

Training: The Electro-Cap

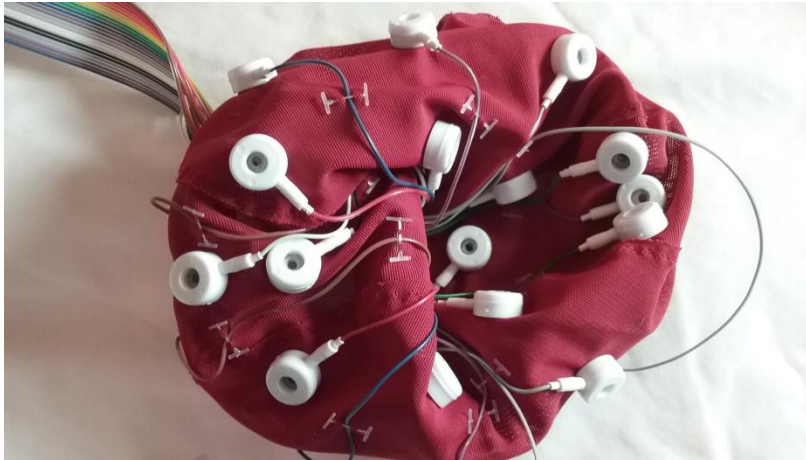
Pocket Neurobics Q-wiz

Contents

About the Electro-Cap.....	2
How to Use the Cap	4
Cleaning the Electro-Cap.....	4
Whole-Brain Training with the Electro-Cap	4
PN Wiz Window Controlling Cap Electrode details:.....	5
Understanding Default Settings	6
REFERENCES – To Link or Not to Link.....	7
Cap and Electrode Signal Troubleshooting:	9

About the Electro-Cap

Electrodes



Tin electrodes are fastened into the cap and their connecting wires are tacked into it with plastic fasteners. Leave these fasteners in place. The colored wires deliver the signal to the amplifier. Please be very cautious not to stress the wires and thus disrupt the signal flowing through them.

Ear Electrodes



Newer caps will use long, tin ear clip electrodes that clip on the ear and plug into the amplifier (e.g. A-, B-).

Older caps will have ear drop wires hanging down from the cap. Short ear drop clip electrodes can be plugged into them and connected to the ear lobes. When the ear drops are plugged into the cap ear drop wires, the signal will be sent from the ear lobes, through the cap ribbon wires to the amplifier as the reference signal (-). Colors do not matter.

Left ear clip- A1- is default reference for channels 1 and 3. Right ear clip- A2- is default reference for channels 2 and 4.



Connection



The wires from all the electrodes go from the cap to the connector end in a multicolored group. Leave these wires connected to reduce signal interference.

The connector end plugs into the amplifier. If it is not plugged in, the signal cannot get to your amplifier. If your amplifier does not have a cap connection, you will need an adaptor that will connect to the cap connector

and allow you to plug in single electrode wires to your amplifier as needed.

Quick Insert Electrodes



Quick Insert electrodes are provided so that when a site is required that is not accessible in the settings, the cap's default channel can be overridden. The wire is connected to the sensor on the cap and plugged into the amplifier for that channel (e.g. CH1+, CH2+).

Electro-Gel

Please use *Electro-Gel* and only *Electro-Gel* on the cap electrodes. (*NUPREP* IS NOT A CONDUCTANT; IT IS AN ABRASIVE AND WILL NOT WORK FOR THE CAP!). Gel conducts the signal from the scalp to the amplifier and must be used on all sensors used in a session.

Needle/Syringe Kit

The needle attaches to the syringe to draw the conductive gel into it to be applied to the cap's sensors through the holes.



How to Use the Cap



Please watch the video at this link before you begin:

Using the Electro-Cap: <https://youtu.be/hihgD2c8DnQ>

Cleaning the Electro-Cap



See this video to show how to clean your cap after each use:

Cleaning the Electro-Cap: <https://youtu.be/5wHM0Q10ZSg>

Whole-Brain Training with the Electro-Cap

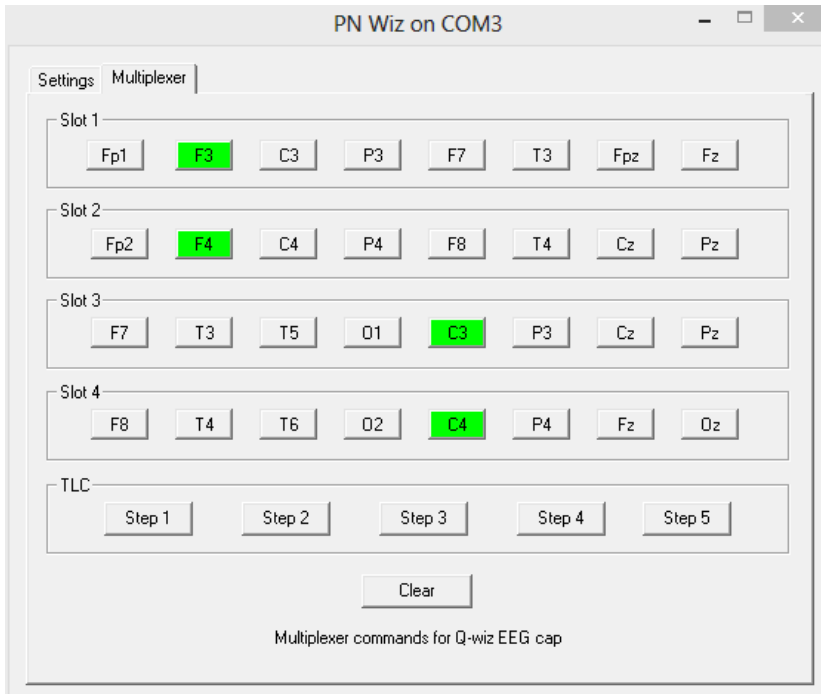


Before you begin your Whole-Brain Training plan, be sure you have seen the video showing how to use Quick Insert electrodes:

Electro-Cap Override: <https://youtu.be/xiHplZJ32b4>

PN Wiz Window Controlling Cap Electrode details:

All placements listed under the "Active" column in the Whole-Brain training plan need to be selected in the slots 1-4 in the PN Wiz multiplexer window in the order they are listed. If the actives are listed as "F3 F4 C3 C4" click on the slots in the order listed.



Think of each slot on the multiplexer as 1 plug on the Q-wiz then ask yourself "can I plug 2 leads into the same plug on the Q-wiz?" No! Select only one site per slot.



If a site is not listed, you will connect a Quick Insert electrode from the cap site to the channel port on the Q-wiz to override the cap (See "[Understanding default Settings](#)").

Understanding Default Settings

When recommended placements are not available in the slots of the Wiz Multiplexer window

CH1 and CH3 only have left sided (odd numbers) placements listed in the multiplexer tab in the PN Wiz window, and CH2 and CH4 only have right sided (even number) placements in the multiplexer tab. If the placements required in each channel do not meet the sites available in each slot then you will use a Quick Insert electrode for any channel needed as directed in the video below.



Overriding the cap: <https://youtu.be/xiHplZJ32b4>

The references are listed under the "Reference" column in the *Whole-Brain training plan*. In some training the Reference column suggests A1 A2 (ear lobes). A1 (ear) for CH1 and CH3 and A2 (right) for CH2 and CH 4.

If A1 and A2 are not listed as references then you will use a Quick Insert (QI) electrode and plug it into the 1- or 2- on the Q-wiz. Make sure that any ear clips **not** indicated as references under the Reference column are actually UNPLUGGED from the cap completely so they are not dangling to pick up frequencies from the room.

The ground is ALWAYS to be used and gelled. It is at AFZ by default (the top of the "triangle" on the forehead, above Fp1 and Fp2).). If using a Quick Insert electrode for the ground, it can be at any site on the cap as long as you plug it into the green ground plug on the Q-wiz.



REFERENCES – To Link or Not to Link

(L) = use EEG Link Refs

(C) = use EEG Link Refs

A2 = use EEG Link Refs

(I) = DO NOT

Other single site references = DO NOT

Indicators under the reference column: L, C, and I

L means Linked : Linked references are linked, where the two references are plugged into the two reference inputs and Linking is turned ON so they are averaged to give the same signal for both references.

C means Common: Common references are where both actives use the SAME single reference. Common reference uses LINKED on the Q-wiz. For example, C3 P3 C (A1). Both sites are using A1 as their reference. By connecting, you can plug a single electrode into either reference plug, and it will serve for both channels.

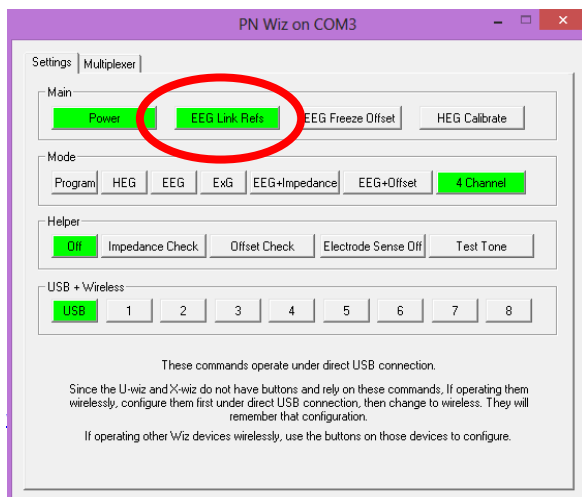
I means Independent: Independent references are NOT linked, where each active electrode is measured in relation to its own reference. A classic example of this C3 C4 I(A1 A2) FRE2C Beta/SMR training: C3 references to A1 and C4 references to A2.

If you are using a 1 channel protocol and A2 is the reference then you will need to Link the references because otherwise A2 will not be detected in CH1 since the default is A1.

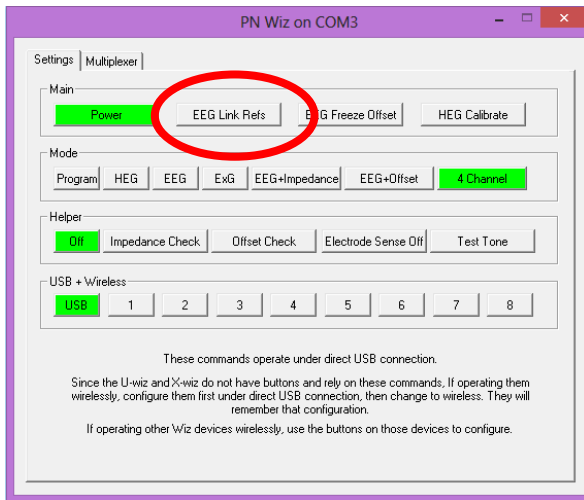
Q-wiz

When linking the references you can choose to press the EEG Link reference button on the settings tab in the PN wiz window OR press the LINK button on the Q-wiz itself under the Green (ground) electrode plug.

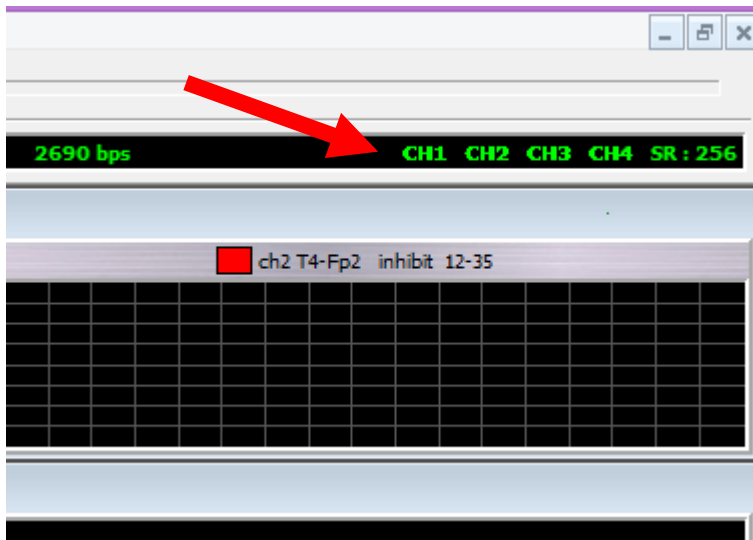
Linked:



Unlinked:



Make sure all channel indicators for the channels you are using are solid green and not blinking red (in the top right corner of your BioExplorer black status bar).



Cap and Electrode Signal Troubleshooting:

- Re-gel certain locations. Pay special attention to the ground and reference locations.
- Make sure your computer plug has 3 prongs. If not, run it on battery during sessions.
- Make sure there are no power strips next the computer and that you are not sitting close to a wall with an outlet.
- Make sure the rainbow cord from the cap is not touching other wires or anything metal around the room, like metal on the chair.
- Place the amplifier on your lap.
- Using Nuprep on the ear lobes before adding gelled ear clips can help.
- Make sure all sites are connecting to the scalp. Try pulling the cap down as low as possible to make flush connections.
- Use a sponge disc under areas that seem like there is less contact. Sometimes those areas can be Oz, Cz, Pz, T3 T4 ,F7 F8.