Thank you for purchasing the Wavy for PBZ (SPEC70525) sequence creation software.

Wavy for PBZ (SPEC70525) is a software application for creating and executing sequences for the intelligent bipolar power supplies in the PBZ series.

Wavy enables you to easily create and edit sequences with a mouse.

When you execute a sequence, you can view the current position. You can also monitor the voltage and current and save files.

The monitored data is graphed in real time.

This setup guide is included in the Wavy for PBZ package. Information about how to use Wavy (the Operation Guide) is provided in a PDF file. You can view the PDF file (contained in the CD-ROM) using Adobe Reader 6.0 or later.

About This Guide

Product Versions That This Guide Covers

This guide applies to versions 6.X of Wavy for PBZ (SPEC70525). To check the Wavy for PBZ (SPEC70525) version, on the **Help** menu, click **Version Information**.

Related Manuals

For details about the intelligent bipolar power supplies in the PBZ series, see the PBZ Operation Manual.

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Safety Precautions

Before you use Wavy for PBZ, read the operation manual of the (PBZ series) intelligent bipolar power supply that you intend to use Wavy to control, and be sure to make connections and handle the device properly. Improper connections or handling can lead to serious accidents, injury, and fire.

System Requirements

- Core2 or better
- Windows8 (x86/x64), Windows7 (x86/x64)
- 2 GB or more of RAM
- 10 GB or more of free hard-disk space
- A display that supports a resolution of 1024×768 or greater (DPI: 96)
- Display
- CD-ROM drive
- Mouse
- RS232C, GPIB, or USB or LAN (depending on the PBZ interface)

If you intend to perform testing over extended periods, add additional RAM.

To use a GPIB interface, you need to ensure that the appropriate manufacturer's GPIB driver is installed and enabled. If you are using Windows 7, you need to install the newest GPIB driver.

National Instruments Corporation	NI-488.2 driver
CONTEC CO.	API-GPIB(98/PC)W95/NT Ver. 3.50 or later
Interface Corporation	GPC-4301 Ver.1.10-06 or later, Windows version
Agilent Technologies 82357B USB/GPIB	Agilent IO Libraries Suite Version 15.0

To use a USB or LAN interface, you need ensure that a VISA library is installed on your PC.

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

Specifications

Modes: Bipolar, unipolar

Operation modes: Constant voltage, constant current

Signals: DC, DC+AC. You can set the AC waveform to one of 16 user-defined arbitrary waveforms.

Settings: 3 decimal places for both voltage and current

Monitoring: Output current and voltage values

Monitoring interval: 500 ms to 600,000 ms (0.5 s to 600 s)

Maximum number of steps: 1024

Sequence time intervals

Unit	Range
ms (milliseconds)	0.1 to 9,999,999.9
s (seconds)	0.0001 to 99,999.9999
min (minutes)	0.1 to 9,999.9
h (hours)	0.1 to 999.9

* Be sure not to specify a voltage or current value that is beyond the specifications of the device.

(Wavy for PBZ does not check the validity of the values that you have entered (whether or not they are within the limits of the device).)

Installation

You need to log in as an administrator to install the items in this section.

Installing a VISA Library (for using USB or LAN interface only)

To control the PBZ through USB or LAN, you need ensure that a VISA library is 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. 3.2 or later)
- Agilent VISA by Agilent Technologies, Inc. (Agilent IO Libraries M.01.00 or later)
- KI-VISA version 3.0.0 or later

Installing KI-VISA

KI-VISA is an original VISA library developed by Kikusui Electronics Corporation that supports the VXIplug&play 3.0 specifications.

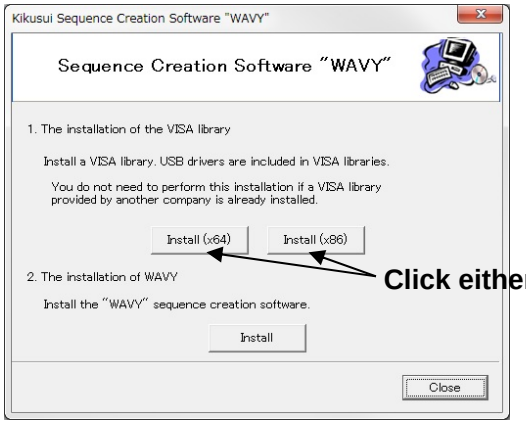
If NI-VISA or Agilent VISA is already installed on your PC, you do not need to install KI-VISA.

The KI-VISA library recorded in CD-ROM is x86 version.

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 in the CD-ROM.

2. Under 1. Install USB driver, click Install.



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.

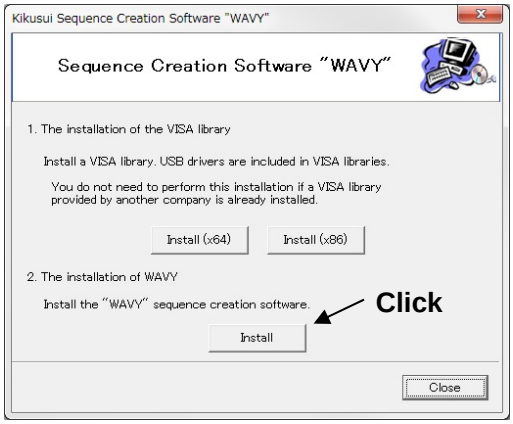
You can download the newest version of KI-VISA from the Kikusui Electronics Corporation website (http://www.kikusui.co.jp/download/).

Installing Wavy for PBZ

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 in the CD-ROM.

2. Under 2. Install Wavy, click Install.



3. Follow the instructions on the screen.

Uninstalling Wavy for PBZ

In the Control Panel, select **Programs**, and remove **Kikusui SPEC70525 Wavy for PBZ Ver. 6**.

Connecting

For details about connecting, see Chapter 6, “Remote Control,” in the PBZ Operation Manual.

Connecting the PC to the PBZ

The necessary cables are not included.

GPIB

To connect the PC to the PBZ using an IEEE-488 cable.

RS232C

To connect the PC to the PBZ using a standard crossover cable (null modem cable). The PBZ RS232C port is a standard male DB9P connector.

USB

To connect the PC to the PBZ using a standard USB cable.

LAN

To connect the PC to the PBZ via a network hub or router, use a standard LAN cable (category 5, straight). To connect PC directly to PBZ, use a crossover LAN cable.

Configuring the PBZ

1. Make sure that the PBZ output is off.
2. Press CONFIG six times to display the INTERFACE screen.
3. Press the down arrow key once to move to TYPE.
4. Turn the rotary knob to select the interface type.
5. If you set the interface type to GPIB, set the GPIB address (1 to 14).

   If you set the interface type to RS232C, use the factory default protocol settings (BAUD RATE: 19,200, DATA BITS: 8, STOP BITS: 1, X-FLOW: on).
6. Turn the PBZ off and then on again.

   The settings are applied.

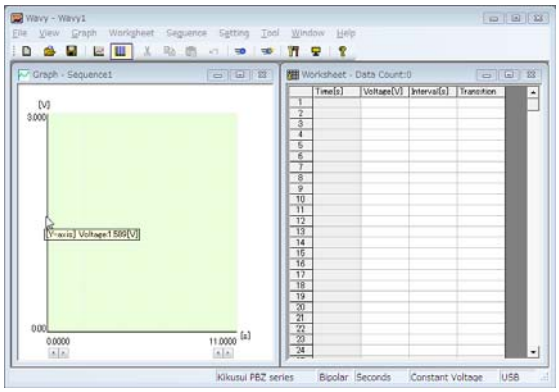
Starting Wavy for PBZ

Disable the OS’s power-saving mode and screen saver. Also, avoid using Wavy at the same time as other applications.

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, because of the resolution.

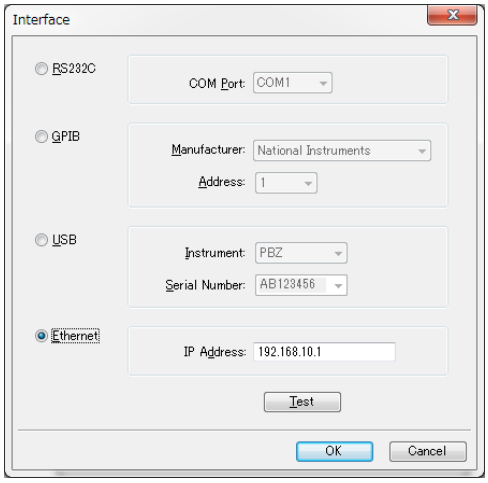
To start Wavy for PBZ, double-click the **Wavy for PBZ** icon on the desktop.



Configuring the Interface

After you start Wavy for PBZ, first configure the interface.

On the **Settings** menu, select **Interface**.



Selecting Which Interface to Use

Click the option button of the interface that you want to use.

RS232C

1. Set the COM port.
2. Check to make sure that the PBZ protocol settings are at their factory defaults.

   The factory default settings are BAUD RATE: 19,200, DATA BITS: 8, STOP BITS: 1, X-FLOW: on.
3. Click [Test] to make sure that Wavy can connect to the PBZ properly.

GPIB

1. Select the manufacturer of the GPIB card that you are using.
2. Specify the same GPIB address that you did on the PBZ menu.
3. Click [Test] to make sure that Wavy can connect to the PBZ properly.

USB

1. Enter the serial number of the PBZ in [Serial Number].

   You can check the serial number in the PBZ menu.

2. Click [Test] to make sure that Wavy can connect to the PBZ properly.

LAN

1. Enter the IP address.

   You can confirm the IP assress by referring to the config settings on the PBZ.

2. Click [Test].

   Verify that your PC is communicating property with the PBZ.

When the IP adress is not fixed, the IP address of the PBZ may change. In case that the PBZ is not recognized, confirm the IP address by checking the config settings on the PBZ. If the IP address has been changed, re-enter the update IP address.

How to Use Wavy

Information about how to use Wavy for PBZ (the Operation Guide) is provided in a PDF file. You can view the PDF file (contained in the CD-ROM) using Adobe Reader 6.0 or later.

Performing Sequence Testing

1. Select the mode that you want to perform testing in.

   On the **Sequence** menu, click **Mode**.

   Select **Bipolar** or **Unipolar** and **Constant voltage** or **Constant current**.

2. Create steps.

   You can create steps in the **Graph** window using the mouse, or in the **Sheet** window by typing values directly.

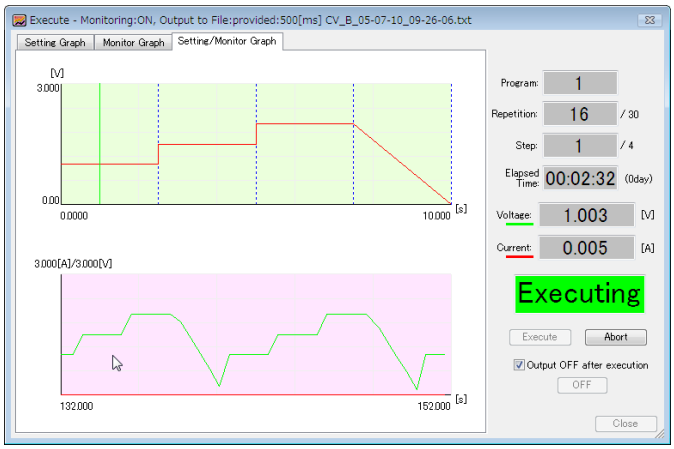
   You can also configure protective features.

   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. Transfer the steps that you have created to the PBZ.

4. Execute the sequence.

   To execute the sequence, on the **Sequence** menu, click **Execute**.



In the Execute window, you can display a sequence graph and a real-time graph of the monitored values.

During execution, the program number, the currently executed repetition, the step location, and the elapsed time are displayed.

The voltage and current values may be displayed, depending on how monitoring is configured.

The monitored data is saved to a file.

Remote Control Panel

You can use Wavy for PBZ to remotely control the PBZ.