

**COMPACT PROTOCOL ANALYZER**

# LE-1500

**Designed for Async Communication  
equipped with sufficient measuring functions**

- Support ASYNC and PPP
- Speed freely set to 4 effective digits
- Save data in the CF card continuously



### Support RS-232C/RS-422/RS-485 (Standard Feature)

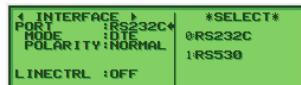
A compact and light-weight analyzer equipped with RS-232C port (Dsub 25pin) and RS-422/485 (RS-530) port can monitor data up to 500Kbps. Communication speed is freely set to 4 effective digits. Various options are available such as Dsub 25pin terminal adapter and Dsub 9pin monitor cable. Also, it can measure TTL and Current loop communications by exchanging the interface boards.



[TTL expansion set]



[Speed setting]



[Interface setting]



[Measure RS-485 (using terminal block)]

### Monitor Function to Measure Data Communication

The analyzer monitors Async communication without affecting the target communication at 50bps to 500Kbps. Data is displayed at real-time by ASCII or HEX data codes. It can switch the data codes and display formats by pressing the operation keys without interrupting the measurement. Time stamp and idle time information can be displayed along with the data, which is helpful to find out the trouble and timeout status.

ATSPAT&F1N1OLETMSP.....IDLET+	0007 174132+0K04N0022

[Raw data]

TM--DATA	174132 ATSPAT&F1N1OLETMSP.....IDLET+
	0007 174132+0K04N0022
	ATSPAT&F1N1OLETMSP.....IDLET+
	0007 174132+0K04N0022
	ATSPAT&F1N1OLETMSP.....IDLET+
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[Display each data in different lines]

### Simulation Function for Transmission/Reception Test

The analyzer acts as the counterpart to the target device and performs transmission and reception tests. The MANUAL mode sends the data registered in transmission table which corresponds to the operation keys. The FLOW mode simulates the flow controls using X-on/off flow control or the control line handshake, and ECHO mode returns received data in specified conditions.

TABLE No.4	
DATA	174132 ATSPAT&F1N1OLETMSP.....IDLET+
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## Various Function for Advanced Analysis

Powerful search function retrieves several types of errors, specific data strings, time stamps and so on. Auto RUN/STOP function starts/ends measuring at appointed time to have the measurement automatically.



[Search Function]

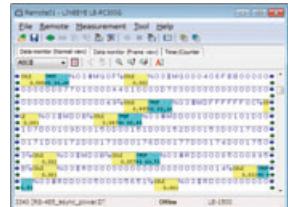


[Auto RUN setting]

## Enhance the Link between Analyzer and the PC

The optional PC link software supports USB connection and LAN connection using the optional LAN-Serial converters, thus enabling remote measurement by multiple analyzers connected at the same time. Data can be checked on the PC screen at real-time and saved on the HDD/SSD.

[Data on the PC using PC link software]



## Specifications

Model	LE-1500
Interface	RS-232C (V.24), RS-422/485 (RS-530) <sup>*1</sup>
Expansion Interface <sup>*2</sup>	TTL [ OP-SB5GL ], Current loop [ OP-1C + SB-25L ]
Standard Protocol	Asynchronous, ASYNC-PPP (PPP/BSC translation available)
Capture Memory <sup>*3</sup>	2.4M byte, Save it for about 5 years with built-in battery.
Baud Rate	50bps to 500Kbps, Freely set to 4 effective digits separately for transmission and reception.
Data Code	ASCII, EBCDIC, JIS7, JIS8, Baudot, Transcode, IPARS, EBCD, EBCDIK, HEX
Parity Bit	NONE, ODD, EVEN, MARK, SPACE
Error Check	Parity, Framing, Break, BCC
Online Monitor Function	Display communication logs on the LCD without affecting the line.
Line Status LED	Display the status of signal lines in two-colored LED.
Idle Time	OFF (no recording); Resolution: 100ms, 10ms, 1ms; Max. 999.9s
Time Stamp	OFF (no recording); Date/time stamp selectable among "Day/Hr/Min", "Hr/Min/Sec", "Min/Sec/10ms".
Trigger Function	Up to 4 pairs of trigger conditions and actions can be specified. Sequential actions are possible. Condition: Communication error, data string up to 8 characters, idle time more than the specified duration, matched time/counter value, logic status of signal line, external trigger input. Action: Stop measurement/test, validate trigger condition, control timer/counter, activate buzzer, save monitored data, send specified character, output external trigger.
Data Search	Communication error, data string up to 8 characters, idle time more than the specified duration, specified time stamp, trigger matching data.
Monitor Conditions Auto Setting	Baud rate (max. 115.2Kbps) and conditions, such as framing condition can be set. <sup>*4</sup>
Auto RUN/STOP function	Start and end measuring at the specified time at the selected repeating cycle (monthly, daily, hourly)
Power ON Auto Run	Start measuring automatically when turning on the power
Auto Save	Automatically save the monitored data in the capture memory and save it as the communication log file in the CF card.
Signal Voltage Measurement	Measure and display the voltage (min/max/current value) of SD, RD, ER(DTR), CD(DCD) over RS-232C
Logic Analyzer Function	Measure the logical status of the interface signals and display their waves. It is possible to calculate the time by selecting by the cursor. Sampling clock: 1KHz to 20MHz (14 steps)
Bit Error Rate Test	Measure the error rate, confirming to the G.821 (ITU-T advise) by loop-back test or interactive test. Test Pattern: 2 <sup>5</sup> ·1, 2 <sup>9</sup> ·1, 2 <sup>11</sup> ·1, MARK, SPACE, ALT, DBL-ALT, 3in24, 1in16, 1in8, 1in4
Simulation	Enable transmission/reception test of any given data (DTE/DCE selectable with pin assignment) MANUAL mode: Send the data assigned to operation keys each time a key is pressed. FLOW mode: Simulate the flow control using X-on/X-off or RTS/CTS control. ECHO mode: Return the received data in units of frames, bytes or bits.
File Management	Save measured data and measurement conditions in the CF card.
Printout Function	Print specified range of measured data, and make a hard-copy of display image.
LCD	Monochrome, 240x64dot
CF Card Slot	Max 8G byte CF card (warrant only LINEEYE options)
AUX (RS-232C) Port	Mini DIN 8pin connector, communication speed: 9600bps to 230.4Kbps (6 steps) <sup>*5</sup>
USB2.0 Port	B-connector in device side, transfer data in full-speed. <sup>*6</sup>
External Power Supply	Provided AC adapter, DC9V, 2A, center+ (AC100 to 240V, 50/60Hz)
Built-in Battery	Ni-MH battery (Model:P-19S), battery operating time: about 8hours <sup>*7</sup> , battery charging time: about 2.5 hours
Ambient Temperature/Humidity	In operation: 0 to 40°C, In storage: -10 to 50°C Humidity: 85%RH max.
Standard	CE (class A), EMC (EN61326-1:2006)
Dimensions/Mass	210(W)x154(D)x38(H)mm, Approx. 760g
Accessories	DSUB 25pin monitor cable (LE-25M1), DSUB 9pin AUX cable (LE2-8V), External signal I/O cable (LE-4TG), AC adapter (3A-183WP09), Carrying bag (LEB-01), Utility CD, Quick start guide, Warranty

\*1: An optional monitor cable (LE-259M1) and terminal adapter (LE-530TB) are required to monitor over a RS-232C with DSUB 9pin connector or RS-422/485 with a unique terminal arrangement. \*2: Supported with optional product in [ ]. \*3: Transmission/reception data, idle time, time stamp, and line status consume 4 bytes of memory at each capture. \*4: If the amount of communication data is small or communication data includes several errors, a proper auto setting cannot be done. \*5: Used mainly for outputting printout data and upgrading the firmware. \*6: Used mainly for using with PC. \*7: Communication conditions set by LINEEYE.

## Options

Product Name	Model	Note
TTL/I <sup>2</sup> C/SPI communications expansion kit	OP-SB5GL	Expansion kit to measure TTL communication at 1.8-5V <sup>*1</sup>
Current loop Adapter	OP-1C	Monitor at 10-60mA and have a passive test at 20mA/40mA.
Expansion Board	SB-25L	Expansion board used in combination with OP-1C. <sup>*2</sup>
PC Link Software	LE-PC300G	Have the remote-control from PC. Record data on HDD/SSD.
DSUB 9pin Monitor Cable	LE-259M1	Branch cable for measuring RS-232C over DSUB 9in.
Terminal Block for DSUB 25pin	LE-25TB	Convert DSUB 25pin connector to terminal block.(25 terminals)
RS-530 Terminal Block	LE-530TB	Convert RS-422/485 transmission/reception signals to terminal block.
8G byte CF card	CF-8GX	8G byte compact flash card.
Ni-MH battery Pack	P-19S	Auxiliary and replacement battery equivalent to the built-in battery.
Compact Thermal Printer Set	DPU-414-PA	Include printer, AC adapter and printer cable.

\*1: LE-1500 does not support I<sup>2</sup>C/SPI. \*2: The expansion board provided on the OP-SB5GL can be used in place of the SB-25L.



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 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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[TTL/I<sup>2</sup>C/SPI communications expansion kit OP-SB5GL]



[Current loop adapter OP-1C]



[PC link software LE-PC300G]



[RS-530 terminal block LE-530TB]



# 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](mailto:info@lineeye.co.jp)

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