# Recording Animation

If you just need the PicoVolt to keep a motor running at a constant speed, or a light at a constant brightness, then you don't need to record animation. Simply move the wheel until your motor or light is where you want it and leave it there. If you would like to record some motor animation or lighting effects that can be triggered by a sensor or constantly looped, follow the steps below.
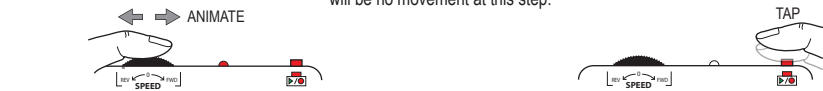
Recording Animation

HOLD   SET STARTING SPEED   KEEP HOLDING   BLINKING   LET GO
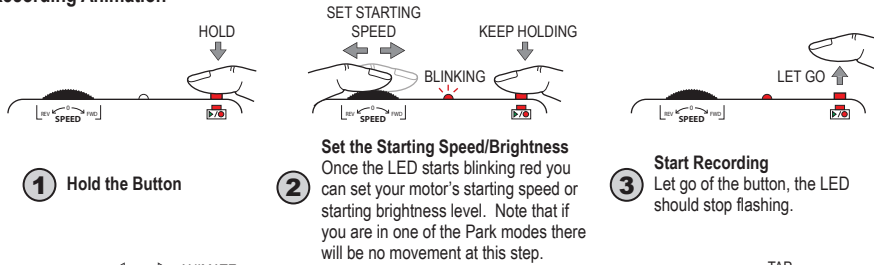
1 Hold the Button

2 Set the Starting Speed/Brightness
Once the LED starts blinking red you can set your motor's starting speed or starting brightness level. Note that if you are in one of the Park modes there will be no movement at this step.

3 Start Recording
Let go of the button, the LED should stop flashing.

ANIMATE   TAP

4 Animate the Motor or Adjust Light Brightness
Use the wheel to animate the motor or create your lighting effect. If you're using a 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. You can record up to 66 seconds of animation.

5 Stop Recording
Tap the button when you're finished recording. If you'd like to try again simply go back to step 1.

If you're using one of the parking modes, do not try to stop the motor at the park position. Set the motor at the speed you'd like it to be at as it returns to the park position. Stop recording BEFORE the motor reaches the park position. The PicoVolt will keep the motor at the last set speed and stop it automatically.

Playing the Animation

SET AMBIENT SPEED OR BRIGHTNESS   TAP TO PLAY   TAP TO STOP
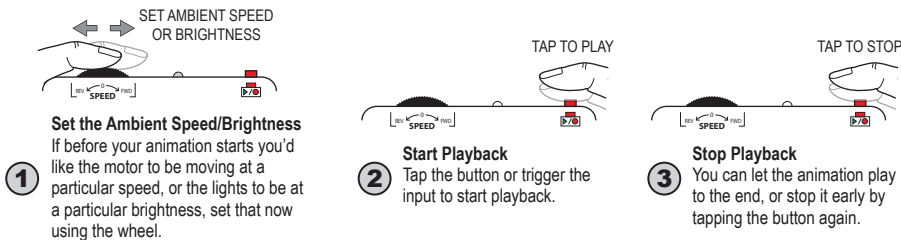
1 Set the Ambient Speed/Brightness
If before your animation starts you'd like the motor to be moving at a particular speed, or the lights to be at a particular brightness, set that now using the wheel.

2 Start Playback
Tap the button or trigger the input to start playback.

3 Stop Playback
You can let the animation play to the end, or stop it early by tapping the button again.

Troubleshooting

NOTE: If at any point you want to start from scratch, see *Operating Modes* for details on how to Factory Reset.

The LED is blinking yellow and the PicoVolt won't trigger.
The PicoVolt is currently ignoring the trigger. It does this at startup to allow a PIR motion sensor to warm up, or anytime a triggered scene is cancelled by pressing the button. It will resume normal operation shortly.

Recording won't start.
Write protection is enabled. See *Operating Modes* for instructions on disabling the write-protect.

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 direction to another.

Motor/Lights turn off, PicoVolt LED blinks red.
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.
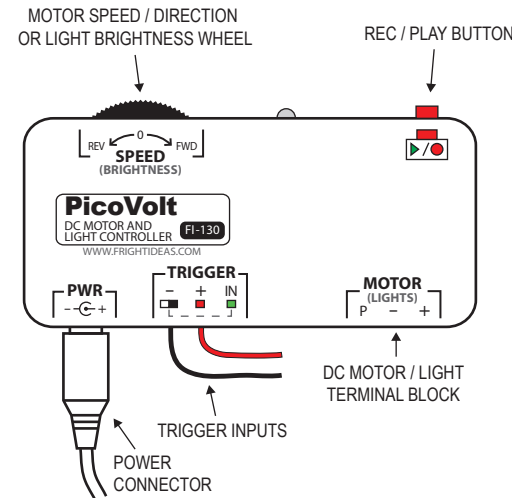
Operating Manual
PicoVolt

Getting Familiar

MOTOR SPEED / DIRECTION OR LIGHT BRIGHTNESS WHEEL   REC / PLAY BUTTON

POWER CONNECTOR   TRIGGER INPUTS   DC MOTOR / LIGHT TERMINAL BLOCK

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.

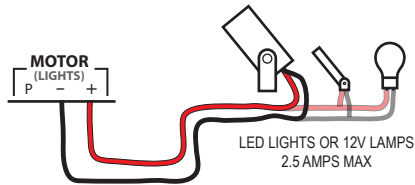| CONNECTIONS AND CONTROLS	
Motor Speed / Direction or Brightness Wheel	When the PicoVolt is used with a DC motor, this wheel controls the speed and direction of the Motor. When the PicoVolt is connected to DC Lights or LEDs, this wheel will control the brightness.
Rec. / Play Button	Tap this button to play your animation, hold it to start recording.
Power	Your power supply should plug in here. The connector is a center-positive 2.1mm barrel connector.
Trigger Terminal Block	If you're using a trigger to start your animation, or a jumper to loop it, that will connect here. Your power supply can be connected to the -/+ of this screw-down terminal block if it's more convenient than the barrel connector.
Motor / Light Terminal Block	The motor or lights being controlled must connect to this screw-down terminal block.

Motor / LED Wiring

MOTOR (LIGHTS)
P – +
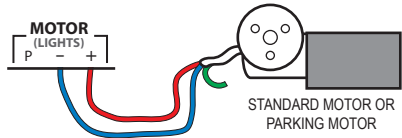
STANDARD MOTOR OR
PARKING MOTOR

MOST WIPER MOTORS HAVE TWO SPEED RANGES. USE THE BLUE WIRE FOR THE FAST RANGE, OR THE GREEN WIRE FOR THE SLOW RANGE. LEAVE THE UNUSED WIRE DISCONNECTED. COLORS SHOWN ARE FOR THE MOST COMMON MOTORS, YOURS MAY BE SLIGHTLY DIFFERENT.
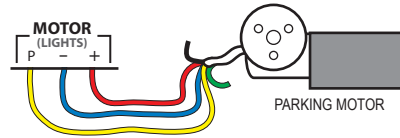
**FORWARD/REVERSE SPEED CONTROL**

MOTOR (LIGHTS)
P – +

PARKING MOTOR

SEE THE OPERATING MODES SECTION FOR INFORMATION ON SWITCHING TO THE PARK OR PARK/BRAKE MODES. SUBSTITUTE THE BLUE WIRE FOR THE GREEN TO USE THE SLOW SPEED RANGE.

**FORWARD/REVERSE SPEED CONTROL
WITH PARK OPTION**

MOTOR (LIGHTS)
P – +

LED LIGHTS OR 12V LAMPS
2.5 AMPS MAX

SEE THE OPERATING MODES SECTION FOR INFORMATION ON SWITCHING TO LIGHT MODE. ANY NUMBER OF LIGHTS CAN BE CONNECTED AS LONG AS THE TOTAL CURRENT DOES NOT EXCEED 2.5 AMPS (30 WATTS).

LED LIGHTING

Trigger Input Wiring
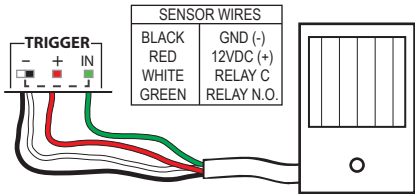
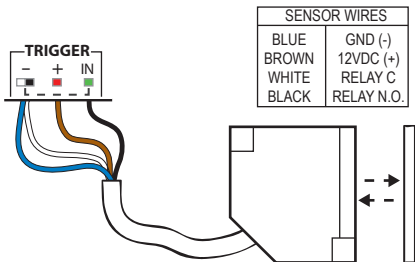| SENSOR WIRES	
BLACK	GND (-)
RED	12VDC (+)
WHITE	RELAY C
GREEN	RELAY N.O.

TRIGGER
– + IN

NOTE: PIR SENSORS CAN TAKE UP TO A MINUTE TO "WARM UP". DURING THIS TIME THE PICOVOLT'S LIGHT WILL BLINK YELLOW AND THE SENSOR WILL BE IGNORED.
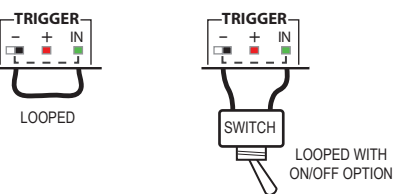
PIR MOTION SENSOR

TRIGGER
– + IN
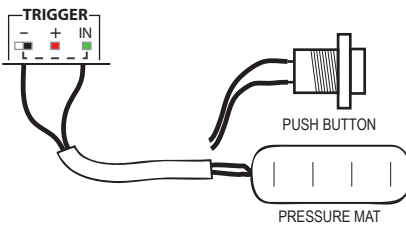
PUSH BUTTON

PRESSURE MAT

PRESSURE MAT OR PUSH BUTTON

SENSOR WIRES	
BLUE	GND (-)
BROWN	12VDC (+)
WHITE	RELAY C
BLACK	RELAY N.O.

TRIGGER
– + IN

BEAM SENSOR

TRIGGER
– + IN

LOOPED

TRIGGER
– + IN

SWITCH

LOOPED WITH
ON/OFF OPTION

CONTINUOUS PLAY (LOOPED)
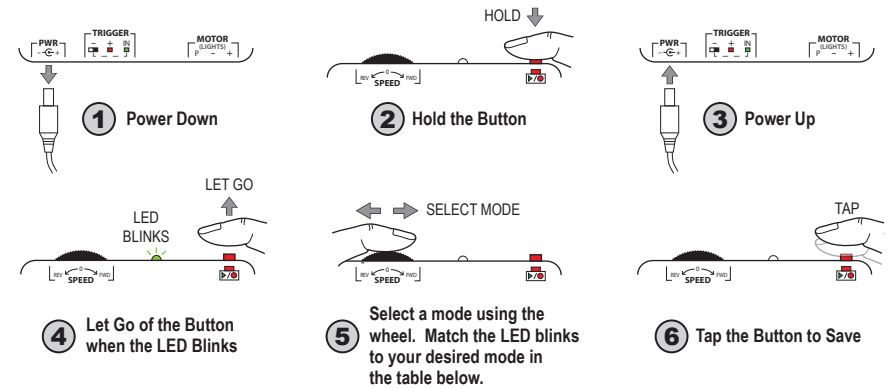
Operating Modes, Write-Protect, Factory Reset

Operating Modes
The PicoVolt has different operating modes that can be used to optimize its operation for different applications. The default mode is great for creating simple motor animations by recording changes in motor speed and direction. If you want to create lighting effects, use the Lighting mode. If you want to create a motor effect which requires the motor to always start and stop in the same position, use a parking motor with one of the Park modes.

Write-Protection and Factory Reset
In the case you'd like to prevent inadvertent changes to your animation, the PicoVolt can be write-protected. It can also be reset to factory defaults which clears all settings and animation so you can easily start from scratch.

Selecting an Operating Mode, Toggling Write-Protect, or performing a Factory Reset

① **Power Down**

② **Hold the Button** (HOLD)

③ **Power Up**

④ **Let Go of the Button when the LED Blinks** (LET GO, LED BLINKS)

⑤ **Select a mode using the wheel. Match the LED blinks to your desired mode in the table below.** (SELECT MODE)

⑥ **Tap the Button to Save** (TAP)

OPERATING MODES		
🟢	**x1**	**Normal -** Default mode for controlling motors. Use this mode to control the speed and direction of a 12 volt DC motor. Center the speed wheel to stop the motor, move it left for reverse, right for forward. The farther you move the wheel the faster the motor will go.
🟢	**x2**	**Light Mode -** For controlling 12 volt LEDs or small bulbs. Since a reverse option is not necessary for controlling lights, this mode uses the entire range of the wheel for brightness. All the way left will turn the lights off, all the way right is full brightness.
🟢	**x3**	**Toggle Write-Protect -** Use this to protect your animation. Selecting this mode will toggle the write-protect state. With write-protect enabled, the animation is protected from being erased or changed. At power-up, the PicoVolt will first blink the LED up to three times to indicate the mode. Following that, it will blink once to indicate the write-protect state, red if write-protect is disabled, green if it's enabled.
🟡	**x1**	**Park -** Use this mode with a parking motor to always start and stop in the same position. This mode requires the motor's park wire be connected to P so the PicoVolt can detect when the motor reaches its park position. In this mode the PicoVolt will bring the motor back to the park position after playing the recorded animation.
🟡	**x2**	**Park / Brake -** Parking with Brakes Enabled This mode is the same as the one above except the motor will be stopped quickly, rather than allowing it to coast, once it reaches the park position.
🔴	**x1**	**Factory Reset** Selecting this mode will reset all animation and settings to their factory defaults.