LINEEYE

OPTIONAL KIT

FOR MULTI PROTOCOL ANALYZER LE-8200

PC Link Software

LE-PC800G

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 8th Edition

Contents

Chapter 1　Before Using the Product

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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

This software allows the analyzer to measure throught PC, and to store the monitored data in the PC via USB port, AUX port (serial) or CF card.

Unpacking

When you unpack the product, make sure of the following:

    □ CD-ROM (software)   1
    □ Instruction Manual (This book)   1
    □ Customer 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

Installation Guide

1. Insert the CD-ROM into the CD-ROM drive.
2. Select "RUN" from the "START" menu.
3. Input the "D(specify the CD drive):/setup" in the command line and click "OK".
4. The setup program will start. Follow the setup instructions.
   You need the serial number when installing . You can find the serial number on the side of the box that contains LE-PC800G (or on the card packed up with LE-PC800G).
5. After "Install Shield Wizard Complete" appears, click "Finish".

Uninstallation Guide

1. Click"Add/Remove programs" from the control panel.
2. Select"LE-PC800G" from the list, then click "Add/Remove" button.

USB Driver Installation

This PC link software can controll the analyzer via USB. You need to install the USB driver to controll the analyzer via PC. USB driver is stored in the CD-ROM.

📄 Supported OS are Windows 2000/XP/Vista/7/8.


<Installation>

・Windows 2000/XP

1. Connect USB port of this analyzer and USB port of the PC using a USB cable.

2. Turn on the power of analyzer. The detection wizard of the hardware will appear on the PC.

3. If the message appears that "Can Windows connect to Windows Update" to search for this time,"

   and click "Next".

4. Select "Install from a list or specific location"," and click "Next".

5. Select "Search for the best driver in these locations." with checking the box "Include this location in the search." and designateing the folder including the driver file. Then click "Next" to start installation.

6. In installing the driver ,if the message that it has not passed Windows logo testing, you can ignore that and click "Continue Anyway".

7. After finishing installation, the dialog "Completing the Found New Hardware Wizard" appears. Click "Finish" to close the dialog.
   Above is the installation for Windows XP. It will be almost same for Windows 2000.

・ Windows Visa/7/8

　1. Set the attatched CD-ROM into the CD-ROM driver of the PC that will be connected to LE-8200.

　2. Execute "setup.exe" file in "Driver" folder of the attatched CD-ROM.

　3. "User Account Control" appers in the display of the PC.
　　Then click "Yes".
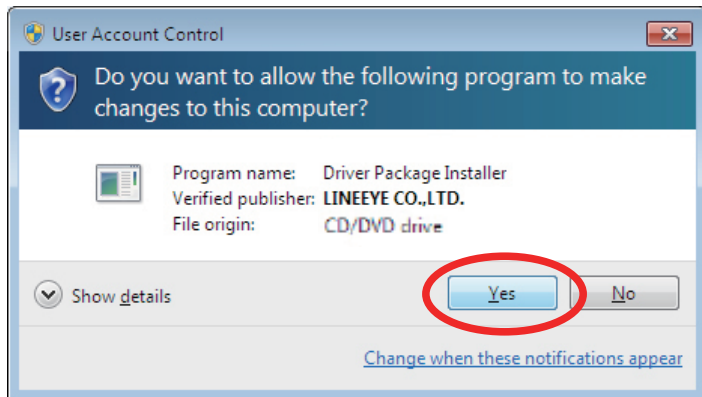
　4. "LINEEYE driver package installer" appears. Then click "Yes".

　5. "Device Driver Installation Wizard" appears. Then click "Next".

　6. Windows security window appears.
　　Then click "Install".
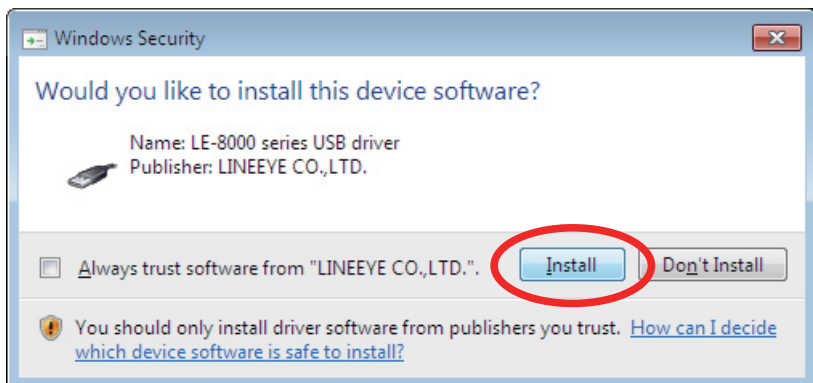
7. If the window says "Completing the Device Driver Installation Wizard", click "Finish".

8. Connect the LE-8200 device to the PC. The installation is completed if the message like below is appears on the task tray.
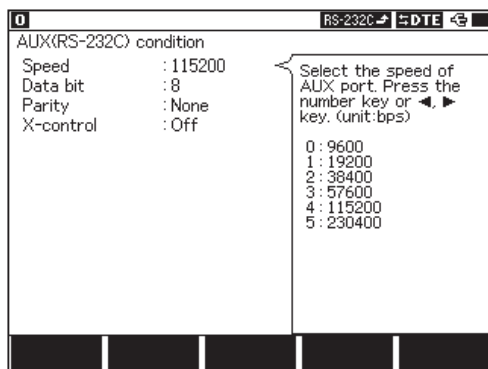
> 📄 Above is the installation for Windows 7. It will be almost same for Windows Vista/8.

LINEEYE Protocol Analyzer LE-8000 series 🔧 ✕
Device driver software installed successfully.
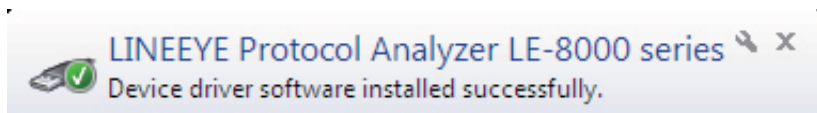
AUX port

This PC link software can be operated via AUX port (RS-232C).

(1) Connect the AUX port of your analyzer and the COM port of the PC using the AUX cable (LE2-8V).

(2) Set the communication conditions of the AUX port of your analyzer.

```
┌─────────────────────────────────────────────┐
│ 0              RS-232C ↵  ⇄DTE  ⊕ ■          │
│ AUX(RS-232C) condition                       │
│ Speed       : 115200    ⟨ Select the speed of│
│ Data bit    : 8           AUX port. Press the│
│ Parity      : None        number key or ◀, ▶ │
│ X-control   : Off         key. (unit:bps)    │
│                                              │
│                           0 : 9600           │
│                           1 : 19200          │
│                           2 : 38400          │
│                           3 : 57600          │
│                           4 : 115200         │
│                           5 : 230400         │
│                                              │
│                                              │
│                                              │
│ ▮        ▮        ▮        ▮        ▮         │
└─────────────────────────────────────────────┘
```

\<Example\>
Speed:115200, Data bit:8,
Parity:None, X-control:OFF
(Set the same speed as PC setting.)

Attension

* Never turn off the power of your analyzer while connecting to the PC.
* Connection to the PC Link Software can be cut easily. Set the power saving mode OFF on the PC.

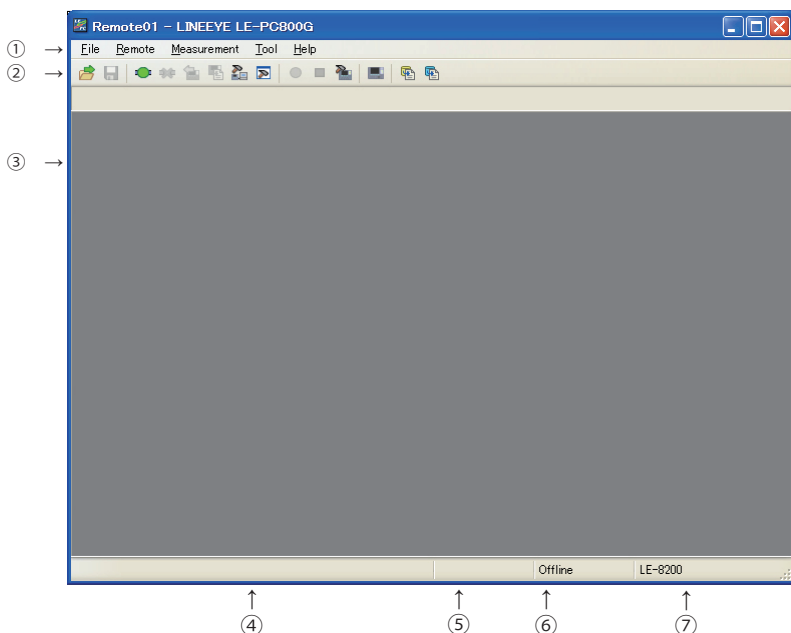---

Chapter 4   Data Window

Data Window of PC link software

■Starting the PC link software.
   Start "LE-PC800G" from the "Start" of Windows.
   Usually, the following display will appear.

Data Window

①Menu
   Can perform various operations.

②Tool Bar
   Can perform various operations.

③Data display part

Displays the measured data.

④Data position display part

Displays the data position in the Data display part. The number of data loss is displayed while remote monitoring.

⑤Various state display part

Displays such as the measurement state.

⑥Connection state display part

Displays the remote connection state between LE-PC800G and your analyzer.

⑦Model 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.

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
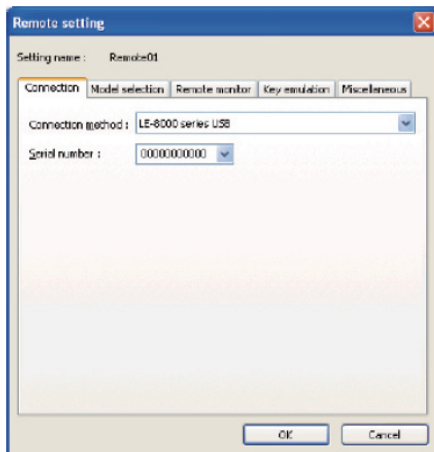
Connection Method

"LE-8000 series USB"

Connect via USB port.

(Select the serial number of analyzer which you wish to connect.)

"Serial port direct"

Connect via serial port of the PC or use the USB-Serial converter (LE-US232B).

"Via SI-60"

Connect via SI-60　　　*1
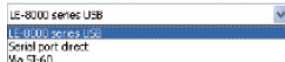
*1　Use SI-60 or SI-60F. To use SI-60, AUX Cable for DSUB 25pin "LE2-8C" is required.
To learn more about the converter setting, read the instructions manual included in the converter.

The required setting depends on the connection methods.

"Serial Port" ("Serial port direct")

    Selects the serial port of the PC connected.

"Speed" ("Serial port direct", "Via SI-60")

    Sets according to the speed of the AUX port of your analyzer.

    Can be input "COM XX" directly("XX" is the numbers).

"Data bit" ("Serial port direct", "Via SI-60")

    Fixed number of data bit is 8 and you cannot change it. Make sure that

    the AUX port setting of your analyzer is 8bit as well.
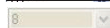
"Parity" ("Serial port direct", "Via SI-60")

    Sets the communication data parity between your analyzer and the PC.

    Sets "None"for normal use.
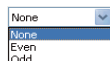
"X-Control" ("Serial port direct", "Via SI-60")

    Sets whether to perform the flow control of X-Control between your analyzer and the PC. Sets

    "None" for normal use.
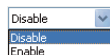
"Host name" ("Via SI-60")

    Set the host name or IP address of the LAN-Serial converter (LE-US232B).

"Data port" ("Via SI-60")

    Sets the port number for sending and
receiving the serial data. If you leave it
blank, it is automatically set, so usually
keep it blank. If the router or the firewall
causes the port number to be changed,
you need to set it.

"Control port" ("Via SI-60")

    Sets the port number of SI-60. Usually,
keep the port number blank. If the router
or the firewall causes the port number to
be changed, you need to set it.
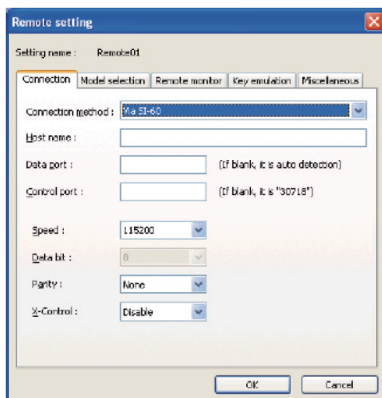
■Model selection

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.
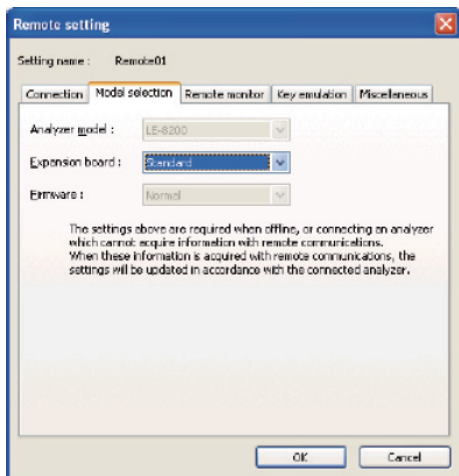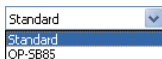

"Analyzer model"

Selects the model name of the target analyzer.

It is the expansion for future use. Not available now.

"Expansion board"

Selects the expansion board which is equipped with a target analyzer.

"Firmaware"

Sets when you use optional firmware on the target analyzer.

■Remote monitor

Sets the remote monitor
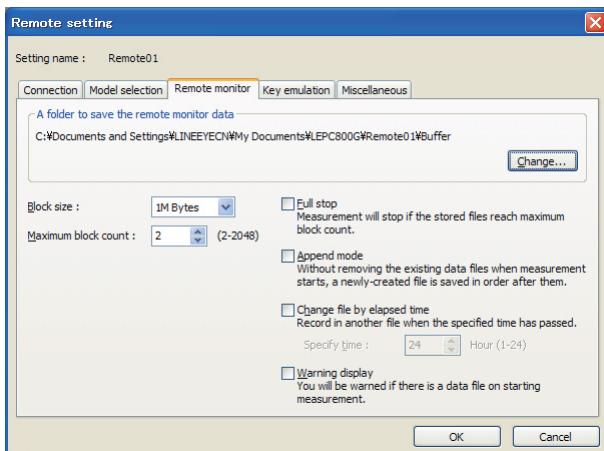
A folder to save the remote monitor data

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", or "8M 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.

"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.
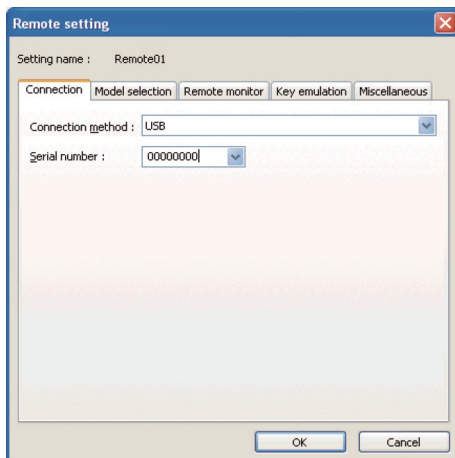
A folder to save the screen capture data

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"
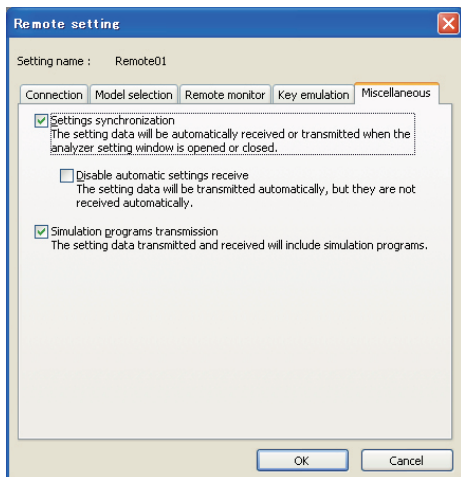
Settings syschronization

    Transmits and receives the setting automatically a the time of the opening and closing the analyzer setting window.

   If you mark on "no automatic receiving", 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 measurent data in the HDD of the PC, displaying the data in real time.

Connection

After finishing the remonte 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.)
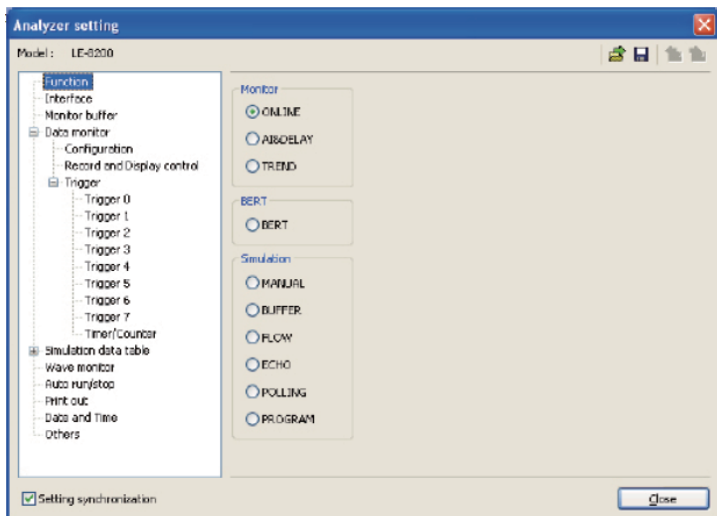

On the analyzer setting window, every time you change the setting on a tree (on the left side of the window), the contents of the setting (on the right) are changed. Set the necessary settings.

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".

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.)
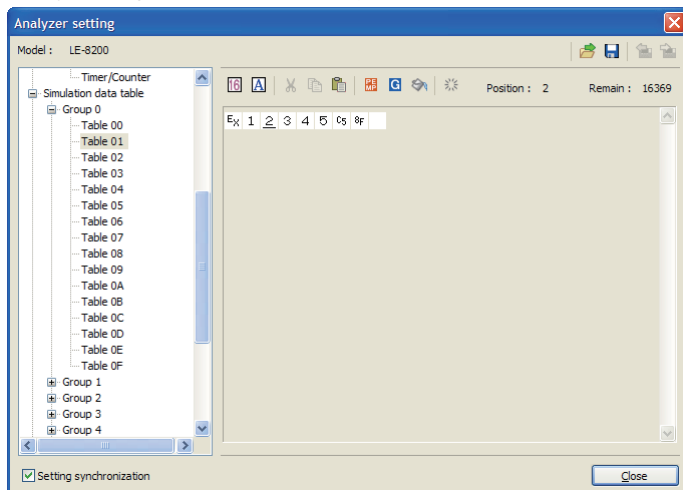
16 :	Change the data to hexadecimal or character code.	
A :	Change the input method to hexadecimal or character code.	
PE/MP :	The character which is forcused is set to the parity error (or the multi processor bit)	
G :	Input BCC (or FCS).	
:	Input the data from "Begin data" to "End data" for the number 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. Refere to the following standard speed.

LE-8000 series USB : Max. 2Mbps
Serial port direct (115.2Kbps connection) : Max. 24Kbps *1
Via SI-60 (230.4Kbps connection) : Max. 40Kbps *1

*1 This is the max speed of actual communications. For example, the speed of your target device is 1Mbps, and it communicates 2Kbyte/s.The actual communication speed of this target device is 20Kbps.

> ■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 A_I), the character code, the display in hexadecimal (click 16), 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
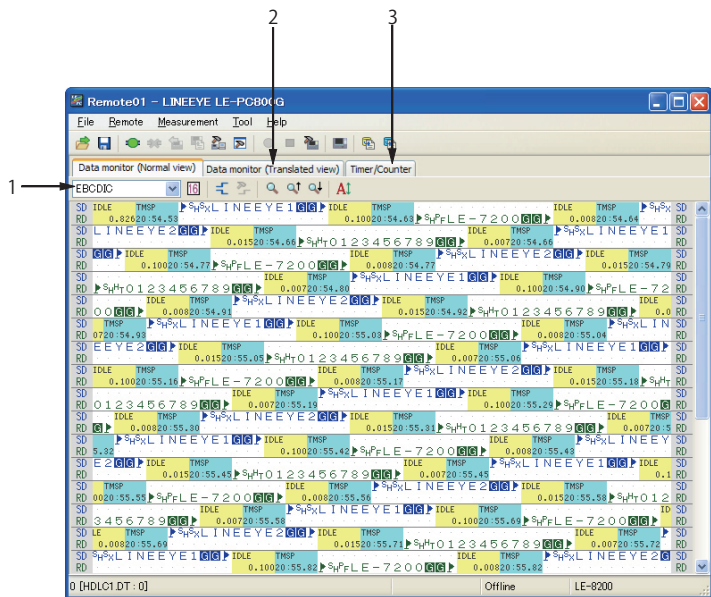
There are following methods to switch the screen display.

- 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.

Read the Measurement Data

Click ![icon] 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.
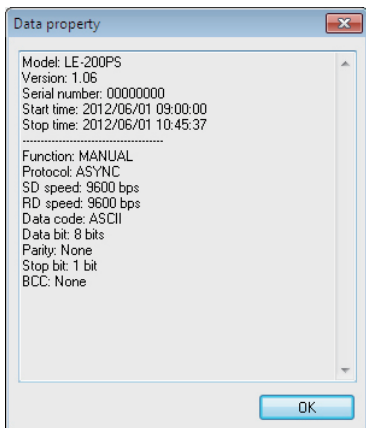
Search Data

Click ![search icon] 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 forward icon] (search the forward data) or ![search backward icon] (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.

Savail :	4	Sync. loss :	0
Receive bit :	4632720	Receive block :	73535
Error bit :	0	Error block :	0
Bit error rate :	0.00e+0	Block error rate :	0.00e+0
Error second :	0	%E.F.S. :	100.000
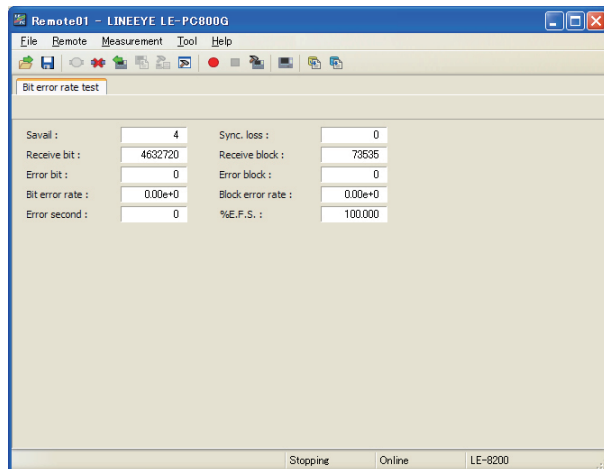
●　　　　　　　: Start BERT.

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

1→　　　　　　: Output error of 1 bit.

5→　　　　　　: Output continuous error of 5 bits.

Ⅱ　　　　　　: 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 the CF card.) into CSV.

　　　　　　　: Save BERT results. In the repeat mode, press "Text conver sion" 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.

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 glay scale mode .
⬛	: Create a bitmap file in a glay scale mode (inverted.)
🖥	: Go back to the previous data window.

Chapter 9   Text Conversion

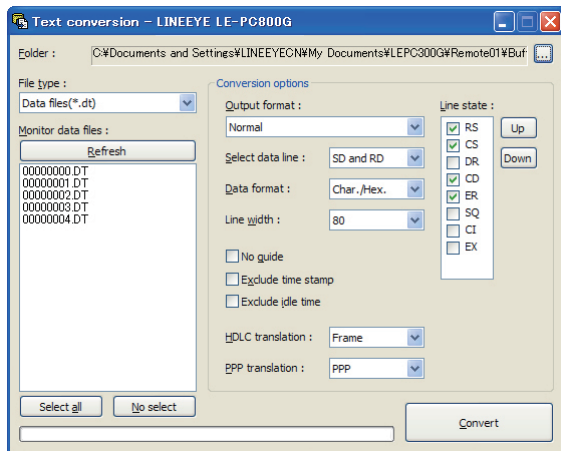This function allows to convert the data which is measured on the remote monitor, and which is saved on such as a memory card and HDD into a text file.

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.

   -The kind of file

        Selects from "Data files" and "Analyzer's 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.)

-Output format

   Selects a format you wish to convert from the following.

   "Normal print" (Print format of your analyzer)

   "Normal print with line state" (Print format of your analyzer which includes control line information)

   "Translated print (designated at the time of measurement)" (Translated print format of your analyzer)

   "CSV format processing unit: Data (normal)" (Every data divided.)

   "CSV format processing unit: Frame" (Every frame divided.)

-The number of characters per 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."
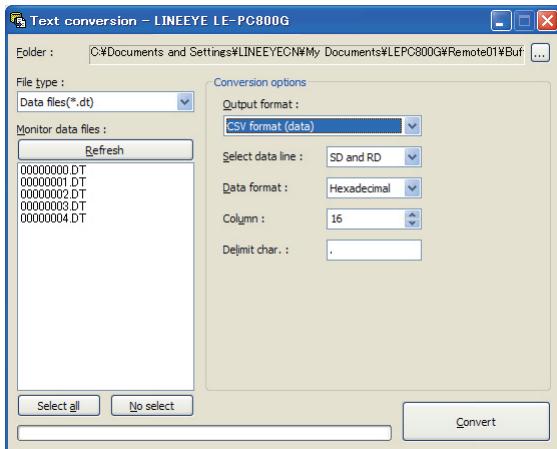
-PPP translation

   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."
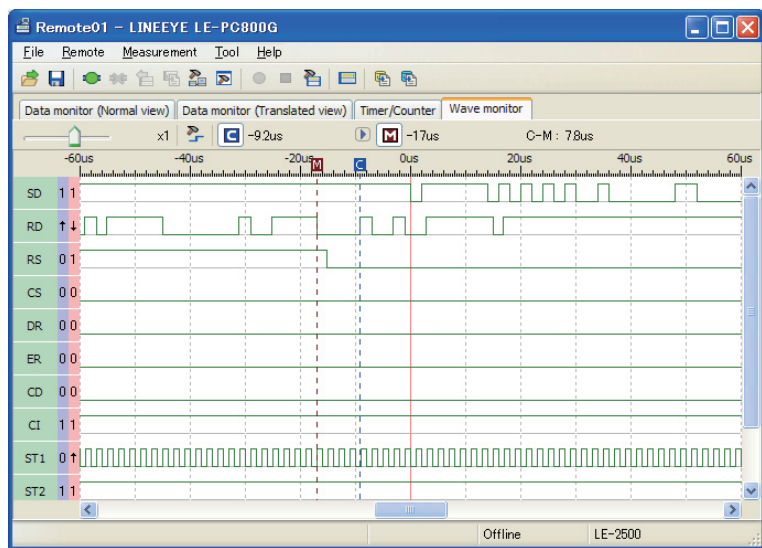
-Data format

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.

-Scaling factor	Move the slider ⎯◯⎯ x1/2 and select the scaling factor.
-Cursor display	Click 🄲. Place the cursor near the center of the screen.
-Marker display	Click Ⓜ. Place the marker near the center of the screen.
-Time measurement	Drag 🄲 and Ⓜ 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 (eg.
	The image above indicates C-M: 74ms.).
-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.

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
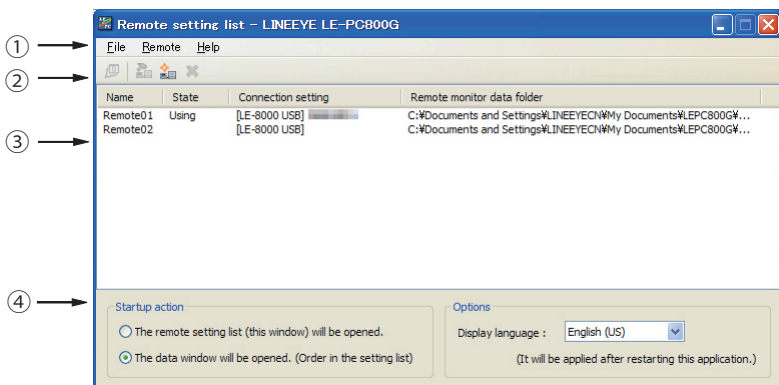
1. Menu

    Performs each operation.

2. Toolbar

    Performs each operation.

3. Remote Setting List

    Displays the remote setting.

4. Option Setting

    Ses 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.")

* 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 analyzers 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 [icon] 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 [icon] 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-PC800G 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."

Startup Options

When starting the LE-PC800G, following options can be used.

-r "<Setting name>"
Start measuring automatically by the specified Connection setting after starting LE-PC800G.
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-PC800G.

-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-PC800G.
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-8200 [*1]	
Connection	Serial, LAN (the LAN-serial converter SI-60, SI-60F), USB	
No. of analyzers to be connected	Multiple analyzers can be connected and controlled simultaneously. (No. of connectable analyzers depends on the performance of the PC.)	
Measurement conditions	Measurement conditions (communication parameters, triggers and simulation data) can be set.	
Key emulation	Displays the analyzer's display and keys on the PC screen and can perform the analyzer remote control.	
Remote monitor	Starts/stops the measurement, displays the measurement data on the PC screen, and records the data continuously	
	Recording mode	Fixed buffer mode: Meausres data up to the specified size and stop automatically. Ring buffer mode: Records the latest data of the specified size endlessly.
	Recording capacity	Max. 16GB: Can be specified up to 2,000 files in the unit of 1/2/4/8 MB.
Text-CSV conversion	Specified number of the recorded files can be converted to text or CSV format at once.	
Screen image capture	Analyzer's display shown by the key emulation can be saved as the bitmap files.	
Display modes	Standard display	Displays the communication data, idle time, time stamp and data line status. Displays in ASCII, EBCDIC, JIS7, Baudot, Transcode, IPARS, EBCD, EBCDIK, HEX(includes errors).
	Translation display	Translates and displays protocols such as SDLC, X.25, LAPD, PPP and IrLAP. Displays frames of I2C and SPI.
	Waveform monitor display	Enlarges and reduces the waveform (Can measure time, and rearrange signals.)
Search	Finds and displays the data that matches the search conditions.	
	Search conditions	Specified character (Hex: max.8 characters / String: max.16 characters) (don't care and bit mask can be specified) Error (parity, framing, BCC, break/abort, short frame: individual error type can be specified.) Idle time beyond a specified duration. Specific time stamp (don't care can be specified.)
System requirements	PC	RAM: 256MB or more HDD: 6MB + free space for saving the measurement data.
	OS	Windows 2000/XP/Vista/7/8

*1 This software can not be used with OP-SB84, OP-SB87, OP-SB88 or OP-SB89.

There is a registration page on our web site.

(http://www.lineeye.com)

Please register your product for further support.

We will provide you the firmware update

information and sales information etc.

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