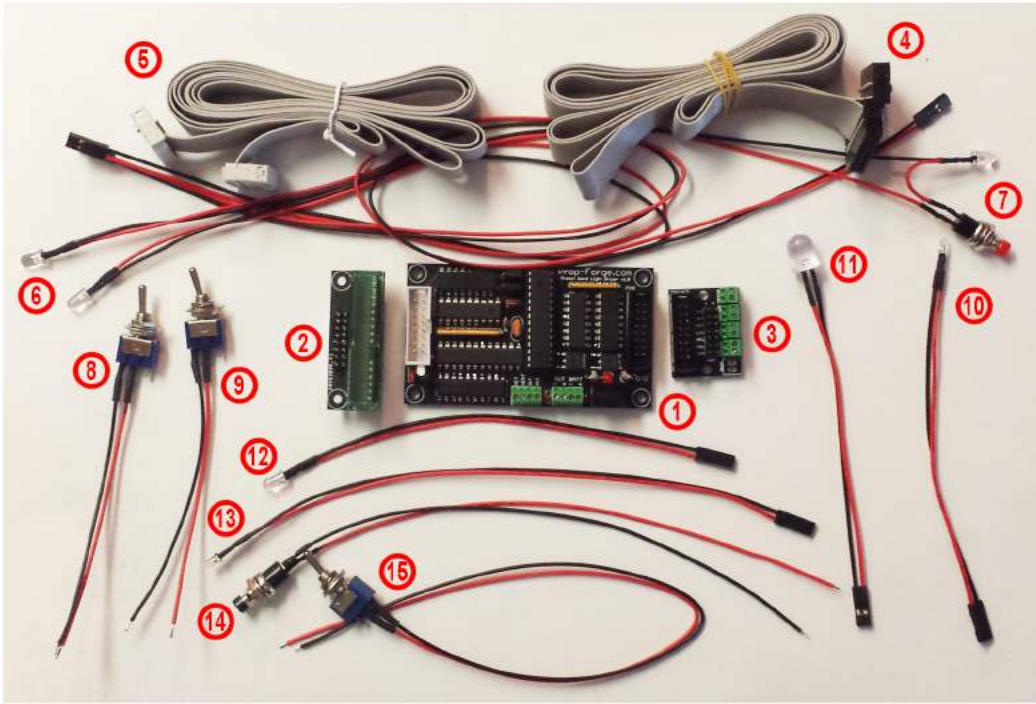# Prop Forge Ghostbusters Proton Wand Lights Instructions v1.5

1 - Driver Board
2 - Bargraph Board
3 - Power Distribution Board (PDB)
4 - PDB Cable (Black)
5 - Bargraph Cable (Gray)
6 - Barrel LEDs (2)
7 - Gunear LED
8 - Accessory Switch
9 - Vent Switch
10 - Blink LED
11 - Vent LED
12 - Hat Light LED
13 - Slo Blo LED
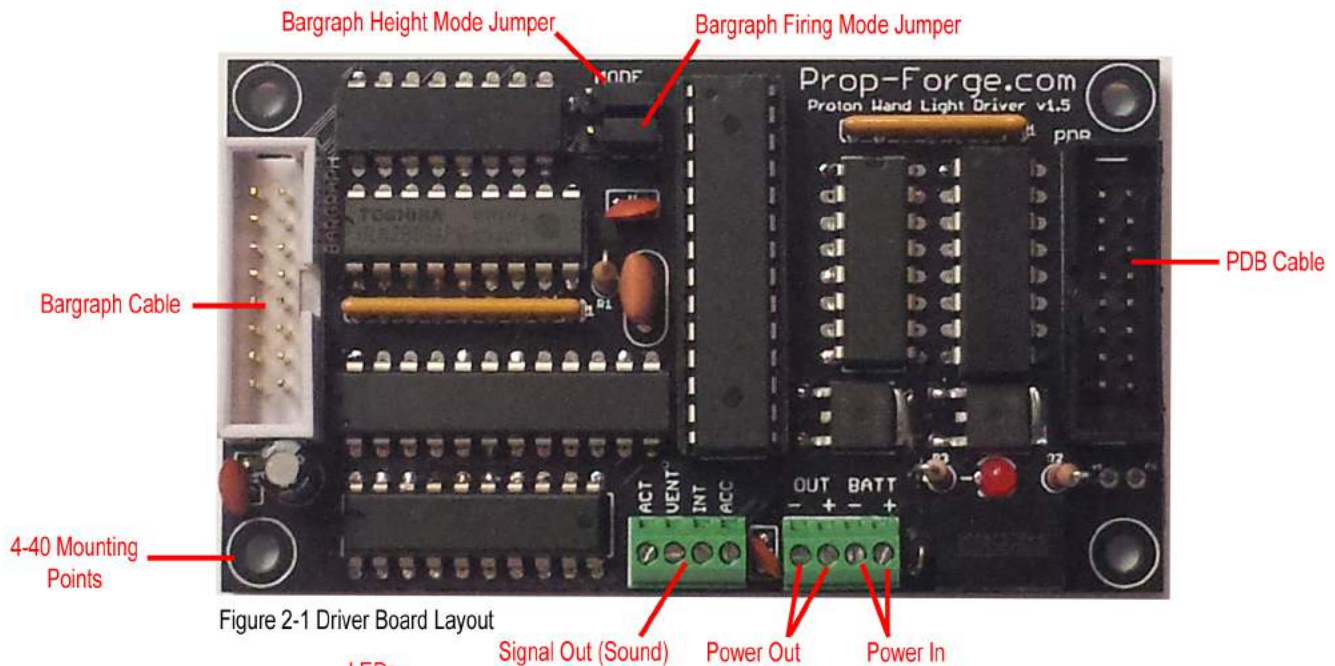14 - Intensify Switch
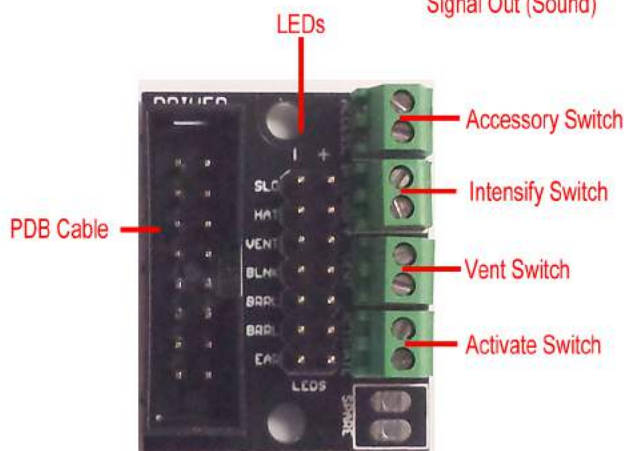15 - Activate Switch

Figure 1-1 Kit Contents

Bargraph Height Mode Jumper

Bargraph Firing Mode Jumper

PDB Cable

Bargraph Cable

4-40 Mounting Points

Figure 2-1 Driver Board Layout

Signal Out (Sound)   Power Out   Power In

LEDs

Accessory Switch

Intensify Switch

Vent Switch

Activate Switch

PDB Cable

Figure 2-2 PDB Layout

4-40 Mounting Points

Bargraph Cable
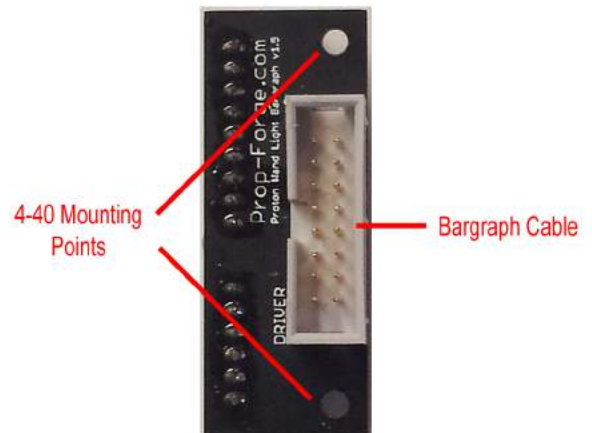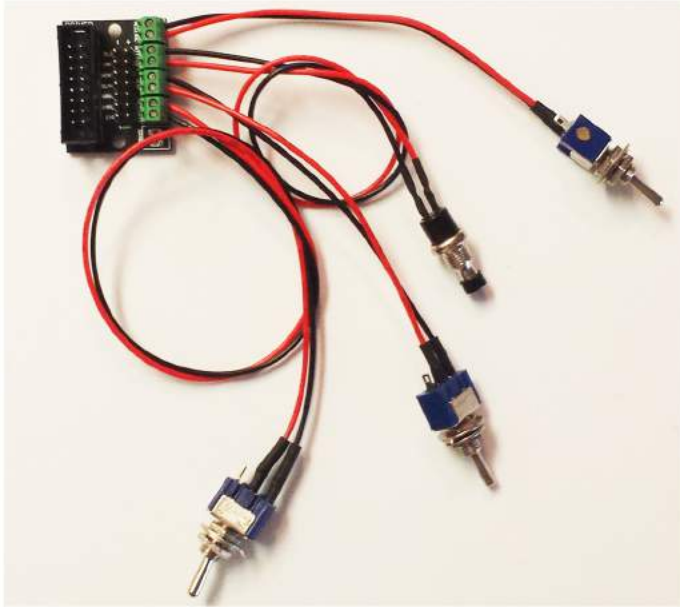
Figure 2-3 Bargraph Layout

Figure 3-1 PDB Switch Connections

Figure 3-2 PDB LED Connections

Negative
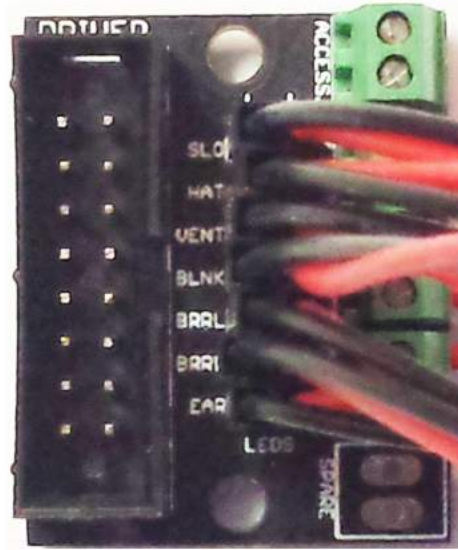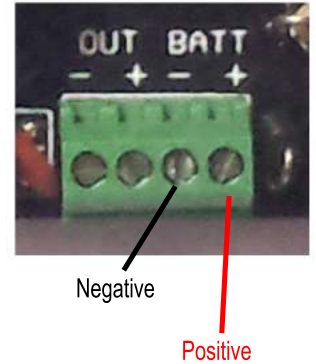
Positive

Figure 3-3 Power Connections

Step 1) Using a small screwdriver, attach the 3 toggle switches and black pushbutton to the PDB as shown in Figure 3-1. Be sure to match the switches to the terminal blocks, as labeled on the board surface. The direction of the wires doesn't matter. Tighten the screws firmly down over the stripped wire ends.

Step 2) Plug each of the seven LED connectors onto their respective pins, locating the red wire on the pin indicated by a "+" symbol as shown in Figure 3-2. The connectors should be fully mated to the pins.

Step 3) Install the PDB Cable to the PDB, being sure to align the ribbon cable with the rectangular header, noting the key location, and press firmly together.

Step 4) Repeat installation for the PDB Cable to the Driver Board.

Step 5) Repeat installation for the Bargraph Cable to the Bargraph Board.

Step 6) Repeat installation for the Bargraph Cable to the Driver Board.

Step 7) Using a small screwdriver, attach the two wires from a power supply (battery) to the terminals marked "BATT" on the Driver Board. Being careful to verify the polarity of the wires, install the ground (negative) wire to the terminal marked "-" and the positive to the terminal marked "+". The power supply (battery) can be from 8 to 18V, but a 12V power supply (battery) is recommended.

Operating Instructions:

Case 1: Activate (OFF)
 - Gun lights are all off
 - "OUT" power terminal is unpowered

Case 2: Activate (ON) - Vent (OFF)
 - Bargraph scrolls up and down
 - Hat Light and Slo Blo LEDs illuminate
 - Gunear, Vent, Blink, and Barrel LEDs are non-functional

Case 3: Activate (ON) - Vent (ON) - Intensify (OFF)
 - Bargraph scrolls to full on
 - Hatlight, Slo Blo, and Vent LEDs are illuminated
 - Blink LED blinks after bargraph is full
 - Gunear LED illuminates when red pushbutton is pressed

Case 4: Activate (ON) - Vent (ON) - Intensify (ON)
 - Same as Case 3
 - Barrel LEDs flash

Installation Suggestions:

 - Use stand-offs to install the Driver Board inside the Proton Pack, as close to the split loom as is feasible. Normal computer-type stand-offs work well for this, and will allow you to run cables and wires under the board for a neater installation.
 - Leave space around the Driver Board for any heat build-up to dissipate.
 - The PDB is designed to be installed in your proton wand (gun). There is space for standoffs on the board itself, but aren't required. If you choose to allow your PDB to float, it is suggested to insulate the back of the board to prevent accidental shorts (shrink wrap or liquid tape).
 - The included ribbon cables are sized to fit split loom of the correct length. Refer to screenshots from the films to verify that your loom isn't too long.
 - Any extra wire length inside the wand (gun) body may be looped and zip tied together for a neater installation.
 - The Bargraph Board may be installed by using a piece of sheet metal bent into an "S" shape and cut to fit the mounting holes on the board itself. The other end of the bracket may then be installed using the "Vent" and "Accessory" toggle switches.

Prop Forge Ghostbusters Proton Wand Lights Instructions v1.5

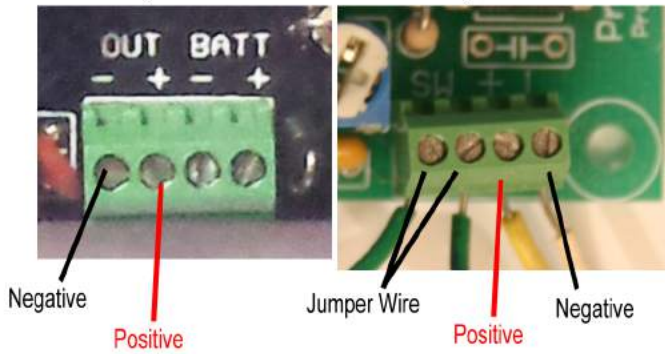Gun Lights Driver Board   Pack Lights Driver Board

Negative   Jumper Wire   Negative

Positive   Positive

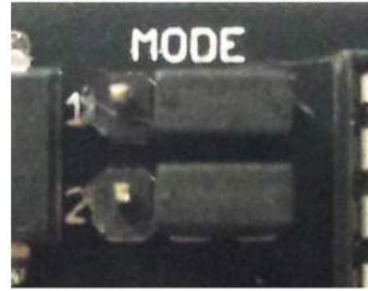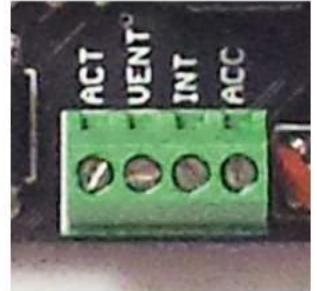Figure 4-1 External Power Connections   Figure 4-2 Bargraph Firing Mode   Figure 4-3 Sound Outputs

Additional Options:

Option 1: Controlling Pack Lights (Figure 4-1)
- Your Prop Forge Gun Lights Kit has the capabability to also run your Prop Forge Pack Lights. Simply connect a pair of wires from the "OUT" terminals on the Gun Light Driver Board to the +/- terminals on the Pack Light Driver Board, taking care to match the polarity of the wires. Then add a third wire as a jumper between the two terminal points marked "SW" on the Pack Light Driver Board. This will allow you to power your pack lights from the Gun Light Driver Board, and turn them on and off simultaneously with the lights in your proton wand.

Option 2: Changing the Bargraph Modes (Figure 4-2)
- The bargraph has two options determined by the positions of the included jumpers between the first and second positions on the Driver Board.
Mode 1 Left will set the bargraph to fill partially, beter matching the length of the original movie thrower. Mode 1 Right will set the bargraph to fill completely. Mode 2 Left will keep the bargraph fully lit while the Vent Switch is (ON), regardless of whether or not the Intensify Switch is (ON). Mode 2 Right will drop the level of the bargraph when the Intensify Switch is (ON), until the bargraph is empty. At that point, the Barrel LEDs will slow their rate of flashing. Once the Intensify Switch is (OFF), the bargraph will fill back up.

Option 3: Sound Output (Figure 4-3)
- The Prop Forge Gun Light Kit can be attached to a sound module to allow sounds to be played that correspond to the included lighting sequences. As there are several kits available, listed below are the signals each terminal outputs relative to each switch state:
  - ACTIVATE (OFF):   LOW
  - ACTIVATE (ON):   HIGH
  - VENT (OFF):   LOW
  - VENT (ON):   HIGH
  - INTENSIFY (OFF):   LOW
  - INTENSIFY (ON):   HIGH
  - ACCESSORY (OFF):   LOW
  - ACCESSORY (ON):   HIGH