LinkVIeW

Control Software for Power System

USER MANUAL

ISO-9001 CERTIFIED MANUFACTURER GW INSTEK

The information in this manual was correct at the time of printing. However, Good Will continues to improve products and reserves the rights to change specification, equipment, and maintenance procedures at any time without notice.

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Introduction

Summary

This sequence creation software enables you to operate a Power Supply and an Electronic Load as charge/discharge system. A pair of one channel of power supply and one channel of electronic load consist one Channel in LinkVIeW.

Sequence pattern can be created for maximum 12 Channels.

Compatible models

Power Supply

Series	GPIB	USB	RS-232C
PSU Series	Factory Option	Standard	Standard
PSW Series	GUG-001	Standard	GUR-001
PSB 2000 Series	PSB-001	Standard	Standard
PSB 1000 Series	PSB-105	Standard	Non
PFR Series	Factory Option	Standard	Standard
PHX Series	Non	Standard	Standard

Electronic Load

Series	GPIB	USB	RS-232C
PEL 3000 Series	PEL-004	Standard	Standard
PEL 3000E Series	PEL-004	Standard	Standard
PEL 2000(A) Series	PEL-001	Standard	Standard

Note All of the power and electronic load must use the same series.

OS

Windows7+SP1. (32bit/ 64bit)

Windows10. (32bit/ 64bit)

Interface

GPIB	GPIB interface NI-488.2 driver by National Instruments is required.
RS-232C	Windows standard or a USB-RS232C converter.
USB	USB-CDC of GW-Instek USB Driver

Supplied files

The contents of the enclosed disk are as follows:

[Folder]	[Contents]
\Release	The folder for LinkVIeV setup
\Release\DotNetFX40	The library 1 for a setup
\Release\WindowsInstaller3_1	The library 2 for a setup

Installation

System hardware requirements

Before installation, please confirm that Windows can work normally and meet the following hardware conditions

Processor: 1 GHz or faster processor or system on chip (SoC)

RAM: 1 GB (32-bit) or 2 GB (64-bit)

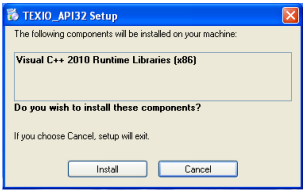
Hard disk space: more than 16G remaining space

Software installation steps

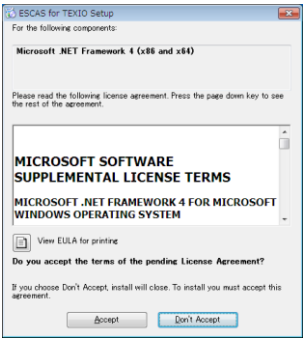
Before installing the LinkVIeW program, it is necessary to have NI-VISA installed. Please visit the National Instruments website to download and install NI-VISA. You can find this program on the NI website, www.ni.com, by searching for NI-VISA or navigating to "downloads" at the following URL:
https://www.ni.com/en/support/downloads/drivers/download.ni-visa.html#521671

Step	1. Login as administrator and update your Windows. Follow "Windows Update" instruction. 2. Please install the setup API in the API folder of the USB flash.Run setup.exe of API folder. The Setup Wizard will open. Please proceed with the installation after ensuring that the following components are installed: .NET Framework 4.0 Client Profile and Visual C++ 2010 Redistributable Package.

Visual C++ 2010 Redistributable Package

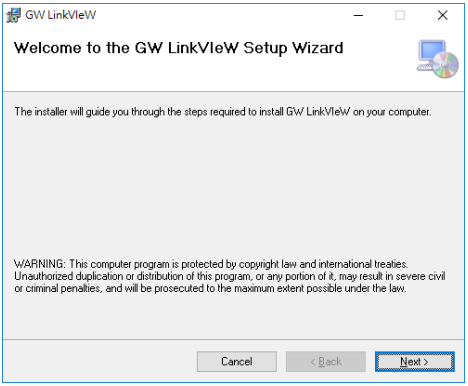


.NETFramework4 install



3. When you use GPIB, install National Instruments Corporation GPIB driver NI-488.2. Install driver which is attached to GPIB card or download the latest version from National Instruments web site (www.ni.com).
4. When you use USB, install the USB driver from GWinstek website for the corresponding products.
5. Connect a power supply and electronic load to PC. Turn on a power supply. If you use USB, driver installation of PC should be performed one by one. Do not connect more than one at the same time such as connecting by Hub. Malfunction may occur.
6. Right-click the Setup.exe in the folder of Release, select "Run as administrator". Please follow the instructions to proceed with the setup wizard will start.

Visual C++ 2010 Redistributable Package



7. Completing the Installation.

   The desktop shortcut of "LinkVIew" will be created when the installation is complete.

Setup LinkVIeW

Start-up

Double-click "LinKVIeW " 

icon on the disk top. LinKVIeW will start.

LinkVIeW starts and "Test" screen is displayed.

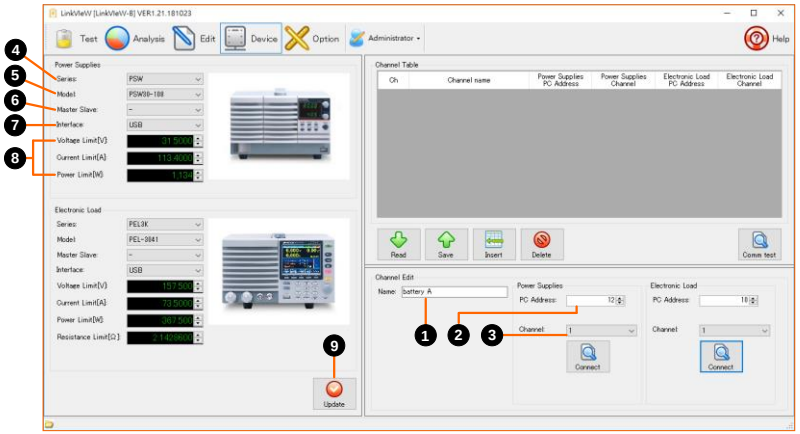
Device settings

Click "Device" button on a tool bar to set up the equipment to examine.

Edit channel

Power Supply parameters and Electric Load parameters are set at "Edit channel". You can edit "Channel" parameters, too. You can edit Channel which is consisted one channel of Power Supply and one channel of Electronic Load.

Note	"Channel" consist one channel of Power supply and one channel of Electronic Load.

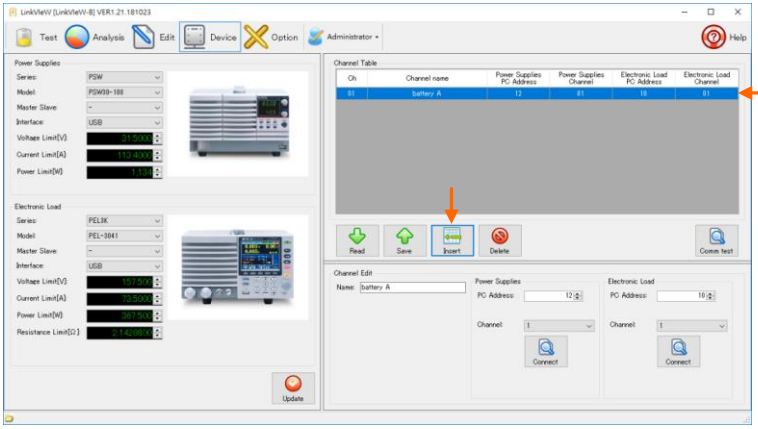


Set up PC address of equipment which will be examined and a channel of Power Supply or Electronic Load.

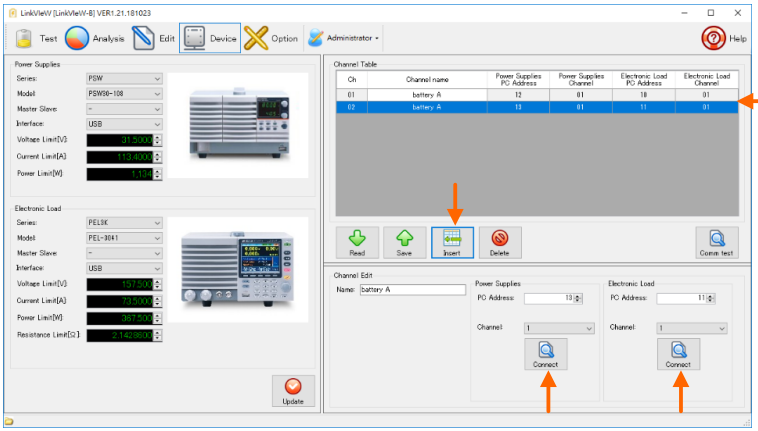
1. Name.	Name for each "Channel".(Example: "The battery A", "The battery B")
2. PC address	Set up PC address of equipment. Or comport No.
3. Channel	Set channel number If Power Supply/Electronic Load to be used have two or more.
4. Series to be used	Set up the series name of Power Supply/Electronic Load.
5. Model to be used	Set up the model name of Power Supply/Electronic Load.
6. Master Slaves machine	Set up the number of the slaves linked to a master.
7. Interface	Select the interface to be used.
8. Limit value	Set up the limit value of the voltage, current, power and resistance of Power Supply and Electronic Load to be used.
9. Update	Click "Update" button to finish setup.

When setup of name, PC address and channel finishes, click “Insert” button.

The set-up contents are inserted in a channel table.

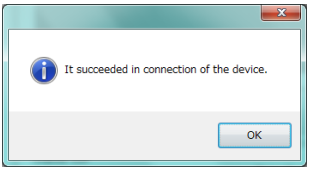


When you setup two or more channels, setup the name of channel to add, PC address, and channel of equipment. If “Insert” button is clicked after set-up, a new channel will be inserted under the channel set as the point of a channel table.



If a setup of all the channels finishes, click “Connect” button.

If there is no problem in connection, the message "It succeeded in connection of the device." will be displayed. When there was a problem in connection after checking connection, the message "Connection of the device went wrong. Please perform again after checking connection" is displayed. Check the "Channel" parameter of the equipment's channel, address and equipment itself etc.



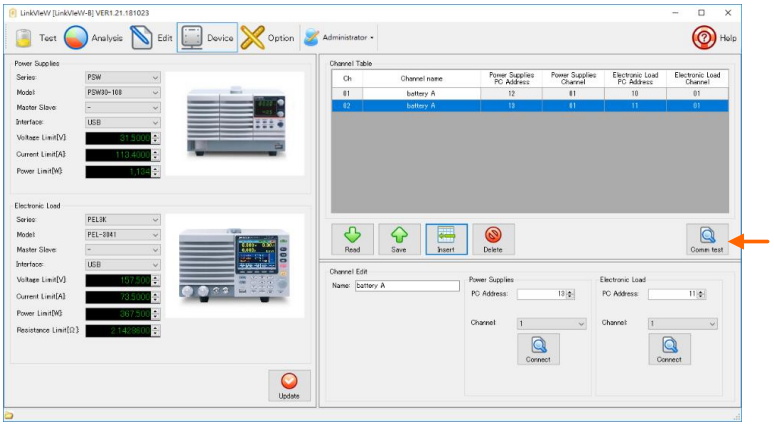
Succeed

NG

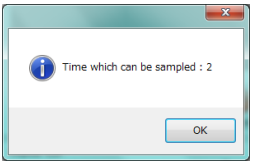
If the connection was disconnected during the test bus is an unstable connection, you may need to restart the application. Please restart because the application is terminated.

Check of Setting

If there is no problem in a connection test, click "Comm test" button and check the length of sampling time. If the number of channels to be examined increases, the sampling time per channel will increase due to the communication time.



The time that can be sampled is displayed after measuring of sampling time.



The minimum time is 1 second channel 1, if more than one channel is required each time.

Channel table

When the channel of "Channel table" is clicked, the color of the line that is chosen changes to blue.

The selected channel can be operated by the following buttons.

Contents of the selected channel are read into "Channel edit". The read contents are correctable.

Contents corrected by "Channel edit" are overwritten to the chosen channel.

Insert a created channel by "Channel edit" to under the existing channel.

Delete the selected channel.

Edit

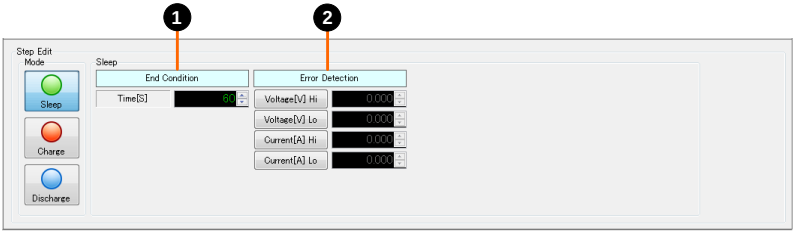
Examination pattern are created. Click “Edit” button in the tool bar.

Editing steps

A test condition is set by “Step Edit” of the “Edit” screen.

Note	Setting contents will differ depending on the equipment to be used.

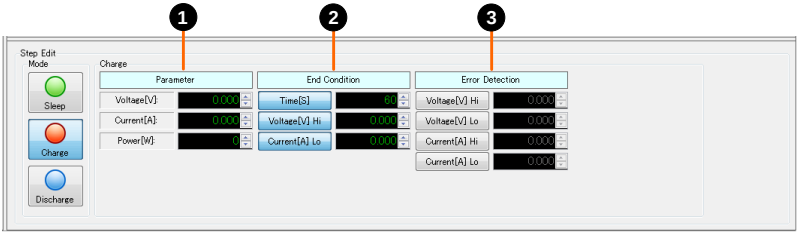
(1) Sleep



1. End Condition — Set pausing time.
2. Error Detection — The error will occur when setting maximum/minimum voltage or current is detected.

(2) Charge

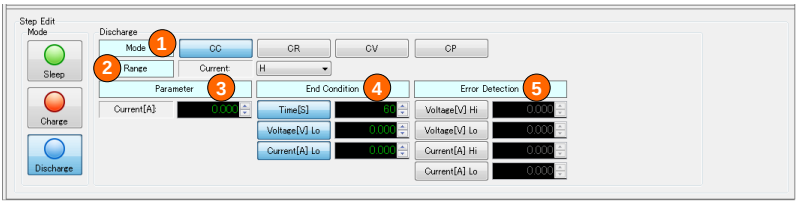
Set up the electronic load (Example: LSA-165). Setting parameters depends on the model.



1. Parameter — Setup the condition of charge. Setup voltage, current and electric power.
2. End Conditions — Set up the charge-stop condition. Charging time, maximum voltage, and minimum current can be set as "End Conditions". Priority is given to the contents to which end conditions are met first.
3. Error detection — Error will be detected when the over/under setting voltage or current is detected.

(3) Discharge

Setup the electronic load (Example: LSA-165). Setting parameter are depends on the model.



1. Mode — The mode of electric discharge is chosen. Choose one of "CC", "CR", "CRx10", "CP", "CV+CC" or "CV+CR".
2. Range — Current range. Choose one of "L", "M" or "H".

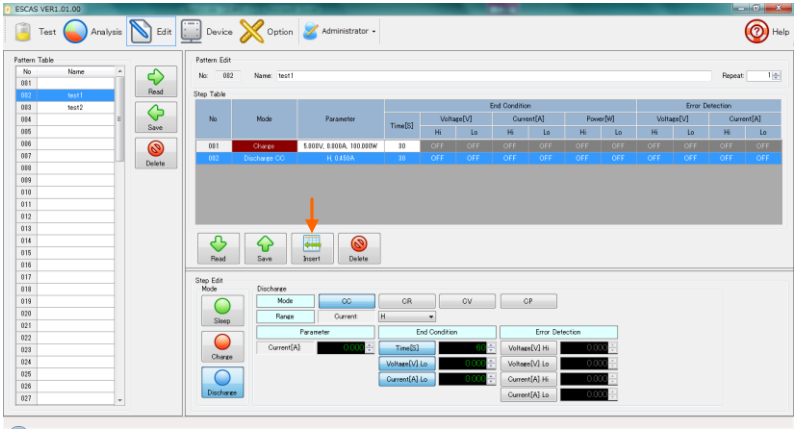
3. Parameter — Parameter of charge conditions of voltage, current and electric power.
4. End Conditions — Discharge stop condition can be set. You can set "Discharge Time", "Discharge Voltage" and "Discharge Current".

   Priority is given to the contents to which end conditions are met first.
5. Error Detection — Error will be detected when the over/under setting voltage or current is detected.

Step insertion into the table

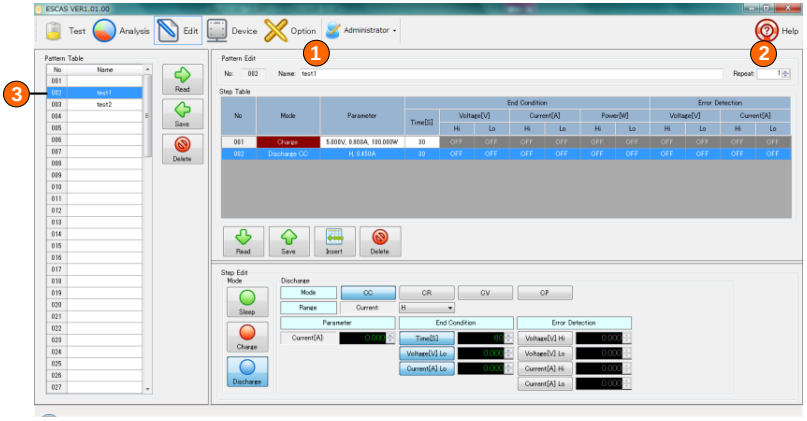
When you finish the editing of steps, click the "Insert" button and the step will be inserted into the step table.

One or more steps can be inserted into the step table. The step table is performed in an order from the top inserted step.



Pattern editing

A pattern name will be registered if insertion on the step table of each step finishes.



1. Name — A pattern name is attached to a series of steps in a step table.
2. Repetition — Set up the repeat count of a series of steps. Repeat count will be registered to the pattern name.
3. Pattern table — Click the "Overwriting" button and the pattern will be registered to the place you want. Select the line and click the "Overwritten" button then data will be overwritten.

Click the "Save" button and the pattern will be registered to the pattern table. If the pattern table already has registered, data will be overwritten.

Click the "Read" button and the selected pattern will be read to the table.

Click the "Delete" button and pattern name and all step data will be deleted.

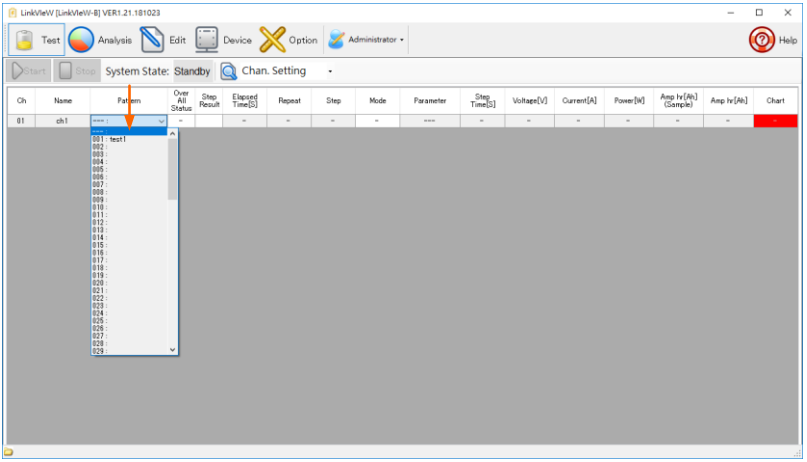
Executing of LinkVIew

Testing

A channel is examined by the set-up pattern.

Pattern selection

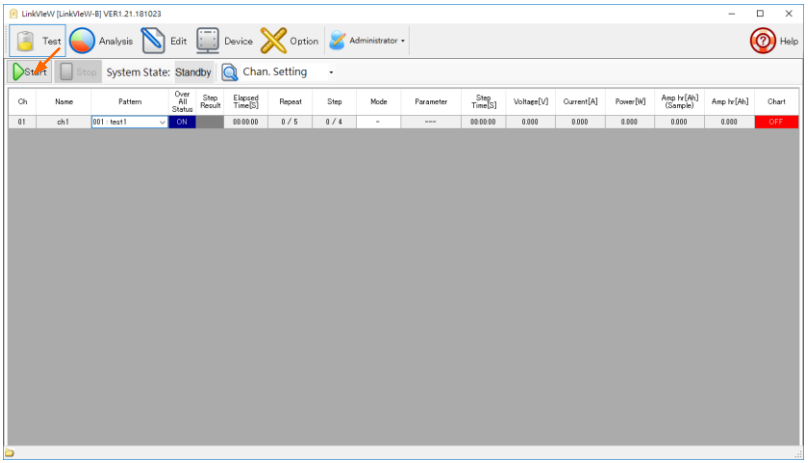
Select a pattern to be examined. The channels are displayed in the lower part of the "Examination" screen.



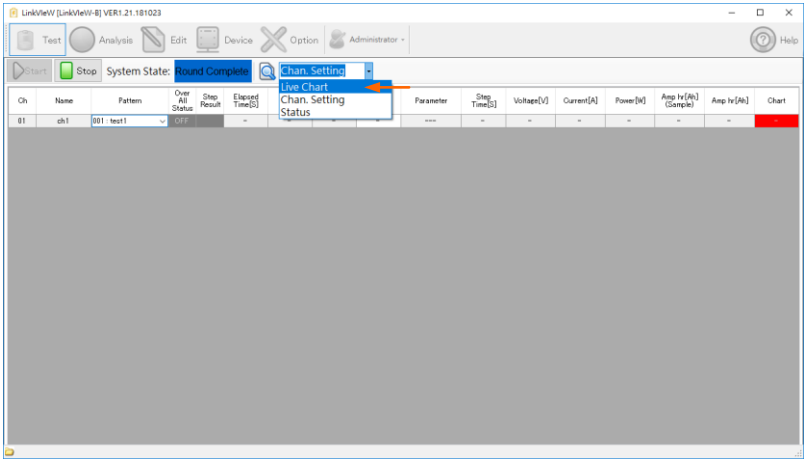
Selection of a pattern — The pattern registered beforehand is chosen.

Start testing

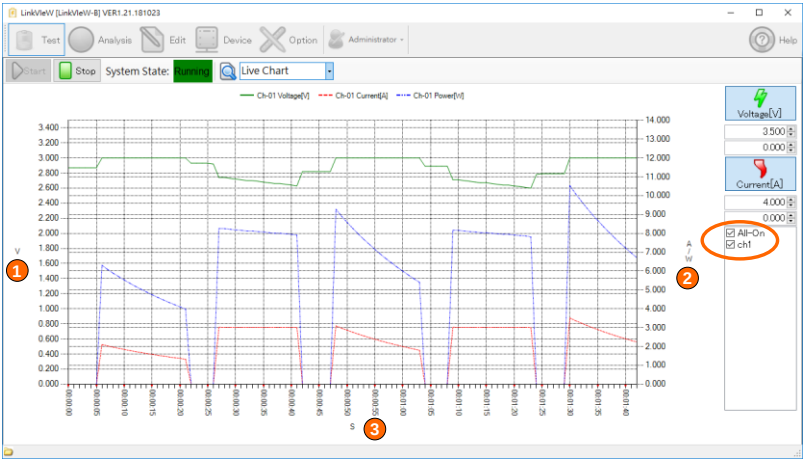
Click the "Start" button and the examination will begin. The graph will be displayed on the screen.



Select Live Chart pattern. The graph will be displayed on the screen.



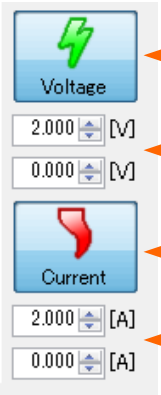
Select the channel you want to display. The graph will be displayed on the screen.



1. Voltage axis — Unit voltage (V)
2. Current and Power axis — Unit ampere (A) and Watts (W)
3. Time-axis — Unit Sec(s)

A graphical representation is updated for every sample time at the communication test.

Since lapsed time becomes a full scale, the graph seems to be shortened with time progress.



It determines whether to display or hide the voltage graph. Whenever it pushes, displays, or hides changes.

The numerical value of the upper/ lower limit of a voltage axis is set up.

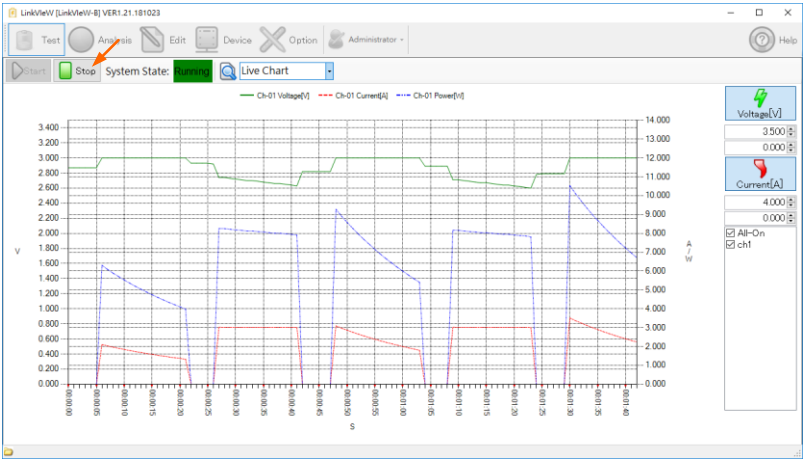
It determines whether to display or hide the current graph. Whenever it pushes, displays, or hides changes.

The numerical value of the upper/ lower limit of a current axis is set up.

Stop testing

When you suspend all the examinations on the way, click the“Stop” button.

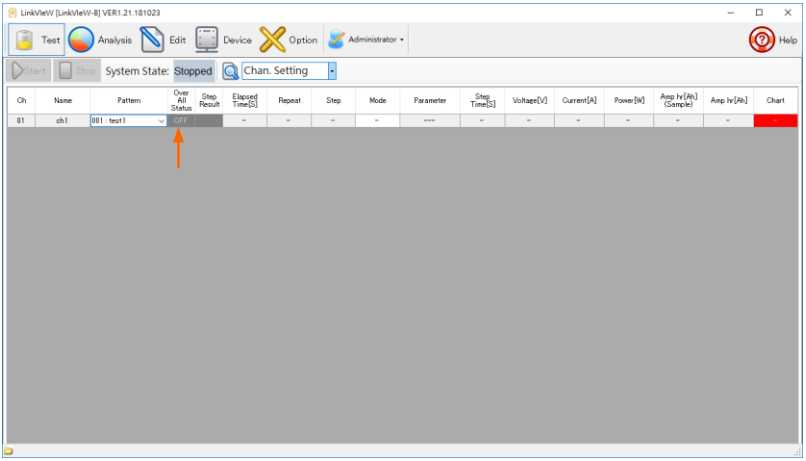
All the examinations will stop irrespective of the situation of each channel.



The end of the test

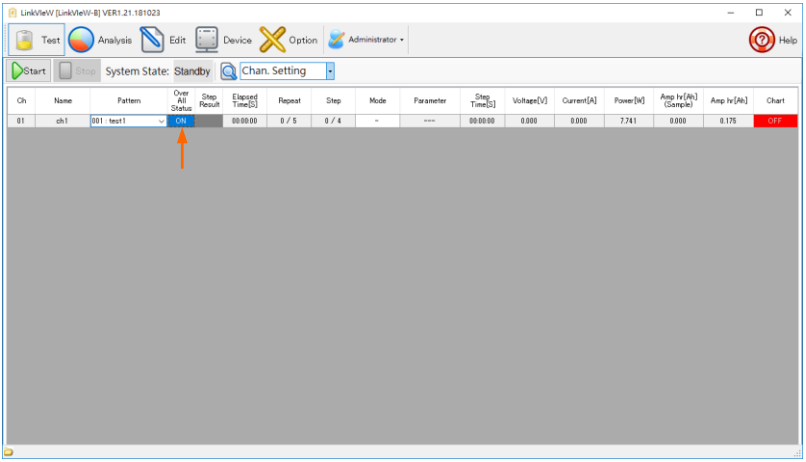
Each channel will be “OFF” when one of the “End Condition” will be met.

The examination will finish. Even if all the channels become “end conditions” and are “OFF”, an examination does not stop. If you want to stop the examination manually, double-click the “Examination” button. Please return to the idle state, press the stop, and the test is finished.



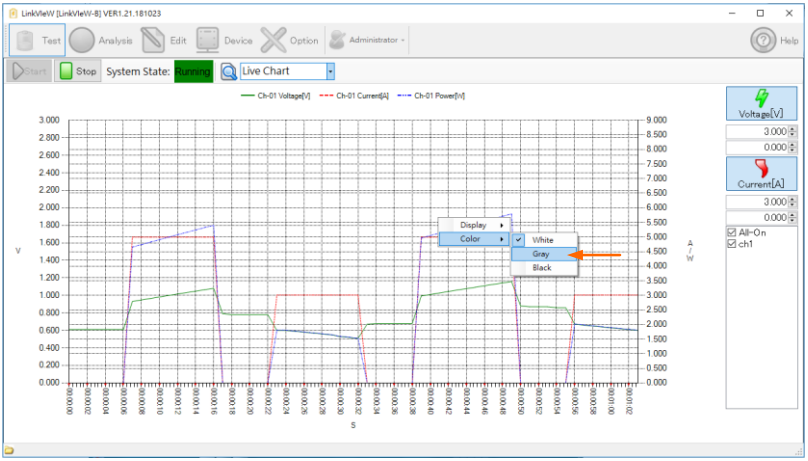
Testing resume

When you re-start after suspending an examination, double-click the "Test" button of the channel to start. Only the channel which is "ON" will resume an examination. If you resume testing, an examination will start from the beginning. If the Start icon is disabled, please reselect the pattern.



Graph design

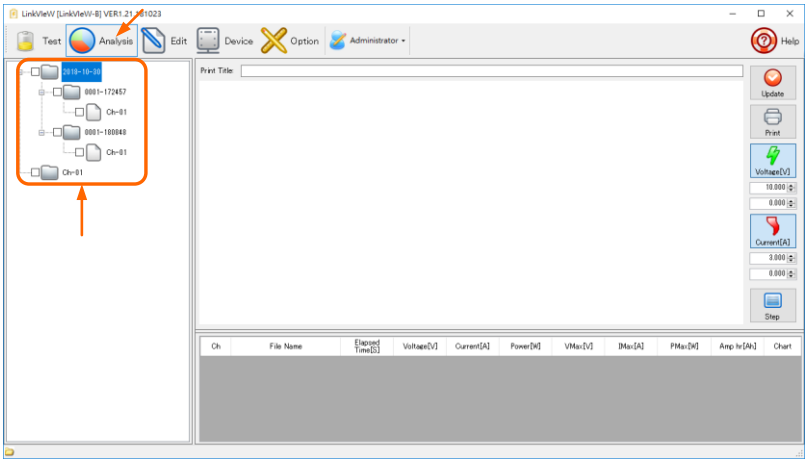
If a mouse is right-clicked on a graph, a menu will be displayed. Choose the back color of a graph from the list. A color on the back is reflected when an examination is started.



Analysis

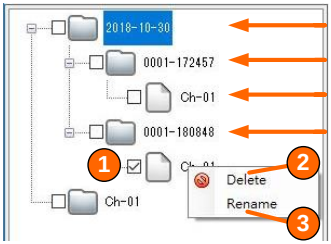
The data acquired by the examination can be checked on an analysis screen.

Click "Analysis" button and an analysis screen will be displayed.



Data

a. Data folder



It is a date folder of test data 1.
The first test folder is contained.
It is a test data of channel 1.
The second test folder is contained.
A data folder is created in a channel folder.
One data folder will be created for every examination.

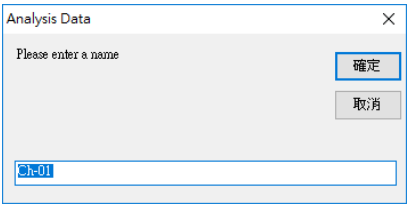
1. Selection of data Selected data is checked in the check box.

2. Deletion of data — If a mouse is right-clicked within a data folder, a “Deletion” and “Change of name” mark will be displayed. Click “Deletion” mark and message “Analysis data are deleted. Is it all right?” will be appeared. Click “OK” to delete data. Click “Cancel” to cancel deletion.

3. Change of a name — Click the name of the test data and you can change the name of the data.

   If a data folder is right-clicked, the “Deletion” and “Change of name” mark will be displayed. Click the “Change of name” mark and the “Inputting a name” box will be opened.

Note — As for deletion of data, all the data in which the checked will be deleted simultaneously.

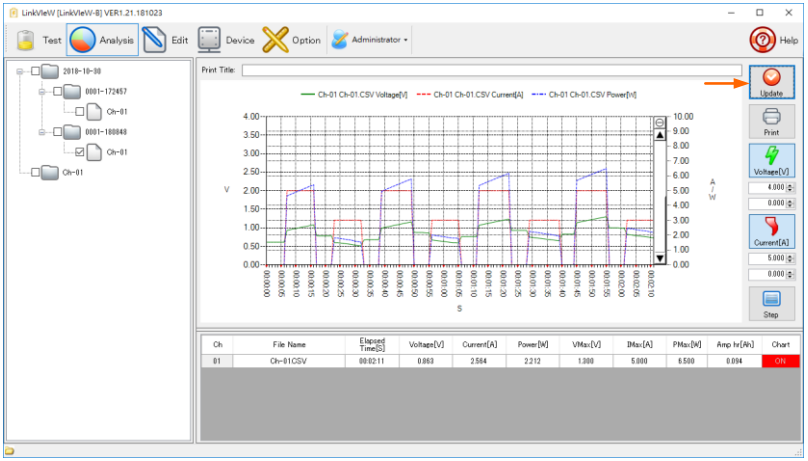


Graph display

Click the "Update" button after choosing the data, and a graph and data will be displayed. A graph is classified by color for every data.

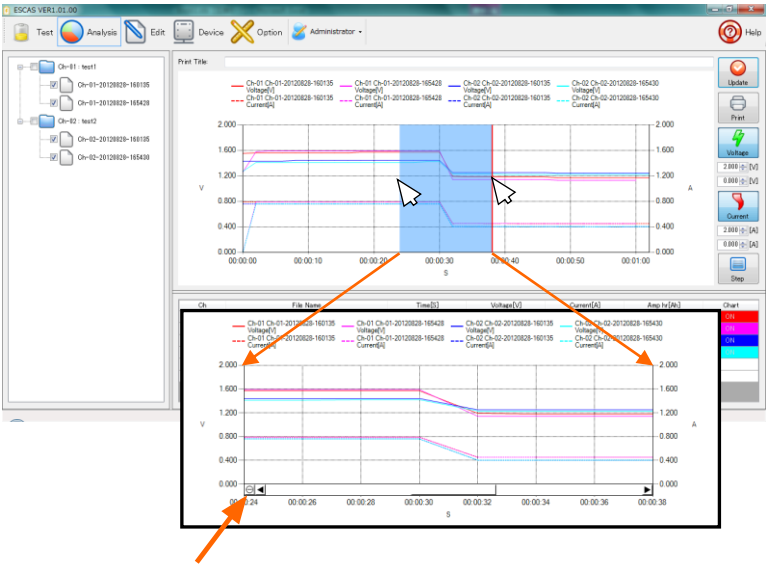
Note

Since the graph of current is displayed in an absolute value, it becomes a plus direction irrespective of charge and discharge.



Expansion display

Click start position and drag mouse to the end position in graph, the selected area will be magnified.

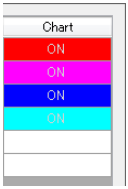


Click here when you restore to the original size.

Display/Hide a graph

The graph of voltage can be changed to a display/hide by clicking the "Voltage" button.

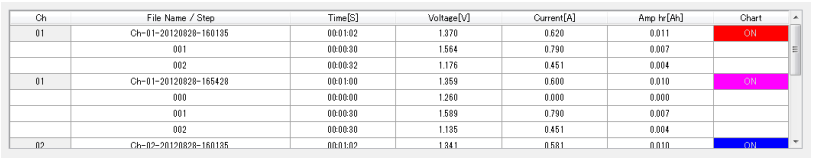
The graph of current can be changed to a display / hide by clicking the "Current" button.



You can display / hide channel data by clicking "ON" or "OFF" of "Chart". Select "OFF" and data will be hidden.

Test data

The test data displayed on a chart can display the data for every step by clicking the "Step" button. As for the displayed data, it is possible to scroll the display with a scroll bar.



Ch	File Name / Step	Time[S]	Voltage[V]	Current[A]	Amp hr[Ah]	Chart
01	Ch-01-20120828-160135	00:01:02	1.370	0.620	0.011	ON
	001	00:00:30	1.564	0.790	0.007	
	002	00:00:32	1.176	0.451	0.004	
01	Ch-01-20120828-165428	00:01:00	1.359	0.600	0.010	ON
	000	00:00:00	1.260	0.000	0.000	
	001	00:00:30	1.589	0.790	0.007	
	002	00:00:30	1.135	0.451	0.004	
02	Ch-02-20120828-160135	00:01:02	1.341	0.581	0.010	ON

Data file

Test data is recorded as a CSV file in the folder specified.

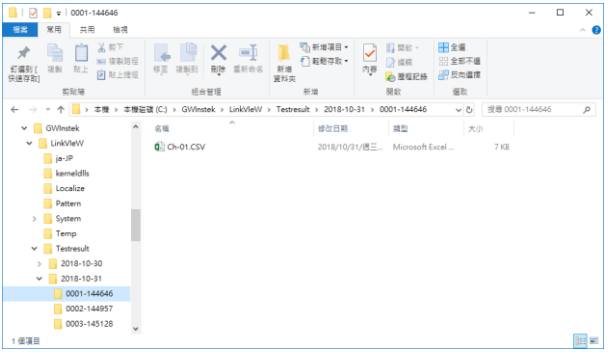
At default, the data folder is created as the following example:

"C:\GWInstek\LinkVIeW\Testresult\20xx-xx-xx\xxxx-xxxxxx".

The default folder name and file name consist of the channel and time examined.

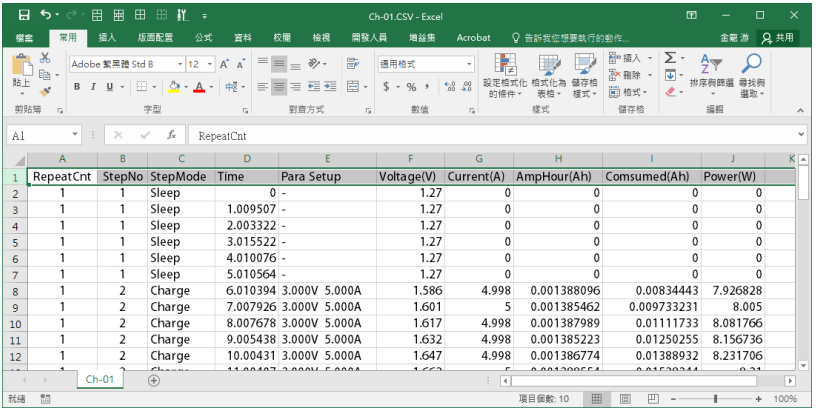
Example C:\GWInstek\LinkVIeW\Testresult\2018-10-31\0001-144646\Ch-01.CSV

= Data of Channel 1 , 14:46 46 seconds on October 31, 2018



Data

Test data is recorded in a predetermined folder in the form of CSV.



RepeatCnt	StepNo	StepMode	Time	Para Setup	Voltage(V)	Current(A)	AmpHour(Ah)	Comsumed(Ah)	Power(W)
1	1	Sleep	0	-	1.27	0	0	0	0
1	1	Sleep	1.009507	-	1.27	0	0	0	0
1	1	Sleep	2.003322	-	1.27	0	0	0	0
1	1	Sleep	3.015522	-	1.27	0	0	0	0
1	1	Sleep	4.010076	-	1.27	0	0	0	0
1	1	Sleep	5.010564	-	1.27	0	0	0	0
1	2	Charge	6.010394	3.000V 5.000A	1.586	4.998	0.001388096	0.00834443	7.926828
1	2	Charge	7.007926	3.000V 5.000A	1.601	5	0.001385462	0.009733231	8.005
1	2	Charge	8.007678	3.000V 5.000A	1.617	4.998	0.001387989	0.01111733	8.081766
1	2	Charge	9.005438	3.000V 5.000A	1.632	4.998	0.001385223	0.01250255	8.156736
1	2	Charge	10.00431	3.000V 5.000A	1.647	4.998	0.001386774	0.01388932	8.231706

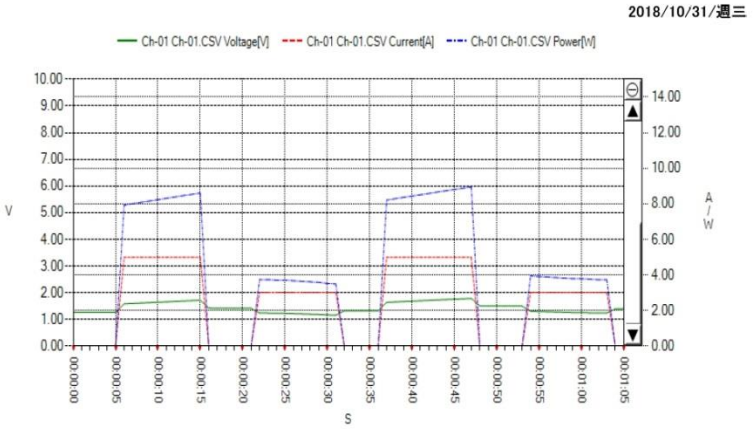
RepeatCnt	It is a Count number of repeat runs.
StepNo	It is a number of steps.
StepMode	Operation mode, “Charge” refers to “Operation of power supply”, “Discharge” refers to “Operation of electronic load”, “Sleep” refers to “No operation”.
Time	It is the elapsed time since the test starts.
Para Setup	The parameter setting of the device.
Voltage(V)	It is a voltage value and is measured in voltage (V).
Current(A)	It is a current value and is measured in ampere (A).
AmpHour(Ah)	It is a battery capacity value, calculated in Amp Hour (AH).
Consumed(Ah)	It is a battery capacity value cumulatively, calculated in Amp Hour (AH).
Power(W)	It is a power value and is measured in watts (W).

Note	Since the data of a current value serves as a plus value irrespective of charge and electric discharge. Please check the data of “a power supply/load” simultaneously.

Print

The test data displayed on a chart can be printed to the printer specified by clicking "Print" button.

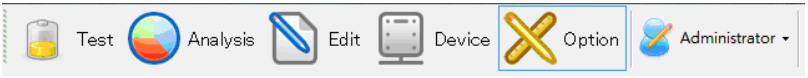
Example of printing:



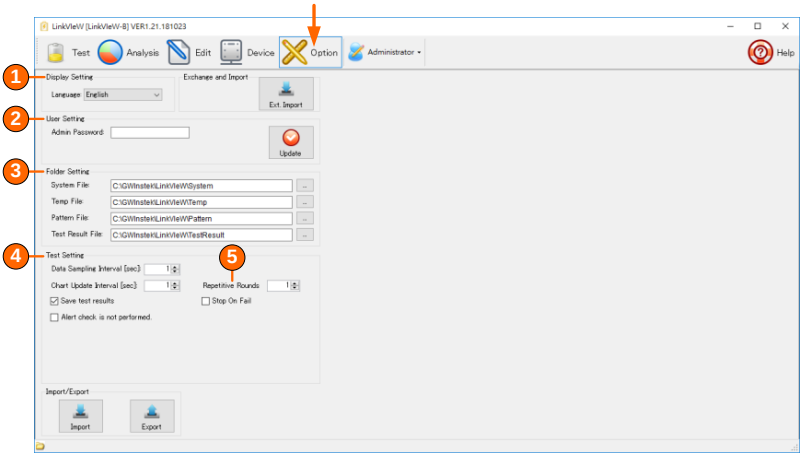
Ch	File Name / Step	Elapsed	Voltage[	Current	Power[	VMax[V]	IMax[A]	PMax[W]	Amp hr[	Chart
01	Ch-01.CSV	00:01:05	1.437	2.504	3.597	1.791	5.000	8.951	0.046	ON
	Sleep	00:00:05	1.270	0.000	0.000	1.270	0.000	0.000	0.000	
	Charge	00:00:10	1.654	4.999	8.270	1.722	5.000	8.607	0.014	
	Sleep	00:00:06	1.422	0.000	0.000	1.420	0.000	0.000	0.000	
	Discharge	00:00:10	1.209	3.014	3.644	1.240	3.014	3.737	0.008	
	Sleep	00:00:05	1.330	0.000	0.000	1.330	0.000	0.000	0.000	
	Charge	00:00:11	1.717	4.998	8.583	1.791	4.998	8.951	0.015	
	Sleep	00:00:06	1.502	0.000	0.000	1.500	0.000	0.000	0.000	
	Discharge	00:00:10	1.270	3.014	3.827	1.300	3.014	3.918	0.008	
	Sleep	00:00:02	1.400	0.000	0.000	1.400	0.000	0.000	0.000	

Option

The environment of "LinkVIew" is set up.



Click "Option" button and "Option screen" will be displayed.

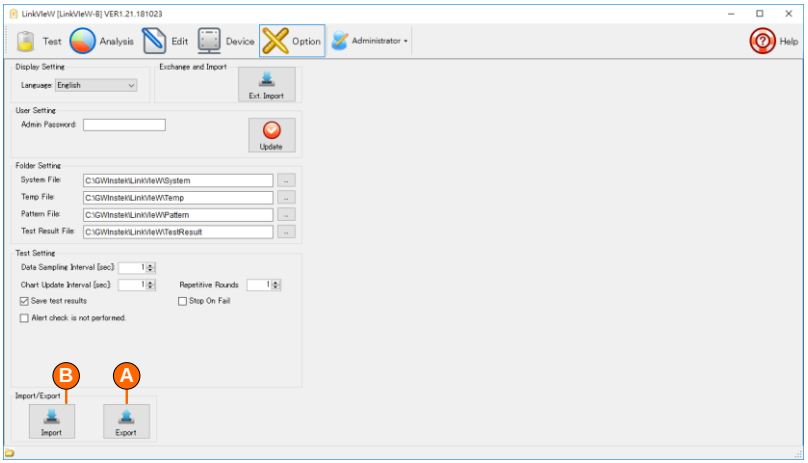


1. Display setting Language:
   You can select a language from "Japanese", "English", "Chinese (Traditional)" or "Chinese (Simplified)".
2. User setting
   The "LinkVIeW" user can be selected from "Administrator" or "Operator". If you select "Operator", only "Examination" and "Analysis" can be selected. If you select "Administrator", you can operate all operations. "Password" will be asked when you change from "Operator" to "Administrator".
3. Folder setting
   The folder of a "system file", "temporary file", "pattern file" and "test result file" can be set up. In a default, [C:\GWINSTEK\LINKVIEW\].

4. Test setting	• "Data sampling interval" and "Renewal interval of a chart" can be set up. • A test result can be saved if "Preservation of a test result" is checked. • When "Alert check is not performed" is checked, the examination will be continued even if an alarm occurs.
⚠ Note	It cannot be set shorter than the "Sampling time" measured by the "Communication test".
5. Repetitive Round	• "Repetitive Rounds" can be set to the same number of repeats to test for all of the channels. • The Test will Stop when "Stop On Fail" is checked.
⚠ Note	When the contents of the option are changed, please push "Update" button.

Import/Export

Edited patterns can be saved to a specified folder (Export). The saved data can be read also (Import). Moreover, the saved pattern can also be read and carried out. One file name can save all data in a pattern table.



A. Export — Click the "Export" button to save patterns.

Since a conservative field place is displayed, input the file name and click "OK."

The subfolder named with the current date and time is created and the required files are saved.

B. Import — Click the "Import" button to read patterns.

Since a conservative field place is displayed, input the file name and click "OK."

Notes of each model

PSB 2000 series

When used with the RS-232C, please system address (SyAd) set to 1

PSU series

PSU series connection does not support RS-485. Please use the address of the initial value of 6 when using the RS-232C.

For use in only power supply

Measurement data can't be retrieved at the sleep.