

LE-8500X-RT LE-8500XR-RT

Supports high-speed communication up to 20Mbps
High precision time stamp by GPS synchronization

- RS-232C
- RS-422
- RS-485
- RS-530
- TTL

NEW



Supports RS-232C, RS-530, RS-422/RS-485, TTL by just one unit

Equipped with four measurement interfaces that cover a wide range of general serial communication standards. As the DSUB measurement port can switch between RS-232C and RS-530, this device can be used for the maintenance of equipment with legacy interfaces such as V.35 and X.20/21 without replacing the measurement board.



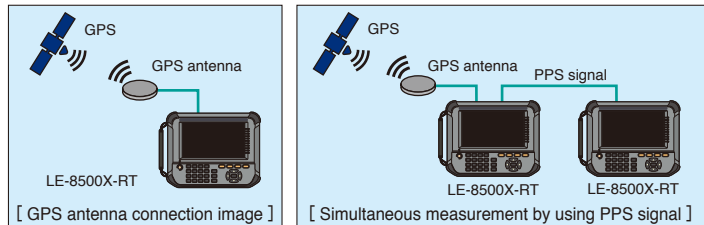
RS-232C/RS-530 measurement port TTL measurement port / external trigger terminal RS-422/485 measurement port GPS antenna connector

Supports high-speed serial communication as standard

Without preparing any special firmware, it can monitor the communication data without data loss even for a 20Mbps high-speed SPI communication or a 10Mbps CC-Link communication. Any communication speed from 50bps to 20Mbps can be set with 4 significant digits. As the bit configuration, bit transmission order, polarity, modulation format, etc. can be freely selected, it can be used in many test situations.

Timestamp which can be synchronized by GNSS (PPS)

The time synchronization function by GNSS / GPS realizes more accurate time stamp compared to the time stamp using a general crystal oscillator. If you measure for a long period of time two points where communication failure rarely occurs by using two analyzers at the same time, you can compare and verify each measurement data from the analyzers based on the time stamp.



[GPS antenna connection image] [Simultaneous measurement by using PPS signal]

Simulation function for flexible communication tests

The simulation function provides the transmission/reception test environment according to the development phase by acting as a communication partner. It has many test modes that are necessary when the communication partner device cannot be prepared in the early stages of development. The transmission data used for the test can be registered in advance in HEX, or typed on the full keyboard screen. Only the specified data can be registered as a parity error, and CRC and BCC can be calculated automatically. Also, during a half-duplex communication test that uses only the SD line like RS-485, the analyzer transmission data can be distributed to the SD side display and the response data from the other device can be distributed to the RD side display for testing while recording and monitoring the communication in real-time.

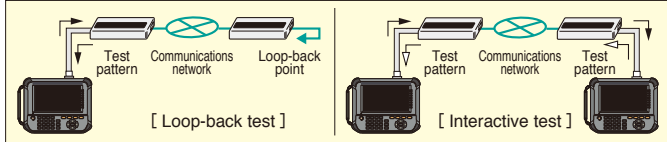
*The model name displayed on the opening screen is common to the LE-8500X series.

LE-8500X-RT / LE-8500XR-RT

BERT (Bit Error Rate Test) function useful for transmission quality analysis

By this function, this unit transmits the transmission test pattern and evaluates the returned data by the parameters (number of bit errors, number of block errors) conforming to the ITU-T G.821 recommendation, and the error rate can be measured and the failure point can be isolated.

[Example connection for BERT]



Automatically records communication logs to a large-capacity external storage via USB 3.0

While recording the measurement data in the capture memory, this unit can automatically save it continuously for a long time into external storage such as USB memory or SSD. As the communication log file can be divided into multiple files of the specified size and saved, the communication log before and after the failure can be narrowed down from the file time stamp.

[External storage connection]



[Expansion kit for Gbit Ethernet LAN "SB-GE2"]



Replaceable measurement board

By replacing the measurement board with the expansion kit for Gbit LAN communication (option), it can be used as a LAN analyzer that supports simultaneous measurement of 2 channels of Gbit LAN and 1 channel of PoE, and simultaneous packet output for 2 channels.

[Options]

Model	Description
SB-GE2	Expansion kit for Gbit Ethernet LAN
LE-25Y15	X.21 monitor cable
LE-25Y37	RS-449 monitor cable
LE-25M34	V.35 monitor cable
LE-25S530	RS-530 cable
EB-SL-AA170	GPS active antenna
P-26LW2	Lithium-ion battery pack

Specification

Model	LE-8500X-RT	LE-8500XR-RT
Interface (standard)	RS-232C, RS-530, RS-422/RS-485, TTL (1.8V/2.5V/3.3V/5V level)	
Expansion measurement interface ¹	X.20/21 [LE-25Y15], RS-449 [LE-25Y37], V.35 [LE-25M34], GbE LAN + PoE [SB-GE2]	
Standard Protocol	ASYNC (Asynchronous), ASYNC-PPP, Character synchronous SYNC/BSC, Bit synchronous HDLC/SDLC/X.25, CC-LINK, Modbus, PROFIBUS, I ² C, SPI, BURST	
Capture Memory	1Gbyte	
Online Monitor Function	Real-time display while continuously recording communication logs without affecting the communication line	
Max. Speed	Full duplex: 10Mbps / Half duplex: 20Mbps ² Can be set arbitrarily with 4 significant digits	
Data Format	NRZ, NRZI, FM0, FM1, 4PPM, ASK, Manchester0, Manchester1	
Data Code	ASCII, EBCDIC, JIS7, JIS8, Baudot, Transcode, IPARS, EBCD, EBCDIK, HEX	
Bit Transmission Order	LSB first and MSB first can be switched	
Polarity	Switchable between NORMAL and INVERTED	
Error Check	Parity, framing, break, abort, short frame, BCC (LRC.CRC-6.CRC-12.CRC-16.CRC-ITU-T.FCS-16.FCS-32)	
Time Stamp	The reception time is added as timestamp data for each received frame. Resolution: Year Month Date Minute / Month Date Minute Second / Date Minute Second 10msec or elapsed time 100μsec/10μsec/1μsec Time adjustment by GNSS PPS signal or external PPS signal is available ³	
Data Display/Control	Scroll display, 2-split comparison display, jump operation to specified screen, mark jump operation	
Translation	Supported protocol: BSC, HDLC/SDLC/X.25/LAPD frame, X.25/LAPD packet, PPP, I ² C, Modbus, PROFIBUS	
Text Conversion	Measurement data can be converted to a text format file and saved	
Filter Function	Only the specified address frame of the bit synchronization HDLC/SDLC/X.25 protocol can be monitored.	
Trigger Function	Conditions: Communication error, idle time over a specified time, timer/counter value match, a logic of communication control line and external signal Action: Stops measurement/test, enables trigger condition, timer control, counter control, buzzer sound, saves the monitor data, transmits a specified character string, or outputs an external signal	
Search Function	Only specific frames that match the specified conditions can be searched from the measured data, cued, and counted.	
Monitor Conditions Auto Setting	Communication conditions such as ASYNC/Character SYNC/Bit SYNCH protocol and transmission speed can be set automatically.	
Delay Time Measurement Function	Measures and displays the interval time of change on the interface signal line (displays the current/minimum/maximum/average value, resolution 0.1 msec)	
Signal Voltage Measuring Function	Measure and display the voltage amplitude value of 2pin / 3pin / 14pin / 20pin of DSUB connector (displays the current/minimum/maximum value, resolution 0.1V)	
Statistic Function	Graph display by collecting statistics on the number of transmission/reception data, the number of frames, and the number of times the trigger condition is satisfied for each specified period.	
Logic Analyzer Function	Waveform display by measuring the logical change of the interface signal line in a cycle of 1KHz to 100MHz (16 steps)	
Bit Error Rate Test	Line quality measurement test for such as error rate by loopback or facing test is available ⁴	
Simulation Function	Transmission/reception test by using arbitrary data registered in the transmission data table Test mode: manual mode, flow control mode, echo mode, polling mode, buffer transmission mode, program mode, waveform output mode	
Auto Save Function	The contents of the capture memory (monitored data) can be automatically saved as a communication log file in an external storage such as USB memory/SDHC card, etc.	
Additional Functions	Time synchronization function by GNSS/external PPS signal, auto backup function, time specified automatic RUN/STOP function, power-on automatic RUN function, remote measurement ⁵	
Display	7 inch TFT color LCD with capacitive touch panel	
Line Status LED	11 LEDs always display the connection status of measurement ports	
LAN Port	RJ45 Connector. 1000BASE-T Ethernet: IEEE 802.3 for PC connection	
USB Device Port	Type-C connector, SuperSpeed transfer supported. For PC connection	
USB Host Port	Standard A connector, SuperSpeed transfer supported. For external storage (USB memory / SSD)	
SD Card Slot	For standard size SD/SDHC memory cards, compliant with SD Association standard	
External I/O Terminal	4-pin connector for TTL level trigger input/output signals	
GPS Antenna Connector	SMA (female) connector for active GPS antenna connection	
Wi-Fi Connection ⁶	-	IEEE802.11b/g/n
Power	Attached AC adapter Input: AC100-240V 50/60Hz Output: DC9V 2A	
Battery	Lithium-ion secondary battery (model number: P-26LW2) Battery drive time: 2 hours ⁷	
Ambient Temperatures	In operation : 0 to 40 degree Celsius, In storage : -20 to 50 degree Celsius	
Ambient Humidity	20 to 85%RH (No condensation)	
Standard	CE (Class A)	
Size and Weight	234(W) x 186(D) x 44(H)mm, about 990g	
Accessories	DSUB25 monitor cable (LE-25M1), DSUB9 branch cable (LE-009M2), DSUB25-9 conversion adapter, External signal I/O cable (LE-4TG), USB cable (Standard A-Type-C), AC adapter (6A-181WP09), Carrying bag (LEB-01), Utility CD, Quick start guide, Warranty	

*1: Available by adding optional items listed in [], which are sold separately. *2: The maximum measurable speed is limited by the selected interface or protocol. *3: A GPS antenna (sold separately) is required for GNSS synchronization. External PPS synchronization requires another unit to which a GPS antenna is connected. *4: Available for only ASYNC and SYNC mode *5: The PC link software is needed. *6: For PC connection *7: According to our test conditions assuming a normal usage situation



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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