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Battery Emulation Software Setup Guide

SD036-PXB Battery Emulator for PXB

The SD036-PXB Battery Emulator for PXB is an application software that reproduces battery behavior using Kikusui PXB Series Bidirectional DC Power Supply.

Since it can reproduce specific battery conditions through its settings, it can be used to repeatedly test batteries under conditions that are difficult to test with real batteries.

Main functions

- Loading I-V table files (CSV format)
- Create interpolated I-V table sheets for each status of charge (SOC) from the loaded I-V table file
- Voltage control using measured current values and I-V tables
- I-V curve graph display for each SOC
- Displays real-time measured values and graphs
- Definable SOC or capacity at start of operation
- SOC range can be set for stopping conditions
- Protection against operation outside the I-V table range
- Creating log files

■ Package contents

- USB dongle key
  (The installer for the SD036-PXB Battery Emulator for PXB is stored here.)
- Setup guide (this document)

■ Trademarks

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■ Notations used in this guide

- Application software SD036-PXB Battery Emulator for PXB is also referred to as “SD036-PXB” or “Battery Emulator.”

The PXB Series Bidirectional DC Power Supply is also referred to as “PXB power supply.

- Since it can reproduce specific battery conditions through.”
- “PC” in this guide is a generic term for personal computers and workstations.
- In this guide, operations on Windows 11 are described when explaining operations related to the OS.
- The screen captures used in this guide may differ from the actual items.
- The following markings are used in this guide.

NOTE	Indicates information that you should know.
>	Indicates the menu command you need to select. The menu command to the left of “>” is the higher level command.

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KIKUSUI ELECTRONICS CORP.
1-1-3 Higashiyamata, Tsuzuki-ku, Yokohama,
224-0023, Japan
Tel: +81-45-482-6353
Fax: +81-45-482-6261
global.kikusui.co.jp

Safety precautions

Before using the software, thoroughly read the operation manuals of the relevant devices in order to properly connect and handle them. Improper connections or handling can lead to serious accidents, injury, and fire.

System requirements

- Processor: Core i5 or higher
- OS: Windows 11 or Windows 10 (x64)
- Memory: 8 GB or more
- 10 GB or more of free storage space
- A display that supports 1366×768 (FWXGA) or higher resolution
- Mouse
- USB[1] or LAN
  (depending on the interface to use)
- KI-VISA[2] library 5.5 or higher
- USB dongle key

1 One port is required for the USB dongle key.
2 Other than KI-VISA is not supported.

Windows Update

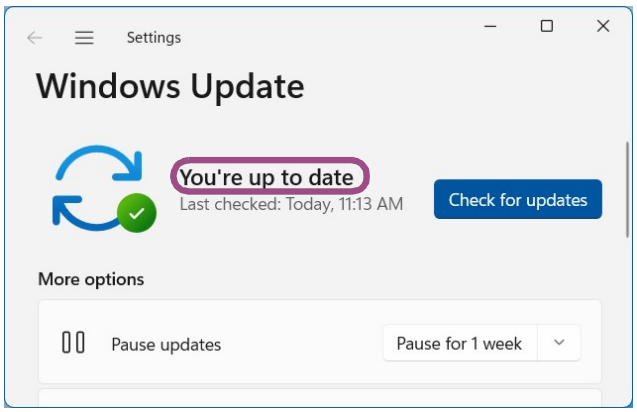
If you want to run the software stably over an extended period to conduct tests, you need to be careful about the automatic updates in Windows.

Before conducting a test, thoroughly read and make sure you understand the instructions given below to set up a highly stable OS environment as much as possible.

■ Running Windows Update

Run Windows Update to update the OS to the latest condition (in which You're up to date is shown).

When the downloading of the update file is complete, Windows will be in an installation-wait state or restart-wait state after installation. If you attempt to start the software to conduct a test while the PC is in the above state, Windows may restart automatically even when the PC is not connected to the Internet. Be sure to select Install Now or Restart Now to complete the installation of the update program.



Example of Windows 11

■ Windows Update settings

With the default Windows Update settings, when connected to the Internet, Windows automatically runs Windows Update and restarts the PC using the update program. If the software is running, Windows will automatically restart even when a test is in progress, and this will result in the interruption of the test.

If you want to run the software over an extended period to conduct tests, we recommend you to reschedule installation of update program for a later date by making settings in Windows Update.

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.

USB dongle key driver

To use Battery Emulator, you need to first install the USB dongle key driver on the PC to be used for running the software, and then to connect the USB dongle key to the PC.

1 **Open the WIBU folder in the USB dongle key.**

2 **Double-click CodeMeterRuntime64.exe in the folder to run it.**

Follow the instructions until the installation is complete.

VISA library

To use Battery Emulator, VISA library needs to be installed on your PC.

VISA (Virtual Instrument Software Architecture) library is a standard specification for measurement instrument connection software, which was developed by VXIplug&play Systems Alliance.

A KIKUSUI original KI-VISA is available that supports IVI VISA specifications 5.0. You can download the latest version of this library through our website (https://global.kikusui.co.jp/downloads/).

- KI-VISA Ver. 5.5 or later

■ Installing KI-VISA

NOTE

Do not install multiple different VISA drivers. Doing so may cause the various VISA drivers to malfunction.

If any VISA libraries other than KI-VISA are already installed in your PC, uninstall them before installing the KI-VISA.

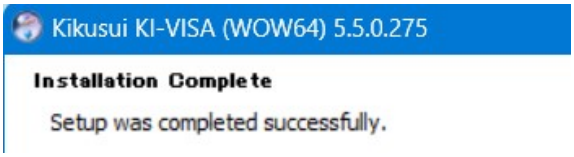
1 **Open the KI-VISA folder in theUSB dongle key.**

2 **Double-click kivisa_5_5_x(x64).exe to run it.**

Follow the instructions until the installation is complete.

NOTE

KI-VISA_x_x_x(x64).exe for 64-bit OS contains two software, KI-VISA (x64) and KI-VISA (WOW64). When KI-VISA (x64) has been successfully installed, the installation of KI-VISA (WOW64) begins. Be sure to confirm that the installation of KI-VISA (WOW64) has finished successfully.



Install Battery Emulator

1 **Open the Battery Emulator folder in the USB dongle key.**

2 **Double-click setup.exe to run the installer.**

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

Uninstallation

Right-click the Windows Start icon and select Installed apps > SD036-PXB Battery Emulator for PXB > Uninstall.

Start Battery Emulator

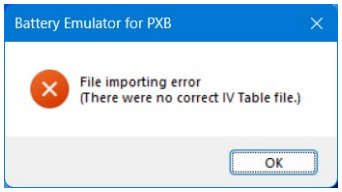
NOTE

- Connect the supplied USB dongle key to your PC. The Battery Emulator checks the dongle key connection when it communicates with the PXB during test execution and other times. If the key is not connected, you cannot use the Battery Emulator.
  The supplied dongle key is for the SD036-PXB Battery Emulator for PXB. It cannot be used for other Kikusui software applications that require dongle keys.
- The required I-V table files do not exist in the specified folder immediately after the Battery Emulator is installed. If you launch it directly, the error message shown below will be displayed, but you can still launch the Battery Emulator by clicking OK.
  Refer to the user's manual for information on I-V table files.
- Before starting Battery Emulator, make sure that the power-saving mode and the screen saver are turned off and all the other applications are closed on your PC.
- When your PC supports either Advanced Power Management (APM) or sleep mode, turn off these functions.
- Changing the DPI setting may result in improper appearance of the display.

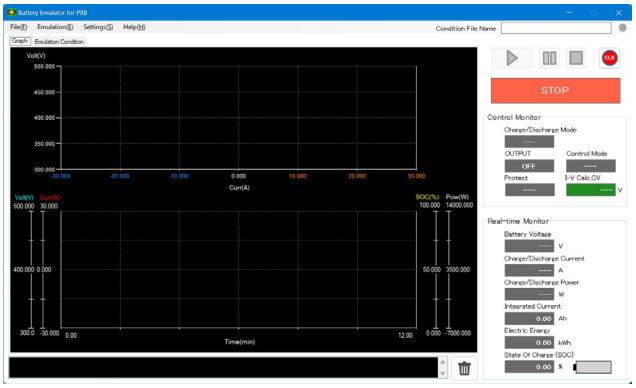
1 **Connect the USB dongle key to the PC that is to run the Battery Emulator.**

2 **From the Windows Start menu, select Kikusui SD036-PXB > Battery Emulator for PXB.**

If there is no I-V table file in the specified folder, an error message will be displayed.



Click OK to launch the Battery Emulator.



The I-V graph is not displayed because the I-V table file does not exist.

Refer to the user's manual and place the I-V table file in the specified folder.

Changing the display language

The display language can be changed to English or Japanese.

When Battery Emulator is started for the first time, the application software will start in English or Japanese depending on the language of Windows.

To change the display language, select Language from the File menu of the application software.

Viewing User's Manual

The user's manual contains information on how to operate the software applications.

Select Help from the Help menu or select Kikusui SD036-PXB > SD036-PXB_USERS_E.pdf from the Windows Start menu.