Arapaho Technologies Inc.

www.liquidaider.com

Push button hydration system that turns your helmet into a high-power water fountain.

LiquidAider Button Instructions

LiquidAider™
Terminate thirst at high speed™
Don't Suck™
Effortless Hydration™

Patented. US 10,179,726
Draft May 2019

This is the full assembly in simple terms:

1. Mount the button and button shield on your handlebar next to your grip.
2. Replace the suck tube from your hydration bladder with our pump.
3. Connect the battery to the pump and turn it on.
4. Connect long tube to the pump, insert the large half of the magnetic disconnect backflow preventer into the end of the tube.
5. Slide the bladder, pump, tube, and battery into your backpack.
6. Route the tube, antenna, and backflow preventer out the top of the backpack.
7. Install the nozzle in your helmet.
8. Secure the helmet tube to the helmet with our helmet clips.
9. Insert the small half of the magnetic disconnect backflow preventer into the end of the helmet tube.

BUTTON:

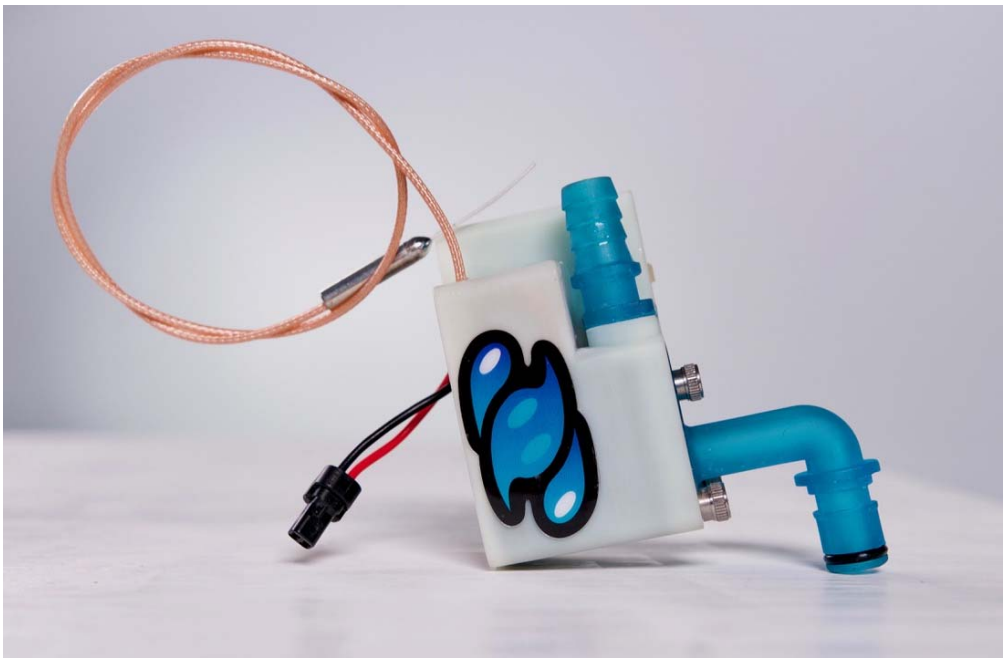
The button is self-contained and waterproof. It mounts on your bike next to (typically) the left-hand grip. You will need to move your kill switch inboard a bit.

Before mounting the button, gently pull the battery connection tab out of the button. This activates your battery and never needs to be done again.
Here is the button and the guard. It is highly recommended that you use the button guard to protect the button from damage during riding and from crash impact.

Here is the button mounted on the handlebar with the button guard. Do not over tighten either the button or the guard. You want to be able to reposition either of them as you ride by rotating one or the other forward or rearward.

PUMP

The pump is waterproof and has a 90-degree connector that plugs into your hydration bladder. It also has an outlet barbed connection at the top and it has a connector for connecting the battery. The antenna is the gold wire with the silver barrel at the top.

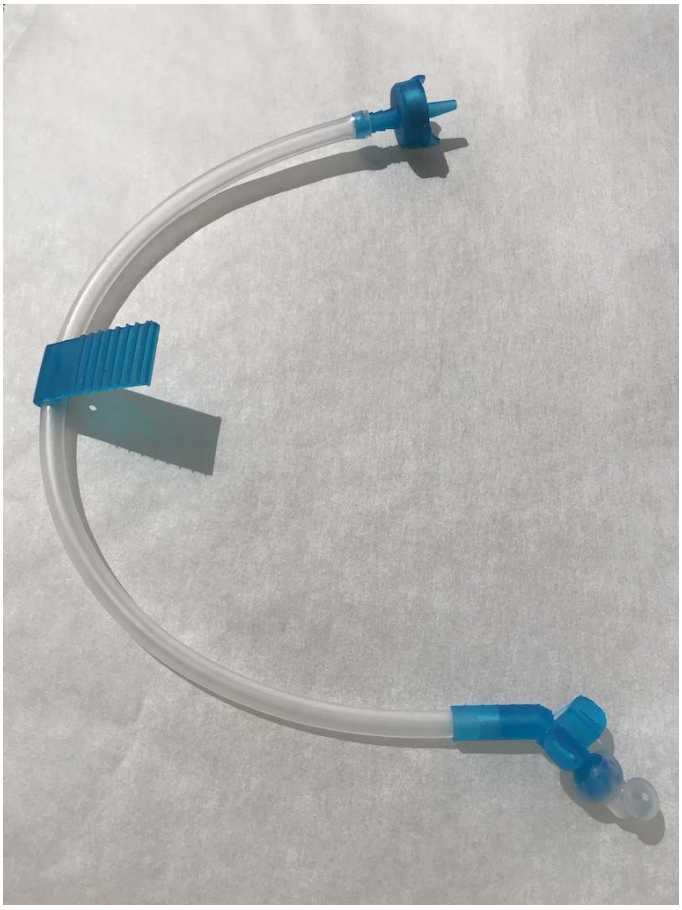


Attach the long tube to the barbed fitting at the top of the pump and tape the antenna along that tube. This positions the antenna in the proper orientation for best results.

The battery mates to the pump connector with a click.
The larger side of the magnetic disconnect backflow preventer inserts into the end of the drink tube as shown in this picture:

Here is a picture of what it the pump assembly looks like when it is ready for use:

HELMET ASSEMBLY



The helmet assembly starts at the quick-connect fitting and terminates at the nozzle tip. One or more helmet clips can be used to secure the helmet tube close to the bottom edge of the helmet.

Here is the nozzle. Left and right nozzles route the helmet tube according to your right or left shoulder. The tip is removable and can be adjusted with a finger to get the correct aim. Once adjusted, the tip will not move unless you move it.

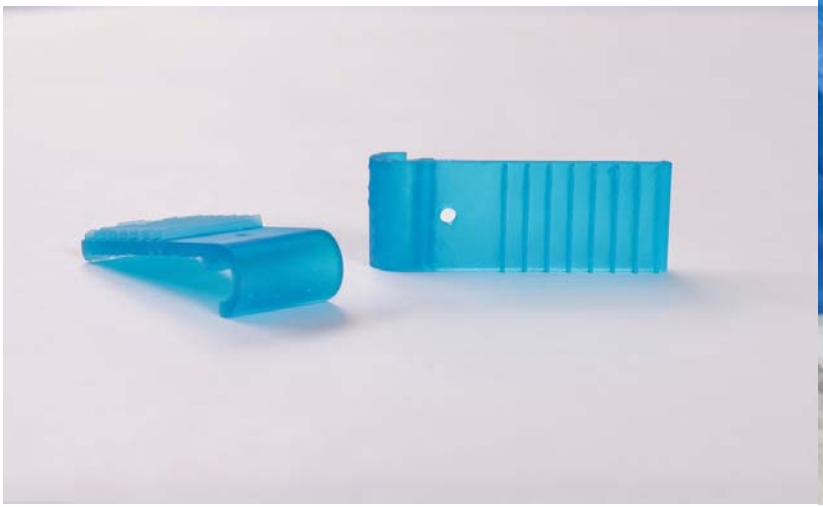
Mount the nozzle in the front of the helmet. Use small zip ties or safety wire to mount the nozzle. If using wire, be careful that you do not damage the nozzle body by over tightening. You will need to exit the front of the helmet with the zip tie or wire. In this assembly the grill screen was cut, but if smaller zip ties or wire were used, no cutting would be required.

You do not need a large zip tie like in this photo. A small zip tie will not damage your grill. Also notice how loose it is. This has over 500 miles of forest, sand, desert and slickrock riding and worked perfectly. Don’t over tighten the nozzle!

The helmet tube just slides into the open end of the nozzle.

Here is the magnetic disconnect that plugs into the free end of the helmet tube:

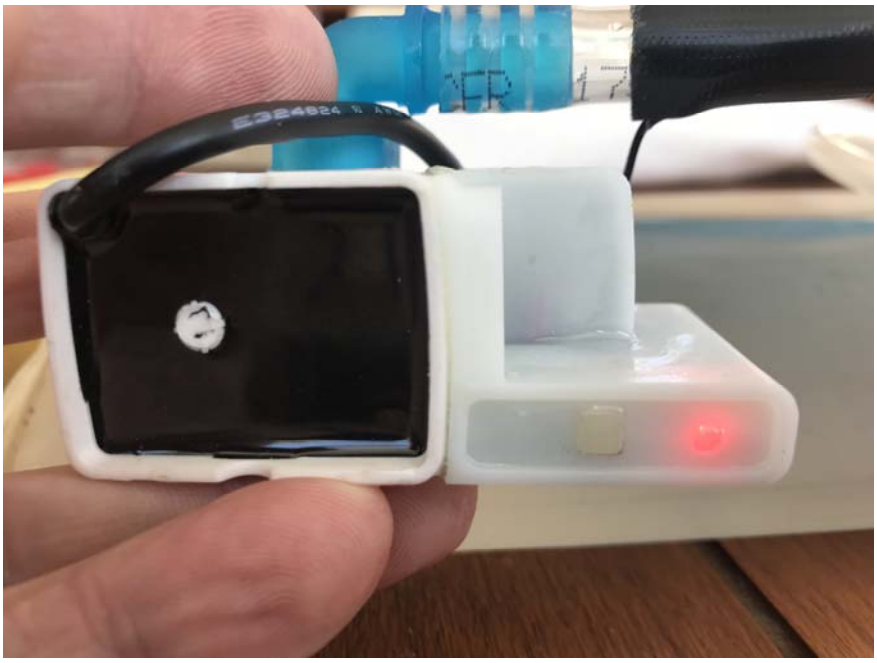
Use the helmet clips to secure the helmet hose close to the helmet. The helmet clip has barbs to secure it in place. It slides between the removable cheek pads and the shell. The holes allow you to further secure the tube with a small zip tie if desired.



Here is an example of the helmet assembly completed in a child's helmet:

ASSEMBLE FOR USE

1. With the pump battery connected, use the square power button on the pump to turn on the pump. If the pump does not receive a signal in 4 hours, then it will turn off. Press the square power button to turn it back on.



2. Slide the full water bladder, pump, tube, and antenna into the backpack.
3. Route the tube, antenna, and magnetic disconnect backflow preventer out the top of the pack.
4. Secure the tube and backflow preventer using the backpack tube loops if desired.

5. Put on your hydration backpack.
6. Put on your helmet and attach the magnet disconnect backflow preventer. The magnetic disconnect back flow preventer will mate easily due to the magnets. It also disconnects easily when you remove your helmet.

7. Pull the helmet tube from the nozzle and suck on it to raise water through the pump and through the backflow connector. This keeps the pumped primed and eliminates air from the pump. The pump is not self-priming. Always make sure water is in the tube above the pump before using.
8. Slide the helmet tube back into the nozzle.
9. Push the button on the handlebar. Water will squirt out the nozzle. Adjust the nozzle tip with your fingers to get the desired aim.

GO RIDE!

Here is a small child's riding setup.

ADJUSTMENTS:

You will need to adjust the hose lengths to suit your needs and also to prevent kinking the softer helmet hose.

If you mount the tubes over your left shoulder and discover that LiquidAider works only when looking to the right, then you have kinked the soft helmet tube. Trim the soft helmet tube and perhaps relocate one helmet tube clip until you have free range of motion and the tube does not kink. Reverse this if you run the tubes over your right shoulder.

If you trim the larger tube from the pump, be careful to not damage the antenna in the process.

If everything looks correct, but you are not successfully getting water, Turn your back to the button and press the button trigger. If water squirts, then somehow the signal from the button is not reaching the pump antenna. Look at the antenna tip and ensure it is out the top of the pack and oriented along the tube where the signal from the LiquidAider button is not trying to pass through you or the water bladder to reach the pump antenna. Wireless signals cannot pass through water.

Reroute the antenna. If you desire to reroute the antenna, you can separate it from the water tube, and route it out the pack’s zipper to the side. You can mount the antenna on your waist strap towards the front of your body, but we recommend some form of protective sleeve. If you slide a vinyl tube (like your old suck tube) over the antenna wire (and even the antenna tip), you will protect the antenna and not interfere with the signal. Be careful the zipper does not damage the antenna’s outer protective sleeve if you do not protect the antenna wire with some form of sleeve.

BUTTON OPERATIONAL NOTES

The button operates in "**momentary mode**" or "**burst mode**":

- **Momentary Mode**: As long as you press the trigger button, water squirts in your mouth.
- **Burst Mode**: One quick trigger button press will squirt water for 2, 3, or 4 seconds.

To Set Burst Mode: On the button cap, there are 4 LED lights and a square "mode button". The little mode button is used to select one of 4 modes:

- Top LED: Momentary – hold trigger button and water squirts until you let off.
- 2nd LED: A single press of the trigger button operates the pump 2 seconds.
- 3rd LED: A single press of the trigger button operates the pump 3 seconds.
- 4th LED: A single press of the trigger button operates the pump 4 seconds.

To cycle through the modes, press the little white mode button twice and it will cycle to the next mode. You can do this while riding.

Return to momentary mode: press the square mode button until the top LED is lit.

PUMP OPERATIONAL NOTES

The pump battery will stay on for 4 hours. If the pump is being used, then it will stay on for 4 hours after last use.

Even allowing the pump battery to time out, your pump battery should last for most, if not all, of its normal capacity of 40 liters of pumped water.

BATTERY OPERATIONAL NOTES

The button battery (CR2032 coin cell) should last you a riding season even with frequent use. The pump battery needs recharging after about 40 liters of water pumped.

The button LEDs report low battery conditions for the button battery and the pump battery when the trigger button is pressed:

- If while being used, the top LED blinks multiple times, then the button battery is at 25% remaining capacity. This is still quite a lot of capacity so you can probably still use the battery for up to a few months. But don’t push your luck.
- If while being used, the bottom LED blinks multiple times, the pump battery is at 25% remaining capacity. You probably have about 10 liters of pump use.

To change the button battery, remove the button cap and slide out the old CR2032 battery. Note the larger flat side, the positive side, is on the right side when being installed. Simply reverse the battery if you find that you installed it backwards.

PAIRING THE BUTTON AND THE PUMP

- The LiquidAider pump and button are paired during manufacturing.
- There is absolutely no way that the button and pump can become accidentally unpaired.
- You can pair any number of pumps to one single LiquidAider button. This is a great feature for team racing like Baja 1000 where the bike is shared among riders.
- Each rider needs a complete LiquidAider kit, minus the button.
- You can also have LiquidAider buttons on each of your bikes, and pair your hydration pack to the bike you want to ride.

To pair a button with a pump:

1. Press the square “mode” button on the LiquidAider handlebar button for a few seconds until the middle LEDs start blinking.
2. With pump turned on, press the square power button on the pump until the LED starts blinking.
3. Press the trigger button on the handlebar button one time and let off.
4. All blinking LEDs will turn off.
5. The button is now paired to the pump.
6. Repeat this process individually with multiple pumps to pair all rider pumps with the one handlebar button.

Use this process to pair your one hydration pack to any of your bikes you wish to ride.

FEATURES

- Button and pump are waterproof.
- Magnetic disconnect backflow preventer pulls apart when removing your helmet.
- Magnetic disconnect backflow preventer prevents water from freely running out of your disconnected hydration pack.
- Pair one button to any number of pumps. Pair pumps to other buttons at will.
- Burst mode settings are adjustable when riding.
- Button battery should last about a year and is user replaceable.
- Pump battery lasts for 40 liters between charges.
- Pump operates at almost 2 liters/minute.
- Will not interfere with any electronic device or components. This includes GPS, trackers, race score systems, cell phones or other onboard sensitive electronics.
- LiquidAider paired buttons and pumps cannot cross-talk unless manually paired by you. Your handlebar button will never accidentally trigger another rider’s pump.
- Accidental un-pairing of a paired button and pump is impossible.
- Neodymium magnets used in the magnetic disconnect backflow preventer will not harm sensitive electronics.
- Tested in Baja 1000, Baja 500, Mint 400, Best in the Desert race series, and enduro races since 2016.
- Works for bikes, motorcycles, and any 4 wheeled vehicles. Autos need a different mount strategy – see the website for a simple design for roll cages.
- RoHS compliant.
- All food-grade components. Disassembles for easy cleaning.
- FCC, CE, and IC certified.
- Patented and other patents pending.

BATTERY WARNINGS:

- Never use or attempt to charge a damaged, punctured, or deformed pump battery. Risk of fire and/or explosion can occur.
- Never use any battery not supplied by us (Arapaho Technologies Inc.) for LiquidAider. The voltage and amperage are accounted for in the electronic design of the LiquidAider system. If you use the wrong battery you will fry your LiquidAider pump at the very least.
- Never attempt to charge the pump battery with any charger other than one supplied by us for use with LiquidAider pump batteries.
- The battery has a power control management (PCM) module to prevent overcharging and extreme discharge. The battery and it's PCM will be damaged if you use the wrong charger and you risk danger of fire and/or explosion.

Please check our website for product information and videos

www.liquidaider.com

COMPLIANCE STATEMENTS:

FCC ID: 2ASWZ-LAB001

FCC Compliance Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: The grantee is not responsible for any changes or modifications not expressly approved by the party responsible for compliance. Such modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

This device meets the FCC requirements for RF exposure in public or uncontrolled environments.
NOTE: To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

IC: 24916-LAB001
Canadian Compliance Statement
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada license-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1)L'appareil ne doit pas produire de brouillage;
(2)L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

IMPORTANTE: Afin d'assurer la conformité aux exigences de la FCC en matière d'exposition aux radiofréquences, aucune modification de l'antenne ou de l'appareil n'est autorisée. Toute modification de l'antenne ou de l'appareil pourrait avoir pour conséquence que l'appareil dépasse les exigences en matière d'exposition aux radiofréquences et annule le droit de l'utilisateur de faire fonctionner l'appareil