QUICK START SMART SYSTEM INSTALLATION MANUAL

This document outlines the steps to operate the NeuroLux optogenetic system. These instructions serve to quickly set up or give an overview of the set-up process. To **initially install the system,** and for **detailed instructions** and **safety information**, please refer to the *NeuroLux Smart System Installation Manual*.

GENERAL GUIDELINE FOR USAGE

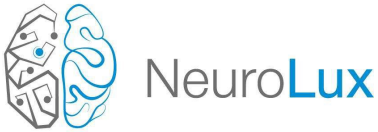Please follow these guidelines to make sure that the system and its components do not get damaged.

- The antenna should be properly tuned before the experiment is started. Failing to do so may damage the PDC Box.
- The PDC Box must be switched on **only after** all the cables are connected.
- Once the PDC Box is switched off, USB B to A cable from Port A must be disconnected from the Box when not in use.
- The SMA Cable should have **NO CIRCULAR LOOPS**.
- The USB B to A cables should not cross over with the SMA cables.
- Please check pre-wired ferrite rings on both SMA cable and USB cables.

SYSTEM INSTALLATION

The following schematic illustration is the recommended setup.
Complete NeuroLux Optogenetic System Setup:

Power Distribution Control Box

Laptop with NeuroLux Software

Antenna Tuner Box
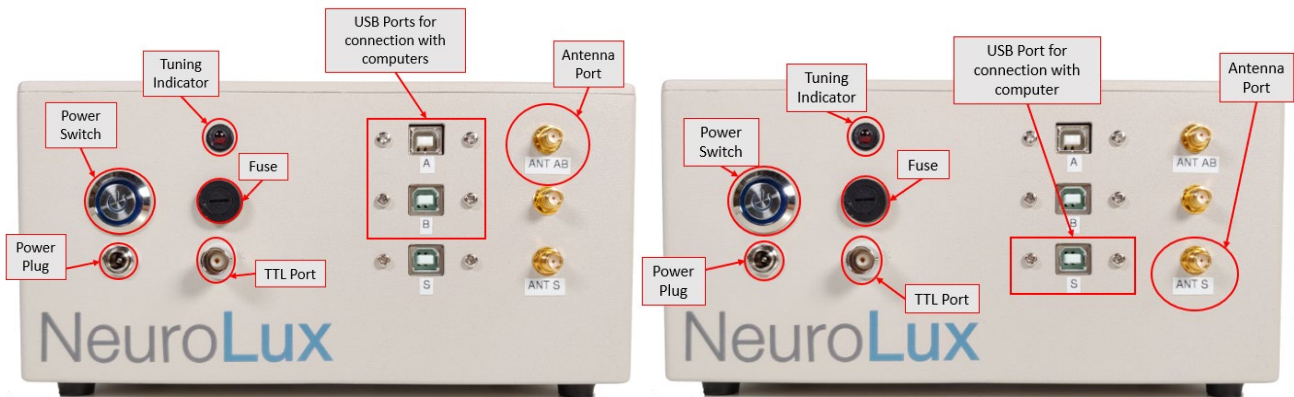
STEP 1: OPEN LAPTOP TO REFER TO USER MANUALS

Open the provided laptop. Switch it on and log into the NeuroLux account using the password on the laptop.

STEP 2: INSTALLING THE ANTENNA FOR YOUR CAGE

Please make sure that the antenna is installed according to the antenna wiring tutorial videos.

STEP 3: CONNECTING THE PDC BOX

PDC Box connections will vary depending on the type of device that will be used. Use the **LEFT** figure below for reference if you need to set up passive (AB) connections, and the **RIGHT** figure if you need to set up active (S) connections.

STEP 4: ANTENNA TUNING

Please start tuning once your experiment set up is complete. Any changes in the surrounding environment will affect your tuning, thus tune once everything is set up. The antenna MUST be tuned BEFORE running an experiment. Note that the autotuner will **automatically turn off after around 90 seconds of use**. This is to save the battery life and to prevent the tuner from being on for too long. If the tuner is automatically turned off during your tuning process, please just turn the tuner back on and continue your tuning process.

1. Center the knobs and turn on the indicator switch located on the bottom back of the autotuner. Two blue indicator LEDs above the knobs will light up.
2. Turn on the PDC box and laptop. Only turn on the PDC box when everything is plugged in.
3. Open the NeuroLux application found on the desktop. Click on "Refresh Port Options" and "Select Port," choose a COM port from the dropdown menu. Click on "Verify Connection" and Port A and Port B should change from *Disconnected* to *Connected*.
4. Set duty cycle to 100%, power to Low, frequency to 10 Hz, and make sure Burst Mode and TTL mode are turned OFF. Click "Submit" to send the parameters through. The parameters will be successfully sent through when "Antenna: Disconnected" changes to "Antenna: Loaded."
5. Now, the autotuner's red indicator LEDs above the knobs will light up if it is not tuned. Turn both knobs at the same time to tune until both blue LED indicators turn on. Repeat the tuning process at 2 W and all 1 W increments after that up to your desired power of 6-8 W.

For any concerns or questions, please contact NeuroLux Support at support@neurolux.org.

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