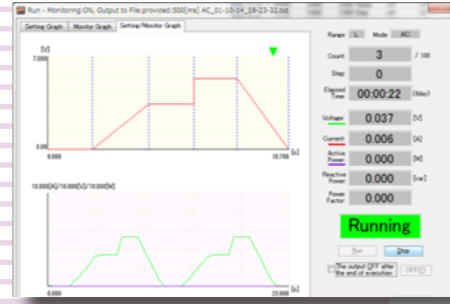


# Sequence Creation and Control Software Setup Guide

## SD011-PCR-LE Wavy for PCR-LE

### Ver 5.6x



Thank you for purchasing the Sequence Creation Software SD011-PCR-LE Wavy for PCR-LE.

SD011-PCR-LE Wavy for PCR-LE is a software application that enables you to create and execute sequences on Kikusui PCR-LE and PCR-LE2 Series AC power supplies from a PC.

- You can use a mouse to easily create and edit sequences.
- During sequence execution, the software displays the point of execution.
- You can save the monitored voltage, current, and power values to files.
- The software displays monitored data as a real-time monitor graph.

This setup guide is included in the Wavy for PCR-LE package. For the operating procedures, see the help file or the operation guide in PDF format (included in the CD-ROM). You can view the PDF file using Adobe Reader.

### Product versions that this guide covers

This guide applies to versions 5.6x of SD011-PCR-LE Wavy for PCR-LE. To check the Wavy for PCR-LE version, on the Help menu, click About Wavy.

### Related equipment versions

This software is compatible with PCR-LE and PCR-LE2 Series AC power supplies with firmware version 4.3 and later. The firmware version appears on the front control panel when the AC power supply is turned on.

### Related manuals

For details about the AC power supply, see the PCR-LE or PCR-LE2 Series Operation Manual. For details on the communication interface, see the PCR-LE or PCR-LE2 Series Communication Interface Manual.

### Trademarks

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

Intel and Pentium are registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

All company names and product names used in this manual are trademarks or registered trademarks of their respective companies.

### Software license agreement

Use this software product under the conditions set forth in "Software License Agreement" that is included in the product CD-ROM.

### Copyrights

The contents of this guide may not be reproduced, in whole or in part, without the prior consent of the copyright holder. The specifications of this product and the contents of this guide are subject to change without prior notice.

Copyright© 2012 Kikusui Electronics Corporation

## Safety Precautions

Before you use Wavy for PCR-LE, read the operation manual of the Wavy for PCR-LE or PCR-LE2 Series AC power supply that you intend to use Wavy for PCR-LE to control, and be sure to make proper connections and handle the device properly. Improper connections or handling can lead to serious accidents, injury, and fire.

## System Requirements

- Core2 or better
- Windows 10 or Windows 7
- At least 2 GB of RAM.
- 10 GB or more of free hard-disk space
- A display that supports a resolution of 1024×768 or higher (DPI: 96)
- CD-ROM drive
- Mouse
- RS232C, GPIB, USB, or LAN (depending on the interface that you want to use)

Install more RAM if you intend to perform long tests. We recommend you install more than 4 GB RAM.

A VISA library that supports the IVI VISA 5.0 specifications must be installed in your PC.

The software may not function properly if you use a USB serial converter to connect to an RS232C interface.

## Installation

You need to log on as an administrator to install the software.

### Installing the VISA library

To control the PCR-LE Series, a VISA library must be installed on your PC.

VISA (Virtual Instrument Software Architecture) was developed by the VXIplug&play Systems Alliance. It is the standard specification for measurement instrument connection software. You need one of the following VISA libraries.

- NI-VISA by National Instruments Corporation (Ver. 5.0.3 or later)
- Agilent VISA by Agilent Technologies (Agilent IO Libraries Suite 15.1 or later)
- KI-VISA version 5.0.1 or later

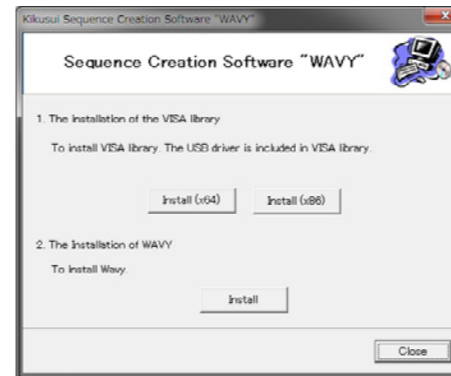
KI-VISA is a VISA library developed by Kikusui Electronics Corporation that supports the IVI VISA 5.0 specifications. You can download the most recent version of this library from the Kikusui Electronics Corporation website (<http://www.kikusui.co.jp/en/download/>).

If NI-VISA or Agilent VISA is already installed on your PC, you do not need to install KI-VISA.

#### 1 Load the CD-ROM into the CD-ROM drive.

A setup start window appears. If a setup start window does not appear, double-click the AutoRun.exe file on the CD-ROM.

#### 2 Click Install under "1. The installation of the VISA library."



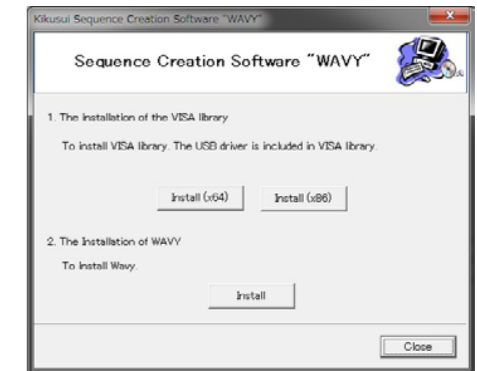
The installation of the VISA library begins. If a VISA library has already been installed, the installed VISA library and its version are displayed. Do not install multiple VISA libraries on the same PC.

### Installing Wavy for PCR-LE

#### 1 Load the CD-ROM into the CD-ROM drive.

A setup start window appears. If a setup start window does not appear, double-click the Setup.exe file on the CD-ROM.

#### 2 Click Install under "2. The Installation of WAVY."



#### 3 Proceed with the installation according to the instructions on the screen.

#### 4 Click Close.

### Uninstalling Wavy for PCR-LE

In Control Panel, select Programs and Features, and remove Kikusui SD011-PCR-LE (Wavy for PCR-LE Ver.5.5.x.x).

**KIKUSUI ELECTRONICS CORP.**

1-1-3 Higashiyamata, Tsuzuki-ku, Yokohama,  
224-0023, Japan  
Tel: +81-45-482-6353 Fax: +81-45-482-6261



Website

<http://www.kikusui.co.jp/en>

## Connecting the PCR-LE to your PC

For details on connecting the PCR-LE to your PC, see the PCR-LE Series user's manual and "Interface Setup" in the Communication Interface Manual. Cables are not included.

### RS232C

Use a D-sub, 9-pin, female-to-female AT crossover cable.  
The PCR-LE Series RS232C port is a DB9P connector.

### GPIB

Use a standard IEEE-488 cable.

### USB

Use a standard USB cable.

### LAN

Use a standard LAN cable (category 5 and straight) to connect the PCR-LE to a network hub or router. Use a crossover cable when making a direct connection.

## Configuring the PCR-LE

- 1 Make sure that the PCR-LE output is off.
- 2 Press CONFIG (SHIFT+OPR MODE) to select COM-I/F.
- 3 Press the ▲▼ keys to select TYPE, and then select the communication interface.
- 4 Press the ▲▼ keys to move the selection frame to the item that you want to set, and then use the function keys or rotary knob to select the item's value.  
For LAN, set DHCP and AUTO IP to "on."
- 5 Turn off the PCR-LE, and turn it back on.  
The settings are applied.

If you want to use the LAN interface with a fixed IP address, configure the settings from the Web interface to the PCR-LE Series (search for the VXI-11 measurement instrument from the application supplied by the VISA vendor and click the link that the search returns). After setting the IP address, set DHCP and AUTO IP to "off" on the COM-I/F screen in the CONFIG settings. Then, turn off the PCR-LE, and turn it back on.

## Starting Wavy for PCR-LE

Disable the Windows power-saving mode and screen saver. Also, avoid using other applications with Wavy for PCR-LE.

If you are using a PC that has advanced power management (APM) or sleep mode, disable these features.

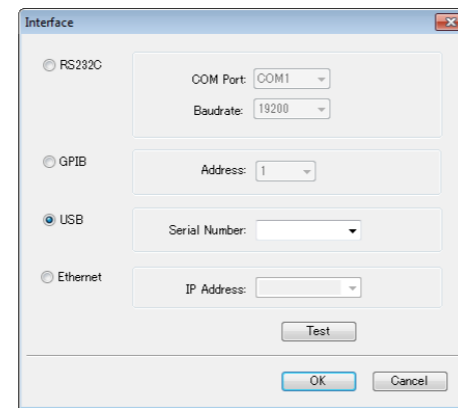
When you change the DPI setting, the display may not appear properly depending on the resolution.

To start Wavy for PCR-LE, on the taskbar, click Start, All Programs, Kikusui, SD011-PCR-LE, and then Wavy for PCR-LE.

## Configuring the interface

After you start Wavy for PCR-LE, first configure the interface.

On the Sequence menu, click Interface, and then click the interface that you want to use.



### Configuring the RS232C interface

- 1 Set the COM port.
- 2 Set the baudrate.
- 3 Click Test.  
Check that the software can communicate properly with the PCR-LE.

### Configuring the GPIB interface

- 1 Select the GPIB address.
- 2 Click Test.  
Check that the software can communicate properly with the PCR-LE.

### Configuring the USB interface

- 1 Set the serial number.  
Select the serial number from the list, or enter it. The serial number is displayed on the rear panel of the PCR-LE.
- 2 Click Test.  
Check that the software can communicate properly with the PCR-LE.

### Configuring the LAN interface

- 1 Set the IP address.  
Select the IP address from the list, or enter it. You can view the IP address on the COM-I/F screen in the PCR-LE's CONFIG settings.
- 2 Click Test.  
Check that the software can communicate properly with the PCR-LE.

If you are not using a fixed IP address, the IP address of the PCR-LE may change. If the PC stops recognizing the PCR-LE, check the IP address on the COM-I/F screen in the PCR-LE's CONFIG settings, and then set the IP address in the software again.

## How to Use Wavy for PCR-LE

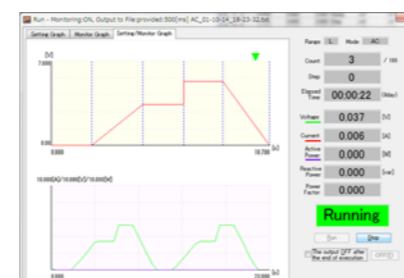
For information on how to use Wavy for PCR-LE, see the help file or the PDF. You can view the PDF file (on the CD-ROM) using Adobe Reader.

## Executing sequences

- 1 On the Sequence menu, click Sequence Creation-Mode.  
In the Sequence Creation Mode dialog box, set the wiring method, unit of time, output voltage mode, output voltage range, and frequency.
- 2 Create steps.  
You can create steps in the Graph window using the mouse or in the Worksheet window by entering values directly. You can also configure protection functions.  
After you have created the steps, save them to a file. You can also directly overwrite the data of a file that you have saved.

- 3 On the Sequence menu, click Transfer.  
In the Transfer dialog box, set the repetition count, and execute the transfer.  
Select the Write Wave check box to transfer the arbitrary waveform data at the same time.

- 4 On the Sequence menu, click Run.  
In the Run dialog box, run the sequence.



In the Run dialog box, you can display the setting graph and

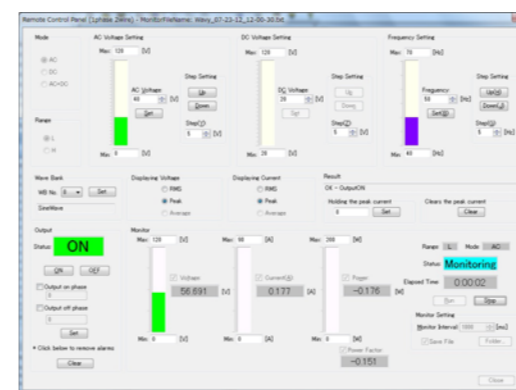
the real-time monitor graph. During execution, the repetition count, the step position, and the elapsed time are displayed.

The voltage, current, and power values are displayed in accordance with the monitoring configuration.

You can save the monitored data to a file.

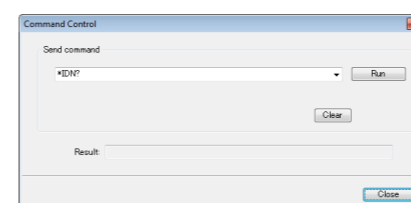
## Controlling the PCR-LE directly

You can use Wavy for PCR-LE to directly control the Wavy for PCR-LE.



## Using commands to control the PCR-LE

You can enter PCR-LE or PCR-LE2 Series commands in Wavy for PCR-LE to control the PCR-LE remotely.



## Specifications

Operation modes: AC voltage, DC voltage, and AC+DC voltage  
Number of significant decimal places: 3<sup>1</sup>  
Monitoring: Output current, output voltage, and output power  
Monitoring interval<sup>2</sup>: 200 ms to 600 000 ms (0.2 s to 600 s) for single-phase, two-wire  
500 ms to 600 000 ms (0.5 s to 600 s) for single-phase, three-wire and three-phase

Total number of steps: 600

Step interval (execution time) setting range

Unit	Value
ms (milliseconds)	0.1 to 10000.0
s (seconds)	0.001 to 1000.000
min (minutes)	0.1 to 1000.0
h (hours)	0.1 to 1000.0

- 1 This varies depending on the range setting of the connected PCR-LE or PCR-LE2 Series.
- 2 The accuracy depends on the PC environment that you are using.