



## eQCM 15M™ electrochemical quartz crystal microbalance

# QUICK-START GUIDE



## Gamry Resonator™ Overview

### 1 Finding the resonant frequencies

The following example is for an eQCM cell using a 5 MHz quartz. It is assumed that an eQCM 15M and potentiostat are connected:

- 1) Open the Resonator™ software and go to the **QCM** tab.
- 2) Choose a measurement mode: Select **Solution Mode** if your quartz is immersed into a solution or **Air Mode** if the quartz crystal is in the open air.
- 3) Enter the **Center Frequency** value (in this example 5 MHz) of your quartz crystal. Click **Single Scan**.
- 4) If you do not see an S-shaped spectrum in Solution Mode, increase the frequency window and press **Single Scan** again. Air mode only requires a sweep though half of the spectrum.
- 5) After you find the appropriate window, drag both green cursors closer to  $f_s$  and/or  $f_p$ . Press **Start** to begin continuous data acquisition.
- 6) Save all your data acquired for stand-alone QCM experiments using the disc icon or by clicking Save under the file menu.

### 2 Set up your potentiostat

- 1) Click on the **Potentiostat** tab if you are performing EQCM experiments. Within this window, you can set all your electrochemical setup parameters.
- 2) Press **Start** to begin the EQCM experiment. Both potentiostat and eQCM will start with their measurements.
- 3) Any QCM data acquired during an EQCM experiment are automatically saved with your electrochemical data in your data file.

### Additional Information

Please visit our service and support page if you require additional support. This page contains information on installation, software updates, and training. It also contains links to the latest available documentation.

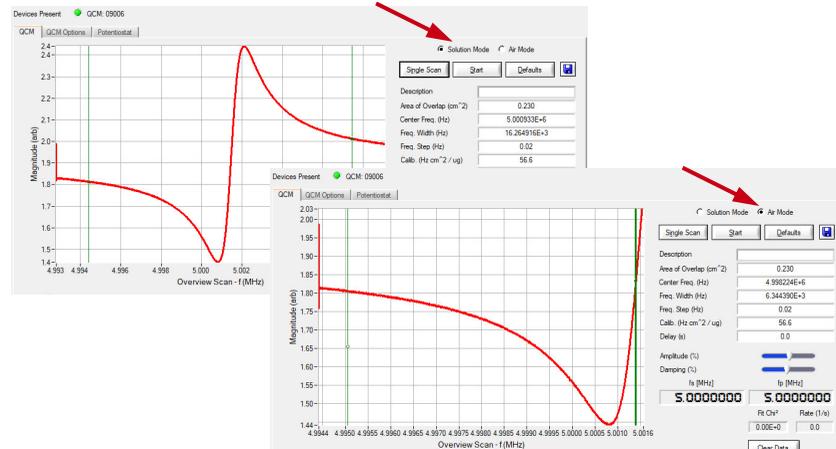


The QR code on the right provides a direct link to the eQCM 15M website and all its documentation.



Contact your local Gamry representative or email Gamry's tech support if you experience any problems.

Phone: +1 215-682-9330  
Web: [www.gamry.com](http://www.gamry.com)  
Email: [techsupport@gamry.com](mailto:techsupport@gamry.com)



## Hardware Installation and Configuration

### 1 Connect your eQCM 15M

On the rear side of your eQCM 15M is a USB-C connector which serves two purposes. It is used as power input for your eQCM 15M as well as for all data transfer between eQCM 15M and your computer.

Your system comes with a USB-C (M) to USB-C (M) cable (Gamry P/N 985-00234). Connect one end to the **USB** input on the rear side of your eQCM 15M and the other end to your computer.



In case your computer does not have a USB-C input, an additional USB-C (M) to USB-A (M) cable (Gamry P/N 985-00235) is provided. Connect the USB-A end to a USB-3.0 input on your computer that provides at least 0.9 A/4.5 W power.

If no USB-3.0 input is available, use the provided powered USB-hub (Gamry P/N 950-00101). It comes with a universal power adapter.

### 2 Install the Gamry Framework™ and Gamry Resonator™ software

Gamry Instruments' Framework and Resonator software is only available via download on Gamry's website. The latest software version can be found here:

<https://www.gamry.com/support-2/software-updates-3/>

**Note:** Verify that the Resonator software is added to the list of programs that are installed.

### 3 Connect the BNC cable to your eQCM 15M

Your eQCM system is shipped with a standard, shielded **BNC cable** terminated with a ceramic adapter (P/N 985-00124).

Attach the male end of the cable to the **Quartz** connector on the front panel of your eQCM 15M. The other end of the BNC cable connects to the quartz connector of your eQCM cell.



### 4 Connect your potentiostat

Your eQCM 15M has two 2 mm banana connectors on the front side which can be connected to a potentiostat. This allows you to perform EQCM experiments, with the quartz crystal serving as working electrode.

Plug in the green **working electrode lead** of your potentiostat's cell cable to the **W.E.** connector on the eQCM front side. Connect the cell cable's blue **working sense lead** to the **W.S.** connector.

**Note:** It is recommended install and calibrate your potentiostat before connecting it to your eQCM 15M and running any EQCM experiments. Please refer to the potentiostat Operator's Manual for detailed information.

### 5 Turn on your eQCM 15M and check connectivity

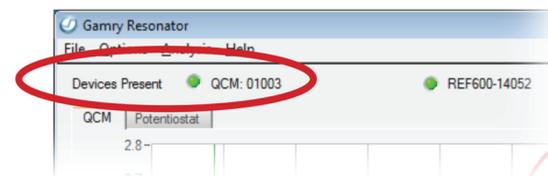
Switch on your eQCM 15M by pressing the **Power** button on the front side. The blue **Power LED** should turn on and stay lit.

After your eQCM is detected by your computer, the **USB LED** should stay green. Please refer to the eQCM 15M Operator's Manual for detailed information on the various USB LED states.



### 6 Open the Gamry Resonator™ software

Verify that your eQCM 15M is listed on the device bar at the top. It shows the instrument's name including its five-digit serial number. The device bar also lists any potentiostat that is connected to your computer.



The green indicator indicates successful connection, your device is ready to use. Please refer to the eQCM 15M Operator's Manual for detailed information on the various indicator states.