LINEEYE

USB Protocol Analyzer

LE-620HS/LE-610FS

INSTALLATION MANUAL

NOTICE

USE LIMITATION

Safety Information

Please read the operating instruction carefully before use to ensure safe operation of LE-620HS/LE-610FS. The general safety rules are provided for your benefit to protect you and those around you. Please read and follow them to avoid unnecessary injury and damage to the product and property and to use LE-620HS/LE-610FS right and safely.

Before you use this LE-620HS/LE-610FS, please familiarize yourself with the contents (symbols, marks) provided below.

[Explanation of the symbols (The degree of the hazard factor)]

⚠WARNING	The symbol denotes that improper handling poses a risk of causing death or serious injury.
⚠CAUTION	"The symbol denotes that improper handling poses a risk of causing injury or damage to the product and property."

Notice
 *"Injury" indicates injury, burn, an electric shock, or the like which does not require hospitalization or the extend over a long period of hospital visit.
 *"Damage to the product and property" indicates damage expansion related to a house, a building, furniture, apparatus, livestock or a pet.

[Explanation of the figure marks(concrete detail)]

🚫	Indicates prohibition (things that you must not do)
❗	Indicates compulsion (things that you must do)

⚠ WARNING	
🚫	*Stop using LE-620HS immediately when smoke or smells emanate from LE-620HS/LE-610FS. The continuous use may result in an electric shock, a burn and/or fire.
❗	Immediately turn off the power supply and remove the power plug from the outlet.
🚫	*Do not disassemble, modification or repair LE-620HS/LE-610FS Failure to observe this may result in injury, an electric shock, fire and/or a breakdown due to overheating.
🚫	*Do not throw LE-620HS/LE-610FS into a fire, or expose to heat. Failure to observe this may result in fire, fire due to explosion and/or injury.
🚫	*Do not use LE-620HS/LE-610FS if any form of liquid or foreign matter entered LE-620HS/LE-610FS. Failure to observe this may result in an electric shock and/or fire.
❗	Immediately turn off the power supply and remove the power plug from the outlet.
🚫	*Do not remove or insert the power plug with wet hands. Doing so may result in electric shock. (Only for LE-620HS)
⚠ CAUTION	
🚫	Do not place LE-620HS/LE-610FS in the following places. Failure to observe this may result in overheating, a burn, an electric shock and/or breakdown. ■a place where strong magnetic field and static electricity are generated, a dusty place ■a place where unstable place and vibration are generated ■a place exposed to direct sunlight, a circumference of fire or the place where it is filled with heat ■a place with danger of the electric leak and water leak

Software License Agreement

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<div align="center">LINEEYE CO., LTD.</div>

1. Outline

LE-620HS/LE-610FS is apparatus which connects with a PC, and analyzes "USB Protocol". "USB Protocol" is recorded on the hard disk of PC on real time, and it is displayed intelligibly for a LE-620HS/LE-610FS Software window.

HIGH/FULL/LOW speed modes automatic identification (FULL/LOW speed modes for LE-610FS)

● The device speed to observe is judged automatically.

Continuous record a max.20Gbyte (Max. 10Gbyte for LE-610FS)

● Monitored USB data is recorded up to 20Gbyte into the PC hard disk drive. And the screen can be also scrolled during analysis. It is effective in the analysis of the unspecified trouble which rarely happens.

Intelligible Display

● "Packets" in monitored data is intelligibly displayed per "Transaction".

"Standard device request" and "Descriptor" are translated in detail.

Trigger function linking with other measuring instruments

● It is possible to specify up to 16 sets of trigger which can excute the actions in sequence. When receiving error or specific packets, you can select start and stop of measurement or trigger output which is effective to link with other measuring instruments.

Upgraded Off-Line Analysis Capability

● It is easy to find data which you are interested in from enormous recorded measurement data by filtering functions and Find functions.

To learn more about details, please refer to the online help.

2. Composition

Please check whether the following have gathered at the time of delivery of goods.

< LE-620HS >

● USB Analyzer (LE-620HS):	1
● AC power cable:	1
● AC250V reserve fuse:	1
● USB cable (with A-B plug 1.8m/1.0m):	2
● Carrying bag (LEB-01):	1
● CD-ROM (LE-620HS software):	1
● Installation manual	1
● Warranty/Customer registration card:	1

< LE-610FS >

● USB Analyzer (LE-610FS):	1
● USB cable (with A-B plug 1.8m/1.0m):	2
● CD-ROM (LE-610FS software):	1
● Installation manual	1
● Warranty/Customer registration card:	1

Please contact LINEEYE distributor or us if there is an insufficient part.

3. Installation of software and drivers

3-1. Installation of software for WindowsXP

    (1) Insert the attachment CD-ROM into your PC's CD-ROM Drive.

        Next, the Installer automatically starts. If it does not start automatically, run "setup.exe" on the CD-ROM.

    (2) The setup dialog box appears. To start the setup wizard, click "Next."
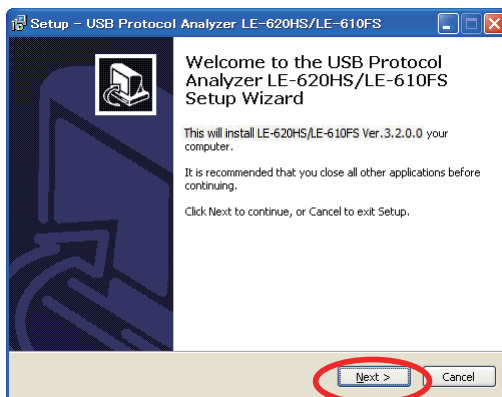
    (3) To install, follow the setup wizard instructions.

< MTP License of Microsoft >

This software (since version 3.1.2.0) includes the analysis and translation functions of MTP (Media

Transfer Protocol). To use these functions of MTP, you need to accept the license agreements of Microsoft.

Please go to the website of Microsoft and download "Media Transfer Protocol Enhanced Specification".

3-2. Installation of driver for WindowsXP

    (1) In the case of LE-620HS, connect the AC power cable after confirming whether the power supply of LE-620HS
        is turned off.

    (2) Connect LE-620HS/LE-610FS with the host PC for analysis corresponding to USB2.0 High Speed using the
        attached USB cable.

    (3) The device manager of Windows detects LE-620HS/LE-610FS automatically (in the case of LE-620HS, turn on
        the power supply), and a wizard screen is displayed.

(4) Select "Install from a list or specific location," and click "Next."
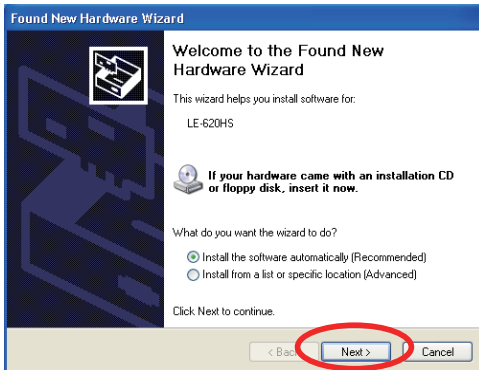
(5) Select "Include this location in the search," and specify the folder

(normal C:\Program Files\LINEEYE\USB2.0 Protocol Analyzer) which installed software, then click "Next."
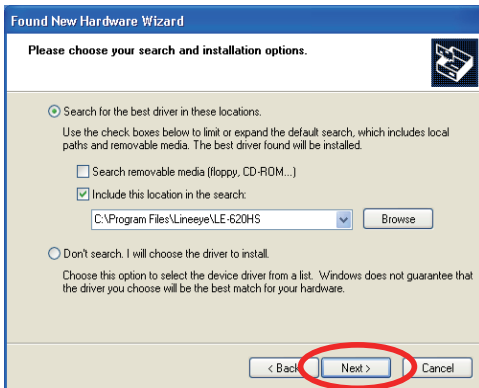
(6) Click "Continue Anyway," if the dialog of the following figure is displayed.
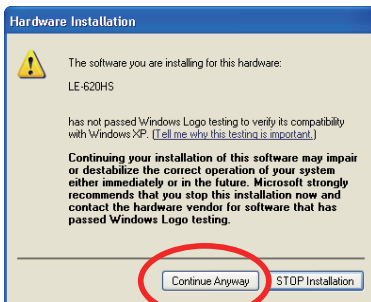
(7) The driver for LE-620HS/LE-610FS is retrieved, and when "Finish" is clicked, the driver is installed.
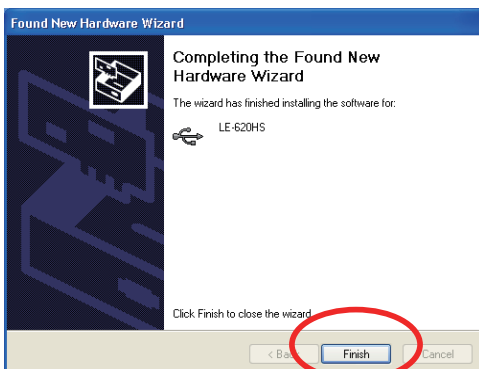
To learn more about the usage of the utility software, please refer to the online help.

3-3. Installation of software for Windows Vista/7

(1) Insert the attachment CD-ROM into the CD-ROM Drive of PC.

Then, the installer automatically starts. If it does not start automatically, click "setup.exe" on the CD-ROM.

(2) The setup dialog box appears. To start the setup wizard, click "Yes."
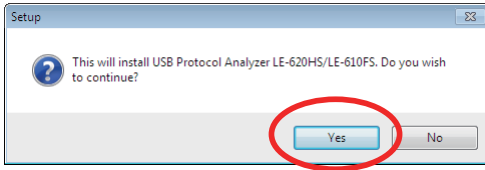
< MTP License of Microsoft >

This software (since version 3.1.2.0) includes the analysis and translation functions of MTP (Media

Transfer Protocol). To use these functions of MTP, you need to accept the license agreements of Microsoft.

Please go to the website of Microsoft and download "Media Transfer Protocol Enhanced Specification".

(3) Click "Yes" or "Allow", when the following dialog is displayed.
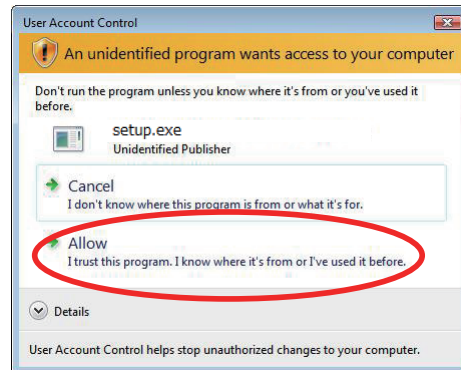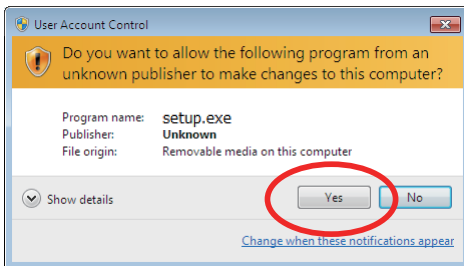
(4) Click "Next", when following setup dialog is displayed.
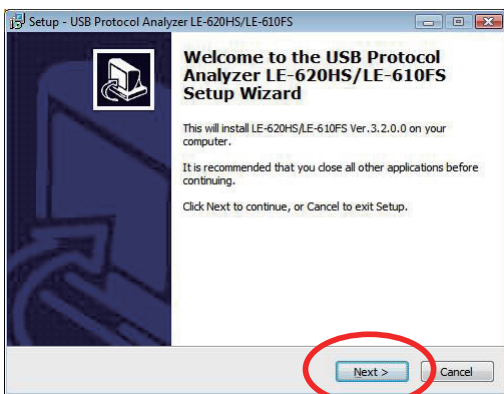
(5) To install the software, follow the setup wizard instructions.

3-4. Installation of driver for Windows Vista/7(32bit)

(1) After installing the software, "Installation of device software" dialog will be displayed. Click "Install".
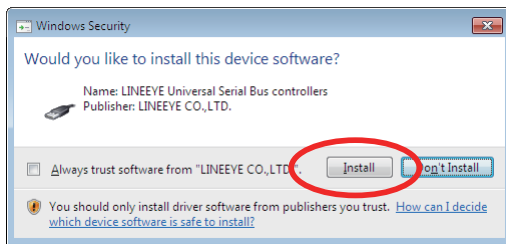
📄When the folloiwing message appears, select "Install this software anyway".
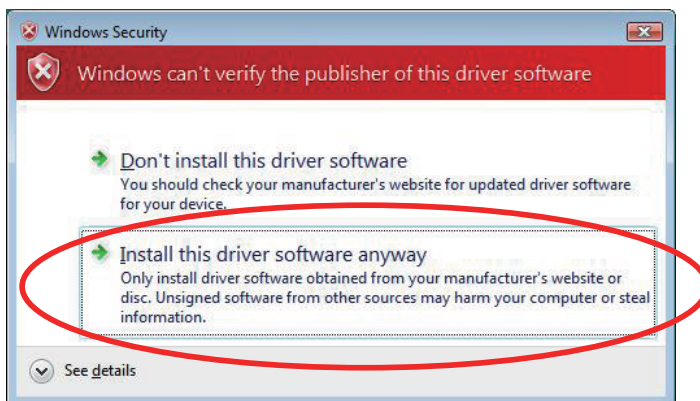
(2) The setup wizard dialog box appears. Click "Finish".
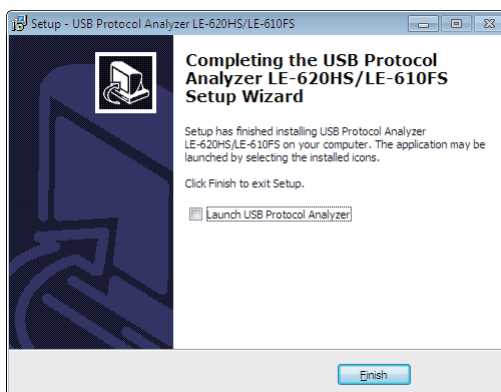
4. UNINSTALL

Analysis Software Uninstallation

(1) Open "Add/Remove Programs" in the "Control Panel."

(2) Choose "USB Protocol Analyzer LE-620S/LE-610FS" from a program list.

(3) To uninstall, click the "Add/Remove" button.

5. Warranty and Repair

■Warranty

For a period of 12 months from date of shipment, LINEEYE warrants that the products (excepting consumable parts like the batteries and software) are free from defects in material and workmanship when properly operated in accordance with procedures described in documentation supplied by LINEEYE. If a defect exists during the warranty period, please send it back to LINEEYE distributors or LINEEYE office. LINEEYE will repair or exchange it at no charge. In this case, the shipping charge is at your own expense.

● The foregoing warranties are the sole warranties given by LINEEYE. The warranties set forth above shall not apply to my products which has been modified, repaired or altered, except by a LINEEYE employee and which has been subjected to unusual physical or electrical stress, misuses, abuse, negligence or accidents.LINEEYE disclaims all other warranties including the warranties of merchantability, fitness for a particular purpose and non-infringement of third party right. LINEEYE does not promise that the software is error-free or will operate without interruption.

If an error exists on software, the content and modified program will be shown on our website (http://www.lineeye. com). So, please download it from there.

■Repair

LINEEYE will repair the product at your own expense.
For malfunction, please contact the LINEEYE distributor you purchased at. Or, FAX or E-mail the technical support.
If your product needs to be repaired, please read details about a repair on our website and ask for a repair.

■Technical Support

Please contactl LINEEYE head office including the following requirements.

(1) Your Country	(2) Your Name	(3) FAX Number or E-mail Address
(4) Your Distributor Name	(5) Model Name	(6) Serial Number
(7) Description on Your Trouble		

●Head Office   FAX : 81- 75 - 693 - 0163

Mail Form: Please click "contact us" on our web page.

We do not have support on the phone.

6. Specifications

Model		LE-620HS	LE-610FS
Standard		USB2.0/1.1	USB2.0/1.1
		HIGH(480Mbps)/FULL(12Mbps)/LOW(1.5Mbps)	FULL(12Mbps)/LOW(1.5Mbps)
		Automatically judged and selected	Automatically judged and selected
"Storage Capacity"	Analyzer	Capture memory: 256 MB	Capture memory: 16 MB
	PC	Hard disk: Max. 20 GB (Can be specified every 1 MB)	Hard disk: Max. 10 GB (Can be specified every 1 MB)
Recording method		"Data is recorded on the hard disk of the PC through the built-in capture memory of the analyzer. (Continuous repetitive recording is possible.)" Records USB packets and USB state (Reset/Suspend/Disconnect).	
"Measurement function"	Packets	"SOF, IN, OUT, SETUP, DATA0, DATA1, ACK, NAK, STALL, PRE, DATA2, PING, MDATA, SPLIT, ERR, NYET, and Unknown (undefined)"	
	Time stamp	High-precision time measurement ON: Resolution of 16.7 ns for 5 hours max.	
		High-precision time measurement OFF: Resolution of 125 us/1 ms in USB (micro) frame time units	
	Real-time filter	IN-NAK/OUT-NAK/SETUP-NAK/PING with or without multiple particular address/end points specified.	
	Trigger — Condition	"Particular addresses/end points, packet types (TOKEN and HAND SHAKE packets in combination),Data packets (8 bytes max, hexadecimal/decimal/binary or character input, with or without bit mask),Errors (bit stuffing, CRC, and PID errors), Bus state (Bus Reset, Suspend, and Disconnect), and External triggers (Level or Edge) can be set."	
	Trigger — Action	Log start, log stop, external trigger output (levels or pulses specification possible)	
"Analysis function"	Display — Filter	SOF, NAK, SETUP, and PING with or without particular adress/end points displayed.	
	Display — Customization	"SOF, IN, OUT, SETUP, DATA0, DATA1, ACK, NAK, STALL, PRE, DATA2, PING, MDATA, ERR, NYET, Unknown (undefined), and SetupDetail display color can be specified separately. USB Device Class Setting."	
	Search function	SOF, SETUP, IN, OUT, PING, ACK, NAK, STALL, NYET, ERR, Data, SOF number, idle time more than specified, Error condition (CRC/PID/DATA toggle sequence/Packet combination in transaction/Undefined log item), MassStorage, Audio, Communication, HID, HUB, Printer, Video, USBTMC Class command, PTP/MTP, Standard requests, and specific addresses/end points in combination can be searched.	
	Detailed display	"Standard requests, HUB/HID/Audio/Communication/MassStorage(Bulk Only Transport)/Printer/USBTMC Class-Specific device requests, Standard descriptors, HUB/HID/Audio/Printer/USBTMC/Communication descriptors in each class,MassStorage/Bulk Only Transport command (SCSI transparent command set, ATAPI, SFF-8070i), USBTMC Class command,MTP/PTP (Operations, Responses, and events), Video, and specified class can be displayed in detail."	
	Statistic analysis	The number of transactions, the number of transfer bytes and the average transfer rate are totaled and displayed.	
	Mark/Jump	Up to 99 marks can be set in specific recorded data, and can jump to any specific marked position.	
	Save	"Saving raw data or data in text or CSV format. Binary format (only data payload) (Data can be copied and pasted through the clipboard, and saved data can be added with comments.)"	
Print		Specified ranges of recorded data can be printed (in monochrome or color as specified).	
Connectors	For measurement	USB standard A/B receptacles : 1 each	
	For PC connection	USB B receptacles : 1	
	For external trigger	"8-point external trigger input and 8-point external trigger output Connector:20-pin male (OMRON's XG4C-2034 or equivalent one) Electrical specifications: LVTTL"	"1-point external trigger input and 1-point external trigger output Connector:3-pin male (HIROSE ELECTRIC's DF1E-3P-2.5DS or equivalent one) Electrical specifications: LVTTL"
LED indicator		"PWR (Power supply): 1, RDY (Ready): 1, (Measured target data):1, Hi-Fill-Low (USB speed):1 each, Suspend (Suspended state): 1, Reset (Reset state): 1, and RUN (Measuring): 1"	"Power (Power supply): 1, Rdy/Over (Ready/Overflow): 1 (Measured target data): 1,Full-Low (USB Speed):1 each, Suspend (Suspended state): 1, Reset (Reset state): 1"
Switch		POWER (Power supply): 1	-
Power supply		AC100 to 240V (50 / 60Hz) at 10W max.	Bus power (Current consumption: 400 mA max.)
Ambient temperature		Operating: Centigrade 5 to +40 degree Storage: Centigrade -10 to +50 degree	
Ambient humidity		10 to 90% (no condensation)	
Dimensions and weight		145(W) × 190(D) × 45(H) mm, approx. 950g	130(W) × 145(D) × 38(H) mm, approx. 300g

* LE-610FS cannot support peculiar packets of HI-SPEED.

System Requirement		
OS	Windows XP(32bit), VISTA(32bit / 64bit) / 7(32bit / 64bit)	
PC	PC/AT compatible with USB port	
	CPU	Pentium 500 MHz or faster (Pentium processor at 2 GHz or faster is recommended.)
	Memory	Min. 256 Mbytes
	USB port	The USB2.0 port supporting to High-Speed is recommended. Use the Microsoft EHCI driver as the host controller driver for the USB 2.0 port.When using the USB 2.0 port for an expansion board, such as a PCI board,make sure that the board is operated by the Microsoft EHCI driver.
	Hard disk	Required free bytes: 7.5 MB for installing the analysis software + area for recording communications log.
	Display	1024 x 768 or better resolution recommended.

> The card packed with the product is the user registration card for Japanese customers.
> For overseas customers, there is a registration page on our web site.(www.lineeye.com)

LINEEYE CO., LTD.

M-71621E/LE