

Before You Begin Using Your LeCroy SPARQ

Prior to powering up your SPARQ, please refer to the following instructions for the SPARQ software installation and SPARQ system operation, including cable connections and cable de-embedding instructions. This information is also included in the SPARQ Operator's Manual, which can be downloaded from the Tech Library on the LeCroy website, or copied from the USB memory stick included with your SPARQ in the accessories case.

Installing SPARQ Software

Finding the Installers

The installers for the SPARQ application are delivered along with your SPARQ on a **USB memory key** that is included in the Accessories Case. LeCroy regularly releases software upgrades that may include additional features and fixes. The latest revision of the SPARQ software is downloadable from the LeCroy website at www.lecroy.com.

Note: Before installing software and drivers, be sure to review the **SPARQ System Requirements** (on page 6) topic.

Selecting an Installer

Installers can be found from the LeCroy homepage by clicking the **Support** menubar, and selecting **Software Downloads**.

There are two versions of the SPARQ installer available; one for **32-bit** (x86) Windows and another for **64-bit** Windows operating systems.

- **SPARQInstaller.exe:** Use this installer for 32-bit (x86) operating systems, including Windows XP, Windows Vista and Windows 7.
- **SPARQInstaller64.exe:** Use this installer for Windows Vista x64 and Windows7 x64 operating systems.



Do not run SPARQInstaller.exe or SPARQInstaller64.exe on LeCroy Oscilloscopes. Doing so can cause both SPARQ and oscilloscope applications to malfunction. Topics later in this manual cover how to select an installer and configure a version of the SPARQ application for use on a LeCroy oscilloscope.

Software Installation

Follow these instructions when installing the SPARQ application on typical PCs.

Note: Do not install **SPARQInstaller.exe** or **SPARQInstaller64.exe** on LeCroy oscilloscopes. Operating the SPARQ from a LeCroy oscilloscope will be supported at a future date.

Connect the SPARQ to your PC using a USB cable and power-up the SPARQ using the on/off switch on the back of the unit.

- Depending on your version and configuration of Windows, you may be prompted to **Scan and fix the volume SPARQ_CAL (X:)**. Close this window, or click **Continue without scanning**.
- Depending on your version and configuration of Windows, you may also see a window titled **Autoplay**. Close this window.

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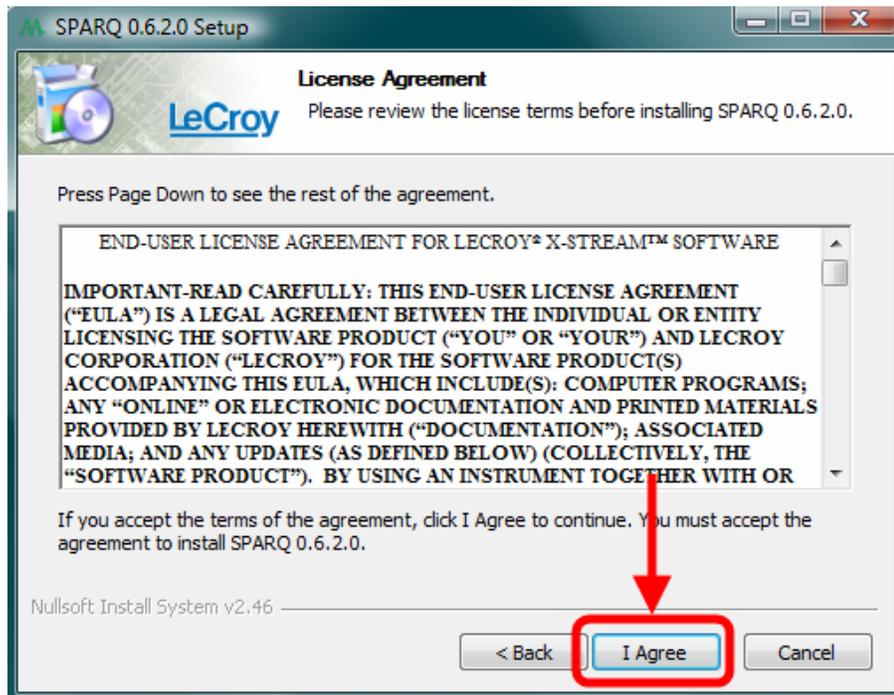
Note: The SPARQ memory card is configured as read-only.

Now, run the installer by double-clicking on the installation file (**SPARQInstaller.exe** or **SPARQInstaller64.exe**) either downloaded from www.lecroy.com or by selecting the appropriate installer included with the SPARQ.

The **SPARQ Setup Wizard** is shown after the installer unpacks and steps you through the installation process. Click the **Next** button to continue.



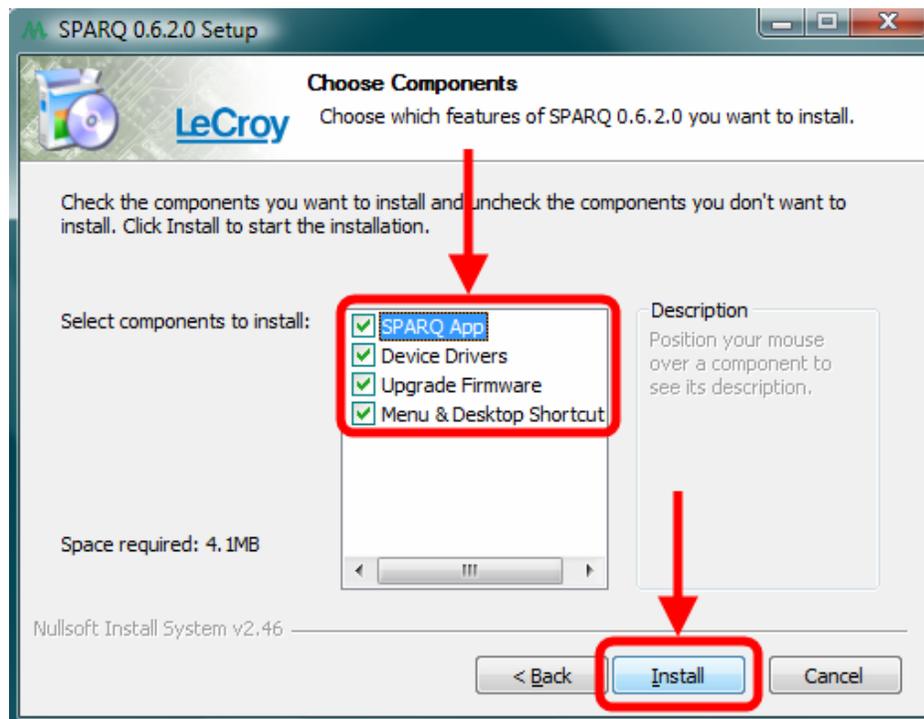
The **License Agreement** screen is then shown. Accept the terms of the agreement and click the **I Agree** button to proceed with the installation.



The Choose Components screen is shown. Mark the checkboxes for the desired components (described as follows) for your installation.

- **SPARQ App** - Select to install the main SPARQ application and required files.
- **Device Drivers** - Select to install the USB device drivers required for the PC to communicate with the SPARQ. Two drivers are installed, and can be found in the Device Manager utility on your PC. If prompted by Windows whether to allow driver installation to proceed, always select the option that will continue with the installation.
- **Upgrade Firmware** - Selecting enable the installer to determine whether the microcode used in the SPARQ requires upgrading. If the installer includes a newer version of the microcode, the **Hardware Programmer** screen (as follows) is shown.
- **Menu & Desktop Shortcut** - Select to have the installer add a SPARQ folder to the LeCroy section of your Start Menu programs and place a SPARQ shortcut on your desktop.

With your selections made, click the **Install** button to proceed.

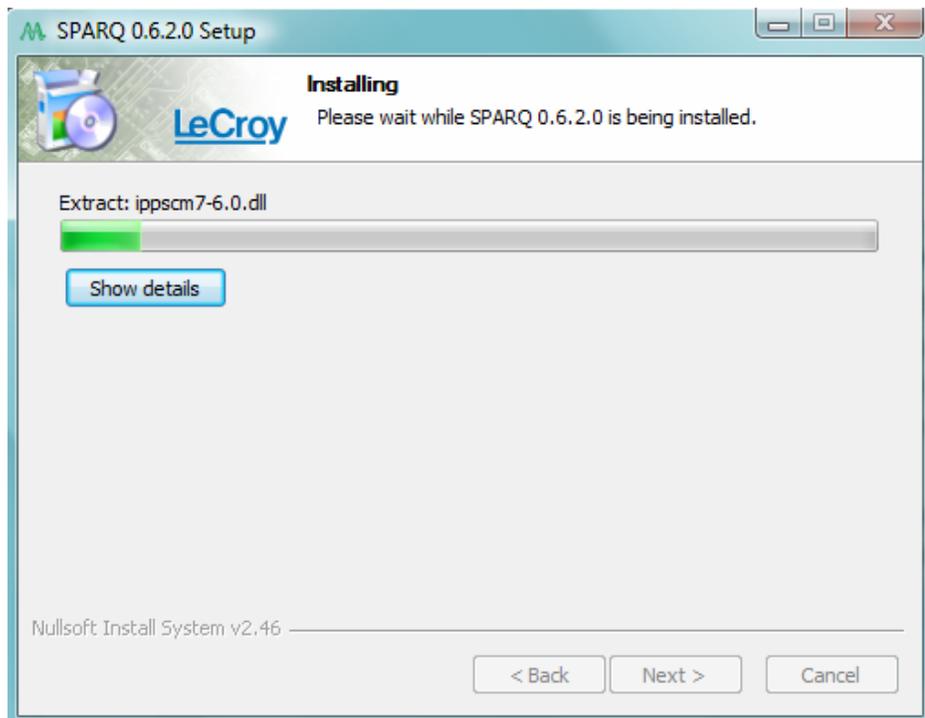


Hardware Programmer Screen - If the **Upgrade Firmware** checkbox was marked prior to clicking the **Install** button, and if the installer includes a newer version of microcode than currently installed in the SPARQ, the **Hardware Programmer** screen is shown. This is a separate window from the SPARQ Installation Wizard. The microcode upgrade will proceed automatically, and a progress box is shown indicating the status of the upgrade.

Note: Never power down the SPARQ or your PC during the microcode installation process.

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Whether or not the **Hardware Programmer** screen is shown, the **Installing** screen continues and progress bar indicates the status of the installation.



When the installation finishes, the **Installing** screen closes and the **Completing the SPARQ Setup Wizard** screen is shown.

Choose the **Reboot now** option and click the **Finish** button to complete your SPARQ installation.



SPARQ System Operation

Power-Up Sequence

This manual makes reference to your complete SPARQ system, which is comprised of the following components:

- Your SPARQ unit.
- Your PC with the SPARQ application correctly installed.
- The USB cable connecting your SPARQ unit and your PC.

For proper operation, initialize your system components in the following order:

1. Start your PC normally.
2. Connect your SPARQ to your PC using the USB cable provided.
3. Power-up your SPARQ unit.
4. Now, wait approximately 10 seconds until Windows detects your SPARQ and loads the necessary device drivers.

Note: Depending on your Windows operating system, you may be prompted to **Scan and fix SPARQ_CAL (D:)**. If so, click **Continue without scanning**. Other operating systems may show an **AutoPlay** window, which should just be closed.

5. Now, launch the SPARQ application on your PC.

SPARQ Application Operational Notes

1. The SPARQ application expects the SPARQ hardware unit to be powered up and the required device drivers to be present on your PC. Device drivers typically load promptly after the SPARQ is turned on, or when a running SPARQ is connected to your PC. However, load times vary. Should the application show a **No HW detected** message, it's likely that the drivers did not finish loading before launching the application.
2. Leave the USB cable connected while operating the SPARQ application. The application does not re-connect to the SPARQ if the cable is disconnected and reconnected.
3. Similarly, leave the SPARQ unit powered up while running the SPARQ application on your PC. If the SPARQ unit is rebooted while the PC application is running, it is recommended to exit the application, power down the SPARQ, and bring the system up as per the instructions as explained in the **Power-Up Sequence** topic.
4. **Hibernate** and **Sleep** modes are not supported; the SPARQ PC application loses communication with the SPARQ unit when the PC sleeps or hibernates. If your PC Hibernates or Sleeps, restart your system by exiting the application, powering down the SPARQ, and bringing the system up as per the instructions as explained in the **Power-Up Sequence** topic (previous).

Connecting the SPARQ Cables

When connecting the SPARQ cables to the SPARQ and to your DUT, match the color bands on the cables to the color bands on the SPARQ connectors. This will help ensure that the cables are attached in the correct orientation. The end of the cable without the color band should connect to your DUT. When attaching the cables, avoid rotating the center pin of the cable when in contact with the SPARQ connector, and use the supplied torque wrench for best results. Always use the supplied anti-static strap to avoid ESD.

De-embedding the SPARQ Cables (“E” model SPARQs)

The SPARQ contains an SD memory card with the S2P files for the included cables which are automatically copied to your PC when you run the SPARQ application. The Instrument Setup Dialog includes entry boxes for selecting S2P files for cable de-embedding; confirm that the S2P files are loaded into these text boxes. Go to

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SPARQ Setup → Instrument Setup to open this dialog. To de-embed the cables, make sure the **De-embed Cables** checkbox is checked.

SPARQ System Requirements

Minimum recommended PC specifications for running the SPARQ application include the following:

- **Operating System** - Running **32-Bit Windows XP with SP2**, or **32** or **64-Bit versions of Windows Vista** or **7**.
- **Processor** - An **Intel Core 2 Duo, 2.4GHz (or more)**.
- **RAM** - At least **2 GB of RAM (or more)**.
- **HDD Space** - At least **150 MB (or more)** of free HDD space.
- **Display** - Minimum **1280 x 780** pixels
- **Connectivity** - USB2.0 High-speed

Note: If running SPARQ from a compatible LeCroy oscilloscope, your instrument firmware must be at least **version 6.0.1.x or higher**.



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Safety Requirements

This section contains information and warnings that must be observed to keep the instrument operating in a correct and safe condition. You are required to follow generally accepted safety procedures in addition to the safety precautions specified in this section.

Safety Symbols

Where the following symbols appear on the instrument's front or rear panels, or in this manual, they alert you to important safety considerations.



This symbol is used where caution is required. Refer to the accompanying information or documents in order to protect against personal injury or damage to the instrument.



This symbol warns of a potential risk of shock hazard.



This symbol is used to denote the measurement ground connection.



This symbol is used to denote a frame or chassis connection.



This symbol is used to denote a safety ground connection.



On (Power). This symbol is marked next to the AC power ON/Stand-by switch located on the back of the instrument. When the switch is flipped to position, the PWR LED on the front panel lights-up Green, indicating the Power ON status of the instrument.



Stand-by (Power). This symbol is marked next to the AC power ON/Stand-by switch located on the back of the instrument. When the switch is flipped to this position, the PWR LED on the front panel is turned Off.

CAUTION

The **CAUTION** sign indicates a potential hazard. It calls attention to a procedure, practice or condition which, if not followed, could possibly cause damage to equipment. If a **CAUTION** is indicated, do not proceed until its conditions are fully understood and met.

WARNING

The **WARNING** sign indicates a potential hazard. It calls attention to a procedure, practice or condition which, if not followed, could possibly cause bodily injury or death. If a **WARNING** is indicated, do not proceed until its conditions are fully understood and met.

CAT I

Installation (Overvoltage) Category rating per EN 61010-1 safety standard and is applicable for the instrument front panel measuring terminals. **CAT I** rated terminals must only be connected to source circuits in which measures are taken to limit transient voltages to an appropriately low level.

Operating Environment

The instrument is intended for indoor use and should be operated in a clean, dry environment. Before using this product, ensure that its operating environment is maintained within these parameters:

Temperature: 5 °C to 40 °C.

Humidity: Maximum relative humidity 80% for temperatures up to 30 °C decreasing linearly to 50 % relative humidity at 40 °C.

Altitude: Up to 10,000 ft (3,048 m) at or below 30 °C.

Note: Direct sunlight, radiators, and other heat sources should be taken into account when assessing the ambient temperature.



WARNING

The instrument must not be operated in explosive, dusty, or wet atmospheres.



CAUTION

Do not exceed the maximum specified front panel terminal voltage levels. Refer to Specifications for more details.

Safety Certification

The design of the instrument has been verified to conform to applicable EN 61010-1, UL 61010-1 2nd Edition and CSA C22•2 No•61010-1-04 safety standards for the following limits:

- Installation (Overvoltage) Categories II (Mains Supply Connector) & I (Measuring Terminals).
- Pollution Degree 2.
- Protection Class I.

PLEASE NOTE THE FOLLOWING:

- Installation (Overvoltage) Category II refers to local distribution level, which is applicable to equipment connected to the mains supply (AC power source).

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- Installation (Overvoltage) Category I refers to signal level, which is applicable to equipment measuring terminals that are connected to source circuits in which measures are taken to limit transient voltages to an appropriately low level.
- Pollution Degree 2 refers to an operating environment where normally only dry non-conductive pollution occurs. Conductivity caused by temporary condensation should be expected.
- Protection Class 1 refers to grounded equipment, in which protection against electric shock is achieved by Basic Insulation and by means of a connection to the protective ground conductor in the building wiring.

Cooling

The instrument relies on forced air cooling with an internal fan and ventilation openings. Care must be taken to avoid restricting the airflow around the apertures (fan holes) at the side and rear of the instrument. Ensure adequate ventilation by leaving the required 10 cm (4 inch) minimum gap around the sides and rear of the instrument.



CAUTION

Do not block the ventilation holes located on both sides and rear of the instrument. Do not allow any foreign matter to enter the instrument through the ventilation holes, etc.

The instrument also has internal fan control circuitry that regulates the fan speed based on the ambient temperature. This is performed automatically after start-up with no manual intervention required.

AC Power Source

100 to 240 VAC (+/-10%) at 50/60 Hz

No manual voltage selection is required because the instrument automatically adapts to line voltage.

Power Consumption

Maximum power consumption in Operating Mode: 80 Watts

Maximum power consumption in Standby Mode: 7 Watts.

Power and Ground Connections

The instrument is provided with a 10A/250V 18AWG rated grounded cord set containing a molded three-terminal polarized plug and a specific IEC-60320 (Type C13) connector for making line voltage and safety ground connections. The AC inlet ground terminal is connected directly to the frame of the instrument. For adequate protection against electrical shock hazard, the power cord plug must be inserted into a mating AC outlet containing a safety ground contact.



WARNING - Electrical Shock Hazard

Only use the power cord provided with your instrument.

Any interruption of the protective conductor inside or outside of the instrument, or disconnection of the safety ground terminal creates a hazardous situation. Intentional interruption is prohibited.

In Standby mode, the instrument is still connected to the AC supply. The instrument can only be placed in a complete Power Off state by physically disconnecting the power cord from the AC supply.

Calibration

The recommended calibration interval is one year. Calibration should be performed by qualified personnel only.

Cleaning

Clean only the exterior of the instrument, using a damp, soft cloth. Do not use chemicals or abrasive elements. Under no circumstances allow moisture to penetrate the instrument.

Avoid electrical shock hazard by unplugging the power cord from the instrument before cleaning.

Abnormal Conditions

Operate the instrument only as intended by the manufacturer.

If you suspect the instrument's protection has been impaired, disconnect the power cord and secure the instrument against any unintended operation.

The instrument's protection is likely to be impaired if, for example, the instrument shows visible damage or has been subjected to severe transport stresses.

Proper use of the instrument depends on careful reading of all instructions and labels.



WARNING

Any use of the instrument in a manner not specified by the manufacturer may impair the instrument's safety protection.