

Hub Motor e-assist

System Components:



- a) Hub Motor (Front or Rear)*
- b) Motor Extension Cable
- c) Pedal Assist Sensor (PAS)
- d) 36v Battery(s)**
- e) Controller Box**

- f) Battery Bag**
- g) Power Extension Cable**
- h) Controller Bag**
- i) Handlebar Control Console

* Hub motors are available in either front or rear hub configuration.

** Several 36v battery systems are available. Position and appearance of batteries and associated accessories will vary.

Description:

The Bike Friday Hub Motor e-assist system includes options for either a front or rear hub motor. Both are controlled by a Pedal Assist Sensor, which means the faster you pedal, the more the electric motor will assist. This helps you feel powerful and capable, and still feels like riding a bike (vs a

throttle-based motor vehicle)! A console on the handlebar lets you fine-tune how much proportional assist is provided plus displays speed and other ride details.

Assembling Your e-assist Components:

1. Charge Battery(s)

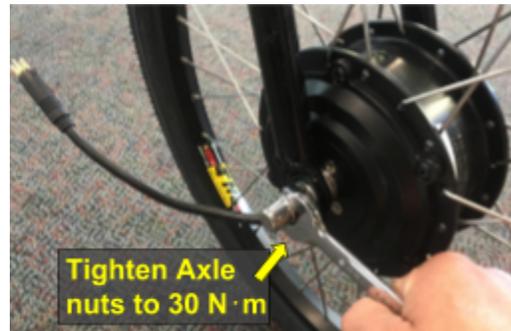
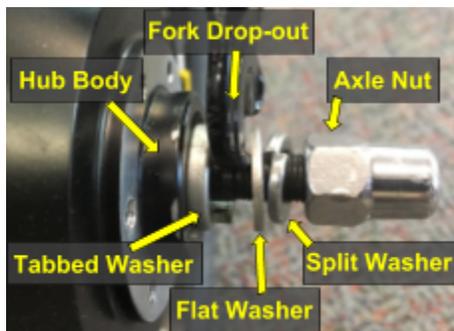
NOTE: Battery(s) may be delivered in a partially-discharged state due to shipping regulations. Please fully charge battery(s) before your first ride.

See *Battery Maintenance* section for more information.

2. Install wheel motor

These details apply to both front and rear wheel motors (front wheel pictured):

a. Install wheel into frame:



NOTE: Correct tightness of axle nuts will be roughly $\frac{1}{8}$ of a rotation beyond where the split washers appear completely flattened.

b. Connect hub motor control cable:



NOTE: the arrows must be aligned for the 9-pin connector to properly engage.

3. Install and connect battery(s):

- a. **LiGo:** Install battery bag under saddle

Bottle Battery: Install battery into carrier. If not pre-installed, carrier should be bolted to frame water-bottle mount.



NOTE: Several bag options are available, depending on the number of LiGo batteries your system includes.

- 1) *Connect modular batteries together (see Battery Maintenance and Information Section) and insert block of batteries into bag.*
- 2) *Secure bag with velcro strap through saddle rails and around seatpost.*

- b. **LiGo:** Connect red and black connectors from battery(s) to controller box. Store extra cable length inside battery and/or controller bag.



Bottle Battery:

- 1) *Insert tabs on back of battery.*
- 2) *Pivot battery onto carrier.*
- 3) *Use key to lock battery onto the carrier.*

- c. Power on battery(s):
NOTE: For more information, see Battery Maintenance section.

4. Operate Handlebar Control Console

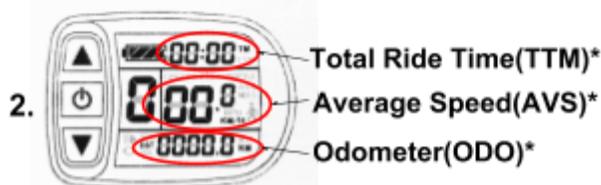
- a. Power on/off:
 Hold  until LCD display appears (Hold again to power off)
- b. Set Assist Level - Default setting at power on = 0 (no assist)



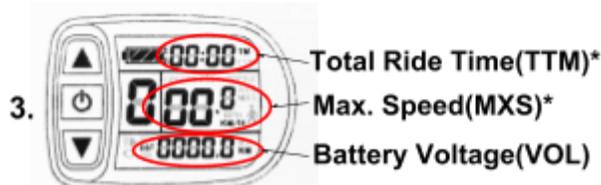
Tap  /  to set assist level from 0-5
0 = no pedal assist power
1 = minimum pedal assist power
5 = maximum pedal assist power

c. Adjust Display

- i. Tap  to cycle through display option:



*Resets to Display 1 (*TM / Current Speed / DST*) after 5 seconds of riding.



*Resets to *TM / Current Speed* after 5 seconds of riding. VOL display remains

NOTE: To reset Trip Settings (AVS, DST, TM, and MXS) wait at least 5 seconds after power on, then simultaneously hold  and  for 2 seconds. To confirm reset, tap . Otherwise wait 5 seconds and the display will automatically retain Trip Settings.

d. **Backlight:** Hold  to turn toggle on/off display backlight.

Tips for Riding an e-bike:

- Before each ride, check that brakes are functioning correctly, and that all frame connections and/or quick-release levers are secure.
- Start in a lower assist power setting, especially when the bike is new to you.
- Use only as much e-assist power as you need. This will help maximize battery life and keep you aware of situations you encounter.
- Be aware of obstacles and loose surfaces (sand, gravel, etc.). You may be riding at faster speeds than without electric assist, so give yourself extra time to stop or avoid these conditions. The extra torque from the motor can make it easier to lose traction on loose surfaces.
- Be mindful of other cyclist, pedestrians, and vehicle drivers who may be surprised by the rapid speed or acceleration of an e-bike rider.
- Charge batteries regularly to ensure maximum range is available for longer rides.
- Do not store batteries in a depleted state. This can result in dramatically shortened battery life.

Battery Information:

Grin Technologies *LiGo* Battery Details:

Grin's modular LiGo battery was born in response to the massive transportation restrictions placed on larger lithium e-bike packs. Batteries under 100 watt-hours are largely exempted from the dangerous goods shipping restrictions and are even allowed aboard passenger aircraft with your carry-on luggage when disconnected and powered off.

Connecting LiGo Battery Modules:



Each battery module has two pairs of +/- leads on them, which are terminated in Anderson Powerpoles. That allows you to string any number of packs together in parallel, with two connectors left open. One connects to the controller and the other could run lights or act as a charging port.

Turning on a LiGo Battery:



For each battery, press and hold the button until the first LED goes green, then immediately release the button.

- The green LEDs light up all the way and show the battery's current charge level.
- Then, one LED will show a green "heartbeat" pulse for approximately 20 minutes to confirm that the battery is on.

Turning off a LiGo Battery:



Press and hold the button until the first LED goes red, then immediately release the button.

- The battery should be turned off for shipping, airline travel, or extended storage.

Charging LiGo Batteries:



Connect the charger to one of the open sets of Anderson connectors, and to 100V-240V supply.

- Green LEDs on batteries will flash while charging, then turn off when charging is complete.
- Battery(s) can remain connected to controller while charging; use the extra open connector as the charge port.

The battery may be connected to a computer or phone via bluetooth pairing to check battery usage history, adjust BMS settings, and upgrade the LiGo firmware. Contact Grin Technologies for information about the

necessary software to connect your device.

Battery Information (cont.):

Bottle Battery Details:

- Use **key** to install/remove battery from frame.



- To turn on/off, toggle rocker switch.



- **Check charge state** by pressing button on front of battery.
 - 5 LEDs change color to indicate percentage of battery charged.
 - **All Green**
= fully charged
 - **All Orange**
= fully discharged



NOTE: This function only works when battery main power switch is in the “on” position.

- **Charge battery** by inserting charge cord into socket on rear section of battery, with charger plugged into 100V-240V power supply.
 - LED on charger box

will change from red to green when battery is fully charged.



- Battery power switch can be in either “on” or “off” position while charging.

Battery Maintenance Guidelines:

E-bike batteries will rapidly become unusable if stored for extended periods of time in a depleted state. Conversely, with proper care and maintenance your battery will provide years of usable life.

- Before periods of disuse longer than several weeks:
 - Ensure the battery is **turned off**
 - Ensure the battery is **fully charged**
- When storing your bike and/or battery(s) without use for a month or more, plug the battery into the charger approximately **once a month** to ensure the battery is topped off with a full storage charge. This will help maintain overall battery health.
- Unplug the battery from the charger between charging sessions. While it is fine to leave a battery on a charger overnight to allow a full charge, do not leave the battery connected indefinitely to a charger.
- During regular use (riding and charging at least once a week), it is ok to leave the battery packs on for convenience when not riding and/or while charging.

Troubleshooting:

If system will not power on:

- Check that all cable connections are fully seated, and free of moisture and corrosion. (some are hidden inside controller bag)
- Ensure batteries are powered on and charged sufficiently.

If system powers on, but does not provide assistance:

- Set assist level at console to “ECO” or higher.
 - Tap / to set assist level
 - “0” = no pedal assist power
- Check that all cable connections are fully seated, and free of moisture and corrosion.
- Check that Speedometer sensor is in close proximity (1-3mm) to the magnet on the spokes.
 - In some situations, it may be possible for the sensor to get knocked out of position. Rotate the sensor and/or magnet as necessary to a functional position.
 - These components are located on the rear wheel and frame.

Warranty Information:

We always want to keep you riding so we offer a warranty on electric assist products. The electric assist world has very limited warranties so Green Gear Cycling is shouldering the cost of what we offer in most cases.

Green Gear Cycling Inc. Electric Assist Product Warranty

First we expect to deliver a fully functional product to you. We warrant our electric assist components (motor, controller, throttle, charger, and displays) against defects in workmanship and materials for 1 year. Batteries come with a one month warranty. The most likely issues arise when a battery has not been maintained properly. We recommend watching our "Proper Care of Your e-Assist Battery" video to get the longest life out of your battery, plus review the *Battery Maintenance Guidelines* section above.

This warranty is expressly limited to the repair or replacement of the defective part at the discretion of Green Gear Cycling. This is the sole remedy of the warranty. This warranty applies only to the original owner and is not transferable.

The cost of shipping of the defective components back to Green Gear Cycling is the sole responsibility of the purchaser. Please call Green Gear Cycling to register a claim and obtain an Return Authorization Number prior to shipping anything back to Green Gear Cycling.

Common problems NOT covered by the warranty:

- "Axle spin out"- spinning out the axle inside of your dropouts if your wheel wasn't fastened tightly.
- Water damage to the battery or corrosion of the connectors from water exposure
- Improper care of battery- Our batteries are sophisticated pieces of electronics that will provide years of reliable service if properly cared for OR can be easily damaged due to misuse. Please watch our " Proper Care of Your e-Assist Battery " for techniques to ensure a reliable, long life from your battery, plus review the *Battery Maintenance Guidelines* section above.
- Damage and failure due to misuse, neglect, improper storage (example: 45 days without

using or charging your battery can damage it) or other forms of use not designed for but not limited to jumping, competition, or use of 3rd party components.

- Broken spokes- a situation that is not unique to electric assist wheels and can happen to any bicycle wheel.

This warranty does not cover normal wear and tear, improper assembly or maintenance, or installation of parts or accessories not originally intended or compatible with the electric assist system as sold. Green Gear Cycling Inc. is not responsible for incidental or consequential damages. This warranty gives you specific rights, and those rights may vary from place to place. This warranty does not affect the statutory rights of the consumer. The warranty applies to electric assist components purchased directly from Green Gear Cycling, Inc., or from its authorized dealers. Except as provided herein, this product is provided “as is” without any additional WARRANTY of any kind, including the WARRANTY OF MERCHANTABILITY and the WARRANTY of FITNESS FOR A PARTICULAR PURPOSE, whether EXPRESSED or IMPLIED.