

# LE-110SA LE-120SA

**Handheld line monitor with color touch screen**

## LE-110SA LE-120SA

for RS-232C and RS-422/485

for RS-232C and 1.8-5V TTL

- Max. 460.8Kbps
- The Trigger Function synchronizes with external signals.
- Measured data can be saved into USB flash



LE-110SA and LE-120SA are handheld line monitors specialized for ASYNC communication which is widely used in the industry. You can control the line monitor by soft screen touch as you do for smart phones.

### Measurement Ports of RS-232C and 1 More Interface

LE-110SA supports RS-232C/RS-422/RS-485 and LE-120SA supports RS-232C and TTL of 1.8V/2.5V/3.3V/5V (UART).

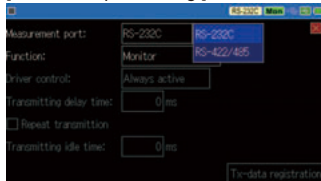
[ LE-110SA measurement port ]



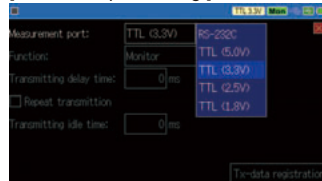
[ LE-120SA measurement port ]



[ LE-110SA port setting ]



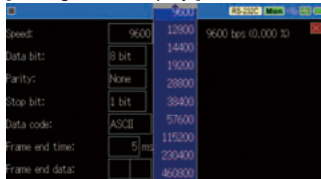
[ LE-120SA port setting ]



### Simple and Easy Setting

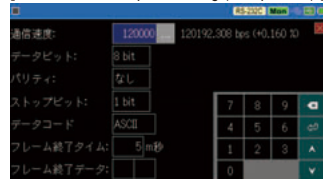
It only needs to select one of the pre-set speeds and data framing for configuration. Also, the online monitor has the Monitor Condition Auto Setting function to monitor communications of unknown specification.

[ Configuration display ]



Common speeds up to 460.8Kbps are pre-set.

[ Communication speed setting (in Japanese) ]

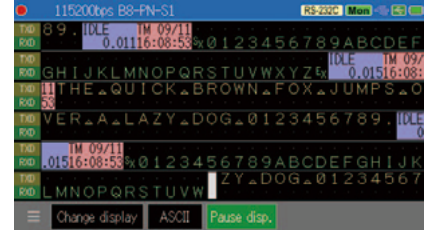


It shows the error rate when you set a speed other than the pre-set ones.

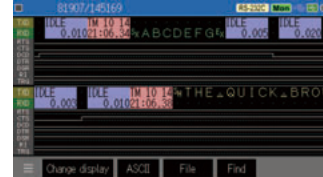
### Line Monitor Function

It can monitor the communication data in real time without affecting the line. It can record the data with time stamps, idle times, and line status, and switches the display to "line state display" and "display in each frame".

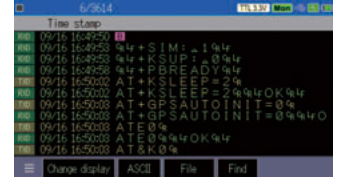
[ Normal display ]



[ Line state display ]



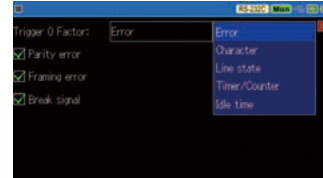
[ Display in each frame ]



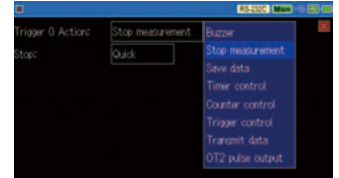
### The Trigger Function Synchronizes with External Signals.

The line monitor has a trigger function like the one the upper model has. Using the external trigger terminal, synchronizing analysis with an external measurement device is possible.

[ Trigger condition setting ]



[ Trigger action setting ]



### Simulation Function

It is possible to transmit a pre-set fixed data or specific data by a screen touch while checking the monitor display.

[ Executing simulation ]



# LE-110SA / LE-120SA

## PC Link

The PC link software displays the monitored data or converts it to a text file on a PC. With the software, remotely control the line monitor or update the firmware from the PC is possible. The light edition of the software is for free. Note: The light edition has restrictions such as limit of monitoring time.

## USB Memory Supported

The measured data and configuration settings can be stored into a USB flash. It is possible to save the former and the latter part of the target data by using the trigger setting. Also by making the Auto Backup function valid, it automatically saves all the measured data to a USB flash when it finishes the measurement.



## Continuously Runs for 5 Hours by Batteries

It can continuously run for 5 hours by the attached two Ni-MH AA batteries. Alkaline batteries are useable as well.









Image of battery room uncovered. The attached battery may differ from that of the photo.



## Specifications

Model	LE-110SA	LE-120SA
Interface	RS-232C, RS-422/RS-485	RS-232C, TTL(1.8V, 2.5V, 3.3V, 5V level)
Protocol	ASYNC	ASYNC, UART
Capture Memory	16Mbyte (about 4000K data), 2 part division is available	
Speed (bps)	50, 75, 150, 300, 600, 1200, 2400, 4800, 9600, 12800, 14400, 19200, 28800, 38400, 57600, 115200, 230400, 460800, user specified speed <sup>1</sup>	
Data length	7bit, 8bit	
Parity bit	NONE, EVEN, ODD	
Stop bit/fg	1bit, 2bit	
Error check	Parity, framing, brake	
Data code	ASCII, JIS, EBCDIC, HEX	
Idle time	Resolution 100ms, 10ms, 1ms, OFF(no display) can be selected. Max 999.9 seconds	
Time stamp	"Year/Mon/Day Hr:Min," "Mon/Day Hr:Min:Sec," "Day Hr:Min:Sec.10ms," or OFF (no record)	
Line state	Records logical status of control line and external trigger input along with the transmission/reception data displays the wave form.	
Data search	Communication error, Max 8 characters data line (Don't care and bit mask are available), idle time more than the specified duration, time stamp within the specified time range, cueing and counting of trigger matching data	
Trigger function	Up to four pairs of trigger conditions and actions can be specified.	
Condition	Communication error, communication data string up to 8 characters (don't care and bit mask are available), idle time more than the specified duration, timer/counter match, logical status of the control line and external trigger.	
Action	Stops measurement/test (number of offsets until a stop can be set), validates trigger conditions, controls timer, controls counter, activates buzzer, saves monitor data into a USB flash, sends the specified character string, sends pulse output to external trigger terminal OT2	
Monitor conditions auto setting	Automatically configures the setting (max 460.8Kbps) <sup>2</sup>	
Simulation function <sup>3</sup>	Test data transmission, ON/OFF of RTS/DTR	Test data transmission, ON/OFF of RTS/DTR Only RS-232C port <sup>4</sup>
Transmission data	Max 16 (up to 16K in total) transmission data can be registered. 14 pre-set data and break output are available.	
Driver IC control	RS-485 Driver Auto control is available	None
File management function	Measured data and measurement condition can be saved into a USB flash and can be read from the USB flash.	
Power save function	Automatic light reduction, auto power off	
Remote control	PC link software (light version) is offered for free.	
Line status LED	Logical status of SD(TXD), RD(RXD), RTS, CTS are displayed.	
Display	4.3 inch TFT color display (480x272dot)	
Touch panel	Capacitance touch panel	
USB2.0 device port	Micro B connector, high speed transmission supported. Used for PC connection and firmware update.	
USB2.0 host port	Standard A connector, high speed transmission supported. Used for USB flash connection <sup>5</sup>	
Power	USB bus power 5V/500mA Two AA Ni-MH batteries or two AA alkaline batteries (LR6)	
Drive time <sup>6</sup>	AA Ni-MH batteries: about 5 hours AA alkaline batteries: about 2 hours	
Temperature & humid	0 to 40 degrees celcius (-10 to 50 degrees celcius for storage), under 85%RH	
Size & weight	158mm x 100mm x 31mm, 300g(including batteries)	
Accessory	DB9 branch monitor cable (LE-009M2), trigger I/O cable (LE-4TG), micro USB cable, two AA Ni-MH batteries, utility CD, carrying bag, quick start guide, warranty card	DB9 branch monitor cable (LE-009M2), 10 pin external input/output cable (LE-10ES1), micro USB cable, two AA Ni-MH batteries, utility CD, carrying bag, quick start guide, warranty card

## Options

	<b>USB charger LE-P1USB</b> Used to provide bus-power to the line monitor or to charge Ni-MH batteries. Input: 100-240V, 50/60Hz Output: DC5V, 2A AC plug: Type A (USA)
	<b>5 wires TTL probe cable LE-5LS</b> The cable with IC clip can be connected with the TTL and external signal I/O port. (for LE-120SA)
	<b>Monitor cable for DSUB25 pin LE-25M1</b> Used with the Dsub25-9 adapter when the target device has DSUB25 pin interface.
	<b>DSUB25-9 adapter LE-259AD2</b> DSUB25(female)-DSUB9(female) connector adapter. Can be connected to the RS-232C port of the line monitor to change it to DSUB25pin monitor port.
	<b>DSUB9 branch monitor cable LE-009M2</b> A monitor cable for communication of DSUB9 pin interface DSUB9(female)-1.5m-DSUB9(female)-0.1m-DSUB9(male) (Same as the attached one)
	<b>Trigger Input/Output Cable LE-4TG</b> I/O cable with IC clips which can be connected with the external trigger port of LE-110SA. (Same as the one attached to LE-110SA)
	<b>10pin External Input/Output Cable LE-10ES1</b> A cable with 1 pin connector which can be connected with the TTL measurement port of LE-120SA. (Same as the one attached to LE-120SA)
	<b>Carrying bag LEB-02</b> The EVA bag can contain the accessories and the line monitor. Dimension: 230x180x65mm (Same as the attached one)
<b>PC link soft LE-PC300R</b>	PC link software for Windows PC Note: Ver1.05 or later is needed.

- \*1: User specified speed can have a margin of error.  
\*2: It cannot work properly when there are little communication data or when the data do not have 101,010 bit pattern.  
\*3: Only DTE mode is available  
\*4: The TTL port is for monitor only.  
\*5: Not all the USB flashes are supported.  
\*6: Based on our testing by common usage.



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