®PASPort

PASPORT AirLink$_2$

PS-2010

USB Port (not shown)
Made for iPod iPhone iPad
Green LED
Lanyard Loop
ON/OFF Switch
Yellow LED
Red LED

Equipment and Software

Included	Part Number
PASCO AirLink$_2$ Sensor Interface	PS-2010
USB Cable* for GLX or SPARK Science Learning System	PS-2528 * not shown

Also Required

|	
PASPORT Sensor	see catalog or web site
and	
iPad or iPhone 3G or iPhone 3GS or iPod touch (2nd or 3rd generation)	see www.apple.com
SPARKvue app	see www.itunes.com/apps/
or	
DataStudio Software (1.9.8r9 or later)	see catalog or web site
Bluetooth compatible computer[1]	

Introduction

The PASPORT AirLink$_2$ is a sensor interface for PASPORT sensors that wirelessly connects to iPad™, iPhone® and iPod touch® devices and Macintosh® and Windows® com-

puters through Bluetooth™. The AirLink$_2$ uses a rechargeable lithium polymer (Li-Poly) battery (installed) and comes with a USB cable that allows the battery to be recharged while the AirLink$_2$ is connected to a computer's USB port or a USB power supply.

About the Manual

Part One of this manual describes how to use the AirLink$_2$ with the iPad, iPhone or iPod touch, including how to download and run the SPARKvue application on the iPad, iPhone or iPod touch. Part Two describes how to use the AirLink$_2$ sensor interface with a computer and the PASCO DataStudio program.

Bluetooth Requirements

The iPad, iPhone and iPod touch are Bluetooth compatible. Consult your computer's documentation to determine if it is Bluetooth-capable. Your Macintosh computer must be running Mac OS X 10.2.1 or higher and your Windows computer must be running Windows XP with Service Pack 2 (SP2) or higher.

[1]If your computer is not already Bluetooth capable, you may be able to add Bluetooth capability by purchasing a Bluetooth module that connects to a computer's USB port (such as the PASCO PS-2553 Bluetooth USB Adapter). When setting up a Windows computer with Bluetooth, it's best to try the default

drivers included with Windows XP (see the Bluetooth Device Control Panel). As an alternative, follow the installation instructions supplied with the Bluetooth module.

Powering the PASPORT AirLink$_2$

Use the USB cable to charge the battery in the PASPORT AirLink$_2$. To use the cable, insert the small end of the cable into the USB port on the side of the AirLink$_2$. Connect the large end of the cable to a USB port on a computer or USB power supply.

Insert the USB cable into the USB port.   USB Port
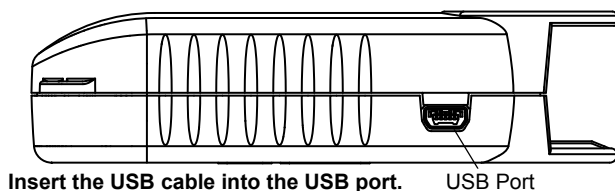
Note: *Charge for at least four hours prior to first use.*

The sensor interface will normally provide 4 to 6 hours of continuous data collection between charges depending on the power demand of the connected sensor and the sampling rate.

Maximizing Battery Life

The following are suggestions for maximizing battery life:

• Unplug the sensor when not making measurements.

• Use slow sample rates for long experiments.

• Turn off the AirLink$_2$ when not in use.

• Quit the data acquisition software between data collection episodes.

Remember to fully charge the AirLink$_2$ before using it for data collection in the field. The AirLink$_2$ may be left connected to its charger for an indefinite period of time without damage. Also, the Li-Poly battery exhibits very low self-discharge so it may be stored for many months with the AirLink$_2$ turned off while retaining most of its charge. If constant charging is not possible, always store the interface fully charged, recharging at least every three months.

Status LEDs for the PASPORT AirLink$_2$

The PASPORT AirLink$_2$ has internal light-emitting-diodes (LEDs) that are visible though the translucent case. A yellow LED shows the state of charge. The green LED shows the connection status. These two LEDs are near the front end of the sensor. A red LED located near the ON/OFF switch indicates battery charger status. Please refer to the table..

LED Color	Flashing	Solid
Yellow: State of charge.	Not applicable.	**ON**: Warning! Charge the battery soon (25% or less charge remaining). **OFF**: Battery is charged (25 to 100% charge remaining).
Green: Connect status.	**Slow (about 1 Hz):** Searching for a Bluetooth receiver. **Fast (about 2 Hz)**: Connected and monitoring data.	**ON**: AirLink$_2$ is on and connected to an iPhone/iPod or computer. **OFF:** Battery is completely discharged.
Red: Battery charger status.	**Slow**: Battery temperature too high or too low for charging. **Fast**: Bad battery.	**ON**: Battery is charging. **OFF**: Battery is charged (if USB cable is connected to the computer).

Note: The rechargeable battery cannot be replaced by the end-user. Please contact PASCO if your battery is not charging properly.

Part One: Using the AirLink$_2$ with the iPad, iPhone or iPod touch

Your iPad, iPhone or iPod touch must be running iPhone OS 3.1 Software or later and the latest version of the SPARKvue app. Use iTunes® to download the SPARKvue app from the App Store (www.itunes.com/apps). See the Apple web site at www.apple.com/Downloads for the iPad, iPhone and iPod touch OS software and the iTunes application.

Because the AirLink$_2$ sensor interface communicates with the iPad, iPhone or iPod touch wirelessly, it does not physically connect to the device. Instead, you set up a wireless connection from the device to the AirLink$_2$ using the Settings app.

You can connect to only one AirLink$_2$ at a time. Once you connect to a specific AirLink$_2$, no one else can access that AirLink$_2$. Depending on the environment, the AirLink$_2$ must remain within 30 feet (10 meters) of the device that you intend to use. Actual range may vary.

Setting Up the iPad, iPhone or iPod touch

Note: Each PASPORT AirLink$_2$ has an identification number (e.g., AirLink2-12345), that is printed on a label on the bottom of the AirLink$_2$. Use this ID number to confirm that your AirLink$_2$ is communicating with the iPad, iPhone or iPod touch when setting up and connecting.

- Step 1: Turn on the AirLink$_2$ unit (the green LED should flash, which indicates that the AirLink$_2$ is searching for a Bluetooth receiver). Make sure that the iPad, iPhone or iPod touch is on.

- Step 2: In the Home screen, launch the Settings app and, within Settings, go to General>Bluetooth.


Launch the Settings app
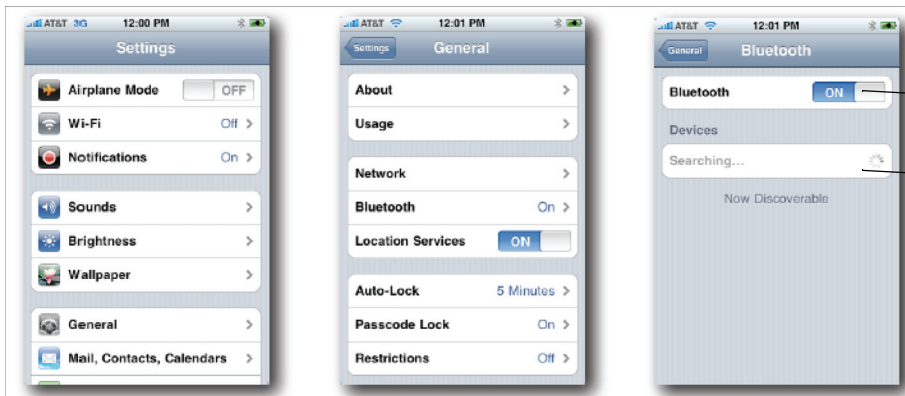
Make sure that Bluetooth is turned ON.

Bluetooth searches for any active devices, including the PASPORT AirLink$_2$.

- Step 3: In the Bluetooth screen, you should see something very much like one of these two images. In the first case, the device and AirLink$_2$ need to be "paired". Tap "Not Paired" to establish a pairing. In the second case, the device and AirLink$_2$ have been paired, but are not currently connected. Tap "Not Connected" to establish a connection.
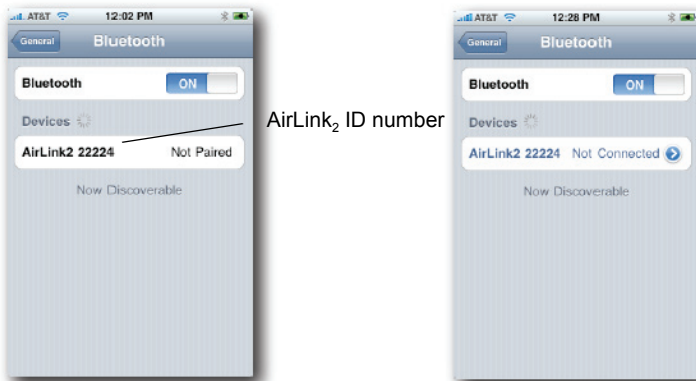

AirLink$_2$ ID number

- NOTE: In a classroom situation, there may be many AirLink$_2$ devices available for pairing. To make sure that you are pairing with the right device, check the back of the AirLink$_2$ for its identification number.

• Step 4 (only if the devices had not already been paired): An alert window will appear after you tap "Not Paired". Tap "Pair" to complete pairing and connect the devices. The iPad, iPhone or iPod device and the AirLink$_2$ need only be paired once.

Alert window

Tap "Pair"

• Step 5: The screen should show that the AirLink$_2$ is connected. The green LED on the AirLink$_2$ should be ON. The Bluetooth icon in the upper right corner of the device should be blue, indicating an active connection.

Bluetooth icon is blue.

• Step 6: Exit the Settings app, return to the SPARKvue app, connect a PASPORT sensor to the AirLink$_2$, and start collecting data.

AirLink$_2$ is connected.
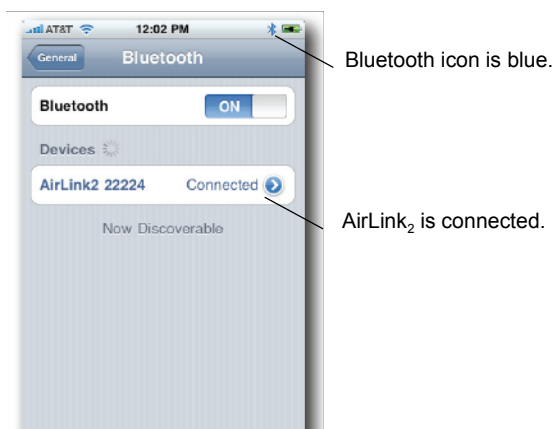
Part Two: Using the PASPORT AirLink$_2$ with a Computer

Because the AirLink$_2$ communicates with the computer wirelessly, it does not physically connect to the computer. Instead, you set up a wireless connection from the computer to the AirLink$_2$ in software.

You can connect to only one AirLink$_2$ at a time. Once you connect to an AirLink$_2$, no one else can access that AirLink$_2$. Depending on the environment, the AirLink$_2$ must remain within 30 feet (10 meters) of the computer you intend to use. Actual range may vary.

Setting Up the Computer with Bluetooth.

• The AirLink$_2$ requires DataStudio version 1.9.9 or higher (see the PASCO web site at www.pasco.com).

• Position the AirLink$_2$ ON/OFF switch to ON. The green LED will blink slowly (about 1 Hz) when the AirLink$_2$ is on.
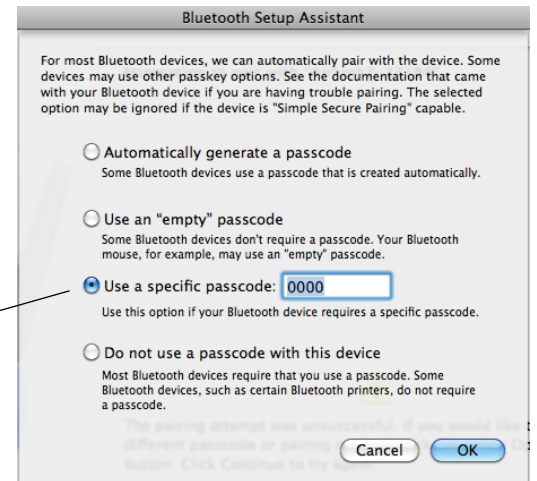
Bluetooth icon

Note: Each PASPORT AirLink$_2$ has an identification number (for example, AirLink2-00056), that is printed on a label on the bottom of the AirLink$_2$. Use this ID number to select the AirLink$_2$ in the DataStudio software when setting up and connecting

Macintosh OS X Bluetooth Setup

- **Mac OS X 10.6**
  In System Preferences, click Bluetooth. Make sure that Bluetooth is "On" and "Discoverable". In the preference pane, click "Set Up New Device…". The Bluetooth Setup Assistant window will open.

Click "Set Up New Device…"

- In the Bluetooth Setup Assistant window, the AirLink$_2$ and its identification number should appear in the list of "Devices". Click "Continue".

AirLink$_2$ and its identification number
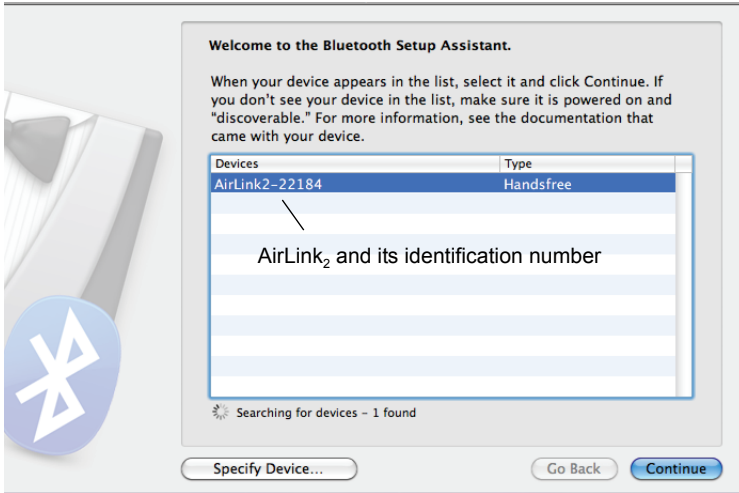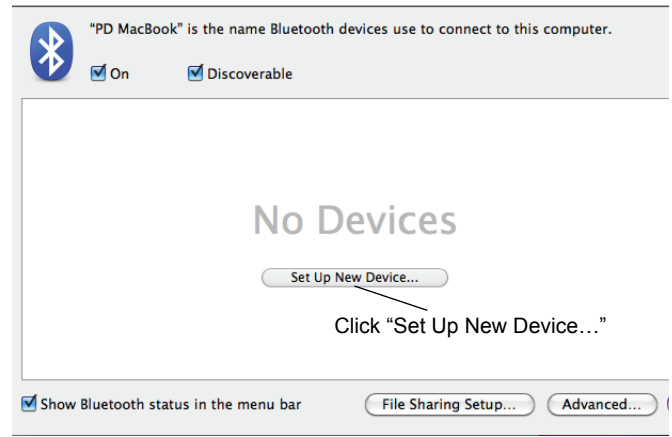
- In the Bluetooth Setup Assistant window that opens, select "Use a specific passcode" and type in **1234**. Click "Continue".

- The final window should state that the computer and AirLink$_2$ are successfully paired. Click "Quit" to close the Bluetooth Setup Assistant.


Enter **1234** as the specific passcode.

- In the Bluetooth preference pane (under System Preferences), the AirLink$_2$ will be "Paired", but it will not be "Connected" until you start DataStudio and choose the AirLink$_2$ as the interface that you want to use. See "Connecting the PASPORT AirLink$_2$ with DataStudio" in a later section of this manual.


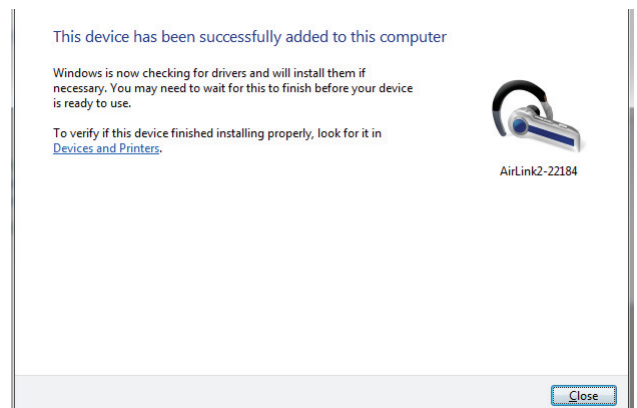
Paired but not yet **Connected**
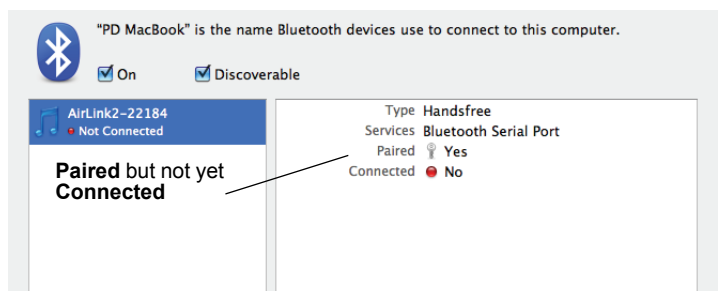
Windows 7

• If your computer is not yet Bluetooth compatible, see your system's documentation about setting up a Bluetooth transceiver on your computer

• In the Start Menu under Control Panels, select "Devices and Printers". The AirLink2 should appear in the "Add a device" window as a Bluetooth device.

AirLink2 appears as a Bluetooth device

• Select "AirLink$_2$" and then click "Next".
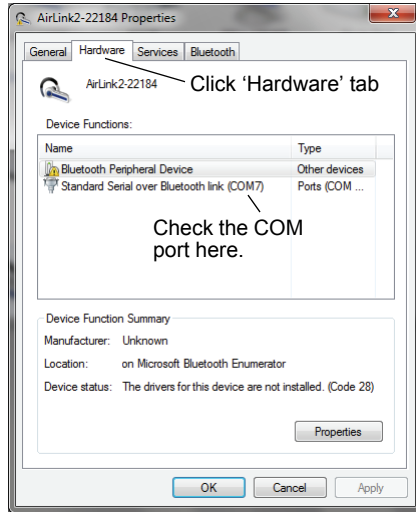
Select the AirLink$_2$
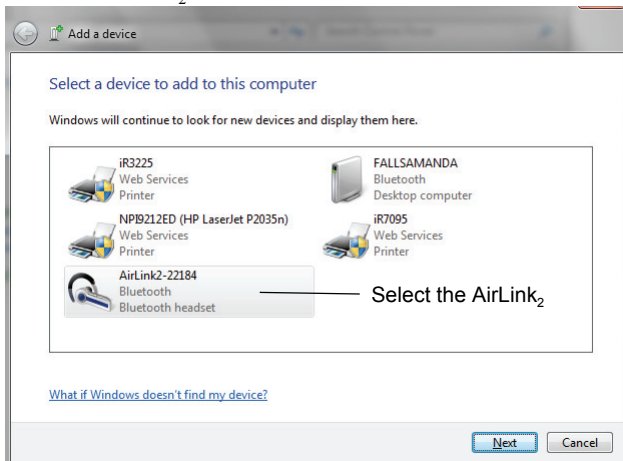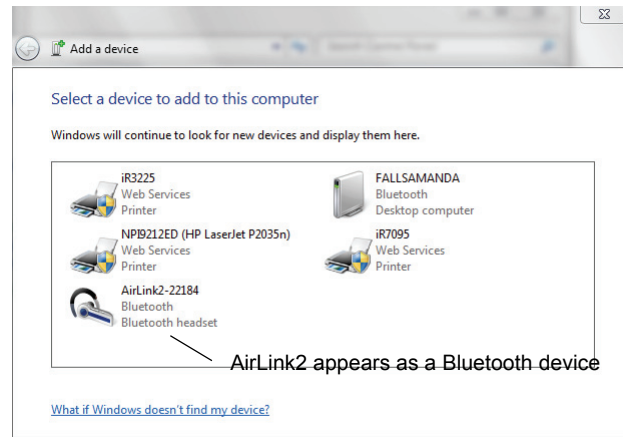
• Select the following pairing option in the next window: "Enter the device's pairing code", and click "Next".

• Enter the pairing code "**1234**" and click "Next".

Enter **1234** as the pairing code.

Select this pairing option.
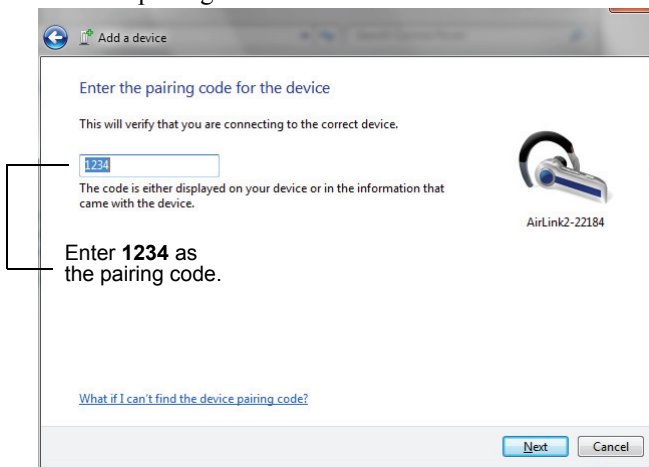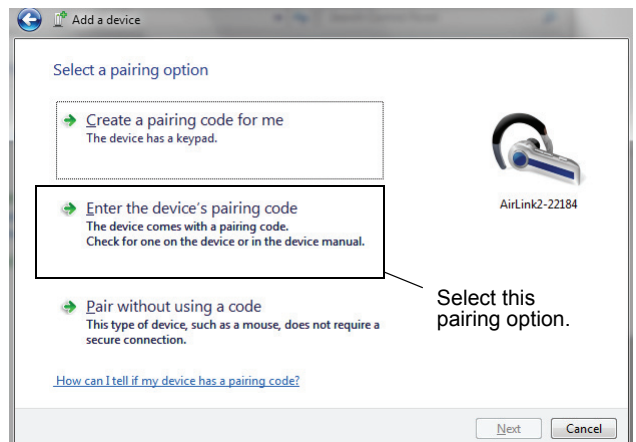
• The next window should explain that the device (AirLink$_2$) has been successfully added to the computer. Click "Close".

This device has been successfully added to this computer

Windows is now checking for drivers and will install them if necessary. You may need to wait for this to finish before your device is ready to use.

To verify if this device finished installing properly, look for it in Devices and Printers.

AirLink2-22184

• Find the AirLink$_2$'s "COM" port before using the AirLink$_2$ with DataStudio.
  Go to the Devices and Printers control panel. Click the icon for the AirLink$_2$
  to open the AirLink$_2$ Properties window.

• In the AirLink$_2$ Properties window, click the "Hardware" tab. Under "Device
  Functions", check the "COM" port for the "Standard Serial over Bluetooth
  link". In this example, it is COM7. Click "OK" to close the window.

Click the icon for the AirLink$_2$

AirLink$_2$ is "paired" but
not yet "connected".

Click 'Hardware' tab

Check the COM
port here.

Make a note of the Outgoing
COM port number. You will need
it when you connect the AirLink$_2$
with the DataStudio software.
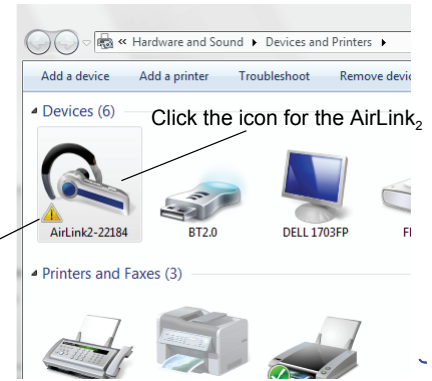
• The AirLink$_2$ will be "Paired", but not yet "Connected" until you start DataStudio and choose the AirLink$_2$ as the interface that
  you want to use. See "Connecting the PASPORT AirLink$_2$ with DataStudio" in a later section of this manual.

Windows Vista

• See your system's documentation (e.g., "Help->Help and Support Center") for setting up a Bluetooth connection.

Windows XP (SP2)

• From the Start menu, open the Bluetooth Devices Control Panel to add the PASPORT
  AirLink$_2$. In the Bluetooth Devices control panel under the "Devices" tab, click "Add" to
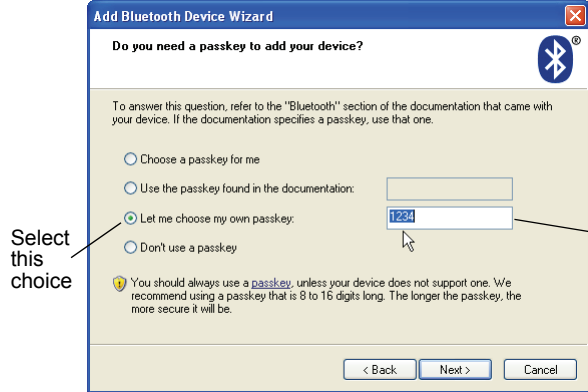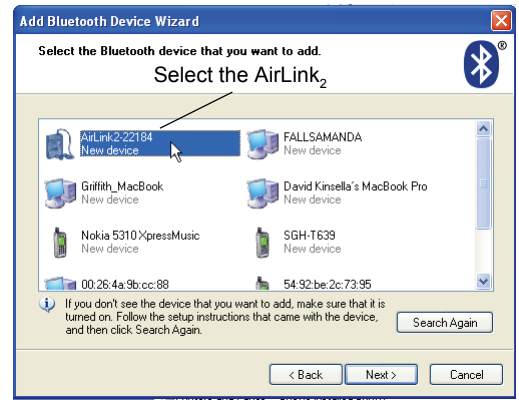 open the "Add Bluetooth Device Wizard".

Click 'Add'

Click 'My device is set up
and ready to be found'
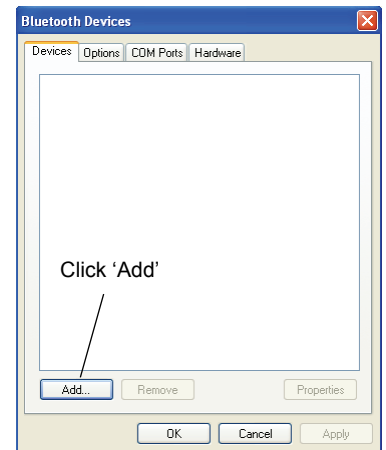
• Click the checkbox for 'My device is set up and ready to be found', and then click 'Next'.

- The Add Bluetooth Device Wizard shows the available Bluetooth devices.. Select the AirLink₂ from the list of Bluetooth devices and click 'Next'.

- When the Device Wizard asks for a passkey, check "Let me choose my own passkey", click "Next", and enter **1234** Once again, click "Next".

Select this choice

Enter **1234** as the passkey

- When the 'Add Bluetooth Device Wizard' is finished, make a note of the Outgoing COM port number for the AirLink₂ shown in the Add Bluetooth Device Wizard. You will need to enter the Outgoing COM port number in the DataStudio 'Choose Interface' dialog (see below). Click "Finish".

PASCO ®
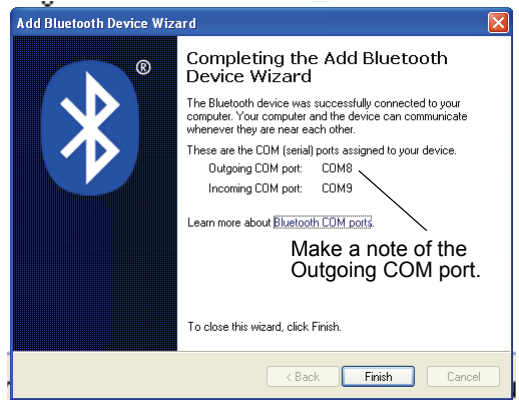
Connecting to the PASPORT AirLink₂ with DataStudio

1. Start DataStudio and click the 'Setup button on the DataStudio toolbar. In the Experiment Setup window, select "Choose Interface". Choose PASPORT as the interface and select your PASPORT AirLink₂ from the AirLink drop-down list.

   • Macintosh
     Choose "AirLink2" from the drop-down menu..

   • Windows
     Enter the Outgoing COM port number (e.g., COM8 with no spaces) for the AirLink₂ in the field to the right of AirLink₂.

2. Click "OK" to return to the Experiment Setup window.
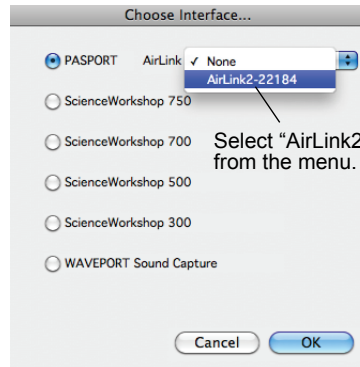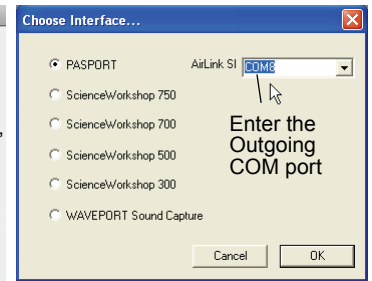
Machintosh   **Windows**

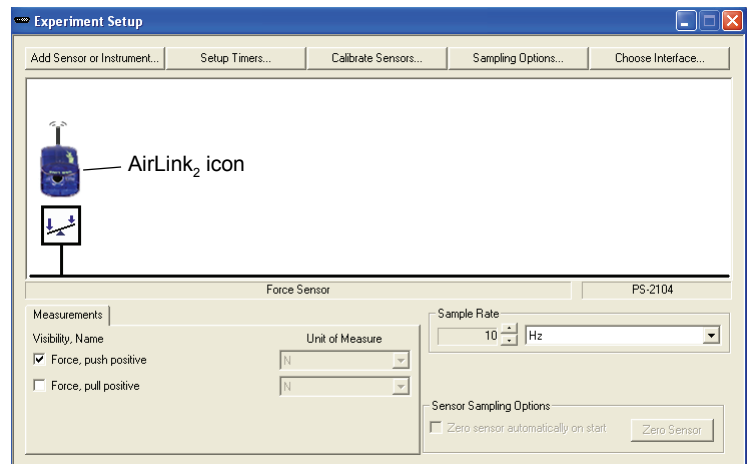### Automatic PASPORT AirLink₂ Connection

Each time DataStudio is launched, or a new experiment is created, DataStudio will attempt to re-connect to the last selected PASPORT AirLink₂. If a connection is not established when expected, choose **File->New Experiment** to create a new experiment and re-attempt a connection.

When a AirLink₂ is connected, its icon will appear in the Experiment Setup window (click the **Setup** button on the DataStudio toolbar). If no AirLink₂ appears in the Experiment Setup window, choose **File->New Experiment** a couple of times and then check the Experiment Setup window for a connection. If this does not result in a connection, check the settings in the **Experiment>Choose Interface** dialog and then check the computer's Bluetooth preference pane or control panel.

AirLink₂ icon

Changing PASPORT AirLink₂ Connections

Do one of the following:

• Click the **Setup** button on the DataStudio toolbar and select **Choose Interface**

• From the **Experiment** menu click **Change Interface.** Choose a different AirLink₂ from the popup menu (Macintosh) or enter a different COM port number without spaces (Windows).

Disabling PASPORT AirLink₂ Connections

In the **Choose Interface** dialog, either choose a non-PASPORT interface, or choose 'None' from the AirLink₂ menu. To re-enable a connection for future experiments, follow the instructions under Selecting a PASPORT AirLink₂ for use with DataStudio in this instruction sheet.

Out of Range or Turned Off During Sampling

If the connection is lost during sampling, DataStudio will stop recording data, and an error dialog will be displayed. Get back in range, or check if the AirLink₂ is powered on (see Status LEDs PASPORT AirLink₂), and try to re-connect. A connection can always be established later by creating a new experiment, or following the instructions under Selecting a PASPORT AirLink₂.

Connecting PASPORT Sensors

The DataStudio software and the SPARKvue app for iPhone and iPod touch automatically recognize a PASPORT sensor when it is plugged into the PASPORT AirLink$_2$. The program or app will set the calibration(s) and sampling rate to the sensor's defaults.

Plugging in a Sensor

Sensor Connector
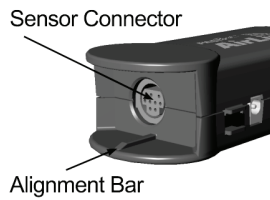
Alignment Bar

Align the alignment bar on the end of the PASPORT AirLink$_2$ with the groove on the sensor or sensor plug. Plug the sensor or sensor plug into the mini DIN sensor connector on the end of the sensor interface.

Specifications

Compatibility	iPad, iPhone 3G and iPod touch (2nd or 3rd generation) devices and Windows and Macintosh computers with Bluetooth support
Wireless Range	10 meters
Sampling Rate	Up to 1,000 hertz (1 kHz) (varies by software application and sensor)
Battery	4 hours to fully charge; 4 to 6 hours continuous collection per charge

Troubleshooting

Problem	Solution
AirLink$_2$ drops connection	1. You may be out of range. Move the device closer to the AirLink$_2$ and try to reconnect. 2. Battery may be low. Recharge.
Software does not see AirLink$_2$	1. Check AirLink$_2$ is powered on; 2. Confirm AirLink$_2$ is within range; 3. Make sure AirLink$_2$ isn't already connected to another device (see Status LEDs table). 4. (Windows) Ensure the COM port in the DataStudio Setup window matches the COM port your computer designated for the AirLink$_2$.
Software does not see sensor attached to AirLink$_2$	1. Confirm you are connected to AirLink$_2$; 2. Make sure sensor is firmly connected to AirLink$_2$; 3. Turn interface off and back on. (You will need to reconnect).

Technical Support

Before you call PASCO technical support, have the apparatus and this user's guide available. Please note the following:

• DataStudio version;

• Product name and model number;

• Approximate age of the product;

• Detailed description of the problem/sequence of events required to duplicate the problem.

For assistance with any PASCO product, contact PASCO at:

Address: PASCO scientific
10101 Foothills Blvd.
Roseville, CA 95747-7100

Phone: 916-786-3800 (worldwide)
800-772-8700 (U.S)

Fax: (916) 786-7565

Web: www.pasco.com

Email: support@pasco.com

Communications Regulation Information

The PASPORT AirLink$_2$ (PS-2010) complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) The AirLink$_2$ may not cause harmful interference, and (2) the AirLink$_2$ must accept any interference received, including interference that may cause undesired operation. See instructions below if interference to radio and television reception is suspected.

IMPORTANT NOTE:
To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. .

PASPORT AirLink$_2$ **PS-2010**

FC

**Tested To
Comply With
FCC Standards**

FOR HOME OR OFFICE USE

Radio and Television Interference
The equipment described in this manual generates, uses, and can radiate radio-frequency energy. If it is not installed and used properly-that is, in strict accordance with instructions from PASCO scientific, it may cause interference with radio and television reception.

The AirLink$_2$ has been tested and found to comply with the limits for a Class B digital device in accordance with the specifications in Part 15 of the FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation.

You can determine whether the AirLink$_2$ is causing interference by disconnecting it from the computer. If the interference stops, it was probably caused by the AirLink$_2$.

If the AirLink$_2$ does cause interference to radio or television reception, try to correct the interference by using one or more of the following remedies:

- Turn the television or radio antenna until the interference stops;

- Move the AirLink$_2$ to one side or the other of the device;

- Move the AirLink$_2$ further from the television or radio.

If these remedies do not correct the problem, consult with an experienced radio or television technician for additional suggestions.

Important: Changes or modifications to the AirLink$_2$ not authorized by PASCO scientific. could void the FCC Certification and negate your authority to operate the product. Responsible party (FCC matters only): David Stogner, PASCO scientific, 10101 Foothills Blvd., Roseville, CA, USA, 95747-7100.

High Risk Activities Warning
Connect only approved sensors to the AirLink$_2$. Connecting unapproved devices could void your warranty or result in shock or injury. Be sure to follow the sensor usage guidelines.

iPod touch, iPhone and iPad
"Made for iPod", "Made for iPhone" and "Made for iPad" means that an electronic accessory has been designed to connect specifically to iPod, iPhone, or iPad, respectively, and has been certified by the developer to meet Apple performance standards. Apple is not responsible for the operation of this device or its compliance with safety and regulatory standards.

Limited Warranty
PASCO scientific warrants the product to be free from defects in materials and workmanship for a period of one year from the date of shipment to the customer. PASCO will repair or replace, at its option, any part of the product, which is deemed to be defective in material or workmanship. The warranty does not cover damage to the product caused by abuse or improper use. Determination of whether a product failure is the result of a manufacturing defect or improper use by the customer shall be made solely by PASCO scientific. Responsibility for the return of equipment for warranty repair belongs to the customer. Equipment must be properly packed to prevent damage and shipped postage or freight prepaid. (Damaged caused by improper packing of the equipment for return shipment will not be covered by the warranty.) Shipping costs for returning the equipment after repair will be paid by PASCO scientific.

Trademarks
PASCO, PASCO scientific, DataStudio, ImagiProbe, PASPORT, and ScienceWorkshop are trademarks or registered trademarks of PASCO scientific, in the United States and/or in other countries. iPhone and iPod touch are trademarks of Apple Inc., registered in the U.S. and other countries. iPad is a trademark of Apple Inc. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of, their respective owners. For more information visit www.pasco.com/legal.

Product End of Life Disposal Instructions:
This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle/disposal service, or the place where you purchased the product.

The European Union WEEE (Waste Electronic and Electrical Equipment).symbol (to the right) and on the product or its packaging indicates that this product **must not** be disposed of in a standard waste container.

Battery Disposal Instructions:
Battery Disposal - Batteries contain chemicals that, if released, may affect the environment and human health. Batteries should be collected separately for recycling, and recycled at a hazardous material disposal location adhering to your country and local government regulations. To find out where you can drop off your waste battery for recycling, please contact your local waste disposal service or the product representative.

The battery or batteries included in this product or purchased in the European Union (if batteries not included) are marked with the European Union symbol for waste batteries (above) to indicate the need for the separate collection and recycling. For small batteries, the symbol is printed on the packaging.