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Velleman PCSU1000

Velleman PCSU1000 Two-Channel USB PC Oscilloscope User Manual

1. Introduction

This manual provides detailed instructions for the Velleman PCSU1000 Digital Storage Oscilloscope. The PCSU1000 is designed to utilize a personal computer for visualizing electrical signals, offering a high screen resolution capable of detecting signals down to 0.15 mV. It features a high bandwidth and a sampling frequency up to 1 GHz. The device connects via USB, eliminating the need for an external power supply, which makes it suitable for field measurements when used with a laptop. The PCSU1000 features a vertical, space-saving design and includes automatic recording capabilities for extended periods.

2. Safety Information

Please read and understand all safety instructions before operating the Velleman PCSU1000. Failure to do so may result in injury or damage to the device.

- **Power Source:** The device is powered via USB. Ensure your computer's USB port can supply adequate power. Do not attempt to power the device with an external power supply unless explicitly instructed.
- **Voltage Limits:** Do not exceed the maximum input voltage specified in the technical specifications. The voltage at the BNC scope connector should not exceed 30V (summation of both AC + DC components). Always consider the probe factor (e.g., X1 or X10).
- **Environment:** Operate the device in a dry environment, away from moisture, extreme temperatures, and direct sunlight.
- **Maintenance:** Refer to the maintenance section for cleaning and care. Do not attempt to open or repair the device yourself. Contact qualified service personnel for assistance.
- **Probes:** Use only probes designed for oscilloscopes and ensure they are correctly calibrated and rated for the voltages being measured.

3. Package Contents

Verify that all items are present in the package:

- Velleman PCSU1000 USB PC Oscilloscope Unit
- USB Cable

- Oscilloscope Probes (quantity may vary)
- Software Installation CD/DVD or Download Instructions
- User Manual (this document)

4. Setup

Follow these steps to set up your Velleman PCSU1000 oscilloscope:

1. **Software Installation:** Insert the provided software CD/DVD into your computer's optical drive, or download the latest software from the official Velleman website. Follow the on-screen instructions to install the necessary drivers and application software. Ensure your operating system meets the minimum requirements.
2. **Connect the Device:** Connect one end of the supplied USB cable to the PCSU1000 unit and the other end to an available USB port on your personal computer. The device does not require an external power supply.
3. **Power On:** Once connected, the device should be recognized by your computer, and the software can be launched.
4. **Probe Connection:** Connect the oscilloscope probes to the BNC input connectors on the PCSU1000 unit. Ensure a secure connection.



Figure 1: Front view of the Velleman PCSU1000 USB PC Oscilloscope, showing input connectors and USB port.



Figure 2: Side view of the Velleman PCSU1000 USB PC Oscilloscope, highlighting its compact, vertical design.

5. Operating Instructions

The Velleman PCSU1000 operates through dedicated software installed on your PC. This section outlines basic operational procedures.

1. **Launch Software:** Open the Velleman oscilloscope application on your computer.

2. **Channel Selection:** Select the desired input channel(s) (Channel 1 or Channel 2) within the software interface.
3. **Probe Compensation:** If using new probes or if measurements appear inaccurate, perform probe compensation according to the software's instructions.
4. **Input Settings:** Adjust the vertical scale (Volts/Div) and horizontal scale (Time/Div) to suit the signal you are measuring. The PCSU1000 offers high sensitivity down to 0.15 mV.
5. **Trigger Settings:** Configure the trigger level and type (e.g., edge, pulse) to stabilize the waveform display.
6. **Signal Visualization:** Connect the probe to the circuit under test. The software will display the waveform in real-time on your PC screen.
7. **Measurements:** Use the software's built-in measurement functions to analyze waveform parameters such as voltage, frequency, period, and duty cycle.
8. **Data Recording:** The device supports automatic recording for over one year. Consult the software manual for detailed instructions on setting up and managing long-term data acquisition.

6. Maintenance

Proper maintenance ensures the longevity and accuracy of your Velleman PCSU1000.

- **Cleaning:** Disconnect the device from the PC before cleaning. Use a soft, dry cloth to wipe the exterior. Do not use abrasive cleaners or solvents.
- **Storage:** Store the oscilloscope in a clean, dry, and dust-free environment when not in use. Protect it from extreme temperatures and humidity.
- **Probe Care:** Handle probes carefully. Avoid bending or stressing the cables. Store them properly to prevent damage to the tips.
- **Software Updates:** Regularly check the Velleman website for software and driver updates to ensure optimal performance and compatibility.

7. Troubleshooting

If you encounter issues with your PCSU1000, refer to the following common problems and solutions:

- **Device Not Recognized:**
  - Ensure the USB cable is securely connected to both the oscilloscope and the PC.
  - Try a different USB port on your computer.
  - Verify that the drivers are correctly installed. Reinstall them if necessary.
  - Restart your computer.
- **No Waveform Display:**
  - Check if the probes are correctly connected to the device and the circuit under test.
  - Adjust the vertical (Volts/Div) and horizontal (Time/Div) scales. The signal might be off-screen.
  - Adjust the trigger level.
  - Ensure the input signal is within the device's voltage and frequency limits.
- **Software Crashes or Freezes:**
  - Ensure your operating system is compatible with the software version. Some users have reported issues with newer Windows versions (e.g., Windows 10) if the software is not updated.
  - Update the software and drivers to the latest version from the Velleman website.
  - Close other demanding applications running on your PC.

- **Inaccurate Measurements:**
  - Perform probe compensation.
  - Check the probe attenuation setting in the software (e.g., X1, X10).
  - Ensure the signal source is stable and correctly connected.

8. Specifications

Feature	Specification
Brand	Velleman
Manufacturer	Velleman
Series	PCSU1000
Item Model Number	PCSU1000
Product Dimensions	2.5 x 12.1 x 20 cm; 371 g
Color	Multi-colored
Power Source	Hand-powered (USB powered from PC)
Batteries Included	No
Number of Lithium Metal Cells	1 (internal, not user-replaceable)
Discontinued by Manufacturer	No
Guaranteed Software Updates Until	Unknown

9. Warranty and Support

For warranty information, technical support, or service inquiries, please refer to the documentation provided with your purchase or visit the official Velleman website. Velleman provides support for its products, and it is recommended to contact them directly for any issues not resolved by this manual.
Velleman Official Website: www.velleman.eu

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