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Quick Start Guide

Introduction
Thank you for purchasing a PicoScope 9400 Series sampler-extended real-time oscilloscope. The instrument is a high-bandwidth real-time oscilloscope with 1 TS/s equivalent-time sampling. This guide explains how to install the PicoSample 4 software and connect your PicoScope. It also contains important safety information and advice on accessing user manuals and technical support.

We recommend that you follow Steps 1 to 3 in order:

Step 1: Install the PicoSample 4 software
Step 2: Read the PicoScope 9400 Series safety information
Step 3: Connect the PicoScope

Step 1: Installing the PicoSample 4 software

1.1 System requirements
To ensure that PicoSample 4 operates correctly, you must use a computer with the system requirements shown in the table below.

<table>
<thead>
<tr>
<th>Item</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating system</td>
<td>Microsoft Windows 7, 8 or 10, 32-bit and 64-bit versions</td>
</tr>
<tr>
<td>Processor, memory, free disk space</td>
<td>As required by the operating system</td>
</tr>
<tr>
<td>Ports</td>
<td>USB 2 or 3</td>
</tr>
</tbody>
</table>

1.2 Installing the software
1. Run the PicoSample-4_Setup.exe file directly from the flash drive provided with your PicoScope.
2. Follow the on-screen instructions to install the software. Do not connect the PicoScope until the installation is complete.
3. You can try out the software by clicking the new PicoSample 4 icon on your desktop and then selecting and connecting the demo device.

For more information on the software, please refer to the built-in help.

Step 2: Safety information

To prevent possible electrical shock, fire, personal injury, or damage to the product, carefully read this safety information before attempting to install or use the product. In addition, follow all generally accepted safety practices and procedures for working with and near electricity.

The product has been designed and tested in accordance with the European standard publication EN 61010-1: 2010 (Safety Requirements for Electrical Equipment for Measurement, Control and Laboratory Use) and and EN61010-2-30: 2010 (Requirements for Testing and Measuring Circuits). The product left the factory in a safe condition.

The following safety descriptions are found throughout this guide:

A WARNING identifies conditions or practices that could result in injury or death.

A CAUTION identifies conditions or practices that could result in damage to the product or equipment to which it is connected.

2.1 Symbols
These safety and electrical symbols may appear on the product or in this guide.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Appearance on the product indicates a need to read these safety and operation instructions.</td>
</tr>
<tr>
<td>Chassis terminal</td>
<td></td>
</tr>
<tr>
<td>Possibility of electric shock</td>
<td></td>
</tr>
<tr>
<td>Caution</td>
<td></td>
</tr>
<tr>
<td>Do not dispose of this product as unsorted municipal waste</td>
<td></td>
</tr>
</tbody>
</table>

WARNING
This product and accessories are for professional use by trained and qualified technicians only. To prevent injury or death use the product only as instructed and use only accessories that have been supplied or recommended. Protection provided by the products may be impaired if used in a manner not specified by the manufacturer.

2.2 Maximum terminal ratings
Observe all terminal ratings and warnings marked on the product.

The table below and/or markings on the product indicate the full-scale measurement range and overvoltage protection range. The full-scale measurement ranges are the maximum voltages that can be accurately measured by the instrument and the overvoltage protection ranges are the maximum voltages that may be applied without risk of personal injury or damage to the instrument.

WARNING
To prevent electric shock, do not attempt to connect voltages outside the overvoltage protection range.
Input/output | Overvoltage protection | Full-scale measurement range
---|---|---
Channels CH1 to CH4 | ±1.4 V (DC + peak AC) | ±800 mV
CAL output | ±2 V (DC + peak AC) | –
TRIGGER output | ±2 V (DC + peak AC) | –

### WARNING
Signals exceeding the voltage limits in the table below are defined as "hazardous live" by EN 61010. To prevent electric shock, take all necessary safety precautions when working on equipment where hazardous live voltages may be present.

| Signal voltage limits of EN61010-1:2010 | ±70 V DC | 33 V AC RMS | ±46.7 V pk max.

### WARNING
To prevent injury or death, do not directly connect the PicoScope to the mains (line power).

### WARNING
To prevent injury or death, signals exceeding the voltage limits in the table below are defined as "hazardous live" by EN 61010. To prevent electric shock, take all necessary safety precautions when working on equipment where hazardous live voltages may be present.

### CAUTION
To avoid causing permanent damage to the PicoScope and other connected equipment, do not exceed the overvoltage protection range on any terminal.

### 2.3 Grounding
The PicoScope's ground connection through the USB cable is for measurement purposes only. The PicoScope does not have a protective safety ground. Never connect the ground input (chassis) to any electrical power source. To prevent personal injury or death, use a voltmeter to check that there is no significant AC or DC voltage between the PicoScope ground and the point to which you intend to connect it.

### CAUTION
To avoid causing permanent damage to the PicoScope, the attached computer, and other equipment, do not apply a voltage to the ground input.

To prevent measurement errors caused by poor grounding, always use the high-quality blue USB cable supplied with the oscilloscope.

### 2.4 External connections

#### WARNING
To prevent injury or death, only use the power cord and adaptor supplied with the product. These are approved for the voltage and plug configuration in your country.

#### External DC power supply

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current (no accessories)</th>
<th>Current (with accessories)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 V DC ± 5%</td>
<td>2.6 A max.</td>
<td>3.3 A max.</td>
</tr>
</tbody>
</table>

#### CAUTION
Take care to avoid mechanical stress or tight bend radii for all connected leads, including all coaxial leads and connectors. Mishandling will cause deformation of sidewalls, and will degrade performance and accuracy.

### 2.5 Environment

#### WARNING
To prevent injury or death, do not use in wet or damp conditions, or near explosive gas or vapor.

#### CAUTION
To prevent damage, always use and store your PicoScope in appropriate environments.

<table>
<thead>
<tr>
<th>Temperature, operating</th>
<th>+5 °C to +40 °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature, storage</td>
<td>−20 °C to +50 °C</td>
</tr>
<tr>
<td>Temperature, for quoted accuracy</td>
<td>+15 °C to +25 °C</td>
</tr>
<tr>
<td>Humidity, operating</td>
<td>Up to 85 %RH (non-condensing) at +25 °C</td>
</tr>
<tr>
<td>Humidity, storage</td>
<td>Up to 95 %RH (non-condensing)</td>
</tr>
<tr>
<td>Altitude</td>
<td>Up to 2000 m</td>
</tr>
<tr>
<td>Pollution degree</td>
<td>2</td>
</tr>
</tbody>
</table>
Step 3: Connecting your PicoScope SXRT0

1. Make sure that you have installed the PicoSample 4 software. You will not be able to use the PicoScope without it.

2. If the software is running in demo mode, close it before you connect the PicoScope.

3. Connect the PicoScope to your PC using the USB cable supplied. See the diagram below.

4. Wait for your computer to install the device. While doing so it will display a message or icon in the taskbar telling you it has found the device.

5. Run the software by clicking the new PicoSample 4 icon on your desktop. PicoSample 4 will automatically detect and identify your PicoScope.

6. In the Connect Device dialog that appears, select the PicoScope and click Connect Device. Once the device is connected, you can use the oscilloscope.

For more detailed instructions on setting up your PicoScope device, download the User’s Guide and Data Sheet.

Input and output connections

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### WARNING

To prevent injury or death, do not use the product if it appears to be damaged in any way, and stop use immediately if you are concerned by any abnormal operations.

To prevent electric shock do not tamper with or disassemble the PicoScope, case parts, connectors or accessories.

When cleaning the PicoScope, use a soft cloth and a solution of mild soap or detergent in water. To prevent electric shock, do not allow water to enter the casing, as this will compromise the electronics or insulation inside.

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### CAUTION

Do not block the air vents at the back of the PicoScope as overheating will damage the instrument.

Do not insert any objects through the air vents as internal interference will cause damage to the instrument.

To prevent dirt ingress, fit dust caps to all unmated connectors and remove them only during connection.
Front-panel indicators
Upper LED: Red when oscilloscope uninitialized. Flashing green while initializing. Steady green when correctly set up.

Lower LED: Flashing green while searching for USB connection. Flashing red while searching for LAN connection. Flashing amber indicates triggering.

LAN connection instructions
Default IP address: 192.168.0.221

To change the IP address:
1. Connect the oscilloscope's USB port to the PC.
2. Click Help > About... > TCP/IP Properties. The TCP/IP Properties dialog opens.
3. If changes are required, click Set New TCP / IP Properties and in the Confirm dialog click OK. Enter the desired address in the second TCP/IP Properties dialog.

To switch to the LAN interface:
1. Make any necessary adjustments to the LAN settings under the System menu.
2. Make sure that there is no USB connection.
3. Turn off the scope.
4. Connect the LAN connector to your Local Area Network (LAN).
5. Turn on the scope.

Additional information
Documentation
The Data Sheet contains the latest specifications for your PicoScope device. We recommend that you print a copy and keep it for easy reference. For detailed information on operating and installing your product, you should consult its User's Guide. You can download PDF copies of all documentation relevant to your oscilloscope, including the Programmer's Guide, from www.picotech.com/downloads.

Software updates and replacement
You can download the latest versions of the PicoSample 4 software free of charge from www.picotech.com/downloads.

Writing your own software
A software development kit with all the drivers and other files you will need to develop your own custom programs is installed with the PicoSample 4 software. Pico also maintains repositories of examples in various programming languages on GitHub, at github.com/picotech.