KIKUSUI

Setup Guide

Application Software

SD009-PCR-LE Quick Immunity Sequencer 2
Ver. 3.x

Wave Bank Memory
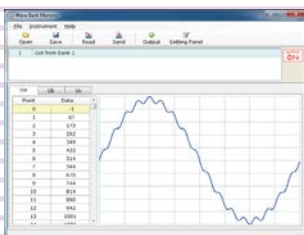## Ver. 3.x

Thank you for purchasing the SD009-PCR-LE.

About This Guide

This guide is intended for first-time users of the SD009-PCR-LE. It gives an overview of the product, explains how to install the software, provides notes on the usage, explains how to start the software, and so on.

After reading this guide, keep it in a safe place for quick reference. If you find any misplaced or missing pages in this guide, it will be replaced.

If you lose or damage this guide, you can purchase a new copy. In either case, please contact your Kikusui agent or distributor. At that time, inform your agent or distributor of the "Part No." written on the front cover of this guide.

Every effort has been made to ensure the accuracy of this guide. However, if you have any questions, or find any errors or omissions, contact your Kikusui agent or distributor.

■ Product versions that this guide covers

This guide applies to version 3.x of Quick Immunity Sequencer 2 and Wave Bank Memory.

■ Related equipment versions

• PCR-LE Series and PCR-LE2 Series AC power supply
Firmware version 4.0 or later
The version is displayed in the control panel display section when the PCR-LE is turned on.

■ How to read this guide

This guide is designed to be read from beginning to end. We recommend that you read it thoroughly before using this product for the first time.

■ Who should read this guide?

This operation guide is intended for users who will use the PCR-LE Series or PCR-LE2 Series AC power supply to perform immunity tests on electrical and electronic devices that are connected to low frequency power distribution systems and on electrical and electronic devices that have a DC input power port. The guide is also intended for instructors who will teach these users.

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⚠ For Safe Use

Before you use the SD009-PCR-LE to perform tests, thoroughly read the operation manuals of the following products, which include hardware information, to avoid connecting or operating the product incorrectly. Improper connections or handling can lead to serious accidents, injury, and fire.

• PCR-LE Series AC Power Supply
• PCR-LE2 Series AC Power Supply
• DSI1020 / DSI3020 DIP Simulator
• IB05-PCR-LE GPIB interface
• US05-PCR-LE USB interface
• LN05-PCR-LE LAN interface
• 2P05-PCR-LE Single-phase three-wire output driver
• 3P05-PCR-LE Three-phase output driver

Notations Used in This Guide

• In this guide, Quick Immunity Sequencer 2 is also called "QIS2," Wave Bank Memory is also called "WBM," the PCR-LE Series and PCR-LE2 Series AC Power Supply is also called "PCR-LE," and the IT01-PCR-L Immunity Tester is also called "IT01-PCR-L."
• The term "PC" is used to refer generally to both personal computers and workstations.
• The following markings are used in the explanations in the text.

⚠ CAUTION	Indicates a potentially hazardous situation which, if ignored, may result in damage to the product and other property.
NOTE	Indicates information that you should know.
See	Indicates a reference to detailed information.

General Description

The SD009-PCR-LE package contains the following two software applications.

- Quick Immunity Sequencer 2 (QIS2)
- Wave Bank Memory (WBM)

Quick Immunity Sequencer 2

QIS2 is application software that uses the PCR-LE Series or PCR-LE2 Series AC Power Supply to perform tests.

This software can simulate various phenomena that occur in AC power supply environments. It can be used to perform immunity tests with conditions that match the following standards on electrical and electronic devices that are connected to low frequency power distribution systems and on electrical and electronic devices that have a DC input power port. You can set test conditions that exceed the ranges defined in the standards, so this software can be used to perform preliminary tests before the tests for the standards, immunity allowance tests, and stress tests.

• IEC61000-4-11(2004-03)Edition2.0 Corrigendum(2010-08)	Voltage dips, short interruptions, and voltage variations
• IEC61000-4-13(2009-07)Edition1.1	Harmonics and interharmonics
• IEC61000-4-14(2009-08)Edition1.2	Voltage fluctuation
• IEC61000-4-17(2009-01)Edition1.2	Ripple on d.c. input power port
• IEC61000-4-27(2009-04)Edition1.1	Unbalance
• IEC61000-4-28(2009-04)Edition1.2	Variation of power frequency
• IEC61000-4-29(2000-08)1st.Edition	Voltage dips, short interruptions, and voltage variations on d.c. input power port
• IEC61000-4-34(2009-11)Edition1.1	Voltage dips, short interruptions, and voltage variations

●Items that do not comply with the requirements of the standards

In QIS2, for test configurations that include hardware, there are items that do not comply with the requirements of the standards. For details, see the items of the appropriate specification.

●Data saving function

- You can save test conditions.
- You can save test results. You can specify the format of the test result file (text or comma-separated value).

Wave Bank Memory

WBM is application software that can be used to view and save the contents of the PCR-LE waveform banks.

Waveform banks are used in QIS2. Because the waveform data in the waveform banks will be overwritten, use WBM to view and save the waveform data that you have used on the PCR-LE.

- Reading data from waveform banks
- Transmitting data to waveform banks
- Saving data with a new file name
- Displaying waveforms

  You can use the displayed waveforms to determine whether the load that is presently connected to the PCR-LE will be damaged.
- Specifying waveform banks (by number) and generating the waveforms in them from the PCR-LE
- Configuring PCR-LE panel settings (output voltage, frequency, and output on/off)
- Displaying an operation log

System requirements

To use the SD009-PCR-LE, you require the following hardware and software.

- A PC with Microsoft Windows 8/7/Vista/XP (SP2 or later)
- Microsoft .NET Framework 2.0
- 256 MB or more of RAM (512 MB or more recommended)
- 1024×768 dots or higher resolution
- 100 MB or more of free hard disk space (additional space is required to save data)
- CD-ROM drive
- Mouse or other pointing device
- VISA library
  NI-VISA 5.0.3 or later, Agilent IO Libraries Suite 16.1 or later, or KI-VISA 5.0.5 or later
- USB cable (only when using the USB interface)
- GPIB card and IEEE488 cable (only when using the GPIB interface)
- Crossover serial cable (only when using the RS-232C interface)
- Straight LAN cable (only when using the LAN interface through a hub)
- Crossover LAN cable (only when using the LAN interface with a one-to-one connection)

Test configuration

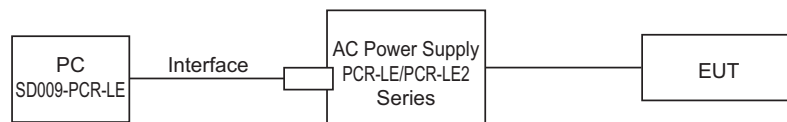## Hardware to use

The hardware to use is listed below.

● PCR-LE Series or PCR-LE2 Series AC Power Supply

● DSI1020 or DSI3020 DIP Simulator

We recommend that you use the DIP Simulator in IEC61000-4-11 (voltage dips, short interruptions, and voltage variations) tests. You can also use the IT01-PCR-L Immunity Tester in place of the DSI1020.

When you use the DIP Simulator, the standard's specifications for the voltage generator's voltage rise and fall times (1 μs to 5 μs) will be met. The voltage rise and fall times will be approximately 30 μs if you do not use the DIP Simulator.

Configuration

■ PC + PCR-LE

Wiring method	AC Power Supply			
	PCR-LE Series		PCR-L2E Series	Interface
		Driver		
Single-phase two-wire	1 unit	-	1 unit	RS232 GPIB (IB05-PCR-LE)[*2] USB (US05-PCR-LE)[*2] LAN (LN05-PCR-LE)[*2]
Single-phase three-wire	2 units	2P05-PCR-LE (2 boards)[*1]		
Three-phase	3 units	3P05-PCR-LE (3 board3)[*1]		

*1   An optional driver board is required for each power supply.
*2   An optional interface board is required.

■**PC + PCR-LE + DSI**

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┌─────────────┐              ┌─────────────────┐   ┌──────────────┐   ┌──────────┐
│     PC      │   Interface  │ AC Power Supply │   │ DIP Simulator│   │   EUT    │
│ SD009-PCR-LE│──────────□───│ PCR-LE/PCR-LE2  │───│ DSI1020/3020 │───│          │
│             │              │     Series      │   │              │   │          │
└─────────────┘              └─────────────────┘   └──────────────┘   └──────────┘
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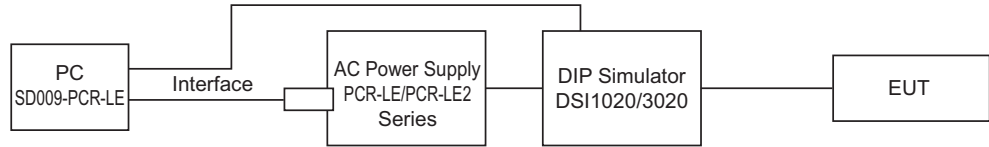
Wiring method	AC Power Supply					DIP Simulator		
	PCR-LE Series		PCR-LE2 Series	Interface		DSI1020	DSI3020	Interface
		Driver						
Single-phase two-wire	1 unit	-	1 unit	RS232 GPIB (IB05-PCR-LE)[*2] USB (US05-PCR-LE)[*2] LAN (LN05-PCR-LE)[*2]		1 unit	1 unit	RS232 GPIB[*4] USB[*4]
Single-phase three-wire	2 units	2P05-PCR-LE (2 boards)[*1]				2 units		
Three-phase	3 units	3P05-PCR-LE (3 board3)[*1]				3 units		

*1   An optional driver board is required for each power supply.
*2   An optional interface board is required.
*3   You can also use the IT01-PCR-L Immunity Tester in place of the DSI1020, but the interface will be limited to GPIB.
*4   Factory option

⚠ **CAUTION**   Risk of malfunction. Turn the DIP Simulator on and off only when the PCR-LE output is off.

VISA driver

To use the SD009-PCR-LE, you must install a VISA driver.

⚠ CAUTION   Do not install multiple different VISA drivers, because they may not operate properly.

NOTE
- VISA
  VISA (Virtual Instrument Software Architecture) is a standard developed by the VXIplug&play Systems Alliance that defines software specifications for communicating with instruments from a PC.
- VISA driver
  A VISA-compliant driver software.
- KI-VISA
  Kikusui original VISA driver compatible with VXIplug&play VISA.

The required VISA driver varies depending on the I/O interface that you want to use. Refer to the table below to select the VISA driver that you require.

VISA driver	Version and where to obtain the driver
KI-VISA	KI-VISA version 5.0.5 or later From the software CD-ROM or from the KIKUSUI Website
NI-VISA	Version 5.0.3 or later From the CD-ROM provided with the GPIB card or from the National Instruments Website
Agilent IO Libraries	Suite 16.1 or later From the CD-ROM provided with the GPIB card or from the Agilent Technologies Website

- If you want to use the USB interface, you can use any of the VISA drivers. However, you have to check the license conditions of each VISA driver.
- If you want to use the GPIB interface, you have to use the correct VISA driver. Otherwise, you will not be able to use the GPIB interface at all.
- KI-VISA supports the following GPIB models.

CONTEC CO.	GP-IB(PCI)L, GP-IB(PM), GP-IB(PCI)F, GP-IB(CB)F (we recommend API-GPIB driver version 4.01 or later) If you are using a GPIB card manufactured by CONTEC CO., use the normal API-GPIB driver, not the API-GPLV driver (which is compatible with LabVIEW and the NI-488.2M API).
Interface Corporation	A PCI-4301 LabVIEW compatible version (we recommend GPC-4301 N driver version 1.21 or later) If you are using a GPIB card manufactured by Interface Corporation, use the GPC-4301N (which is compatible with LabVIEW and the NI-488.2M API), not the normal GPC-4301 driver.
National Instruments Corporation	GPIB-ENET/100, GPIB-USB-B, GPIB-USB-HS, or PCI-GPIB (NI-488.2M version 2.73)
Agilent Technologies	82350 (PCI-GPIB) (When using IO Libraries Suite 15.5, Agilent 488 option)

Package contents

The SD009-PCR-LE package contains the following items.

Name	Quantity
Program CD-ROM	1
SD009-PCR-LE Setup Guide (this guide)	1

Available manuals

In addition to the Setup Guide (this guide), the SD009-PCR-LE also includes the following manuals.

- Operation Guide (electronic manual)

  QIS2 and WBM both have HTML help files.

- Operation Guide (PDF format)

  QIS2 has a PDF version of the operation guide.

For details on how to display the operation guides, see "Viewing the operation guides."

Notes on use

During testing, QIS2 communicates with the PC. To ensure the operation of the PC, disable the following features on your PC during testing.

- Windows power-saving mode
- Screen saver
- Memory-resident programs

During testing, avoid operating other software applications.

Setup

Before Installation

- You need to log on as an administrator to install the software applications.
- Close all software applications running on your PC. The software may not be installed properly if virus protection software is running. Disable virus protection software until the installation is complete.

Inserting the CD-ROM

1 **Insert the program CD-ROM in the drive.**
After a short time, AutoPlay window opens.

2 **Click Open folder to view files.**

3 **Double-click indexE.htm.**
The menu program will start. If you double-click indexJ.htm, the Japanese menu program will start.

Prerequisites Setup
» Microsoft Windows Installer 3.1 (required for XP)
» KI-VISA 5.■■ (required unless using NI or Agilent)

Application Software Setup
» SD009-PCR-LE / Quick Immunity Sequencer 2 (Ver3.■.■)
» Adobe Reader

Documents
» Setup Guide (E) / (J)
» Operation Guide (E) / (J)
» Revision History (E) / (J)

» Visit KIKUSUI Web

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Inserting the CD-ROM (continued)

Install the following programs exactly in the order listed; otherwise, the software may not start. Be sure to install them according to the instructions. Be sure to follow the installation procedure.

- Windows Installer 3.1[1]
- VISA driver
- SD009-PCR-LE

1   This is only necessary when you are installing the software on Windows XP.

Installation

■Installing the software on Windows XP

Start from step1 .

■Installing the software on Windows 8/7/Vista

Read the information under "If you are not installing KI-VISA," and then follow the instructions.

NOTE   There is no need to install Microsoft Windows Installer 3.1 on Windows 8/7/Vista. If you try to do so, an error will occur.

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1   **On the menu program window, click Microsoft Windows Installer 3.1.**
The "WindowsInstaller-KB893803-v2-x86.exe" file on the CD-ROM will be displayed on the screen.
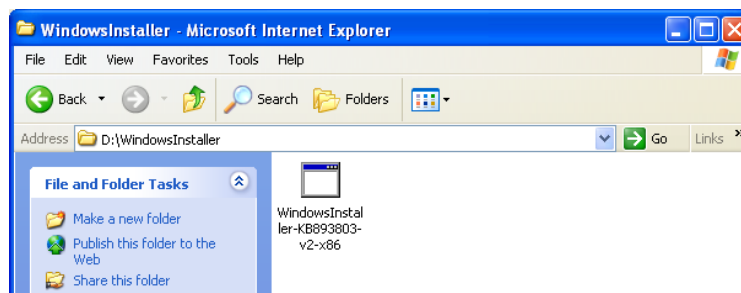
2 **Double-click WindowsInstaller-KB893803-v2-x86.exe to run the installer.**

Next, follow the instructions on the screen to install the software.

When the installation is complete, the following dialog box appears.

3 **Click Finish. Then, click Back in your browser to return to the menu program window.**

Proceed to the installation of KI-VISA.

If you are not installing KI-VISA

⚠ **CAUTION**   Do not install multiple different VISA drivers, because they may not operate properly.

If you are using NI-VISA or a VISA driver made by Agilent Technologies, see the manual for the corresponding product. If you are not installing KI-VISA, proceed to step7 .

4 **On the menu program window, click KI-VISA x.x.x.**

The "kivisa _x_x_x.exe" file on the CD-ROM will be displayed on the screen. The string "x_x_x" indicates the version.

For 32-bit operating systems, install KI-VISA_x_x_x_(x86). For 64-bit operating systems, install KI-VISA_x_x_x_(x64).
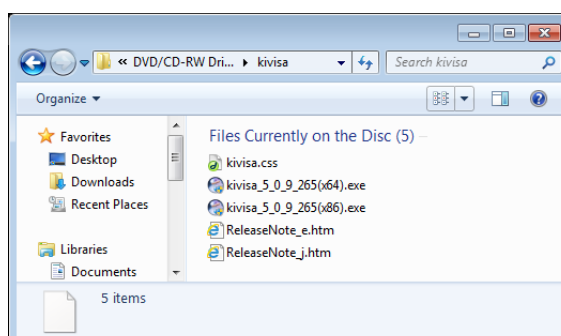
5 **Double-click Kivisa_x_x_x.exe to run the installer.**

Next, follow the instructions on the screen to install the software.

When the installation is complete, the following dialog box appears.
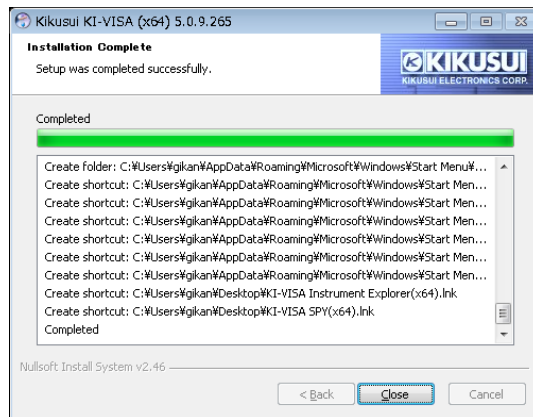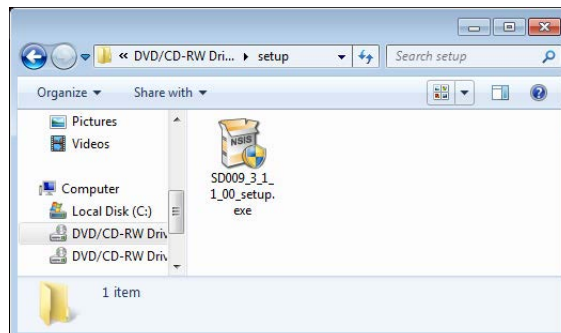

6 **Click Close. Then, click Back in your browser to return to the menu program window.**

Proceed to the installation of SD009-PCR-LE.

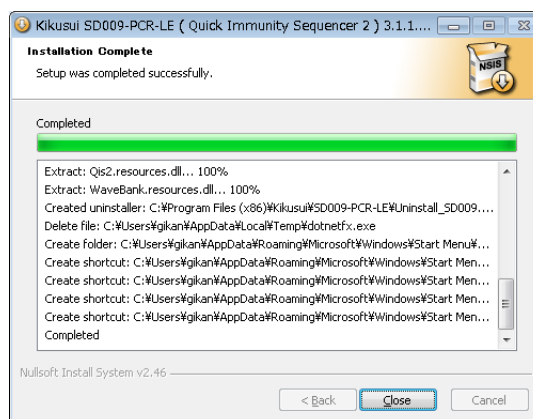**7** **On the menu program window, click SD009-PCR-LE.**

The "SD009_X_X_X_setup.exe" file on the CD-ROM will be displayed on the screen.

8 **Double-click Sd009_X_X_X_setup.exe to run the installer.**

Next, follow the instructions on the screen to install the software.

When the installation is complete, the following dialog box appears.

9 **Click Close.**

Configuring the PCR-LE interface

Refer to the PCR-LE communications interface manual to configure the interface that you want to use.

Starting the application software

The SD009-PCR-LE package contains the following two software applications. You cannot run both of these applications at the same time. You also cannot run multiple instances of the same software at the same time.

• Quick Immunity Sequencer 2

• Wave Bank Memory

Starting Quick Immunity Sequencer 2

1 **To start QIS2, on the taskbar, click All Programs, Kikusui Quick Immunity Sequencer 2, and then Quick Immunity Sequencer 2.**

If the software fails to communicate with the PCR-LE immediately after QIS2 starts, the I/O Configuration dialog box is displayed. If the communication with the PCR-LE is successful, the configuration up to step2 is performed automatically.

QIS2 determines single-phase or three-phase from the connection and displays the appropriate dialog box.
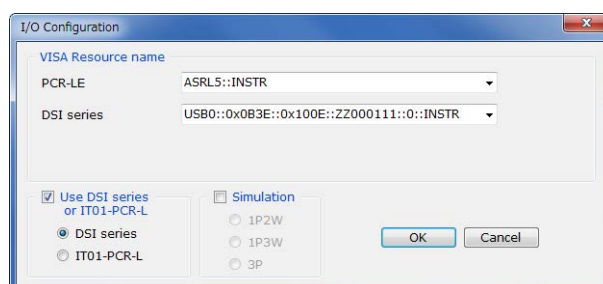
■ **If the device's ID string could be retrieved**

Select an ID from the list, and click OK.

For RS232, USB, GPIB and LAN the string "ASRL", "USB", "GPIB" or "TCPIP" is displayed together with the retrieved strings.

    Example: USB0::0x0B3E::0x1015::12345678::INSTR

• The number after "GPIB" is the GPIB address.

• To use RS232 control, set the RS232 protocol on the AC power supply as follows.

    Baudrate: 19200 bps, Data: 8 bits, Stop: 1 bit, Flow Ctrl: OFF

■ **If the device's ID string could not be retrieved**

Check the interface cable, VISA setup and PCR-LE test configuration, and then start again from step1 .

If you are using the LAN interface with KI-VISA, the PCR-LE ID string may not be displayed in the list. In this situation, on the taskbar, click All Programs, Kikusui IO Software, KI-VISA, and then Instrument Explorer to start the Instrument Explorer. Then, click KI-VISA IO Config, select the LAN tab, and then click Search Instruments.

■To use the DIP Simulator

Select the "Use DSI series or IT01-PCR-L" check box, and select DSI series. To use the IT01-PCR-L, select IT01-PCR-L.

The factory default communication interface on the DIP simulator is set to RS232C. To use the GPIB or USB interface factory option on the DIP simulator, you need to change its ADDRESS setting. For details, see the operation manual of the DIP simulator.

■Simulation

If you select the Simulation check box, you can simulate the operation of QIS2 without connecting it to a PCR-LE. You can select single-phase two-wire (1P2W), single-phase three-wire (1P3W) or three-phase (3P). In this manner, QIS2 can be used for demonstration.

2   **QIS2 starts.**

Starting Wave Bank Memory

1   **To start WBM, on the taskbar, click Start, All Programs, Kikusui Quick Immunity Sequencer 2, and then Wave Bank Memory.**
      If the software fails to communicate with the PCR-LE immediately after WBM starts, the I/O Configuration dialog box is displayed. If the communication with the PCR-LE is successful, the configuration up to step2 is performed automatically.
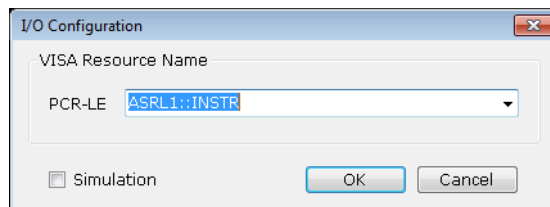
■ If the device's ID string could be retrieved

Select an ID from the list, and click OK.

For USB, GPIB and LAN the string "USB", "GPIB" or "TCPIP" is displayed together with the retrieved strings.
      Example: USB0::0x0B3E::0x1015::12345678::INSTR

■ If the device's ID string could not be retrieved

Check the interface cable, VISA setup and PCR-LE test configuration, and then start again from step1 .

■Simulation

If you select the Simulation check box, you can simulate the operation of WBM without connecting it to a PCR-LE. In this manner, WBM can be used for demonstration.

2   **WBM starts.**

Viewing the operation guides

The operation guides contain information on how to operate the software applications.

■HTML help

In each software application, click Help and then Contents.

■PDF version of the operation guide

The PDF version is provided so that you can print it. This is only available for QIS2.

In QIS2, click Help and then User's Manual.