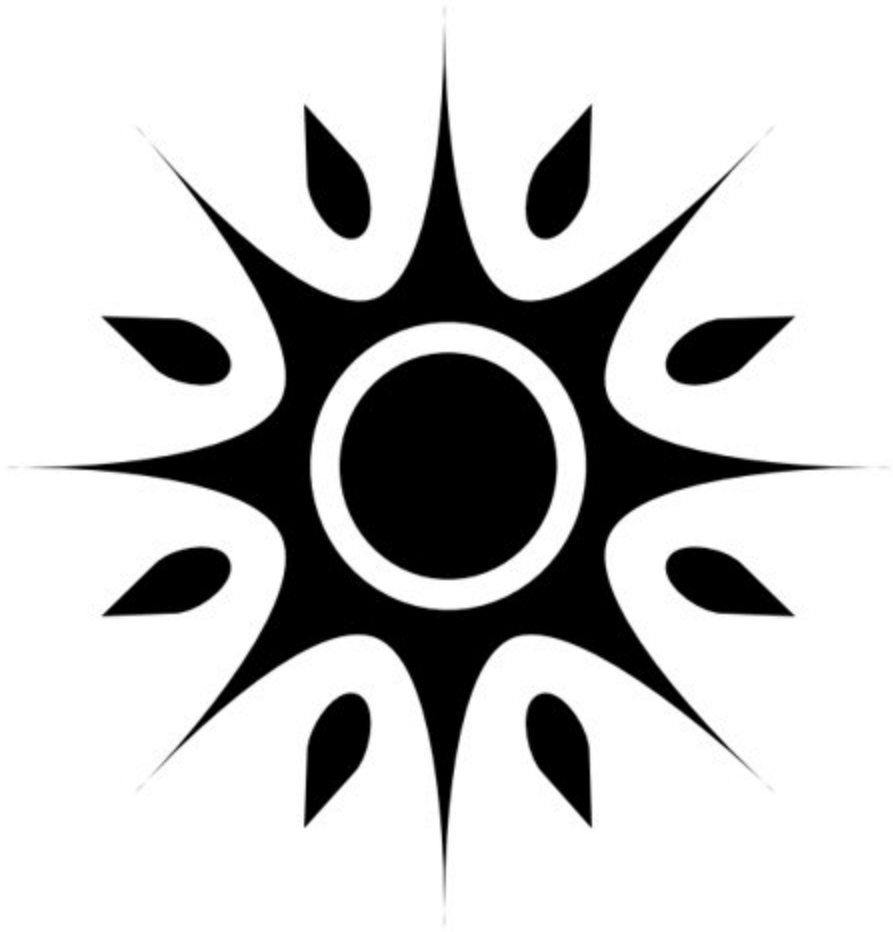

SPECTRYX BLUE SPECTROMETER
USER GUIDE

October 2024

SPECTRYX BLUE SPECTROMETER
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Thanks for choosing the Spectryx Blue Spectrometer! We're thrilled to bring you this awesome little gadget, and we hope you have as much fun using it as we had creating it. Our mission? To share the magic of optics with anyone who's curious enough to dive in! Traditional spectrometers can be big, bulky, and only found in high-end physics labs. But with Spectryx Blue, you're now holding the power of light experimentation in a compact, budget-friendly package—right in the palm of your hand!

Bluetooth Pairing Setup for Spectryx Blue

Follow these steps to connect your Spectryx Blue Spectrometer to your smartphone via Bluetooth:

1. **Power Up Your Spectrometer**
   Connect your Spectryx Blue to a power source using a USB cable. This could be your laptop or a wall plug – the connection is just to power it up.
2. **Access Bluetooth Settings**
   On your smartphone, open the Bluetooth settings.
3. **Find Spectryx Blue**
   Look for "SpectryxBTC" in the list of discovered Bluetooth devices.
4. **Pair the Device**
   Select "SpectryxBTC" from the list and choose to connect.
5. **Open the Spectryx Blue App**
   Once the pairing is successful, launch the Spectryx Blue app on your smartphone.
6. **Select Your Device**
   In the app, choose "Spectryx Blue" from the device list.
7. **Wait for Connection**
   Give it around 20-30 seconds for the device and app to fully sync.
8. **Start Real-Time Spectra**
   Once synced, hit the play button to begin viewing real-time spectra!

Q&A and Troubleshooting

Q: Why isn't my Spectryx Blue spectrometer showing up in the Bluetooth device list?

A:

- Ensure that your Spectryx Blue is powered on and connected to a USB power source.
- Check if your smartphone's Bluetooth is enabled and in pairing mode.
- Move closer to the spectrometer. Sometimes, Bluetooth range can affect visibility.
- If it still doesn't show, try restarting both your smartphone and the Spectryx Blue spectrometer.

Q: The Spectryx Blue app is not recognizing the device after pairing. What should I do?

A:

- First, ensure your device is paired correctly by checking your Bluetooth settings.
- Close and reopen the Spectryx Blue app to refresh the device list.
- Try unpairing and then repairing the device through Bluetooth settings.
- Make sure the Spectryx Blue app is up-to-date.

Q: What should I do if the real-time spectra is not displaying?

A:

- Double-check that the Spectryx Blue is correctly paired and selected in the app.
- Wait a few extra seconds – sometimes it can take a bit longer to sync.
- Try hitting the "play" button again or restarting the app.
- Ensure your spectrometer has sufficient power by connecting it to a reliable USB power source.

Q: How do I reset the Spectryx Blue spectrometer if it's not responding?

A:

- Simply disconnect the USB power for 10 seconds, then reconnect it.
- Try unpairing the device from your smartphone's Bluetooth settings and then go through the pairing process again.

Q: Can I use my Spectryx Blue spectrometer with multiple smartphones?
A:

- Yes! However, make sure the Spectryx Blue is only connected to one device at a time. Unpair from the current device before pairing with another smartphone.

Q: Does the fiber optic input have a cover that is supposed to be removed? I don't want to pull too hard on it.
A: The fiber optic input does not have a cover on it, so no need to worry about pulling on it too hard.

Q: I tried running SpectryxBlueViewer.py on my Ubuntu 22.04 desktop, but I wasn't able to obtain spectra. The script displayed /dev/ttypringk and /dev/ttyS0 for the available COM ports, but neither seem to be for the Spectryx. When I plug in the Spectryx, a device file /dev/bus/usb/007/031 is created. I modified the script to use that device, but got an error saying "Inappropriate ioctl for device".
A: We haven't specifically tested with Ubuntu, but the Python script works well on Windows. You may want to try running it in a Windows environment or continue experimenting with alternative device settings.

Q: Can I power the Spectryx Blue directly from my smartphone?
A: Yes, but you may need to enable OTG (On-The-Go) on your smartphone. For instance, OTG is enabled by default on Google Pixel phones. If you share your smartphone model, we can assist you with enabling OTG if necessary.

Q: How is the Spectryx Blue calibrated?
A: The Spectryx Blue is calibrated using sharp spectral lines from 400 nm to 840 nm. It is designed to provide accuracy within a few nanometers across this range. At 810 nm, you can expect the calibration to be accurate to within 2 nm.

Q: Can you provide tips for using Spectryx Blue with Python?
A: Here are a few pointers:

- When using Fedora 40, the device file /dev/ttyUSB0 was created after connecting the Spectryx Blue.

- Installing numpy, matplotlib, and pyserial allowed the script to successfully display spectra.
- Note: Installing the Python package serial won't work; you need to install pyserial.

Q: Any example measurements using the Spectryx Blue?

A: One of our users tested a CFL bulb and confirmed the Spectryx's accuracy to within a few nanometers. For example:

- The Spectryx measured a peak at 406.3 nm, close to the expected Hg peak at 405.4 nm.
- Another peak was measured at 709.8 nm, close to the doublet peaks at 707 nm and 709 nm.

Given this, the Spectryx is expected to maintain 2 nm accuracy from 405 nm to 709 nm and should be similarly accurate at 810 nm.

Q: Do you have an executable graphical user interface (GUI) for Mac?

A: Unfortunately, we don't yet have a GUI for Mac. However, you can still operate the Spectryx Blue using Python. An example script for using Python is included on the provided USB thumb drive, and we are actively working on a Mac-compatible GUI.

General Troubleshooting Tips:

- **Connection Issues?**

Always double-check that Bluetooth is enabled, and both devices are within range.

- **App Not Responding?**

Ensure the app is updated to the latest version, and try force-closing and reopening it.

- **Spectrometer Not Turning On?**

Verify that your USB power source is working and securely connected.