

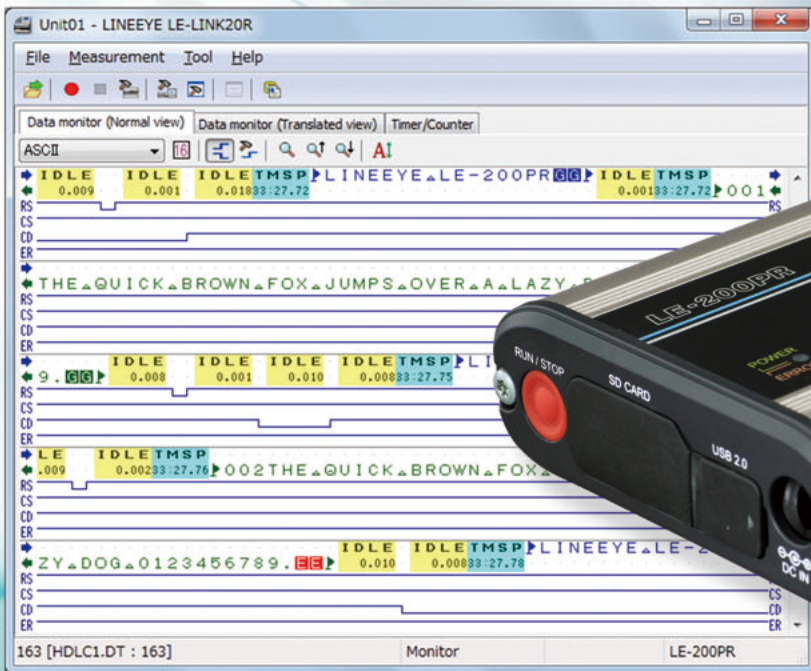
LINEEYE®

RS-232C / RS-422 / RS-485

Communication Protocol Analyzer

LE-200PR LE-150PR

A PC-connectable communication protocol analyzer, which can also be used as a stand-alone communication data logger that supports SD cards



Multi-Protocol Supported

LE-200PR

Baud Rate: Max. 1Mbps

Async, Sync, BSC, SDLC, HDLC, X.25, PPP



Wi-Fi Supported



Async Communication Supported

LE-150PR

Baud Rate: Max. 500Kbps

Async, PPP



Wi-Fi Supported

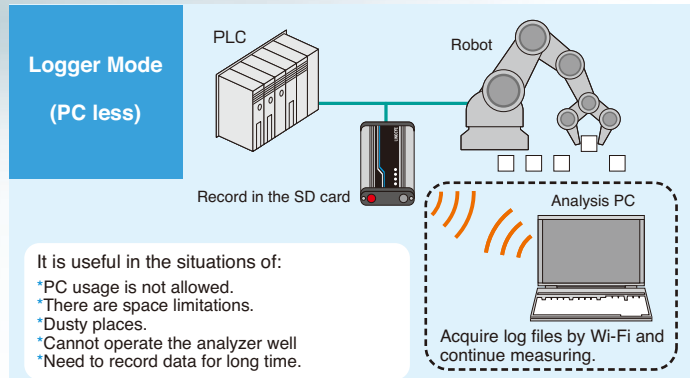
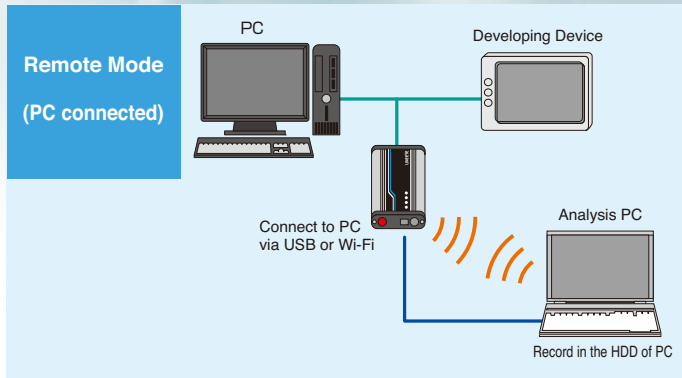
Compact Size, Simple Operation

A lightweight communication protocol analyzer has a Data Logger function to record data in the SD card for long hours.



Two Types of Operations Based on Usage Situation.

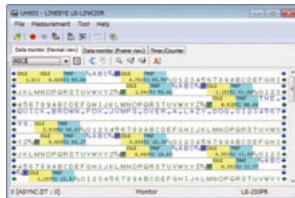
This device can be used as a PC-connectable Protocol Analyzer for use in the lab (Remote mode), and also as a PC-less Data Logger for use at on-site tests to record data for long hours (Logger mode).



Supports Wi-Fi connection

Remote monitoring is possible by Wi-Fi / USB connection. For WiFi-connection, "Access point mode" (analyzer becomes the Wi-Fi access point) and "Station mode" (analyzer uses nearest access point) are available.

[Data display example]



Small and robust housing suitable for severe field environments

The palm-sized robust unit can be used between -10 to +55°C. It operates not only on USB bus power, but also on external DC power of 7 to 34V. The consumption current is as low as 100mA at DC12V input (Wi-Fi off). The SD card slot and the USB connector are equipped with a dust-proof cover. It can be fixed easily to the equipment to be examined or built into an inspection line, since it is compatible with 35mm DIN rails.



[Onto 35mm DIN Rail]



[Dust-proof Covers]

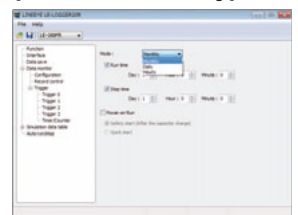
Acquires log files while measuring

Analyzer can access data in the SD card by Wi-Fi connection while measuring. It is useful for on-site tests while not affecting (stopping) the measurement.

Schedule Measurement by Inner RTC

Real Time Clock (RTC) backed up by the battery of the analyzer makes it possible to specify the starting and ending times of the measurement. After the measurement, it turns off the power automatically and saves on power consumption.

[Auto RUN/STOP setting]



Protects important data from corruption due to power failure

A newly developed instant power failure prevention circuit protects important communication log files stored in the SD cards, by protecting the SD cards from being corrupted even if power fails while recording data to the SD card.

Supports RS-232C/RS-422/RS-485 (Standard Feature)

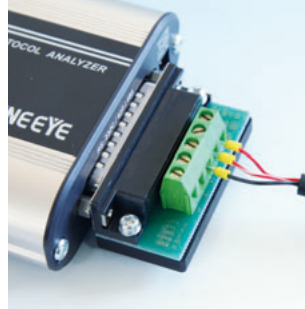
The device comes standard with RS-232C/RS-422/RS-485 interfaces, which are used widely in medical equipment and electronic products. With an optional TTL probe pod (OP-5M), it can monitor TTL-level communication at 2.5V/ 3.3V/ 5V. LE-200PR can measure Sync communication, which has transmission/ reception clocks.

Pin Assignment of Connector (DSUB 25 pin)

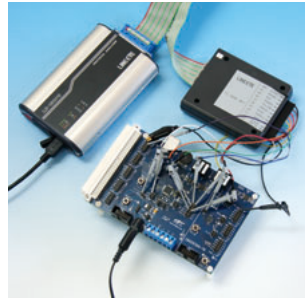
Pin	Signal
1	FG
2	RS-232C SD
3	RS-232C RD
4	RS-232C RS
5	RS-232C CS
6	RS-232C DR
7	GND ^{*2}
8	RS-232C CD
9	+5VDC ^{*1}
10	RS-422 RXDB+ ^{*2}
11	RS-422 RXDA- ^{*2}
12	RS-422 RXCB+ ^{*3}
13	RS-422 RXCA- ^{*3}
15	RS-232C ST2 ^{*3}
17	RS-232C RT ^{*3}
18	RS-422/485 TXDB+/TR+ ^{*2}
19	RS-422/485 TXDA-/TR- ^{*2}
20	RS-232C ER
22	RS-232C CI
24	RS-232C ST1 ^{*3}

- *1: A terminal-supplied power from analyzer. ON/OFF switchable.
- *2: LE-5TB is useful for connecting the signals.
- *3: LE-200PR only.
- *4: Signal pins not defined here are not connected.

[Terminal Block Adapter (LE-5TB)]



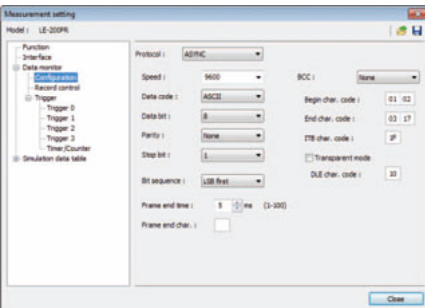
[TTL Monitor Probe Pod (OP-5M)]



Measures at Arbitrary Speed.

Monitor data at any speed by setting the baud rate of any four digits. The high-precision timer makes it possible to record idle time and time stamps along with data, and is not related to the performance of the PC.

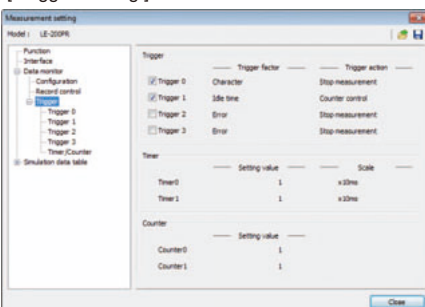
[Configuration Setting]



Communication errors can be detected with high reliability.

It can judge parity error, framing error, BCC error of various block check codes, and short SDLC/HDLC frame (LE-200PR only). It can find the communication sequence in the event of an error, by setting an application-level error notification character string to the character string agreement criteria of the triggering function. It can notify an error to external devices and alert a communication error in the logger mode (with a panel LED lighting), by specifying an external trigger signal output and user-defined LED lighting as a triggering action.

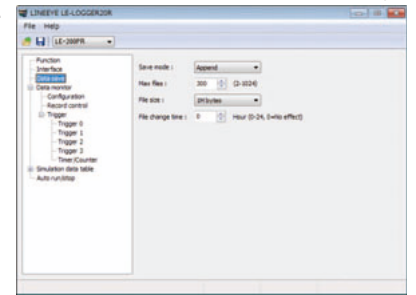
[Trigger Setting]



Long Hour Recording

Measured data is saved as log files of the specified file size in the HDD/SSD of the PC (Remote mode) or in the SD card of the analyzer (Logger mode). It automatically records data until reaching the specified number of files, and then deletes the oldest file to record the new file. Also, it can stop measurement on reaching the specified number of files. It is useful for detecting any hindrance in the line.

[Record Control Setting]



[Recording Time]

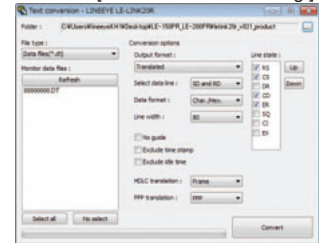
Baud Rate	Capacity: 8G byte (e.g. 8M byte x 1,000 files)
9600bps	Approx. 480 Hours
230.4Kbps	Approx. 20 Hours

*: In the case of full-duplex transmission of 1K byte data at 1ms intervals.

Seamless access to communication log files

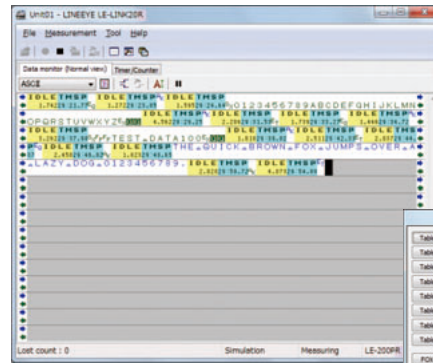
Communication log files can be viewed in detail on a PC. It offers seamless operation that handles a single measurement log file even when all files are read collectively. The measured data can be converted into text or CSV format to use in a word processor and/or spreadsheet software.

[Text Conversion Setting]



Easy-to-Operate Simulation Function

It incorporates an easy-to-use simulation function that makes it possible to transmit preset transmission data (16 types of data), or fixed data such as FOX messages, at the flip of a key while checking reception data.



Example of Simulation]



[Simulation Data Tables]



Specifications

Model	LE-200PR	LE-150PR
Interface	Standard: RS-232C /RS-422 /RS-485	Optional: TTL (Model: "OP-5M")
Measurement Connector	DSUB 25pin female connector (M2.6)	
Protocol	ASYN, ASYN-PPP, Character SYNC: SYNC/BSC, Bit SYNC: HDLC/SDLC/X.25	ASYN, ASYN-PPP
Baud Rate	50bps~1Mbps (arbitrary)	50bps~500Kbps (arbitrary)
SYNC Clock	ST1*1, ST2*1, RT(external), AR(data extracted)	-
Data Code	ASCII, EBCDIC, JIS7, JIS8, Baudot, Transcode, IPARS, EBCD, EBCDIK, HEX	
Bit transmission order, Polarity	Order: LSB first/ MSB first (switchable), Polarity: Normal/ Invert (switchable)	
Error Check	Parity(ODD, EVEN, MARK, SPACE), Framing, Break, Abort(LE-200PR only), Short frame(LE-200PR only), BCC(LRC, CRC-6, CRC-12, CRC-16, CRC-ITU-T, FCS-16(LE-200PR only), FCS-32(LE-200PR only), BCC permeation mode	
Memory	PC: Max. 16G byte on the HDD, PC-less: capacity of the SD card (specify the file size at 128K /1M /2M /4M /8M /16Mbyte)	
Recording Type	Ring Buffer (continuous) mode, Fixed Buffer (full stop) mode	
Mode	Remote mode (with PC); Data Logger mode (without PC)	
Measurement start/stop	Control from PC, Start/Stop switch, Auto-Power run, Specify date and time.	
Idle Time	Resolution: 100ms, 10ms, 1ms; Max. 999.9s, or OFF (no-record)	
Time Stamp	"Day/Hr/Min", "Hr/Min/Sec" or "Min/Sec/10ms", or OFF (no record)	
Line Status	Record signals (RS(RTS), CS(CTS), ER(DTR), DR(DSR), CD(DCD), CI(RI), EXIN) with transmission/reception data. Waveform display (RS-232C only)	
Address Filter	Record only frames of the specified address. (HDLC/SDLC/X.25 only)	-
Protocol translation	SDLC (modulo8/128), ITU-T X. 25(modulo8/128), LAPD, PPP	PPP
Trigger	Condition	Communication error, data string up to 8 characters (don't care and bit mask available), idle time more than the specified duration, matched timer/counter value, logic status of interface signal line, external signal.
	Action	Stop measurement (offset can be set), validate/invalidate trigger condition, control timer/counter, send specified data string, send external signal, turn on/ off the light of user-defined LED
Retrieval function	Communication error, data string up to 8 characters (don't care and bit mask available), idle time more than the specified duration, time stamp (don't care available), trigger-matched data.	
Simulation	Transmit data registered in 16 data tables (16K byte) with one press of a key. DTE/DCE mode selectable. Pre-set the timing of line/data. Insert parity error.	
Conversion	Convert data into Text or CSV format and save.	
LED	5 of two-color LED: Power/ Error, Test/Record, SD/RD, User defined U1/U2, Wi-Fi connection	
Switch	One: Run / STOP	
External Trigger	Input: 1, Output: 2. 2.54mm pin header connector	
SD Card	2 - 16G byte*2	
USB 2.0 Port	Mini-B connector High speed supported	
Wi-Fi interface*3	IEEE 802.11 b/g/n	
Power*4	Remote mode: USB bus power Remote mode with Wi-Fi / Logger mode: External DC power (DC7-34V), AC adapter (6A-181WP09). Power consumption: 1.8W (0.8W when Wi-Fi is OFF, Max.2.2W for about 10sec when turning on power). 0.15W/DC24V when turning off power.	
Work time during Power failure	1 sec	
Ambient Temperature, Humidity	In operation:-10~+55°C In storage: -20~+60°C, 5 - 85%RH (No condensation)	
Standard	CE (EMC Class A), RoHS, RE directive	
Dimensions, weight	86(W)×130(D)×30(H) mm approx. 230g	
PC environment	OS: Windows® 7/8/8.1/10 PC: PC/AT compatible	

*1: It is available only for measuring RS-232C. *2: LINEEYE warrants only the one we sell. *3: Wi-Fi function is available only in Japan, USA, Canada, and EU nations. *4: Remote mode (with PC connected by USB cable) runs by the USB bus power. Logger mode (PC-less) and Remote mode with Wi-Fi need to have an optional AC adapter (6A-181WP09) or use an optional Power Plug Cable (SIH-2PG) and external DC power.

Standard Set

PC-connectable Protocol Analyzer...x 1
DSUB 25pin monitor cable (LE-25M1)...x 1
Mini USB cable (SI-US218)...x 1
External signal I/O cable (LE-4TG)...x 1
8G byte SD card (SD-8GX)...x 1
PC software CD...x 1
Instruction Manual...x 1
Warranty...x 1



SAFETY WARNING

Read the instruction manual provided with the product before use and use the product as explained in that manual. Using the product in ways not guaranteed in the manual, connecting it to systems outside of the specified ranges and remodeling can all cause trouble and damage. LINEEYE CO., LTD. will assume no responsibility whatsoever for trouble or damage arising because of unauthorized ways of use.

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OPTIONS

8G byte SD Card

SD-8GX

*Same as the card packed with LE-200PR/LE-150PR.



*The photo is for illustrative purposes only.

16G byte SD Card

SD-16GX

Wide Input AC Adapter

6A-181WP09

Input: AC100~240V, 50/60Hz
Output: DC9V, 2A
Plug: Center+, Outside diameter: 5.5mm, Inside diameter: 2.1mm



Power Plug Cable

SIH-2PG

DC Plug (Outside diameter: 5.5mm, Inside diameter: 2.1mm) ←→ Y terminal: 1.8mm
Supply external DC power to the DC jack of the analyzer. Cable clamp is included.



DSUB 9pin

Monitor Cable

LE-259M1

Branch cable for monitoring RS-232C over general DSUB 9pin, such as with the PC.



Terminal Block Adapter

LE-5TB

An adapter to extract the RS-422/485 signals on the DSUB 25pin connector to the terminal block.

* Sync clock signal measured by LE-200PR cannot be captured.



TTL Monitor Probe Pod

OP-5M

A probe pod for monitoring TTL-Level communication lines at 2.5V/3.3V/5V,

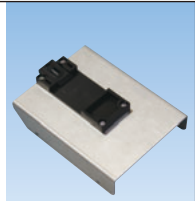
* Cannot be used for simulation function.



DIN Rail Mounting Plate for LE-series.

LE-DIN13

To mount the LE-150PR / LE-200PR on the 35mm DIN rail.



LINEEYE CO., LTD.

■ Head Office/Sales Office
Marufuku Bldg 4F, 39-1 Karahashi Nishihiragaki-cho, Minami-ku, Kyoto, 601-8468
PHONE: 81-75-693-0161 FAX:81-75-693-0163

●URL <http://www.lineeye.com>

●E-mail : info@lineeye.co.jp

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