

HIOKI

Operation Guide

**3910-20, 3911-20, 3912-20
COMMUNICATION BASE**

COMMUNICATION UTILITY

HIOKI E. E. CORPORATION

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This operation guide is to introduce the user to main operations of 3910-20, 3911-20, 3912-20 COMMUNICATION BASE application software COMMUNICATION UTILITY.

For details, refer to 3910-20, 3911-20, 3912-20 instruction manual and HELP in application software.

Hereinafter, when the term "COMMUNICATION BASE" is used, the description is commonly applicable to the 3910-20, 3911-20, and 3912-20.

This operation guide is divided into six sections.

- Software installation
- Setting measurement conditions
- Loading measurement data
- Saving measurement data
- Graph operation
- List of functions

NOTE

The latest version of COMMUNICATION UTILITY is now available at our web site for downloading. Visit our site at: <http://www.hioki.co.jp/>

Notation

- Unless otherwise specified, "Windows" represents Windows 98, Me, 2000, XP, or Vista.
- Dialog box represents a Windows dialog box.
- Menus, commands, dialogs, buttons in a dialog, and other names on the screen and the keys are indicated in brackets.

Mouse Operation

- Click : Press and quickly release the left button of the mouse.
- Right-click : Press and quickly release the right button of the mouse.
- Double click : Quickly click the left button of the mouse twice.
- Drag : While holding down the left button of the mouse, move the mouse and then release the left button to deposit the chosen item in the desired position.
- Activate : Click on a window on the screen to activate that window.
-

Operating environment

- Computer with Pentium 90 MHz CPU or higher
- Microsoft Windows98/Me/2000/XP/Vista (32 bit version)
- At least 32 MB of main memory
- A display with 800 X 600 dot resolution
- At least 256 colors
- At least 4 MB of empty space on the hard disk
- USB1.1 or higher is necessary, COM port

Recommended environment

- Computer with Pentium 200 MHz CPU or higher
- Microsoft Windows2000/XP/Vista (32 bit version)
- At least 32 MB of main memory
- A display with 800 X 600 dot resolution
- At least 65536 colors
- At least 4 MB of empty space on the hard disk
- USB1.1 or higher is necessary, COM port

NOTE

- A USB is not necessary when the PC is used in conjunction with the 3910-20 or 3911-20.
- A COM port is not necessary when the PC is used in conjunction with the 3912-20.

Registered trademarks

- Windows, Visual Basic and Word are registered trademarks of Microsoft Corporation.
 - Pentium is registered trademark of Intel Corporation.
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Software Installation

Packaged application software must be installed in personal computer to use COMMUNICATION BASE and logger series.

How to install

- (1) Before installing, close all running applications on your personal computer.
- (2) Execute "X: \ ENGLISH\SETUP.EXE" from attached CD-R to COMMUNICATION BASE to install. After executing SETUP.EXE, follow instructions on the screen to complete installation.
(X: is CD-ROM drive)
- (3) After installation, go to [**Start**] from the Windows menu to start [**COMMUNICATION UTILITY**].

How to uninstall

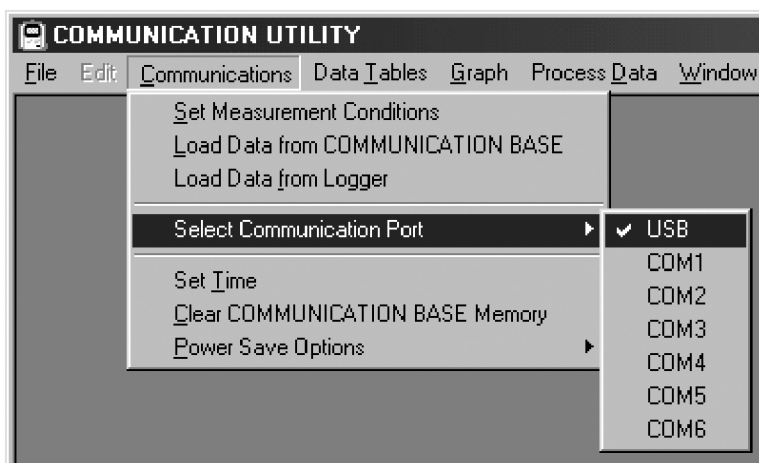
Go to [**Add and delete application software**] from control panel to delete [**COMMUNICATION UTILITY**].

When upgrading version, delete older application software before installation.

Measurement Preparations

Before using the COMMUNICATION BASE, select its connection port. To select a connection port, first move the mouse pointer to [**Communications**] in the toolbar, and then to [**Select Communication Port**].

USB and COM1 through COM6 will be displayed in the submenu. Click on the appropriate port for your COMMUNICATION BASE. When the 3910-20 or 3911-20 is used, select the port number to which the 3910-20 or 3911-20 is connected from among COM1 through COM6. When the 3912-20 is used, select USB.



Setting Measurement Conditions

How to set measurement conditions with COMMUNICATION UTILITY.

Go to Windows [**Start**] menu and start up [**COMMUNICATION UTILITY**].

Select [**Communications**] - [**Set Measurement Conditions**] on the menu bar.

After measurement conditions are set, select [**Send**] to send measurement conditions.

NOTE

- "Settings for COMMUNICATION BASE" allow common settings such as current time, interval, recording method and start control in all series.
Connect COMMUNICATION BASE and logger to set settings. "Settings for each series" are available only when personal computer, COMMUNICATION BASE and logger are connected.
- Do not disconnect the USB cable during communication with the COMMUNICATION BASE.

To set 3631-20 to 3635-2X, 3641 settings

Settings for 3631-20 to 3635-2X, 3641 are available only when personal computer, COMMUNICATION BASE and logger are connected.

Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

Send Cancel

3631-3635,3641 3636 3637 3638 3639 3640 3645 3910 3911,3912

common settings

Recording interval: 2sec

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set. ☐ Quick start ☐ Start time scheduling

Scheduled time: 2003 year 3 month 12 day 15 hour 49 minute

Comments: ☐ Sets comments in LOGGER.

NOTE

Settings for 3631-20 to 3635-2X and 3641 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

To set 3636-20 settings

Settings for 3636-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

3631,3635,3641 | **3636** | 3637 | 3638 | 3639 | 3640 | 3645 | 3910 | 3911,3912

common settings

Recording interval:

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set. ☐ Quick start ☐ Start time scheduling

Scheduled time: 2003 year 3 month 12 day 15 hour 49 minute

Comments:

☐ Sets comments in LOGGER.

3636 settings

Recording mode: ☒ Instantaneous value ☐ Average value

Measurement Channel: ☒ CH1 ☒ CH2

CH1 display range: ☒ 500A ☐ 50A

CH2 display range of: ☒ 500A ☐ 50A

CH1 Alarm value: ☐ Change alarm value ☐ Activate alarm

CH2 Alarm value: ☐ Change alarm value ☐ Activate alarm

Upper limit [A]: Lower limit [A]:

Upper limit [A]: Lower limit [A]:

NOTE

Settings for 3636-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

Also as unique settings, settings for recording mode, measurement channel, range and alarm are available.

Once alarm's upper and lower limit values are set, alarm signal is output when the value exceeds either upper or lower limit.

To set 3637-20 settings

Settings for 3637-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

common settings

Recording interval:

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set ☐ Quick start ☐ Start time scheduling

Scheduled time: year month day hour minute

Comments:

☐ Sets comments in LOGGER.

3637 settings

Recording mode: ☒ Instantaneous value ☐ Average value

NOTE

Settings for 3637-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

Also as unique settings, settings for recording mode are available.

To set 3638-20 settings

Settings for 3638-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

Common settings

Recording interval:

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set ☐ Quick start ☐ Start time scheduling

Scheduled time: year month day hour minute

Comments

☐ Sets comments in LOGGER.

3638 settings

Recording mode: ☒ Maximum value ☐ Average value

Measurement interval: ☐ 0.2sec ☒ 1sec

Measurement Channel: ☒ CH1 ☒ CH2

CH1 range: ☒ 100mA ☐ 1000mA

CH1 range: ☒ 100mA ☐ 1000mA

CH1 Alarm value: ☐ Change alarm value ☐ Activate alarm

CH2 Alarm value: ☐ Change alarm value ☐ Activate alarm

Upper limit [mA]: Lower limit [mA]:

Upper limit [mA]: Lower limit [mA]:

NOTE

Settings for 3638-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

Also as unique settings, settings for recording mode, measurement interval, measurement channel, range and alarm are available.

Only channel 1 can be selected if the measurement interval is set to 0.2 s.

Once alarm's upper and lower limit values are set, alarm signal is output when the value exceeds either upper or lower limit.

To set 3639-20 settings

Settings for 3639-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

common settings

Recording interval:

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set ☐ Quick start ☐ Start time scheduling

Scheduled time: year month day hour minute

Comments

☐ Sets comments in LOGGER.

3639 settings

Filter: ☒ Voltage input ☐ Mechanical terminal input (Relay, Switch)

Alarm value: ☐ Change alarm value ☐ Activate alarm

Upper limit:

NOTE

Settings for 3639-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

Also as unique settings, settings for filter and alarm are available.

To set 3640-20 settings

Settings for 3640-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

Send Cancel

3631 3635,3641 3636 3637 3638 3639 3640 3645 3910 3911,3912

common settings

Recording interval: 2sec

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set ☐ Quick start ☐ Start time scheduling

Scheduled time: 2003 year 3 month 12 day 15 hour 49 minute

Comments

☐ Sets comments in LOGGER.

3640 settings

Range: ☒ 2000 lx ☐ 20000 lx ☐ 200000 lx

NOTE

Settings for 3640-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control. Also as unique settings, settings for range are available.

To set 3645-20 settings

Settings for 3645-20 are available only when personal computer, COMMUNICATION BASE and logger are connected. Send is disabled when logger is recording, waiting for recording or at sleep.

Setting measurement conditions.
Select a model to set measurement conditions in and execute sending.

Send Cancel

3631 3635 3641 3636 3637 3638 3639 3640 3645 3910 3911 3912

common settings

Recording interval: 2sec

Recording method: ☒ One time ☐ Endless

Start control: ☒ Do not set ☐ Quick start ☐ Start time scheduling

Scheduled time: 2003 year 3 month 12 day 15 hour 49 minute

Comments

☐ Sets comments in LOGGER.

3645 settings

Preheat time: OFF

Range: ☒ 50mV ☐ 500mV ☐ 5V ☐ 50V

NOTE

Settings for 3645-20 allow comment setting in addition to common settings such as current time, interval, recording method and start control.

Also as unique settings, settings for the preheating time, range are available.

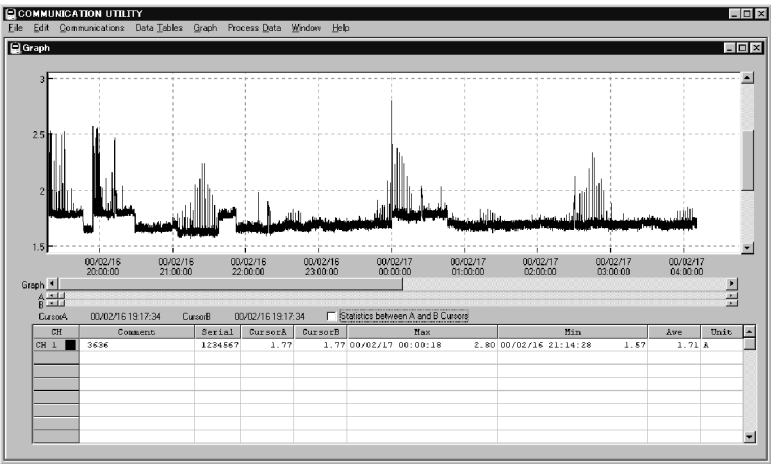
Set the preheating time to be less than the recording interval. If it is set greater than the recording interval, an error will occur when [Send] is selected.

Loading Measurement Data

Go to [Communications] and select [Load Data from COMMUNICATION BASE] or [Load Data from Logger]. After selecting the destination for saving data, select [Start loading]. Choose [Load Data from Logger] when personal computer, COMMUNICATION BASE and logger are connected. Loading is disabled when logger is recording, waiting for recording or at sleep.

After loading measurement data is complete, measurement data is displayed.

When data is saved, go to [File] - [Open] to select and open the data file to be opened.



NOTE

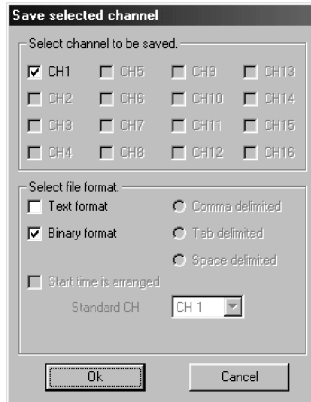
When error occurs in 3911-20, press SEND button or RECEIVE button on 3911-20 to reset. To recover from an error, press one of the buttons on the COMMUNICATION BASE.

Logger returns to normal status. Open interval setting display again ("INTVL" displayed) and restart communication.

Saving Measurement Data

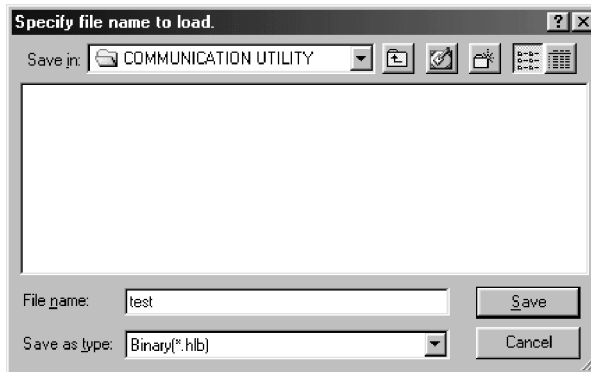
- (1) Select [**File**] - [**Save**].

Save Selected Channels window appears.



- (2) Select channels to be saved and saving file format.

Select [**OK**] to proceed with selecting file names and destination for saving.



- (3) Select [**Save**] to execute saving.

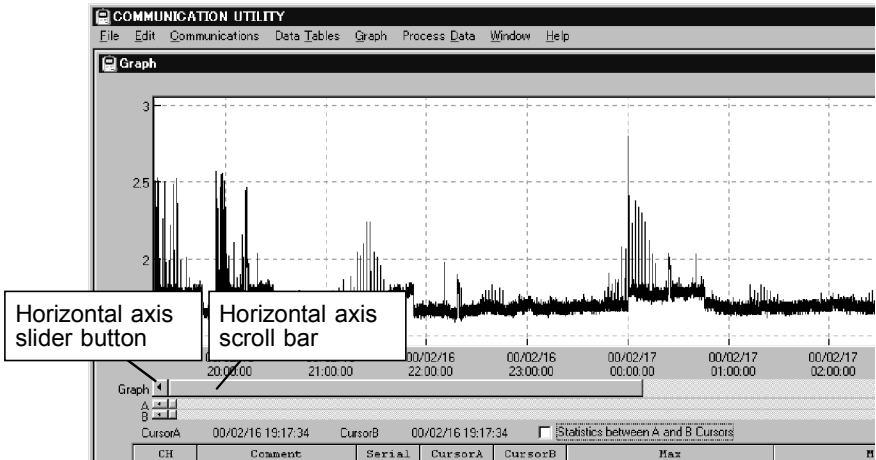
NOTE

Data saved in text format(.csv) cannot be opened with COMMUNICATION UTILITY.

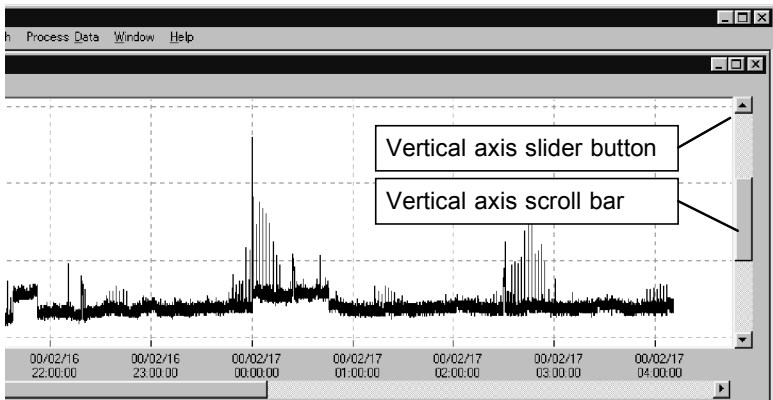
Graph Operation

Scrolling measurement data

Click horizontal axis slider button or drag horizontal scroll bar to move time axis.



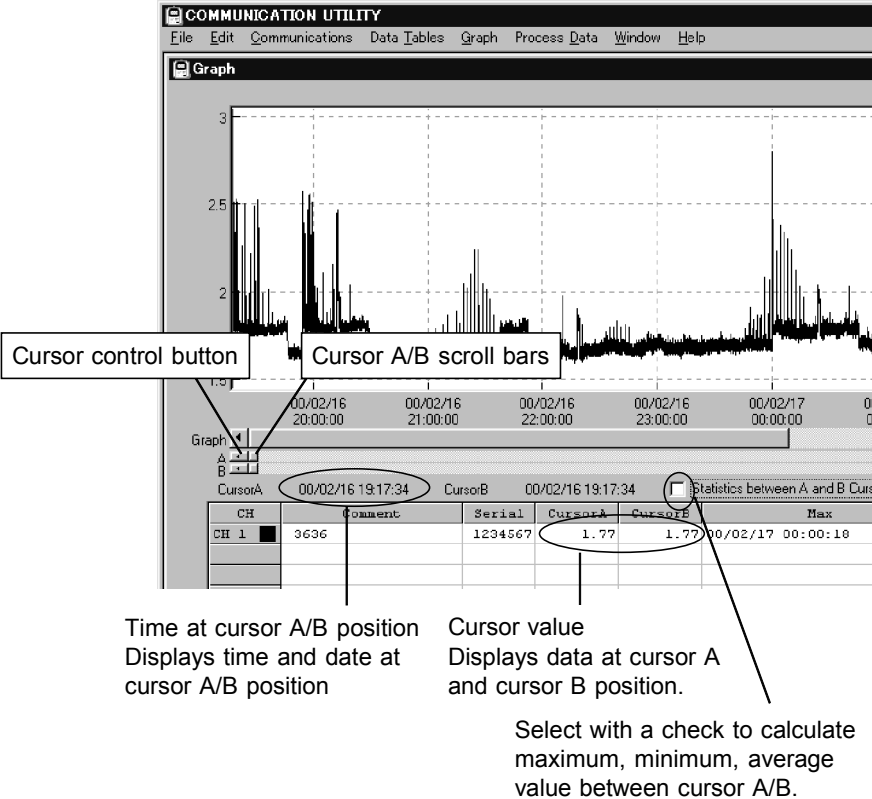
Click vertical axis slider button or drag vertical axis scroll bar to move vertical axis.



Measuring with A/B cursors

Click cursor control button to move cursor A and cursor B sideways.

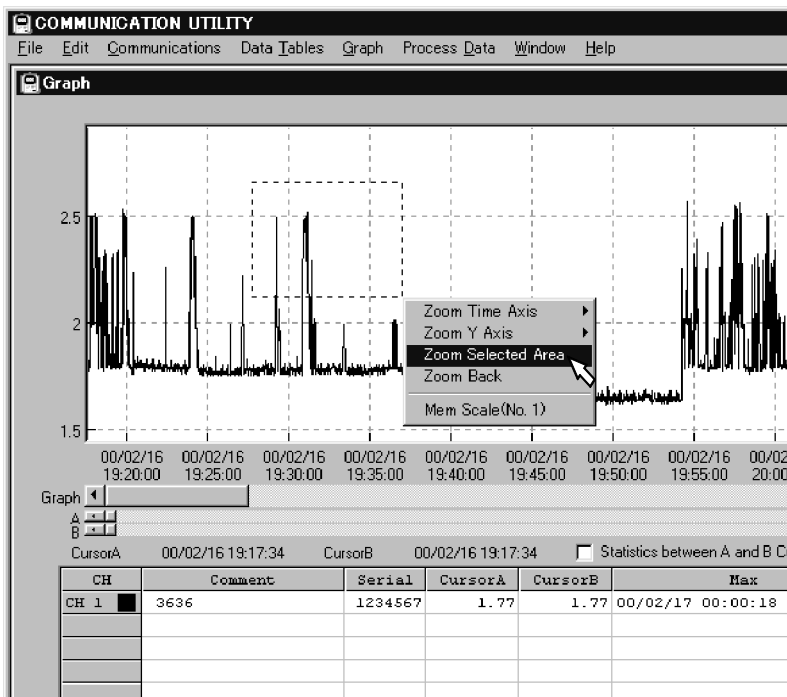
Drag cursor A/B scroll bars to move cursors.



Magnifying with mouse selection

Use mouse button left to drag and select the area to be magnified with box cursor.

Click mouse button right to select [**Zoom Selected Area**].



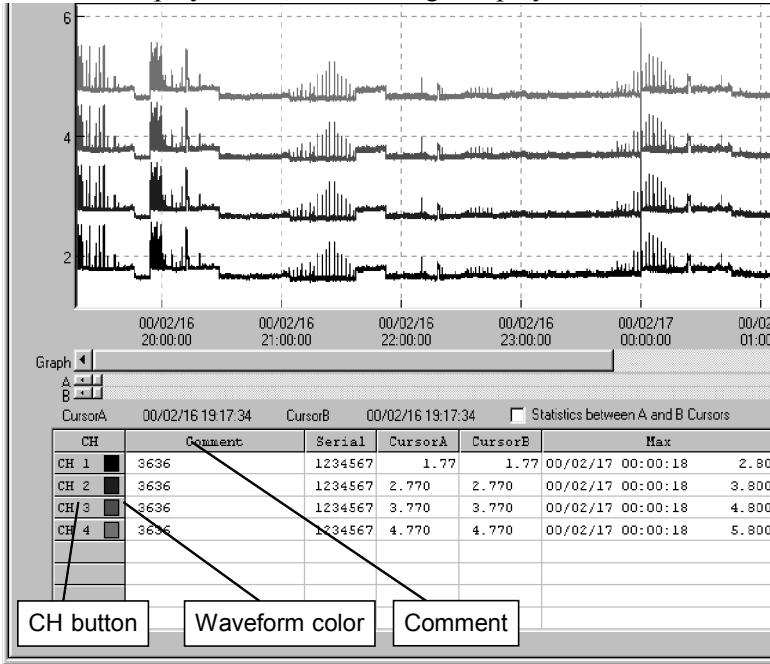
When graph is magnified and scale is modified, click Store scale to store the scale. Up to five recent scales can be stored.

NOTE

Settings for graph magnification, display position and grid are available by selecting [**Graph**] on the menu bar.

Operating displayed data

Displays maximum, minimum, average value in all data etc.
Click CH button to set waveform display ON/OFF. Click waveform display color box to change display color.



Double click either value or unit cell to display average value of selected CH data in center of graph.
Double click comment cell to change comment.

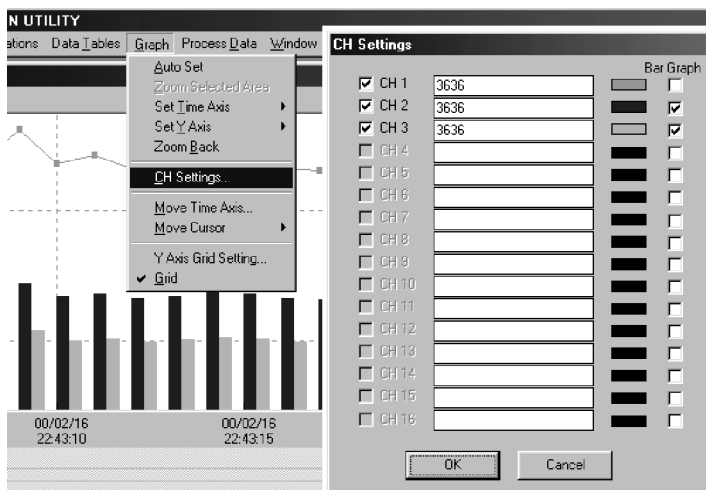
NOTE

Displays single graph with up to 16 channels of data recorded regardless of recorder type, time and date of recording, interval or unit.

Graph type settings

The graph type (line graph, bar graph) can be set individually for each channel.

To alter the settings, first select [**CH Settings**] from [**Graph**] on the menu bar. In the CH Settings window, select the [**Bar Graph**] checkbox for the channel to be displayed as a bar graph. Press the [**OK**] button to complete the settings.

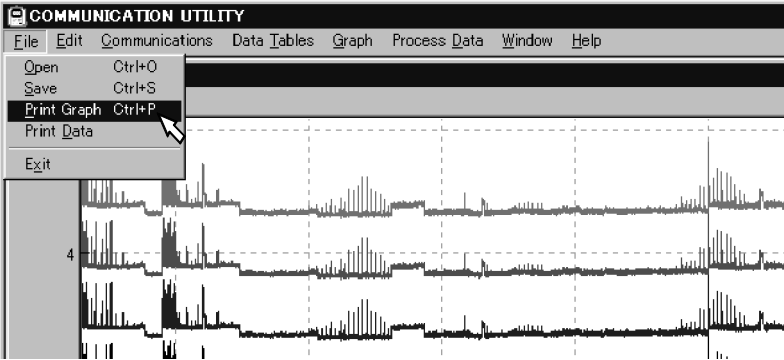


NOTE

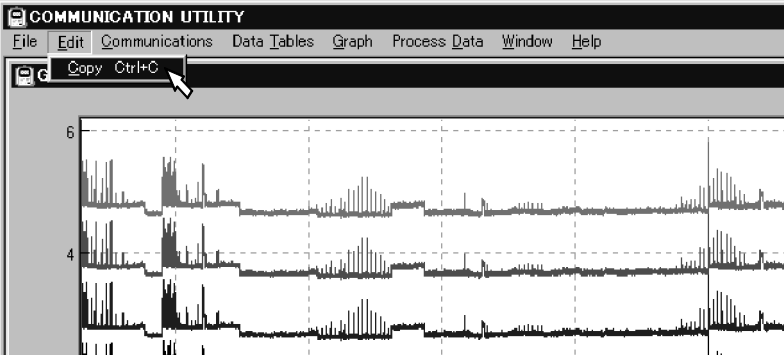
In addition to settings for specific graph types, channel on/off, comments, and data display color can be set from the CH Settings window.

Printing data/ Copying graph

Go to [**File**] and select [**Print Graph**] or [**Print Data**] to print data.



Go to [**Edit**] on the menu bar and select [**Copy**] to print graph. Graph's display area is copied onto clipboard in BMP format. Copied graph can be pasted to a document in other applications.



NOTE

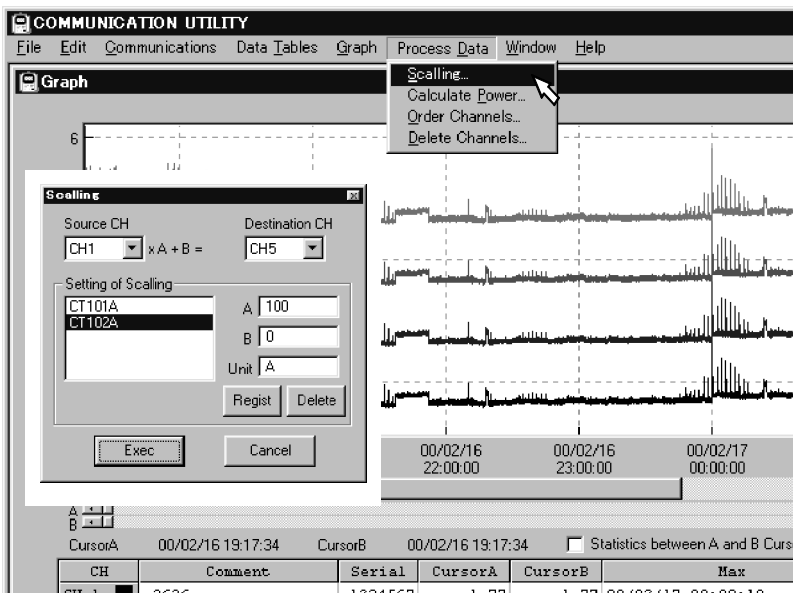
The clipboard is part of computer memory that temporarily stores copied data.

"Other applications" are applications that can load BMP data such as Word, etc.

Processing data

Loaded data can be processed for ordering, deleting and scaling channels.

Scaling formula can be registered. Register frequently used scaling formula.



NOTE

Scaling is a function to multiple loaded data by designated coefficient or to set offset value.

For example, voltage value measurement data with PT ratio at 100 : 1 can be directly read by multiplying by 100.

Scaling enables units to be set and is useful when converting voltage value into a specified unit.

List of Functions

COMMUNICATION UTILITY functions

Display functions	Displays single graph with up to 16 channels of data recorded regardless of recorder type, time and date of recording, interval or unit.	
	Graph display	Displays recording data change and cursor A and B. Line and bar graph displays can be set individually for each channel.
	Data information list	Displays channels, comments, cursor A/B value, maximum average, minimum average, average value and unit.
	Data tables	Displays channels, comments, serial numbers, data number, measurement date, time, recording data and unit.
Connection functions	Setting measurement conditions	Sets interval, recording method, start control and comment entry.
	Loading recording data	Loads recording time and date, recording data, interval, channel name, comments and unit.
Editing functions	Copying graph	Copies graph display area into clipboard.
	Data processing	Enables scaling, power calculation, cost calculation for power consumption, utilization calculation, cumulative calculation, ordering and deleting channels.
Print functions	Capable to print to A3, A4 and B4 paper. Prints graphs and enables list printing with list print options of all data and data between cursor A/B.	
File functions	Saves data, reads loaded data and generates text file can be exported to spread sheet application software.	

Troubleshooting

Installation-Related Problems

- Q. The device driver can't be installed because "Execution Error 6" occurs.
- A. This problem with the Visual Basic setup program occurs if the Region setting is not "Japanese." Change your PC's Region setting to "Japanese" and reinstall. Set the region using Region in the Control Panel (when using Windows 98).
- Q. The device driver can't be installed because the following messages appear:

Example 1) "MFC42.DLL file not installed. File Error."

Example 2) "Error occurred during copying of the
C:\WINDOWS\SYSTEM\MFC42.DLL file"

Example 3) "The setup destination file is being used by other
applications. Exit the applications in use."

A. Since "COMMUNICATION UTILITY" was created using Microsoft Visual Basic 5.0, the Windows "DLL files" must be copied at the time of installation. This is due to the fact that the "DLL files" that was attempted to be copied already exists in your PC and is in use by other applications running at the time of installation, or by Windows itself. Therefore, the Visual Basic installation program displays error messages to protect the operation of existing applications. Before installing, exit all applications. In particular, note that some anti-virus applications rigorously check for DLL files copying. Note that when an error message appears even if you exit all applications, a button such as the Ignore button will be displayed to allow you to skip copying that file. Select that button and continue with the installation. As previously mentioned, even if these messages appear, the DLL files required by applications already exists on your PC. Skipping file copying will not cause problems, or adversely affect previously installed applications.

Q. The message "Setup is trying to overwrite an existing file. This may corrupt data for existing applications. Do you want to stop?" is displayed.

A. This message appears if COMMUNICATION UTILITY is already installed on your PC. For upgrades, uninstall the existing COMMUNICATION UTILITY using Add/Remove Applications in the Control Panel, then install the new version.

Communication-Related Problems

Q. Communication is impossible because the following messages appear.

Example 1) "Cannot open USB"

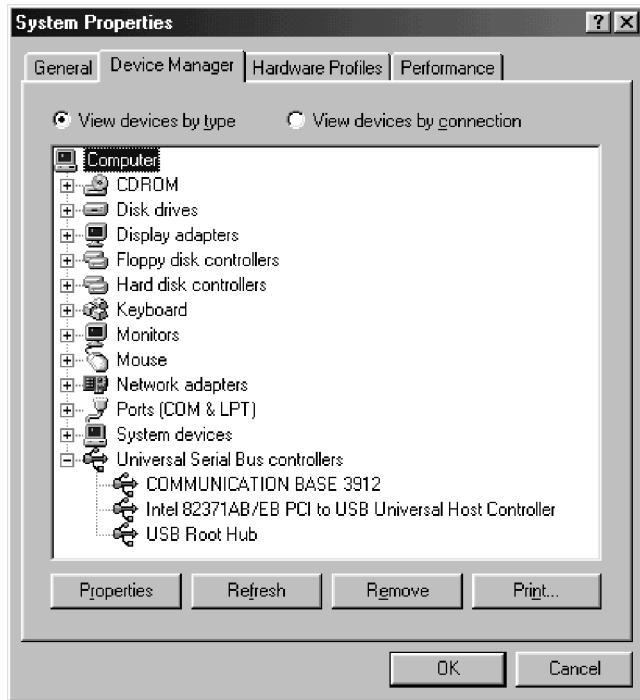
Example 2) "Cannot open COM port"

Example 3) "No response from the Communication Base"

- A. Check whether the port to which the COMMUNICATION BASE is connected matches the communication-port setting (USB or COM1 through COM6) of the COMMUNICATION UTILITY.
- A. In the case of the 3912-20, check whether the USB device driver has been properly installed. Refer to the 3912-20 Instruction Manual for the procedure for installing the device driver.
- A. Check the battery charge condition of the COMMUNICATION BASE. The POWER LED starts flashing when the battery is exhausted. Replace the battery, as communication may become unstable under this condition. (3910-20 and 3911-20 only)
- A. Check whether the USB or RS-232C cable is fully inserted into the PC's or COMMUNICATION BASE's connector.
- A. The RS-232C cable is not connected to the PC's COM port. (3910-20 and 3911-20 only)
Some RS-232C cables can be connected to PC's CRT output connector or printer port, and are therefore prone to erroneous connection. Make sure the connector to which the cable is connected is marked | ○ | ○ | . Keep in mind that the marking varies depending on the PC model. Refer to your PC's Instruction Manual.
- A. Check whether a cross cable is used for connection between the 3910-20 (or 3911-20) and the PC. A "cross" or "reverse" cable must be used for connection of the 3910-20 or 3911-20. The "straight"-type cable that is employed for modem connection cannot be used. (3910-20 and 3911-20 only)

- A. Check whether the COM port is being used by other applications. Exit any application using the COM port, then initiate communications (3910-20 and 3911-20 only).
- A. Check whether the COM port is available. The COM port may be unavailable in any of the following cases (3910-20 and 3911-20 only):
 - If the PC incorporates an infrared port (IrDA) or modem, the COM port is often shared or used exclusively. In such cases, the infrared port or modem takes precedence over the COM port, making the COM port unavailable.
 - If the power-saving feature is active, the COM port may be disabled.
 - If a DOS/V machine is used, the COM port may be disabled in the BIOS settings. In such cases, follow the steps described below to check the COM-port status.
- *: The following steps are designed to disable the infrared port in Windows 98. The steps vary slightly with different versions of Windows.

1. Select [**Settings**] - [**Control Panel**] from the Start menu.
2. When the Control Panel window opens, double-click the [**System**] icon.
3. When the System Properties window opens, select the [**Device Manager**] tab.
4. Double-click the [**Port (COM/LPT)**] icon in tree view. This expands the tree view, displaying the [**Communications Port (COM1)**] icon. If "!" or "?" is displayed over the icon, that communications port is unavailable. Select that icon and click on the [**Properties**] button.



5. A window with the name "Communications-Port (COM1) Properties" opens, with a "Disable in this hardware profile" check box displayed at the bottom of the window. Uncheck this check box.



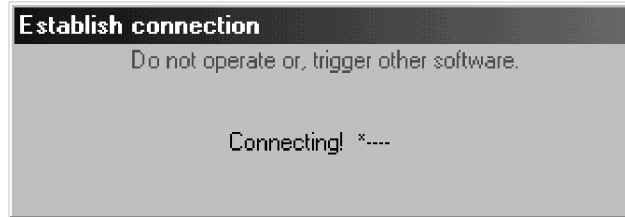
6. Double-click the [**Infrared**] icon in the Device Manager tree view. This expands the tree view, displaying an icon with the name "Infrared Communications Device" or "Laptop or Desktop Built-In Infrared Port." Select that icon and click on the [**Properties**] button.
7. A window with the name "Infrared-Communications-Device Properties" opens, with a "Disable in this hardware profile" check box displayed at the bottom of the window. Check this check box. This setting procedure is also applicable when the

modem is disabled.



8. Click **[OK]**. When the System Properties window is displayed again, click **[OK]** again. A message prompting Windows to be restarted may then be displayed. Exit all other applications, then restart.
 9. If communication is still not possible after all these steps, check the power-saving feature and BIOS settings. Refer to your PC's Instruction Manual for the information on power-saving feature and BIOS settings.
- Q. The message "Switch the logger display to the recording-interval setting screen and place the logger on the COMMUNICATION BASE" is displayed, disabling data loading and measurement-condition setup.
- A. Are the logger and the COMMUNICATION BASE properly positioned? Communications may not be possible if there is a gap between the logger and the COMMUNICATION BASE.
 - A. Check whether the recording-interval setting screen is displayed on the logger. The logger enters sleep mode if no key operations are performed for a certain period of time, making communications impossible. Switch the logger display to the recording-interval setting screen before placing the logger on the COMMUNICATION BASE. The logger will not enter sleep mode as long as the recording-interval setting screen is displayed.
 - A. When measurement conditions are set, the logger model must be selected in the COMMUNICATION UTILITY. Check whether the model selected matches the logger model on top of the COMMUNICATION BASE.

- Q. The 3912-20 communication window freezes, and the cursor will not return to the screen (the hourglass remains displayed on-screen). (See the figure below.). At this time, the "*" that represents the progress of communication also remains displayed.



- A. This problem occurs because the PC's USB driver retains data for an unspecified reason during USB communication. Disconnect the USB cable from the 3912-20; an error message appears. Then, reconnect the cable and resume communication.

HIOKI COMMUNICATION UTILITY

Operation Guide

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