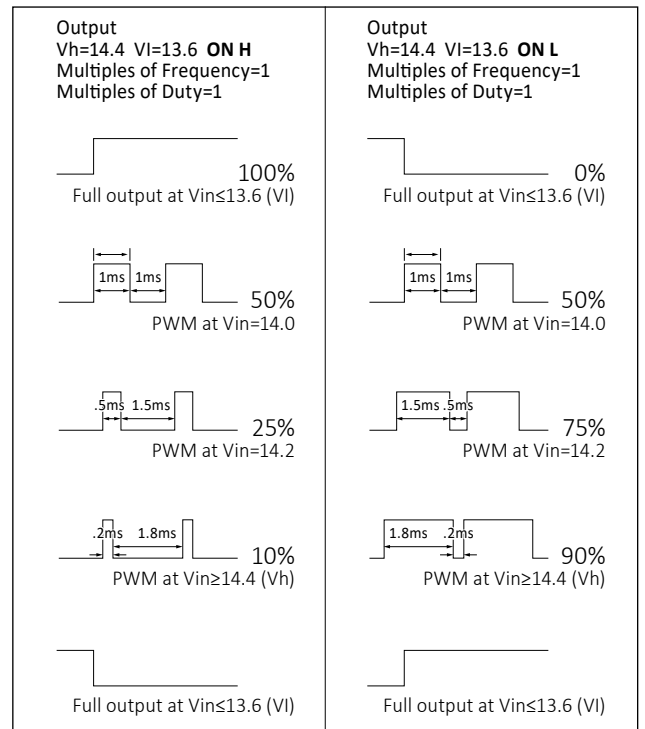
- P-4 mode, the controller detects voltage and displays values.

- As shown in figure above, set ON H, when detects voltage values exceed the upper limit, the output Pulse-Width is full of power input, when detects voltage values between the upper limit and lower limit range, the output duty =  $(\text{voltage values} - \text{Lower}) / (\text{Upper} - \text{Lower}) * 100\%$ , when detects values below the lower, the output is OFF.

- Set ON L ,the output waveform will reverse. As shown in figure to the right:

-Frequency Selection:

- |          |           |              |
|----------|-----------|--------------|
| 1 = 5Hz  | 4 = 40Hz  | 7 = 320Hz    |
| 2 = 10Hz | 5 = 80Hz  | 8 = 640Hz    |
| 3 = 20Hz | 6 = 160Hz | 9 = 1,2800Hz |



**⚠ WARNING:** Charge controller may have sharp edges.