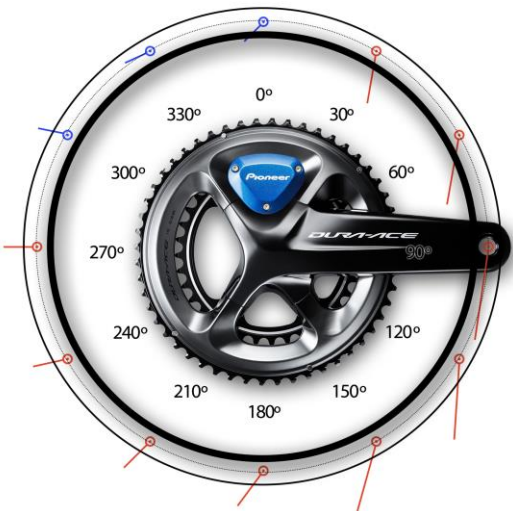# Quick Guide

SGX-CA500 Cycle Computer
SGY-PM Series Power Meters

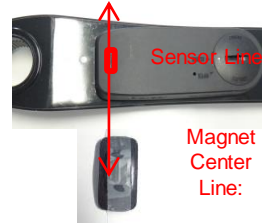# Easy Installation and Advanced Functionality
Fast Facts:

• Pioneer Power Meter Cranksets and arms ship pre-set in the ANT+ Format
  • Simply install the crank on your bike and pair it to your ANT+ Cycle Computer as you would any other ANT+ device
  • When used with other ANT+ Cycle Computers as a Power Meter, Magnets are optional but will provide precision cadence if used.

• Dual Leg Units ship in a Dual Leg ANT+ Mode and will provide all ANT+ Power Metrics.
  • Confirming dual leg ANT+ Mode can be done by removing and replacing the batteries, a solid orange light on each arm confirms this mode.
  • Dual Leg units can be switched to independent Single Leg Mode if needed. ie. Left Arm on one bike, Right Drive Side on another bike.
• Single Leg units ship in a Single Leg ANT+ Mode and will provide all ANT+ Power Metrics.
  • Confirming single leg ANT+ Mode can be done by removing and replacing the batteries, a blinking orange light on the sensor confirms this mode.
  • Single leg units can be switched to Dual Leg Mode when you upgrade to a dual leg system.

• Pioneer's real-time and post ride "Pedaling Monitor" graphics and data are only available when using a Pioneer Cycle Computer with after ride data uploaded to Pioneer Cyclo-Sphere ride analysis site – www.cyclo-sphere.com
  • A Pioneer Cycle Computer is required to switch the "Power Meter" in and out of the "Pedaling Monitor Mode"
  • Supplied magnets are required for the Pedaling Monitor configuration and must be magnet calibrated for proper data display.

• Performing Zero Calibration is recommended to maintain maximum accuracy.

• The SGX-CA500 Cycle Computer is unique in that it is both a multi-format receiver and a transmitter
  • Can receive ANT+ and Pioneer Pedaling Monitor Signals
  • Can transmit ANT+ Power Data to other ANT+ devices ie. ANT+ Computer, Zwift
  • Can transmit via ANT+ and update Pioneer Power Meter Firmware
  • Can upload ride data via wifi
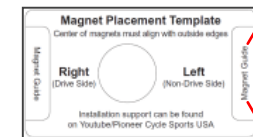 • Can update it's own firmware via wifi

Pioneer

Easy Installation Power Meter Cranksets
with ANT+ Cycle Computer

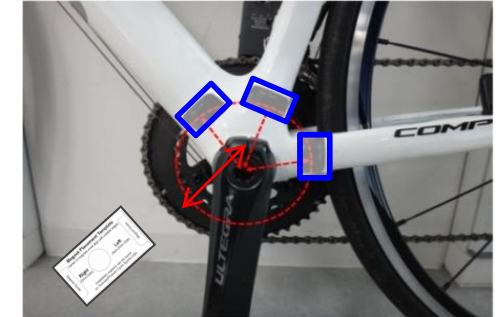## 1.) Magnet Placement (Optional)

- Measuring from the center of the bottom bracket out, temporarily tape the magnet so that the center line of the magnet is:
    - Right Drive Side - 42mm
    - Left Side - 53mm
- Use the supplied Magnet Placement Template to help locate the optimum locations for magnet placement on the frame.
- Position the magnets so the sensor line and magnet center line are parallel when the sensor passes over.

Sensor Line

Magnet Center Line:

Magnet Range 1.5mm – 10.7mm

Magnet Placement Template
Center of magnets must align with outside edges

Magnet Guide

Right (Drive Side)

Left (Non-Drive Side)

Magnet Guide

Installation support can be found on Youtube/Pioneer Cycle Sports USA

Magnet Template card

Center hole on bottom bracket and use supplied double sided tape to temporarily secure while locating optimum magnet location

2.) Confirm Magnet Placement

- Remove and replace both Left and Right batteries. Orange light will appear for 10 seconds.
- Rotate the crank slowly (30rpm). Check that the LED on each sensor lights green once for each revolution.
- Once confirmed, secure magnets for final placement.

LED's light green

If no **Green** LED, check and adjust magnet placement

3.) Pair to your ANT+ Computer

- Spin the crank 3 – 4 rotations to activate the Power Meter

ANT+™

See your ANT+ Cycle Computer Instructions for Power Meter Pairing and Zero Calibration procedures.
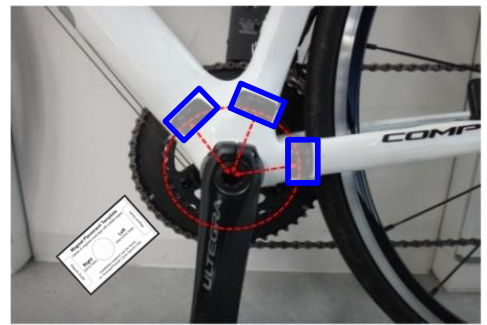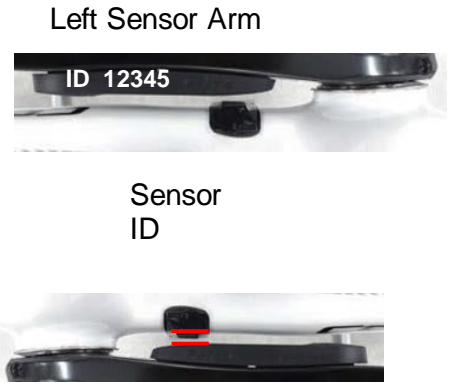
Left Sensor Arm

ID 12345

Sensor ID

Pioneer

Easy Installation Power Meter Cranksets
with Pioneer Cycle Computer

ATTENTION: New Installation Procedure. See Owners Manual.

ATTENTION: New Installation Procedure. See Owners Manual.

• **Magnet Placement**

1. Measuring from the center of the bottom bracket out, temporarily tape the magnet so that the center line of the magnet is:
   - Right Drive Side - 42mm
   - Left Side - 53mm
2. Use the supplied Magnet Placement Template to help locate the optimum locations for magnet placement on the frame.
3. Position the magnets so the sensor line and magnet center line are parallel when the sensor passes over.

Left Sensor Arm

ID 12345

Sensor ID

Center Magnet Placement Template hole on bottom bracket and use supplied double sided tape to temporarily secure while locating optimum magnet location.

Magnet Range 1.5mm – 10.7mm

Sensor Line

Magnet Center Line:

Magnet Template card

• **Mode Selection & Pairing to the Pioneer Computer**

1. Spin the crank 3 – 4 rotations to activate the Power Meter
2. Pressing **Pedaling Monitor** will search sensor ID or local crank.

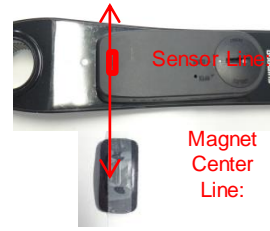Press Menu
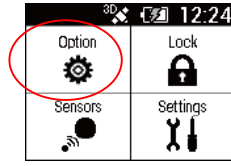
Press Option
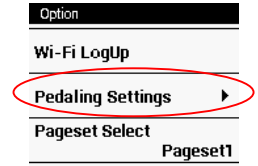
Press Pedaling Settings
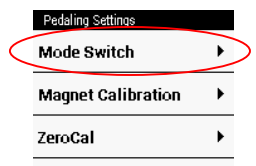
Press Mode Switch
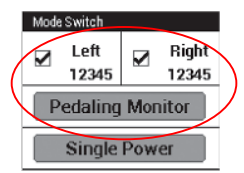
Check Left & Right, Enter ANT+ ID, Press Pedaling Monitor

Press OK

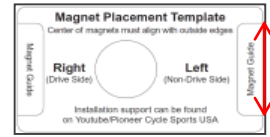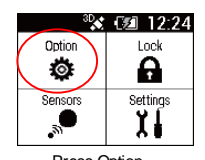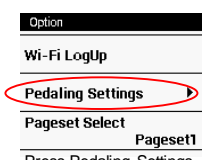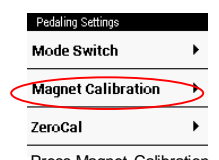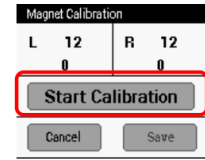SGX-CA500 firmware must be 20150501.02.43 or higher.

• **Magnet Calibration**

Press Menu

Press Option

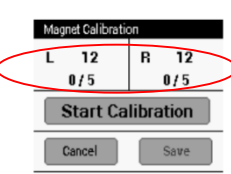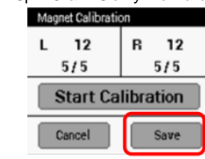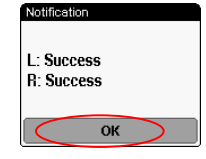Press Pedaling Settings

Press Magnet Calibration

Press Start calibration Spin Crank Slowly Forward

Confirm 5 x per side Press Save

Press OK

1. Spin the crank FORWARD slowly (30 rpm) until both left and right sensors detect magnets at least 5 times for each side and press Save.

2. Secure magnets for final placement.
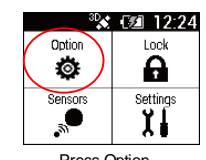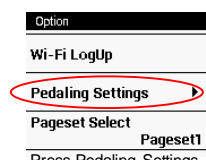
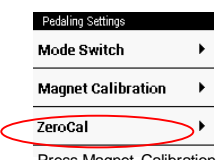• **Zero Calibration –** Position Left or Right crank arm to the 6 o'clock position
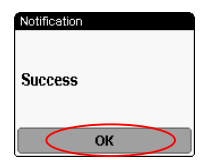
Press Menu

Press Option

Press Pedaling Settings

Press Magnet Calibration

Press OK

For additional Installation Instructions visit the following on-line support locations
www.pioneerelectronics.com/PUSA/Cycle+Sports/Products/Power+Meters
www.Youtube/Pioneer Cycle Sports USA
Please refer to the owners manual for detailed installation instructions.
Visit https://cyclo-sphere.com/ for the latest firmware and updates.
Customer Support – 1-800-421-1624
E-Mail: cycle-sports@pioneer-usa.com

Pioneer

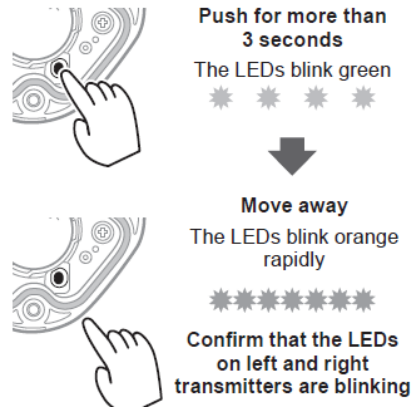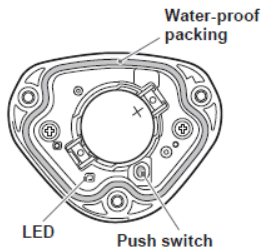## Switching Left and Right Sensors FROM Dual Leg to Single Leg Mode

• **Notes**
  • This method is for users who wish to separate a dual leg system and use single leg crank arms . Ie. 2 different bikes.
  • The following method is for ANT+ Cycle Computer users who do NOT have a Pioneer Cycle Computer –
  • Dual Leg DuraAce, Ultegra, and "Kits" ship pre-set in the Dual ANT+ Mode.
  • To confirm Dual Leg ANT+ Mode, remove and replace the batteries, a **SOLID Orange** light on both the Left and Right Sensors confirms this mode.

Switching to Single Leg Mode
1. Spin the crank 3 – 4 rotations to activate the Power Meter
2. Press the push switch for 3 seconds and release
3. Both sensors should blink orange for 10 seconds

Switch the sensor mode.
Water-proof packing
LED
Push switch

• Before switching the mode, confirm that there is no other pedaling monitor near by. If this is not done at a sufficient distance away from other sensors, the other sensors are likely to malfunction.
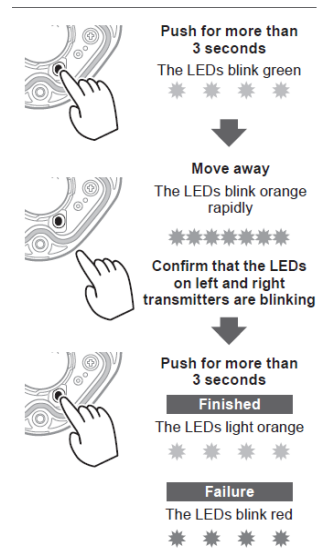

Push for more than 3 seconds
The LEDs blink green

Move away
The LEDs blink orange rapidly

Confirm that the LEDs on left and right transmitters are blinking

Switching Left and Right Sensors FROM Single Leg to Dual Leg Mode

• **Notes**
  • This method is for users who are upgrading from a single leg sensor with a second Left or Right leg sensor.
  • The following method is for ANT+ Cycle Computer users who do NOT have a Pioneer Cycle Computer
  • Single Leg DuraAce, Ultegra, and "Kits" ship pre-set in the Single Leg ANT+ Mode.
  • To confirm Single Leg ANT+ Mode, remove and replace the battery, a **BLINKING Orange** light confirms this mode.

Switching to Dual Leg ANT+ Mode
1. Spin the crank 3 – 4 rotations to activate the Sensors
2. Press the Push Switch for 3 seconds and release
3. Confirm both sensors are blinking
4. While blinking, press and hold the push switch for 3 more seconds and release
5. To confirm you have switched to Dual Leg, remove the batteries and replace, you should see a solid orange light on both sensors

Push for more than 3 seconds
The LEDs blink green

Move away
The LEDs blink orange rapidly

Confirm that the LEDs on left and right transmitters are blinking

Push for more than 3 seconds
Finished
The LEDs light orange

Failure
The LEDs blink red

Pioneer

Power Meter Firmware Update using the SGX-CA500

Note: Firmware updates will range from :30 min to 1.5hr. Depending on the size of the update.
If the update process is interrupted, you may need to move to a less cluttered radio location and restart the update.
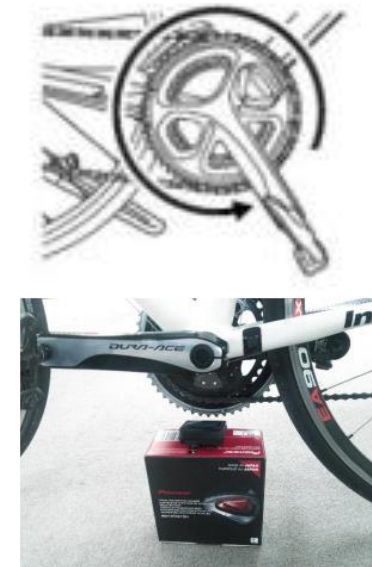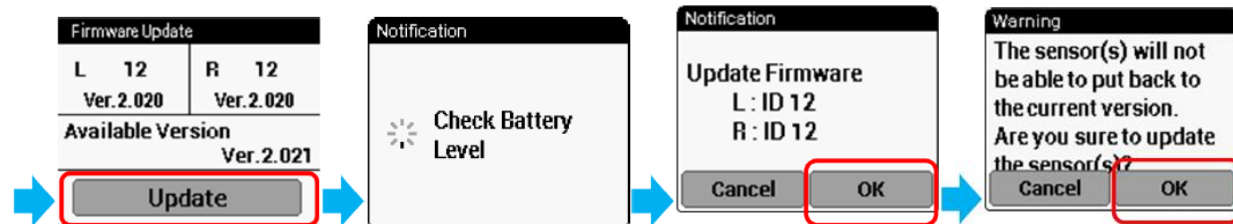
Preparation:
- Update your SGX-CA500's firmware to the latest version.
- Be sure your SGX-CA500 is fully charged.
- Sensors must be in Pedaling Monitor Mode – Use your SGX-CA500 to put the sensors in Pedaling Monitor Mode
    - [MENU]-[Option]-[Pedaling Settings]-[Mode Switch]-[Pedaling Monitor]
        - If the sensors were purchased before Jun. 2015, use the push button on the right side transmitter to switch the mode to Pedaling Monitor Mode.
- Both Sensor batteries must have at least 2.9v
    - Battery Check - [MENU]-[Sensors]--[Pedaling Monitor L]--[Battery]
      [MENU]-[Sensors]--[Pedaling Monitor R]--[Battery]

Update Procedure:
1. Rotate the crank slowly three or more times to wake up the sensors

2. From the SGX-CA500 - [MENU]-[Option]-[Pedaling Settings]-[Firmware Update

(2)Execute the [Update].

Firmware Update	
L 12	R 12
Ver.2.020	Ver.2.020
Available Version	
	Ver.2.021
Update	

Notification
Check Battery Level

Notification
Update Firmware
L : ID 12
R : ID 12
Cancel   OK

Warning
The sensor(s) will not be able to put back to the current version. Are you sure to update the sensor(s)?
Cancel   OK

3. Place the SGX-CA500 within 10 inches from the sensor(s).

SGX-CA500
Pairing with a Pioneer "Pedaling Monitor" or Other "Power Meter"

Pioneer "Pedaling Monitor" – 1st time pairing, see Mode Switching slide 5

Other ANT+ Power Meters
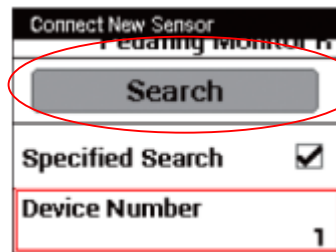
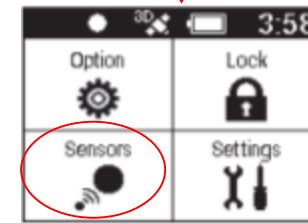*Pioneer Crankset must be in Pedaling Monitor Mode*
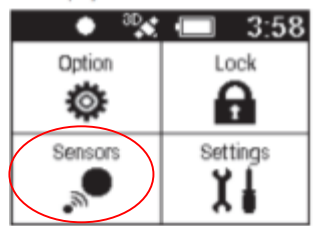
Press
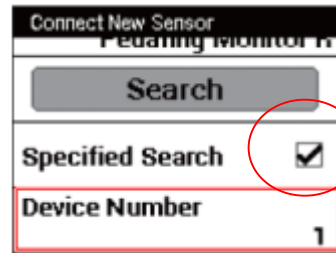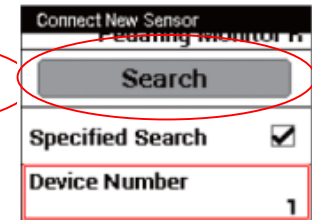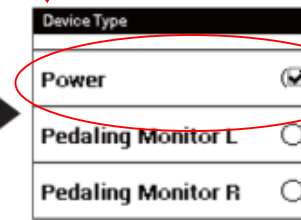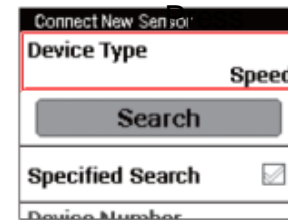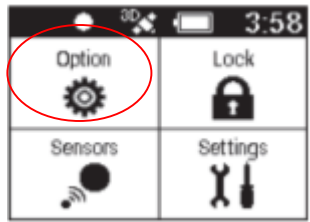
Or

Enter device number listed on side of left transmitter

Press

Select

Zero Calibration is required to adjust for changes in crank deflection at different temperatures. Pioneer power meters provide 6 temperature memories loaded each time temperature varies 4 degree's centigrade.

Select ZeroCal

Point left crank arm to 6 o'clock

Or

Point right crank arm to 6 o'clock

You can check zero calibration status on Cyclo-Sphere in individual ride analysis under Device Information
• # of times zero calibrated
• Temperatures in memory

ZeroCal

Calibrate LR

	L		R
Tan:	2 N	Tan:	2 N
Rad:	0 N	Rad:	0 N

Device Information

Pioneer SGX-CA500
Serial Number : NCCZ001375WN

Pioneer SGY-PM910H
Device Number : 420 / 420

Left	Temperature learning conditions	Right
■■■■■□ (5 times)	Number of times learned	■■■■■□ (5 times)
---	Learning accuracy	---
72.7 [°F]	Most recently learned temperature	70.3 [°F]

ANT+ Heartrate Sensor
Device Number : 48330

Pioneer

1.) Connect to your WiFi Network
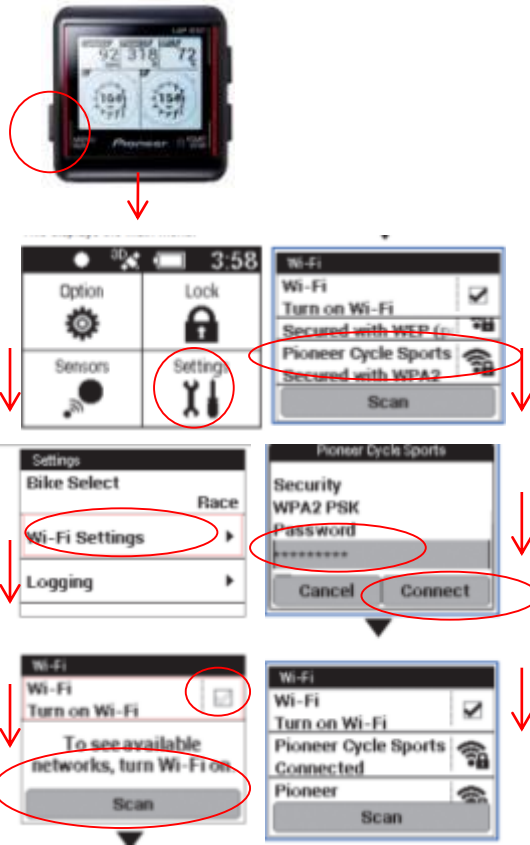
You can enter multiple wifi spots ie., your home, Starbucks…

2.) Create a Cyclo-Sphere Account With an E-mail and Password

https://cyclo-sphere.com/

3.) Provide your Cycle Computer with your Cyclo-Sphere E-mail and Password for Auto Upload
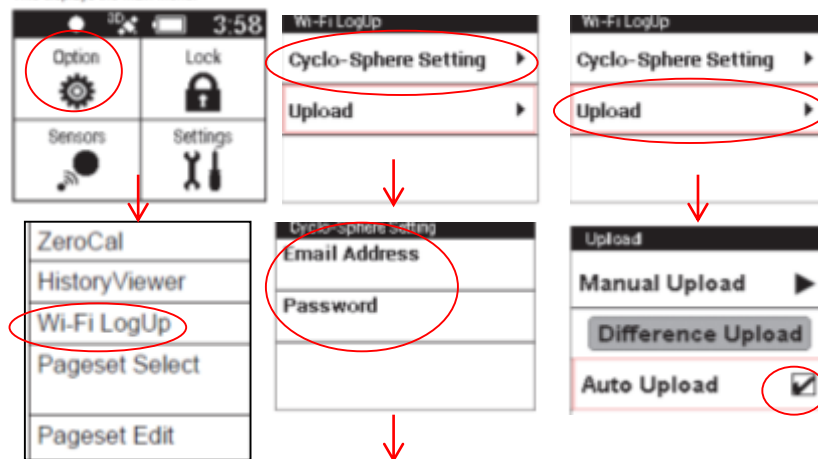
Hold Back Button
to return to the upload section

4.) *Charge your Computer before every ride…*

Start

Train n Race

Stop

Reset X 3 sec.

Ride data will auto-upload to Cyclo-Sphere when in range of your wifi networks.

• The SGX-CA500 Training Menu has 3 Powerful Training Tools
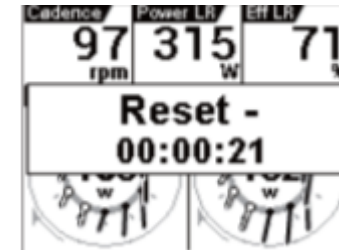
1. **Training Assist – Beginner to Advanced Cyclist**
   • A free interactive self coaching tool found on the Cyclo-Sphere Mobile Viewer – Not available on the PC site
   • Training Assist has 28 unique training modules for riders of all skill levels and experience
   • Training Assist was designed to help riders best utilize cycling technology on the bike from heart rate, speed and cadence sensors, to power meters and Pioneer exclusive Pedaling Monitor Technology.
   • Riders 3 month power data is auto loaded to the SGX-CA500 via Cyclo-Sphere for clearly defined benchmarks and target goals
   • New power achievements are auto uploaded back to Cyclo-Sphere
   • After Ride Results offers charts, graphs and troubleshooting
   • See Slide 11 for Training Assist Process

2. **Interval Timer – Intermediate to Advanced Cyclist**
   • SGX-CA500 only, no mobile device required.
   • Create custom Interval Programs
   • Includes Duration, Warm-Up, Power Target, Power Escalation, Set Count
   • Create, Save and Edit
   • Easily Select an Interval Training Program while on the road

3. **Threshold Training – Intermediate to Advanced Cyclist**
   • SGX-CA500 only, no mobile device required
   • Utilizes last 3 month power data from Cyclo-Sphere to provide easy on the road "Challenges" of maximum time intervals for 1, 3, 5, 10, and 20 min. MMP (Mean Maximum Power) records as well as 20 and 60 minute FTP Tests
   • Uploads achievements over 100% as new benchmarks to Cyclo-Sphere
   • Auto configures Targets for each Time Segment
   • Includes warm-up and cool down.
   • Auto logs finished Challenges as Laps for easy post ride analysis

1
Training Assist

2
Interval Timer

3
Threshold Training

SGX-CA500
Training Assist Process

Select Training Assist from Cyclo-Sphere Mobile

Select a Lesson

Learn Lesson Details and Goals

Customize and Upload Lesson to Cyclo-Sphere

Results Troubleshooting
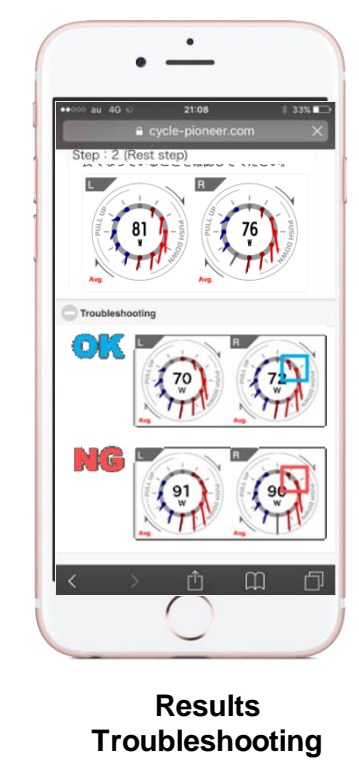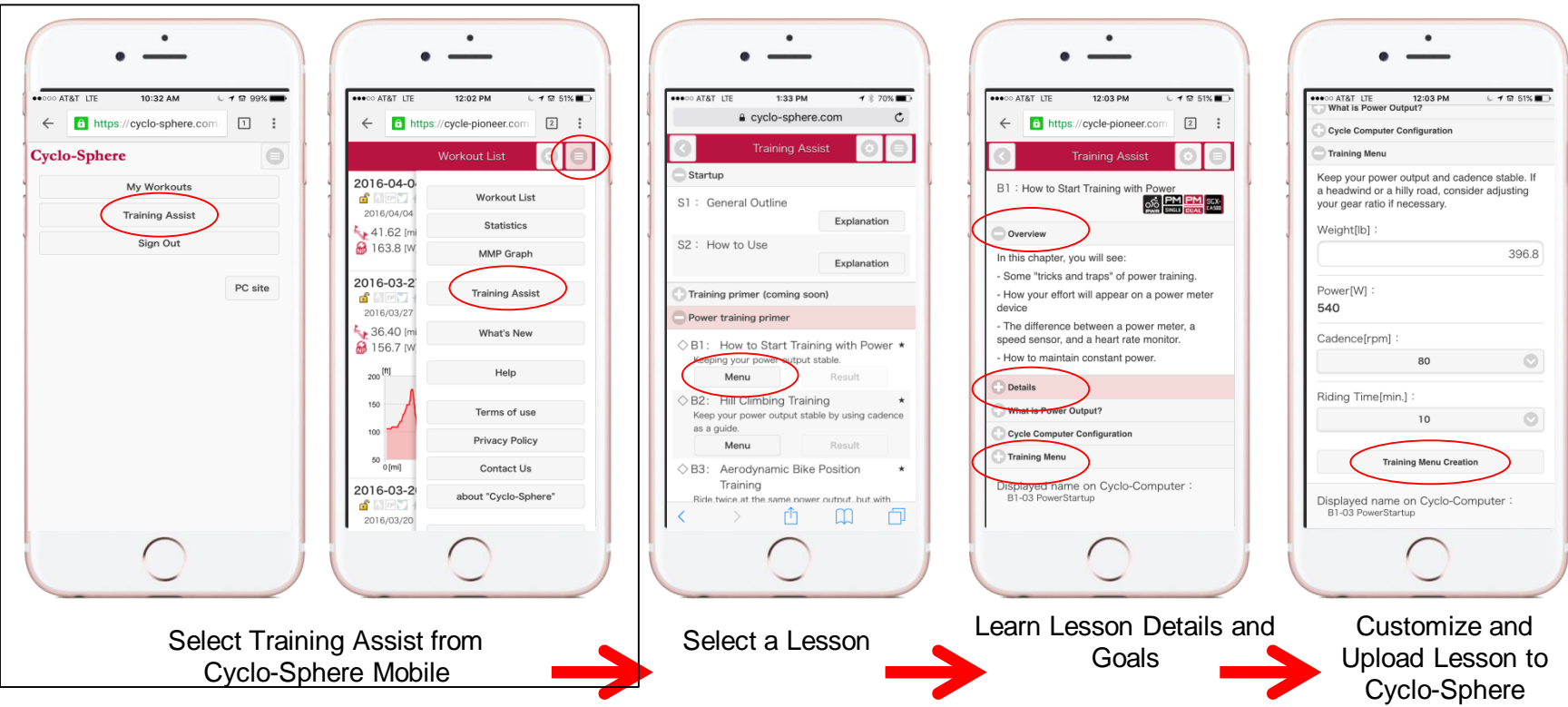
- Cycle Basics
  - Time
  - Speed
  - Cadence
  - Heart rate
  - Intervals
  - Climbing
- Power Training
  - Power
  - Aerodynamics
  - MMP
  - FTP
- Pedaling Techniques
  - 3 O'Clock
  - 6 O'Clock
  - Upstroke
  - High Cadence
  - Efficiency

Press Menu Select Training

Select Training Assist

Download Trainings via WiFi from Cyclo-Sphere

Select and Start the Training

Instruction

Training Countdown Starts – RIDE

Training Complete

SGX-CA500
Real-Time Interval Intensity – Pioneer Exclusive!

- **Data Field - Power Training / Data Type – Real-Time Interval Intensity**
- Interval Intensity is a percentage based on a riders average power over time divided by the riders historical MMP for the same duration of time.
    - Ex: For a rider with a 30 minutes MMP Power Value of 250W, a 200W average for 30 minutes would be 80% of that riders MMP.
- Provides a real-time Interval Intensity percentage of a riders MMP for continuous intervals of time, from start of ride to end.
- Based on riders 3 month MMP Chart from Cyclo-Sphere
- Holding a continuous 70% – 80% Interval Intensity is a good recommended range for most riders wishing to maximize their ride effort
- Automatically uploads and benchmarks new MMP records over 100%
- Requires Firmware ver. 20160706

3 month 10 Min. MMP = 260W
75% of 10 min MMP = 195W

Intensity

75

%

10 Min

Pioneer

SGX-CA500
Pageset Select / Pageset Edit

Pageset Select

Or →

Pageset Edit

Press and Hold

Change Pageset

Default Pageset 1 for Pioneer Power Meter use

Edit Pageset 1

Default Pageset 2 for ANT+ / Other Power Meter

Select from 1 – 6 Pages

- Number of data fields: 2
- Number of data fields: 3
- Number of data fields: 4
- Number of data fields: 5
- Number of data fields: 6
- Number of data fields: 9

Select up to 16 Layout Options per page
Grey = Graphic or Numerical
White = Numerical Only

Grey data fields = Vector & Torque Graphics
For Pioneer Power Meter

Grey & White data fields = 200 Unique Metrics – All ANT+ Connected Devices

Pioneer

SGX-CA500
Firmware Update

Update Firmware via Wi-Fi

Menu
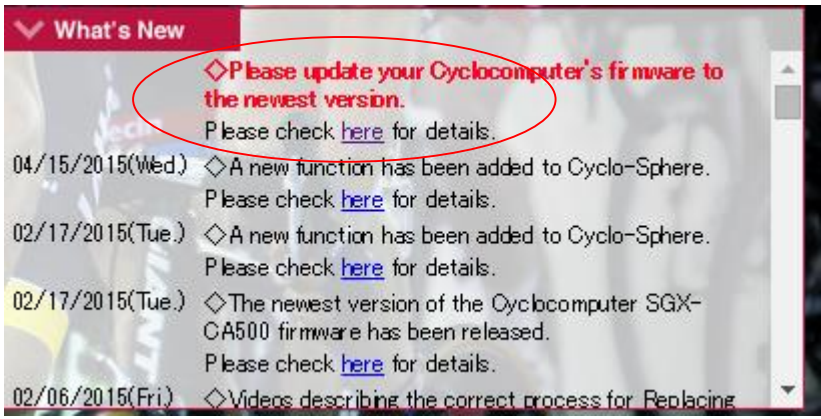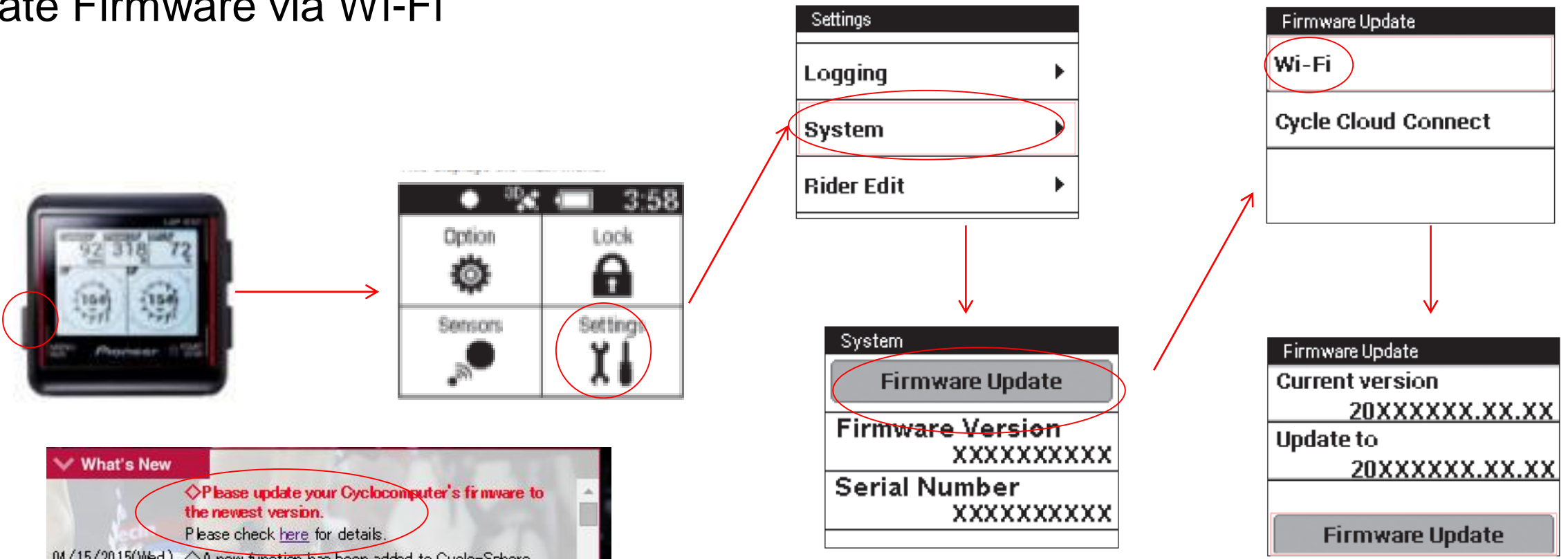
Cyclo-Sphere will announce new firmware and provide details of the updates.

Mode Switch & FW Update Conditions

Right LED	Left LED	Right Side Push Button	SGX-CA500	FW Updater tool
L, R or L&R Green Pedaling Mode		N/A Sensors are in Pedaling Mode Push Button has no function	Mode Switch L, R, or L&R to Single or Dual ANT+ Will Update Sensors to Latest firmware	N/A Sensors must be in ANT+ Mode
Solid Orange Dual ANT+ Factory	**Solid Orange** Dual ANT+ Factory	Puts Dual L&R into Single ANT+ Modes Use on 2 bikes / cranks Pull Batteries and Replace, Spin Crank, Hold push button for 3 Sec then release – pg. 23 OM	Mode Switch L, R, or L&R to Single ANT+ or Pedaling Monitor	Enter Ant ID's into L & R
Blinking Orange Single ANT+ Factory	**Blinking Orange** Single ANT+ Factory	Puts Single L& Single R into Dual ANT+ Mode Kit Upgrade from Single to Dual Pull Batteries and Replace, Spin Crank, Hold push button for 3 Sec. release, right blinks green then fast flashing orange, Press 3 Sec again while flashing fast orange then release – pg. 19 OM	Mode Switch L, R, or L&R to Dual ANT+ or Pedaling Monitor	Enter Ant ID's into L, R or L & R
Solid Orange Dual ANT+	**Blinking Orange** Single ANT+	N/A Rare, Required a SGX-CA500 to switch the Left Leg to Single when right side was not in range or battery out leaving Right in Dual	Mode Switch Both L&R to Dual or Single ANT+ To Re-Sink Pair	Both must be in same ANT+ Mode
Blinking Orange Single ANT+	**Solid Orange** Dual ANT+	N/A Rare, Required a SGX-CA500 to switch Right Leg to Single while left leg was out of range or battery out leaving Left In Dual	Right side is in ANT+ Single but must Mode switch right into ANT+ Single again to erase last dual Pairing. Then Mode switch both to desired Mode	N/A Both must be in same ANT+ Mode
Blinking Green		N/A	Sensor(s) are in Update Mode. Must complete FW Update Move away from Wifi Interference	
Blinking Red		N/A Right Side, Left Side Sensor in unknown Dual Mode	N/A	N/A
Solid Red		**N/A** **Damaged, Send for Service**	N/A	N/A

* Before Mode Switching, the ANT+ Transmit feature must be off - Menu / Settings / Device

Standard Factory Setting Possibilities   Separated System Firmware update not completed   Service Situation

Pioneer

iOS App

Search Cyclo-Sphere in the App Store
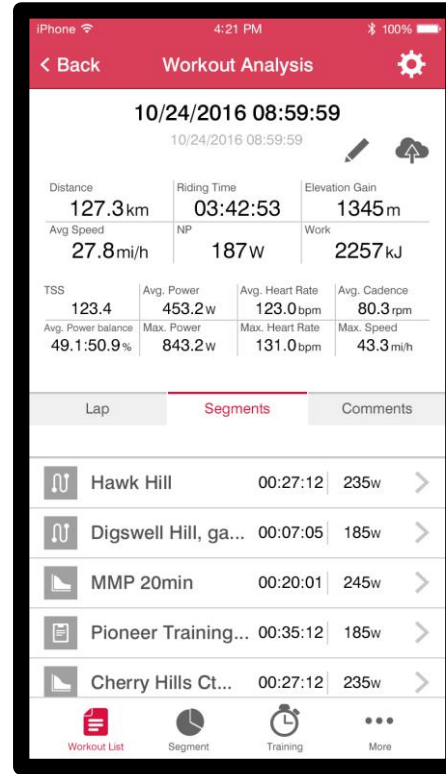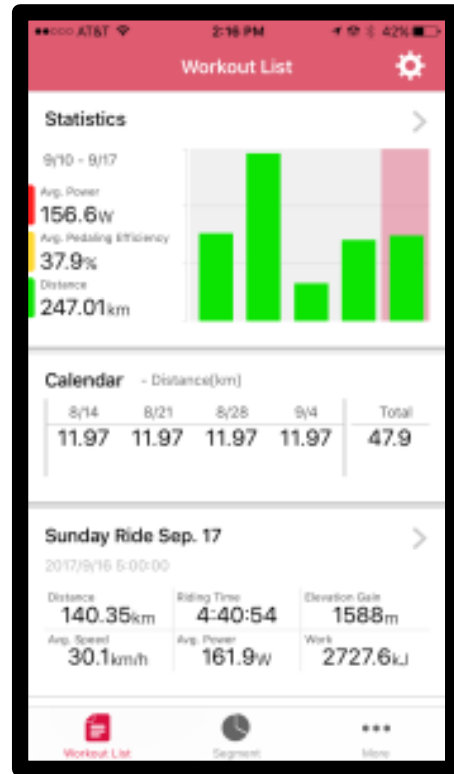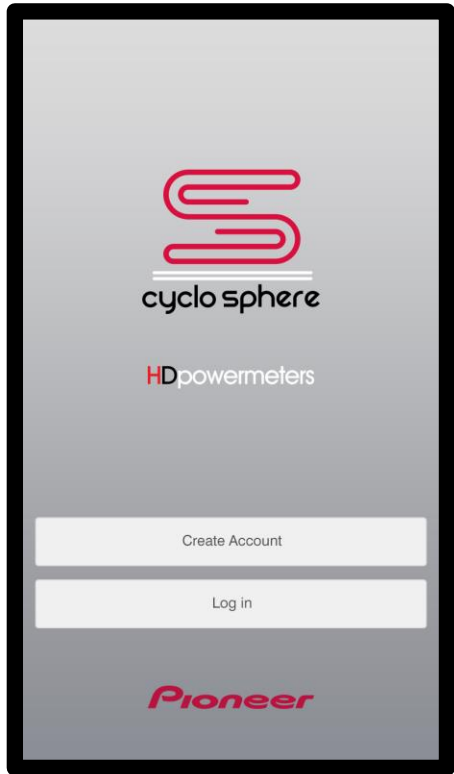
Easy to use, fast, and powerful.

Designed to help you focus more clearly on your cycling power, pedaling technique, and pedaling efficiency.

Segment Creator allows you to choose where and when to challenge yourself the most.

MMP View displays best 5 sec, 1 min., 5 min., and 20 min. maximum power results for each ride.

Additional features include weekly, monthly, and yearly Power Zone Statistics, Ranking within the Cyclo-Sphere community, and Pioneer's Training Assist Modules.

Cyclo-Sphere - PC

https://cyclo-sphere.com

Basic E-Mail
and Password
User name…
You're In!

How to Use
Cyclo-Sphere

FAQ

Glossary

$$Eff = \frac{\sum_{i=0}^{11} Fxi}{\sum_{i=0}^{11} Fi}$$

* Cyclo-Sphere is optimized for Pioneer
Cycle-Sports computers and Power Meters
but works great with any ANT+ Cycle
Computers, Power Meters, Cadence / Speed,
and Heart Rate Sensors.

▶Terms   ▶Privacy   ▶Contact Us   ▶Help   ▶Home

Search / Files

Calendar Date Ride Access

Quick Return to **My Workouts**

Return to **Default Layout**
Windows can be moved during analysis

Download Files
Converts Pioneer .db files into .FIT files and "downloads" them to your PC for later "upload" to other Cycling analysis websites ie. Training Peaks, Garmin, Strava, MapMy Ride, etc.

Cyclo-Sphere

DB41 ▼

Download Workouts

	Workout Name	Start Time	Status
☐	06-15-2014 09:12:57 am	2014/06/15 09:12:57	
☐	06-09-2014 06:49:54 pm	2014/06/09 18:49:54	
☐	06-08-2014 03:57:18 pm	2014/06/08 15:57:18	
☐	06-07-2014 02:06:39 pm	2014/06/07 14:06:39	
☐	Sunday quick run	2014/06/01 16:16:54	
☐	Long beach reverse	2014/05/31 09:27:20	
☐	Memorial Day Power Ride	2014/05/26 09:08:08	
☐	Recovery ride	2014/05/25 09:09:41	
☐	Dog Beach	2014/05/23 10:53:49	
☐	05-04-2014 09:27:04 am	2014/05/04 09:27:04	

Format : ⦿FIT

Download   Close

Calendar

Analysis

◀◀ June ▼ 2014 ▼ ▶

Sun.	Mon.	Tue.	Wed.	Thu.	Fri.	Sat.
1 🚲	2	3	4	5	6	7 🚲
8 🚲	9 🚲	10	11	12	13	14
15 🚲	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Search

Workout Name	:		Reset
Date	:	01/05/2013 – 06/15/2014	Reset

▼ Other search options

Search   Show All   Reset All

Upload Files
Allows "uploading" of .FIT files stored on your PC for Cyclo-Sphere analysis and auto-forwarding to Strava

Upload Workouts

Choose Files No file chosen

Filename	Status

Forward : ☑ Strava

Upload   Close

Organize ▼   New folder

⭐ Favorites
  🖥 Desktop
  📄 My Documents
  📥 Downloads
  📄 Recent Places

Name
📄 06-07-2014 02-06-39 pm.fit
📄 06-08-2014 03-57-18 pm.fit
📄 06-09-2014 06-49-54 pm.fit
📄 06-15-2014 09-12-57 am.fit

Workout List

Change Metric in column

Add Column

Statistics – Ride Group Charts & Graphs

Create New Parameter Group Chart

Edit Groups

Manual FTP Entry

Manual Weight Entry

User Created "Training"

Color Coded Power Zones

Z1 / Z2 / Z3 / Z4 / Z5 / Z6 / Z7

Level of power.
Categorized according to comparison with FTP values.
Z1 : − 55%
Z2 : 56% − 75%
Z3 : 76% − 90%
Z4 : 91% − 105%
Z5 : 106% − 120%
Z6 : 121% − 150%
Z7 : 151% −

GPS – Maps & Route History
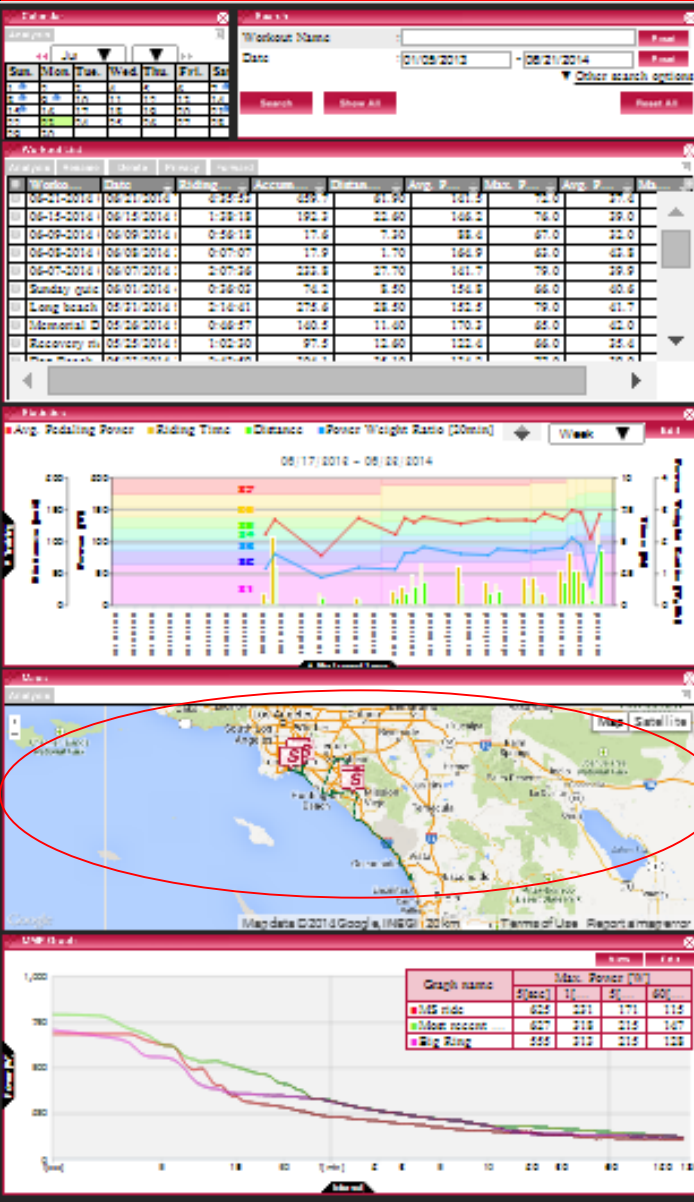
Green = All Rides
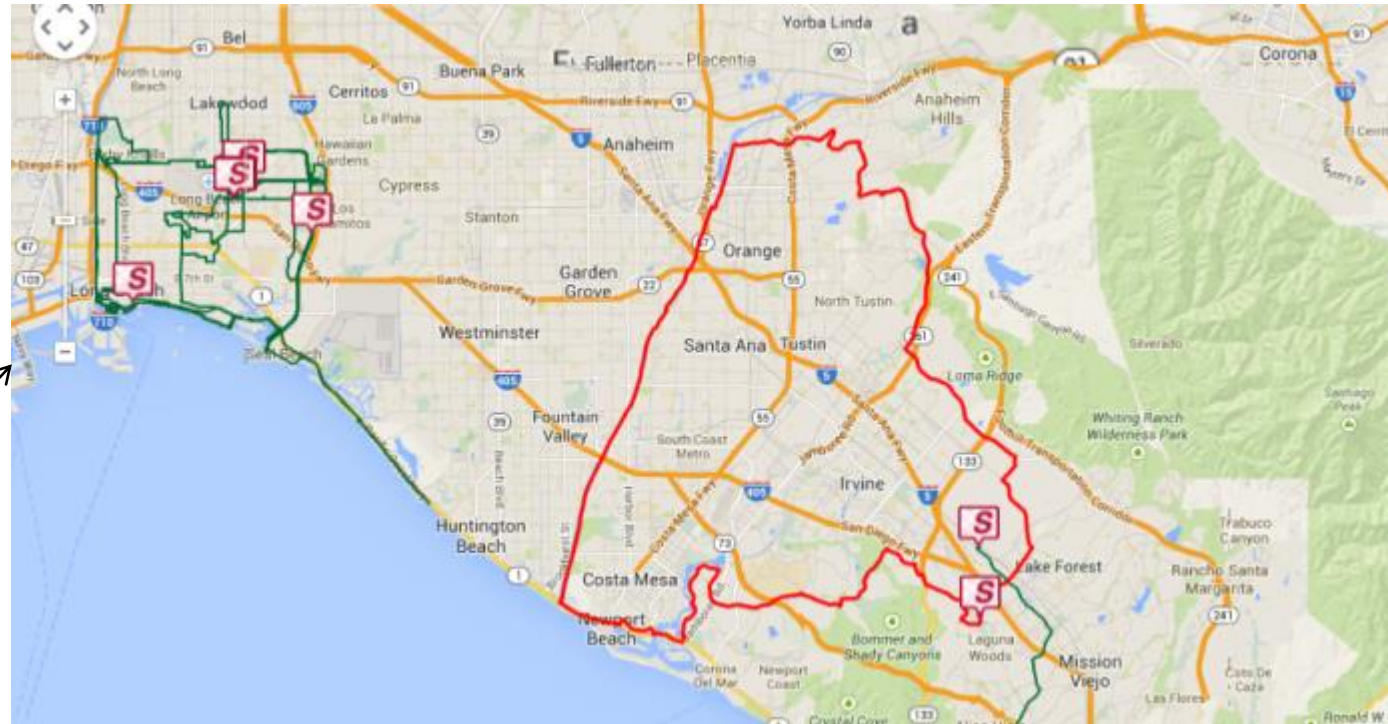
Red = Selected Ride

Pioneer

MMP – Mean Maximum Power

FTP = Max Power Avg. over 1 hour
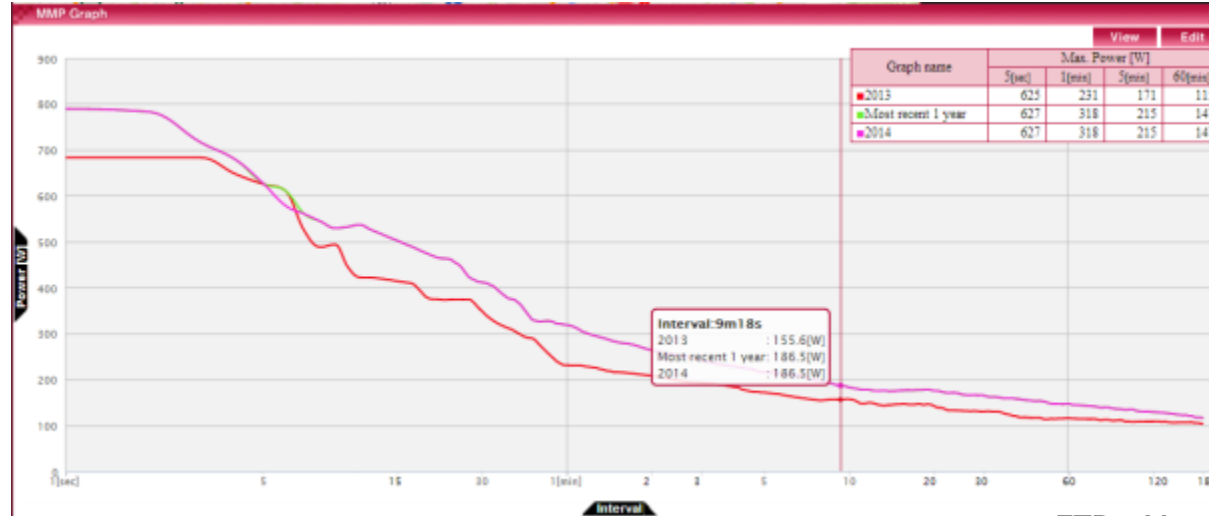
MMP = Mean Maximum Power
For increasing intervals of time

Select Up to 4 Rides or Ride Groups
To view and compare

Create a Ride or Ride Group for Analysis
and comparison to other groups

Individual Ride Analysis

Ride Summary

Laps Segments
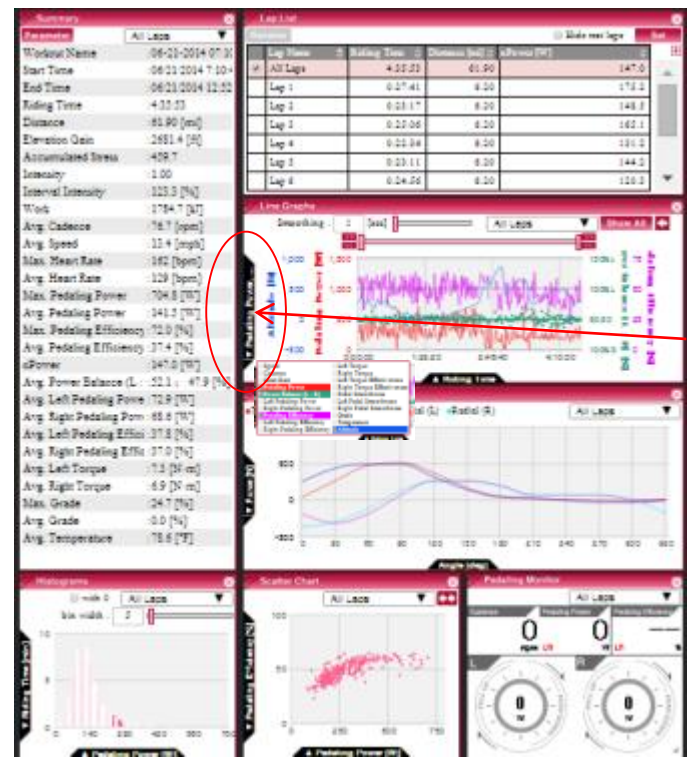
Ride MMP
Vs.
Other

Line Graphs

Select Metrics

Pedaling Graph
Pioneer Power
Meter Only

GPS Route

Histogram

Scatter Chart

Pedaling Monitor
Pioneer Power
Meter Only

Satellite View

Auto "Forward" to STRAVA, Training Peaks, Facebook & Twitter

My Workouts

Profile Settings

Web Link

Link and Forward to Strava
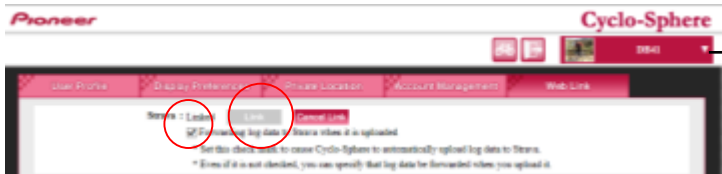
Enter Strava Account address and password.

Authorize
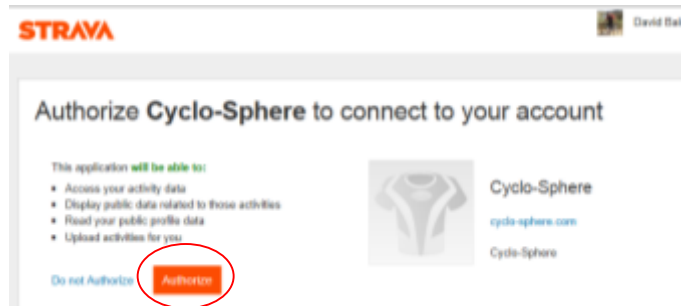
Strava Ride Analysis
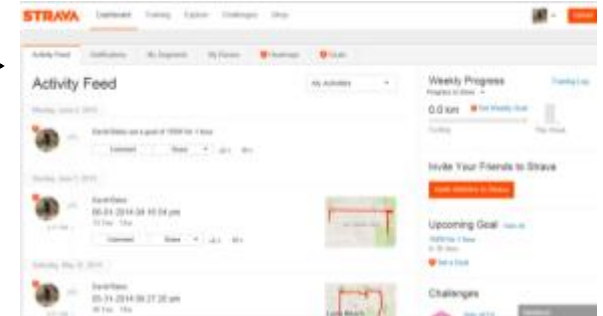
Post Ride Analysis to STRAVA, Training Peaks, Facebook & Twitter

Post a single event

Auto-Forward

My Workouts

Web Link

Twitter and Facebook

Profile Settings

- Select Auto Forward
- Select Private or Public

Make STRAVA Public

Laptop / PC:
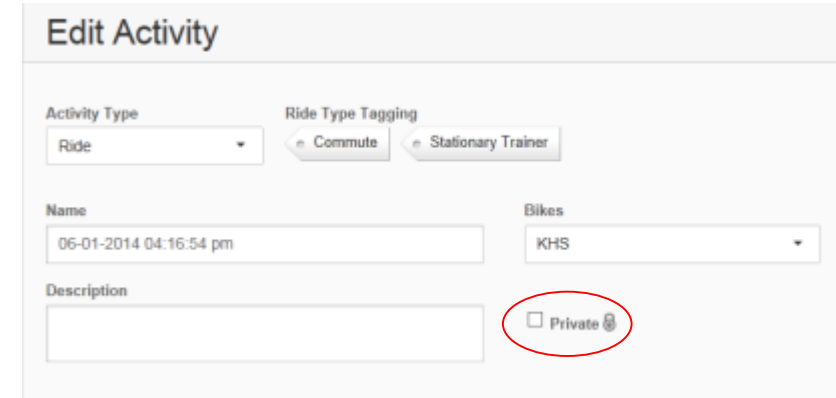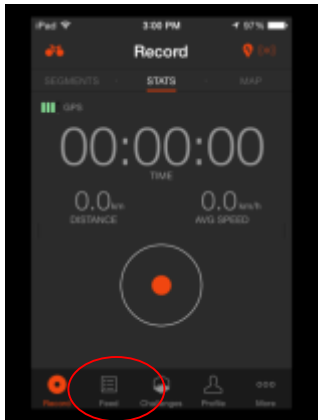Go to Dashboard Activity Feed
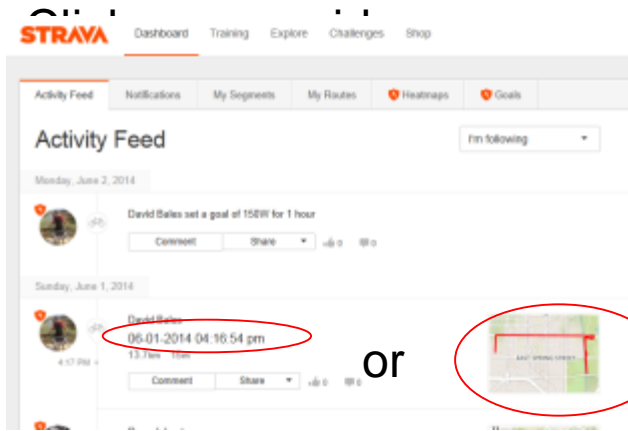
or

Click on the "Edit this Activity" pen
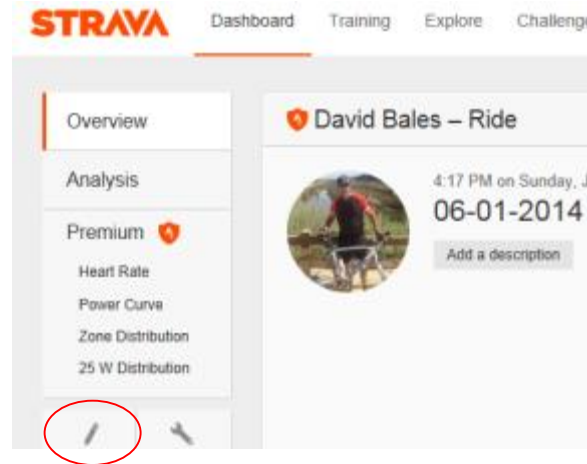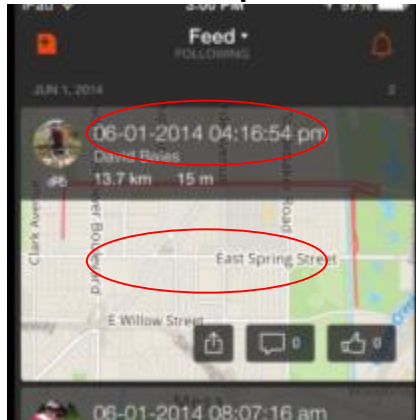

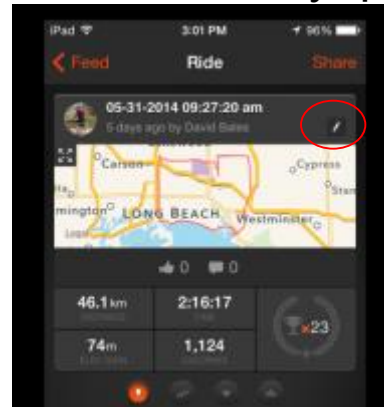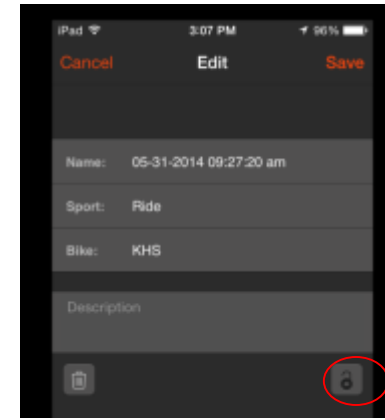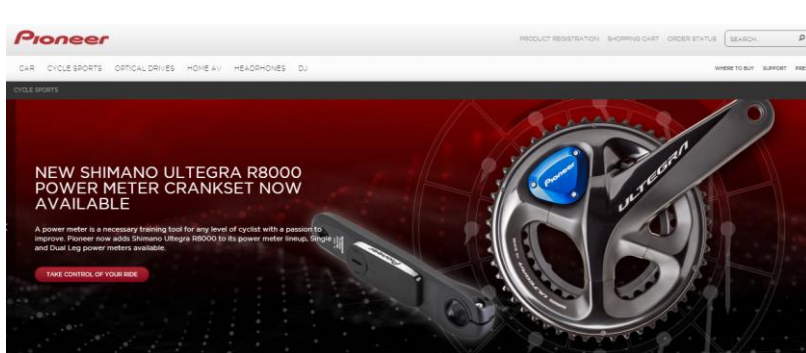Un-Click Private

Strava App:
Click Feed

Click the
date or Map

Click on the
"Edit this Activity" pen

Click on the lock icon

Resources

N. America Site
www.pioneerelectronics.com/PUSA/
www.powerisking.com

Global Site:
http://pioneer-cyclesports.com/us-en/

https://cyclo-sphere.com/

Facebook
Pioneer Cycle Sports USA

**Comments and Questions
E-Mail to:
cycle-sports@pioneer-usa.com**

**Pioneer Cycle Customer
Service
1 (800) 421-1624**