Organization of the NL-42/NL-52 documentation

Documentation for the Sound Level Meter NL-42/NL-52 comes in three parts, as listed below.

- **Instruction Manual (this document)**

  Describes operating procedures for the Sound Level Meter NL-42/NL-52, connection and use of peripheral equipment such as a level recorder and printer, and use of the memory card.

- **Serial Interface Manual**

  Describes communication with a computer, using the serial interface built into the Sound Level Meter NL-42/NL-52. The manual covers the communication protocol, use of control commands for the sound level meter, format of data output by the sound level meter, and other topics.

- **Technical Notes**

  This document provides in-depth information about sound level meter performance, microphone construction and characteristics, influence of extension cables and windscreen on the measurement, and other topics.

Organization of This Manual

This manual describes how to use the serial interface built into the Sound Level Meter NL-42 and NL-52. Besides the RS-232C serial interface standard, the unit also supports USB. However, correct operation in combination with other USB devices is not assured. If possible, you should avoid connecting other USB devices at the same time.

The manual is divided into four chapters. Chapter 1 covers points that are common to the RS-232C and USB interface. Chapter 2 contains information for users of the RS-232C interface. USB users need not read this chapter. Chapter 3 contains information for users of the USB interface. RS-232C users need not read this chapter. Chapter 4 explains the interface commands. This chapter is for users of either interface. You should read the explanation for the commands that operate the functions you want to use.

Chapter 1 General Information

This chapter contains information that applies both to the RS-232C and USB interface.

Chapter 2 RS-232C

This chapter explains connection to a computer and transfer principles using the RS-232C interface.

Chapter 3 USB

This chapter explains connection to a computer, installing the USB driver and how to use the USB interface.

Chapter 4 Commands

This chapter explains the commands used to control the NL-42 or NL-52. Information is given about command format, functions, and other relevant points.

Contents

Chapter 1 General Information

Contents

Outline

The Sound Level Meter NL-42 and NL-52 incorporate a serial interface. This interface allows the use of a computer to make measurement parameter settings and to control the measurement. It is also possible to send measurement results (current results as well as data stored in the memory of the sound level meter) to the computer for further processing.
Standard terminal software (Hyper Terminal, etc.) can also be used as communication client.

Communication Cutoff

Sleep mode

When sleep mode is enabled, the unit enters the sleep state after the current block has been sent. In the sleep state, the sound level meter does not send or accept commands.

ECO setting

When ECO setting is selected, it will be enabled after a transmission of current command is completed. After that, the sound level meter does not send or accept commands (ECO setting disables the communication control function).

Power off

During power off processing, communication is terminated after the current command was sent.

Auto shutdown

Same as power off.

Rated Values

Guaranteed values

Case	Rated Values	Remarks
Sound level meter response time	Max. 3 s	Result code 0004 (state error) response if due to processing reasons
Send character interval	Max. 100 ms	–
Interval until sound level meter enters idling state after sending data	Max. 200 ms	After receiving data from the sound level meter, wait at least 200 ms before sending the next command (For DOD, at least 1 s)

Rated values

Case	Rated Values	If exceeded
Block generation wait time after receiving <*STX*>	No limit	–
Receive character interval timeout	No limit	–

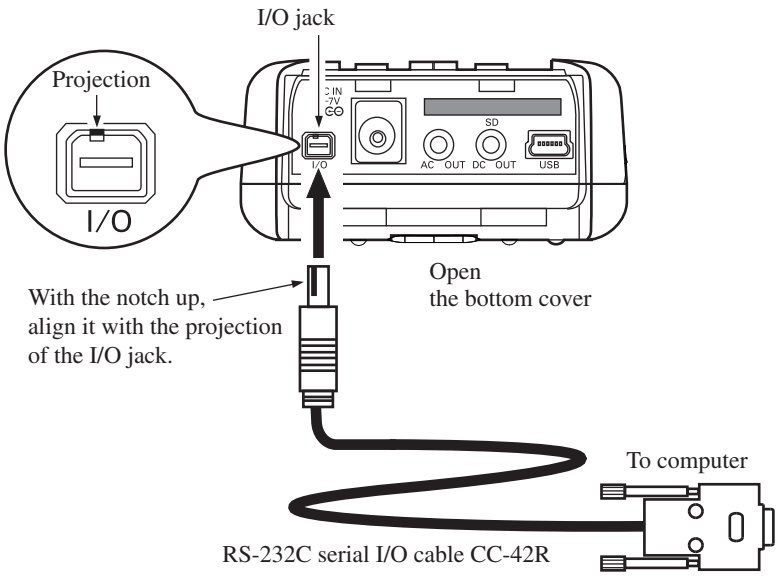
Chapter 2 RS-232C

Contents

Connection to a Computer

Connect The I/O jack on the bottom of the NL-42/NL-52 with a RS-232C connector of a computer, using the optional RS-232C interface cable CC-42R as shown below. The performance of other cables will not be guaranteed. Note that the performance of multiple units connection with RS-232C will not be guaranteed.

Important
Do not connect the cable connector to the I/O jack reversely.



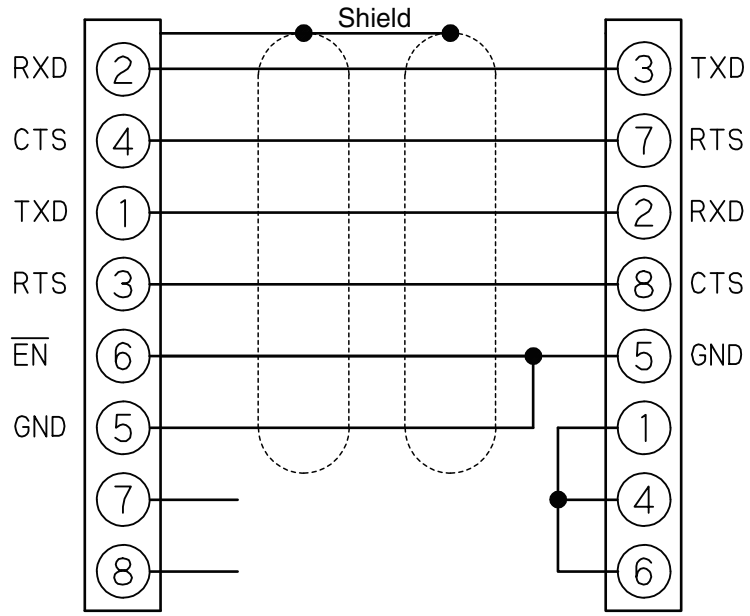
Setting of the sound level meter when using the RS-232C

When using RS-232C, set the communication interface for the sound level meter following the steps below.

1. Press the MENU/ENTER key to bring up the menu list screen.
2. Use the △/▽/◁/▷ keys to select [I/O] and press the MENU/ENTER key. The I/O screen appears.
3. Use the △/▽ keys to select [Communication Interface] and press the MENU/ENTER key. The communication control function screen appears.

4. Use the △/▽ keys to select [RS-232C] and press the MENU/ENTER key.
5. Select the [Baud rate] on the I/O screen and press the MENU/ENTER key. The baud rate screen appears.
6. Use the △/▽ keys to select baud rate (9600bps, 19200bps, 38400bps, 57600bps, 115200bps) and press the MENU/ENTER key.
7. Press the START/STOP key to return to the measurement screen.

The CC-42R serial cable uses a 9-pin connector (female).
The cable is optional.



Transfer Protocol

Transfer principle:	full duplex
Sync principle:	asynchronous
Baud rate:	9600 / 19200 / 33400 / 57600 / 115200 bps
Data word length:	8 bit
Stop bits:	1 bit
Parity check:	none
Flow control:	X parameter or RTS / CTS (selectable)

Chapter 3 USB

Contents

USB

The NL-42/NL-52 can use a USB connection for operation control and transfer of data. To use the USB interface, a USB driver must be installed on the computer.

Please download USB driver from our homepage (http://www.rion.co.jp/english/).

Installation and operation procedures are explained in this manual.

Note that the performance of multiple units connection with USB will not be guaranteed.

Operating Environment

Supported Operating Systems

- Microsoft Windows 2000
- Microsoft Windows XP Professional (32 bit)
- Microsoft Windows 7 Professional (32 bit)

Installing the USB Driver

By connecting the NL-42/NL-52 to a computer with a USB cable, the NL-42/NL-52 can be controlled remotely from the computer, and measurement data can be sent to the computer in real time. To enable use of these functions, you must first download driver software from the RION Corporation web site and install this driver on the computer to be used with the NL-42/NL-52. The driver will create a virtual COM port on the computer.

Installation procedure

When connecting the NL-42/NL-52 and the computer for the first time, install the USB driver as follows.

1. Download the latest USB driver from the RION Co., LTD. web site (http://www.rion.co.jp/english/).
2. Turn power to the NL-42/NL-52 on, select [I/O] and set [Communication Interface] to “USB”.

Important
The above steps must be completed BEFORE connecting the USB cable.

3. Connect the NL-42/NL-52 to the computer with a USB cable.

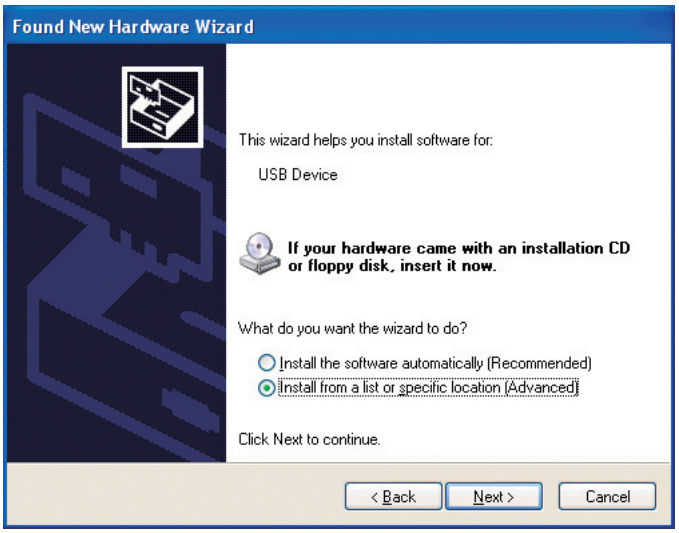
Important
Connect the NL-42/NL-52 directly with the USB cable to the computer. If the NL-42/NL-52 is connected via a USB hub, normal operation is not assured.

4. When the computer detects the NL-42/NL-52, the “Found New Hardware Wizard” appears.

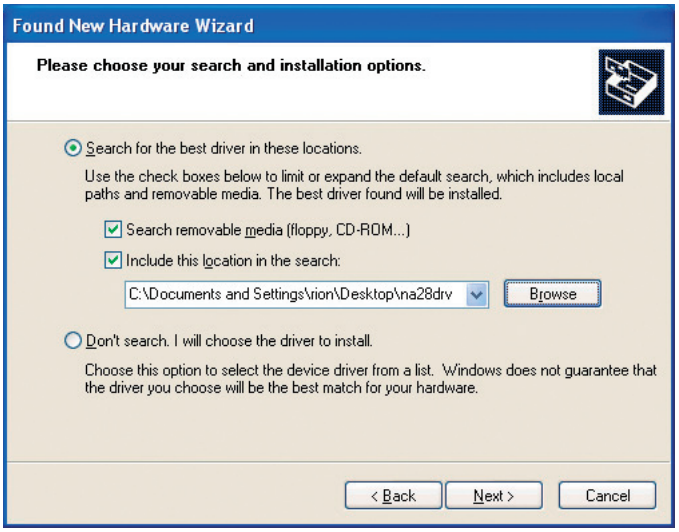
Note
The “Found New Hardware Wizard” appears only the first time you connect the NL-42/NL-52 to the computer. It will not appear during subsequent use.
The screen is the one of WindowsXP. When OS is different, the screen is also different.

5. Select “No, not this time”, and click on “Next>”.

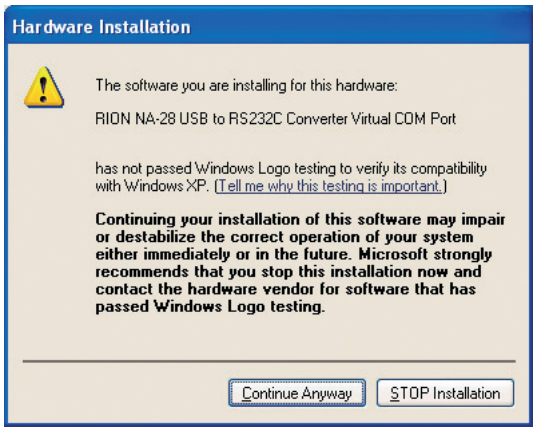
6. Select “Install from a list or specific location (Advanced)”, and click on “Next>”.



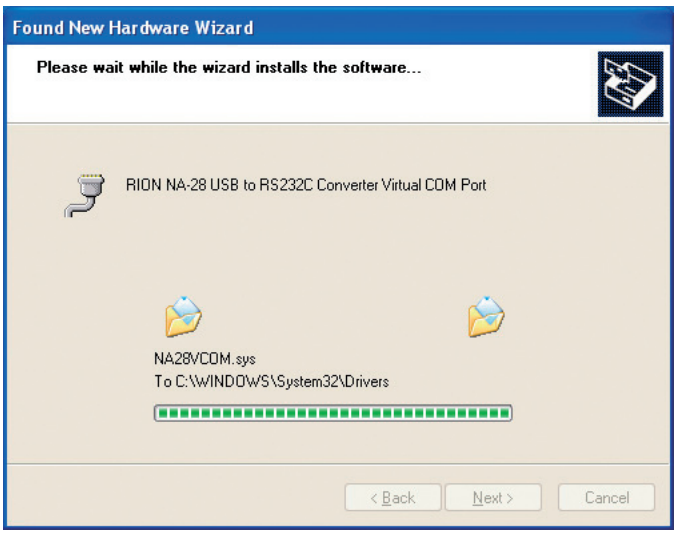
7. Select “Search for the best driver in these locations”, and click on “Browse”. Then specify the folder to which you have downloaded the driver in step 1.



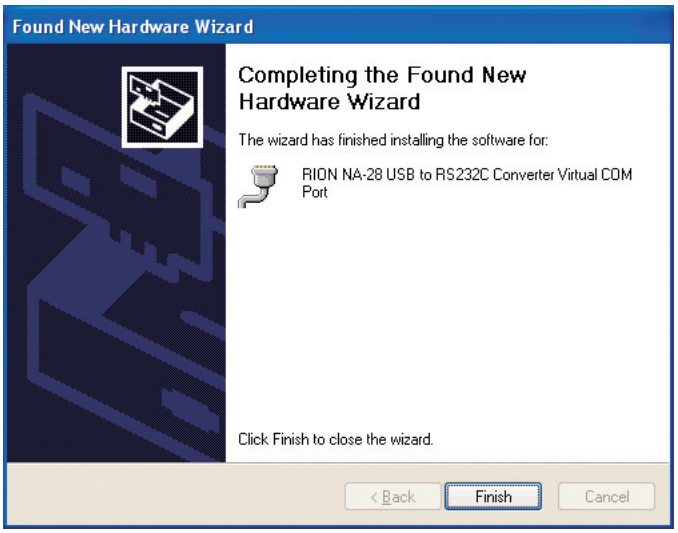
8. The “Hardware Installation” dialog box warning appears. Click on “Continue Anyway”.



9. A screen like the one below will be shown until the driver installation is complete.



10. Click on “Finish”.

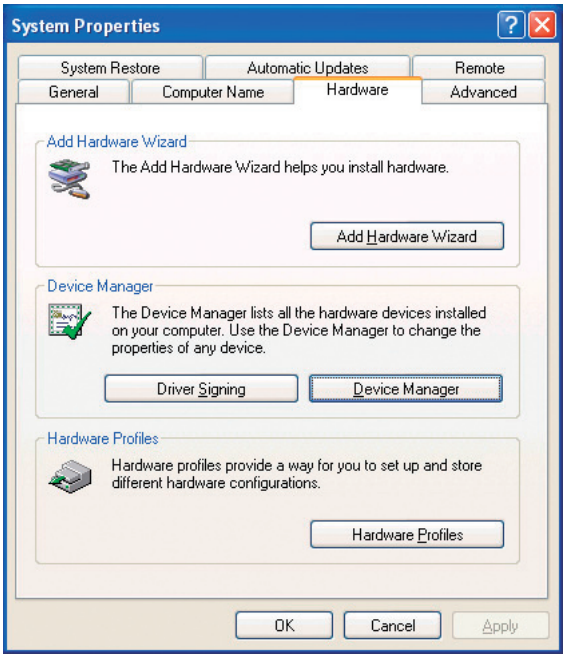


When step 10 has been completed, USB communication is enabled.

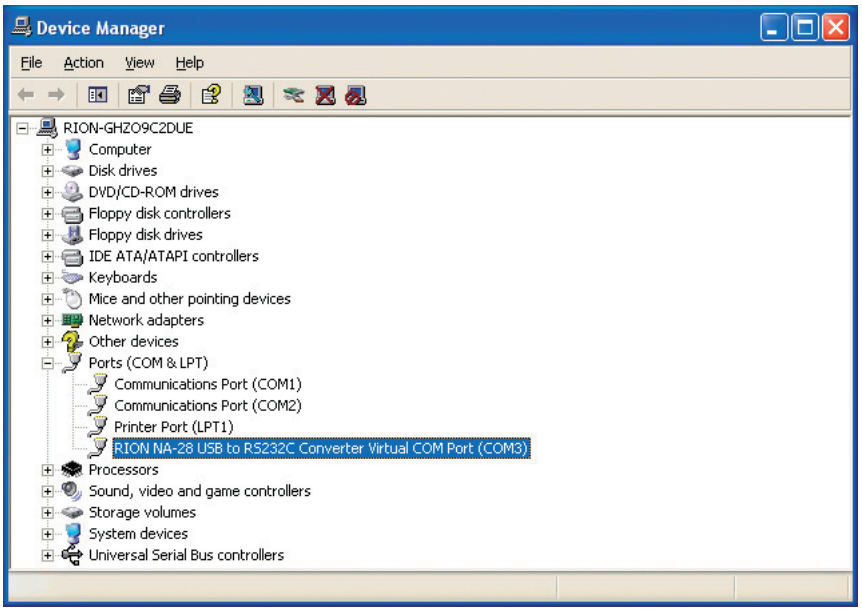
The driver installation creates a virtual COM port in the computer. For information on how to verify that the installation was successful, see the section “Checking the virtual COM port” on next page.

Checking the virtual COM port

1. After installing the driver, set [Communication Interface] to “USB” at the NL-42/NL-52 and connect the USB cable.
2. Open the Device Manager (“Hardware” tab under “Properties” in My Computer).



3. Click on the + at the left of “Ports (COM & LPT)”.

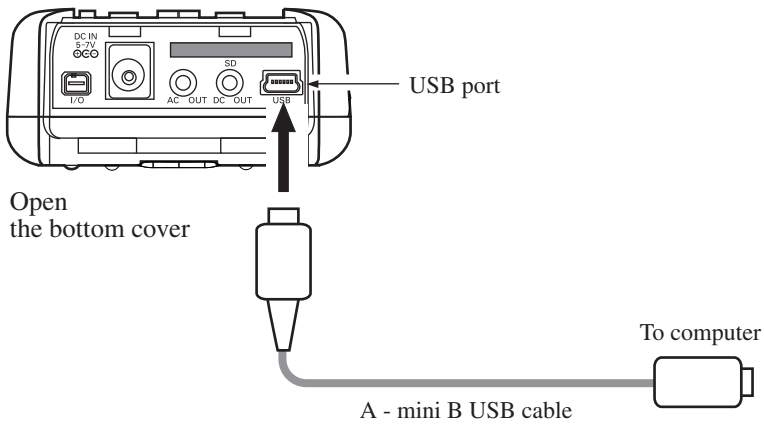


The indication “RION USB to RS232C Converter Virtual COM Port” should be shown as COM port name. If this is not shown, check the connection between the NL-42/NL-52 and the computer (step 1). If there is an “×” over the icon, the port is not functioning normally. Install the driver again.

Connection to a Computer

Connect The USB port on the bottom of the NL-42/NL-52 with a USB port of a computer, using the optional A - mini B USB cable as shown below. The performance of other cables will not be guaranteed.

Important
Be sure to connect the cable only after selecting the [USB] setting.



Setting of the sound level meter when using the USB

When using USB, set the communication interface for the sound level meter following the steps below.

1. Press the MENU/ENTER key to bring up the menu list screen.
2. Use the △/▽/◁/▷ keys to select [I/O] and press the MENU/ENTER key. The I/O screen appears.
3. Use the △/▽ keys to select [Communication Interface] and press the MENU/ENTER key. The communication control function screen appears.
4. Use the △/▽ keys to select [USB] and press the MENU/ENTER key.
5. Press the START/STOP key to return to the measurement screen.

Disconnection from the Computer

NL-42/NL-52 will be recognized as “removable media”. Consequently, the correct procedure as described below must be followed when disconnecting the unit.

1. Click on the “Safely remove hardware” icon in the right section of the taskbar, and select “Safely remove USB Mass Storage Device - Drive (*1)”.

*1: The drive letter (E in the example shown) will differ, depending on the computer configuration.

2. When the message shown below appears, disconnect the USB cable.

The NL-42/NL-52 is now properly disconnected.

Chapter 4 Commands

Contents

Command

Command types

There are two types of commands: setting commands and request commands.

Setting command

This type of command serves for changing the sound level meter status or measurement parameters. Only some commands of this type will produce a response from the sound level meter. The response consists of status information returned after the setting command has been processed.

Request command

This type of command serves for getting information about unit settings and for obtaining measurement data including display data and stored data. The sound level meter returns the requested data.

Command format

Setting command

Command = “command name” + “,” + “parameter” + [CR] + [LF]

The basic components of a setting command are the command name and the parameter. A comma is used as delimiter between the command name and parameter, and the setting command is terminated by a [CR]+[LF] (carriage return + line feed). The setting command uses the CSV format.

Prohibited items

- Spaces in a command name may not be omitted.
- Spaces in a command name may not be doubled.
- The “,” (comma) after the command name may not be omitted.
- Japanese full-width characters are not allowed.

Permitted items

- Lower case may be used instead of upper case.
- Upper case may be used instead of lower case.
- Spaces may be inserted immediately before and after the parameter.

Setting command examples

LCD_Auto_Off,Short[CR][LF] ↑	Valid	Space after "," may be omitted.
lcd_auto_off,_short_[CR][LF] ↑ ↑ ↑ ↑	Valid	Command name in all lower case is permitted.
LCD_Auto_Off,__Short___[CR][LF] ↑ ↑	Valid	Two or more spaces immediately before or after parameter are permitted.
LCDAuto__Off,_Short[CR][LF] ↑ ↑	Invalid	Spaces in command name may not be omitted.
LCD_Auto_Off_Short[CR][LF] ↑	Invalid	Comma after command name may not be omitted.

"_" stands for a space.

Request command

Command = "command name" + "?" + [CR] + [LF]

The request command is a structure to put up the "?" behind the command name. The request command is terminated by a [CR]+[LF] (carriage return + line feed). The setting command uses the CSV format.

Prohibited items

- Spaces in a command name may not be omitted.
- Spaces in a command name may not be doubled.

Permitted items

- Lower case may be used instead of upper case.
- Upper case may be used instead of lower case.

Echo back

When the echo back function is set to ON, a string of a transmitted command is sent back from a destination to let operators know that the command has been entered properly.
The Echo command is used to turn ON/OFF the echo back function and check the current setting.

Result code

This is a response data that indicates execution results of commands. The structure of a result code is shown below.

Result code = “R-” + “four-digit number”

The four-digit number following the prefix character “R-” indicates the situations described below.

Numbers	Contents
0000	**Normal end** This is a response to the situation where the command (setting or request) is executed normally.
0001	**Command error** This is a response to the situation where the specified command cannot be recognized.
0002	**Parameter error** This is a response to the situation where the number of parameters and the parameter type allowed for the specified command are not met.
0003	**Designation error** This is a response to the situation where a setting is made with a command which can only handle requests, or a request is made with a command which can only handle settings.
0004	**Status error** This is a response to the situation where the command (setting or request) cannot be executed in a current situation.

Command list

S: Setting command (command for making a NL-42/NL-52 setting)

R: Request command (command for obtaining status information or measurement data from NL-42/NL-52)

Communication

System

Display

Display Leq	Display L_{eq} (S/R) .....
Display LE	Display L_E (S/R) .....
Display Lmax	Display L_{max} (S/R) .....
Display Lmin	Display L_{min} (S/R) .....
Display LN1	Display L_{N1} (S/R) .....
Display LN2	Display L_{N2} (S/R) .....
Display LN3	Display L_{N3} (S/R) .....
Display LN4	Display L_{N4} (S/R) .....
Display LN5	Display L_{N5} (S/R) .....
Parcentile 1	Parcentile of L_{N1} (S/R) .....
Parcentile 2	Parcentile of L_{N2} (S/R) .....
Parcentile 3	Parcentile of L_{N3} (S/R) .....
Parcentile 4	Parcentile of L_{N4} (S/R) .....
Parcentile 5	Parcentile of L_{N5} (S/R) .....
Display Time Level	Display time-level (S/R).....
Time Level Time Scale	Time scale of time-level display (S/R) .....
Ly Type	Additional processing type (S/R).....
Output Level Range Upper	Output level range upper (S/R) .....
Output Level Range Lower	Output level range lower (S/R) .....

I/O

Command	Function	See page
AC OUT	AC out (S/R)	
DC OUT	DC out (S/R)	
Communication Interface	Communication interface (S/R)	
Baud Rate	RS-232C baud rate (S/R).....	
Comparator	Comparator (S/R).....	
Comparator Level	Comparator level (S/R)	
Comparator Channel	Comparator band (S/R).....	

Store

Command	Function	See page
Store Mode	Store mode (S/R).....	

Store Name	Store name (S/R) .....
Measurement Time Preset	Measurement time (S/R) .....
Measurement Time (Num)	Measurement time of user setting (number) (S/R) .....
Measurement Time (Unit)	Measurement time of user setting (unit) (S/R) .....
Measurement Start Time	Measurement (operation) start time (R) .....
Measurement Stop Time	Measurement (operation) stop time (R) .....
Manual Address	Manual store address (S/R) .....
Lp Store Interval	L_p store interval (S/R).....
Leq Calculation Interval Preset	L_{eq} calculation interval (S/R) .....
Leq Calculation Interval (Num)	L_{eq} calculation interval of user setting (number) (S/R).....
Leq Calculation Interval (Unit)	L_{eq} calculation interval of user setting (unit) (S/R) .....
Timer Auto Start Time	Timer auto start time (S/R).....
Timer Auto Stop Time	Timer auto stop time (S/R) .....
Timer Auto Interval	Timer auto mesurement interval (S/R) .....
Sleep Mode	Sleep mode (S/R) .....

Measurement

Command	Function	See page
Windscreen Correction	Windscreen correction (S/R)	
Diffuse Sound Field Correction	Diffuse sound field correction (S/R)..	
Delay Time	Delay time (S/R)	
Back Erase	Back erase (S/R)	

Operation

Command	Function	See page
Frequency Weighting	Frequency weighting of main channel (S/R)	
Frequency Weighting (Sub)	Frequency weighting of sub channel (S/R)	
Time Weighting	Time weighting of main channel (S/R)	
Time Weighting (Sub)	Time weighting of sub channel (S/R)	
Measurement Elapsed Time	Measurement elapsed time (R)	
Underrange Lp	Underrange L_p (R)	
Underrange Leq	Underrange L_{eq} (R)	
Overload Lp	Overload L_p (R)	
Overload Leq	Overload L_{eq} (R)	
Overload Output	Overload output (R)	

Data output

Command	Function	See page
DOD	Level value shown on display (R)	
DRD	Continuous output (R)	

Command Description

Communication

Echo

Echo back

Setting ON/OFF of echo back

Setting command	Echo, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Echo?
Response data	d1
Returned value	Same as for setting command

System

System version

System version information

Request system version information

Request command	System␣Version?p1
Parameter	p1= “NL”
	p1= “EX”
	p1= “WR”
Response data	d1= “x.x” (x is 0 to 9)

When the parameter p1 is omitted, the request command means “System␣Version?NL”

There is no setting command

Clock

Current date and time

Setting current date and time

Setting command	Clock, p1/p2/p3␣p4:p5:p6	
Parameter	p1= 2011 to 2099	(year)
	p2= 1 to 12	(month)
	p3= 1 to 31	(date)
	p4= 1 to 23	(time)
	p5= 0 to 59	(minute)
	p6= 0 to 59	(second)
Request command	Clock?	
Response data	d1/d2/d3␣d4:d5:d6	
Returned value	Same as for setting command	

Language

Displayed language

Setting displayed language

Setting command	Language, p1	
Parameter	p1= “Japanese”	
	p1= “English”	
Request command	Language?	
Response data	d1	
Returned value	Same as for setting command	

Cal Mode

Calibration mode

Setting calibration mode

Setting command	Cal␣Mode, p1	
Parameter	p1= “Internal”	
	p1= “Acoustic”	
Request command	Cal␣Mode?	
Response data	d1	
Returned value	Same as for setting command	

Index Number

Index number

Setting index number

Setting command	Index␣Number, p1
Parameter	p1= 1 to 255
Request command	Index␣Number?
Response data	d1
Returned value	Same as for setting command

Key Lock

Key lock

Setting ON/OFF of key lock

Setting command	Key␣Lock, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Key␣Lock?
Response data	d1
Returned value	Same as for setting command

Touch Panel Lock

Touch panel lock

Setting ON/OFF of touch panel lock

Setting command	Touch␣Panel␣Lock, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Touch␣Panel␣Lock?
Response data	d1
Returned value	Same as for setting command

Backlight

Backlight

Setting ON/OFF of backlight

Setting command	Backlight, p1	
Parameter	p1= “Off”	
	p1= “On”	
Request command	Backlight?	
Response data	d1	
Returned value	Same as for setting command	

Backlight Auto Off

Backlight auto off

Setting time of backlight auto off

Setting command	Backlight␣Auto␣Off, p1	
Parameter	p1= “Short”	(30 seconds)
	p1= “Long”	(3 minutes)
	p1= “Cont”	(continue)
Request command	Backlight␣Auto␣Off?	
Response data	d1	
Returned value	Same as for setting command	

LCD

LCD

Setting ON/OFF of LCD

Setting command	LCD, p1
Parameter	p1= “Off”
	p1= “On”
Request command	LCD?
Response data	d1
Returned value	Same as for setting command

LCD Auto Off

LCD auto off

Setting time of LCD auto off

Setting command	LCD␣Auto␣Off, p1	
Parameter	p1= “Off”	
	p1= “Long”	(10 minutes)
	p1= “Short”	(1 minute)
Request command	LCD␣Auto␣Off?	
Response data	d1	
Returned value	Same as for setting command	

Backlight Brightness

Backlight brightness

Setting backlight brightness

Setting command	Backlight␣Brightness, p1
Parameter	p1= “0”
	p1= “1”
	p1= “2”
	p1= “3”
Request command	Backlight␣Brightness?
Response data	d1
Returned value	Same as for setting command

Battery Type

Battery tipe

Setting battery type

Setting command	Battery␣Type, p1
Parameter	p1= “Alkaline”
	p1= “Nickel”
Request command	Battery␣Type?
Response data	d1
Returned value	Same as for setting command

SD Card Total Size

SD memory card capacity

Request capacity of SD memory card

Request command	SD␣Card␣Total␣Size?	
Response data	d1= 0 to 32768	(MByte)

There is no setting command

SD Card Free Size

SD memory card free space

Request free space of SD memory card

Request command	SD␣Card␣Free␣Size?	
Response data	d1= 0 to 32768	(MByte)

There is no setting command

SD Card Percentage

SD memory card free space percentage

Request percentage of free space

Request command	SD␣Card␣Percentage?
Response data	d1= 0 to 100

There is no setting command

Display

Display Sub Channel

Display sub channel

Setting ON/OFF of sub channel display

Setting command	Display␣Sub␣Channel, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Sub␣Channel?
Response data	d1
Returned value	Same as for setting command

Display Ly

Display additional processing

Setting ON/OFF of additional processing display

Setting command	Display␣Ly, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Ly?
Response data	d1
Returned value	Same as for setting command

Display Leq

Display L_{eq}

Setting ON/OFF of L_{eq} display

Setting command	Display␣Leq, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Leq?
Response data	d1
Returned value	Same as for setting command

Display LE

Display L_E

Setting ON/OFF of L_E display

Setting command	Display␣LE, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LE?
Response data	d1
Returned value	Same as for setting command

Display Lmax

Display L_{max}

Setting ON/OFF of L_{max} display

Setting command	Display␣Lmax, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Lmax?
Response data	d1
Returned value	Same as for setting command

Display Lmin

Display L_{min}

Setting ON/OFF of L_{min} display

Setting command	Display␣Lmin, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Lmin?
Response data	d1
Returned value	Same as for setting command

Display LN1

Display L_{N1}

Setting ON/OFF of L_{N1} display

Setting command	Display␣LN1, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LN1?
Response data	d1
Returned value	Same as for setting command

Display LN2

Display L_{N2}

Setting ON/OFF of L_{N2} display

Setting command	Display␣LN2, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LN2?
Response data	d1
Returned value	Same as for setting command

Display LN3

Display L_{N3}

Setting ON/OFF of L_{N3} display

Setting command	Display␣LN3, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LN3?
Response data	d1
Returned value	Same as for setting command

Display LN4

Display L_{N4}

Setting ON/OFF of L_{N4} display

Setting command	Display␣LN4, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LN4?
Response data	d1
Returned value	Same as for setting command

Display LN5

Display L_{N5}

Setting ON/OFF of L_{N5} display

Setting command	Display␣LN5, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣LN5?
Response data	d1
Returned value	Same as for setting command

Percentile 1

Percentile of L_{N1}

Setting percentile of L_{N1}

Setting command	Percentile␣1, p1
Parameter	p1= 1 to 999

* The percentile can be set 1% steps.
  If you want to set the percentile to 10%, input 100.
* The input of 0.1% order is ignored.

Request command	Percentile␣1?
Response data	d1
Returned value	Same as for setting command

Percentile 2

Percentile of L_{N2}

Setting percentile of L_{N2}

Setting command	Percentile␣2, p1
Parameter	p1= 1 to 999

* The percentile can be set 1% steps.
  If you want to set the percentile to 10%, input 100.
* The input of 0.1% order is ignored.

Request command	Percentile␣2?
Response data	d1
Returned value	Same as for setting command

Percentile 3

Percentile of L_{N3}

Setting percentile of L_{N3}

Setting command　Percentile␣3, p1

Parameter　p1= 1 to 999

* The percentile can be set 1% steps.
  If you want to set the percentile to 10%, input 100.
* The input of 0.1% order is ignored.

Request command　Percentile␣3?

Response data　d1

Returned value　Same as for setting command

Percentile 4

Percentile of L_{N4}

Setting percentile of L_{N4}

Setting command　Percentile␣4, p1

Parameter　p1= 1 to 999

* The percentile can be set 1% steps.
  If you want to set the percentile to 10%, input 100.
* The input of 0.1% order is ignored.

Request command　Percentile␣4?

Response data　d1

Returned value　Same as for setting command

Percentile 5

Percentile of L_{N5}

Setting percentile of L_{N5}

Setting command　Percentile␣5, p1

Parameter　p1= 1 to 999

* The percentile can be set 0.1% steps.
  If you want to set the percentile to 10.5%, input 105.

Request command　Percentile␣5?

Response data　d1

Returned value　Same as for setting command

Display Time Level

Display time level

Setting ON/OFF of time-level display

Setting command	Display␣Time␣Level, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Display␣Time␣Level?
Response data	d1
Returned value	Same as for setting command

Time Level Time Scale

Time scale of time-level display

Setting time scale of time-level display

Setting command	Time␣Level␣Time␣Scale, p1
Parameter	p1= “20s”
	p1= “1m”
	p1= “2m”
Request command	Time␣Level␣Time␣Scale?
Response data	d1
Returned value	Same as for setting command

Ly Type

Additional processing type

Setting additional processing type

Setting command	Ly␣Type, p1
Parameter	p1= “Off”
	p1= “Leq”
	p1= “Lpeak”
	p1= “Ltm5”
Request command	Ly␣Type?
Response data	d1
Returned value	Same as for setting command

Output Level Range Upper

Output level range upper

Setting output level range upper

The value cannot be set below the value of “Output Level Range Lower”

Setting command	Output␣Level␣Range␣Upper, p1
Parameter	p1= 70 to 130 (10 dB steps)
Request command	Output␣Level␣Range␣Upper?
Response data	d1
Returned value	Same as for setting command

Output Level Range Lower

Output level range lower

Setting output level range lower

The value cannot be set more than the value of “Output Level Range Upper”

Setting command	Output␣Level␣Range␣Lower, p1
Parameter	p1= 20 to 80(10 dB steps)
Request command	Output␣Level␣Range␣Lower?
Response data	d1
Returned value	Same as for setting command

I/O

AC OUT

AC out

Setting AC output channel

Setting command	AC␣OUT, p1	
Parameter	p1= “Off”	
	p1= “Main”	(Inter lock)
	p1= “A”	
	p1= “C”	
	p1= “Z”	
Request command	AC␣OUT?	
Response data	d1	
Returned value	Same as for setting command	

DC OUT

DC out

Setting ON/OFF of DC output

Setting command	DC␣OUT, p1	
Parameter	p1= “Off”	
	p1= “Main”	(ON)
Request command	DC␣OUT?	
Response data	d1	
Returned value	Same as for setting command	

Communication Interface

Communication interface

Setting communication interface

Setting command	Communication␣Interface, p1
Parameter	p1= “Off”
	p1= “USB”
	p1= “RS232C”
Request command	Communication␣Interface?
Response data	d1
Returned value	Same as for setting command

Baud Rate

RS-232C baud rate

Setting RS-232C baud rate

Setting command	Baud␣Rate, p1
Parameter	p1= “9600”
	p1= “19200”
	p1= “38400”
	p1= “57600”
	p1= “115200”
Request command	Baud␣Rate?
Response data	d1
Returned value	Same as for setting command

Comparator

Comparator

Setting ON/OFF of comparator

Setting command	Comparator, p1
Parameter	p1= “Off”
	p1= “On”
Request command	Comparator?
Response data	d1
Returned value	Same as for setting command

Comparator Level

Comparator level

Setting comparator level

Setting command	Comparator␣Level, p1
Parameter	p1= 25 to 130 (1 steps)
Request command	Comparator␣Level?
Response data	d1
Returned value	Same as for setting command

Comparator Channel

Comparator band

Setting comparator band

Setting command	Comparator␣Channel, p1
Parameter	p1= “Main”
	p1= “Sub”
Request command	Comparator␣Channel?
Response data	d1
Returned value	Same as for setting command