

powertap™

pedal power meter



USER GUIDE

WARNING: Read this manual in its entirety before using this product. Improper use could result in damage to the product or lead to injury.

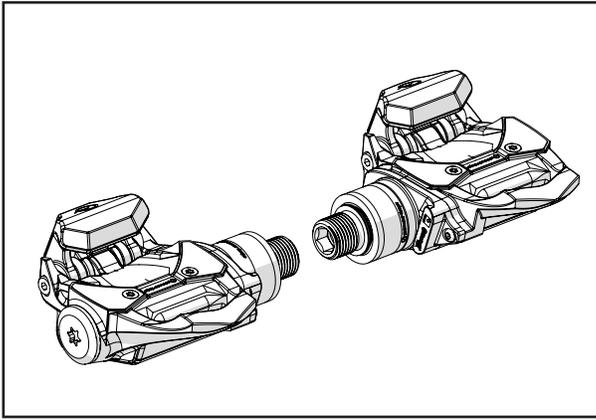
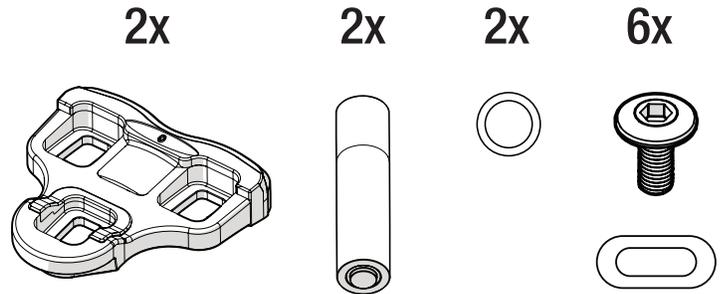


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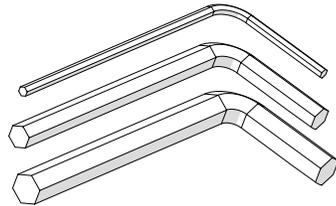
PACKAGE CONTENTS

1. Right pedal
2. Left pedal
3. Pedal washers (pair)
4. Cleats (pair)
5. Cleat mounting hardware
6. Batteries (2-AAA)
7. Pedal Identification Card (not pictured)



TOOLS REQUIRED

- 2.5mm hex key
- 6mm hex key
- 8mm hex key (Allen wrench)



CHAPTER 1: PEDAL SPECIFICATIONS

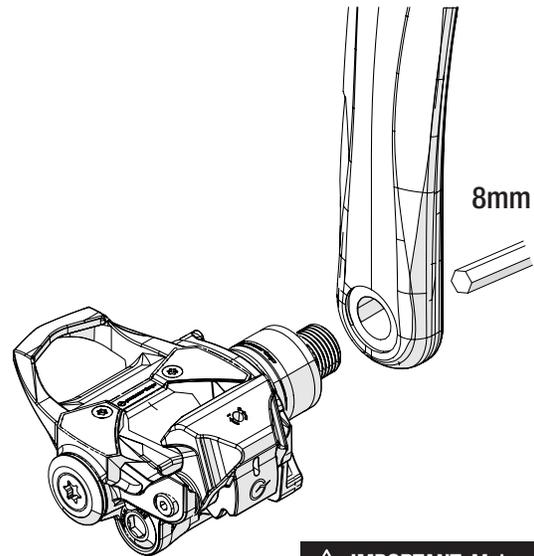
Specifications	
Weight	398 grams per pair of pedals (without batteries)
Center of pedal	53 mm from the crank to pedal center, Overall Center-Center: 249 mm w/ Shimano cranks, 250 mm w/SRAM cranks, 248.5 mm w/Campy cranks
Stack Height	14 mm
Cornering angle	Specific lean angle determined by multiple factors. 25.5 degrees of lean (crank all the way down on the inside 175mm, 75mm BB drop, 147mm Q-factor, 700x23 tire size)
Tension Adjustment	Adjustable 6-20 Nm
Est. Battery Life	60 hours
Normal Operating Temperature	-40°F to +140°F
Warranty	2 years

CHAPTER 2: INSTALLATION AND REMOVAL

PEDAL INSTALLATION

Note: PowerTap P1 pedals do not have flats on the pedal axle. An 8mm hex key must be used to secure pedal to the crank.

Before installing the pedals apply a light coat of grease to the threads on the axle. We recommend a heavier, water repellent grease like Park Tool's PPL-1 or Phil Wood's waterproof grease. If installing pedals into a carbon crank use the included pedal washers to reduce the potential for damage to the threads to the crank. To install the right pedal thread the RIGHT pedal into the drive side crank arm. The drive side crank arm has a right-handed thread. Using the 8mm hex, turn the axle clockwise when viewed from the pedal side of the crank. Tighten the pedal to the torque specification recommended by the crank manufacturer. To install the left pedal thread the LEFT pedal into the non-drive side crank arm. The non-drive side pedal has a left-handed thread. Using the 8mm hex, turn the axle counter-clockwise when viewed from the pedal side of the crank. Tighten the pedal to the torque specification recommended by the crank manufacturer.

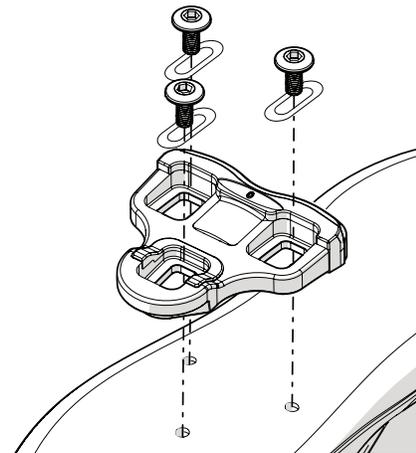


⚠ IMPORTANT: Make sure cleats engage and disengage properly before riding.

CLEAT INSTALLATION

Note: PowerTap P1 pedals must be used with the included cleats. They are NOT compatible with other similar looking cleats like Look Keo.

Align the holes on the cleat with the embedded nuts on the sole of the shoe. Next, install the rectangular washers and bolts but do not fully tighten. Align the cleat to your preferred position and tighten each of the bolts to 4-6 ft lbs.

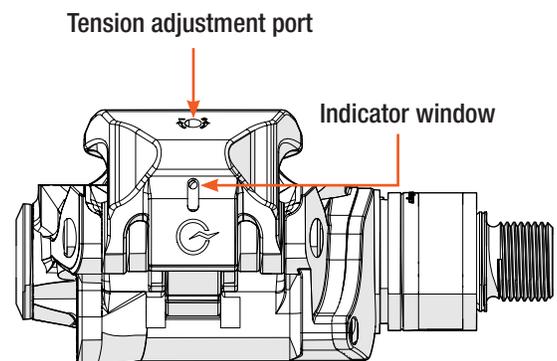


TENSION ADJUSTMENT

The release tension can be adjusted to suit your needs. Using a 2.5mm hex wrench adjust the release tension by turning the release tension adjustment screw as indicated by the arrows on the pedal claw. Turn the screw counter-clockwise to increase release tension and clockwise to decrease release tension. The indicator on the rear of the claw shows relative position of MIN/MAX release tension. Do not try to turn the screw past the MIN (bottom) or MAX (top) position as shown by the indicator.

Adjust the spring force tension for optimal retention and safe release. Ensure pedal and claw area are free of dirt, debris and clothing obstructions.

Note: Cleats need to be replaced periodically based on individual rider use. If cleats are showing signs of wear or are not engaging and disengaging from the pedal replace them in a timely manner.



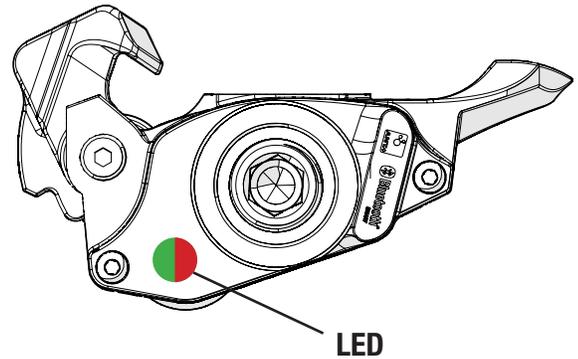
CHAPTER 3: PAIRING

PEDAL SLEEP AND WAKING

After 4 minutes without movement the pedal goes to sleep to conserve battery life. Wake the pedal up by spinning the pedal several times.

The pedal has a two stage wake up procedure to prevent battery drain during transport.

- Initial wake (dose mode): When pedal is spun only once. Goes back to sleep after 10 seconds of no movement.
- Full wake: Looks for continued rotation after initial wake within 10 seconds.



PAIRING

The pedals are factory paired to each other during the production process. They operate in a master/slave configuration. The right pedal (slave) is permanently paired to the left pedal and transmits data to it during activity. The left pedal (master) combines its data with the data of the right pedal and transmits the combined data to the receiving unit. Only the left pedal (master) can be paired to a display unit. Display units will not be able to pair to the right side pedal. For pairing instructions specific to your receiving device see your display unit's instructions for pairing.

To pair:

1. Awake both pedals by spinning them a few times individually. Upon awaking the green and red LED will illuminate. Then the green LED will blink every 2 sec when functioning normally.
2. Go to the SENSORS screen on your display and select POWER SENSOR from the menu and initiate the pair. Note: this can take up to 60 seconds.
3. When the ID from the appropriate sensor shows on the display screen select this sensor by pressing the ENTER button. Then activate the sensor. (ANT+ ID>ACTIVATE SENSOR)

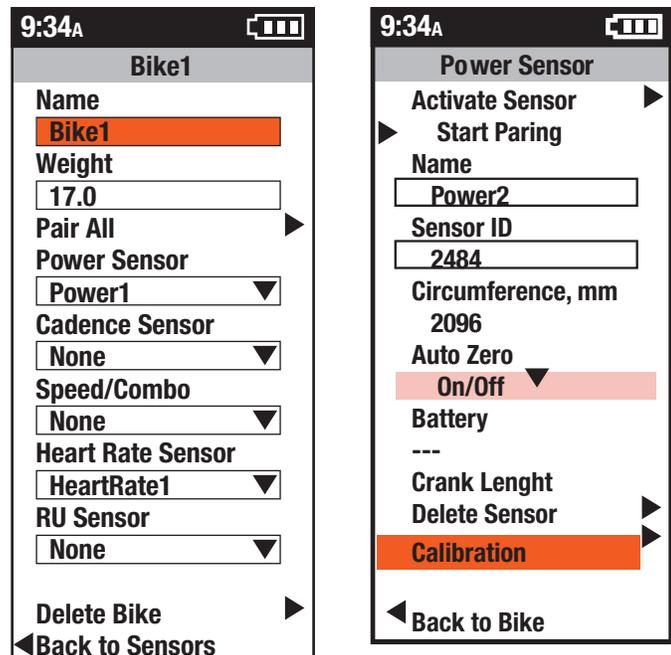
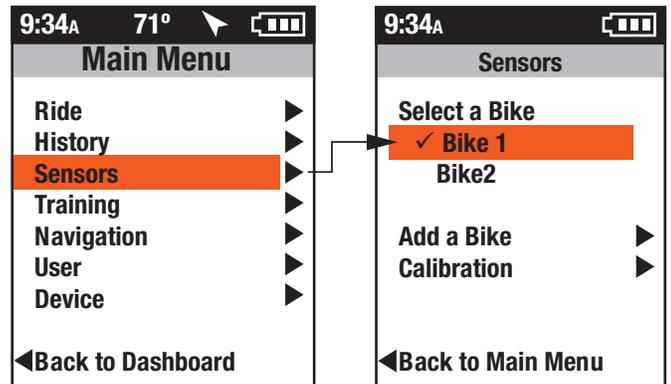
Bluetooth SMART and ANT+ - The pedal broadcasts data using Bluetooth Smart and ANT+ simultaneously. You can pair your pedal to any device using either of these wireless protocols.



Bluetooth Smart is the low energy version of Bluetooth wireless technology. Learn more about this technology visit www.bluetooth.com



ANT+ is a low energy form of wireless technology used in many sport electronics. To learn more about ANT+ visit www.thisisant.com



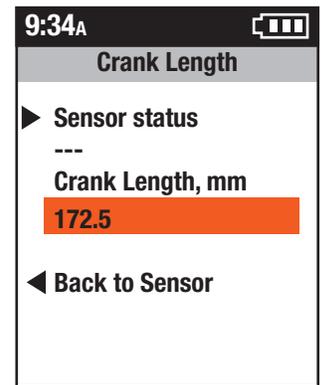
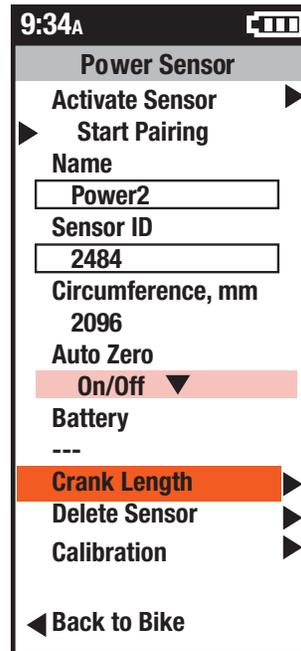
CHAPTER 4: SETTING CRANK ARM LENGTH

CRANK ARM LENGTH

Crank arm length must be set prior to use in order to display and collect the correct power output. To set crank arm length enter the sensor menu on your display unit and input the crank arm length that the pedals are attached to. Pedals are set to 172.5mm by default.

INDEXING PROCESS

Each time the pedals are initially installed there is a one time indexing process that occurs during the first few minutes of pedaling (basically the pedals are finding where the pedal axle has been positioned in each crank arm). During this time the Power and Pedal Balance output will not appear accurate, typically reading low. There are two versions of this process--the long version and the short version. The long version occurs when you install the pedals and immediately begin to ride the bike. The "finding" of the index will typically take between 3 and 5 minutes of continued pedaling to complete. The short version of this process, referred to as "fast find" occurs when you manually zero the pedal calibration offset after installation and pairing but prior to riding. The Fast Find typically takes a minute or less. Again, the pedals go this process only once after each install.



CHAPTER 5: CALIBRATION AND MANUAL ZERO

CALIBRATION AND MANUAL ZERO

Each PowerTap P1 pedal is dynamically calibrated from the factory to the highest standard. Calibration values cannot be changed by the user. However, it is important to periodically zero the offset manually.

Before performing a manual zero unclip from the pedals and make sure there is nothing contacting either pedal. Navigate to the sensor screen on the Joule GPS+ or other head unit and select Calibration. Initially, numbers will display related to the previous zeroing of the calibration offset. With Manual Zero selected Press the ENTER button to zero the offset.

TEMPERATURE COMPENSATION

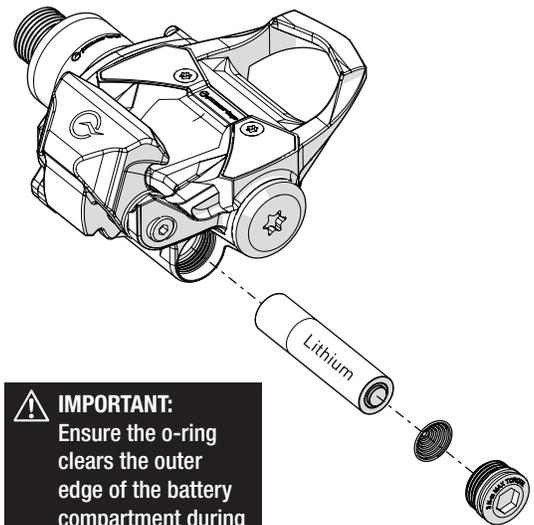
The PowerTap P1 pedals have active temperature compensation to avoid drifting power and inaccurate data as the environmental conditions around you change. Each pedal has temperature sensors at the point of force measurement that automatically accommodate for changes in temperature up or down. This ensures that you get uninterrupted, accurate data every time you ride.

CHAPTER 6: BATTERY REPLACEMENT

BATTERY REPLACEMENT

To install or replace the battery use a hex to remove the battery cover. Replace battery in clean/dry conditions. Remove old battery if necessary and replace with new battery. Reference underside of pedal for correct battery orientation. Reinstall battery cover but do not overtighten.

Damage caused by batteries is not covered under the warranty of the pedals. Remove batteries from the pedal system if they will be unused for longer than a month. Use only lithium batteries with the pedal system. Alkaline batteries could damage the pedals.



⚠ IMPORTANT:
Ensure the o-ring
clears the outer
edge of the battery
compartment during
installation.

CHAPTER 7: FIRMWARE

FIRMWARE UPDATES

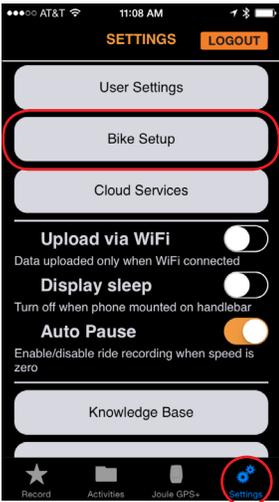
Firmware on the pedals can be updated wirelessly when new firmware releases are available. To enjoy the full capabilities of the P1 Pedals including ongoing enhancements and Over-the-Air firmware updates you must download PowerTap Mobile App from the App Store.

Note: PowerTap mobile is currently only available on iOS for iPhone 4s or later, iPod Touch 5th generation or later, or iPad Mini/iPad 3 or later.

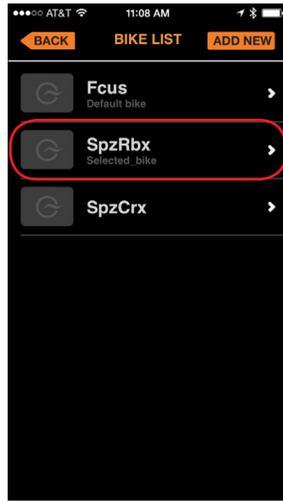
To check for/or perform over the air (OTA) firmware update follow the steps below.

Bluetooth must be turned “on” on

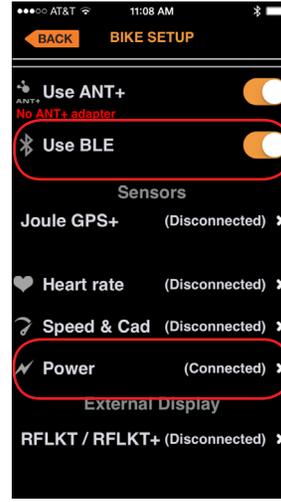
- 1) your iOS device (iPhone, Touch, iPad).
- 2) Bluetooth must be turned “on” in the PTM app (see switch “Use BLE”; BLE= Bluetooth Low Energy).
- 3) Follow the onscreen directions on the next page.



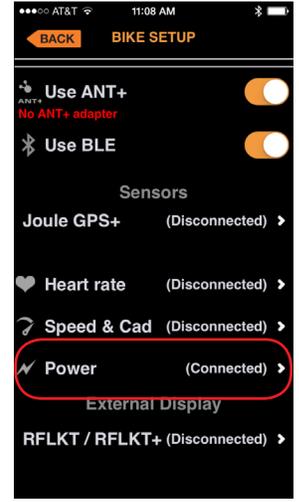
From the Settings page in PowerTap mobile select Bike Setup.



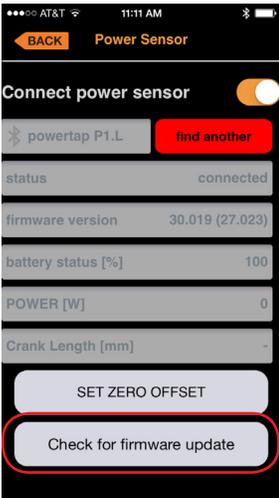
From the Bike List choose the bike the pedals are under.



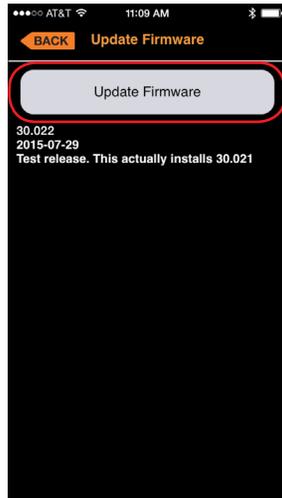
Make sure the pedals are awake indicated by the connected message next to the sensor. Note: Use BLE must be turned on.



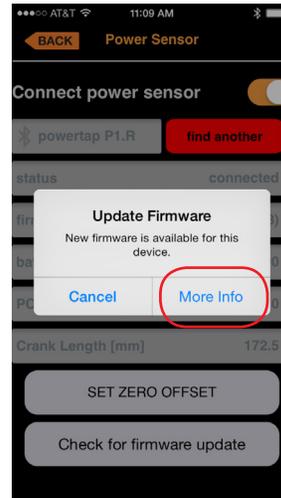
Select the power sensor you would like to update.



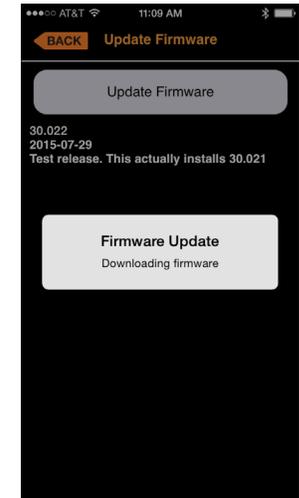
Select Check for firmware update to see if one is available.



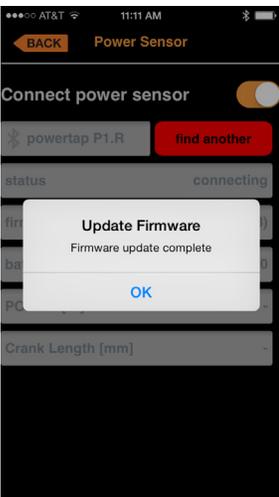
Select Update Firmware



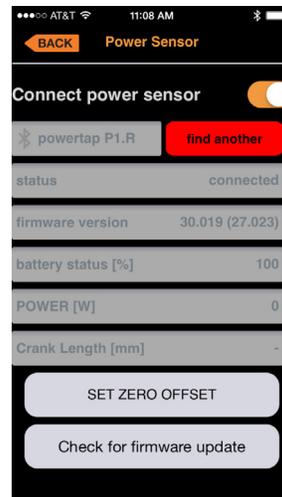
If a new firmware version is available select More Info to update.



Firmware Update process will happen automatically.



Once firmware update is complete select OK.



Right and Left pedals must be updated individually. Follow the same process to update the other sensor.

CHAPTER 8: PRECAUTIONS

PRECAUTIONS

Avoid submerging pedals in water and direct high pressure water spray. Damaging chemicals like diesel, kerosene and other strong solvents are also potentially damaging.

 **WARNING:** Keep pedals away from strong magnets.

Some of the electronics inside the pedal are sensitive to strong magnets and if your pedals come in close contact with strong magnets they may begin transmitting abnormal data. If you think your pedals were exposed to the magnetic field of a strong magnet please contact customer service.

LONG TERM STORAGE

If the pedals will not be used for an extended period of time (2 months or more) remove the batteries to prevent excessive battery drain and potential battery vomiting.

CHAPTER 9: WARRANTY

OFFICIAL WARRANTY TERMS

Saris Cycling Group, Inc (SCG), parent company of PowerTap, warrants our product to the original consumer to be free from defects in materials and workmanship. Please retain your sales slip for your records as proof of purchase will be required.

POWER METERS

Hubs

- New Hubs: 2 year
- Serviced Hubs: 1 year
- Bearings and Axle, both new and serviced: 1 year

Pedals

- New Pedals: 2 year
- Serviced Pedals: 1 year
- Refurbished Pedals: 1 year
- Bearings and Axle, both new and serviced: 1 year

**Damage caused by batteries is not covered under Warranty

Chainrings

- New Chainrings- 2 year
- Serviced Chainrings- 1 year

RIMS

- Enve SES carbon - 5 year
- PowerTap AMP carbon - 2 year
- Alloy - 2 year

POWERCAL

- 1 year

JOULE, JOULE GPS & JOULE GPS+

- 1 year

ACCESSORIES

- 1 year

CHAPTER 9: WARRANTY CONTINUED

Any product or part thereof found to be defective within the term as set forth above will be replaced without charge provided that: (1) its failure resulted from a defect in material or workmanship and not from normal wear and tear expected in the use of the product; (2) the product was not misused, improperly assembled, improperly maintained or damaged by accident; (3) there was no failure to follow instructions or warnings in Owner's Manual; (4) no alterations or modifications were made; and (5) the product or part is delivered, freight prepaid, to Saris Cycling Group or an authorized service center.

Please call (800) 246-5975 to obtain return authorization prior to return. SCG reserves the right to inspect any product before issuing a replacement. SCG's only obligation shall be to replace such products or parts that it determines are defective.

LIMITATIONS

The foregoing warranties are in lieu of and exclude all other warranties not expressly set forth herein, whether expressed or implied by operation of law or otherwise. Other than as set forth above, SCG makes no warranty, whether express, implied or statutory, with respect to any product, including, but not limited to, warranties of reliability, merchant ability fitness for a particular purpose, or those arising from any course of performance, dealing, usage or trade. SCG shall not be liable for incidental or consequential losses, damages or expenses in connection with its products. SCG's liability hereunder is expressly limited to the replacement of goods not complying with this warranty or, at SCG's election, to the repayment of an amount of the purchase price of the product in question. Some states do not permit the exclusion or limitation of implied warranties or incidental or consequential damages, so the preceding limitations and exclusions may not apply to you.

FCC 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.

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.

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.

IC Statement

This device complies with Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B)/NMB-3(B)

APPENDIX: LED FUNCTION

LED	Function
One green blink	LEFT PEDAL (Master) – Operating normally with slave pedal paired. RIGHT PEDAL (Slave) – Operating normally.
Two green blinks	LEFT PEDAL (Master) – Awake, but no slave paired.
One red blink	Error 1. Battery connected, but there is a general error.
Two red blinks	Error 2. Radio reset pending.
No LED	No battery Dead battery Electronics damaged
One longer green blink	Acknowledged command success.
One longer red blink	Acknowledged command failure.
One 3 second long green blink	User calibration (manual zero) success.
One 3 second long red blink	User calibration (manual zero) failure.
Both LEDs are on for 2 seconds	On powerup/wakeup from sleep.
Red LED on for 10 seconds	Hard fault, pedal to reboot.

