

Siena Spectrometer Quick Start Guide

Version 1.0 - 13 February 2024



This Quick Start Guide describes the steps required to make the first simple measurements with your spectrometer. For more sophisticated features please see the user manual, which is included on the USB flash drive and available on our website.

Package Contents

The retail package of the spectrometer includes:

- Siena spectrometer
- USB cable
- USB flash drive with software and documentation
- Quick start guide
- Calibration and test report

Software Installation

The application software Inspective requires Windows 7 or later. Simply run InspectiveSetup.msi to install the software and device drivers on your computer. The software is free of charge and does not require a license.

You can run the application from the Start Menu. Once it's running, you can pin it to the taskbar by right-clicking on its application icon.

Inspective requires the ".NET Desktop Runtime" by Microsoft to be installed. It's quite likely that you already have it on your system. However, if you get a message saying that the runtime is missing, please follow the link to download it or alternatively install it from the USB flash drive. Please note that you need the "Desktop" version of the runtime. The ".NET Runtime" (without "Desktop") or the "ASP .NET Core Runtime" are not sufficient.

Connecting Your Spectrometer

Use a USB cable to connect the Siena spectrometer to your PC. Use the supplied cable if you have a traditional USB Type-A port on your computer. For the new USB Type-C port you need a cable with Type-C connectors on both ends (not included).

Upon connecting the device both LEDs should turn on for a brief moment and then the red LED should go off. Otherwise please see the Troubleshooting section below.

Optical connection

To couple the light into the spectrometer, you can use a standard fiber optical cable with SMA connectors or directly focus the light onto the entrance slit.

For simple measurements that don't require precision you can also just point the spectrometer towards the light source. For example, for a first test you may point the device at a tungsten lamp or the sky.

Troubleshooting

- **Both LEDs remain off:** The device does not get any electrical power. Please check the USB connection. Try a different cable or a different computer. If you're using a USB hub, try connecting the device directly to the computer.

- **Both LEDs remain on:** The device is not properly recognized by the operating system. Please ensure you have the software installed. Check the driver status in the Windows Device Manager. It may also be a problem with the electrical connection, therefore please also try a different cable or a different computer.
- **Green LED is flashing:** This indicates an internal error. Please contact technical support (see below).
- **Green LED is off and red LED is flashing:** The supply voltage is too low. Please check the USB cable. Try a different cable or a different computer. If you're using a USB hub, try connecting the device directly to the computer.
- **Green LED is on, red LED is off, but the software cannot find the device:** It may take several seconds for the driver to be installed, so please wait and try again. If unsuccessful, please try disconnecting and reconnecting the device. You may use the Device Manager in Windows to check the status of the driver installation.
- **The application software does not start:** This seems to be a bug in the .NET Desktop Runtime version 6.0.0 and 6.0.1. To check which version is installed you can run "dotnet --info" from the command prompt. If you have one of these versions, please install an later version of the runtime (see Software Installation).

For further assistance please contact Technical Support (see below).

First Measurements

Start the application software by choosing "Inspective" from the Start Menu. Once it's running, you can pin it to the taskbar by right-clicking on its application icon. Press F1 for a short description of the main window.

To open the connection to the device, click on the "Open Device" button (showing a plug and a green Plus sign). If no device can be found, a "Simulated Spectrometer" is opened instead, which allows you to try out the software without an actual device.

When the connection is established, select „Auto" and click on the green triangle button to take a spectrum. Change the „Auto exp. time" value to obtain spectra faster or with less noise. You can also set the exposure parameters manually. Click the "Run Continuously" button for repeated measurements.

The "Intensity" selection box lets you choose which quantity to display on the y axis of the spectrum.

The image sensor inside your Siena spectrometer offers two different gain settings. You can select one of them in the upper right corner of the main window. Use "low gain" if you have stronger light sources or for general measurements. Select "high gain" to measure weak signals.

List Of Spectra

When you take a new spectrum, the previous measurement is generally overwritten. If a spectrum looks good and you would like to keep it, click on the "Keep current spectrum" button (showing a pushpin). When you then take another spectrum afterwards, instead of overwriting the previous measurement a new spectrum is added to the list. You can also select "Keep all new spectra" to keep every new measurement.

You can select one or more spectra in the list by clicking on them. If one spectrum is selected, you can see further information about its properties in the panel below.

In the list of spectra there is also a check box next to each spectrum name. By placing a check mark here you can select which spectra should be displayed in the spectrum diagram. If no check mark is placed, the selected spectra are displayed.

When you save the measured data to a file, all spectra in the list are written to a single file. The file format ".spz" is a simple ASCII table that can easily be imported to Excel or any numerical evaluation software.

Inspective features Undo and Redo for all changes to the list of spectra. This also means that if you take a new spectrum and overwrite the previous one, the old spectrum is still available in the Undo buffer. So you can keep on taking and overwriting spectra, and if you then decide that you would like to go back to an earlier measurement, you can simply keep Ctrl-Z pressed to travel back in time.

Diagram Window

Zooming into the displayed spectrum and moving around can be easily done with the mouse. This is similar to using a touch screen, but with the mouse you have only one pointer, therefore a few modifier keys are also required.

- To zoom in on the x axis simply use the mouse wheel.
- To zoom in on both axes press the Shift key and use the mouse wheel.
- To move around, click on a spectrum in the diagram, keep the button down and move the mouse.
- Alternatively, you can also click and drag the axis labels.
- To shift the y axis (instead of scaling it), keep the Shift key pressed while clicking.
- To move out, place a check mark at "Auto scale".

Software Development Kit

The Software Development Kit (SDK) contains documentation, sample code and device drivers to control devices by Avenir Photonics from your own software.

Technical Support

If you have any questions or comments, please check our website at:

<https://www.avenirphotonics.com/support/>

If this does not answer or resolve it, please contact us at:

support@avenirphotonics.com

Software updates are usually released several times per year. You can find the latest download on our website.

We appreciate any comments, bug reports or feature requests, so don't hesitate to share your experiences and requirements with us.

Changing the entrance slit

The entrance slit of the Siena spectrometer can easily be exchanged by the user. Use a hex key to loose the headless screw below the optical interface. Then carefully remove SMA connector with the entrance slit at its back. When reinserting another SMA connector, make sure that the semi-circle markings on both parts line up. Then fasten the headless screw again. If the screw does not go all the way in, check the position and angle of the SMA connector.