LC-8300

CE

Compact & High-Sensitive GPS Speedometer

LC-8300

High-sensitive receiver
Allows the GPS/GLONASS antenna to be installed inside a vehicle for measurement*

Less than half the volume of previous models
Can be easily used in vehicles

Data logging without a PC
Convenient and easy to use

*Measurement may not be possible depending on the vehicle shape and environmental conditions.

ONOSOKKI

The LC-8300 was developed for high sensitivity, small size, and data recording in the main unit.

The high sensitive receiver allows the GPS/GLONASS antenna to be installed inside a vehicle*, while the small size makes installation simple.
Data is stored in the main unit, eliminating the need for a permanent connection to a PC.

Main features of LC-8300

Small size means easy installation

The volume of the main unit is just 30% that of previous models. Since an inertial measurement unit (IMU) is integrated, the number of installed units is reduced. Even in vehicles with limited space, such as two-wheel vehicles and construction vehicles, the unit is easy to install for optimum operation.

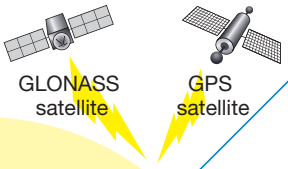
Previous models

70% reduction in volume

High sensitivity enhances measurement

The highly sensitive GPS receiver and support for GLONASS satellites ensure stable measurement in adverse conditions that previous models cannot cope with. Measurement is possible even if the antenna is installed on the dashboard of a vehicle*1, supporting a wide range of applications including coasting tests and data collection in poor conditions for capturing satellite signals.

*1: Measurement may not be possible depending on the vehicle shape and environmental conditions.



Information

Types of satellites

GPS, short for Global Positioning System, is a positioning system using satellites launched by the U.S.. GLONASS is a positioning system using satellites launched by Russia. Other positioning systems include GALILEO being developed by the EU and Michibiki launched by Japan.

Speed interpolation is possible via vehicle speed pulses and CAN

If satellite signals cannot be captured, speed interpolation will be made by selecting from IMU, pulse and CAN.

1. Speed interpolation by inertial navigation system using IMU.
2. Speed interpolation based on the frequency of input pulses.
3. Speed interpolation using signals from CAN.

Speed data is obtained from the vehicle

Easy to operate

The touch panel display improves visibility and ease of operation. Test results can be checked on a large screen.

Easy-to-view large screen with Japanese/English display

Small size
High sensitivity
Interpolation function
Easy operation
High functionality
Testing and logging functions
Various measurement items
Useful software

Pulse×1
Analog×4
CAN×64

Speed, distance and other data

All data can be stored in

High precision and high functionality

Accuracy of ±0.2 km/h (speed) and ±0.2% (distance). Measurement of more than 80 channels*2 with analog, pulse and CAN inputs are available as standard.

*2: Including optional measurements

All data can be stored in USB flash memory

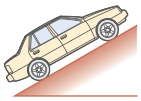
Measurement and logging can be performed on the main unit

Data can be stored in:
- USB flash memory (the above photo)
- Internal storage memory*3

Stand Alone Test mode includes:
- Starting acceleration test*4
- Passing acceleration test*4
- Brake test (MFDD)*5
- Brake test (ABS)*5
- Fade recovery brake test*5
- Coasting test*6
- Interval measurement test (horizontal/vertical)

*1: When data is stored in the internal storage memory, downloading to a PC may take time depending on the amount of data.
*4: Requires optional hardware acceleration test function.
*5: Requires optional hardware brake test function.
*6: Requires optional hardware coasting test function.

LC-0825
IMU data output function (option)



LC-0826
Vertical direction measurement function (option)

Expandable measurement items optionally

LC-8300 can measure vehicle speed, distance, latitude and longitude as standard measurement items. By adding optional IMU data output function and vertical direction measurement function, the tri-axial acceleration/angle/angular velocity, gradient and vertical direction speed can be measured and recorded.

Measurement and calculation using running performance software

The LC-8000 series application software can be used. This PC software is based on the data logging method for vehicle testing of the LC series. Graphs and paths that cannot be rendered on the main unit are supported.

Information

Ono Sokki's sites

Ono Sokki has three development and manufacturing sites, and 10 sales offices in Japan. We also have offices in the U.S., China, India and Thailand. Visit our website for details.

* Measurement may not be possible depending on the vehicle shape and environmental conditions.

Compact & High-Sensitive GPS Speedometer LC-8300

Configuration

LC-0088
GPS/GLONASS antenna

LC-0853
USB flash memory

Front view

Rear view

LC-0089
Touch panel display unit

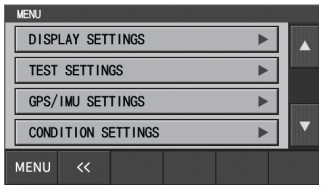
PC

LC-8300
Compact & High-Sensitive GPS Speedometer
(with built-in IMU)

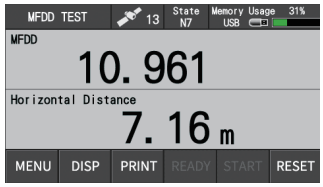
LC-0087
Compact IMU (option)

The external compact IMU is an accessory of the optional IMU output function, which measures speed, acceleration and angular velocity with the external compact IMU set as the measurement zero point. The IMU output function is not available on the internal IMU.

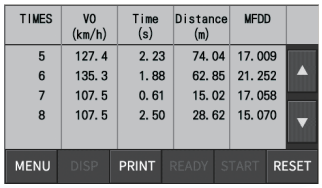
Display example of touch panels



Display example of menu

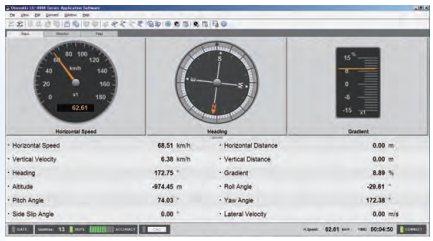


Display example of brake test result

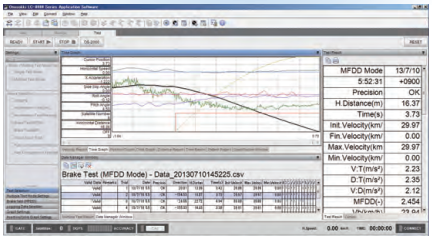


Display example of fade recovery test result

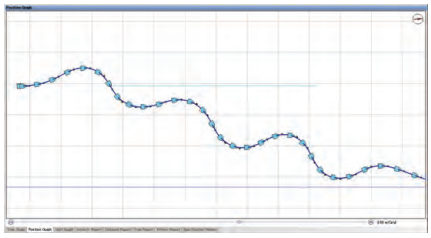
Display example of PC screen



Main screen



Test screen



Traveled path screen

Specification

Measurement accuracy	Horizontal speed	Measurement range/ accuracy	0.1 to 500.0 km/h, ±0.2 km/h or less (Horizontal speed 30 km/h or more, 7 satellites or more)
	Horizontal distance	Accuracy	±0.2 % (Forward distance 300 m, horizontal speed 30 km/h or more, 7 satellites or more)
Standard measurement item	Horizontal speed (km/h), Horizontal distance (m), Time (s), UTC time, Number of satellites, HDOP (Horizontal dilution of precision), Heading (°), North velocity (km/h), East velocity (km/h), North distance (m), East distance (m), Travelling distance (m), Latitude (dms), Longitude (dms), Altitude (m)		
Option measurement item	Lateral distance (m), Vertical velocity (km/h), Vertical distance (m), VDOP (Vertical dilution of precision), Drift amount (m), Roll angle (°), Pitch angle (°), Yaw angle (°), X acceleration (m/s²), Y acceleration (m/s²), Z acceleration (m/s²), X angular velocity (°/s), Y angular velocity (°/s), Z angular velocity (°/s), Gradient (%)		
Update (output) frequency	100 Hz		
General specification	Main unit	Power supply/ requirement	DC 9 to 28 V (non-isolation), AC 100 to 240 V (using AC adapter: option)/ Maximum 12 VA (input DC power, when supplied peripherals are connected.)
		Operating/ storage temperature range	0 to 50 ℃/ -10 to 60 ℃ (Humidity 20 to 80 % RH, with no condensation)
		Outer dimensions/ weight	Approx. 170 × 120 × 40 mm (not including protruded section)/ Approx. 0.75 kg
	Display unit	Outer dimensions/ weight	Approx. 132 × 86 × 31 mm (not including protruded section)/ Approx. 0.5 kg
	Remote	Outer dimensions/ weight	Approx. 120 × 50 × 20 mm (not including protruded section)/ Approx. 0.08 kg
	Antenna	Outer dimensions/ weight	Approx. 66 × 50 × 22 mm (antenna part)/ Approx. 0.1 kg
		Protection class	IP67
Output	Speed analog output	Range	0 to 10 V SI unit: 0 to 10 V/ 0 to 500.0 km/h Mile unit: 0 to 10 V/ 0 to 250.0 mile/h
		Load resistance	10 kΩ or more
	Distance pulse output	Resolution	SI unit: Selectable from 10, 5, 1 mm/pulse Mile unit: Selectable from 16.0934, 8.0467, 1.6093 mm/pulse
		Output delay time	10 ms or less
		Output signal	Square wave pulse output Hi: 5 V ±0.5 V, Lo: 0.5 V or less
		Duty	50 % ±10%
		Load resistance	Load 10 kΩ or more
	Remarks	Voltage or pulse is selected for output from the HORIZONTAL SPEED connector on the side panel.	
Input	Voltage input	Number of channels	4
		Resolution	16-bit
		Range	±20 V
		Cut-off frequency	50 Hz
		Others	This function uses voltage values as measurement starting/ stopping triggers. CH1: starting trigger, CH2: stopping trigger
	Pulse input	Number of channels	1
		Input coupling	AC or DC
		Function	Pulse count/ Frequency/ Duty
		Input waveform	AC select: sine wave, DC select: square wave
	Remarks	Input by the optional cable from the AUX connector on the side panel.	

CAN	Common item	Baud rate	125 k, 250 k, 500 k, 1000 k bps
		Protocol	Conforming to CAN Ver. 2.0B
	Input	Input port	2 (port A, port B)
		Number of data	32-ch/ 1 port (maximum 64-ch)
		Others	CAN input needs to be selected on port B.
CAN	Output*7	Output update period	Selectable from OFF/1 Hz/2 Hz/5 Hz/10 Hz/20 Hz/100 Hz
		Standard output item	Horizontal speed (km/h), Speed unit, Horizontal distance (m), UTC time, Number of satellites, Start/Stop/Reset trigger, GATE state, Inner state, Accuracy state, HDOP (Horizontal dilution of precision), Heading (°), Latitude (dms), Longitude (dms), Altitude (m)
		Option output item	Vertical velocity (km/h), Vertical distance (m), VDOP (Vertical dilution of precision), Drift amount (m), Roll angle (°), Pitch angle (°), Yaw angle (°), X acceleration (m/s²), Y acceleration (m/s²), Z acceleration (m/s²), X angular velocity (°/s), Y angular velocity (°/s), Z angular velocity (°/s), Gradient (%)
		Others	When the output function is activated, the CAN input function for port B side is not available.
Other function	Buzzer, External trigger input, DC 12 V output for general sensor, Condition memory, Printing by connecting the optional printer, Storage function		
Test function	Standard test function on the main unit		Normal measurement, Interval measurement test
	Optional test function on the main unit		Starting acceleration test, Passing acceleration test, Brake test (MFDD), Brake test (ABS), Fade recovery test, Coasting test
	Standard function for PC application*8		Standard function (Setting for the main unit, Measurement value display on PC, Transfer to OS-2000 function, etc.)
	Optional function for PC application*8		Acceleration/deceleration test, Fuel consumption test, Orbit display
Accessory	Touch panel display unit (with 3.0 m cable) ×1 Remote box (with 2.0 m cable) ×1 GPS/GLONASS antenna ×1 Power cable for cigarette lighter socket (3.0 m) ×1 Pin jack - BNC cable (2.0 m) ×2 USB cable for PC connection (1.5 m) ×1 CAN branch cable (0.35 m) ×1		USB flash memory ×1 Software installation CD for PC ×1 Instruction mannual ×1 Carrying case ×1 Mount adapter for display unit ×1 Base plate for mount adapter ×1
Option	<Main unit side> LC-0082:Power supply cable (for battery) LC-0824:km/mile switch function LC-0825:IMU data output function (with compact IMU (LC-0087)) LC-0826:Vertical direction measurement function LC-0827:Hardware acceleration test function LC-0828:Hardware brake test function LC-0829:Hardware coasting test function LC-0854:CAN output function LC-0861:Cable for CAN (2.0 m) LC-0863:CAN-OBD2 cable		LC-0864:Tape switch DPU-414:Digital printer PW-C0725-W1-U:AC adapter for printer CX-050B:Recording paper PS-P20018A:AC adapter unit for the main unit AC adapter cable (2m):One piece is included at the time of purchase. VM1072-VM1700 <for Japan> VM0600-VM0299A <for North America> VM0307C-VM0308 <for Europe> VM0721-VM0749 <for China>
	<PC side> LC-0831:Acceleration/deceleration test software LC-0832:Fuel consumption test software		LC-0833:Orbit display software

*7: Option

*8: PC operating environment
CPU:Intel® Core™ 2 Duo / 2 GHz or more, OS:Windows® XP(SP3) 32-bit / 7 [32-bit/ 64-bit] (Although the software can be run on Windows® XP, we do not recommend it as it is no longer supported by Microsoft®. Consult Ono Sokki for operation on Windows® 8.), Memory:1.0 GB or more, 80 GB or more free HDD space and an XGA (1024 x 768) or higher display is required. USB:USB2.0 (High Speed) 1 port or more.

Example ❶ Useful for logging data in poor conditions for capturing satellite signals

OS-2000 series

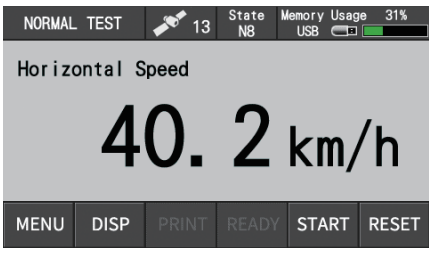
Measurement data from the LC series can be loaded in the CSV file format to the OS-2000 series time-series data analysis tool to display and analyze the data. Video files*9 and wave form can be reproduced at the same time.

Output data in CSV format

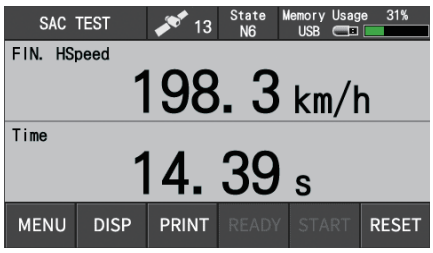
Data can be read to Microsoft® Excel files.

*9: The LC-8300 cannot record videos.

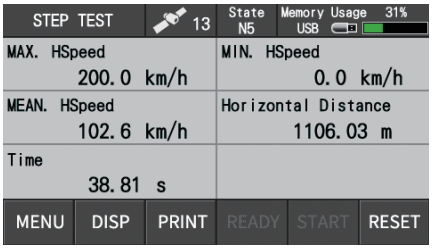
Example ❷ Useful for testing and inspection of vehicles



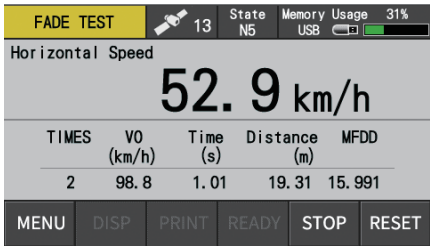
Easy-to-view single-line display.



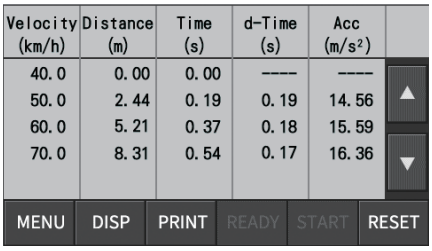
2 or 4 data items can be displayed.



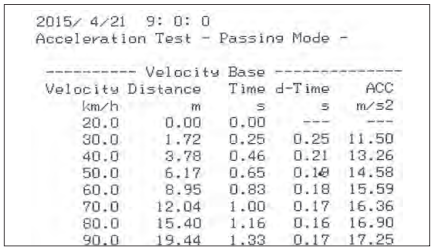
Maximum and minimum speeds, etc. are listed in interval measurement.



Real-time speed and last test result are displayed in the fade recovery test (part of optional hardware brake test function).



Display example of speed-based report. Ascending and descending orders are automatically selected according to the optional test function.

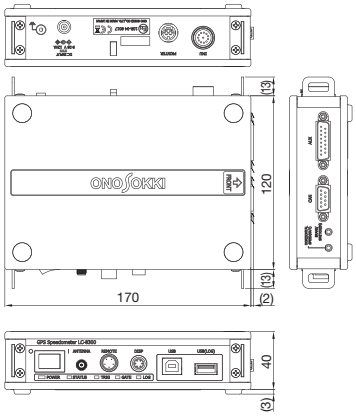


Test results can be output to the optional printer. Automatic printing after testing is also possible.

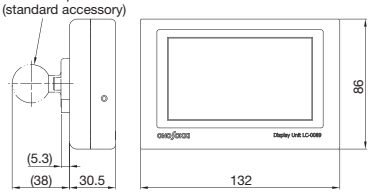
Outer dimensions

(Unit: mm)

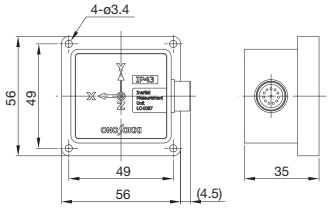
LC-8300 Compact & High-Sensitive GPS Speedometer



LC-0089 Touch panel display unit



LC-0087 Compact IMU



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*Outer appearance and specifications are subject to change without prior notice.
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