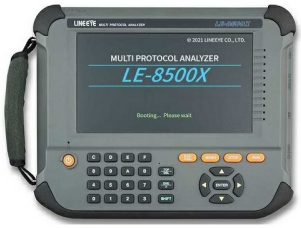

LINEEYE LE PC800X Multi Protocol Analyzer Instruction Manual

LINEEYE LE PC800X Multi Protocol Analyzer

Instruction Manual

OPTIONAL KIT

FOR MULTI PROTOCOL ANALYZER

LE-8500X-RT/LE-8500XR-RT

PC Link Software

LE-PC800X

Instruction Manual

The CD-ROM attached contains the English and Japanese instruction manuals in PDF format. The actual display or manner of operation may differ from that of the instruction manual because of the improvement of the product and so on. Please refer to the online help also for the use of the software.
The 1th Edition

Contents

Chapter 1 Before Using the Product

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   LINEEYE CO., LTD

Chapter 2 Introduction

Thank you for your purchase of LINEEYE's PC link software.

- To use it correctly, you are advised to read and understand this together with the instruction manual for analyzer thoroughly.
- Keep this instruction manual.

General Description

LE-PC800X is software to remotely control the protocol analyzer from a PC and utilize the measurement data on the PC.
Applicable Analyzer LE-8500X-RT, LE-8500XR-RT, LE-8500X(R)/LE-8600X(R) equipped with SB-R2TS1.

Unpacking

When you unpack the product (the full edition), make sure that the followings are included. (The light edition of the software is included in the CD-ROM attached to the analyzer.)

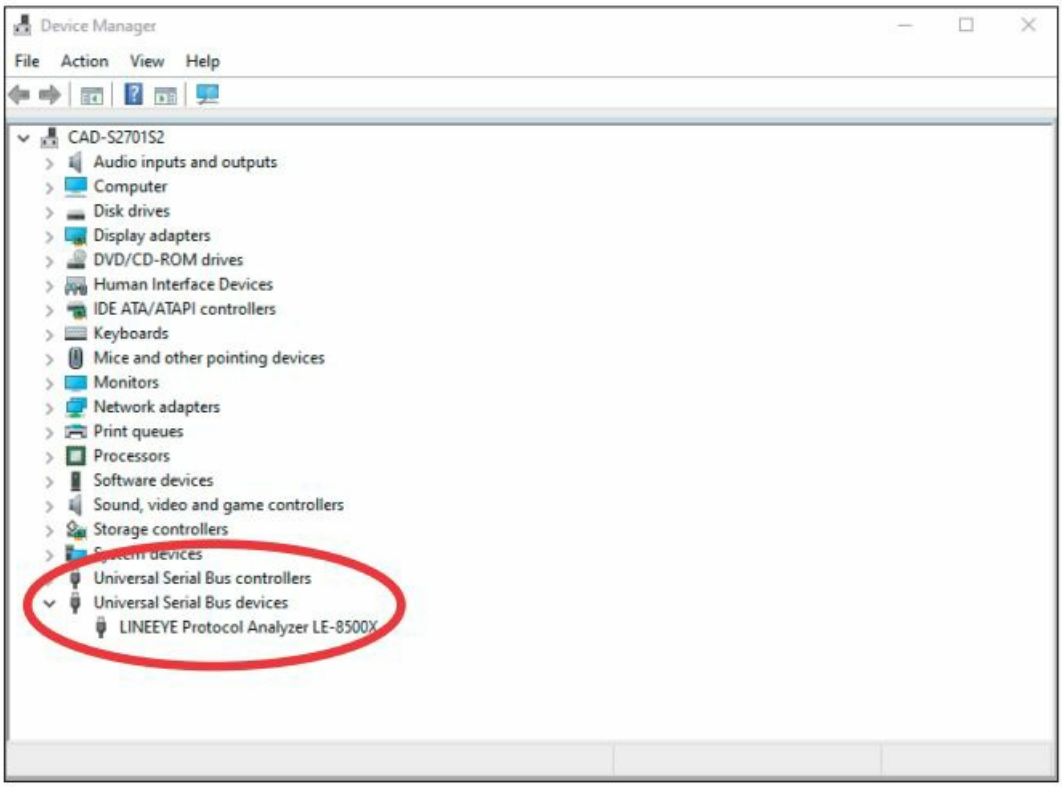
- CD-ROM (software) 1
- Instruction Manual (This book) 1
- User Registration Card 1

Please contact your LINEEYE distributors if you find any damage to the product caused by transportation, or if there are accessories lacking.

Chapter 3 Before Start-up

USB Driver Installation

When using this software by USB connection, connect the USB port of PC and analyzer using the USB cable before using it.

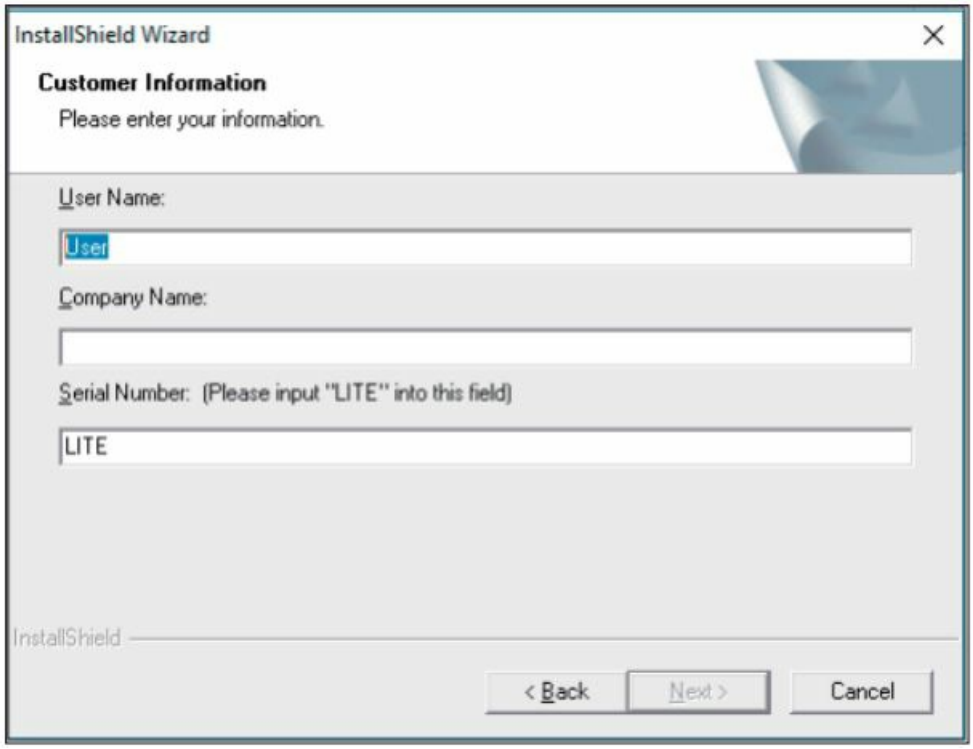


Confirm the IP address of analyzer.

When using this software by LAN or Wi-Fi (appropriate model only), confirm the IP address and port number of analyzer before using it.
Please refer to the instruction manual of analyzer. (Refer to “Network” on “System setting”)

Installation Guide

1. Execute “setup.exe” in the attached CD.
   If the PC (to which you want to install the software) does not have a CD-ROM drive, copy it to a storage device such as USB flash using another PC which has a CD-ROM drive to bring it to the PC and execute it.
2. First, click “Yes” in the “User Account Control” display.
3. When the Windows firewall displays a message such as “Windows protected your PC”, click “Detail”” Run” to run the program.
4. Even if the virus security software displays a message that blocks this software, click the option to run the software such as “Run this program” to cancel the blocking.
5. When the installer starts up, proceed according to the instructions on the screen. You will be prompted for the serial number during installation. Please enter the serial number of this software written on the attached user registration card.



For the light version “LE-PC800X (LITE)” which you can download free of charge from the LINEEYE website, the serial number will be automatically entered as “LITE”.

6. When the installation completion message is displayed, click “Finish”.

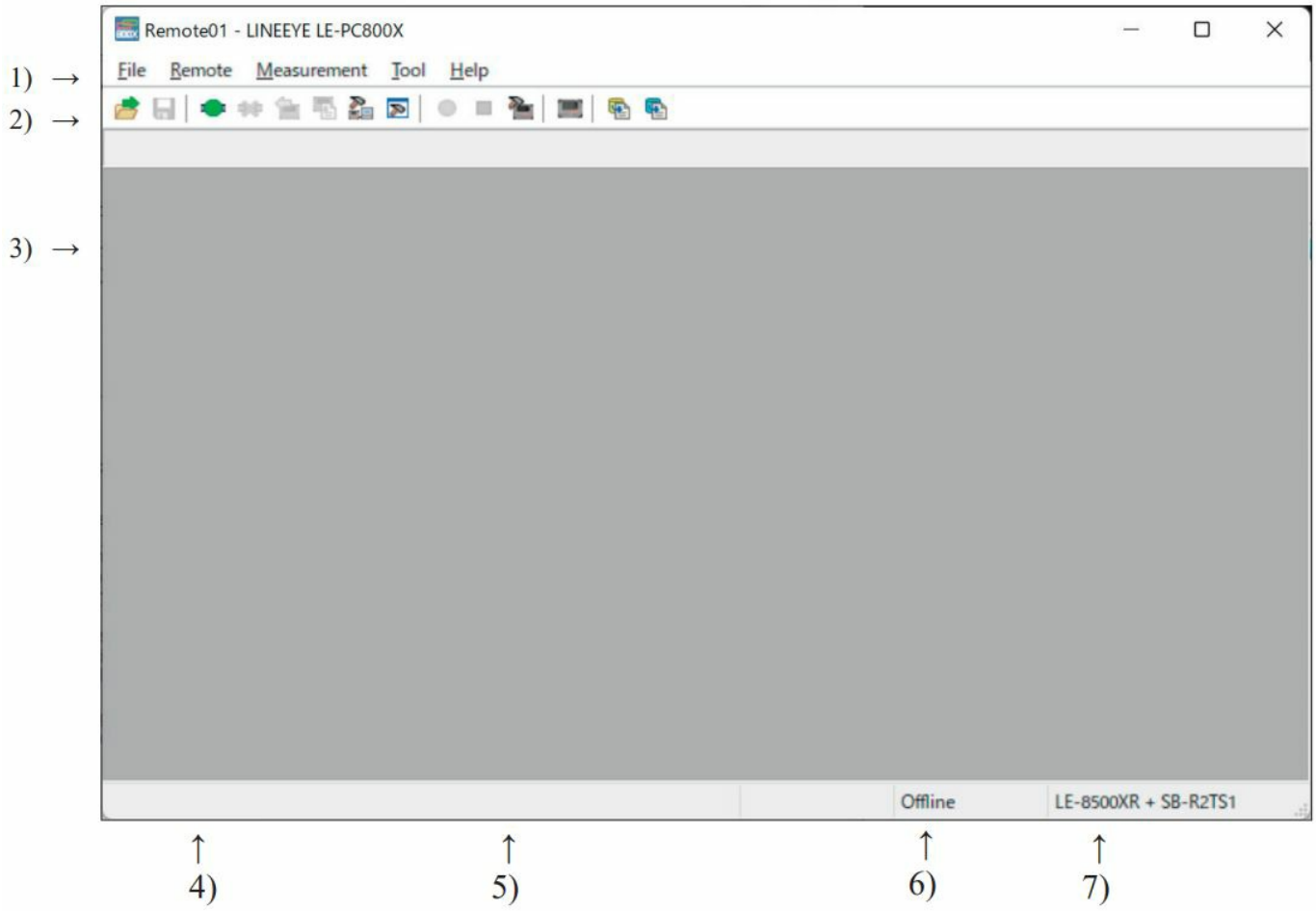
Uninstallation Guide

1. Open “Uninstall or change a program” (or “Program and Features”) from the control panel. (Or right-click on “LE-PC800X” in the start menu and select “uninstall”.)
2. Select “LE-PC800X” from the list and execute “Uninstall and change”.
3. First, click “Yes” in the “User Accounts” display. 4. Click “OK” at the deletion confirmation display.
   When the light version “LE-PC800X (LITE)” is already installed in the PC, uninstall the light version before installing the full version.
   When updating the product version (full edition), you can install the new version without uninstalling the old version. By doing so, the product serial number etc. will be carried over.

Chapter 4 Data Window

Data Window of PC link software

Starting the PC link software. Start “LE-PC800X” from the “Start” of Windows. Usually, the following display will appear.
Data Window



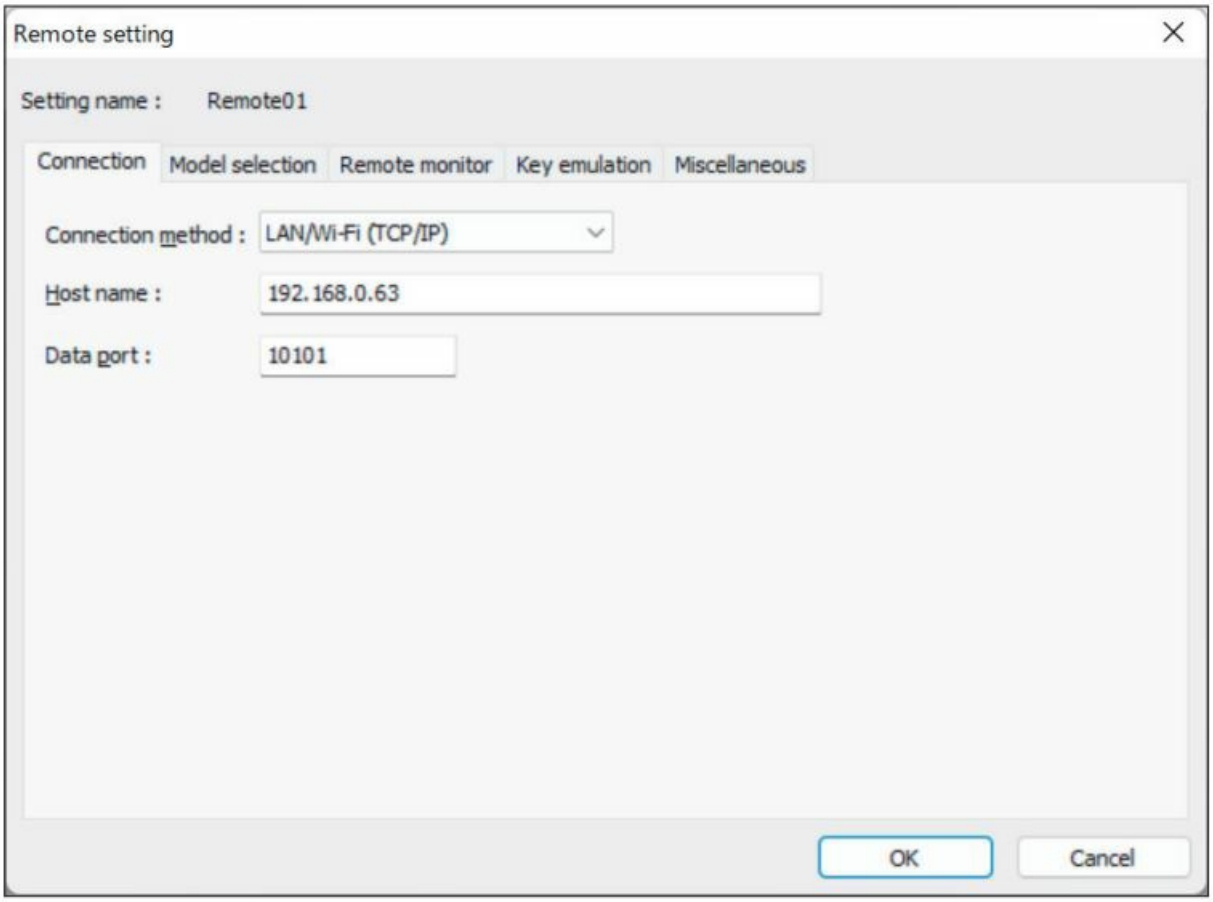
1. Menu Can perform various operations.
2. Tool Bar Can perform various operations.
3. Data display part Displays the measured data.
4. Data position display part Displays the data position in the Data display part. The number of data loss is displayed while remote monitoring.
5. Various state display part Displays such as the measurement state.
6. Connection state display part Displays the remote connection state between LE-PC800X and your analyzer.
7. Model name display part Displays the model name of your analyzer being set at the time of offline, and one of your analyzer being connected at the time of online.
   * For LE-8500X-RT, “LE-8500X+SB-R2TS1” is displayed.
   For LE-8500XR-RT, “LE-8500XR+SB-R2TS1” is displayed.
   Refer to the “On-Line Help” for more details of operation.

Chapter 5 Environment Setting

Remote Setting

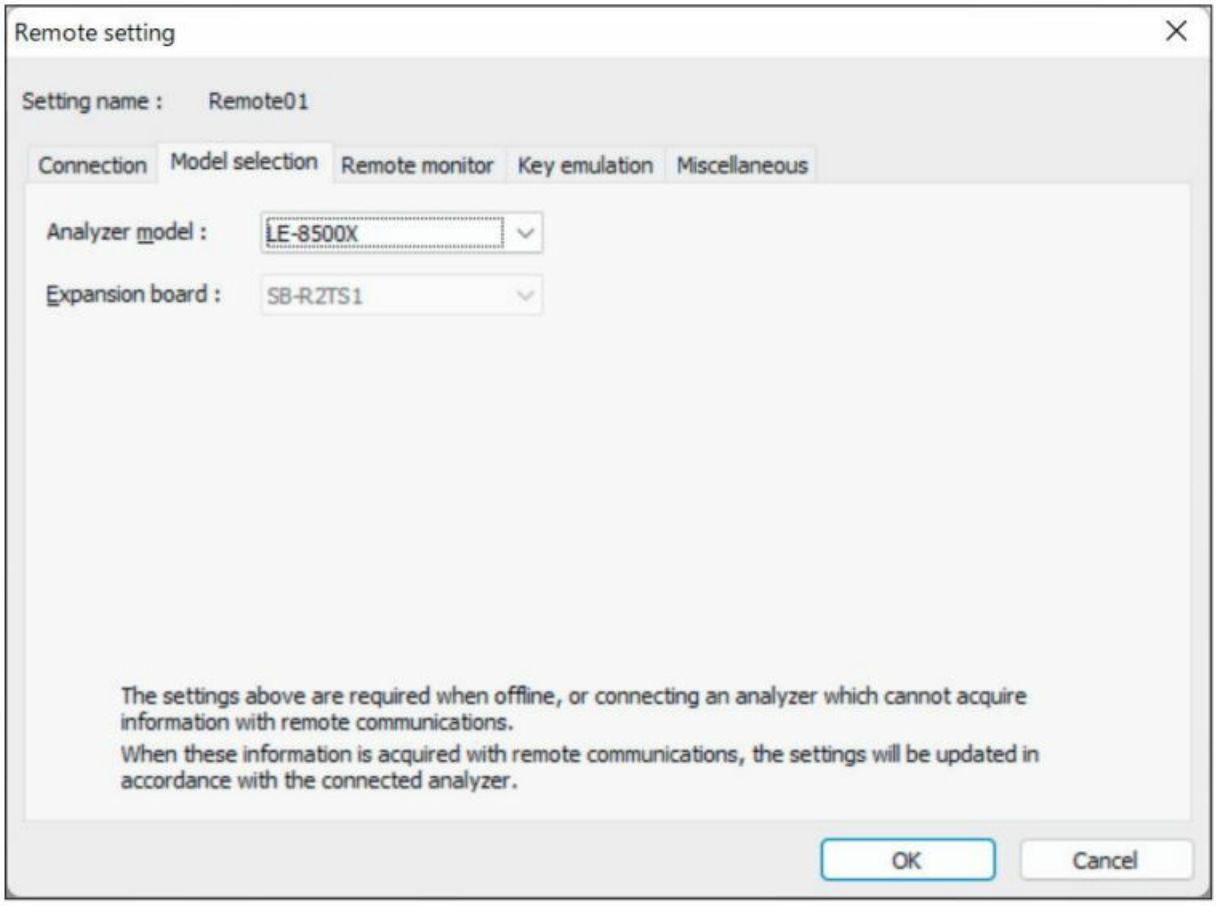
Click  on the tool bar of the data window (or “Remote Setting” of “Remote” menu) to set the remote setting. The remote setting consists of “Connection”, “Model selection”, “Key emulation” and “Miscellaneous”.

Connection
Sets the remote connection



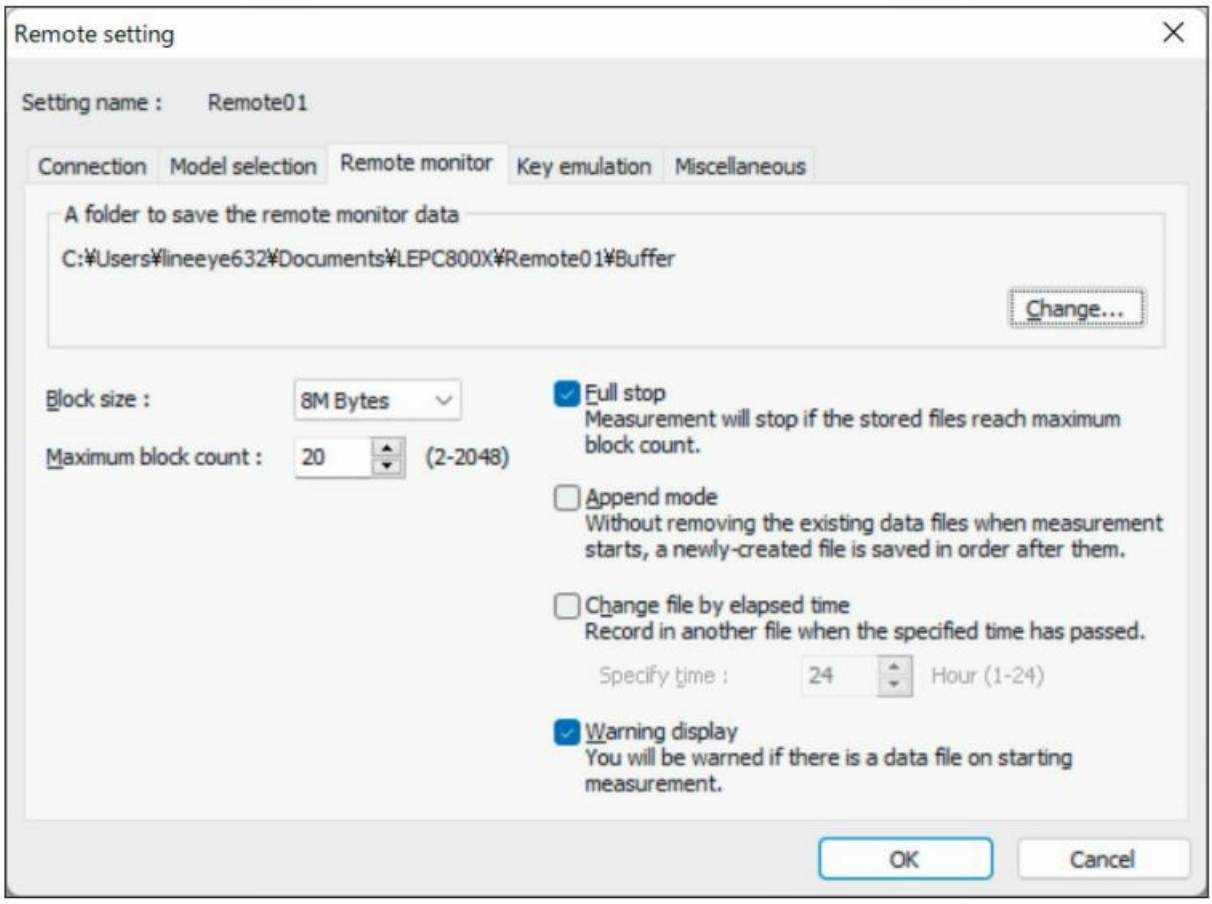
“Connection Method” “USB” Connect via USB port. (Select the serial number of analyzer which you wish to connect.)
“LAN/Wi-Fi(TCP/IP)” Input the IP address (or host name) of analyzer to “host name”, and the port number of analyzer to “data port”.

Model selection
Sets your analyzer settings. Mainly, it is used at the time of offline. However in the case of that there is information which is not received by remote communication at the time of online, it is used as it is set. In addition. if the information is received by remote communication, these settings are automatically changed.



“Analyzer model”
Selects the model name of the target analyzer.
“Expansion board”
The expansion board which is equipped with the analyzer is displayed.

■Remote monitor
Sets the remote monitor

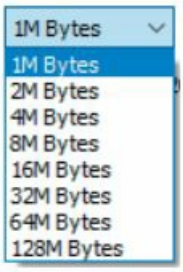


“A folder to save the remote monitor data” This folder is to save data received by your analyzer for the remote monitor function. To change the setting, click “Change” button. Then the window to select a folder appears. Select the proper folder and click “OK” button. The file name of saving data is started from “00000000. DT” in numerical order.

* Recommends to specify an exclusive folder.
* Specify a drive which has enough capacity. (When it does not have enough capacity, the PC may not operate correctly.)

“Block size”

Sets the data capacity per file. You can select from “1M Byte”, “2M Byte”, “4M Byte”, “8M Byte”, “16M Byte”, “32M Byte”, “64M Byte”, or “128M Byte”.



“Maximum block count”

Sets the maximum block count of a file to save. You can set from 2 to 2048. When the number of the data file is over this setting, the data file with a small number file is deleted.

“Full stop”

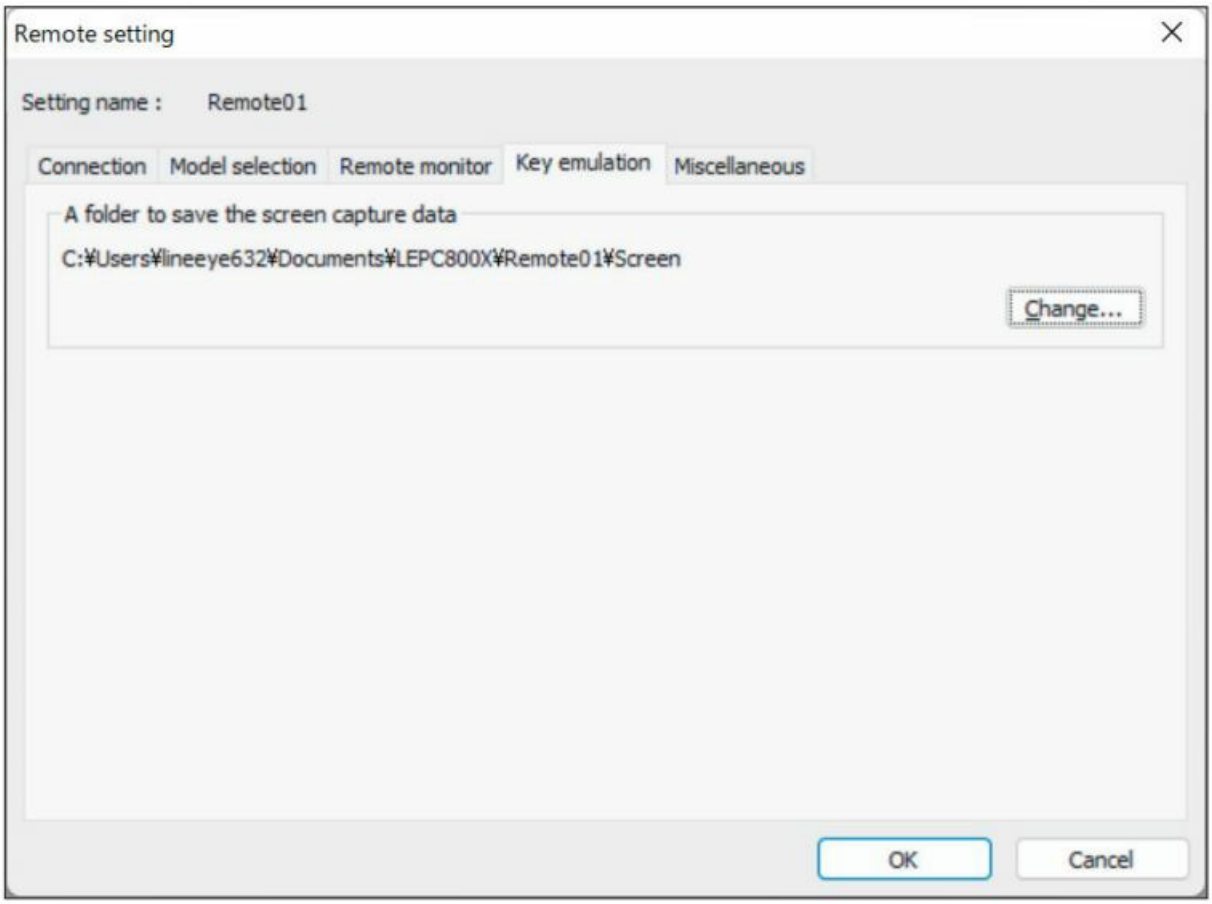
If the stored files reach to the maximum block count, measurement will automatically stop. When unchecked, a ring buffer of the size obtained by multiplying the block size by the maximum number of blocks is configured and continuous measurement is performed. -9-

“Append mode”
When measurement starts, a newly-created file is saved in the order after the existing files. If the numbers of the whole data files are over the maximum block count setting, a data file with a small number file (includes data files which were saved on the former measurement) is deleted even in the append mode.

“Change file by elapsed time”
Create a new data file when the specified time has been elapsed, even if the size of the former data file has not reached the specified Block size. However, if the data file under recording has not recorded any data, the new data file will not be created.

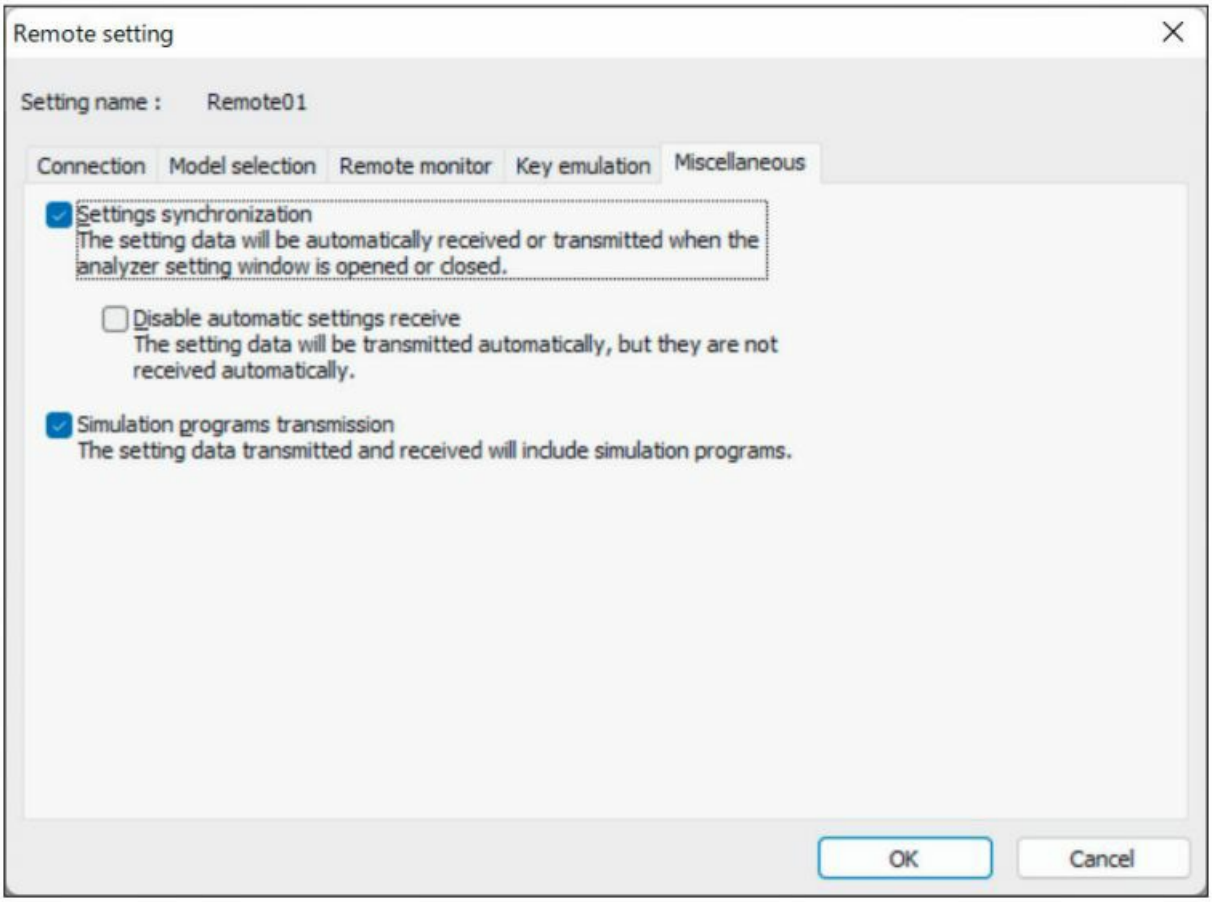
“Warning display”
You will be warned if there is a data file in the files to save when starting measurement.

“Key emulation”
Sets the key emulation.



“A folder to save the screen capture data”
A folder to save a screen image when you save it on the key emulation screen. Click “Change” button and the folder selecting window appears. Select the folder and click “OK”.

“Miscellaneous”



“Settings synchronization” Transmits and receives the setting automatically a the time of the opening and closing the analyzer setting window. If you mark on “Disable automatic setting receive”, you only transmit and do not receive.

“Simulation programs transmission”
The setting data to be sent to or be received from the analyzer contains simulation programs data when this term is marked.

Chapter 6 Remote Monitor

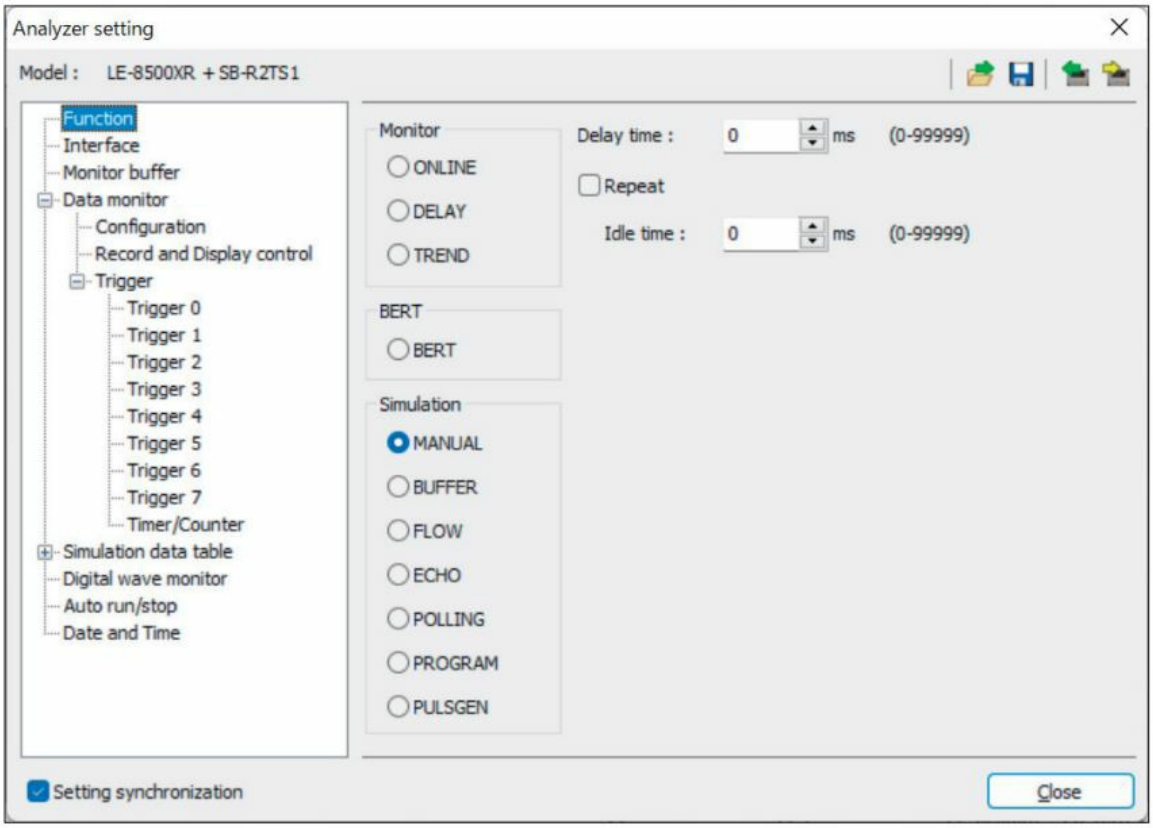
This function allows to start measurement of your analyzer and to record measurement data in the HDD/ SSD of the PC, displaying the data in real time.

Connection

After finishing the remote setting, click  on the tool bar of the window (or click “Connect” of the remote menu) to connect with you analyzer. At the time of completing the connection with your analyzer, the connection state display part of the data window displays “Stopping”, and the model display part displays the model name of the analyzer connected.

Analyzer Setting

Click  on the tool bar of the data window to set you analyzer (or click “Analyzer setting” of the measurement menu.)

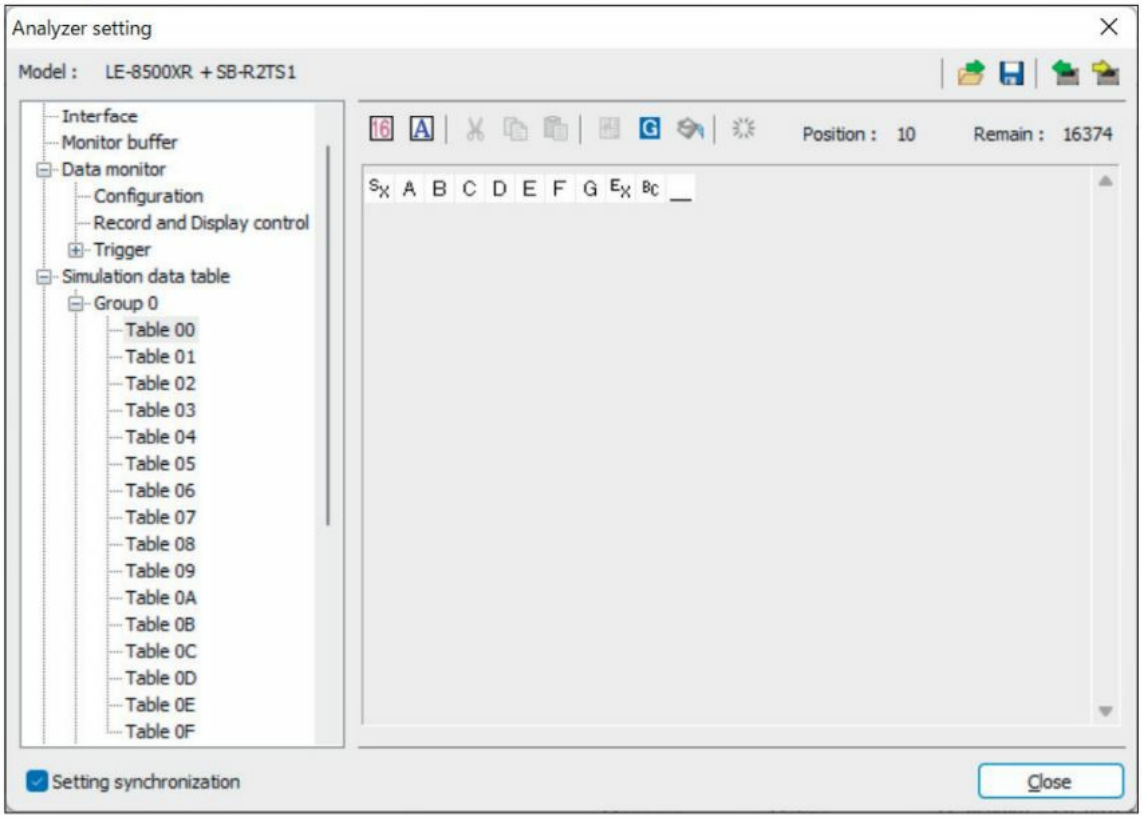


On the analyzer setting window, every time you change the setting on a tree (on the left side of the window), the contents of the setting (on the right) are changed. Set the necessary settings. Click  to send the setting contents to your analyzer. On the other hand, click  to receive the setting contents of you analyzer.

*When you continuously measure for long hours using remote monitoring, do not set “Record control” to “Full stop: On”, or “Trigger” to “Action: Stop”.
*The light edition limits its monitoring time to 10 minutes.

Simulation Data Setting

Click  on the toolbar of the data window to select the simulation data table you would like to set (or click “Analyzer setting” of the measurement menu.)



 : Change the data to hexadecimal or character code.

 : Change the input method to hexadecimal or character code.

 : The character which is focused is set to the parity error (or the multi-processor bit)

 : Input BCC (or FCS).

 : Input the data from “Begin data” to “End data” for the number of times set in “Data size”.
“Begin data”< “End data” : Inputs the number of times set in“Data size” while performing “+1”from “Begin data”.
“Begin data”> “End data” : Inputs the number of times set in“Data size” while performing “-1” from “Begin data”.

 : Delete all data in the table.

 : Cut selected data.

 : Copy selected data into clipboard.

 : Paste data from clipboard.

Max speed when remote monitoring

Max speed which analyzer can measure is depending on the connection to the PC. Refer to the following standard speed.

USB (USB3.0/3.1) : Max. 5Mbps
LAN : Max. 2Mbps*1
Wi-Fi : Max. 1Mbps*1

*1 The max. measurement speed becomes lower by the network load. However, when measuring 10Mbps with 2K byte data for every 0.02 seconds, the actual communication speed is about 1Mbps, and you can measure this communication without any data loss.

■It will cause the data loss if the actual communication speed is more than the max. speed. And PC will stop the action until the analyzer process all measured data to the PC.
■When the measured data is lacked, will displayed on the window.
■Key emulation mode will decrease the max. speed.

Start Measurement

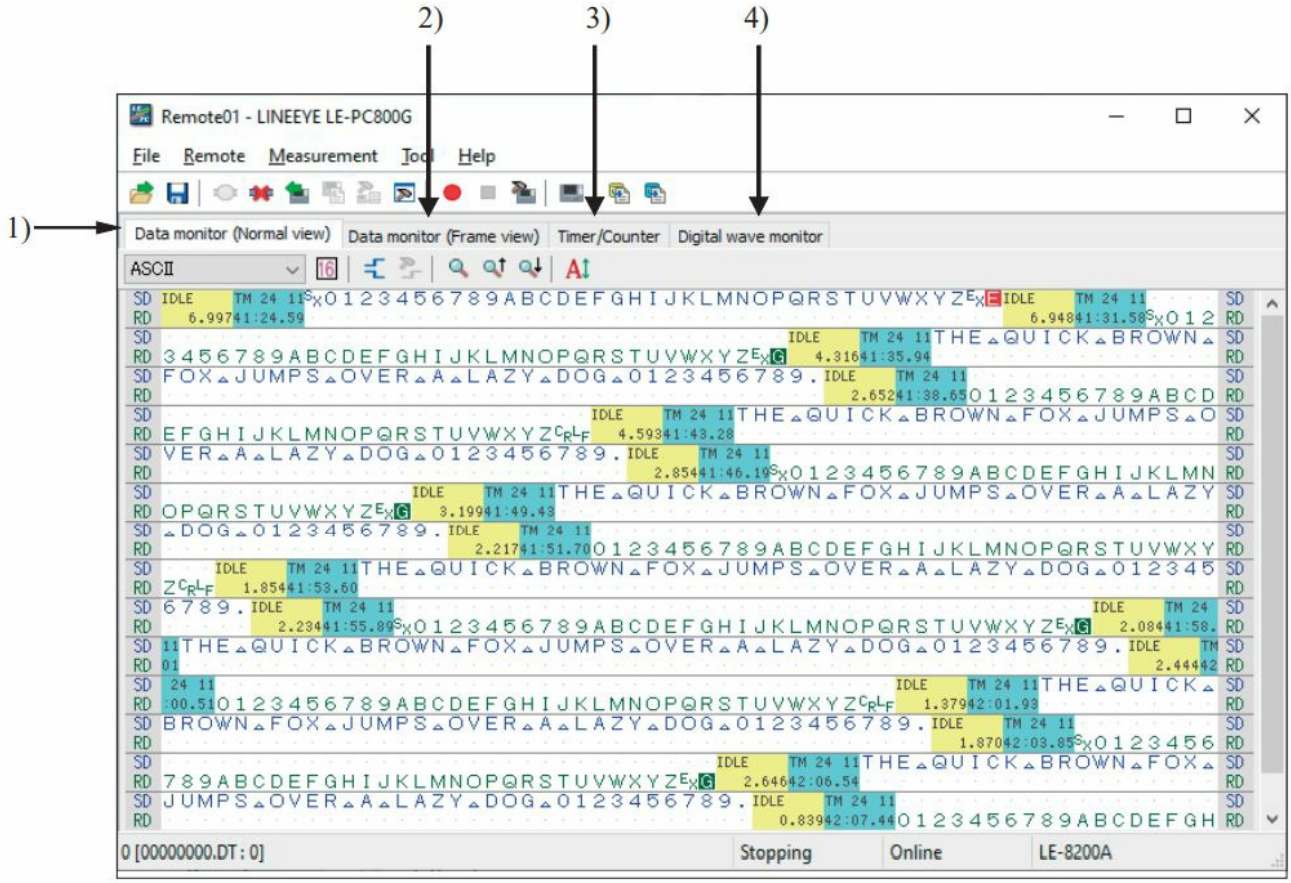
Click  on the toolbar of the data window (or click “Run measurement” of the measurement menu) to measure. After measurement starts, “Measuring” is displayed on the state display part, and data received from your analyzer is displayed. You can change the character size (click ), the character code, the display in hexadecimal (click), and the pause while measuring (click ).

Stop Measurement

To stop measurement, click  on the toolbar of the data window (or click “Stop measurement” of the measurement menu.) After stopping measurement, you can scroll data. Data is automatically saved in the folder you specified on the remote setting. To save with another name, click  (or click “Save data file” of the file menu.).

At the time of stopping measurement, the last file is displayed. To display all files, click  (or click “Open data file” of the file menu) and select the file to display.

Remote Monitor Screen



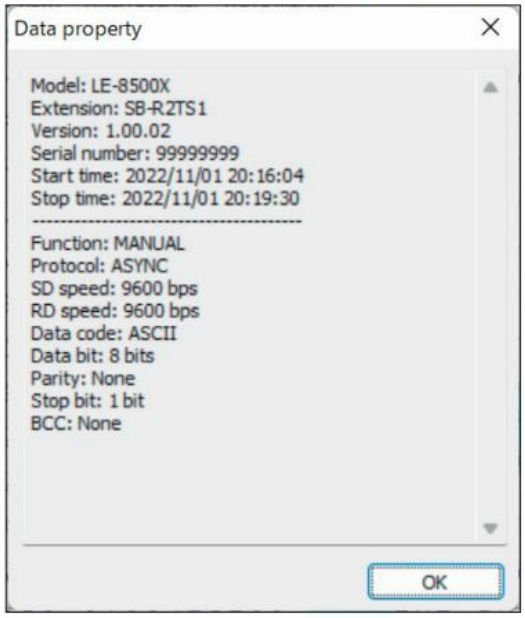
There are following methods to switch the screen display.

-Change display code	Select a character code from the drop down list (marked above 1) which displays the character code.
-Hexadecimal display	Click 16 . (Displays in hexadecimal including the special characters.)
-Control line information display	Click . Click to open the control line information setting window.
-Translated view	To switch the screen into the translated view screen, click the data monitor (translated view) tab (marked above 2). Click to switch the screen into the packet translated view if the packet translation is possible. Click the data monitor (normal view) tab to switch the screen into the original display screen.
-Timer / Counter	To switch the screen into the timer / counter display screen, click the timer / counter display tab (marked above 3).
-Wave monitor display	To switch the screen into the wave monitor display screen, click the wave monitor display tab (marked above 4).

Chapter 10 Waveform Monitor Data

Read the Measurement Data

Click on the toolbar of the data window (or click “File” -> “Open data file”) to select a file of the measurement data. When two or more files are opened, they are displayed as continuous data.
Click “File” -> “Show data property” to check the configuration, date of measurement and so on.



Search Data

Click to set the search conditions on the data search window.

-Search conditions

“Trigger”	Data which meets the trigger conditions.
“Error”	Parity error/Framing error/BCC error/FCS error/Break/Abort/Short frame error (Data which meets what was marked).
“Character (Hex)”	The data length of a maximum of eight characters. (Can specify don’t care and bit mask.)
“Character (String)”	The string length of a maximum of sixteen characters. (Can specify the characters in alphabet, number or symbol (in ASCII)) Data search is made according to the display data code.
“Idle time”	Idle time more than the appointed time.
“Time stamp”	The designated time stamp. (Can specify don’t care.)

-Search operation

“Display”	Display the matched data on the top.
“Calculation”	Display the number of data matched.

To learn more details of the search condition, read the instruction manual of your analyzer.

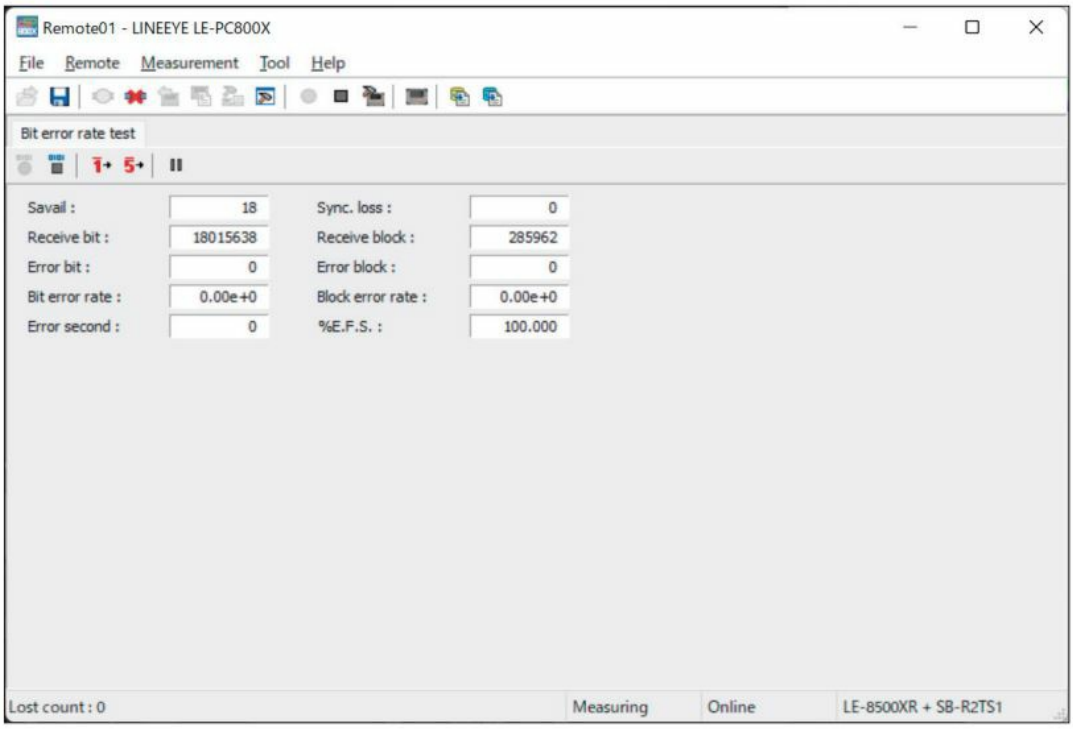
Click (search the forward data) or (search the backward data) to search and calculate data.

Chapter 7 Bit Error Rate Test (BERT)

Bit error rate test (BERT) can monitor the quality of communication lines in the long distance.

Start Measurement

Click on the toolbar of the data window (or click “Run measurement” of the measurement menu). After measurement starts, the following screen appears.



: Start BERT.

: Stop BERT. (The test pattern is still output.)

: Output error of 1 bit.

: Output continuous error of 5 bits.

: Pause on updating display.

: In the case of the repeat mode BERT, multiple results can be received and converted into CSV when measurement stops. Converted results are saved as BERTDATA.csv.

: Convert the BERT results of the repeat mode saved on the analyzer (saved on external storage device.) into CSV.

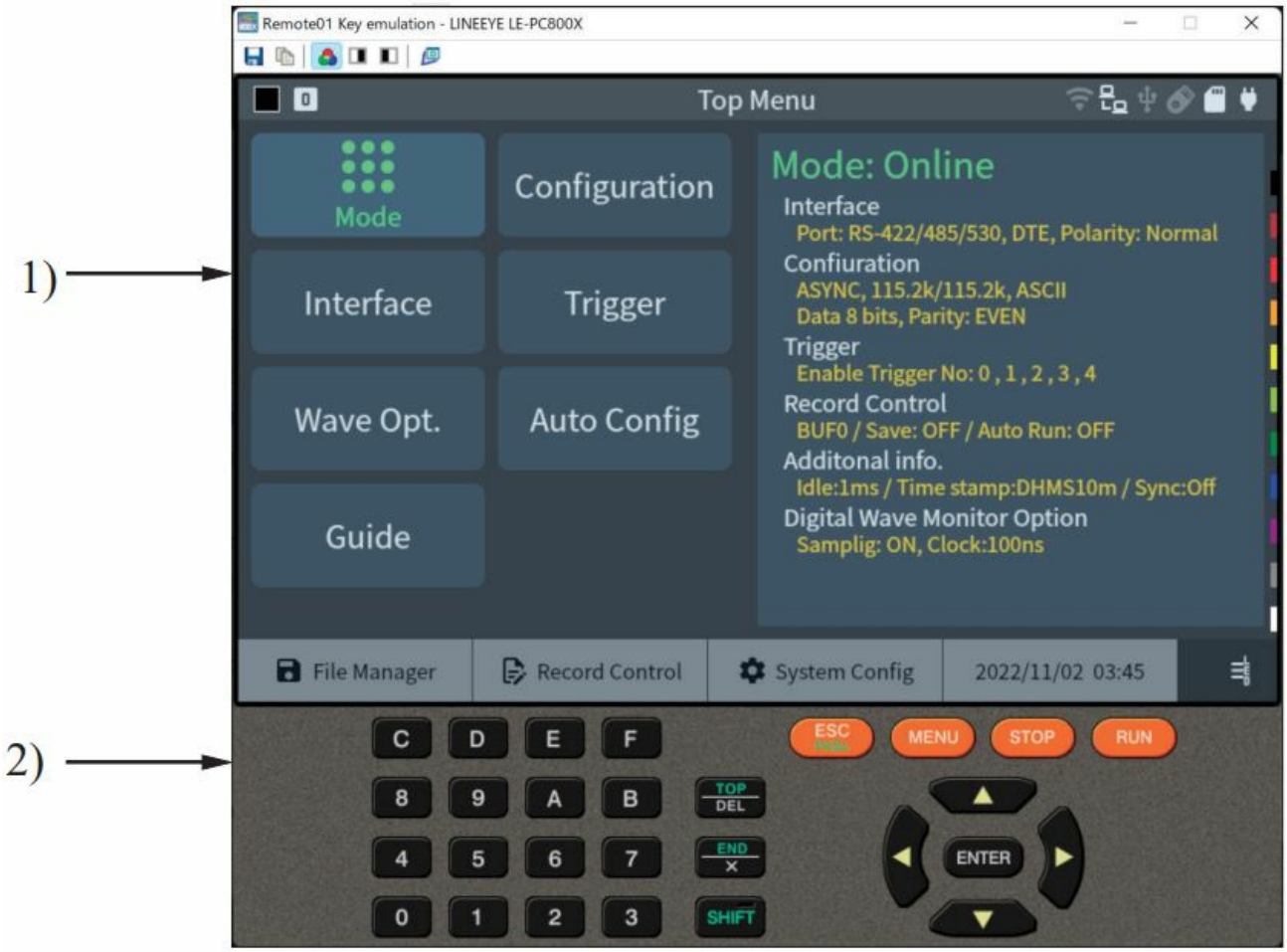
: Save BERT results. In the repeat mode, press “Text conversion” to save the history as the CSV file, because only the latest result is saved.

Chapter 8 Key Emulation

This function allows to control the analyzer from a far place. (remote control)

Run Key Emulation

Click  on the toolbar of the data window (or click “Key emulation” of the tool menu.).



1. Displays the screen of your analyzer being connected.
2. Emulate the key of your analyzer.

   Auto configuration function is not available from the PC link software.

Capture the Screen Image

You can save the screen image of the connected analyzer in a bitmap (BMP) file format.

 : Capture the present screen as a bitmap file.

 : Copy the present screen to the clipboard.

 : Create a bitmap file in a color mode.

 : Create a bitmap file in a gray scale mode .

 : Create a bitmap file in a gray scale mode (inverted.)

 : Go back to the previous data window.

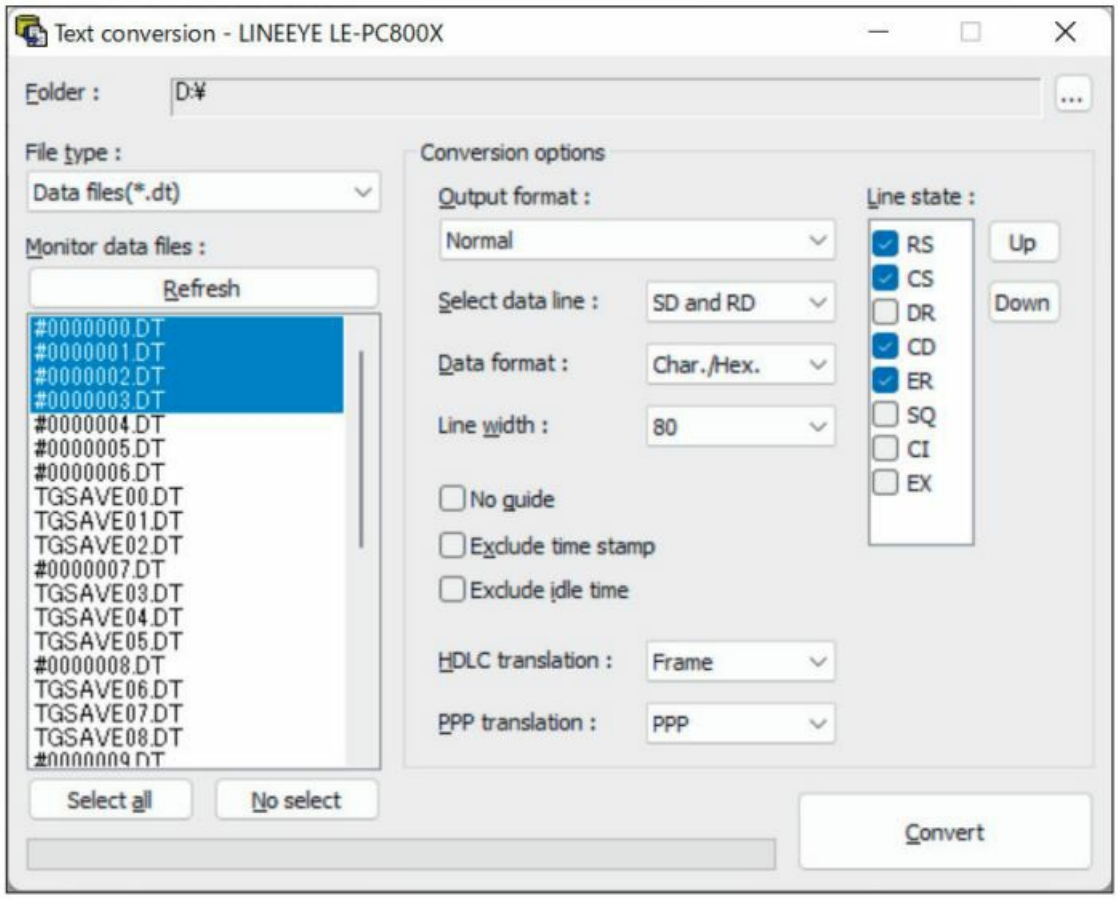
Chapter 9 Text Conversion

This function allows to convert the data which is measured on the remote monitor, and which is saved on such as

a memory card and HDD/SSD into a text file.

Text Conversion Function Setting

Click on the toolbar of the data window (or click “Text conversion” of the menu.).
The following text conversion window opens.



-Folder Specify a folder which has the data you wish to convert into text.
-File type Selects from “Data files” and “Auto save files”
-Refresh Refresh the file information in the specified folder.
-Monitor data file Selects a file you wish to convert from the list display. It is selected by clicking the file. To cancel the selection, click the file again. (You can select two or more files and cancel them all.)
The light edition limits the number of files of text conversion (at the same time) up to 3.

-Output format
Selects a format you wish to convert from the following.
“Normal” (Print format of your analyzer)
“With line state” (Print format of your analyzer which includes control line information)
“Translated” (Translated print format of your analyzer)
“CSV format (data)” (Every data divided.)
“CSV format (frame)” (Every frame divided.)

-Select data line
Selects the number of characters displayed per line from “40” ,“80”, “136” and “MAX”.

-Data format
Selects the data format to convert from the following.
“Char. / Hex.” (Displays the character code and the hexadecimal number.)
“Char. Only” (Only characters are displayed.)

“Hexadecimal” (Only the hexadecimal number is displayed.)

-No guide
If “No guide” is checked, converts such as the communication condition without guide.
(data only)

-Exclude time stamp
If “Exclude time stamp” is checked, delete the time stamp to convert.

-Exclude idle time
If “Exclude idle time” is checked, delete the idle time to convert.

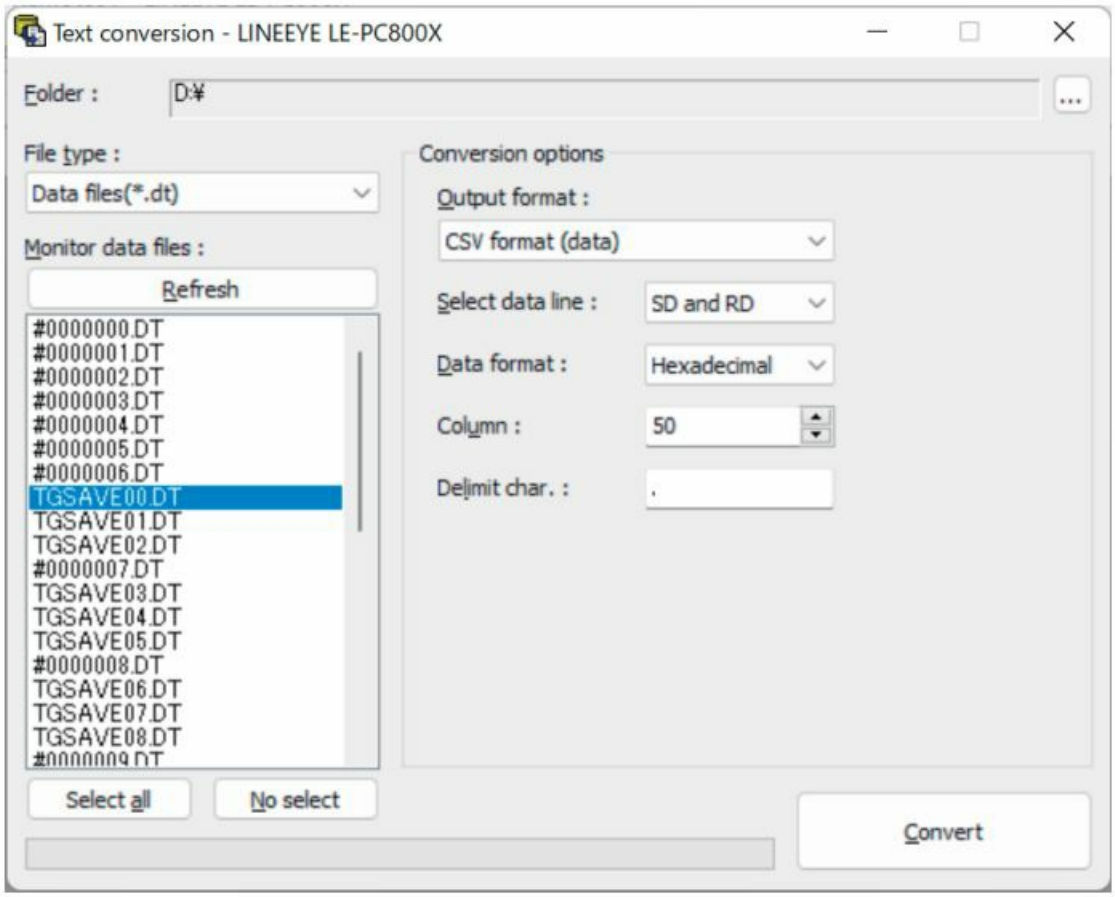
-Select data line
Selects the data to convert from “SD and RD,” “SD only” and “RD only.”

-HDLC translation
At the time of HDLC, selects the translation format to convert from “Frame” and “Packet.”

-PPP translation
At the time of PPP, selects the translation format to convert from “PPP” and “DUMP.”

-Line state
At the time of “Normal print and Line state,” mark the control line to display with.
You can change the order to display, by clicking “up” and “down” button.

If the CSV conversion is selected, the following window appears.



-Select data line Selects from “SD and RD,” “SD only” and “RD only.”
-Data format Selects from “Hexadecimal,” “Decimal” and “Character.”
-Column Sets the range between 1 and 65535.

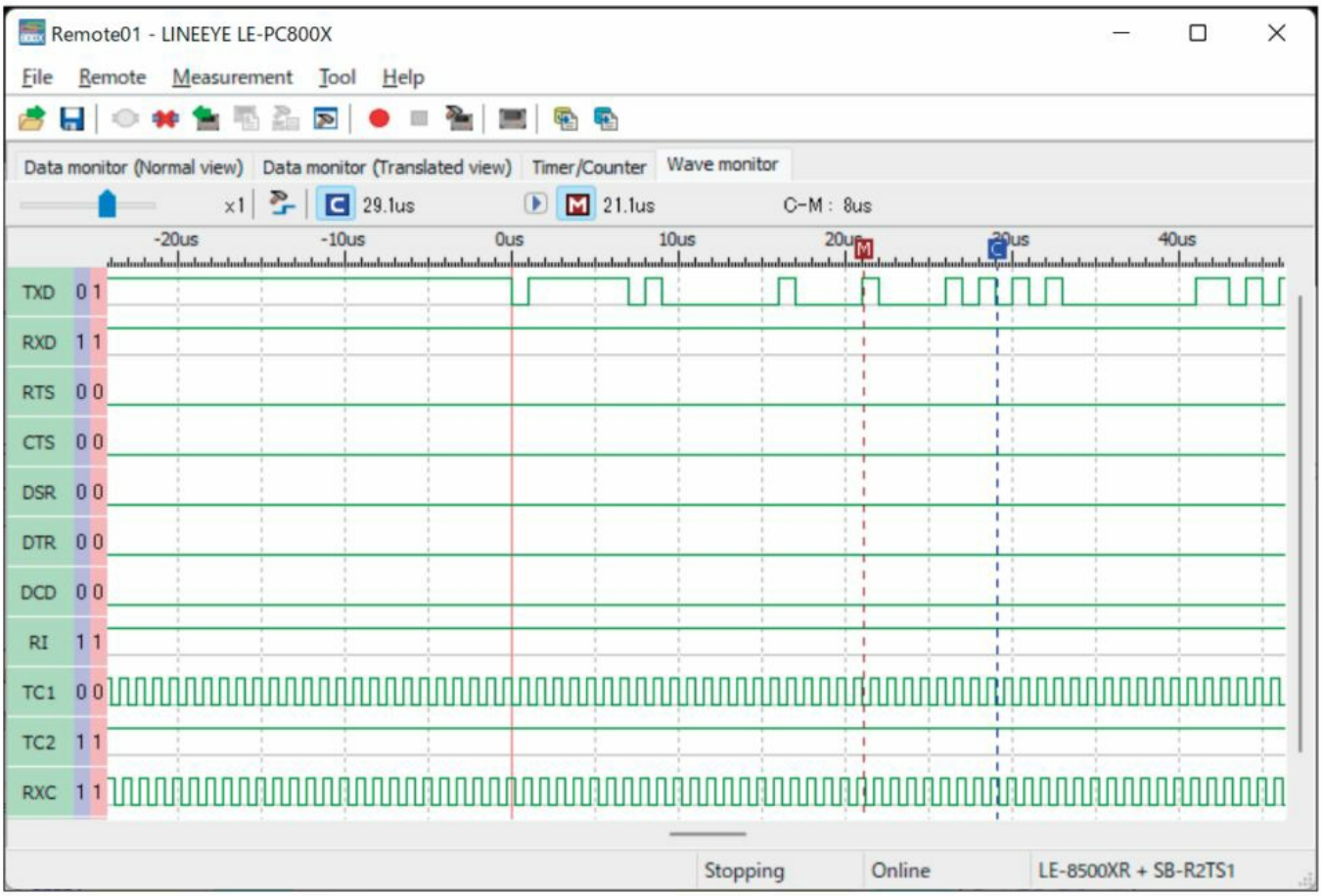
-Delimit char. Sets the delimit character such as “,”

Start Text Conversion

Click “Convert.” A converted file is saved in the folder which contains its source file.

Chapter 10 Waveform Monitor Data

When the analyzer has logic analyzer data, the waveform monitor data is received and displayed.



-Scaling factor — Move the slider x1/4 and select the scaling factor.

-Cursor display — Click C. The cursor mark is displayed by double-clicking.

-Marker display — Click M. The marker is displayed and moved by pressing [▶].

-Time measurement — Drag C and M on the screen of the wave monitor to the position you wish to measure. “C-M:**ms” shows the time between the cursor and the marker
(e.g. The image above indicates C-M: 8us.).

-Signal display order setting — Click to set the order to display on the signal standard setting.

Chapter 11 Connecting Multiple Analyzers

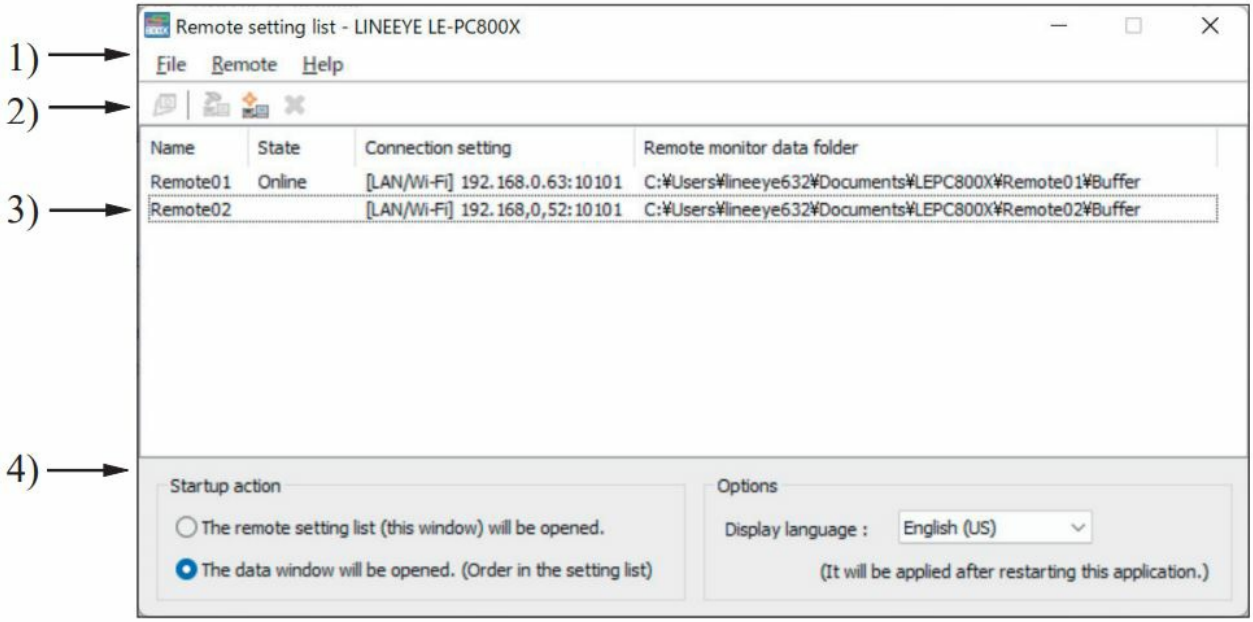
To connect multiple analyzers at the same time, add the necessary setting for the number of analyzers to connect.

1.

Adds the remote setting on the remote setting list window.

To open the remote setting list window, click from the toolbar of the window (or click “remote setting list” of the tool menu).

Remote Setting List Window



Menu Performs each operation.

2. Toolbar Performs each operation.
3. Remote Setting List Displays the remote setting.
4. Option Setting Set the operation setting when starting.

Add the Remote Setting

To add a new remote setting to the list, click on the toolbar of the remote setting window (or, click “new setting” of the remote menu.). Sets the necessary items. (For more information about each item of the remote setting, read “Chapter 5 Environment setting.”)
*Chapter 5 Environment Setting
* For multiple analyzers, make sure not to specify the same folder as location of saving the remote monitor data.

When opening this setting window from the remote setting list window, you can rename the setting name. Adds the remote setting for the number of analysers you wish to connect. (It does not allow you to rename the setting name when the window opened from the data window.)

Open the Data Window

To open the selected data window for remote setting, select the specific remote setting from the list of the remote setting list window (multiple selections possible), and click on the toolbar (or, click the “open data window” of the file menu.).

Delete the Remote Setting

You can delete unnecessary remote setting. At first, select the remote setting you wish to delete from the list of the remote setting list window (multiple selections possible) and click on the toolbar (or, click “delete setting” of the

remote menu). Then, the deletion confirmation appears and the selected setting will be deleted by clicking the “OK” button. However, if the remote setting which is using in the data window, you cannot delete it. If you end the application with all the remote settings deleted, a new setting (default setting) will be automatically added when you start the application next.

Operate Setting When Starting

You can select operation when LE-PC800X starts from the following:
“The remote setting list (this window) will be opened”
The remote setting list window will be opened. If the window has already opened, it will be displayed in front.

“The data window will be opened. (Order in the setting list)”
The data window will be opened in the order according to the remote setting list. If all data windows for the remote setting have already opened, the operation is the same with “The remote setting list (this window) will be opened.”

Start-up Options

When starting the LE-PC800X, following options can be used. -r “<Setting name>”
Start measuring automatically by the specified Connection setting after starting LE-PC800X. To start measuring by the multiple settings, ex. specify as follows.

-r “Remote01” -r “Remote02” When starting the measurement by using AUTO measurement function, the warning message of loosing the existing data file will not be displayed. Also, when starting the measurement by using APPEND mode and the selected configuration file automatically, the existing data file will be erased without the warning message when starting LE-PC800X.

-q It saves measured data to the data file immediately, and try to keep the format of data file as normal. (LINEEYE does not warrant the condition is normal.) Also, it will allow to read the measured file which is in the process of saving data, and able to copy the data file. However, the data file which is in the process of saving data can not be opened by the other window of LE-PC800X. It is possible that this function will deteriorate the ability of PC or storage of saving data file. Therefore, LINEEYE does not recommend using this function.

Chapter 12 Specification

Applicable analyzer	LE-8500X-RT,LE-8500XR-RT	
Applicable Option	SB-R2TS1*1	
Connection with analyzer	USB, LAN, Wi-Fi(appropriate model only)	
How much analyzers	Can connect with multiple analyzers and control them remotely (PC capability determines how much can be connected.)	
Key emulation function	It emulates the display and control part of the analyzer on PC and you can control as if you are controlling it directly.	
Measurement condition setting	The measurement conditions of the connected analyzer is automatically read and the settings can be changed.	
Remote monitor function	Start and stop of measurement, display of measured data on PC, and continuous recording*2	
	Recording mode	Fixed buffer mode (stops measurement at specified volume) or Ring buffer mode (continue recording leaving latest data not overwritten) can be selected.
	Recording capacity	Max.256Gbyte, 1/2/4/8/16/32/64/128Mbyte size file unit, up to 2048 files can be specified
Display mode	Raw data display, Frame/protocol translation display, Timer/counter display, and Logic analyzer waveform display.	
	Raw data display	Display of communication data with idle time, time stamp, and line status. Character code (10 types) and character type (small, medium, and big) are switchable.
	Frame display	Line feed display for each communication frame of ASYNC, SYNC, SPI, and I2C
	Protocol translation display	Translation display of ASYNC-PPP, Modbus, PROFIBUS, SDLC, X.25, and LAPD protocols.
	Logic analyzer waveform display	Zoom in and out of waveform display, time measurement between the cursors, sorting of signals.
Display area	Window size is changeable.	
Character code	ASCII, EBCDIK, JIS7, JIS8, EBCD, Transcode, IPARS, Baudot, HEX, HEX (HEX with error code)	
Search function	Cueing or count of the data which corresponds with the search condition	
	Search condition	Specified character line (Max.8 characters, Don't care and bit mask are available), Idle time more than the specified value, Specified time stamp (Don't care is available), Error (Parity, Framing, BCC, Brake/Abort, Individual designation of Short frame is available), Data corresponds with the trigger
Text/CSV convert function	Collective conversion of indicated number of measurement log files into text format or CSV format is available.	
Display capture function	The display of the analyzer by key emulation can be saved as bit map file.	
Storage device	Storage device: Reads the log files (which are captured by the analyzer) in a storage device (USB memory, SDHC card).	
System requirements	Windows® 11/10/8.1/7*3	

*1 Available by adding SB-R2TS1 for LE-8500X/XR and LE-8600X/XR.
*2 See "Max speed when remote monitoring" on page 14 for the communication speed of the measurement target that can record the measurement data without fail on the remote monitor. The LE-PC800X (light version) included in the CD that comes with the analyzer automatically terminates the remote monitor in 10 minutes, so long-term continuous measurement cannot be used.
*3 Use with Windows® 7 is not supported.

There is a registration page on our web site. (**https://www.lineeye.com**) Please register your product for further support. We will provide you the software update information and sales information etc.

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Documents / Resources

	LINEEYE LE PC800X Multi Protocol Analyzer [pdf] Instruction Manual LE PC800X Multi Protocol Analyzer, LE PC800X, Multi Protocol Analyzer, Protocol Analyzer, Analyzer

References

- User Manual