LINEEYE

PC Link Software
LE-PC87FD

Instruction Manual

The CD-ROM attached to the product contains the latest instruction manuals in PDF format. Please also refer to them.
You need the serial number when installing. You will find the serial number on the side of the box that contains LE-PC87FD (or on the card packed with LE-PC87FD).

The first Edition

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Chapter 1 Before Using the Product

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LINEEYE CO., LTD.

Chapter 2 Introduction

Thank you for your purchase of LINEEYE's "LE-PC87FD" 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 LE-8200/LE-8200A to capture the monitored data measured by OP-SB87FD (optional expansion kit) into a PC through a USB port, An Aux port (serial) ,or a memory card.

The light version of LE-PC87FD is available from LINEEYE web page. The differences between the light version and full version is below.

・ The remote monitor function of light version works only 10 minutes.
・ The light version can convert only 3 files into text format simultaneously.

Unpacking

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

        □ 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. Please be sure to do user registration (from our website) as it is necessary to receive support such as version upgrade.

Chapter 3 Before Start-up

USB Driver Installation

To connect the analyzer and the PC with a USB cable, install the USB driver of LE-8200/LE-8200A into the PC. Follow the instruction below.
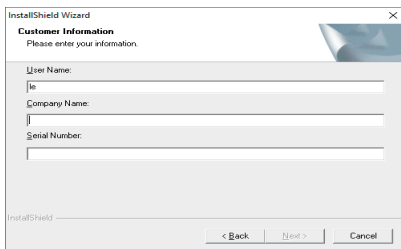
1) Do not connect the analyzer to the USB port of PC before the driver installation.
2) Download the USB driver compatible with the analyzer from the LINEEYE website, Unzip to a proper folder. (The driver is also included in the CD attached to the product.)
3) Execute setup.exe in the folder.

4) Follow the instructions on the screen to proceed the installation. If the "User account control" or "Windows Security" window is displayed, click "Yes" or "Install" to proceed.

5) After the installation is complete, connect the analyzer with a USB cable. After the PC recognize the USB connection a connection message will appear in the task tray at the bottom right.

Installation Guide

1) Execute "setup.exe" in the attached CD.

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-PC87FD(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-PC87FD" in the start menu and select "uninstall".)

2) Select "LE-PC87FD" 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-PC87FD (LITE)" is already installed in the PC, uninstall the light version before installing the full version."LE-PC87FD"

   📄 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.

Analyzer Setting

1) Serial connection: Connect the analyzer and a PC by the AUX cable (LE2-8V).USB connection: Use the USB cable.

USB cable

or

AUX cable (LE2-8V)

PC
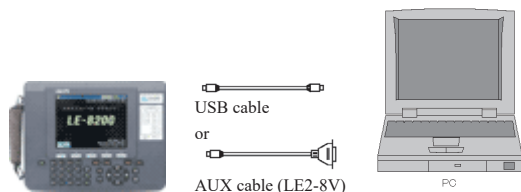
2) Set the AUX port of the analyzer as follows if using the serial connection.
(Not neccessary to set the AUX port if using the USB connection.)
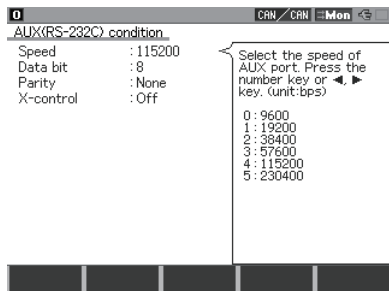
<Example of setting>
Speed: 115200bps
Data length: 8-bit
Parity: NONE (recommend)
X-CONT (flow control): OFF

<Notice>

* Do not turn off the power of analyzer while the analyzer is connecting to LE-PC87FD.

* If using the AUX port for connection, do not put anything in the USB port.

* It may cause some data loss if using the AUX port for remote control compared to the USB port.

* Set off the power saving mode in the PC to keep the connection with the PC link software.

* Do not use the auto measurement function.

Data Window

Select "LINEEYE" "LE-PC87FD" from the Windows start menu.

Normally, the following display will appear.
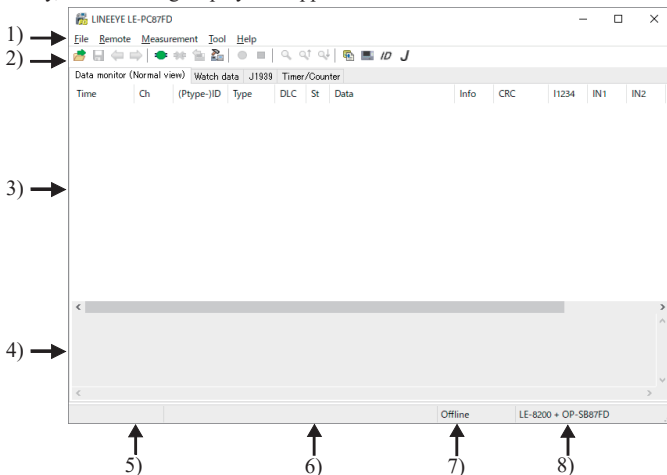
1) Menu

Can perform various operations.

2) Tool Bar

Can perform various operations.

3) Data display part

Displays the measured data.

4) Details of data display

Displays the details of selected data.

5) Measurement status

Displays the status of measurement. (Measuring/Stopping)

6) Position of data

Displays the position of selected data on the data monitor display.

(8 / 91   position of selected data / position of last data)

While it is measuring, it displays the number of received data and lost data.

7) Connection state display part

Displays the remote connection state between LE-PC87FD and your analyzer.

8) 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.

Functions of Data Window

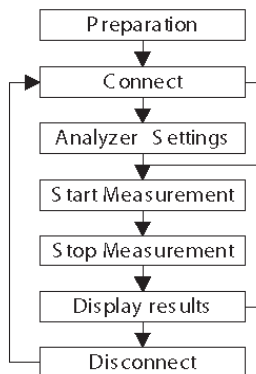| Menu	Tool Bar	Meaning
		File
Open data file…		Opens data files (extension .DT)[*1]
Save data file…		Names and saves the data displayed on the Data Window.
		Opens the previous file. [*2]
		Opens the next file. [*2]
Show data property		Displays the configuration and measurement time.
Exit application		Closes LE-PC87FD.
		Remote
Connect		Connects to the analyzer
Disconnect		Disconnect to the analyzer.
Receive data		Receives the measured data from the connected analyzer.
Remote setting…		Sets remote settings.
		Measurement
Run Measurement		Starts measuring by the remote control.
Stop Measurement		Stops measuring by the remote control.
		Sets the data retrieral conditions and finds it.
		Finds the previous data.
		Finds the next data.
		Tool
Text conversion		Performes text convertion.
Key emulation		Performes key emulation.
Difference timestamp		Displays the difference of timestamp (compares to the last timestamp)
Watch data Setting	*ID*	Sets the "ID" to display the watch data.
J1939 display Setting	*J*	Sets the translation display of parameter defined in J1939.
		Help
Contents...		Displays the help file.
About…		Displays the version of the software.

*1: The file except OP-SB87FD data cannot opened.

*2: Cannot open the data which is named, or data files are not in order.

Steps

Operation procedure of LE-PC87FD to save measured data in the PC is below.

```
              ┌─────────────────────┐
              │    Preparation      │
              └─────────────────────┘
                        ↓
    ┌──────────►┌─────────────────────┐
    │           │      Connect        │
    │           └─────────────────────┘
    │                     ↓
    │           ┌─────────────────────┐
    │           │   Analyzer Settings │
    │           └─────────────────────┘
    │                     ↓
    │           ┌─────────────────────┐
    │           │   Start Measurement │
    │           └─────────────────────┘
    │                     ↓
    │           ┌─────────────────────┐
    │           │   Stop Measurement  │
    │           └─────────────────────┘
    │                     ↓
    │           ┌─────────────────────┐
    │           │   Display results   │───┐
    │           └─────────────────────┘   │
    │                     ↓                │
    │           ┌─────────────────────┐   │
    └───────────│    Disconnect       │◄──┘
                └─────────────────────┘
```

Step 1. Preparation

When using LE-PC87FD at the first time, press " 📠 " (or press [Remote] in the menu bar.)
Set the place for saving data and so on.

   * "Remote" setting is described at Chapter5.

Step 2. Connect

After setting "Remote", check the connection with the analyzer. Press "🔴" (or [Remote] ->
[Connect])

It will ask to make a saving folder if it cannot find the place for saving data. Press "OK".
(If "Cancel", it cannot connect with the analyzer)
   *If it cannot find the place for saving data, it will make a saving folder such as below.
     ...\My Documents\LEPC87FD\Remote\Buffer
     ...\My Documents\LEPC87FD\Remote\Screen

Step 3. Analyzer Settings

Before starting measurement, it is necessary to set the communication conditions.
Press " ■ " to set by the remote control. (or [Tool] -> [Key emulation])

* It is not necessary if settings are set by the analyzer.
* For the detail of "Key emulation", see "Chapter 10 Key Emulation"

Step 4. Start Measurement

Start measurements if analyzer settings are all done.
Press " ● " to start measurement. (or [Measurement] -> [Run measurement])

Stet 5. Stop Measurement

Click " ■ " to stop measurement. (or [Measurement] -> [Stop measurement])

* Mark on the box of "Full stop" from "Remote monitor" in the "Remote setting" to stop measuring automatically when block count reaches to the maximum number.

Step 6. Display Results

After the measurement, the last data file will be loaded in the screen. To display the previous file, press " ⬅ ". To display the next data, press " ➡ ". Name the data file if necessary.

* Details of the data display is described at Chapter7

Step 7. Disconnection

When finishing the application, press " ⚡ ". (or [Remote] -> [Disconnect] in the menu bar.)
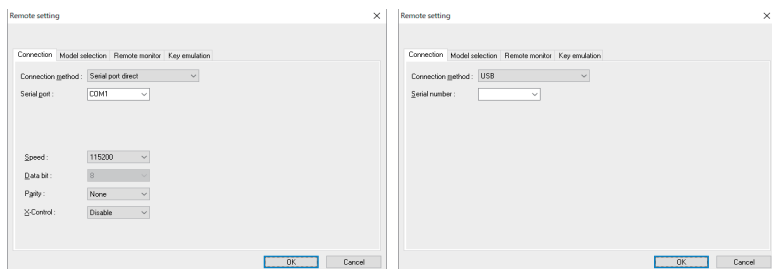
Remote Setting

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","Remote monitor" "Key emulation" and "Miscellaneous" page. Press "OK" when finishing the settings.

■Connection

Sets the remote connection

● "Connection Method"

Select a connection method to connect with the analyzer.

・Serial port direct : When connecting using the serial port of PC or USB-serial converter (such as LE-US232B)

・USB : Connect via USB port.

・Via SI-60 : When connecting via LAN ⇔ serial converters "SI-60" or "SI-60F" [*1)]

*1 For the detail of settings for converter, see the instraction of the converter.

To connect to SI-60, if you are using LE2-8V, Dsub25 (male) to 9 (female) convertion adapter or LE2-8C is needed.

<Serial port direct>

● "Serial port "

Select the serial port (COM1 to COM9) of the PC used for connection, or enter it when the port to be used is COM10 or later.

<USB>

● "Serial number" (USB)

Set the serial number of the analyzer to be controlled.

You can select it from the drop down list when the analyzer is connected.

< Via SI-60>

● "Host name"

Set the IP address of the SI-60.

● "Data Port"

Set the port number for transmitting and receiving serial data. Normally, do not put any number. If blank, it is auto detection. If the port number is changed by router or firewall etc., it needs to be set.

● "Control port"

Set the control port number of SI-60. Normally, do not put any number. If blank, it is auto detection. If the port number is changed by router or firewall etc., it needs to be set.

< Serial port direct / Via SI-60>

● "Speed"

Set the same speed as the AUX port setting on the analyzer.

● "Data bit"

Data bit is fixed to be 8 bit. Also the AUX port setting on the analyzer must be 8 bit.

● "Parity"

Set the same data parity as the AUX port setting on the analyzer.

Normally, put "None".

● "X-Control"

Set whether or not to use the flow control of X-Control for the communications between software and analyzer. Normally put "Disable".

■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.
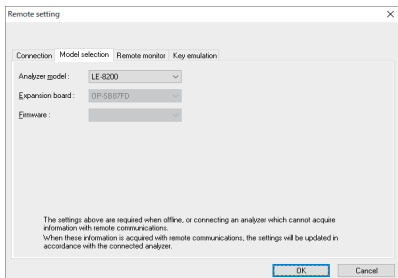
●"Analyzer model"

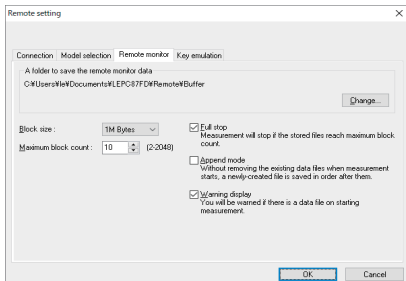Selects the model name of the target analyzer.

●"Expansion board"

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

This is for future use. Not available now.

●"Firmware"

Sets when you use optional firmware on the target analyzer.

This is for future use. Not available now.

■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", "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.

●"Append mode"

    When measurement starts, a newly-created file is saved in the order after the existing files.The file name of saving data is started from [0000000.DT] in numerical order.

    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.
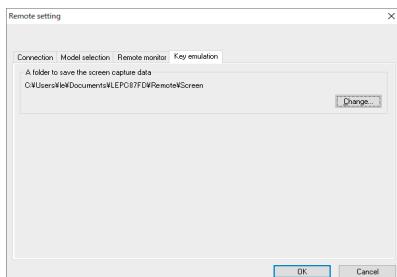
●"Warning display"

    You will be warned if there is a data file in the files to save when starting measurement.
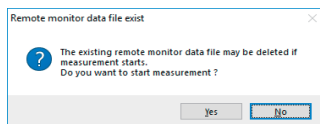
■Key emulation

    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] and the folder selecting window appears. Select the folder and click [OK].

Chapter 6 Remote Monitor

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

Connection

After setting the "Remote setting", click "🔴 " to connect with the analyzer. (or [Remote] -> [Connection] in the menu bar.) When it completes the connection, it displays "Online"and " model name" in the data window. While using the remote monitor, you cannot operate by the analyzer.

Analyzer Setting

Click " ■ " on the tool bar of the data window to set you analyzer (or click [Tool]-> [Key emulation] in the menu bar.)

   * To have the remote monitoring for long hours do not set the configuration of stopping the measurement automatically, such as "Record Control: Full Stop ", "Trigger Action: Stop " and "Auto Run" .

Start Measurement

 Click " 🔴 " in the data window and starts measurement. (or [Measurement] -> [Run measurement].) When starting the measurement, "Watch data" window will appear and data on the "data monitor" window will be cleared.

While it is measuring, received frames and numbers of data loss are displayed in the data position part on the status bar.

Stop Measurement

Click " ■ " in the data window and stops measurement. (or [Measurment] -> [Stop measurement].)

Data will be saved in the specified folder automatically. After stopping the measurement, the last data file will be loaded in the data monitor screen automatically.

Max Frames of Remote Monitoring

Max frames of recording without any data loss is different by the connection method to the PC. Refer to the followings.

	Frames per 1 second		
	CAN(8byte)	CAN FD(64byte)	CXPI(255byte)
USB connection	About 7500 frames	About 3750 frames	About 1250 frames
Serial port direct (115.2Kbps connection.)	About 70 frames	About 35 frames	About 11 frames
Via SI-60 (230.4Kbps connection.)	About 140f rames	About 70 frames	About 22 frames
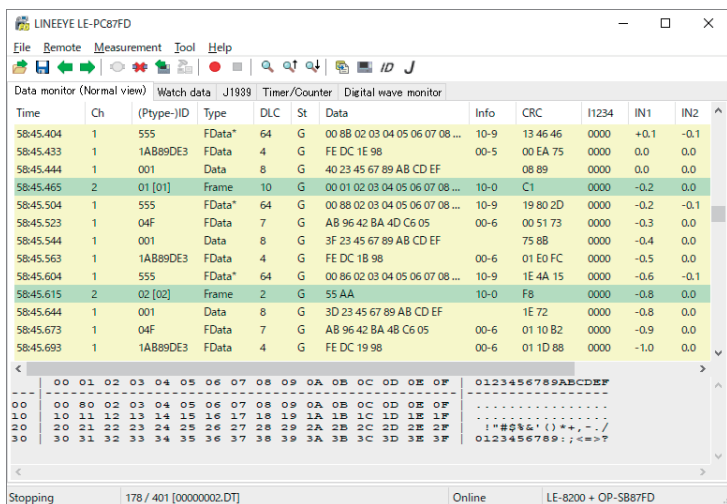
* This is the max frames per second without any data loss. Even the speed of the target device is 5Mbps, it can measure data without any loss, if it does not exceed the above max frames.

■ 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.

■ Key emulation mode will decrease the max. speed.

Data Monitor Display

After measuring, it displays CAN /CXPI frame data monitored by the analyzer. (cannot display data at real time.)

To display data in the PC, memory card or USB flash drive,to display data from a memory card or a PC, click "📂" (or [File] -> [Open data file] from menu bar) and then select the data file (extension .DT) and click "OK". To display sequential named data file, press "⬅"(previous) or "➡"(next).

If controlling via USB or Wi-Fi, click "🔵" on the Tool Bar (or [Remote] -> [Connect] from menu bar) to make it ON-Line and then click "🔲" (or [Remote] -> [Receive data] from menu bar).

* If there is a data loss, it displays "Lost Data" at "Time" in the data monitor display.

Meaning of the Displays on the Data Window

		Meaning
	Time	Displays the time (timestamp) when the frame is received.
	deltaT	Displays the difference of timestamp. (compares to last timestamp)
	Ch	Displays the received channel. (1: Ch1, 2: Ch2) When it is only analog data "Ext" is displayed.
	ID	In CAN, displays the ID of received frame in HEX. For event trigger type of CXPI, ID without parity is displayed in HEX. (PID with parity is enclosed with [ ]) e.g.10000011->03[83] For polling type of CXPI, PTYPE and ID without parity is displayed in HEX. (PID with parity is enclosed with [ ]) e.g.00-03[83]
	Type	Displays the types of received frame Data : Data frame of CAN (Data transmission) Remote : Remote frame of CAN (Request for data) Error : Error frame of CAN FData : BRS=0, ESI=0 CAN FD Frame FData! : BRS=0, ESI=1 CAN FD Frame FData* : BRS=1, ESI=0 CAN FD Frame FData*! : BRS=1, ESI=1 CAN FD Frame Frame : Normal frame of CXPI BFrame : Burst frame of CXPI Wakeup : Wake up pulse of CXPI Illegal : Illegal frame of CXPI
	DLC	Displays the contents (data bytes) of the DLC data length code in decimal.
	St	Displays whether or not the frame is normal. (Refer to "St Display")
	Data	Displays the contents of data field in HEX Max 51 bytes.
	Info	CAN : Nothing is displayed. CAN FD (ISO) : The logical value of the BRS bit and ESI bit and the stuff counter value (hexadecimal) are displayed. CAN FD : The logical value of the BRS bit and ESI bit are displayed. CXPI : The logical value and CT value (hexadecimal) of Wakup. ind,Sleep.ind are displayed. (Example: In case of "10-F", BRS bit is 1, ESI bit is 0, stuff count value is Fh(15).)
	CRC	Displays the CRC value in hexadecimal.
	I1234	Displays the digital value in IN1 to IN4. (0=Low, 1=High)
	IN1 to 4	Displays the analog value in IN1 to IN4.
	TRG	Displays the frame of which trigger is generated.

◆ St Display

St	Meaning
G	Normal frame
A	ACK error of CAN/CAN FD.
F	Form error of CAN/CAN FD or framing error of CXPI .
C	CRC error of CAN/CAN FD/CXPI .
E	Error frame of CAN/CAN FD.
P	Parity error of CXPI.
L	Data length error of CXPI.

◆ Miscellaneous

Display	Meaning
( )	Framing error (when the stop bit is dominant) Example: (01)

◆ Data display

Selected data is displayed in the bottom of window.

Framing error (stop bit is dominant) is displayed with ##.

Watch Data Display

Displays the latest ID frame data by using "Watch data setting". It updates the data every second and displays only the latest data .When stopping the mesurement, it cannot update data.

* Only Time, Ch, ID, Type, DLC, Data , Info , CRC, I1234, IN1 to IN4 are displayed.

* Watch data display cannot be saved, edited or printed.

* It is deleted after starting the measurement.

Watch Data Settings

Click " 🆔 " (or [Tool] -> [Watch data settings]) and set the frame ID to watch. It is possilbe to change this setting while measuring.

Watch data settings								✕
	Channel	Frame Type	ID		Channel	Frame Type	ID	
No.0	Ch-1 ⌄	Standard ⌄	010	No.8	Ch-1 ⌄	Standard ⌄		
No.1	Ch-1 ⌄	Extended ⌄	00000010	No.9	Ch-1 ⌄	Standard ⌄		
No.2	Ch-2 ⌄	Standard ⌄	010	No.A	Ch-1 ⌄	Standard ⌄		
No.3	Ch-1 ⌄	Standard ⌄		No.B	Ch-1 ⌄	Standard ⌄		
No.4	Ch-1 ⌄	Standard ⌄		No.C	Ch-1 ⌄	Standard ⌄		
No.5	Ch-1 ⌄	Standard ⌄		No.D	Ch-1 ⌄	Standard ⌄		
No.6	Ch-1 ⌄	Standard ⌄		No.E	Ch-1 ⌄	Standard ⌄		
No.7	Ch-1 ⌄	Standard ⌄		No.F	Ch-1 ⌄	Standard ⌄		
☐ Include all frames.						OK	Cancel	

■[Channel]

Ch-1 : CAN1/CXPI1 frame   Ch-2 : CAN2/CXPI2 frame

■[Frame Type]

Standard   : CAN standard format /CXPI standard format
Extended   : CAN extended format

■[ID]

Set the ID to watch in HEX. If nothing is input, it cannot watch data.

CAN standard format   :specify in the range of 0 to 7FFh
CAN extended format   :specify in the range of 0 to 1FFFFFFFh
CXPI   :specify in the range of 0 to 7Fh

■[Include all frames]

If selecting it, it displays all frames including remotes and errors, that matches with ID.

J1939 Display

It is able to translate a part of parameter which is defined in SAE J1939-71 (Rev.2013-12).

Refer to the help file for more information of parameter.

Only the latest data is displayed and data is updated every second.

When the measurement ends, it does not update data.
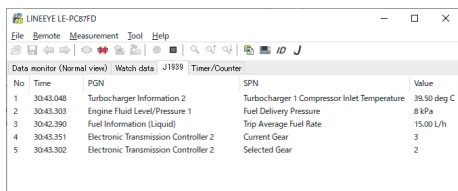
* J1939 display cannot be saved, edited or printed.

* Measured value is all cleared after restarting the measurement.

J1939 Display Settings

On the tool bar, click " J "(or menu->[Tool]->[J1939 display settings]).

It is able to change J1939 display settings during the measurement.
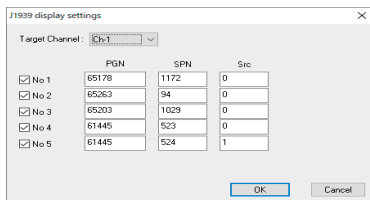
■ [Target Channel]

Select the interface channel for target frame to translate.

Ch-1: CAN1 is the target

Ch-2: CAN2 is the target

■ [No1-5]

Mark on the box to translate.

■ [PGN]

Input "Parameter Group Number" in decimal.

■[SPN]

Input "Suspect Parameter Number" in decimal.

■[Src]

Input "Source Address" in decimal.

Display the Difference of TimeStamp
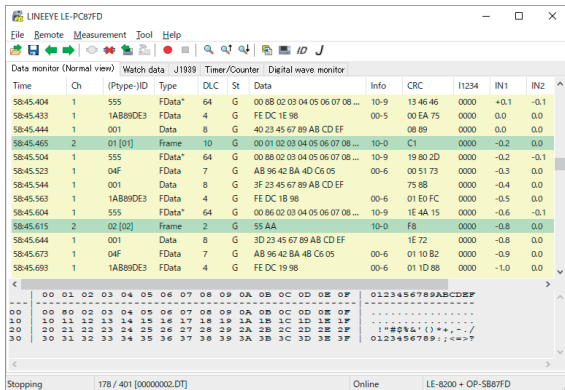
Click [Tool] -> [Difference timestamp] from menu bar. It displays the difference of time stamp compared to the previous timestamp. (CH1/CH2 does not matter) It will go back to the normal mode when clicking [Difference timestamp] one more time.

*It changes the title of "Time" to be "deltaT".
*When having nothing in the previous timestamp, there will be "- - : - - : - - - - ".
*Cannot retrieve the difference of timestamp.

<Display the normal timestamp>

<Display the difference of timestamp>

Timer/Counter Display

To display timer/counter which is used in trigger function, click the tab of [Timer/Counter].
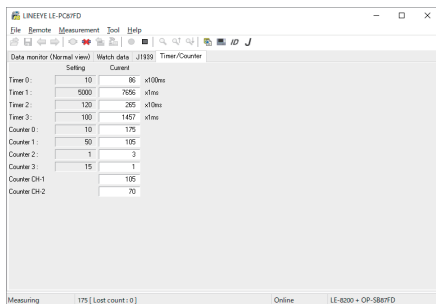
Timer 0 to Timer 3	:	General timer
Counter 0 to Counter 3	:	General counter
Counter CH1/CH2	:	Number of received frames on channel 1 or channel 2.

Chapter 8 Digital Waveform Monitored Data

It is able to display digital waveform monitored data if the analyzer measures logic analyzer data.
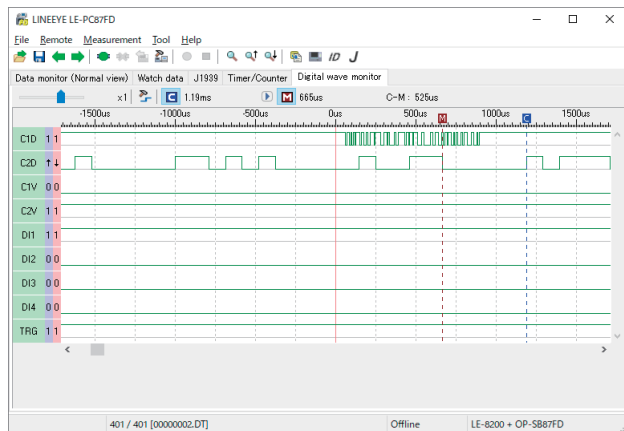
- ・Scaling factor   Move the slider " ———◊——— x1 " and select the scaling factor.

- ・Cursor display   Press " [C] " and double-click the waveform display to display the cursor at that position. When you press " [C] " again, the cursor display disappears.

- ・Marker display   Click " [M] " or " [▶] " to display the marker at the cursor position. When you press " [M] " again, the marker display disappears.

- ・Time measurement   Drag " [C] " and "[M]" on the screen of the wave monitor to the position you wish to measure. "C-M:**" shows the time between the cursor and the marker (eg. The image above indicates C-M: 525us.).

- ・Signal display order setting   Click " [⚞] " to set the order of signals on the display .

To search data, click " 🔍 " on the Tool Bar in the Data Window. Set some factors on the data search window.
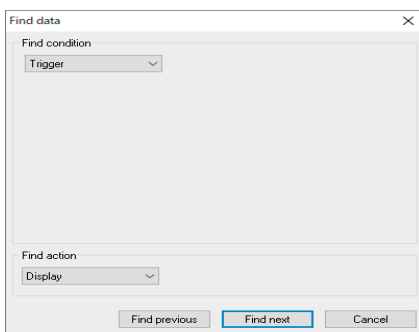
(It cannot search data unless displaying data on the screen.)

FACTOR

There are six factors(Trigger, Error, CAN Data, CAN Remote,CXPI Data, Timestamp, External) to search.
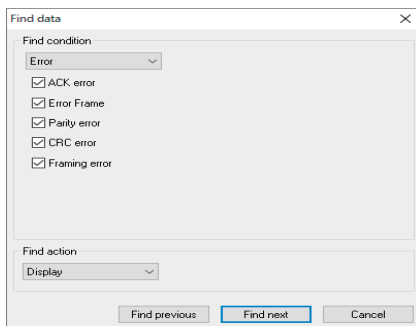
◆ Trigger

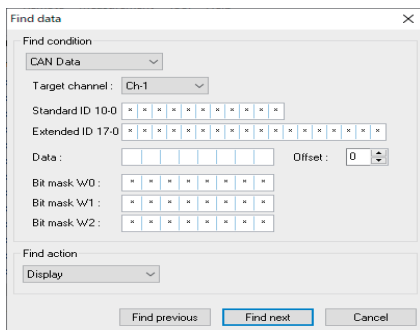　　Search the frames of which trigger is generated.

◆ Error

　　Search for CAN/CAN FD ACK error, error frame,CXPI parity error, framing errors, CAN/CAN FD/CXPI CRC errors.

　　Select error condition.

◆ CAN/CXPI data

It is able to retrieve CAN data frame or CXPI frame by selecting the target channel, ID and data.

・Target channel

Select the receiving channel to search, either from Ch1 or Ch2.

・ID

Set the ID from upper rank in bit unit. (0, 1, or don't care (*)).

For CAN

For extended format, input ID with 17 to 0 in the extended ID, and input ID with 10 to 0 in the standard ID.
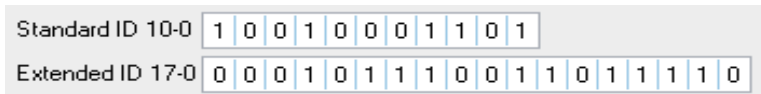
For standard format, set ID with 10 to 0 in the standard ID.

For CXPI

Set ID with 6 to 0.

Example of ID setting.

・CAN extended format, ID=12345CDEh

・CAN standard format, ID=24Dh

Standard ID 10-0	0	1	0	0	1	0	0	1	1	0	1
Extended ID 17-0	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×	×

・CXPI, ID=2Dh

ID 6-0 :	-	0	1	0	1	1	0	1

・Data

Input the data to search in the data line (D0 to D7 from the left box) in HEX.

Also, it is able to set don't care (*) and bit mask (W0, W1, W2) for each byte of data.

Data :	W0 42						
Bit mask W0 :	×	×	×	×	0	0	0	1
Bit mask W1 :	×	×	×	×	×	×	×	×
Bit mask W2 :	×	×	×	×	×	×	×	×

This example shows that Data D0 searches "01h to F1h", and D1 searches "42h".

・Bit mask W0 to W2.

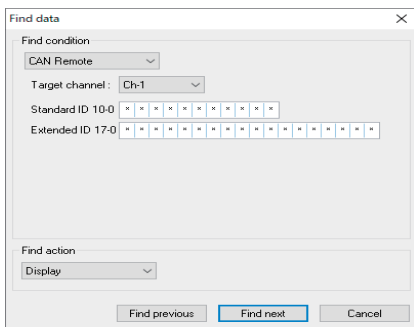To set bit mask, input 0, 1 or don't care (*) in the W0, W1 and W2. (7bit to 0bit from the left box)

・Offset

Set the position of target data as off set.

◆ CAN Remote

   Search the specific CAN remote frame conditions set in Channel and ID.

・Target channel

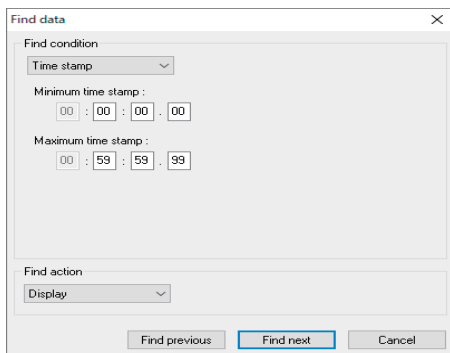   Select the receiving channel (to search either from Ch1 or Ch2).

・ID28 to 0

   Set the ID with bit unit (0, 1, don't care (*)

   For CAN extended format, set the ID in extended ID and standard ID.
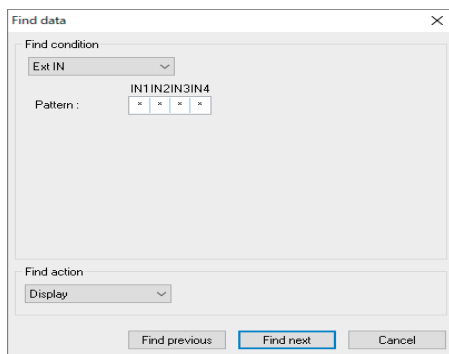
   For CAN standard format, set the ID in the standard ID.

・Timestamp

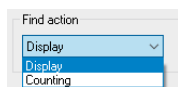   It is able to find the specific timestamp. Only timestamp units of [HMS] or [MS1ms] are available.

◆ Ext IN

Search the level(0=Low, 1=High) in the external input (IN1 -4).

It is possible to set the don't care(*).

ACTION

There are two action types, "Display" and "Counting" to display the result of search.

◆ Display

Display the data that matches the search conditions.

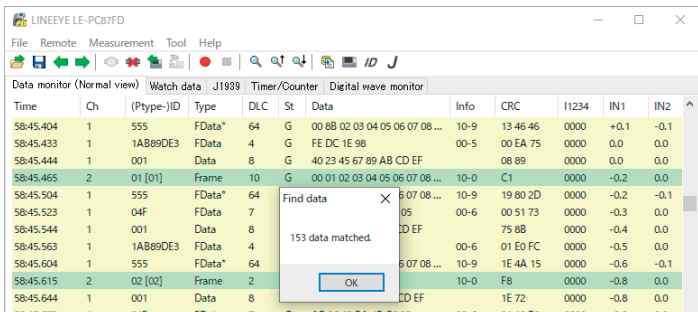When it finds the matched frames, the first frame will be highlighted.

◆ Counting

Display the number of data that matches the search conditions.

When it finds the matched frames, the number of frames will be displayed.

(The data which is highlighted will not be included.)

Start Data Search

1. Select one factor from Trigger, Error, Data, Remote, Timestamp or External to search.
2. Set the search conditions.
3. Select the action either from "Display" or "Counting".
4. Click [Find Previous] or [Find Next].
5. To search continuously, click " 🔍↓ "(Find next) or " 🔍↑ "(Previous) on the Tool Bar.

Only one factor selected from Trigger, Error, Data, Remote, Timestamp or External will be searched. (Not "AND" condition)
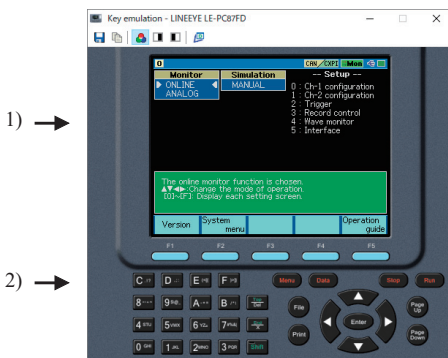
When finishing the application, the search conditions will be cleared.

Chapter 10 Key Emulation

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

Key Emulation

Click " ![icon] " on the Tool Bar in the Data Window (or [Remote] -> [Connect] from menu bar) to make the analyzer On-Line. And then click " ![icon] " (or [Tool] -> [Key emulation] from menu bar).

1) →

2) →

1) Displays the screen of your analyzer being connected.

2) Emulate the key of your analyzer.

* It cannot operate "Key emulation" without connecting to the analyzer.

Save the Screen Image

It is possible to save the screen image of analyzer in bitmap(BMP) file format.

Button	Meaning
![icon]	Saves the current screen display as a bitmap file.
![icon]	Copy the present screen to the clipboard.
![icon]	Create a bitmap file in a glay scale mode.
![icon]	Create a bitmap file in a glay scale mode.(inverted)
![icon]	Create a bitmap file in a color mode.
![icon]	Activates the main window.

Chapter 11 Text Conversion

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

Text Conversion Function Setting

Click " " on the toolbar of the data window (or [Tool] -> [Text conversion] from menu bar).
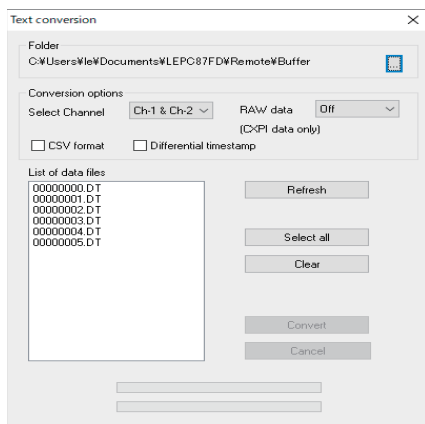
● Folder

Specify a folder which has the data to convert into text.

● Conversion options

Select options for text conversion.

・Select Channel

Select a channel from Ch-1, Ch-2 or Ch-1&Ch-2.

・RAW data

This is only for CXPI data.

OFF :Does not include parity bit of ID.

Display the framing error data as "##"

ON :Display ID including parity bit in HEX.

Display the framing error data in HEX.

・CSV format

Mark this box to output the file in CSV format.

・Differential timestamp.

Mark this box when to output the difference of timestamp. When outputting the file in CSV format, it will output the difference of timestamp every time.

● "List of data files"

   Select a file to perform the text conversion. When clicking the file, it will be selected.
   When clicking the file one more time, the selection will be cleared.
    (It is possible to select the multiple files.)

● "Refresh"

   Update the list of data files.

●"Select all"

   Select all files displayed in the list of data files.

●"Clear"

   Clear all files selected in the list of data files.

●"Convert"

   Selected data files will be converted into text format.

● "Cancel"

   Cancel text conversion.

Start Text Conversion

   1. Select a folder which has data to convert into text format.
   2. Set the conversion options.
   3. Select a file to convert from the list of data files.
   4. Click "Convert".

After the text conversion, data will be saved in the same file as before, and the file name will
be the same name plus ".txt" at the end.

If marking the "CSV format" box, the file name will be the same name plus ".csv" at the
end.

Chapter 12 Specification

Applicable analyzer	LE-8200 or LE-8200A with OP-SB87FD.		
Connection	USB connection, Serial port connection, Ethernet connection (Ethernet to serial converters "SI-60" and "SI-60F" are supported.)		
Number of analyzers	Connect only one analyzer and have remote control function.		
Key emulation	Displays the analyzer's display and keys on the PC screen and can perform the analyzer remote control.		
Remote monitor[*1]	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.256GB : Can be specified up to 2,048 files in the unit of 128MB.	
Display	Standard display	Timestamp (differences between timestamps) Frame display of CAN/CXPI,ID, TYPE, DLC, DATA, Info, CRC, error), matched trigger, external input.	
	Watch data	Timestamp, CAN/CXPI frame display , ID, TYPE, DLC, DATA, Info, CRC)	
	J1939 display	Translate a part of parameter which is defined in SAE J1939-71 (Rev.2013-12).	
	Timer/ Counter display	Display the value of timer/ counter used in trigger function. Timer 0 to 3 : General Timer Counter 0 to 3 : General Counter Counter CH1/CH2 : Counter for received f rames in Channel 1/2.	
	Digital waveform monitor display	Scale-up or scale-down the waveform of logic analyzer. (Counting time and changing the order of lines are possible.)	
Search	Displays the data or number of data that matches the search.		
	Searching Conditions	Trigger : Trigger matching frame Error : ACK error,Error frame,Parity error, CRC Error, Framing error Data : Specif ied ID (don't care(*) can be set) Character string (up to 8 character,don't care(*), bit mask can be set) Remote : Specif ied ID (don't care(*) can be set) Timestamp : Specified timestamp. External : Logical status of external signal (IN1-4)	
Text Conversion[*2]	Converts the recorded files into text format or CSV format.		
Save the Screen Images	Saves the screen image of analyzer displaying by Key emulation function in bitmap file.		
System Requirements	PC	RAM : 1GB or more (recommended) SSD/HDD: 3MB+f ree space for saving the measurement data.	
	OS	Windows 8.1/10	
Accessories	CD (software), Instruction manual, Warranty.		

*1: Light version can work only 10 minutes.

*2: Light version can convert only 3 files simultaneously.

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