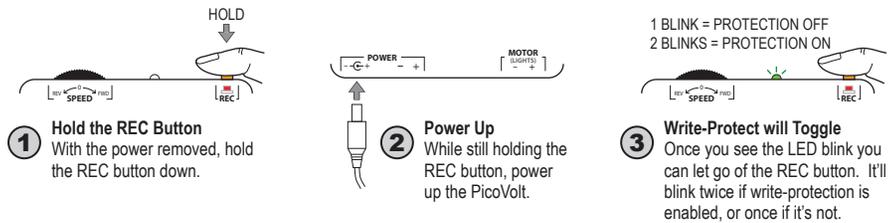


## Write Protection

The PicoVolt can be write-protected to protect your animation from inadvertently being changed or erased. Follow the steps below to toggle write-protection.



## Position Control

The PicoVolt cannot be used to control the position of a motor. Users often want to use the PicoVolt to rotate the shaft of a motor back and forth from one position to another, such as would be needed to turn the head of a prop from side to side. Even though they successfully got the positions right during programming, the head eventually creeps out of position and faces backwards.

Accurately controlling the position of a motor is much more involved than sending it in forward or reverse for a precise amount of time. Slight changes in friction, temperature, voltage, and load forces will cause the shaft to stop in a slightly different position each time.

True position control requires a closed-loop system that allows the motor to report its position back to the controller so it can adjust and compensate for this drift. These systems exist, but they are extremely expensive and complicated to use. The PicoVolt on the other hand is meant to be a simple cost-effective motor animation controller.

## Troubleshooting

### Motor stops for a few seconds and PicoVolt resets.

The power supply has likely seen a surge and reset. Try making smoother transitions from one speed and direction to another.

### Recording won't start.

Write protection is enabled. See *Write Protection* for instructions on disabling the write-protect.

### Motor/Lights turn off, PicoVolt LED blinks 3 times.

The PicoVolt overheated, the power supply voltage dropped too low (power supply might be too small), or the output was shorted. The PicoVolt will automatically clear the fault within 15 seconds.

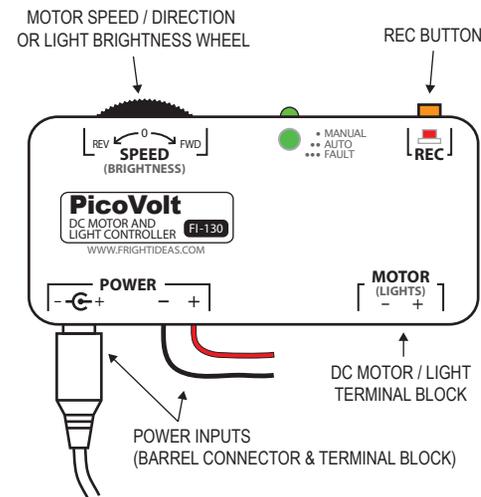
Don't see your problem here? Check our website for more information.



## Operating Manual PicoVolt



## Getting Familiar



### Sizing your Power Supply

Your PicoVolt does not include a power supply as the size required will vary depending on what it's used to control.

If you are using the PicoVolt with a motor, a 12V 5A power supply is generally used. If it's used for lighting, add up the current (or watts) required by all the lights/LEDs and select a power supply that can handle the load.

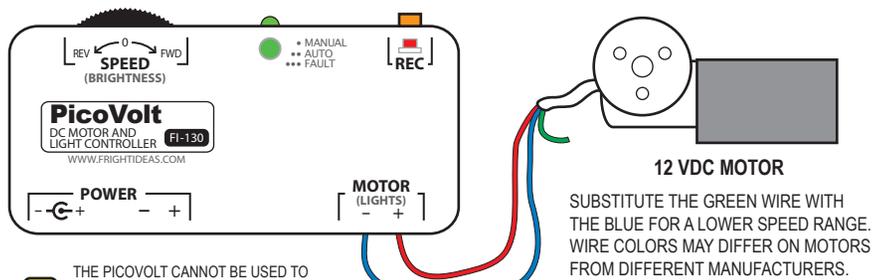
Power can be supplied via the barrel connector or the terminal block. They are connected internally.

### CONNECTIONS AND CONTROLS

<b>Motor Speed / Direction or Brightness Wheel</b>	When the PicoVolt is used with a DC motor, this wheel controls the speed and direction of the Motor. When the PicoVolt is connected to DC Lights or LEDs, this wheel will control the brightness.
<b>Record Button</b>	Hold this button to record animation, let go when you're done.
<b>Power Input 2.1mm</b>	Your power supply should plug in here. The connector is a center-positive 2.1mm barrel connector.
<b>Power Input Terminal Block</b>	Alternatively, power can be connected to this screw-down terminal block if it's more convenient. This can also be used to steal power from the PicoVolt's 2.1mm power input as both power connectors are internally connected.
<b>DC Motor / Light Terminal Block</b>	The motor or lights being controlled must connect to this screw-down terminal block.

# Using PicoVolt with Motors

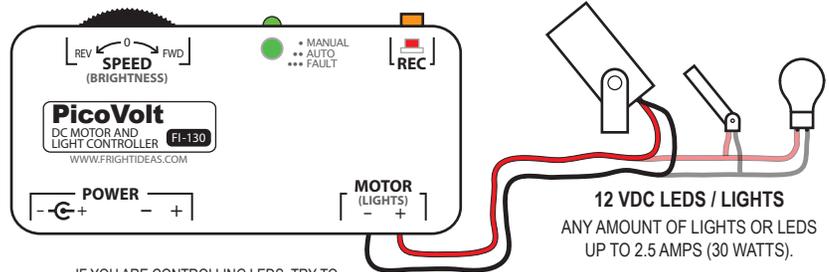
The PicoVolt can be used in either Manual or Automatic mode. The Manual mode allows you to easily control a motor's speed and direction. The Automatic mode will continuously loop up to 60 seconds of the motor animation you record using the Speed / Direction wheel. The current mode is shown by the PicoVolt's LED, one blink for Manual, two blinks for Automatic.



**!** THE PICOVOLT CANNOT BE USED TO REPEATABLY MOVE A MOTOR FROM ONE POSITION TO ANOTHER. SEE POSITION CONTROL ON THE BACK PAGE FOR INFORMATION.

# Using PicoVolt with Lights and LEDs

The PicoVolt can be used in either manual or automatic mode. The manual mode allows you to easily control the brightness of your lights. The automatic mode will continuously loop up to 60 seconds of the lighting effects you record using the brightness wheel. The current mode is shown by the PicoVolt's LED - one blink for manual and two blinks for automatic.



**!** IF YOU ARE CONTROLLING LEDs, TRY TO STOP AT 0 WHEN TURNING OFF THE LEDs. GOING TOO FAR INTO THE REV ZONE FOR TOO LONG COULD DAMAGE SOME LEDs.

## Manual Mode

Use this mode if you want to manually control the speed and direction of your motor, or if you want it to run at one steady speed.



- 1 Clear Any Existing Animation**  
If the PicoVolt is in Automatic Mode (2 blinks), tap the REC button to erase the animation. This will put the PicoVolt in Manual mode.
- 2 Set Speed and Direction**  
The motor speed and direction can now be set using the Speed wheel.

## Manual Mode

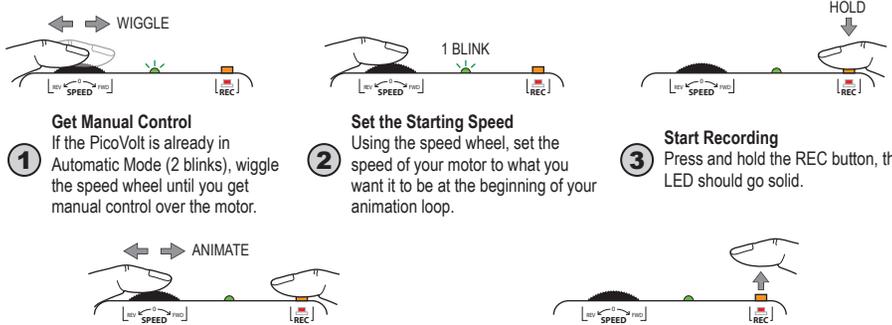
Use this mode if you want to manually control the brightness of your lights.



- 1 Clear Any Existing Animation**  
If the PicoVolt is in Automatic Mode (2 blinks), tap the REC button to erase the animation. This will put the PicoVolt in Manual mode.
- 2 Set Speed and Direction**  
The light brightness can now be set using the Brightness wheel.

## Automatic Mode

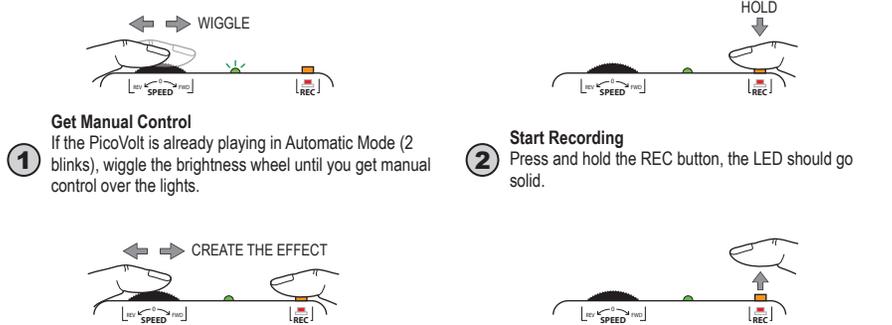
Use this mode if you want the motor to loop animation. Once the animation is recorded, the PicoVolt will automatically enter this mode upon power-up.



- 1 Get Manual Control**  
If the PicoVolt is already in Automatic Mode (2 blinks), wiggle the speed wheel until you get manual control over the motor.
- 2 Set the Starting Speed**  
Using the speed wheel, set the speed of your motor to what you want it to be at the beginning of your animation loop.
- 3 Start Recording**  
Press and hold the REC button, the LED should go solid.
- 4 Animate the Motor**  
While still holding REC, use the speed wheel to animate the motor. Any combination of speed and direction can be recorded. Avoid quick direction changes. This can overload the power supply causing it to reset and interrupt recording.

## Automatic Mode

Use this mode if you want to continuously loop some lighting effects that you've recorded. Once the animation is recorded, the PicoVolt will automatically enter this mode upon power-up.



- 1 Get Manual Control**  
If the PicoVolt is already playing in Automatic Mode (2 blinks), wiggle the brightness wheel until you get manual control over the lights.
- 2 Start Recording**  
Press and hold the REC button, the LED should go solid.
- 3 Create your Lighting Effect**  
While still holding REC, use the brightness wheel to create your lighting effect. Up to 60 seconds can be recorded.
- 4 Stop Recording**  
Let go of the REC button when you're finished recording. The lighting effect you recorded will start looping in a few seconds.