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## Map of Q-wiz



Mode button on top of unit

Link/Freeze button on front at bottom, below Link LED

8 LED's on front of unit: TLC7 sites listed on left; training site options listed on right.

nIR and pIR inputs on front of unit; 7 electrode inputs below cap input

Link LED beneath ground electrode input Green (references linked)

Link LED off (independent reference electrodes)

Link LED Blue (EEG baseline frozen )

Transmit (Blue) LED steady (sending USB signal to software)

Transmit (Blue) LED blinking (wireless mode; number of blinks indicates wireless channel)

Transmit (Blue) Off (Unit unplugged or in Program mode—not transmitting)

Mode/Good LED Green (connections OK); Off (bad connection) Blinking (signal problem)

HEG (Yellow) On (HEG or oximetry headband sensed); Off (all channels available for EEG)

HEG (Yellow) blinking (unit establishing baseline for HEG); Fast blink (user-defined program)

## Map of X-wiz



transmit (blue light):

- On Steady: sending to Application via USB
- On Blink: sending wirelessly
- Off Blink: not transmitting to Application (i.e. Program Mode)
- 4 blinks: acknowledging command received for Application
- Blink: wireless channel number

mode (green light):

- Blink: Mode 0/1/2 = Program/32sps(2ch)/128sps(2ch)

baseline (calibrate) (blue light):

- On: when nIR, pIR or Oxi headband sensed
- Off: no headband sensed, sends test signal to PC Application
- Blink: when nIR/pIR/pulse baseline search for nominal value of 100 is under way

## Map of U-wiz



### transmit (blue light):

- On Steady: sending to Application via USB
- On Blink: sending wirelessly
- Off Blink: not transmitting to Application (i.e. Program Mode)
- Blink: wireless channel number
- 4 blinks: acknowledging command received for Application
- Fast blink: low battery

### mode (green light):

- Blink: Mode 0/1/2/3 = Program/32sps(2ch)/128sps(2ch)/512sps(2ch)

### link /freeze (blue/green):

- Blue On: EEG baseline frozen (DC coupled)
- Blue Off: DC removal - EEG low frequency response ~0.2Hz
- Green On: EEG References linked - only one Reference electrode required
- Green Off: EEG References independent - two References required for 2 EEG

channel operation

## Prepare to install the device

DO NOT PLUG IN YOUR WIZ YET.

## BioExplorer

DO NOT PLUG IN YOUR USB HASP YET.

If you have not already done so, *download the latest version of BioExplorer at [www.cyberevolution.com](http://www.cyberevolution.com)*

Run the BESetup.exe file. Right-click and select Run as administrator to do this. This will install BioExplorer. However, you will not be able to use the program until you receive the small USB key in the mail.

## Installing the Wiz

### Install the [Pocket Neurobics driver](#)

*If you have a Pendant or Pocket already installed on your system, it's the same driver. Plug in your Wiz cable now. Otherwise follow the steps below:*

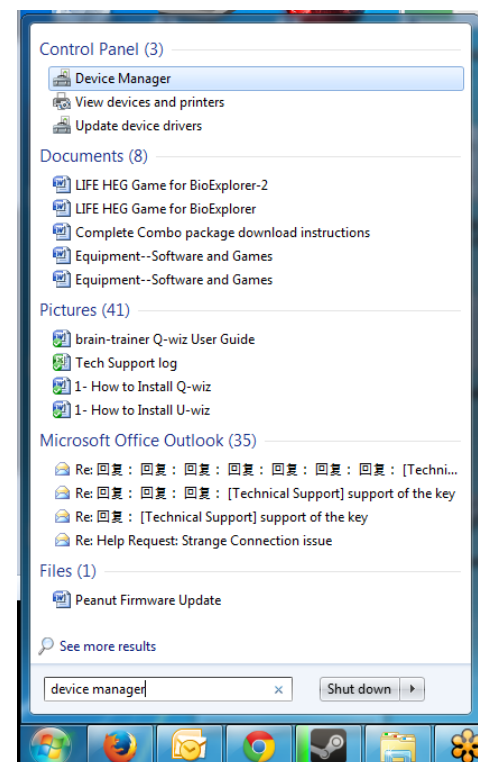
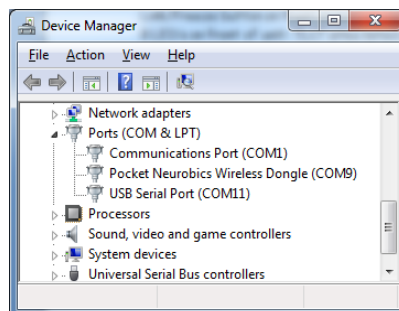
Right-click on the **PN wireless dongle driver** and install as administrator. Windows will install as a driver named Pocket Neurobics Wireless Dongle.

Connect the Wiz cable from the unit to a USB port on your computer.

### Verify in Windows the COM port assigned

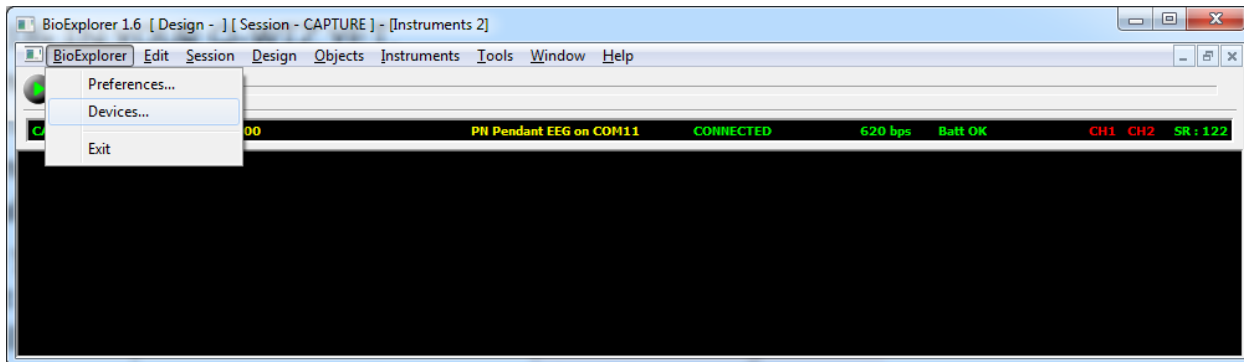
To check which port your computer assigned to your Wiz, click Windows Start icon, type *device manager* in the search field, and select the Device Manager. Click Ports to see what COM port is assigned to your Wiz.

## Troubleshooting



## Enable the device in BioExplorer

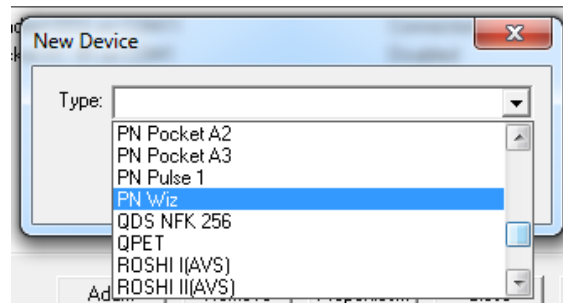
### Select your device



With the Wiz connected and BioExplorer open, in the BioExplorer menu select **Devices** and click the **Add** button.

Select **PN Wiz** from the dropdown menu.

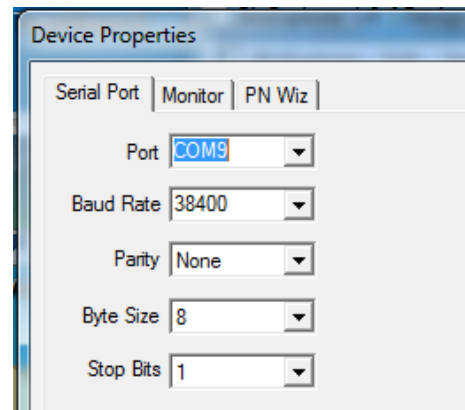
Then click OK.



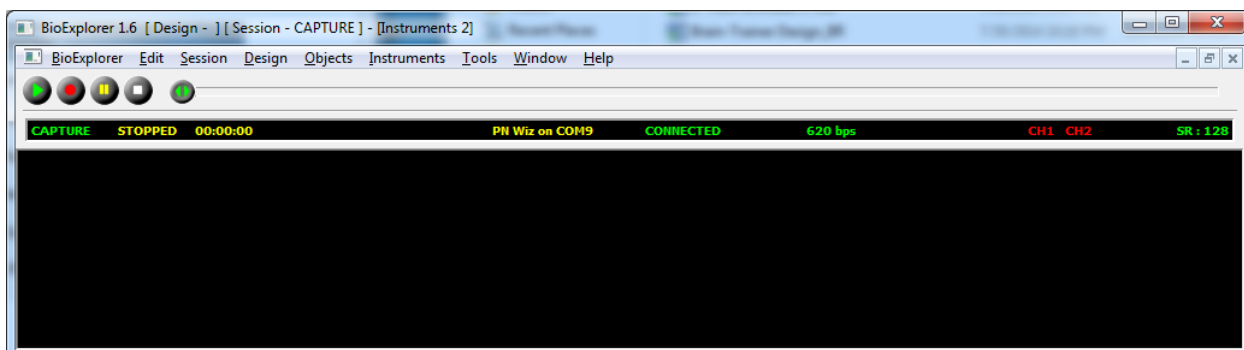
### Assign a COM Port

In the *Device Properties* window that opens, in the Port field select the COM port from the dropdown menu. If given more than one option and you are unsure, select the last one.

Click **OK** to accept and click **Close** to close the BioExplorer *Device Manager* window.



Now "PN Wiz" will appear in the status bar across the top of BioExplorer. If it says, "Connecting," unplug the Wiz and plug it in again.



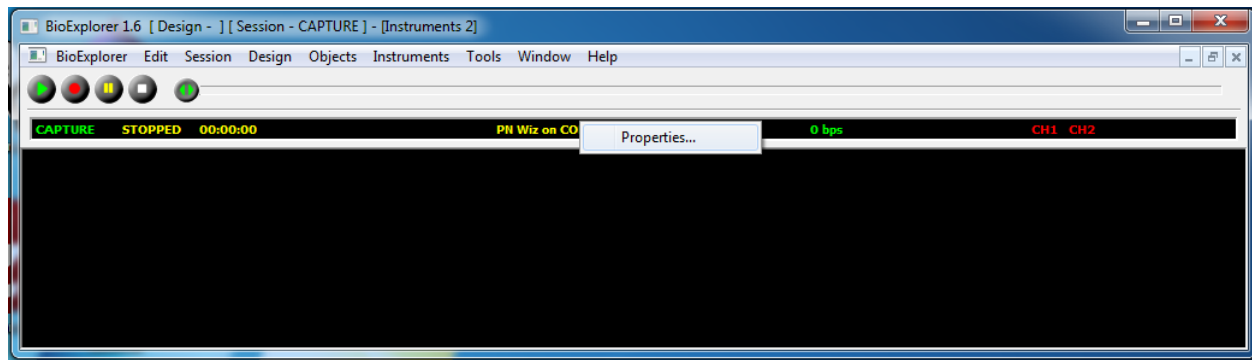
## Enable only ONE Device at a time.

To use any amplifier (e.g. Wiz, Pendant, Optima, etc) from the list of Devices, it must be the **ONLY** one selected. If you have more than one, uncheck the ones not in use for the session.

If the unit shows "Disabled" in the status bar, you have selected a different device. Open the *Device Manager*: BioExplorer | Devices | Add to change the selection.

If the unit shows "No Port," you have chosen the wrong COM port.

In the BioExplorer status bar, RIGHT-click on the name of the unit and choose **Properties** (a shortcut to *Device Properties*).



Choose another option from the drop down list of Ports.

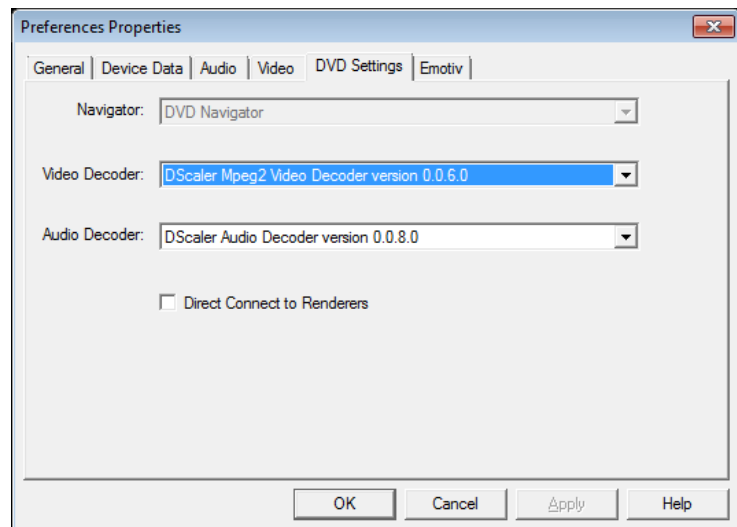
**If the WIZ still shows "Connecting," unplug the unit from the cable, then re-attach it, and it should change to Connected and be ready to record.**

## DScaler

The DScaler 5008 file is a free DVD decoder included in your package to play DVDs for feedback. Install and then go to BioExplorer | Preferences | DVD Settings and choose the DScaler file for both video and audio.

## Other decoders

If using Windows 8 you may need to install the [GoToMeeting codec](#) or DivX Codec pack for DVDs to work.





## Design Files

Any BXD design files included in your package should be placed in your BioExplorer Designs folder or another place of your choosing. The Brain-Trainer auto-installer will place them here:

*Documents\BioExplorer\Designs*

## Using the Wiz window in BioExplorer

The Wiz window automatically opens when you open BioExplorer. It has 2 tabs: *Settings* (which control the unit) and *Multiplexer* (which controls the Electro-Cap).

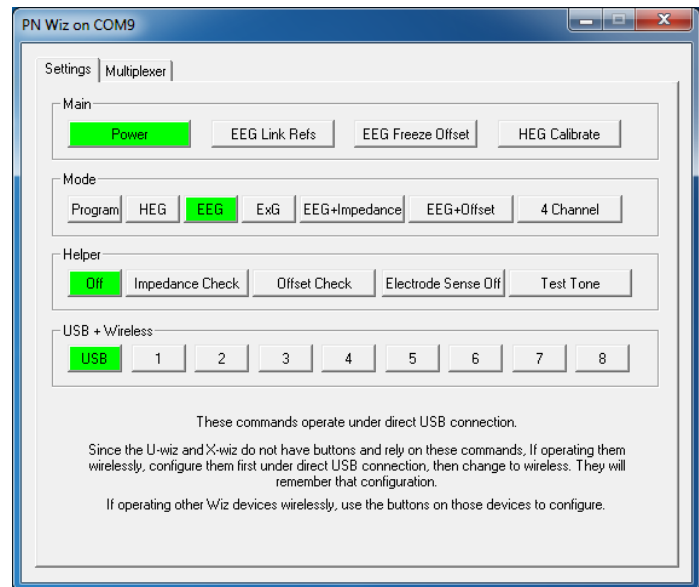
After using the window, minimize it.

## Select Wiz Settings to control the Wiz from the software

With Wiz connected and the lights on, in the *Main* section, the **Power** button should be green indicating the Wiz is being controlled by BioExplorer.

To link the references (without a "jumper"), select **EEG Link Refs**. The green Link light below the Ground electrode plug will turn on.

To use the Wiz for slow-cortical-potential training select **EEG Freeze Offset**. The Q-wiz Link light will turn Blue. Uncheck for most EEG training.



Select **HEG Calibrate** to reset the HEG baseline before training.

Clicking the various *Mode* buttons will select them. Most Q-wiz training and Brain-Trainer designs use the 4 Channel mode, including HEG and EEG. U-wiz and X-wiz training can be done in EEG mode and should be in EEG mode for Brain-Trainer designs.

In the *USB + Wireless* area, click **USB** only.

## Select Multiplexer settings to control the Electro-Cap from BioExplorer

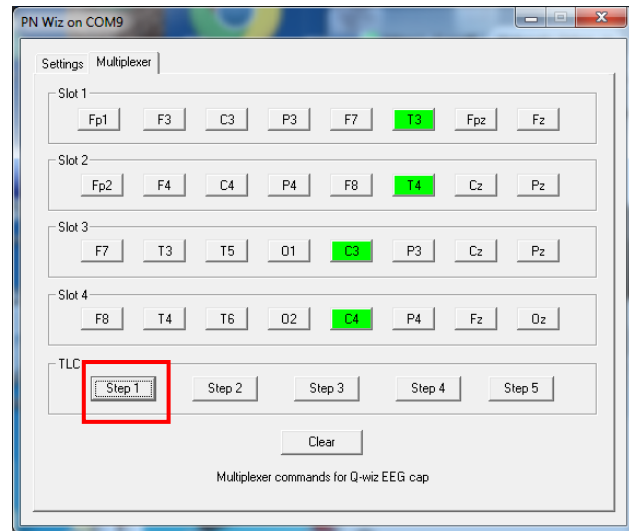
Plugging the Electro-Cap into the Q-wiz and using the multiplexer, the Q-wiz automatically enters Cap mode.

In the upper area of the window, sites can be selected for training in up to 4 channels (Slots), by clicking the button for the desired site.

The "User Defined" LED on the Q-wiz will turn on indicating the cap is being controlled by BioExplorer.

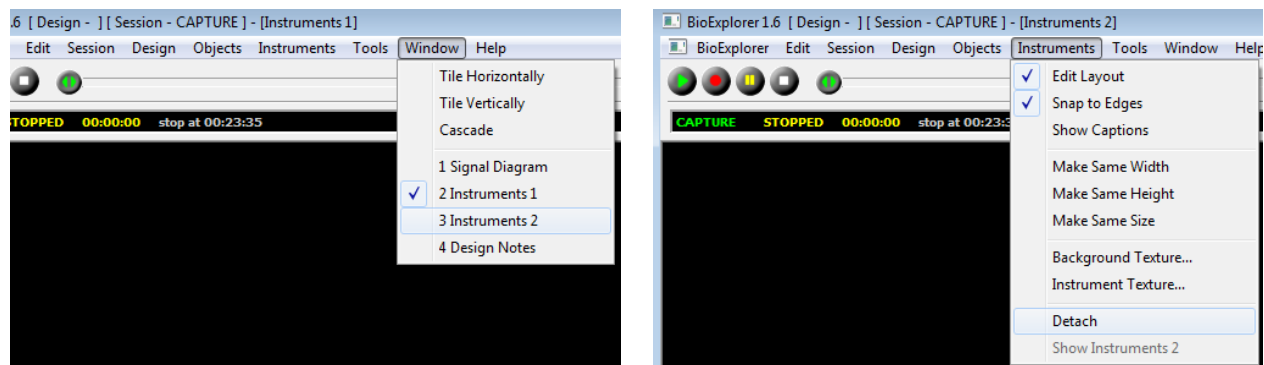
In the lower area, groups of 4 channels used in the Brain-Trainer assessment can be selected. Clicking on **Step 1**, the sites being assessed will be shown in the upper area by having their buttons highlighted (e.g. T3, T4, C3, C4)

Each step automatically selects the required 4 sites to be assessed. Confirm that the desired sites are selected.



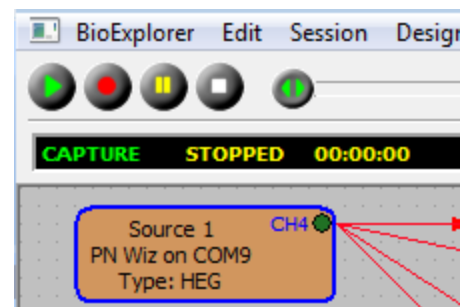
## BioExplorer

There are 3 Instruments which you can choose. Select Window and choose one. You can



detach one of the Instruments to move to a 2<sup>nd</sup> monitor: Instruments | Detach  
Then drag the window to your second monitor.

*If the signal will not play:* In Window | Signal Diagram, the orange **Source** object at top left should have the name of the device you are using. If it says No Device, right-click on the Source, select *Properties* and select your device from the dropdown menu. [Video directions](#)  
Save any Changes: Design | Save



## Run an HEG Training Session

### Select Wiz Settings

There are 4 modes for connecting the unit to the software. The Mode in current use is indicated by the number of blinks of the green LED. Change modes by clicking the desired button in the BioExplorer Wiz window.

Mode 2 (EEG) can be used for EEG/HEG sampling at 128 Hz in 1 or 2 channels

Mode 4 (4 Channel) can be used for 1, 2, 3 or 4 channels of EEG or combinations of EEG with nIR and/or pIR HEG and/or Pulse Oximetry (Heart Rate Variability) sampling at 256 Hz.

The Brain-Trainer HEG designs use Mode 4 (4 Channel) for Q-wiz HEG. Use Mode 2 (EEG) for X-wiz HEG.

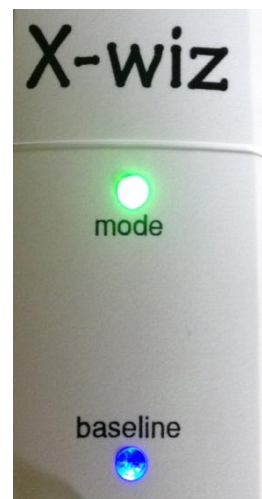
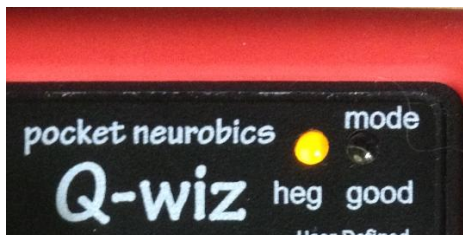
### Connect the nIR or pIR HEG Headband

Put the headband on the client's head.

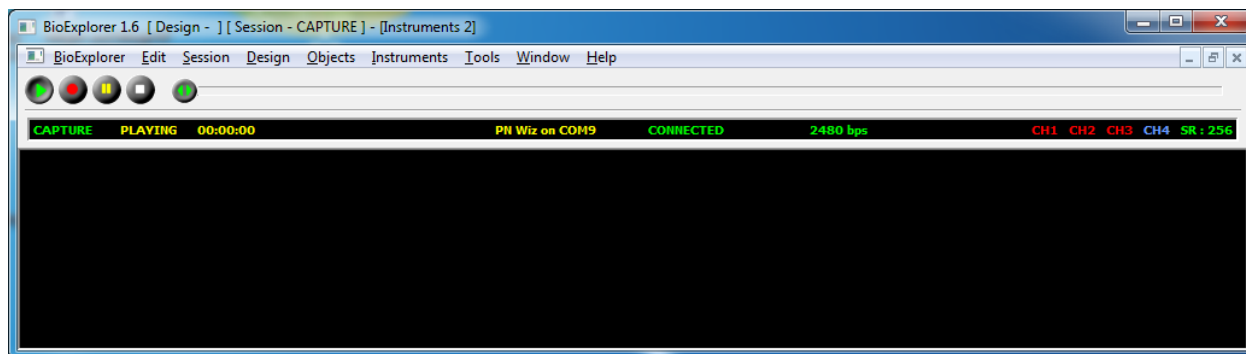
With BioExplorer open, load an HEG training design. Design | Open

Plug in the headband to the appropriate input on the front of the unit.

The HEG LED light on the Wiz will begin to blink (yellow " heg" on Q-wiz, blue "baseline" on X-wiz).



When the HEG light stops blinking, the baseline has been found. In BioExplorer, the CH signal will turn blue when the signal is good.



## Start the training session

The Wiz sets the HEG baseline very nearly 100 for all sessions.

When you plug in an HEG headband, the HEG LED on the face of the unit will start to blink, seeking the baseline.

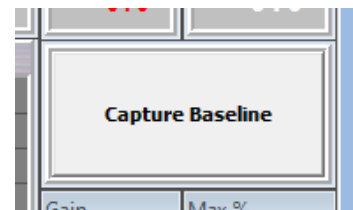
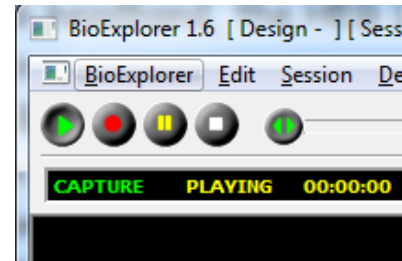


Click the Play/Capture button in BioExplorer and wait for the LED to stop blinking.

If the LED is not blinking before you start recording, in the Wiz Settings window click **HEG Calibrate** to reset.

Click *Capture Baseline* in the Brain-Trainer design to begin training.

You can stop after a segment, or you can click Pause after each segment of an nIR session, move the headband, reset the baseline and click Pause to restart the session, thus graphing all three sites in a single graph.



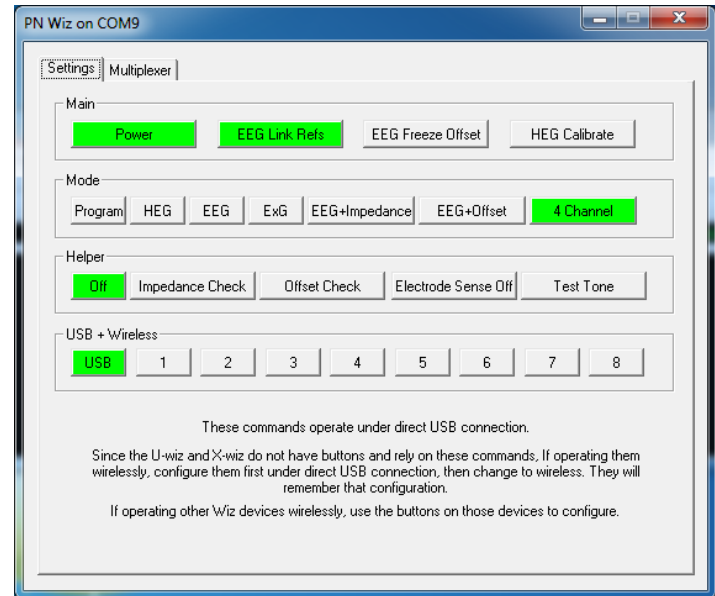
## Run an EEG Session with Electrodes

### Select Wiz Settings

There are 4 modes for connecting the unit to the software. The Mode in current use is indicated by the number of blinks of the green LED.

In BioExplorer Wiz Settings | Mode, Mode 2 (EEG) can be used for EEG/HEG sampling at 128 Hz in 1 or 2 channels (U-wiz, Q-wiz).

Mode 4 (4 Channel) can be used for 1, 2, 3 or 4 channels of EEG or combinations of EEG with nIR and/or pIR HEG and/or Pulse Oximetry (Heart Rate Variability) sampling at 256 Hz (Q-wiz). Mode 4 works for most types of training.



### Connect the EEG electrodes

Place the electrodes on the client's head. Plug the electrodes into the appropriate inputs on the front of the unit.

### Load an Assessment or Training Design

In BioExplorer click Design | Open and select the design.

Select design settings (thresholds, frequencies), if any.

If you are using 2 or more channels, you can link the reference electrodes clicking the **EEG Link Refs** button in the Wiz window, Settings | Main. The green light indicates references are linked; no light indicates the references are independent.

### Verify the quality of electrodes and connection

The green LED will remain on when connections are good, blinking when one electrode in a channel is not well connected; the LED will turn off when impedance is high.

To turn off these indicators on the Wiz, click in the Wiz window, Helper | **Electrode Sense Off** to de-select.

In BioExplorer, the CH indicators in the status bar will be solid green when all electrodes are well-connected, blinking green/red when one of the electrodes is not, or red when both/all are not well connected.

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In designs with testing capacity installed, In BioExplorer Wiz: Settings | Helper | Impedance Check or Offset Check will display values.

Impedance (resistance between scalp and electrode) should be <10 kohms.

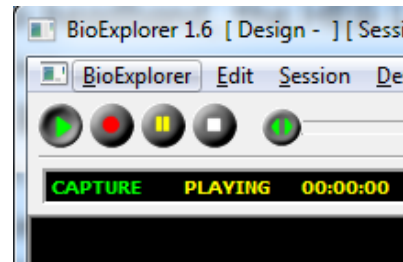
Offset compares quality between (+) and (-) electrodes in a channel.

## Start the training session



With the design open in BioExplorer, click the green **Play/Capture** button.

## [Troubleshooting](#)



## Use the Electro-Cap to record a Brain-Trainer Assessment (Q-wiz)

### Select Wiz Settings

In the BioExplorer Wiz window: Settings | Mode, check the **4 Channel** button .

To link references, click the **EEG Link Refs** button. Make sure the Link/Freeze LED beneath the electrode inputs is lit green.



In the Multiplexer tab, TLC area, click **Step 1** and verify that Slots 1-4 are showing selections for T3, T4, C3 and C4.

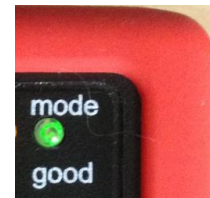
### Place the Electro-Cap and prepare the desired sites

The ground on the Electro-Cap is at AFz and must ALWAYS be prepared. Prep all sites you will include in the assessment and the ear clips.

### Connect the Cap

Plug the Electro-Cap cable into the 25-pin input on the front of the unit.

Verify that impedance/offset values are within range. The green LED will be lit/blinking when the connections are good; high impedances will cause the LED to turn off.



BioExplorer CH indicators are solid green for all 4 channels (or test with the Helper in Wiz window). If necessary, adjust the prepping of the site and re-verify.

### Open the Assessment Design

In BioExplorer select Design | Open to choose TQ7 Assess Pro Gather 4C.

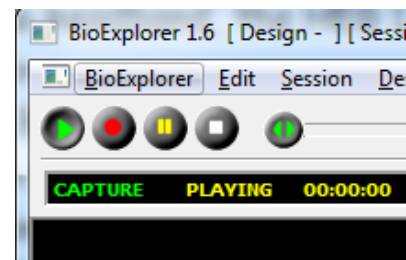
### Record the assessment data



Click the **Start/Capture** button.



Record normally the 3 minutes of data for the site pair (EC, EO, Task) and click Stop.



Click the **Step 2** button in the TQ area of the Wiz Multiplexer window, verify the new sites in the Slots and repeat recording.

Do this for each of the 5 steps to record 20 sites in 15 minutes.



## Train an EEG session using the Electro-Cap (Q-wiz)

### Select Wiz Settings

In the BioExplorer Wiz window: Settings | Mode, check the **4 Channel** button .

To link references, click the **EEG Link Refs** button. Make sure the Q-wiz Link/Freeze LED beneath the electrode inputs is lit green.



In the Multiplexer tab, select the channels (slots) that you wish to train.

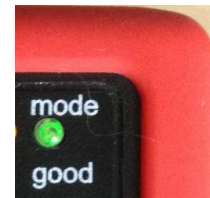
### Place the Electro-Cap and prepare the desired sites

The ground on the Electro-Cap is at AFz and must ALWAYS be prepared. Prep all sites you will include in the assessment and the ear clips.

### Connect the Cap

Plug the Electro-Cap cable into the 25-pin input on the front of the unit.

Verify that impedance/offset values are within range. The green LED will be lit/blinking when the connections are good; high impedances will cause the LED to turn off.



BioExplorer CH indicators are solid green for all 4 channels (or test with the Helper in Wiz window). If necessary, adjust the prepping of the site and re-verify.

### Open the Training Design

In BioExplorer select Design | Open and choose your design.

### Record the training data



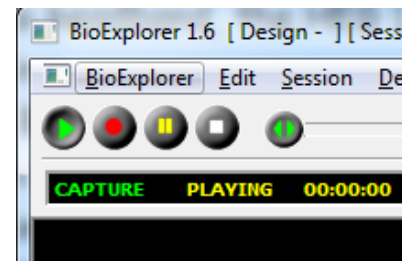
Click **Start/Capture** to begin sending data to the software.



Record normally.



To train another set of sites, click **Stop** to complete the current recording.



Choose the new sites in the Wiz window, Multiplexer area, verify the signal quality, and click the Play button again.

## Train EEG with HEG and/or HRV at the same time

### Select Wiz Settings

In the BioExplorer Wiz window: Settings | Mode, click the **4 Channel** button.

### Connect the sensors you will be using

1-4 channels of EEG (EEG only) will appear in CH1, CH2, CH3, CH4.

nIR HEG appears in CH3 (2C nIR HEG in CH3 and CH4) with/without EEG.

pIR HEG appears in CH4 with/without EEG in CH 1-3.

Pulse oximetry/HRV (CH3) with pIR HEG (CH4) with/without EEG.

Pulse oximetry/HRV appears in CH4 with/without 1-3 channels EEG.

Unit automatically senses nIR HEG, pIR HEG or Pulse oximetry when plugged in.

### Turn on/off DC (Slow Cortical Potentials) signal

Long press of Link/Freeze button changes DC mode

Blue Link/Freeze LED indicates DC signals are included and SCP can be used.

Blue Link/Freeze LED in standard EEG may result in "wandering" baseline.

## Troubleshooting

### Manually install PN driver

**Extract the file `pnWirelessDongleDriver_Install_XP_Vista_Win7.zip`.**

This is found in the folder *Brain-Trainer\Help\PN\_Driver\_manual\_install* or you can place the **`pnWirelessDongleDriver_Install_XP_Vista_Win7.exe`** into a new folder and change the filename extension from `.exe` to `.zip`.

#### **Configure COM port**

1. In Device Manager, right click on the PN entry under "Other Devices" and choose Update Driver.
2. In the Update Driver window, choose Browse my computer for driver software.
3. In the next window, click the Browse button and navigate to the location of the extracted folder above and click Next..

#### **Configure USB protocol (repeating steps)**

1. In Device Manager, right click on the PN entry under "Other Devices" and choose Update Driver.
2. In the Update Driver window, choose Browse my computer for driver software.
3. In the next window, click the Browse button and navigate to the location of the extracted folder above and click Next.

Now, in Device Manager you will see:

Under *Universal Serial Bus controllers*,

**%USB\VID\_0403&PID\_6001.DeviceDesc%**

Under *Ports (COM & LPT)*, **Pocket Neurobics Wireless Dongle (COMx)**. Note the COM port number.

**Remove the PN device from the port and reinsert it.**

**Open BioExplorer and add the device as usual.**

ATTENTION: SOME COMPUTER BRANDS like to reserve COMs 1, 2 and 3 for their own use. If no COM ports are used, a new install enumerates the next available port (normally COM3). If you still have problems and the device is connected to COM 3, you can change the port assignment manually.

## Changing Port assignment manually

1. In Device Manager, right-click the PN device name under PORTS (COM & LPT)
2. Click on Properties > Port Settings > Advanced.
3. On the COM Port Number field change the COM port from COM3 to another port (we recommend using COM6 and above to avoid conflict).
4. Click OK

After installing the driver manually OR doing an Automatic Update, REMOVE THE PN DEVICE FROM THE PORT AND REINSERT IT.  
Open BioExplorer and add the device as usual.

This usually works and you can skip the troubleshooting steps below.

## PN Driver Dongle Installation

If the Pocket Neurobics driver fails to install, you may try the following steps.

### Install from Memory Stick

Put the driver on a memory stick and insert it into your computer.

Go to the Control Panel: Devices and Printers. There you should find WIZ with an exclamation point. You may also find it listed in the Device Manager under various categories.

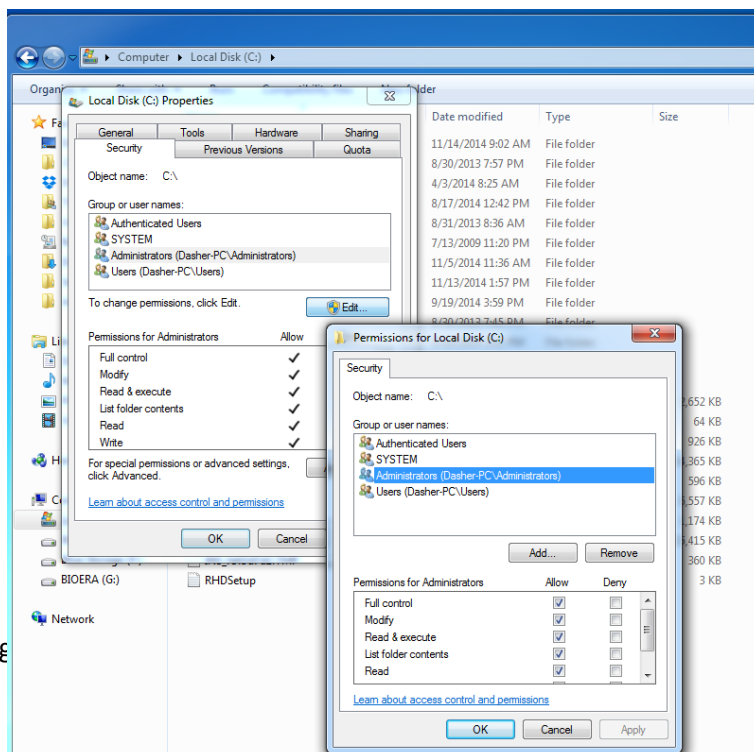
Right-click it and choose Properties and pick the Hardware tab. Click Change Configurations.

Choose to search for the driver and navigate to the memory stick. You have to do this twice.

### Grant Permissions

Open Windows Explorer and navigate to the location where you are trying to install the driver (root folder (C:)) and proceed as follows:

- a. Right click on the folder and select Properties.



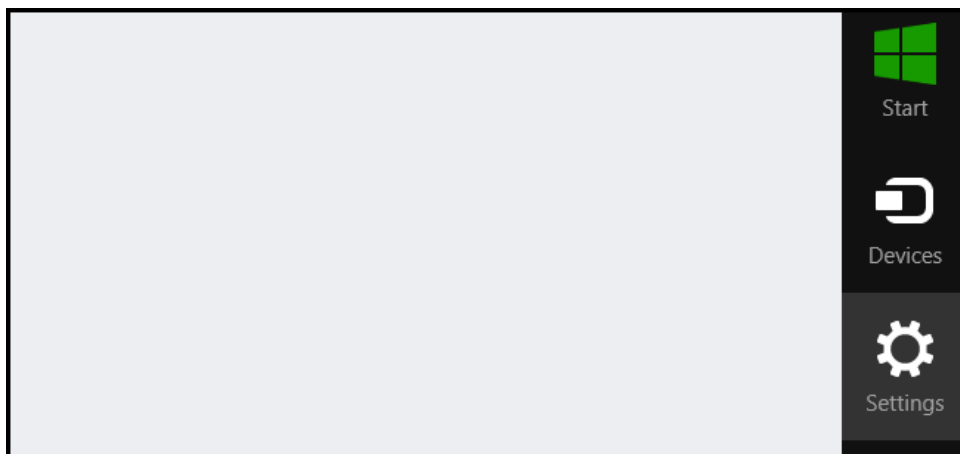
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- b. Click on Edit button in Properties windows. Click ok if prompted to confirm User Account Control elevation request.
- c. Select Administrators.
- d. Under Permissions section check "Full Control" under the "Allow" column to assign full access rights control permissions.
- e. Edit the permission to Full Control.
- f. Click OK for changes to take effect and click OK again to exit from Properties window.

## Windows 8.1 and Signed Drivers

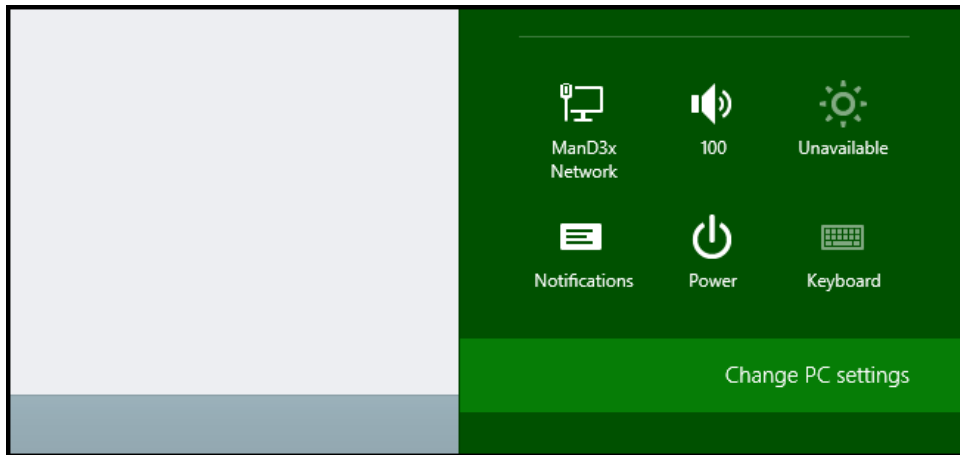
Although the Pocket Neurobics driver IS signed, some people are having issues with drivers from multiple sources sometimes, in some machines. MS Dev does not seem to know the reason. Alternatively, people are simply turning off the 64bit signature test and things seem to be working fine then.

Press the Win + C keyboard combination to bring up the Charms Bar, then click on the Settings Charm.



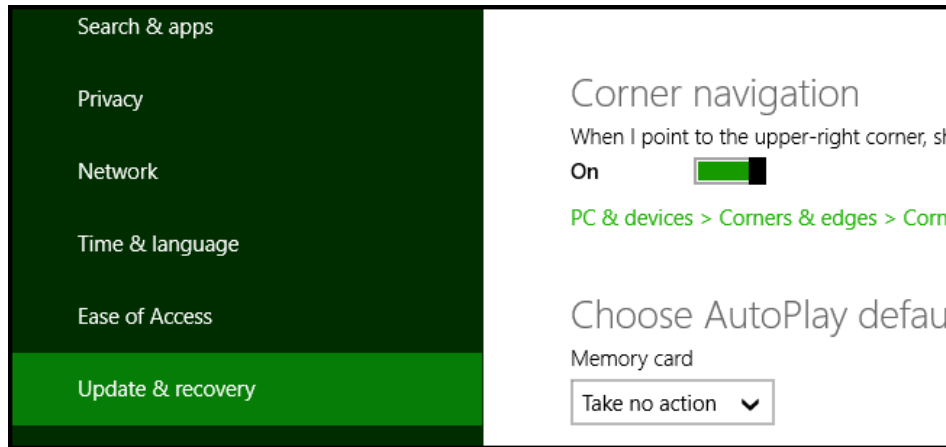
Click on the Change PC settings link to get to Modern Control Panel..

# Brain-Trainer Wiz User Guide

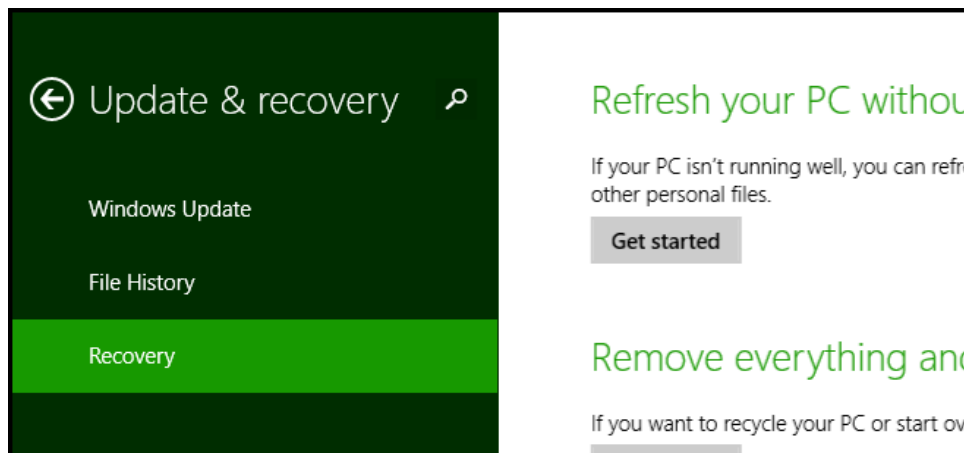


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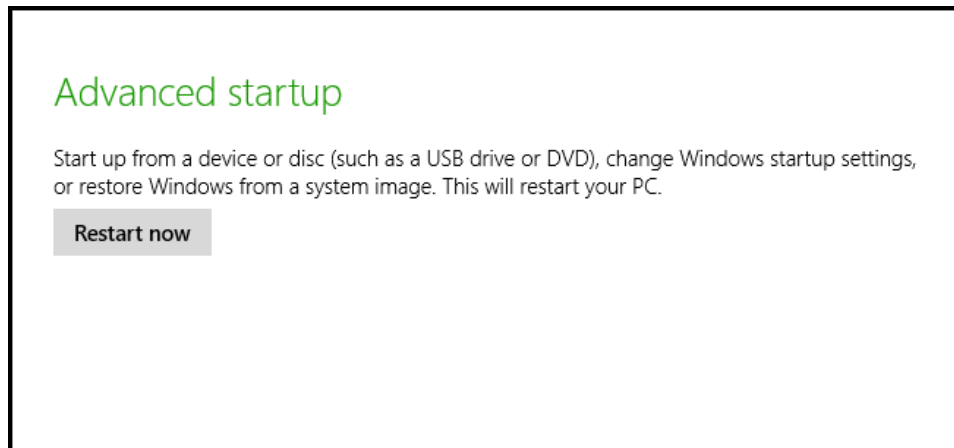
When the Control Panel opens, switch over to the "Update & recovery" section



Then click on the Recovery option on the left hand side.

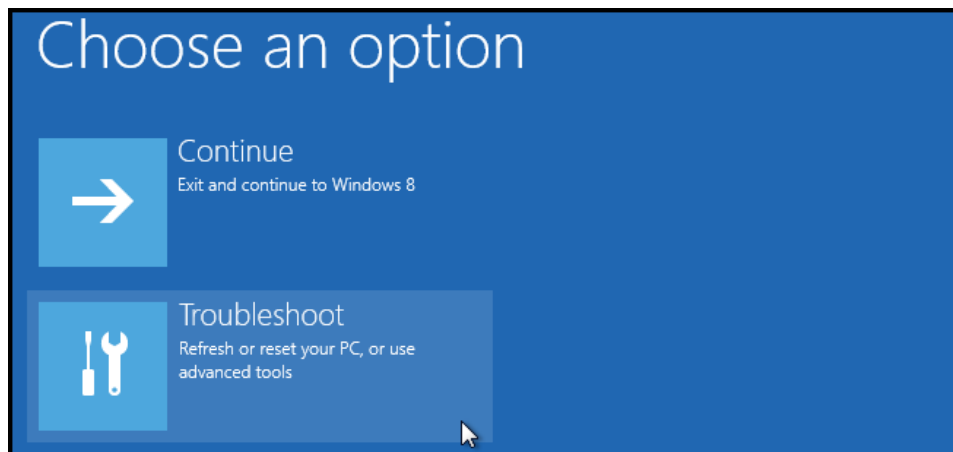


Once selected, you will see an advanced startup section appear on the right hand side. You will need to click on the "Restart now" button.

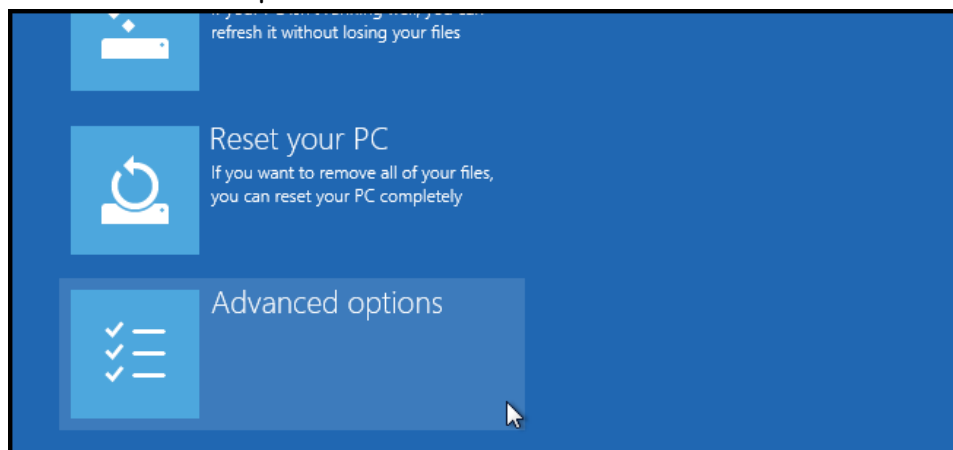


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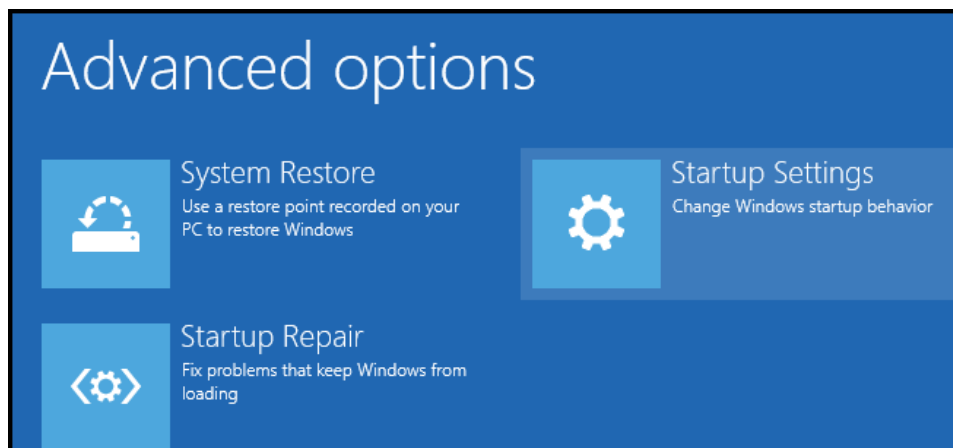
Once your Computer has rebooted you will need to choose the Troubleshoot option.



Select Advanced options.



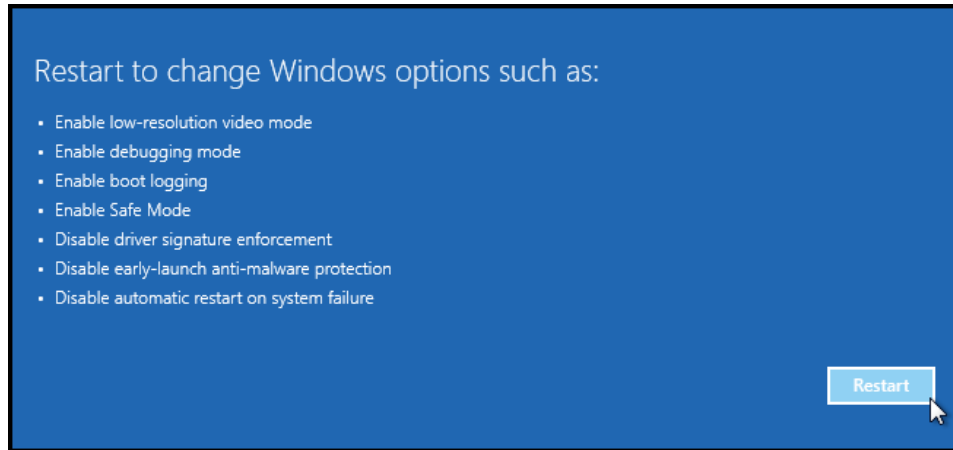
Then Startup Settings.



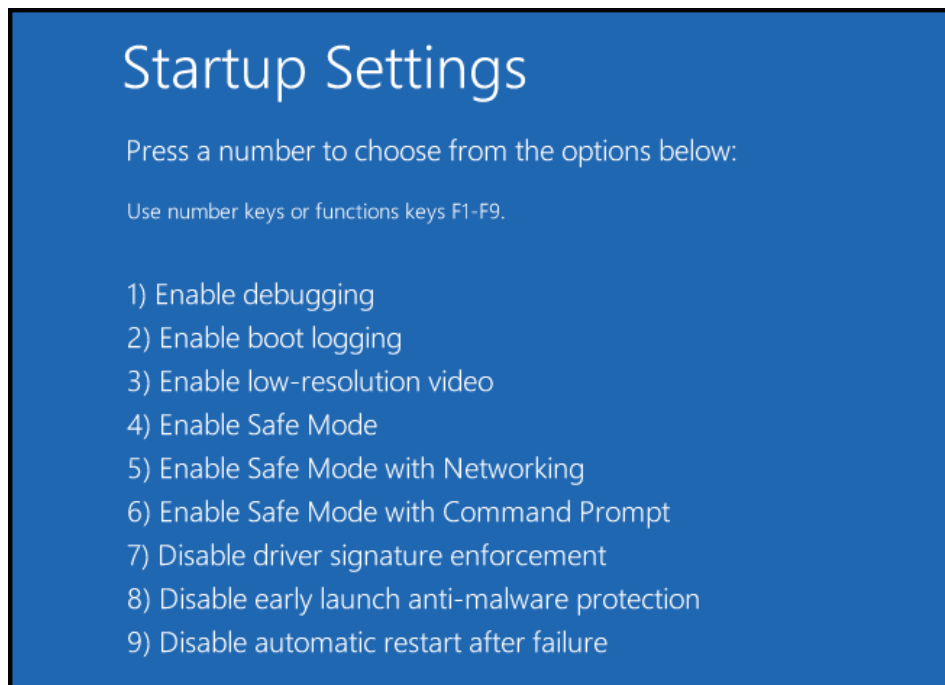


# Brain-Trainer Wiz User Guide

Since we are modifying boot time configuration settings, you will need to restart your Computer one last time.



Finally, you will be given a list of startup settings that you can change. The one we are looking for is "Disable driver signature enforcement". To choose the setting, you will need to press the F7 key.



Your PC will then reboot and you will be able to install unsigned drivers without any error messages.

## Testing the Wiz Signal

To verify that the Wiz is functioning properly, use the Test Tone. The test tone replaces the EEG trace with a 4/8/16/32 Hz tone, each of 1 second duration sequencing through.

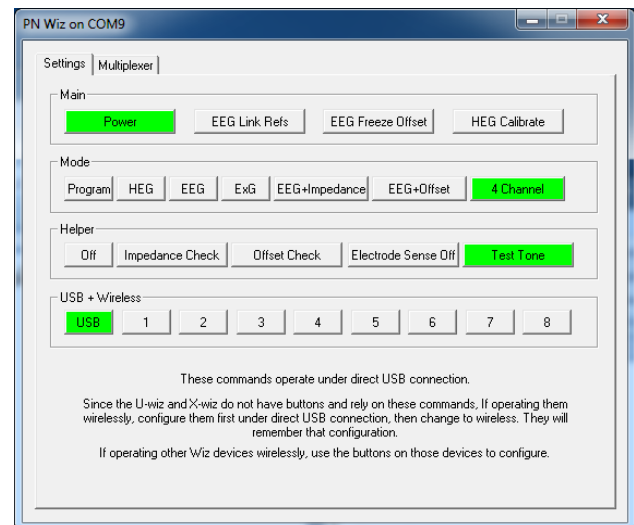
Use Pocket Neurobics design: [http://pocketneurobics.com/wp-content/uploads/2013/08/wiz\\_test\\_Mode4\\_EEG\\_4ch\\_plus\\_EIM\\_OFFSET.zip](http://pocketneurobics.com/wp-content/uploads/2013/08/wiz_test_Mode4_EEG_4ch_plus_EIM_OFFSET.zip). Download design from Pocket Neurobics. Save file and extract.

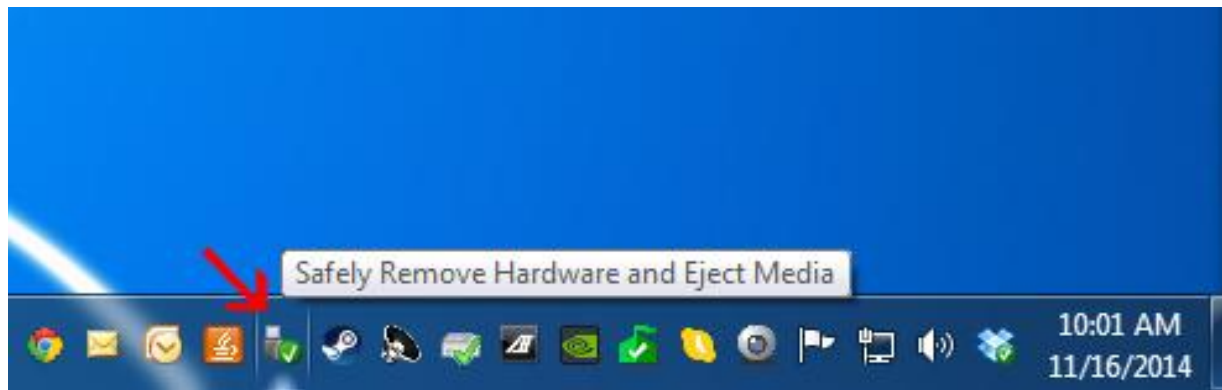
Test the Q-wiz with NO electrodes or HEG sensor attached.

Open the EEG design. With the Wiz connected, in the BioExplorer Wiz window, select Mode 4 and Test Tone.

In BioExplorer, click Capture. You should be able to see the test tone signal.

If the test shows the Wiz is





functioning properly and you are getting a flat line, particularly when switching from one computer to the next, try selecting "Safely Remove Hardware and Eject Media" from your computer's options at the bottom right before unplugging your device.

## Update firmware in the Wiz device (rare)

### Verify that you need the new version of firmware

With the Wiz connected in BioExplorer, in the Wiz window: Settings | Mode, click the **Program** button (all LED's on the unit turn off, BioExplorer shows *Connecting*).

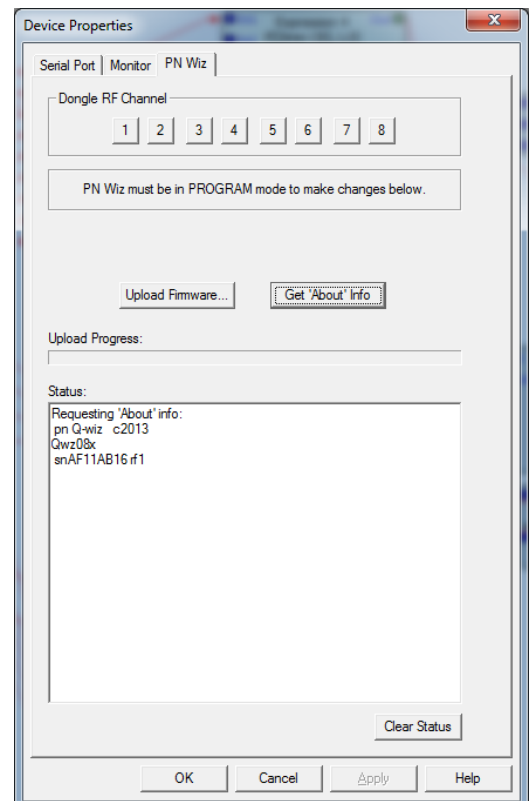
RIGHT-click the PN Wiz name in the status bar in BioExplorer and choose Properties.

Select the PN Wiz tab and click "About."

In the Status area, the version of firmware installed (e.g. Qwiz04x) and serial number of the unit will be shown. Verify that the update is a later version than the one currently installed.

### Update the unit's firmware if necessary

Download the text file that contains the update, saving it in a place where you will be able to find it (usually Downloads folder).



Wiz must be in Program Mode showing the PN Wiz tab in BioExplorer (see step above).

Click the **Upload Firmware** button and navigate to the text file you saved.

Click Open.

A series of numbers will pass on the window as the data is loaded into the unit. When the upload is complete, the word SUCCEEDED will appear.

Click OK to close the Properties window.

In the Wiz window: Settings | Mode click the mode button to be used for training.

## Support

For continued support with your training please join our YAHOO braintrainer group:

<https://groups.yahoo.com/neo/groups/braintrainer/info>

*Your Brain-Trainer purchase comes with free installation support. Please let us know if you need help with set up or getting started training.*