

RAMBO BIKES

PRODUCT BIBLE



2 0 2 3

SAVAGE

(\$1,999⁹⁹)

The Savage is one of the tried-and-true bikes in our lineup. It has been one of the most purchased bikes by our customers over the last 7 years. The Savage can do everything that our other 750w bikes can do, but we really took this one back to the basics. This is a great price point bike that is extremely versatile for any outdoorsman. This is an awesome mix of versatility and affordability.



FRAME OPTIONS AND COLORS

750W | 750W FDE | 750W BLW

● Matte Black

● FDE

● Blue & White

TIRE / WHEEL

● Kenda 26" x 4.0" Tire with Anti Puncture

BATTERY

● 48v 14ah



Notes

When you buy a Rambo, you're investing in:



Top of the line, rugged design, built for the extreme sportsman.



Industry leading quality, and the most innovative technology.



The Rambo smile. The same smile you feel after a long ride, provided to you by our thorough network of dealers and customer service team

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KEY FEATURES



BANG FOR YOUR BUCK

The Savage really is a do it all bike for the entry level e-biker. If you are on the fence about purchasing an e-bike, the Savage is the fit for you. It offers all the power and battery of some of the higher end bikes, without all the bells and whistles. It still maintains the rugged durability that our customers have come to love from the Rambo brand, but with out the price tag associated with it.

MID DRIVE VS HUB DRIVE

When looking for a new e-bike, there are a lot of factors to consider. One of the features that sets the Savage apart from other brands of bikes in this price range, is the mid drive motor. Riders will find that the mid drive motor feels more traditional and provides more even distributed weight, allowing for better balance and control. They will also find that the mid drive motor provides better range, torque and climbing power, by working in conjunction with the gear set. Riders will also find that they are more capable of traveling higher speeds with a mid drive motor.



VERSATILE FOR ANYONE

The Savage is a bike that falls into every category of e-bike rider. This bike is well suited for whatever type of adventure you put in front of it. We commonly sell this bike to casual hunters, who also love to go camping and trail riding at state and national parks. There is a large market of customer who purchase this bike for commuting. It offers the rugged capability of a Rambo, but still the smooth quick ride of a commuter bike.

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SMALL DETAILS MAKE A BIG DIFFERENCE



1. Brakes

180mm Fully adjustable front and rear Tektro brakes.



4. Digital Display

Equipped with the Rambo Black and White 4" x 2.5" LCD Screen.



2. Motor

750W Rambo High Torque Motor.



5. Tires

26" x 4.0" anti-puncture fat tires with double wall 80mm rims.



3. Battery

48v 14AH lithium ion battery. This bike can reach ranges up to 58 miles.



6. Derailleur

Shimano high performance 1x8, 8 speed. 280% gear range.

More Notes...

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RANGE ESTIMATES

PEDAL-ASSIST

PAS	STANDARD RANGE
1	58 Miles
2	49 Miles
3	38 Miles
4	30 Miles
5	25 Miles

THROTTLE ONLY

AVERAGE RANGE

27 Miles

**mileage varies depending on riders size and terrain*

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SPECIFICATIONS

Electronics		Part #
MOTOR	Rambo 48V Brushless geared Mid Drive Motor, 750W Nominal 1000w Peak power rating, 110NM of torque	RP-10-13-01
BATTERY	48V 14AH 672WH LG 18650	R138-14
CHARGER	48V 2AMP Charger Smart Charger	RP-11-02-07
CONTROLLER	48V Integrated	RP-10-13-02
THROTTLE	Thumb Throttle	RP-10-01-03
TOP SPEED	20 MPH	
TORQUE SENSING	Internal speed sensor	N/A
DISPLAY	Rambo Display	RP-10-13-03

Drivetrain		Part #
DERAILLEUR	Shimano M370 8 Speed Long Cage	RP-16-09
CASSETTE	Shimano Altus 8 Speed Cassette 11-34T	RP-14-06
SHIFTER	Shimano Altus 8 Speed Trigger Shifter	RP-13-15
BOTTOM BRACKET	Internal Square Taper	N/A
CHAIN	KMC Z8 124 Links	RP-15-10
CRANK	Aluminum Alloy Diamond Taper 170mm	Left: RP-18-06-01 Right:RP-18-06-02
PEDALS	Wellgo Aluminum Alloy 9/16	RP-19-03

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SPECIFICATIONS

Brakes

Part

CALIPERS	Tektro Mechanical Brake Caliper	RP-12-12-01
LEVERS	Tektro Mechanical Brake Lever with electric cutoff	Right: RP-12-12-02 Left: 12-12-03
PADS	Tektro Two Piston Pads	RP-12-08-03
ROTORs	Tektro 180mm	Front & Rear: RP-12-12-04

Components

Part

FRAME	6061 T6 Aluminum Alloy with internal cable routing Matte Black, FDE, Blue & White	RP-01-36-01 RP-01-36-02 RP-01-36-03
FORK	6061 T6 Aluminum Alloy 26" x 4.0 Ridgid Fork	RP-02-11
HEADSET	Neco 1 1/8 Threadless Sealed Barings	RP-03-01
SEATPOST	Promax 27.2mm x 300m	RP-05-04
SADDLE	Comfort Saddle	RP-05-06
RIMS	26" Extra strong double wall aluminum Alloy 32h 13ga 80mm	RP-06-02-01
SPOKES	13G 251mm J bend	Front &Rear: PR-06-03-02
GRIPS	Ergonomic Lock on Grips	RP-04-12
HANDLEBAR	Promax Aluminum Alloy 31.8 clamp 740mm	RP-04-16
STEM	Promax 60mm 31.mm Bar Clamp 28.6mm Steerer Clamp	RP-0415
TIRES	Kenda 26" x 4.0" Tire with Anti Puncture	RP-08-07

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SPECIFICATIONS

Extras

Part #

LIGHTS

Super bright headlight
Pro hunter ultra bright flashlight

R140
R141

KICKSTAND

Rear Mount Adjustable

RP-20-02

TOOL KIT

Portable tool kit
Home tool kit

R115
R116

RACKS

Rear extra large luggage rack

R150

FENDERS

PDW mudshovel front/rear

R146
R147

Weight

BIKE (NO BATTERY)

54 lbs.

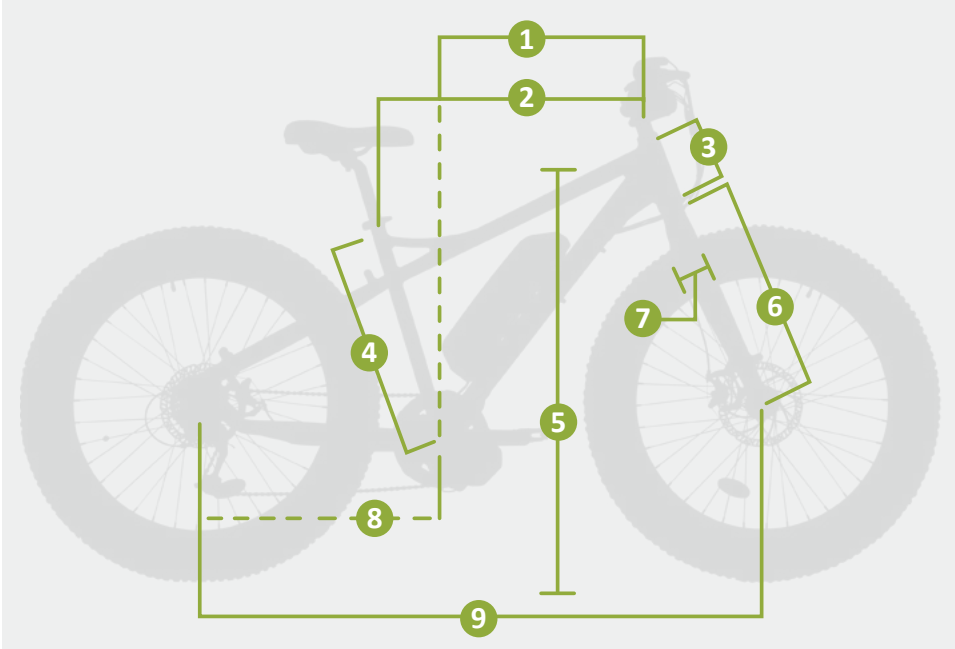
BATTERY

7 lbs.

DIMENSIONS

SAVAGE 750W | 750W FDE | 750W BLW

BIKE DIMENSIONS GUIDE



- 1 CHAIN TO HAND POST
16.7"
- 2 SEAT TUBE TO HANDPOST
22.5"
- 3 HEAD TUBE
5.9"
- 4 SEAT TUBE
19"
- 5 STAND OVER HEIGHT
30"
- 6 FORK LENGTH
18.5"
- 7 FORK WIDTH
1.8"
- 8 CHAIN STAY LENGTH
20.1"
- 9 WHEELBASE
46.2"

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BUILD MATERIALS

Components		Part #
Battery	48V 14AH 672WH LG 18650	R138-14
Charger	48V 2AMP Charger Smart Charger	RP-11-02-07
Controller	48V Integrated	RP-10-13-02
Derailleur	Shimano M370 8 Speed Long Cage	RP-16-09
Fork	6061 T6 Aluminum Alloy 26" x 4.0 Ridgid Fork	RP-02-11
Tires	Kenda 26" x 4.0" Tire with Anti Puncture	RP-08-07
Crank	Aluminum Alloy Diamond Taper 170mm	Left: RP-18-06-01 Right:RP-18-06-02
Pedals	Wellgo Aluminum Alloy 9/16	RP-19-03
Calipers	Tektro Mechanical Brake Caliper	RP-12-12-01
Levers	Tektro Mechanical Brake Lever with electric cutoff	Right: RP-12-12-02 Left: 12-12-03
Pads	Tektro Two Piston Pads	RP-12-08-03
Rotors	Tektro 180mm	Front & Rear: RP-12-12-04

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FREQUENTLY ASKED QUESTIONS

FLAT TIRES

- Flat Tires are common with all types of bikes. Several factors can cause a flat tire but these are normally not covered under warranty. These factors can range from punctures due to thorns or glass, rim tape becoming squished, and also a defect in the rim.
- If we do have a customer who sends a claim in for one, we want to highly recommend having them take the wheel to a bike shop so they can install a new tube and provide the labor. When a bike shop changes out the tube, they also inspect the rim for damages.
- We can also send the customer this video if they ask how to handle a flat tire themselves:
<https://www.youtube.com/watch?v=eqR6nlZNeU8>
- If we have a customer that's only had the bike for two weeks, go ahead and cover it under warranty. Including tube and labor, this normally costs between \$20-\$40 per wheel.

BASIC BIKE MAINTENANCE

- Basic bike maintenance is very important for keeping Ebikes running longer and smoothly. We highly recommend having you're ebike inspected by a bike shop every 6-12 months depending on how much you ride it. A tune-up is where a bike shop inspects the bike, cleans it, changes any parts needed that have worn out, and ensures the bike is still safe to ride.
- Once a month we recommend cleaning the bike and also applying new bike lube to the chain. Keeping the chain clean is very important. There are many different brands in which you can use like: Finish Line, ProLink, and ParkTool. Finish line makes something called bike degreaser which is great for getting rid of gunk on the cassette and chain. After applying some, use a brush to scrub off all the dirt. Then apply some more bike lube. There are many different types of lubes, but the two main ones are Wet and Dry. Wet is used for places where it's rainy or wet and dry is used for desert or warm conditions. Here is a video showing how to clean: https://www.youtube.com/watch?v=MuwS_nSevy4
- We never want to leave the bikes outside for long periods of time. Oxygen and weather will help rust parts on the bike. If a bike is next to the ocean, then the bike needs to be cleaned bi-weekly. Never use WD40 or any car cleaners on these as they will destroy or cause serious damage to the bike. You want to use bike specific cleaner which helps keep the bike clean. Never hose down an Ebike. Always gently wash it.

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ADJUSTING DERAILLEURS (DIRECT MESSAGE)

- Adjusting your derailleur is something that you might be able to do at home, but if you aren't comfortable working on your bike we would recommend you take it into a local shop for help. Any shop should be able to, though it is always a good idea to give them a call ahead of time to make sure they are willing to work on your bike. If you need help locating a shop, just let us know. However, if you do want to adjust your derailleur at home, here is the link our video on how to do so: <https://www.youtube.com/watch?v=ziAYCKBrrxM>

BRAKE ADJUSTMENT OR NOISE (DIRECT MESSAGE)

- The first thing to check if your brake is making noise is if your caliper is properly aligned with the disc. Fortunately, this is simple to adjust. NEVER apply your fingers on the rotors as human oil can contaminate the rotors and cause them to make noise. Please use gloves. Start by loosening the two bolts that hold the brake caliper onto the brake adapter that's bolted onto the bike frame. You'll need to use a 5mm Allen wrench to do this. Once these are loose (half turn), and the brake is caliper is free to wiggle around, squeeze and hold the corresponding brake lever, up on the handlebars. While holding this down, retighten the 5mm bolts (hand tight). This will center the caliper over the rotor, and should take care of the noise and rubbing. Here is a link to our video on how to adjust the brakes: https://www.youtube.com/watch?v=aKu_ZA41oow

- We would recommend you put at least 25-50 miles on the bike to allow time for the brake pads to break in. Depending on the riding conditions, the brake pads can make a noise when being activated. If you continue to here noise, use 91% rubbing alcohol on the rotors. Only need a couple of drops. Give it a couple of rides but this helps remove the protective layer on the brake pads.

REMOVING THE REAR WHEEL (DIRECT MESSAGE)

- Removing the rear wheel on your Rambo bike is not much more difficult than on a normal bike, it just has a few more steps. Here is a link to a video showing you how to remove the rear wheel depending on what system you have: <https://www.youtube.com/watch?v=f4EXbcXvG44>

- If this seems like more than you are comfortable with, we recommend taking it to a local bike shop. Anyone should be able to do this, but it is always a good idea to call them ahead to confirm they can. If you have an internal hub, the process will be different.

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HOW TO RIDE AN EBIKE (DIRECT MESSAGE)

- Riding an Electric bike can take some time to learn if it's your first one. When receiving your Ebike, we highly recommend you find somewhere open where you won't have many distractions or obstacles. This will allow you the space needed to learn how to operate the bike.
- We recommend turning on your ebike when you are ready to ride it. Once on, make sure you start it at Level 0 for the first time. This allows it to operate as a normal bike without the pedal assistance kicking in. Ride around getting comfortable with the feel. Once you start to feel more comfortable, try upping the pedal assistance to Level 1. You will then start to feel the bike accelerating which is normal. Once you feel comfortable, that's when you can start going up on the pedal assistance. Most Rambo Bikes have 5 levels of Pedal Assistance and can range from 20-28mph. Remember, safety first and always wear a helmet!
- When climbing up a hill, you will want to be in a higher PAS level that way you it applies less strain on the motor. Try adjusting the PAS level before climbing up the hill. Once up a hill, if you change the PAS it can apply more strain on the motor. If the bike stalls or starts to overheat because of the hill strain, stop and give the bike a few minutes to cool down and then head back on your adventure.
- When braking, always use both brakes at the same time to come to a complete steady stop. Once the brake is activated, the sensor in the brake lever will cause all power from the battery to be cut off. Remember, if you are going down hill or going faster than 15mph, it takes longer for the bike to come to a complete steady stop.
- Many of Rambo Bikes come with different gears. Some are external where you have derailleurs and others can be internal hubs. If you have a single speed setup, this does not apply to you. Everyone is built differently, but the principle of how to use gears is the same. Gear 1 is the slowest gear but when it comes to pedaling it's also the easiest. When going up hills or just wanting to enjoy a recovery day, you probably want to use gear 1. The biggest gear you have on the bike is the hardest to pedal but also the fastest. When using this gear, you mostly are going downhill, or have the highest PAS level on. The rest of the gears on the bike are used for what's comfortable for you the rider. Each of us have different leg strength or what's comfortable. When changing gears, if you have a derailleur system, make sure you change gears only while pedaling. If you have an internal hub setup, change while not pedaling. This is very important as you can cause damage to either bike by doing the opposite.

E-BIKE CLASSES: DIFFERENCES BETWEEN 1,2, AND 3

Class 1 E-Bike: a class 1 e-bike is classified as class 1 when it has PEDAL ASSIST ONLY and tops off at 20 mph and no throttle. What is pedal assist? An electric motor with pedal assist is an e-bike whose drive system is only activated once you start pedaling. Once you start pedaling you will be able to get up to 20 mph (miles per hour) on your e-bike. Class 1 E-Bikes are known for bike lanes and bike paths for areas with the strictest bike laws.

Class 2 E-Bike: A class 2 e-bike features a THROTTLE and maxes out at 20mph. What is a throttle/how does it work? A throttle is a feature ebikes have that can come in a grip-twist or button where you hold it down and the bike takes off without you having to be pedaling. The throttle is limited to a certain speed for safety and regulation reasons. In most places you will be able to ride a class 2 ebike anywhere you would ride a non ebike.

Class 3 E-Bike: A class 3 ebike features Pedal Assist only and tops off at 28mph. Due to the high-power class 3 e-bike has, they are restricted from certain bike trails and bike paths. What makes Rambo e-bikes unique is that they feature pedal assist AND throttle. Check and make sure class 3 E-bikes can be ridden in your area first.

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HOW TO TRANSPORT AN E-BIKE (DIRECT MESSAGE)

- There are many different types of ways to transport an Ebike. This ranges from regular cars all the way to RV's. We always recommend getting a car hitch (2" receiver) if possible or if you know you will be traveling a lot. If you cannot do that, you can always remove both wheels on the bike, but it does take some work. If you do have a trailer hitch, there's many different types of Haulers that can be used. If you have an RV, you will want to confirm that the Haulers are compatible with the RV. Rambo does make a Hauler that works well with our bikes. If you are needing something a little stronger or looking for other brands that are well known for transporting bikes here are some options. There are many different brands but the well known ones are KUAT, Thule, Yakima, and Saris. You will want to confirm the amount of weight that can be carried and if they need a fat tire extension kit. Make sure you always use a lock to keep the bikes secure on the trailers!

- Depending on the location of where you are and what are the riding conditions, transporting you're Ebike can be very important. We always recommend removing the battery off the bike and bringing it inside the vehicle with you. Make sure the bike is covered using a bike travel case or cover. Now if you live somewhere where it's nice and dry, this might not be needed. While Ebikes are water resistant, they are not waterproof where they can just be dunked under water. That's why it's important if you are driving somewhere where it's raining to cover the bikes up. Once stopped, make sure you dry the bike off just to be safe. You might also need to clean the bike after the journey.

DIFFERENCE BETWEEN HYDRAULIC AND MECHANICAL DISC BRAKES

Pros of Mechanical Disc Brakes

1. Easier to replace
2. Cheaper
3. Easy maintenance

Cons of Mechanical Disc Brakes

1. Needs more squeeze power by hand to enable brake
2. More maintenance required
3. Brake cable gets stretched
4. Heavier

Pros of Hydraulic Disc Brakes

1. More likely to last longer
2. Less maintenance
3. More brake stopping power

Cons of Hydraulic Disc Brakes

1. Very complex to do maintenance on
2. Expensive
3. If there's an oil leak it's harder to fix

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ERROR CODES

ERROR 30: Communication Error

1. First unplug and replug all of the connections on your kit including all of the Main Wiring Harness connections (display, throttle, brake levers) and all of the Motor lead connections with the Battery and Speed Sensor. Make sure no pins are bent/damaged on any of the connection plugs and line up the arrows and pins when reconnecting everything to ensure proper connection.
2. If Step 1 does not fix the error, check that none of the wiring on your setup is being pinched, especially the cables coming from the controller. Check to make sure that none of the wiring on your installation is too tight and is pulling the cables from the controller.
3. Open up the controller from the motor core and unplug all of the controller plugs and replug them again ensuring there is no silicone interference and everything is properly connected.
3. If Step 3 does not solve the error, and if you are not able to resolve the error, please create a Support Ticket [here](#).

ERROR 12: Controller Error

1. First unplug and replug all of the connections on your kit including all of the Main Wiring Harness connections (display, throttle, brake levers) and all of the Motor lead connections with the Battery and Speed Sensor. Make sure no pins are bent/damaged on any of the connection plugs and line up the arrows and pins when reconnecting everything to ensure proper connection.
2. If Step 1 does not solve the error, there is a possibility that one of the plugs from the controller to the motor core came loose and is no longer properly connected. You can open up the controller and check the plugs into the motor core.
3. If Step 2 does not solve the error, and if you are not able to resolve the error, please create a Support Ticket [here](#).

ERROR 22: Throttle Issue, Battery Issue, or a Display Input Issue

A few things can cause an Error 22 issue.

- 1) We recommend starting by making sure that you are not seeing the error code when pushing and holding random buttons at once on your display. Sometimes this error code will show when multiple button inputs are pressed at once on the display which is not actual input. This is not an issue and you would simply stop pushing the button to release the error 22.
- 2) If you are not entering random button inputs into your display and you are having Error 22, then we recommend unplugging your throttle to see if this clears your error code!
- 3) If unplugging your throttle doesn't clear your error 22 code then this could mean that there maybe an issue with your battery or display.

ERROR 08: Hall Sensor Fault

1. First, unplug and replug all of the connections on your kit including all of the Main Wiring Harness connections (display, throttle, brake levers) and all of the Motor lead connections with the Battery and Speed Sensor. Make sure no pins are bent/damaged on any of the connection plugs and line up the arrows and pins when reconnecting everything to ensure proper connection.
2. If Step 1 doesn't solve the error, the Hall Sensor plug connection (white plug) from your controller to your motor core may have come loose or has silicone interference impeding the connection. In order to fix this, you need to loosen the controller from the motor to unplug and replug the white Hall Sensor plug. You will need to check all the pins on the white plug to make sure they are straight and remove any silicone interference from the connection area and then properly replug the white plug back into the motor core.
3. If Step 2 doesn't solve the error, you either need a new Hall Sensor or may need a whole new motor core or controller if the motor windings were burnt and blown, which caused the Hall sensor to malfunction.

ERROR 04/05: Throttle error and throttle does not work

1. Unplug and replug your throttle making sure to line up the arrows and pins to ensure proper connection. Make sure the throttle pins aren't bent or damaged.
2. If Step 1 does not solve the error, unplug and replug all of the connections on your kit Main Wiring Harness (display, throttle, brake levers), including the Main Wiring Harness connection with the motor lead and Battery connections with the motor leads. Make sure no pins are damaged on the Main Wiring Harness and line up the arrows and pins when reconnecting everything to ensure proper connection.
3. If Step 2 does not solve the error, unplug just the throttle from your kit. Does the error go away? If so, you most likely need a new throttle.

ERROR 07: High voltage cut-off protection

Your battery pack is providing too high of a voltage. You can only use our 48V or 52V batteries with the BBS02/BBSHD motors.

ERROR 06: Low voltage cut-off protection

Your battery pack is providing insufficient voltage. Charge your battery pack! Make sure you are using a 48V or 52V battery with your kit.

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ERROR 21: Speed Sensor Error

There are a lot of bike wheel sizes and types out there, so installation of the speed sensor and magnet can vary based on your specific wheel. Below are steps in order to help you resolve your Error 21 issue!

Steps to resolve:

1) Check the distance between your speed sensor and magnet. An error 21 is typically a simple fix and is due to improper installation and placement of the magnet in regards to the speed sensor. The magnet must be installed within 1-2mm of the speed sensor. Please reference the Installation Video on our website and follow the steps for installing the speed sensor and magnet within the proper placement.

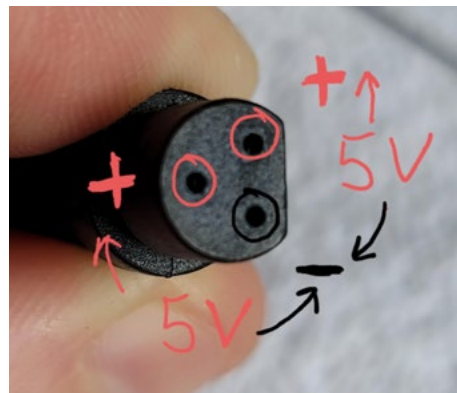


2) Check the path of travel of your magnet in relation to your speed sensor. The path of magnet travel must be directly perpendicular to the orientation of the speed sensor in order to properly operate.

3) Check the location of your speed sensor in relation to the rotation of your bike's tire. Our recommendation is to install the sensor as far away from the center of the wheel as possible in order to help make sure that the magnet path of travel is as perpendicular to the speed as possible. In the image below the X represents where the speed sensor should not be installed (close to the center of the rim) while the green circle shows where the speed sensor should be installed (close to the outside of the rim).



4) Make sure that the Speed Sensor Cable was NOT yanked and pulled out of the Controller housing during installation and/or rough riding. The speed sensor cables are actually relatively fragile and should not be yanked or pulled on (especially when being installed on bikes that should have speed sensor extensions in order to have the necessary length to function properly). It is not recommended to install these cables under tension as it can result in the cable being pulled from the controller. The only way to fix this would be to replace the entire controller. The speed sensor cable communication connection has narrow holes however if you suspect that the cable may have been pulled too tight during installation or use you can test for voltage from the controller by testing the voltage across the terminals as outlined in the photos below.



5) If you are reading power from the controller at the end of the Speed Sensor Extension cable and none of the other steps above resolved your Error 21 issue then the final step would be replacing the Speed Sensor itself!



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