LINEEYE®

CAN / LIN
Communication Data Logger
LE-270A

A communication data logger that supports SD cards, which is capable of real time communication analysis when PC-connected

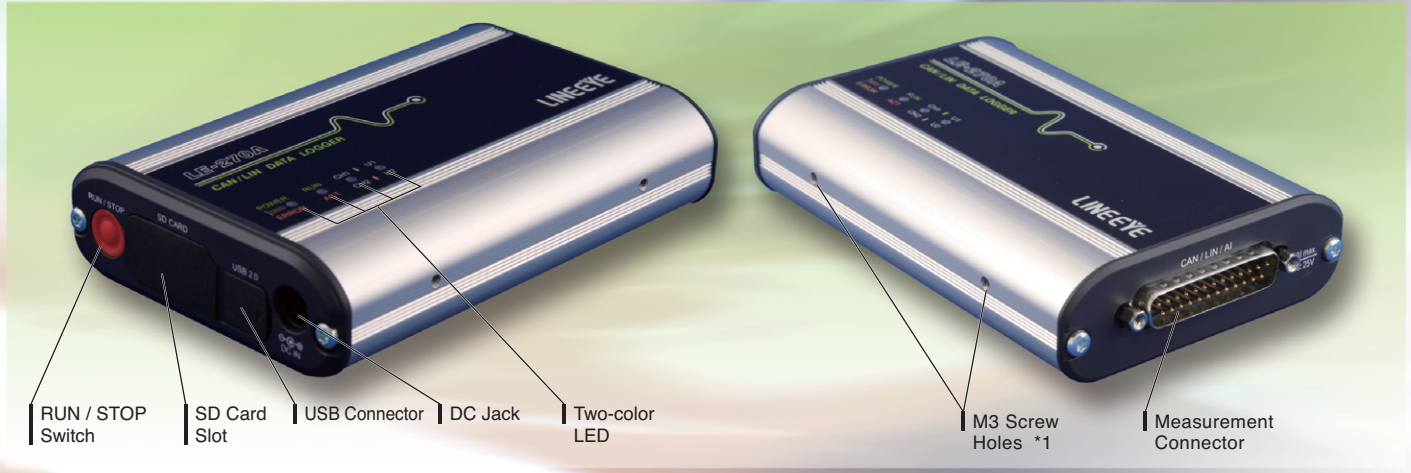*It powerfully supports the development of in-vehicle equipment.*

NEW

CE

*Measures two channels of CAN/LIN and four channels of Analog/Digital signals.
*Has two High-speed CAN transceivers and two Low-speed transceivers.
*Has two LIN transceivers
*Ensures data integrity in the SD card during power failure
*Allows usage under severe conditions.

Compact size, and high reliability to withstand onboard testing

Communication Data Logger saves CAN/LIN data in the SD card for long hours.
It is useful for testing in-vehicle equipment.

RUN / STOP Switch | SD Card Slot | USB Connector | DC Jack | Two-color LED

M3 Screw Holes *1 | Measurement Connector

*1: For attaching the optional DIN rail plate. Pitch: 70mm. Depth: 3.5mm (max).

Measure CAN/LIN/Analog Signals at the Same Time

It has two High-speed CAN transceivers (TJA1050), two CAN Low-speed transceivers (TJA1054) and two LIN transceivers (TJA1020). CAN transceivers are selectable from the software. It monitors two channels of CAN or LIN, or one CAN and one LIN channel. In addition, four channels of Analog/Digital signals can be recorded.
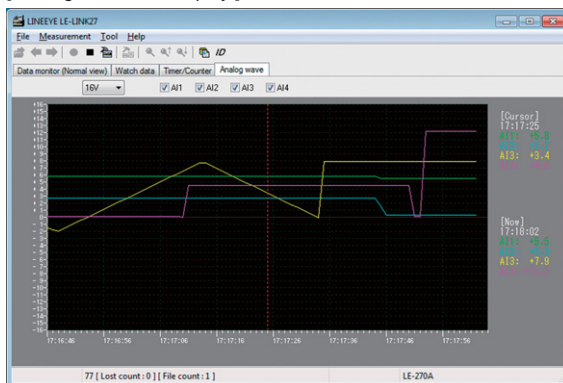
Pin Assignment of Measurement Connector					
Pin	Signal	Pin	Signal	Pin	Signal
1	BATTERY	12	External Signal Input 4	19	CAN2 High
4	GND	14	TRGIN	21	CAN2 Low
7	GND	15	CAN1 High	22	GND
9	External Signal Input 1	16	CAN1 Low	23	LIN1
10	External Signal Input 2	17	TRGOT2	24	LIN2
11	External Signal Input 3	18	TRGOT1		

[Data Monitor Display]
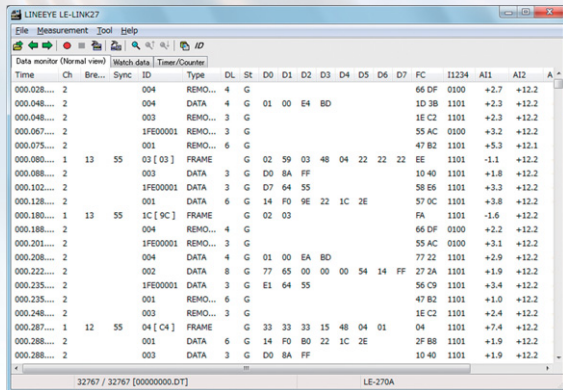
[Analog Waveform Display]

Easy-to-Operate Data Logger Mode

Simply press a switch on the panel to start logging the measurement data into an SD card. No complicated configuration operation is required in the field, since the measurement conditions can be stored in advance in a configuration file in the SD card. The measured log file can be transferred from the SD card to a PC for analysis.

Logger Mode (PC less)

For automatic measurement into SD Cards

It is useful in the situations of:
*PC usage is not allowed. *There are space limitations.
*Dusty places (PC cannot be used).
*Need to record data for more than one month.
*Cannot operate the analyzer well.

Remote mode capable of real-time monitor display

When PC-connected via USB, it operates as a PC-connectable analyzer that is capable of changing the settings of measurement conditions, displaying measurement data in real time and recording continuously to a HDD from a PC. It can also display a communication log file acquired in the logger mode and create a measurement configuration file for logger mode.

Remote mode (PC connected)

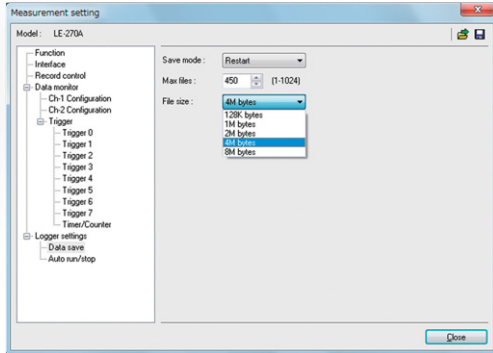PC | Developing Device

Connect to PC via USB
Record in the HDD of PC

[Remote Log Setting]

Long Hour Recording

Log files are saved at the specified file size and number of files, continuously as a ring buffer. Also, measurement can stop when the specified number of files has been reached. It is useful for detecting any hindrance in the line.

[Logger Setting]

[Record Control Setting]

Baud Rate	Capacity: 1.8 G byte e.g. :4M byte × 450 files
125Kbps	Approx. 14 Hours
1Mbps	Approx. 3 Hours

*: In the case of 12 byte/ frame data with 0.1ms interval.

Perform analysis at any communication rate.

General communication rates via CAN and LIN have been preset. However, it can be configured to any communication rate. For CAN, it is capable of fine-adjusting the bit sampling timing.

## Communication errors can be detected with high reliability.

It can judge and record various errors in CAN and LIN, and display them with an error mark on a PC.

ST	Meaning
G	Normal Frame
B	Synch Break error of LIN (When Dominant is 10bit)
S	Synch Field error of LIN (Other than 0x55)
P	Parity error of LIN
L	Data length error of LIN ("ID"is set in "Frame End" setting)
R	When the data of the Response of LIN is less than 1byte
C	CRC error of CAN / Checksum error of LIN
A	ACK error of CAN
E	Error frame of CAN
F	Form Error of CAN (When CRC or ACK delimiter is 0)

Schedule Measurement. Low Power Consumption

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. Power-On-Run function starts measurement when the power is supplied from the test devices, and Auto-Power-Off function ends measurement when there is no power supplied from the test devices. This minimizes battery usage of in-vehicle equipment.

[Auto RUN/STOP setting]
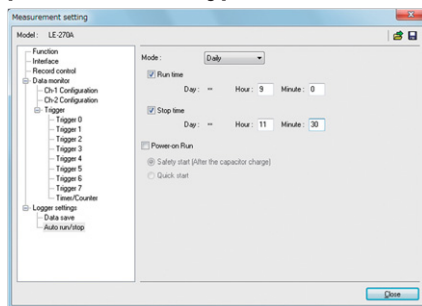
Protects the SD cards from corruption due to any sudden power failure.

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 if power fails while recording data to the SD card. It can be used safely in any on-board test where power supply is likely to be unstable.

Efficient analysis using the filtering and triggering functions

The device is equipped with the ID filtering function and a powerful triggering function. It is capable of effectively measuring only the communication between the IDs of interest, automatically stopping measurement in the event of any error or when specific data is received, and notifying any error with an external trigger signal output and/or alert with an LED light-up.
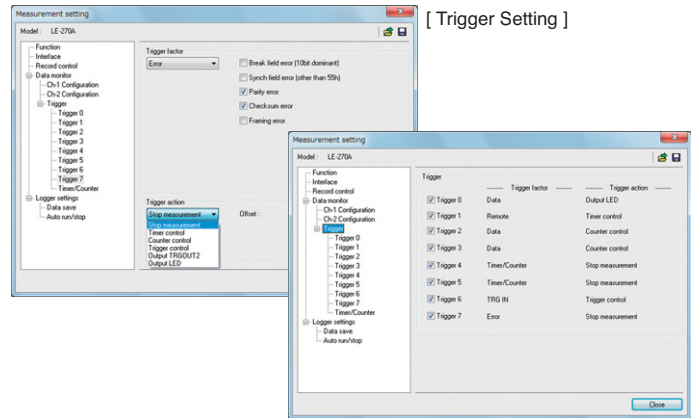
[Trigger Setting]

[Watch Data Display (Display specified data of each ID)]
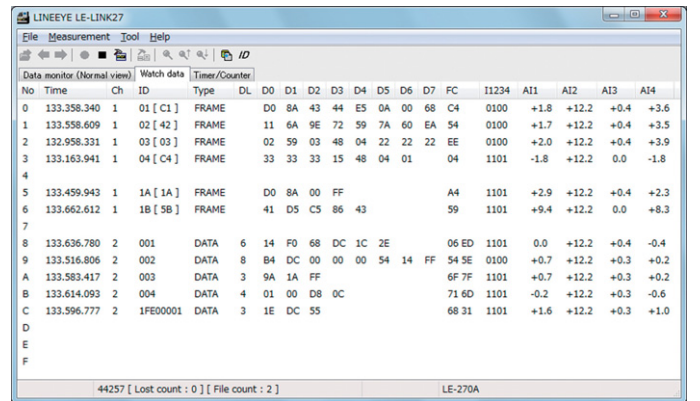
Mass data is analyzed efficiently.

The device has a search function that can search not only communication data but also according to the trigger agreement or time stamp. One or more communication log files can be converted collectively into text or CSV format so that communication data can be used effectively in a word processor and/or spreadsheet software.
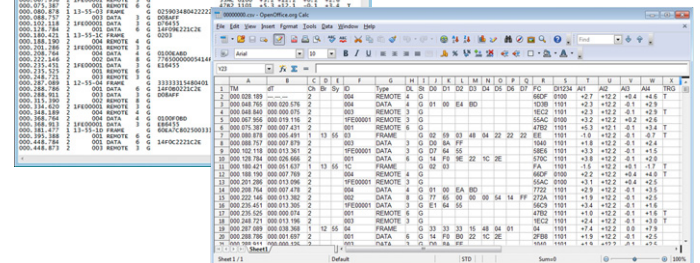
[Text Conversion Setting]
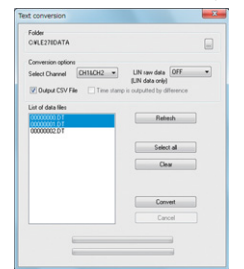
[Text File]
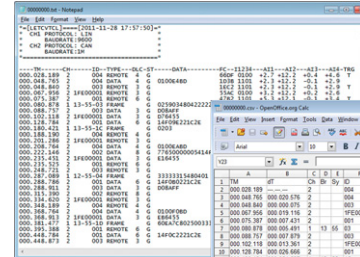
[CSV File]

Small and robust housing suitable for severe on-board testing

The palm-sized robust unit can be used between –20 to +60˚C. It can be installed even within a limited vehicle test space. The consumption current is as low as 100mA at DC12V input. With the dust-proof cover closed, and the DC cable and optional water-proof DSUB cable connected, it can be used in places where it may be exposed to dust and drip.

[Onto 35mm DIN Rail]

[Dust-proof Covers]

Specifications

Model	LE-270A
Interface	CAN: Comfort to ISO11898/ ISO11519-2 standard. TJA1050/ TJA1054 (switchable) LIN: Comfort to ISO9141 standard. TJA1020
Connector	DSUB 25 pin male connector　#4-40UNC
Number of Channels	2 channels of CAN or LIN, or 1 CAN and 1 LIN
Protocol	CAN, Device Net, LIN (Rev1.1, 1.2, 1.3, 2.0, 2.1)
Baud Rate	CAN: Max 1Mbps　　LIN: Max 20Kbps　　(arbitrary)
CAN Monitor	Standard/ Expansion format. Support bit timing settings.
LIN Monitor	Frame breaking is possible according to the data length of each ID or specified idle time.
Error Check	Break:(LIN), Sync:(LIN), Parity:(LIN), Checksum:(CAN/LIN), Framing:(LIN)
Memory	PC: Max 8G byte on the HDD, PC-less: Capacity of the SD card (Specify the file size as 128K /1M / 2M/ 4M / 8M byte)
Recording Type	Ring Buffer (continuous) mode, Fixed Buffer (full stop) mode
Mode	Remote mode (with PC); Data Logger mode (PC-less)
Measurement start/stop	Control from PC, Start/Stop switch, Auto-Power run, Specify date and time.
Time Stamp	"Hr:Min:Sec", "Min:Sec:x1ms", 9 digits: "100μs", "10μs", "1μs" (selectable)
Filter	Record only specified ID frames.
Display on PC	Real-time display, Watch data display(display specified data of each ID)
Trigger — Condition	Data string up to 8 characters, specified remote frame (CAN), frame error (LIN), timer and counter, logic status of external signal, external trigger input.
Trigger — Action	Stop measurement (offset can be set), validates/invalidates trigger condition, control timer/counter, turn on/off the light of user-defined LED, output external signals, output trigger signals.
Retrieval function on PC	Trigger matched data, Error (Break, Sync, Parity, Checksum, Framing), Data: Specified ID (don't care available), Data string (Up to 8 characters; don't care and bit mask available), CAN Remote Data: Specified ID (don't care available), Specified Time stamp, External signal
External Signal Input	Diginal/Analog 4 channels Recording: At the time of receiving signals, or specified sampling cycle (1ms - 10min, 13steps) Diginal　VIH 2V (Min.), VIL 0.5V (Max.) Analog　Range: -16V to +16V, Accuracy: ±0.5%FS, A/D conversion: 15Ksps, Resolution: 10bit
Conversion	Convert data into Text or CSV format and save.
LED	4 of two-color LED: Power/Error, Test/Record, CH1/CH2, User-defined U1/U2
Switch	One: RUN / STOP
External Trigger Signal	1 Input, 2 Output (equipped in the measurement connector)
SD/SDHC Card	2 – 8G byte　*1
USB2.0 Port	Mini-B connector. High speed supported.
Power *2	USB bus power or external DC (DC8-32V), AC adapter: "3A-183WP09" (center +) Power consumption: Max. 1.3W, 0.1W/ DC12V when powering off
Run time during power failure	1 sec
Ambient Temperature, Humidity	In operation: -20~+60°C In storage: -20~+60°C, 5 – 85%RH (No condensation)
Standard	CE (class A), EMC (EN 61326-1:2006)
Dimensions, weight	86(W)×130(D)×30(H) mm, approx. 230g
PC Environment	OS:Windows® XP/Vista/7　　PC: PC/AT compatible

*1: LINEEYE does not warrant the operation of SD/SDHC cards of other manufacturers.
*2: AC adapter is sold separately. In the Remote mode (with PC), LE-270A runs by the USB bus power. In the Logger mode (PC-less), you need to have the optional AC adapter (3A-183WP09) or use the proper external power.

Standard Set

CAN/LIN Communication Data Logger…1
CAN/LIN DSUB Cable (LE-25M3A-1)…1
Mini USB cable (SI-US218)…1
Power Plug Cable (SIH-2PG)…1
2G Byte SD Card (SD-2GX)…1
PC Software CD…1
Instruction Manual…1
Warranty…1

OPTIONS

2G byte SD Card
SD-2GX
NEW
2G byte SD card.
*Same as the card packed with LE-270A.
*The photo is for illustrative purposes only.

Wide Input AC Adapter
3A-183WP09
Input: AC100~240V, 50/60Hz
Output: DC9V, 2A
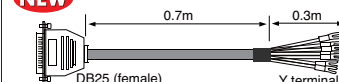Plug: Center+, Outside diameter: 5.5mm, Inside diameter: 2.1mm

CAN/LIN DSUB Cable 1m　**LE-25M3A-1**
DSUB Cable for LE-270A. Length: 1m. One side is Y terminal (MS) with mark tags.
* Same as the cable packed with LE-270A.
NEW
0.7m　　0.3m
DB25 (female)　　Y terminal

### CAN/LIN Water-proof DSUB Cable　**LE-25M3WP-2**
Water-proofing DSUB cable for LE-270A. Length: 2m. One side is without terminal with mark tags. (Custom specification is available for specific length.)
* Connectors or clips necessary for connecting to the object to be measured are to be provided by the user.
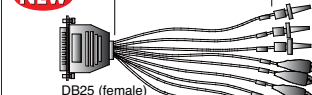* DSUB connectors do not provide drip-proof performance when not connected.
NEW
1.7m　　0.3m
DB25 water-proof model (female)
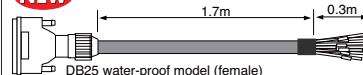
Clip Cable
LE-9LP2
Probe cable with clips for CAN measurement and IC test clips for LIN measurement.
* Cannot input/output external trigger signal or external analog signal.
NEW
350mm
DB25 (female)

DIN Rail Mounting Plate for LE-series.
LE-DIN13
NEW
To mount LE-150PS/LE-200PS/LE-270A on the 35mm DIN rail.

LINEEYE CO., LTD.

* LINEEYE CO., LTD. is a venture company founded by electronic equipment development members of the former Sekisui Chemical Co., Ltd. with investment from the Sekisui Venture Fund.

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