LinkVIeW PC Software

Control Software for Power System

USER MANUAL

ISO-9001 CERTIFIED MANUFACTURER

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INTRODUCTION

Driven by the increasing demand for battery testing, the software for charge, discharge, and logging is strongly required.

LinkVIeW is designed for preprogramming charge, discharge flow, logging data, and review/analyzing the logging records.

A logical CHANNEL is defined by mapping a physical DC Power Supply and an Electronic Load channel to a single battery testing unit.

LinkVIeW provides the way to build CHANNEL for charge and/or discharge. With this configuration, both actions are working together, for simulate the battery most using condition of discharging and charge at the same time.

SYSTEM REQUIREMENT

For the 1st time installing GW application, it is need to download the full installation version, to install proper execution environment. And for the user to update the application only, get and extract its package and replace the older version.

Get the corresponding version of installation package depends on OS setup.

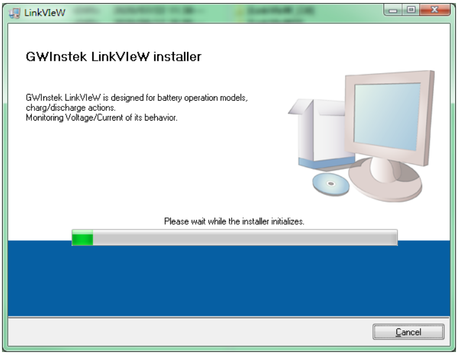
CPU	Intel CPU with SSE2 instruction set enabled.
OS	Win7 and/or above 32-bit/64-bit.
Memory	4GB is good enough, and 8GB is recommend.

INSTALLATION

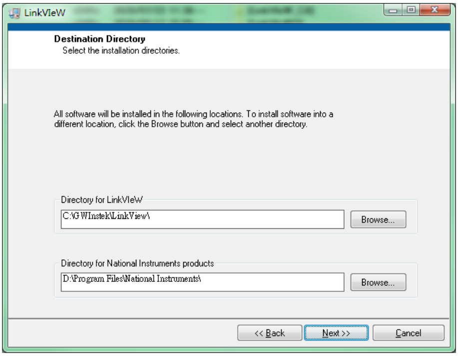
Browse into volume folder after extract the installation file. Double click setup.exe, and follows its instructions as below.

Step

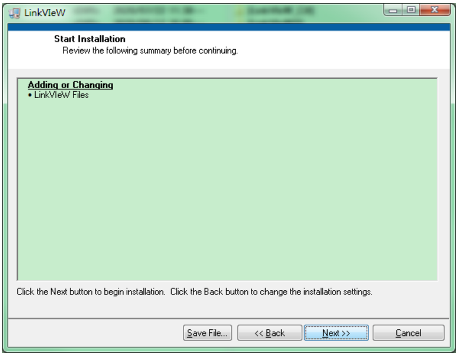
1. Preparing installation.



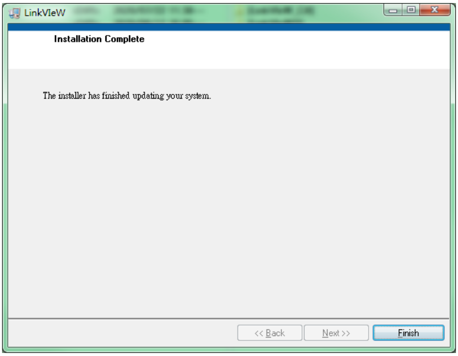
2. Setup installation target folder.



3. Install application; Installed package will not reinstall.

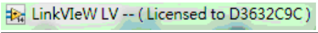


4. Install complete.

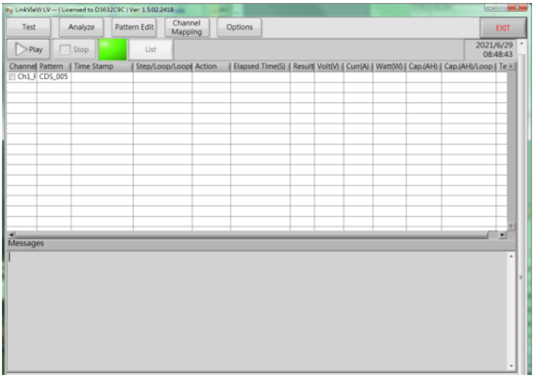


LAUNCH PROGRAM

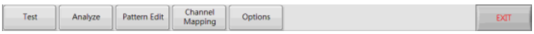
Double-click the program LinkVIeW under the installation folder, it comes with the initial screen and also checking if licensed.



Note	The primary difference between the licensed and unlicensed versions is the data logging capability. Refer to setting in the chapter Options on page 25.



Function Menu List:



There are five major functions working with LinkVIeW, and descript as below:

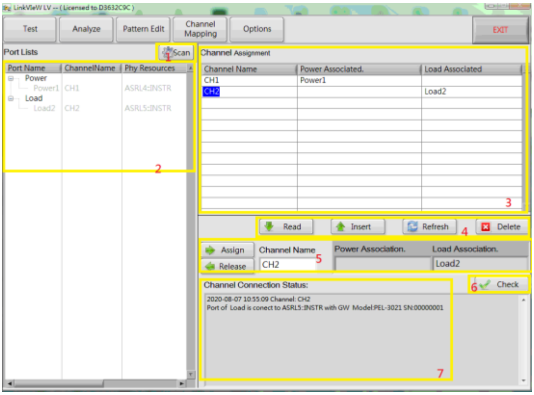
Test	Test and Run operation sequence.
Analyze	Post-Test records retrieving.
Pattern Edit	Test Sequence creates and pattern designs.
Channel Mapping	Define operation channels with its physical resource association.

Options	Operating environment and parameter definition.
Exit	Stop and close program

CHANNEL MAPPING

LinkVIeW provides the free way to configure channel. It is able to configure with Power inst. or E-Load inst. separately or together. It depends on the physical resources.

Resources are automatically grouped as Power and Load with its physical output ports after scan.



Scan

LinkVIeW provides the ability to determine instruments resources automatically by simply clicking the "Scan" button. The resources are grouped by its property including multi-port instruments. Help user easily configure channels for testing needs.

Port Lists

The lists of port are available in the system to be associated. Resources that are greyed out have already been associated. Port association is an exclusive operation; once a port is assigned to a channel, it remains unavailable until it is manually released. Ports are defined as the actual output ports of connected instrument, ex PEL-2004A(B) with full mount with 2040, there will be 4 ports available.

Channel Assignment

The lists of well-defined channels come with its association of resource.

Double click on it brings to association operate area.

Channel Lists Operations: Read/ Insert/ Refresh/ Delete

Read	Association information from assignment table of selected one.
Insert	Append Association into assignment table.
Refresh	Update channel data.

Channel Associations

Perform the operation of channel mapping with power and/or load or both.

Assign	Assign selected port with given channel.
Release	Free the resources of channel for remapping.
Channel Name	Giving name of the channel, all actions to be take place as it is assignment.
Power Association	The choice of power of the port lists will be associated.
Load Association	The choice of Load of the port lists will be associated.

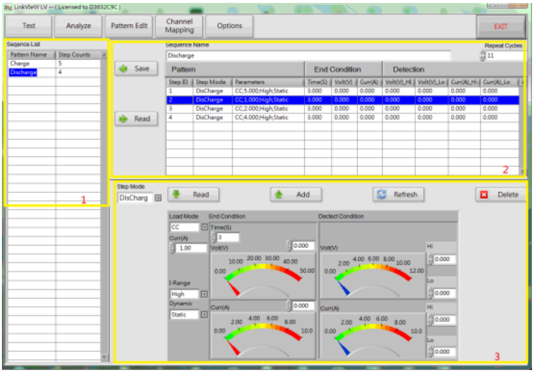
Channel Verify (checking)

Check if the associations of power and/ or load are valid and resources are available.

Channel Connection Reports	Report the connected resources info including the physical ports, instrument model, serial number and manufacture.

PATTERN EDIT

It is independent to system instruments and also the mapped channel. The design of Sequence and Patterns are not restricted. And be sure it is in the range for using with associated resources.



Sequence List

List of all available sequences, locate in the defined folder. Highlight one is selected and to be overwrite directly. For adding new one, unselect by click on blank rows. It is not supported to delete specific sequence.

Pattern Content List

Display the pattern contents of selected sequence. It shows the pattern, end-condition, and detections.

Pattern	Including the step id, action type and its parameter for instrument/ports.
End condition	Specify the condition as it is satisfied, the next step be executed.
Detection	Defined the situation to judges the execution pass or failed. Once it is judged as failed the execution is stopped.
Sequence Name	Giving the name for the sequence, assigning descriptive names facilitates easy identification during execution.
Repeat Cycles	Defines how many cycles the sequence to be execute. To saving the time in design test patterns.
Save	Saving current patterns into sequence list with given sequence name. Without given its name, actions are ignored.
Read	Reading patterns of selected one from sequence list. D-Click on its list performs the same actions.

Action Pattern Design

Patterns displayed with read from its above list or select by its mode.

Read	Pop the contents by select from pattern list of blocks 2. D-Click acts the same result.
Add	Add (insert) current pattern in front of highlight step. Or append to the end of the pattern lists as none highlight (selected).
Refresh	Update the selected pattern with current design.

Delete Removing pattern step of highlight and or from the end without selected.

There are three basic operations are provided and descript in the following sections

Discharge

Define actions for battery discharging, acts with one of 4 load-operating models.

Parameter settings	Configure the actions of load module.
Load Mode	Set the working mode of target modules, CC, CR, CV, CP... Based on the selections, the corresponding value settings pops up.
Current (A)	For CC mode setting, configure its working level.
Current (A)_2	Available while dynamic function enabled.
I-Range	Sets Load operating range.
Dynamic	Set if working with dynamic function.
End Condition setting	Defines the step-end conditions, as it is met, moving forward to next step.
Time (S)	Defines how much time the step executes.
Volt (V)	As the value measured lower than it, the step end and moves to next step.
Curr (A)	As the value measured lower than it, the step end and moves to next step.

Needle	Dragging for change the checking levels. Click on right most index to change the max value of Volt/Current.
Error Detection	Set the test criteria for measured volt/current, to judge if the test be represented as failed. As it is detected as failed, it marks and runs till end of the sequence.
Volt (V)	Set the high bound and/or low bound for gating the measurements.
Curr. (A)	Set the high bound and/or low bound of gating the measurement result.
Needles	Dragging and set the checking level. Two needles for configure, blue one sets the low-bound, and red one for hi-bound.

Clink on the right most index to change the range of hi-bound, and left-most to change low-bound.

Charge

Base on the battery operating characteristics, configure the output of power supply.

Parameter settings

Volt (V)	Set the output volt level.
Current (A)	Set the output current. Both Volt and Current defines the supply power for target.

End Condition Setting	Refer to section "End Condition Setting" on page 17.
Error Detection	Refer to section "Error Detection" on page 18.

Sleep

Stop either power or load

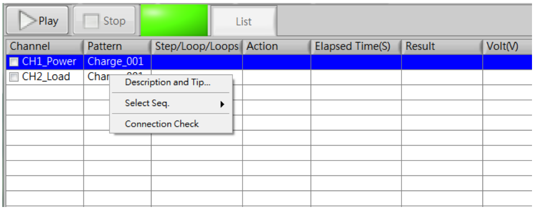
End Condition setting	Defines the step-end conditions, as it is met, moving forward to next step.
Time (S)	Defines how much time the step executes.
Volt (V)	As the value measured lower than it, the step end and moves to next step.
Curr. (A)	As the value measured lower than it, the step end and moves to next step.

Dragging the needle for change the checking levels. Click on right most index to change the max value of Volt/ Current.

TESTING

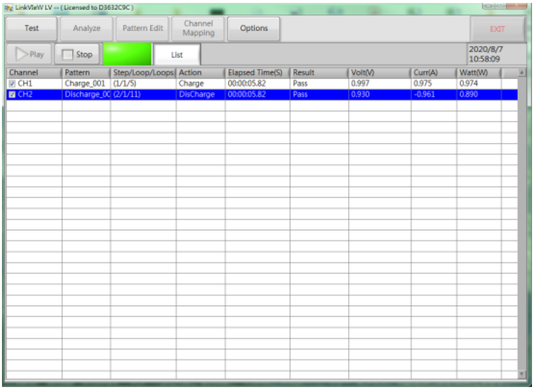
Execute testing sequence with associated channel. Here is the 3rd step of executing a testing plan: those are logical channel definition, testing pattern design, and testing.

Before starting the test flow, 2 more steps to be done. Build up links and Activate channels. Right click on the testing table to open popup menu as below:



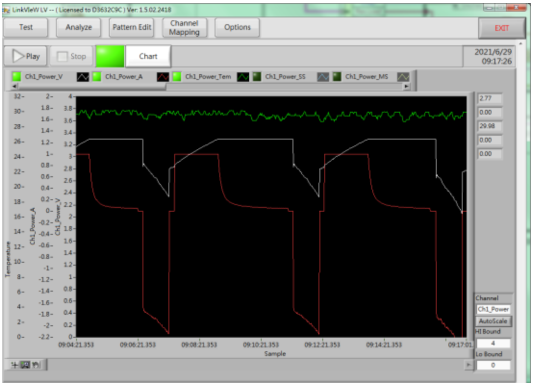
Build up link	Within the popup menu, move and point to "**Select Seq.**" brings up the actions for sequence linking.
Set for	Choose a sequence from its poll and assigned to pointed channel, the row where you open the popup menu.
All Set	Choose a sequence from its poll and assigned to all logic channels, i.e., all channels are working with the same one. It is convenient for testing multiple units with the same criteria.
All Clear	Unlink all channels.
Activate channel	Activate/ Deactivate channel for test. Move and point to check box in front of the channel. Check and/or uncheck it.

Connection Check	Check if connection success and its module information.
Play	Start all test sequence of activated channels.



While starting test sequence, two more buttons are available, Stop, List.

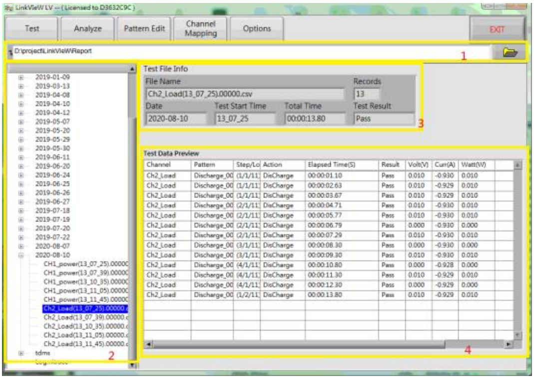
Stop	Terminate all the executing sequence.
List	Performs the executing test data in chart as below.



In the chart, it helps to monitor the changes of execution.

ANALYZING

Check and reviewing the test logs. Data logging is the key feature of LinkVIeW. It is logged channel by channel and day by day. Refer to the following picture.

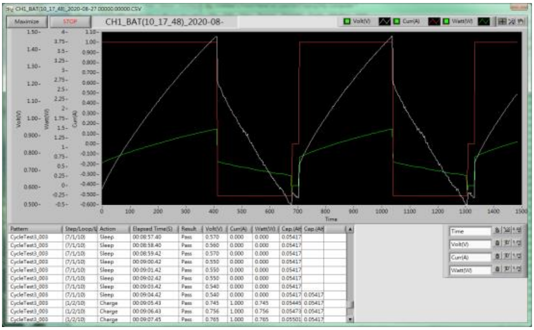


The screens are divided into 4 parts:

Record folder (1) Check with right most icon of folder, and browsing to the target folder where the logs located on. All the internal folders and files are shown in the lists with original tree view.

Records lists (2) Display in tree view of folders/files in record folder. It is daily based tree structure. Click on mark '+' to expand and list its inner file lists. Click on '- 'to close its list. As click on the file with extension name '.csv', its basic testing information is displayed.

D-Click on the file pops another window and display all the data in the view of chart. check as below:



IIT (Integrated Information of Test) (3)

As browsing the tested result file, it provides way to shown basic information with the following:

Test File Info

File Name			Records
Ch2_Load(13_07_25).00000.csv			13
Date	Test Start Time	Total Time	Test Result
2020-08-10	13_07_25	00:00:13.80	Pass

File Name

Data Log File, start with its channel name, and combines with starting test time with extension file name '.csv' for accessing by EXCEL.

Records

Display the number of record data.

Date

The execution date of the sequence.

Test Start Time

Part of the file name.

Total Time

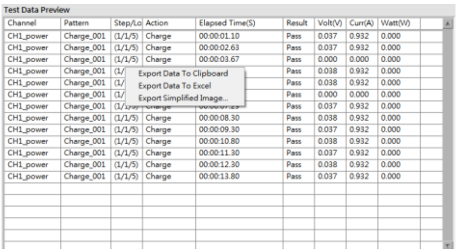
The elapsed time of its execution.

Test Result

The evaluation result of the sequence.

Test data list (4)

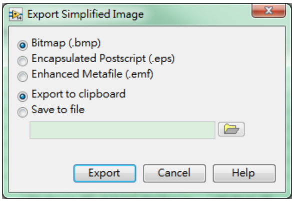
Display the test records of the file, one by one. Right click on the list to open advance operation as below:



Test Data Preview

Channel	Pattern	Step/Lo	Action	Elapsed Time(S)	Result	Volt(V)	Curr(A)	Watt(W)
CH1_power	Charge_001	(1/1/5)	Charge	00:00:01.10	Pass	0.037	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:02.63	Pass	0.037	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:03.67	Pass	0.000	0.000	0.000
CH1_power	Charge_001	(1/			Pass	0.038	0.932	0.000
CH1_power	Charge_001	(1/			Pass	0.038	0.932	0.000
CH1_power	Charge_001	(1/			Pass	0.000	0.000	0.000
CH1_power	Charge_001	[illegible]	[illegible]	[illegible]	Pass	0.037	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:08.30	Pass	0.038	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:09.30	Pass	0.037	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:10.80	Pass	0.038	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:11.30	Pass	0.037	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:12.30	Pass	0.038	0.932	0.000
CH1_power	Charge_001	(1/1/5)	Charge	00:00:13.80	Pass	0.037	0.932	0.000

Export Data to Clipboard	User can paste the data to another application while editing context.
Export Data to Excel	Launch Excel and paste into a worksheet.
Export Simplified Image	Popup extra operation setting as below.



Select one of listed image format, as shown above.

For directly paste data to other application, bitmap is good; EPS format allows directly output the image to printer which support this. Emf format usually use for image processing software.

Select output target

Clipboard	Prepare image for paste into other application as its content.
Save to file	Specify a file name for the picture with extension of selected format.

Exporting feature can help in creating customized reports of testing data.

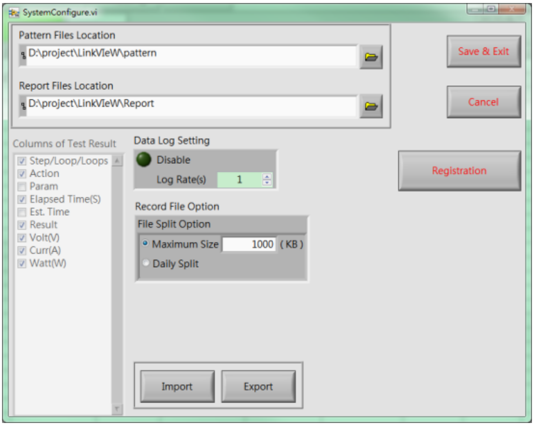
Test Data Preview

Channel	Pattern	Step/Lo	Action	Elapsed Time(S)	Result	Volt(V)	Curr(A)	Watt(W)	
CH2	Discharge_00	(4/2/11)	DisCharge	00:00:23.36	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(4/2/11)	DisCharge	00:00:24.40	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(4/2/11)	DisCharge	00:00:25.44	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(1/3/11)	DisCharge	00:00:26.49	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(1/3/11)	DisCharge	00:00:27.54	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(1/3/11)	DisCharge	00:00:28.59	Pass	4.930	-0.982	4.840	
CH2	Discharge_00	(2/3/11)	DisCharge	00:00:29.61	Pass	4.930	-0.982	4.840	
CH2	Discharge_00	(2/3/11)	DisCharge	00:00:30.66	Pass	4.930	-0.982	4.840	
CH2	Discharge_00	(2/3/11)	DisCharge	00:00:31.68	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(3/3/11)	DisCharge	00:00:32.73	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(3/3/11)	DisCharge	00:00:33.76	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(3/3/11)	DisCharge	00:00:34.78	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(4/3/11)	DisCharge	00:00:35.84	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(4/3/11)	DisCharge	00:00:36.88	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(4/3/11)	DisCharge	00:00:37.90	Pass	0.000	-0.987	0.000	
CH2	Discharge_00	(1/4/11)	DisCharge	00:00:38.92	Pass	0.000	-0.987	0.000	

Picture Image exported with bitmap to clipboard and pasted back.

OPTION

Configuring environment parameters for LinkVIeW, including pattern path, report logging path, and etc...



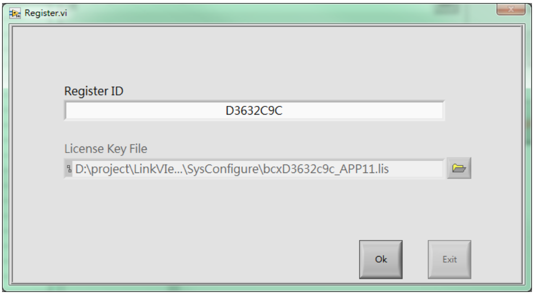
Pattern Files Location	Specify the folder where the created pattern files be saved into. Click on the folder icon at the right side browse into target folder and set.
Report File Location	Specify where the logging data file to be saved into. Click on the folder icon at the right side browse into target folder the set.
Data Log Setting	Enable/Disable logging feature, always disabled for unlicensed version.
Logging Rate	Defines the log rate of data sampled data.

Record-file options

Maximum Size	Defines the record size, exceeds are saving to successive file.

Daily split	Data records are split into successive file. The successive logging data are saved into file on the new daily folder.
Registration	Generate the register information file for license demand.
Register ID	ID code form current system.

Import the register file to enable full function. The license key is located on folder specified.



Export Settings	Backup/Export current configure file to specific location.
Import Settings	Restore/Import saved configures files and its sequence.
Save & Exit	Save current settings and return to main.
Cancel	Ignore the modification and return to main.

APPENDIX I Supporting Instruments

LinkVIeW supports most GW instruments and also its ODM versions. With powered by LabVIEW from NI, the all its communication interfaces are supported.

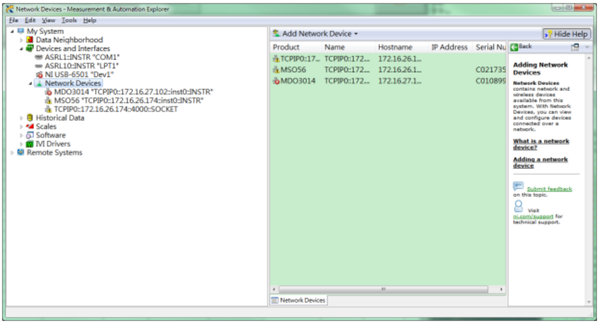
For the supporting of Ethernet, instrument registration is required, please refer to chatper "APPENDIX II Add Network Devices" on page 28.

Power:

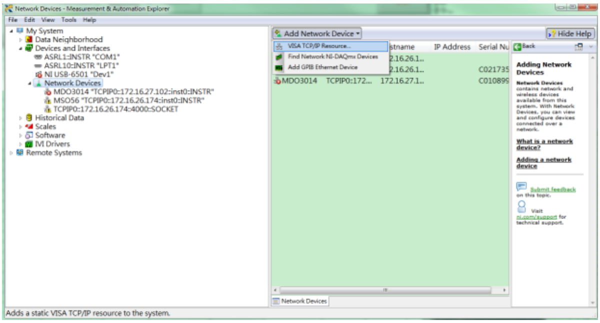
	GW Brands	ODM versions
Power	PSW, PSU, PFR, PSB-1000, PSB-2000, GPP, PSR, PHX	RSFR
Load	PEL-2KA(B), PEL-3KA(H)	CL2 Series, RMX Series, LSG series

APPENDIX II Add Network Devices

Launch program MAX: Expand node of Devices and Interfaces and go to Network devices.



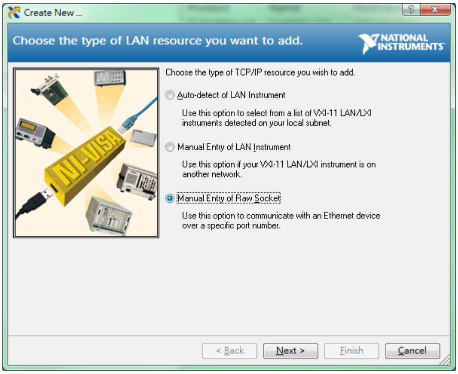
Click on "VISA TCP/IP Resource" by check button "Add Network Device" As below.



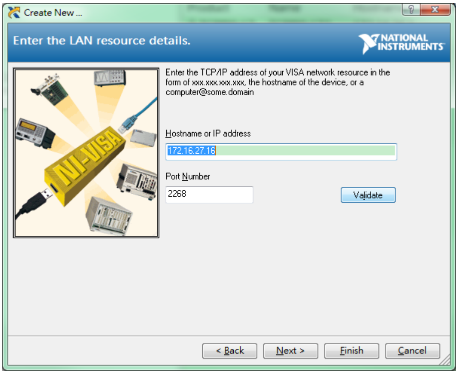
Follow the instruction dialogs of "Create New"

Step

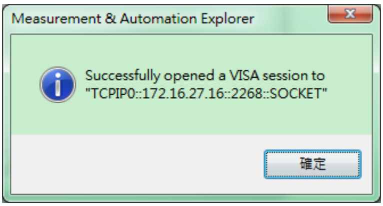
1. Check with “Manual Entry of RAW Socket”. Check “Next”



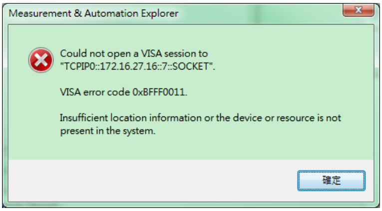
2. Enter the Hardware IP address and specify its Port. Check “Validate”



3. Port connection success.



4. Port connection failed; Check and correct IP address, port number then try again.



5. Check with “Finish” to complete the operation