Pioneer

Pedaling Monitor Sensor SGY-PM910H

Instruction Manual for Installation and Calibration (Start Guide)

For the Pedaling Monitor System to operate correctly, the following two steps are necessary when the crank is installed on the bicycle.
[1] Magnet Installation and Calibration [2] Zero Calibration

[1] Magnet Installation and Calibration

Magnet Calibration allows the system to know the correct position of the Magnets in order to allow accurate Vector Displays. For this reason it is an essential part of the installation process.

Order of Steps in Magnet Calibration

The steps in Magnet Calibration are as follows;	Check Box
1 Magnet Temporary Attachment	☐
2 Entering Magnet Calibration Mode	☐
3 Detecting the Magnets	☐
4 Fixing the Magnets	☐
5 Locating the Magnets	☐
6 Storing Magnet Calibration Results	☐
7 Operation Check	☐

1. Magnet Temporary Attachment

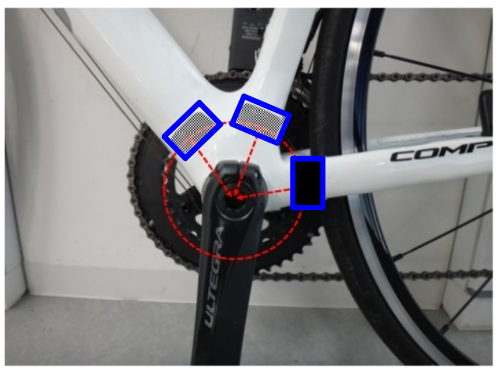
1. For the Patch Type Magnets, hold them temporarily in place with masking tape.

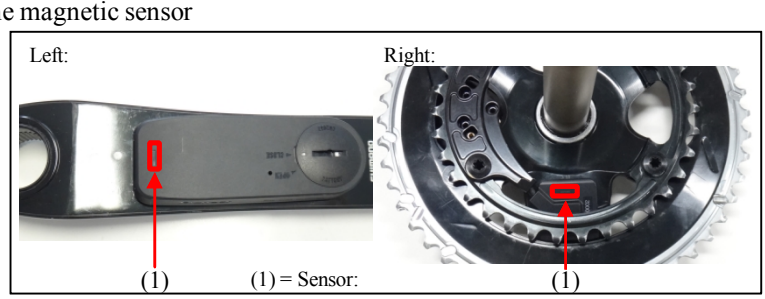
Attach the Patch to the frame so that the magnetic sensor passes over the patch in the direction shown.

It is recommended that you use the Patch Type Magnets. If the distance between the magnets and the sensor is outside the range 1.5 - 10.7mm, please use Arm Type Magnets. (See Page 8.)

2. Rotate the rank to confirm the position of the magnets.

The Magnet should be in one of the positions shown below, on a circle around the crank axis. The radius of this circle should be such that the Magnet passes the magnetic sensor

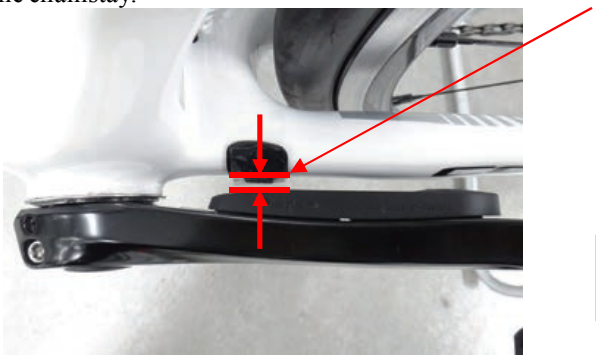




Approximate distance from axis of crank for magnets:
Left side: 53mm from Crank Axis.
Right Side: 42mm from Crank Axis.
Left Side Photo shows three possible options for Magnet Position.
Only one magnet is required on each side.

3 Temporarily attach the Magnets.

The picture below shows an example of attaching to the chainstay.



The Magnet Sensors on each side should be between 1.5 and 10.7mm from the Magnets.
If this is not possible, try placing the Magnets on the seat tube or the down tube.
If the correct distance cannot be achieved, please use the Arm Type Magnets.

Instructions for installing Arm Type Magnets are on page 8.

4 Rotate the crank slowly.

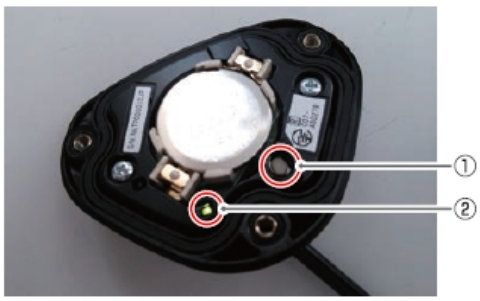
Ensure that the sensors do not come into contact with the Magnets or other parts of the bicycle.

2. Entering Magnet Calibration Mode

1 Place the bicycle in a vertical, level position (Both wheels at the same height) using a roller or stand.
2 Rotate the crank at least three times to start up both sensors.
3 Press the Push-Switch on the Right Side Transmitter for at least six seconds.

The LED should switch from flashing GREEN to flashing ORANGE. This means the sensors have switched to Magnet Calibration Mode. (Magnet Calibration Mode will be cancelled after thirty minutes. Please complete Magnet Calibration within that time.

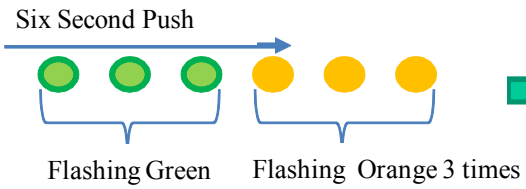
Left:



Right:

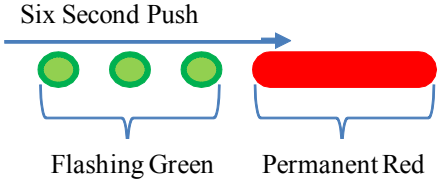
(1) Push-Switch
(2) LED

Push-Switch
Right Sensor LED



Has Correctly switched to Magnet Calibration Mode

Push-Switch
Right Sensor LED



Communication Error with Left Sensor has occurred. Check Left Side battery and try again.

3 Detecting the Magnets

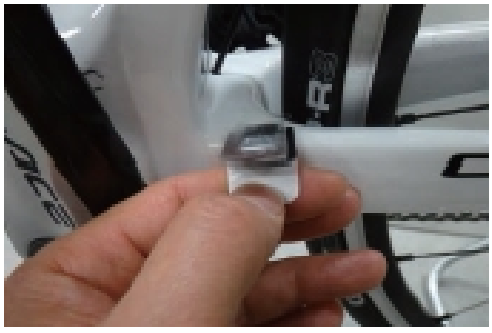
Rotate the cranks slowly and evenly at around 30rpm. Check that both LEDs flash GREEN once per revolution. If either LED shows RED, the rotation is too fast. Rotate slowly at 30rpm (2 seconds per revolution). If the LED does not light at all, it is not detecting the Magnets. (Too far away or not passing the Magnet.) Return to Step 1 and reattach the Magnets

LED lights GREEN

4 Fixing the Magnets

Taking care not to change their position, affix the Magnets permanently in place.

Carefully peel off the masking tape on one side of the Magnet. Remove the covering paper from the underside of the Magnet, and attach the Magnet permanently in the same position.



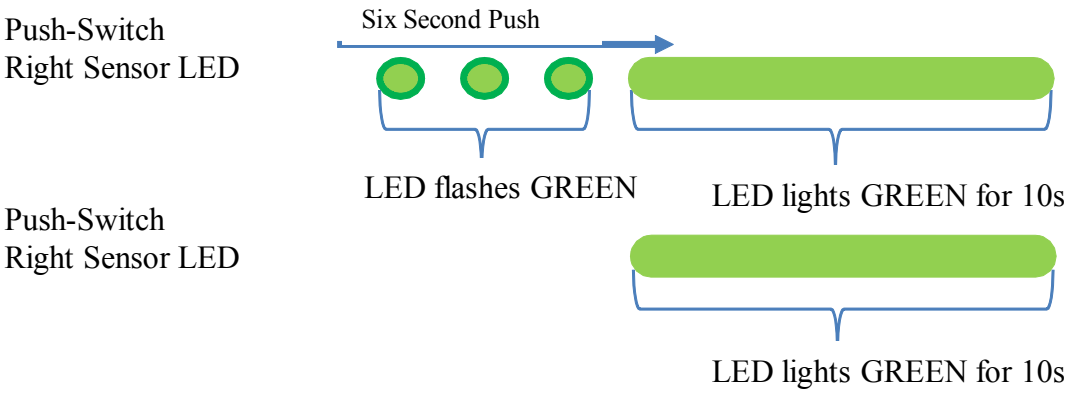
5 Locating the Magnets

In order for the System to detect the positions of the magnets, rotate the crank slowly and steadily for seven revolutions at a speed of about 30rpm, and check that each LED lights in GREEN as it passes the Magnet.

LED Lights in GREEN

6 Storing Magnet Calibration Results

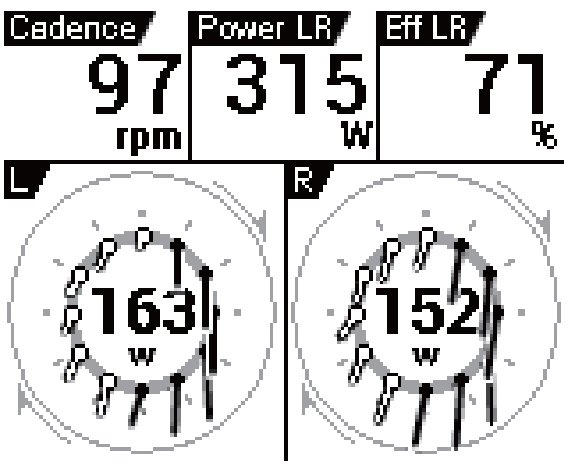
Push the Push-Switch on the Right Side Transmitter for at least six seconds. The LEDs will light up for ten seconds in GREEN. This means that the Calibration Data has been successfully stored.
If this step is not completed properly, the Calibration Results will not be stored.



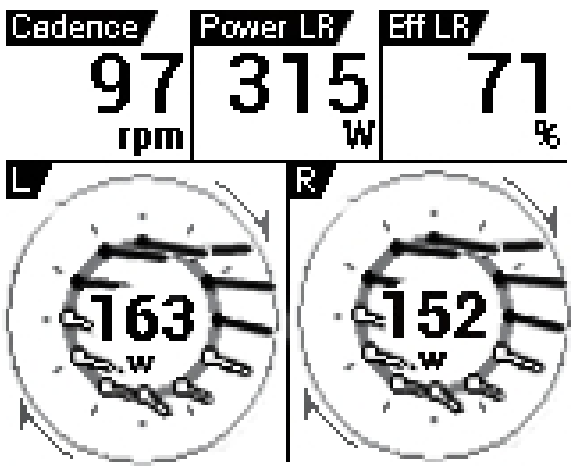
7 Operation Check

After Completing Magnet Calibration and Zero Calibration ride the bicycle to confirm that the Pedaling Vectors are shown correctly on the CycloComputer Display..
-> If the Vector directions are not correct, it is possible that Magnet Calibration was not done correctly, so try again.
-> If the Vectors are not shown, check if the sensors are in Power Meter Mode.

Calibration Successful



Calibration Unsuccessful



Once the correct Vector Display has been confirmed, replace the cover on the Right Side Transmitter and tighten the three hexagonal bolts that hold it in place to the correct tension. When doing so, ensure that the waterproofing seal is correctly in position.

8 Caution

After Magnet Calibration, please perform Zero Calibration. Instructions for this are on Page 5.

[2] Zero Calibration

Zero Calibration measures and stores the state of the sensors when there is no load on the crank. This allows the system to learn the adjust for the effects of temperature changes on the crank by automatically correcting the zero point in response to temperature changes. In order to use this function, it is necessary to carry out Zero Calibration at least twice at different temperatures. The most recent Calibration Results (up to six results) are used. If a difference of more than 4 degrees is observed in the temperature since the last Calibration, the Calibration Result is stored. Please ensure that the crank is acclimatized to the air temperature before performing Zero Calibration.
Zero Calibration should be performed once after Magnet Calibration.

Order of Steps in Sensor Connection and Zero Calibration

The steps in Sensor Connection and Zero Calibration are as follows;

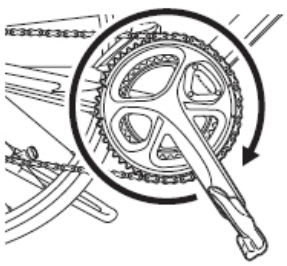
Check Box

1 Connecting the Pedaling Sensors ☐
2 Zero Calibration ☐
3 Checking Calibration Results ☐

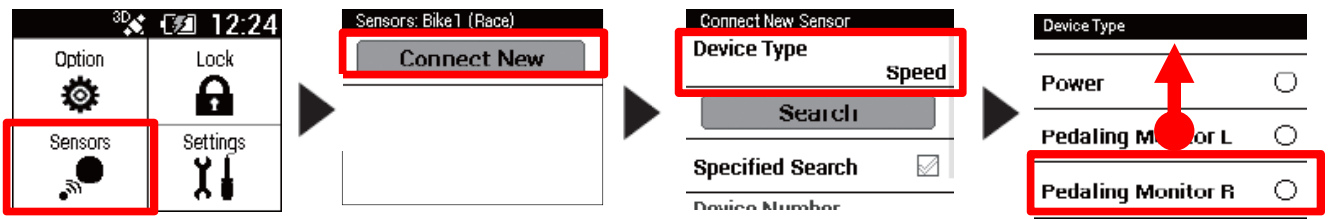
1. Connecting the Pedaling Sensors

Connect the Pedaling Monitor Sensors to the Cycle Computer SGX-CA500.
This must be done for both the Left Side and Right Side Sensors.
This explanation will use the Right Side Sensor as an example.

1 Rotate the crank at least three times to start up both sensors.



2 Select the Sensor to connect on the Cycle Computer SGX-CA500.
On the SGX-CA500, press the [Menu] button, then select [Sensors] – [Connect New] – [Device Type] – [Pedaling Monitor R].



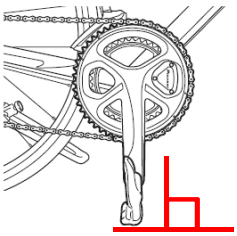
(Swipe the screen to scroll the menu.)

3 Press [Search].
If the [Error Rate] shows an [OK] result, then connection has been successful.
If the search continues for ore than a minute, go back to step 1 to restart the sensor and try the search again.

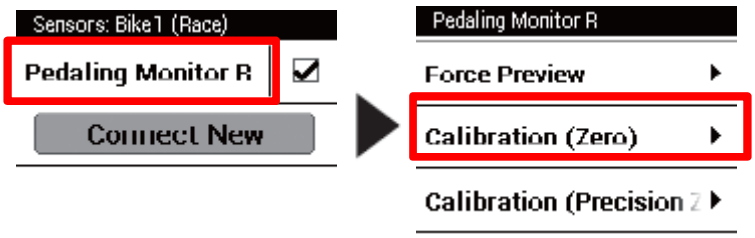
2. Zero Calibration

Zero Calibration can be performed using the Cycle Computer SGX-CA500.

1 **Place the bicycle in a vertical, level position (Both wheels at the same height) using a roller or stand.**
2 **Rotate the crank at least three times to start up both sensors.**
3 **Place the crank arm in a vertical position (with the pedals attached) .**

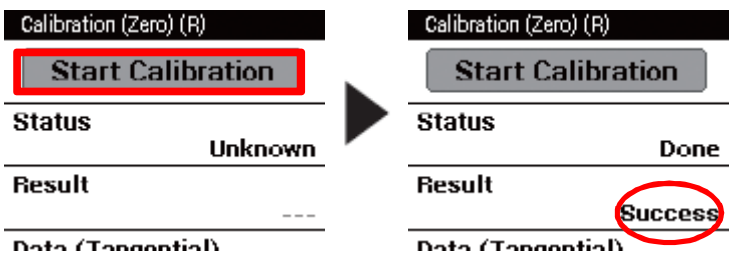


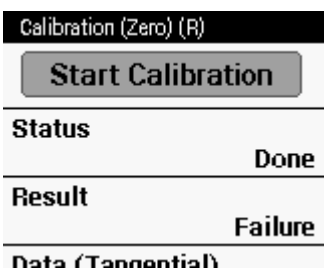
4 **Select Zero Calibration.**
From the [Sensors] screen on the SGX-CA500, select [Pedaling Monitor R] – [Calibration (Zero)].



5 **Start Zero Calibration** Press [Calibration Start].

If successful, the [Result] box will show [Success].



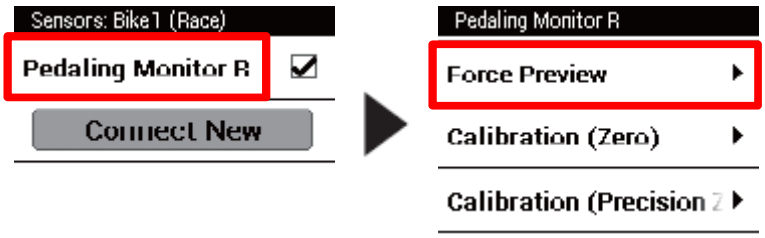


If [Failure] is shown, it is possible that the crank moved during the calibration. Please retry with the crank in a stable position.

3. Checking the Calibration Results

センサーが正しく校正されているか確認します。

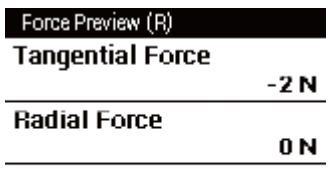
1 Select Force Preview. Select [Pedaling Monitor R] – [Force Preview].



2 Check that the crank is detecting no load.

In the Force Preview screen of the SGX-CA500, the figures shown should be within the following range.

Tangential Force : 0 +/– 3N
Radial Force : 0 +/– 3N



If numbers outside this range are shown, it is possible that the crank moved during the calibration. Please retry with the crank in a stable position.

This completes Zero Calibration for the Right Side.
Please carry out Zero Calibration on the Left Side in a similar fashion.

4. Notice

This Manual is a Starter Guide.
More detailed instructions can be found at http://pioneer-cyclesports.com/jp/support/products - scroll down to the bottom to the Dealers Only Section for the SGY-PM910H InstallationManual

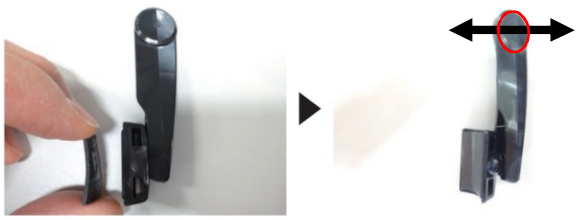
Please inform the customer that they must perform Zero Calibration also.
After installing the system, perform Zero Calibration about once per week for the first month or so, then after that, perform Zero Calibration once per month or if the temperature changes by more than about 4 degrees.

Arm Type Magnet Installation

It is recommended that you use the Patch Type Magnets. If the distance between the magnets and the sensor is outside the range 1.5 - 10.7mm, please use Arm Type Magnets. The Procedure for Magnet Calibration is the same for both types of Magnets.

1 Attach the provided cushions to the Magnet Arms.

Remove the backing paper on the cushion and attach it to the base of the arm. (The portion that will contact the chain stay.)



Attach the Magnet Arm in such a way that the Magnet (circled in red) passes in front of the Sensor in the direction of the arrow when the crank is rotated.

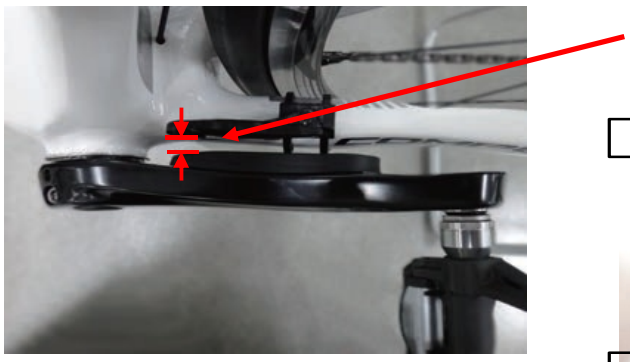
The magnets used are extremely strong, and may become attracted to each other strongly enough to pull away from the cushion if close together. Please handle with care.

2 Rotate the rank to confirm the position of the magnets.

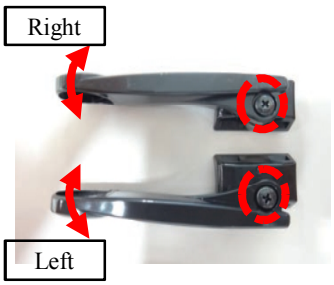
The Magnet should be in one of the positions shown below, on a circle around the crank axis. The radius of this circle should be such that the Magnet passes the magnetic sensor

3 Temporarily attach the Magnets.

Use the zip ties provided.



Ensure that the Magnets are between 1.5mm and 9.6mm from the sensors.



Loosen the screw and adjust the angle of the Magnet Arm to achieve the desired distance. Be sure to tighten the screw afterwards.

4 Rotate the crank slowly.

Ensure that the sensors do not come into contact with the Magnets or other parts of the bicycle.

*** Carry out Magnet Calibration**
*** Fix the Magnet Arms in place, being careful to ensure that the position of the Magnet Arms does not change.**
(Magnet Calibration should be repeated after the Magnets are fixed in place.)

See pages 3 – 4