HIOKI

Instruction Manual

9674

RS-232C PACKAGE

HIOKI E. E. CORPORATION

Contents

Introduction

Thank you for purchasing the HIOKI “9674 RS-232C PACKAGE”. To obtain maximum performance from the product, please read this manual first, and keep it handy for future reference.

Registered trademarks

- Windows is a registered trademark of Microsoft Corporation.
- Pentium is a registered trademarks of Intel Corporation.

Inspection

- When you receive the product, inspect it carefully to ensure that no damage occurred during shipping. If damage is evident, or if it fails to operate according to the specifications, contact your dealer or Hioki representative.
- Use the original packing materials when reshipping the product, if possible.

Contents of the 9674 RS-232C PACKAGE

CD-R (9674 RS-232C PACKAGE) - - - - - - - - - - - - - - - - - 1
RS-232C cable - 1
Instruction manual - 1

Safety Notes

DANGER

This product is designed to conform to IEC 61010 Safety Standards, and has been thoroughly tested for safety prior to shipment. However, mishandling during use could result in injury or death, as well as damage to the product. Be certain that you understand the instructions and precautions in the manual before use. We disclaim any responsibility for accidents or injuries not resulting directly from product defects.

This manual contains information and warnings essential for safe operation of the product and for maintaining it in safe operating condition. Before using the product, be sure to carefully read the following safety notes.

Safety Symbols

⚠	In the manual, the ⚠ symbol indicates particularly important information that the user should read

The following symbols in this manual indicate the relative importance of cautions and warnings.

DANGER	Indicates that incorrect operation presents an extreme hazard that could result in serious injury or death to the user.
WARNING	Indicates that incorrect operation presents a significant hazard that could result in serious injury or death to the user.
CAUTION	Indicates that incorrect operation presents a possibility of injury to the user or damage to the product.
NOTE	Advisory items related to performance or correct operation of the product.

Usage Notes

Follow these precautions to ensure safe operation and to obtain the full benefits of the various functions.

- Do not store or use the product where it could be exposed to direct sunlight, high temperature or humidity, or condensation. Under such conditions, the product may be damaged and insulation may deteriorate so that it no longer meets specifications.
- To avoid damage to the product, do not allow the product to get wet, and do not use it when your hands are wet.
- Do not use the product where it may be exposed to corrosive or combustible gases. The product may be damaged.
- Always hold the disc by the edges, so as not to make fingerprints on the label side or scratch the printing.
- Never touch the recorded side of the disc. Do not place the disc directly on anything hard.
- Do not wet the disc with volatile alcohol or water, as there is a possibility of the label printing disappearing.
- To write on the disc label surface, use a spirit-based felt pen. Do not use a ball-point pen or hard-tipped pen, because there is a danger of scratching the surface and corrupting the data. Do not use adhesive labels.
- Do not expose the disc directly to the sun's rays, or keep it in conditions of high temperature or humidity, as there is a danger of warping, with consequent loss of data.
- To remove dirt, dust, or fingerprints from the disc, wipe with a dry cloth, or use a CD cleaner. Always wipe radially from the inside to the outside, and do no wipe with circular movements. Never use abrasives or solvent cleaners.
- In the interests of ongoing product developments, there may be minor discrepancies between screen displays and the operating instructions, and in the data conversion process.
- HIOKI disclaims all responsibility for any computer system-related problems that may occur during use of this CD-R, and for any problems that may occur as a consequence of purchase of this product.

Note on Used for 9674 RS-232C PACKAGE

Before using the software, please read these notes carefully.

- HIOKI E.E. Corporation is the author of 9674 RS-232C PACKAGE.
- Except for the purposes of processing data from the 3446-01/3447-01 or controlling the 3446-01/3447-01, copying, reproduction, or amendment in whole or in part of 9674 RS-232C PACKAGE is prohibited by law.
- For the purposes of product development, 9674 RS-232C PACKAGE is subject to upgrading without notice.
- To publish material referencing 9674 RS-232C PACKAGE, the prior consent of HIOKI is required. The trademark "HIOKI" may not be used.
- HIOKI cannot accept any responsibility whatever for the results of a customer's operation of 9674 RS-232C PACKAGE.

Product Overview 1

The 9674 RS-232C PACKAGE contains PC software and a connection cable that allow you to load data recorded using the HIOKI 3446-01 or 3447-01 TEMPERATURE HiTESTER onto your computer.
By using the supplied software (9674 COMMUNICATION UTILITY), you can display data loaded from the 3446-01 or 3447-01 on your computer so that it can be printed.
Further, you can easily control temperatures by registering an item, ID, and comparator range and then making settings on the 3446-01/3447-01. If you register the name (product name or item) of the measurement object as the item and the name of the worker performing the measurement as the ID, you can control both measurement data and measurement times.
By using COMMUNICATION UTILITY for 3911 (software designed for use with HIOKI's logger series), you can display interval recording data as a graph.

9674 COMMUNICATION UTILITY

This software allows you to communicate with the 3446-01/3447-01 TEMPERATURE HiTESTER.

COMMUNICATION UTILITY for 3911

This software allows you to display 3446-01/3447-01 TEMPERATURE HiTESTER interval recording data as a graph. However, it does not allow communication with the 3446-01/3447-01.
Only version 1.14 or later is compatible with the 3446-01/3447-01.

Installation 2

Operating environment

- Computer with Pentium 90 MHz CPU or higher
- Microsoft Windows95/98/Me/NT4.0/2000/XP
- 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

Recommended environment

- Computer with Pentium 200 MHz CPU or higher
- Microsoft Windows95/98/Me/NT4.0/2000/XP
- 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

(The above information is common to both 9674 COMMUNICATION UTILITY and COMMUNICATION UTILITY for 3911.)

2.1 Software Installation

In order to use the 9674 RS-232C PACKAGE, you must install the “9674 COMMUNICATION UTILITY” software supplied with your computer. Installing “COMMUNICATION UTILITY for 3911” enables you to display interval recording data as a graph.

2.1.1 9674 COMMUNICATION UTILITY

Before installing this software, close all other applications that are open on your computer.

1. Run “X:\9674\ENGLISH\SETUP.EXE” on the CD-R supplied with the 9674 RS-232C PACKAGE.
   (where “X” is the CD-ROM drive)
2. Follow the on-screen instructions to install the software.
3. After installation, select [**9674 COMMUNICATION UTILITY**] in [**Programs**] on the Windows [**Start**] menu to start the application.

How to uninstall

Go to [**Add/Remove Programs**] from [**Control Panel**] to delete [**9674 COMMUNICATION UTILITY**]. When upgrading version, delete older application software before installation.

2.1.2 COMMUNICATION UTILITY for 3911

Before installing this software, close all other applications that are open on your computer.

1. Run “X:\3911\ENGLISH\SETUP.EXE” on the CD-R supplied with the 9674 RS-232C PACKAGE.
   (where “X” is the CD-ROM drive)
2. Follow the on-screen instructions to install the software.
3. After installation, select [**COMMUNICATION UTILITY for 3911**] in [**Programs**] on the Windows [**Start**] menu to start the application.

How to uninstall

Go to [**Add/Remove Programs**] from [**Control Panel**] to delete [**COMMUNICATION UTILITY for 3911**]. When upgrading version, delete older application software before installation.

NOTE Only version 1.14 or later is compatible with the 3446-01/3447-01.

2.1.3 During Installation

Because these were developed with Microsoft Visual Basic5.0, Windows "shared files" are copied during installation possibly displaying the following error messages. Error messages and files with errors may vary depending on your personal computer environment.

Example 1)
"MFC42.DLL cannot be installed. File error."

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

Example 3)
"Destination file for set up is already used by another application. Close application software in use."

Error occurs while recognizing "shared file" to be copied already existing in the system. The "shared file" is in use by another application running or by Windows at time of installation. Visual Basic installation program is designed to display error messages as a process to protect existing application software operations in the system. In order to avoid errors, close all application software before installation. Be sure to close any virus detection software that may prevent copying the "shared file".
When an error message appears even after closing other application software, select button (ignore) from options to skip file copy and continue installation.
The "shared file" to be copied during installation already exists in the system and selecting option to skip file copy does not interfere with installation nor existing application software.

2.2 Connecting the RS-232C Cable

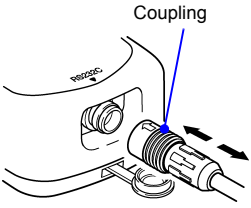
Using the 9674 RS-232C PACKAGE, you can connect the 3446-01/3447-01 TEMPERATURE HiTESTER to a computer for exchange of data.

⚠CAUTION

- To avoid damaging the 3446-01/3447-01, never connect any cable other than the supplied cable to the RS-232C connector.
- When disconnecting the RS-232C cable, be sure to release the lock before pulling off the connector. Forcibly pulling the connector without releasing the lock, or pulling on the cable, can damage the connector.
- To avoid damaging the cable, do not bend or pull the cable.
- Avoid stepping on or pinching the cable, which could damage the cable insulation.
- Keep the cable well away from heat sources, as bare conductors could be exposed if the insulation melts.
- The RS-232C cable is not dust or water resistant. Do not use RS-232C communication in environments that are very dusty or exposed to water. Doing so is likely to result in damage.

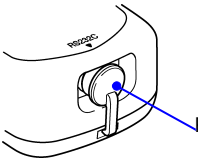
Make sure connectors are always properly inserted. If the connector or protective cap is not properly inserted, dust or other foreign matter may enter the connector and cause damage.
Replace the protective cap when not using the connector.

Connecting the RS-232C cable

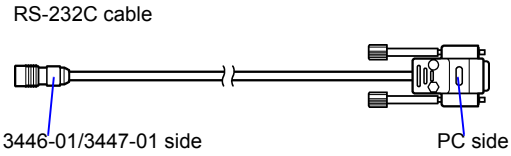


To remove the RS-232C cable, grip the connector coupling and pull it straight out to remove it.

1. To lock the connector, grip the connector and turn the arrow upwards until you hear a click.
2. Hold the connector (not by the coupling) and lightly pull it to confirm that it is properly connected.



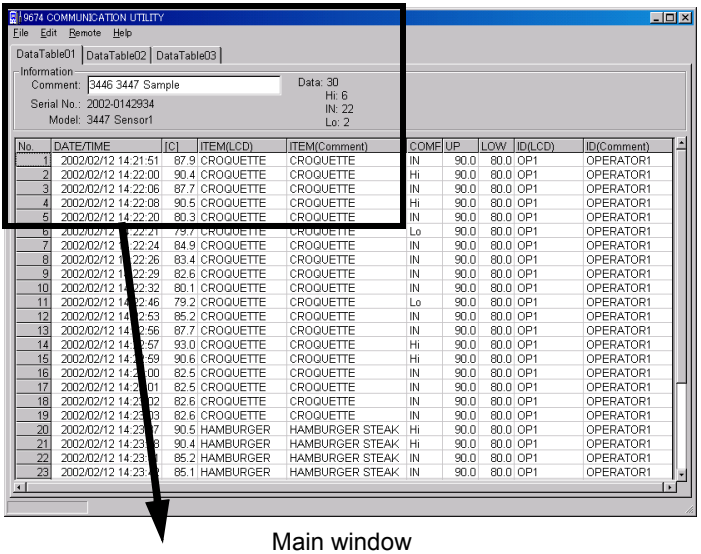
Insert the protective cap into the RS-232C connectors when not connecting a RS-232C cable.



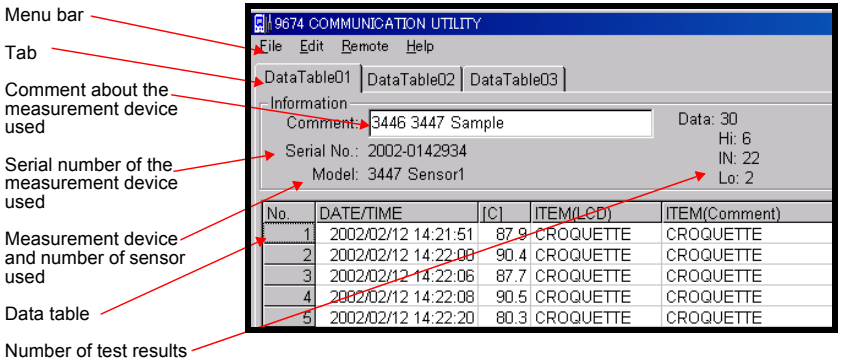
Communications 3

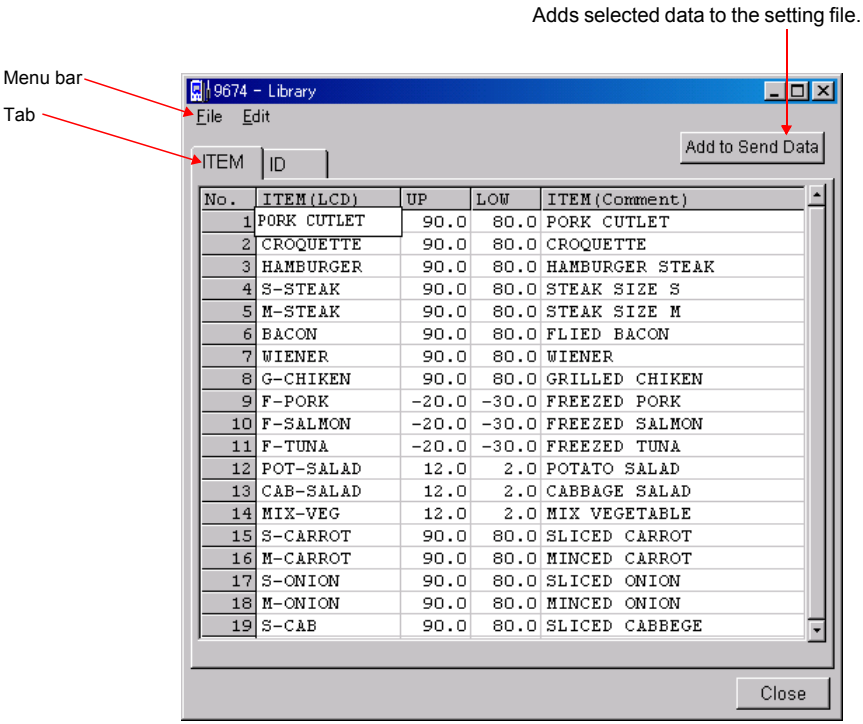
3.1 Window Configuration

The following three windows are available when using 9674 COMMUNICATION UTILITY.

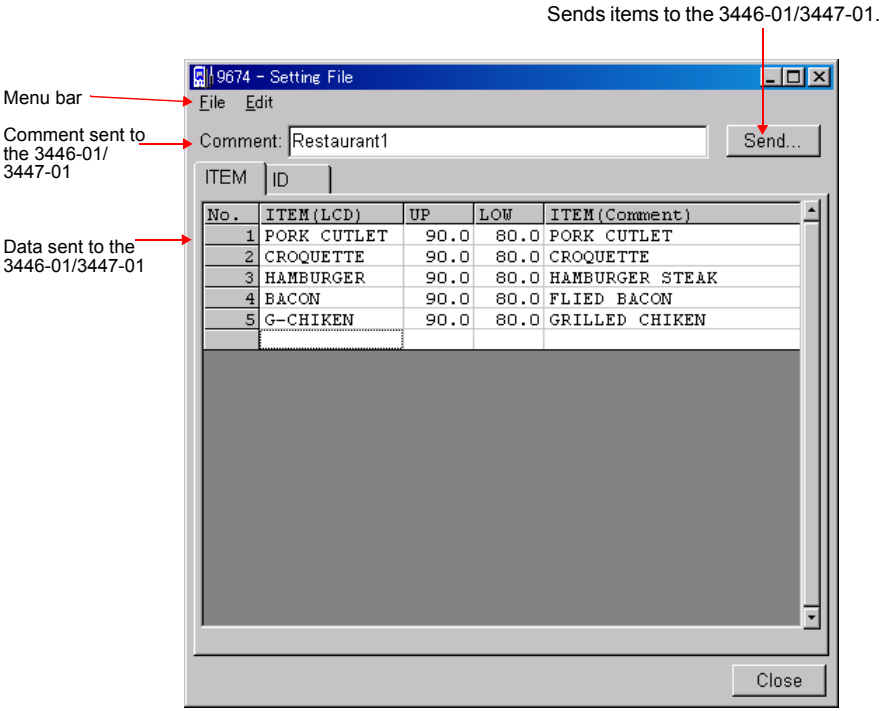


Main window





Library window

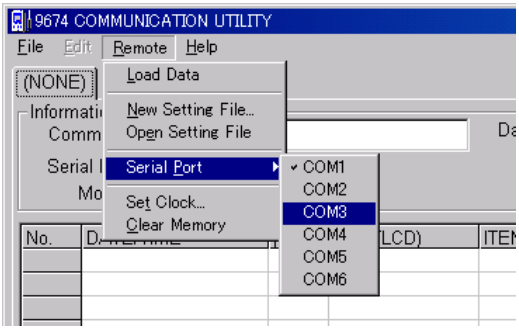


Setting file window

3.2 Communication Settings

The following preparation is required when communicating between the 3446-01/3447-01 TEMPERATURE HiTESTER and the 9674.

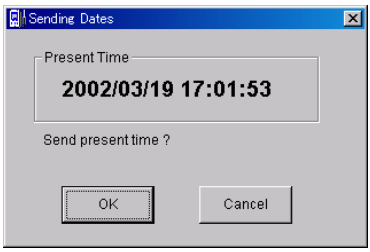
1. Check that the serial communications port on your computer and the 3446-01/3447-01 are connected with the supplied RS-232C cable. (The serial communications port is indicated by the mark "⊡⊡".)
2. Start [**9674 COMMUNICATION UTILITY**] from the Windows [**Start**] menu.
3. Select the communications port on your computer that you want to use from [**Serial Port**] in [**Remote**] on the menu bar.



3.3 Set Clock for the 3446-01/3447-01 TEMPERATURE HiTESTER

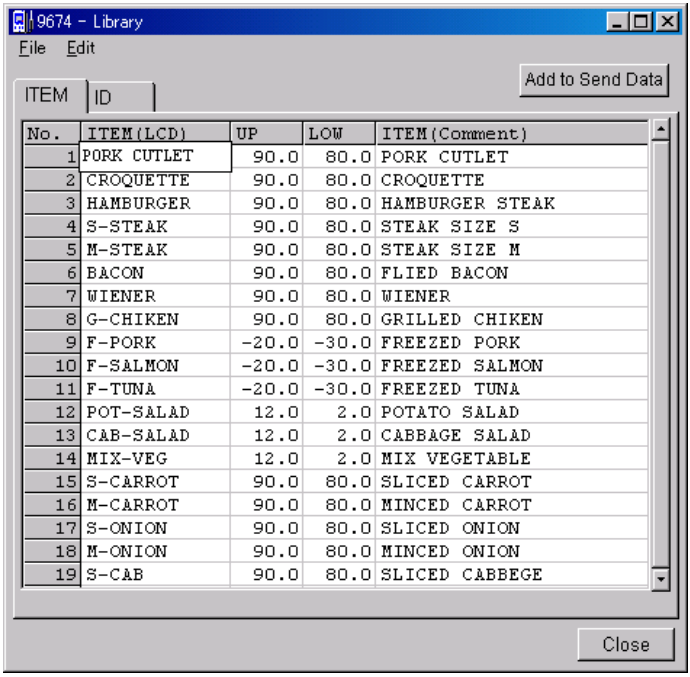
Firstly, you must make communications settings. For information on how to make communication settings, see 3.2 "Communication Settings" (page 16).

1. Select [**Set Clock**] from [**Remote**] on the menu bar of the Main window. The current time (the time set on your computer) is displayed on the clock.
2. Click [**OK**] to send the current time to the 3446-01/3447-01.



3.4 Libraries and Setting Files

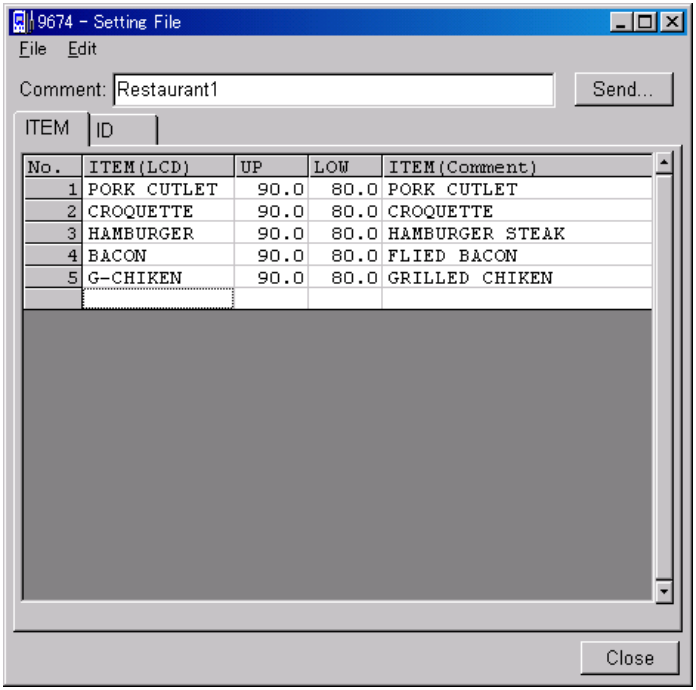
A library and setting file must be created before you can use the item (product name) and ID (worker name) display functions on the 3446-01/3447-01 TEMPERATURE HiTESTER.
A library is the basic file where multiple items and IDs are registered. (The file extension for library files is ".htl".)
A setting file is the file used for communicating with the 3446-01/3447-01, and is created by selecting the required item and ID only from the library. (The file extension for setting files is ".hts".)
The 3446-01/3447-01 can store up to 300 items and 100 IDs in its memory.



No.	ITEM(LCD)	UP	LOW	ITEM(Comment)
1	PORK CUTLET	90.0	80.0	PORK CUTLET
2	CROQUETTE	90.0	80.0	CROQUETTE
3	HAMBURGER	90.0	80.0	HAMBURGER STEAK
4	S-STEAK	90.0	80.0	STEAK SIZE S
5	M-STEAK	90.0	80.0	STEAK SIZE M
6	BACON	90.0	80.0	FLIED BACON
7	WIENER	90.0	80.0	WIENER
8	G-CHIKEN	90.0	80.0	GRILLED CHIKEN
9	F-PORK	-20.0	-30.0	FREEZED PORK
10	F-SALMON	-20.0	-30.0	FREEZED SALMON
11	F-TUNA	-20.0	-30.0	FREEZED TUNA
12	POT-SALAD	12.0	2.0	POTATO SALAD
13	CAB-SALAD	12.0	2.0	CABBAGE SALAD
14	MIX-VEG	12.0	2.0	MIX VEGETABLE
15	S-CARROT	90.0	80.0	SLICED CARROT
16	M-CARROT	90.0	80.0	MINCED CARROT
17	S-ONION	90.0	80.0	SLICED ONION
18	M-ONION	90.0	80.0	MINCED ONION
19	S-CAB	90.0	80.0	SLICED CABBEGE

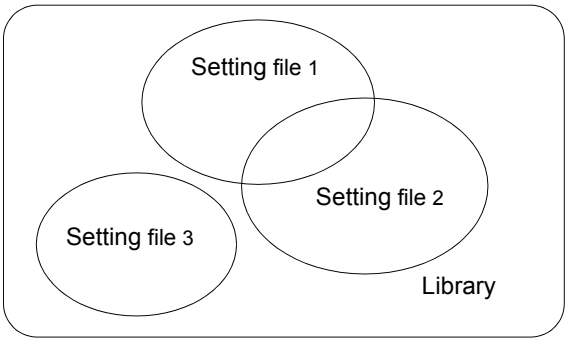
Library

Select the data you want to send to the 3446-01/3447-01 from the library, and create the setting file.



Setting file

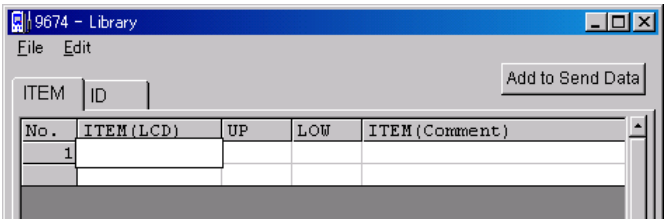
The following illustration provides an outline of the relationship between libraries and setting files.



3.5 Creating a Library

Items and IDs

- On the ITEM tab, enter the name of the object whose temperature you want to measure.
- On the ID tab, enter a code that distinguishes the measurements or the worker in charge of temperature measurement.



Item input screen

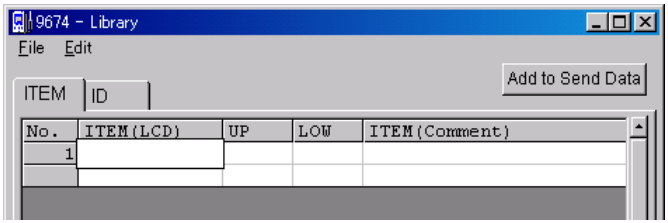
NOTE

- In [**ITEM (LCD)**] or [**ID (LCD)**], enter a character string of 12 characters or less to be sent to the 3446-01/3447-01.
- In [**ITEM (Comment)**] or [**ID (Comment)**], enter a character string of 24 characters or less to be used when viewing measurement data in a table or printing data. This character string is not sent to the 3446-01/3447-01.

(Example)

To measure the temperature of a "**croquette**" as having an upper limit of 90.0°C and a lower limit of 80.0°C:
(The worker in charge of measurement is referred to as "**OPERATOR1**.")

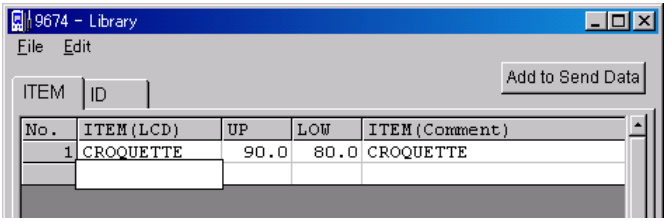
1. Select [**File**], then [**New Library**] from the menu bar in the Main window. The [**Library**] window appears.



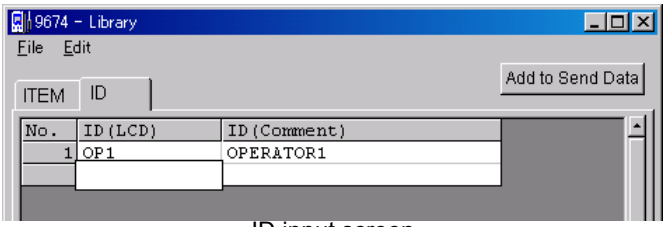
Item input screen

2. Enter "**CROQUETTE**" as the measurement object in [**ITEM (LCD)**] on the item input screen. Click the **Enter** key.
3. In [**UP**], enter "**90.0**". Click the **Enter** key.

4. In [**LOW**], enter "**80.0**". Click the **Enter** key.
5. In [**ITEM (Comment)**], enter "**CROQUETTE**".
6. Click the **Enter** key.

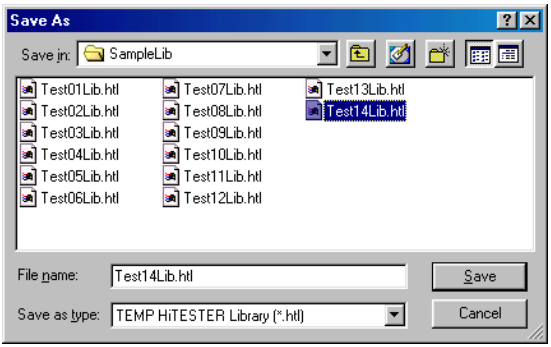


7. Click the [**ID**] tab to display the ID input screen.



ID input screen

8. In [**ID (LCD)**], enter "**OP1**". Click the **Enter** key.
9. In [**ID (Comment)**], enter "**OPERATOR1**".
10. Click the **Enter** key.
11. Select [**File**], then [**Save As**] on the menu bar in the [**Library**] window.



12. Click [**Save**] to save the file.

NOTE

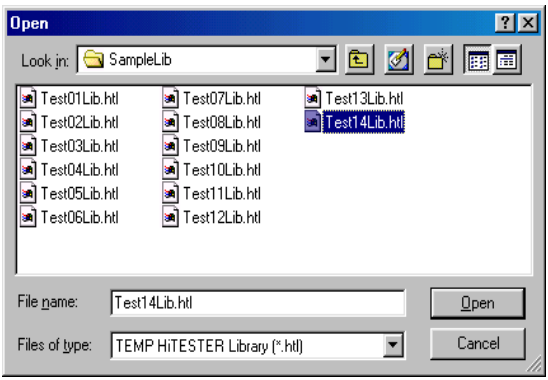
- To display a new line, click the **Enter** key while the [**ITEM (Comment)**] or [**ID (Comment)**] cell is selected.
- The symbols that can be entered are as follows:

  ! # $ % & ' ( ) * + - . : ; < = > ? @ ^ _ { | } [ ] (space)

- Enter the upper and lower temperature limits (°C) for the comparator function in [**UP**] and [**LOW**]. You can enter a numerical value between –100 and 1000. Numbers are valid to one decimal place. However, decimal places are ignored for values between 300 and 1000.
- The maximum number of data items that can be registered in a library is 1500 for items and 500 for IDs.

3.6 Editing a Library

1. Select [**File**], then [**Open Library**] from the menu bar in the Main window.
2. Select the file you want to open, and then click [**Open**]. (The file extension for library files is ".htl".)



3. Edit the opened library file.
   For information on how to edit library files, see 3.5 "Creating a Library" (page 20).

You can use the following functions from [**Edit**] on the menu bar in the [**Library**] window:

Undo	Returns the file to the condition immediately prior to the last line entry, line deletion, cut, or paste.
Insert Line	Inserts a new line.
Delete Line	Deletes a line.
Cut	Removes the selected area and pastes it onto the clipboard.
Copy	Copies the selected area onto the clipboard.
Paste	Pastes the selected area from the clipboard.
Copy all	Copies all of the data.
Find	Finds the character string.
Sort	Sorts the data.

4. When you are finished editing the library file, click [**Close**].
   For information on how to save the library file you edited, see 3.5 "Creating a Library" (page 20).

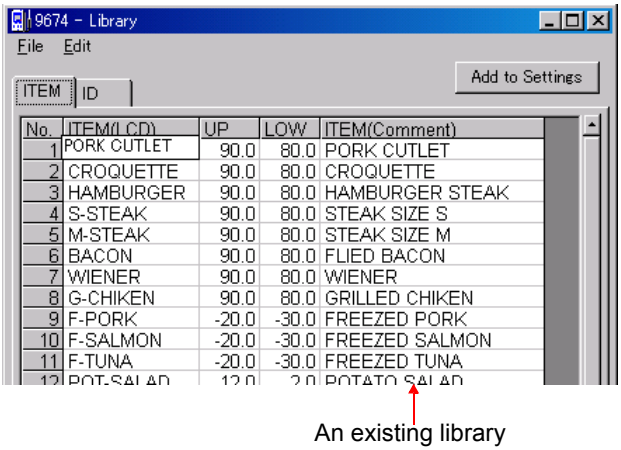
3.7 Creating Setting Files

You can create item and ID data setting files to send to the 3446-01/3447-01 TEMPERATURE HiTESTER.
A library is required in order to create a setting file.
For information on how to create a library, see 3.5 "Creating a Library" (page 20).

(Example)

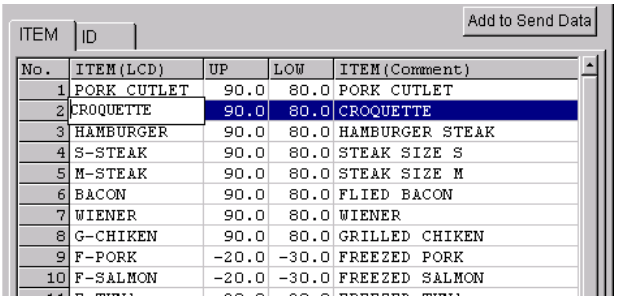
To select the data for "**CROQUETTE**" and "**HAMBURGER**" from the [**Library**] window in order to create a setting file:

1. Select [**File**], then [**Open Library**] from the menu bar in the Main window.
2. Select the library file you want to open, then click [**Open**] to display the [**Library**] window.

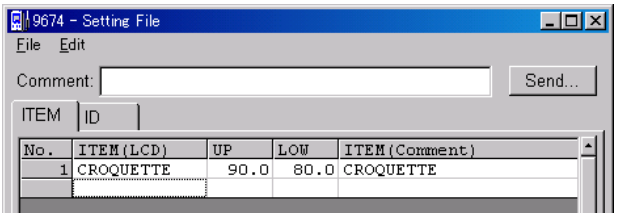


An existing library

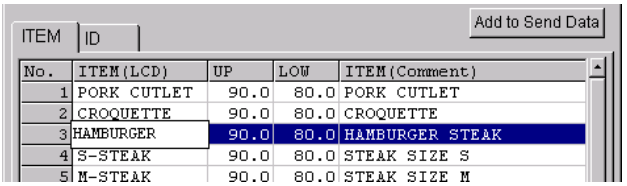
3. Select the second line.



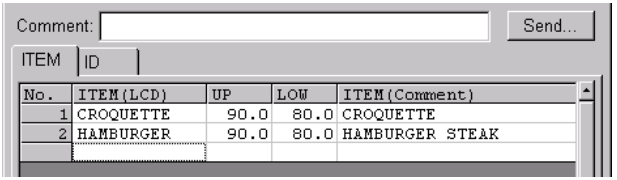
4. Click [**Add to Send Data**].
   The data for "**CROQUETTE**" appears in the [**Setting File**] window.



5. In the [**Library**] window, select the third line.



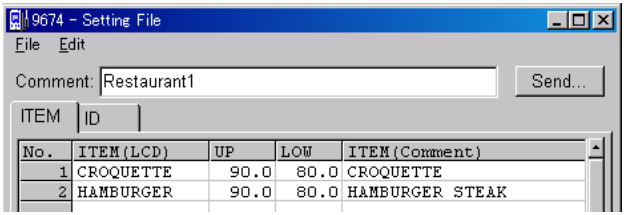
6. Click [**Add to Send Data**].
7. The data for "**HAMBURGER**" is added to the [**Setting File**] window.



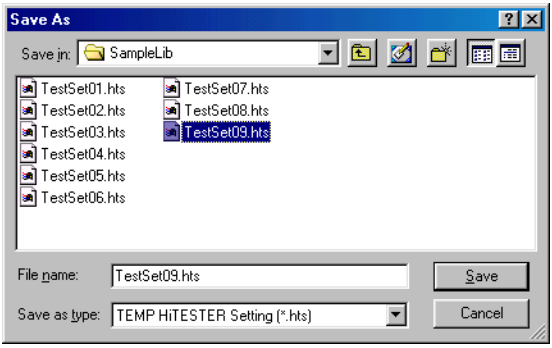
8. In the [**Comment**] entry box, enter the comment you want to send to the 3446-01/3447-01. (You can enter up to 20 characters.)

NOTE

- The comment cannot be displayed on the 3446-01/3447-01. The comment is also loaded when measurement data is loaded onto your computer.
- You can only set one comment for each unit. Enter a description of the unit here.



9. Select [**File**], then [**Save As**] on the menu bar in the [**Setting File**] window.
10. Select the file name and location where you want to save the file.



11. Click [**Save**].

NOTE The maximum number of data items that can be registered in a setting file is 300 for items and 100 for IDs.

3.8 Sending Setting Data

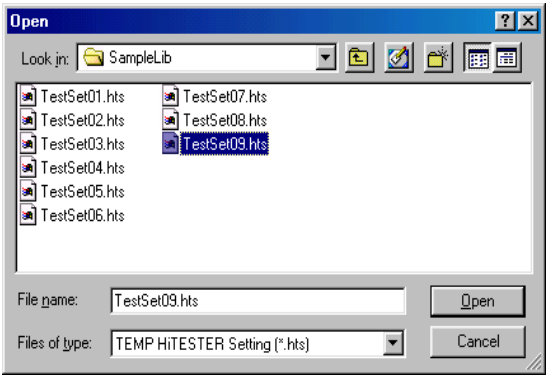
You can send item and ID data to the 3446-01/3447-01 TEMPERATURE HiTESTER from your computer.
A setting file is required in order to send setting data.
Here, a setting file that has already been created is used.
For information on how to create a setting file, see 3.7 "Creating Setting Files" (page 24).

NOTE

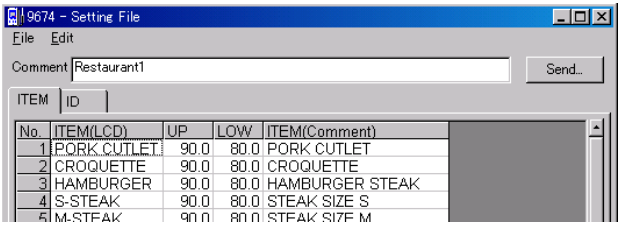
When configuration data is sent, item, ID, and measurement data stored in the 3446-01/3447-01 is deleted. Before sending configuration data, make sure you download any important data onto your computer and save it.

Firstly, you must make communications settings. For information on how to make communication settings, see 3.2 "Communication Settings" (page 16).

1. Select [**File**], then [**Open Setting File**] from the menu bar in the Main window. (The file extension for setting files must be ".hts".) The [**Open**] dialog box appears.



2. Select the setting file that contains the data you want to send, then click [**Open**] to display the [**Setting File**] window.



3. Check that the 3446-01/3447-01 TEMPERATURE HiTESTER is turned on, the unit is in the record standby state (normal state for recording), and that the 3446-01/3447-01 is connected to the serial port specified on your computer using a communications cable.
4. Click [**Send**].
   The setting file [**ITEM (LCD)**] character string, [**UP**], [**LOW**], or [**ID (LCD)**] character string, or comment character string is sent to the 3446-01/3447-01.

NOTE

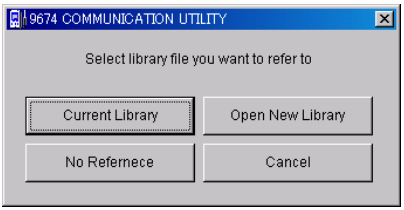
- Setting file [**ITEM (Comment)**] and [**ID (Comment)**] character strings are not sent to the 3446-01/3447-01. Therefore, when receiving data from the 3446-01/3447-01, you must select a library in order to search for [**ITEM (Comment)**] or [**ID (Comment)**] character strings that correspond to [**ITEM (LCD)**] or [**ID (LCD)**].
- When a setting file is sent, item, ID, and measurement data stored in the 3446-01/3447-01 is deleted.

5. Click [**Close**] in the [**Setting File**] window to complete the data transfer.

3.9 Loading Measurement Data

You can load measurement data onto your computer from the 3446-01/3447-01 TEMPERATURE HiTESTER.
Firstly, you must make communications settings. For information on how to make communication settings, see 3.2 "Communication Settings" (page 16).

1. Make sure the 3446-01/3447-01 is turned on.
2. Select [**Remote**], then [**Load Data**] on the menu bar.



3. Select a library in order to check the [**ITEM (Comment)**] and [**ID (Comment)**] character strings that correspond to [**ITEM (LCD)**] and [**ID (LCD)**] received from the 3446-01/3447-01.

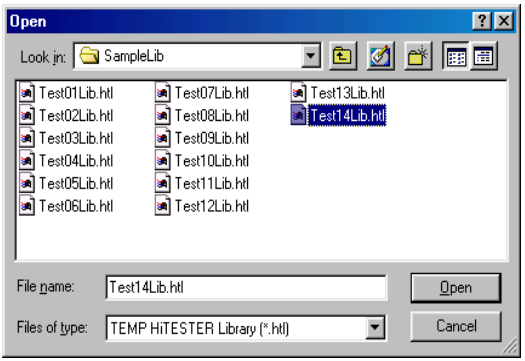
When [Current Library] is selected:

The software checks the [**ITEM (Comment)**] and [**ID (Comment)**] character strings that correspond to [**ITEM (LCD)**] and [**ID (LCD)**] received from the library that is currently open. If no library is currently open, you cannot select this button.

When [Open New Library] is selected:

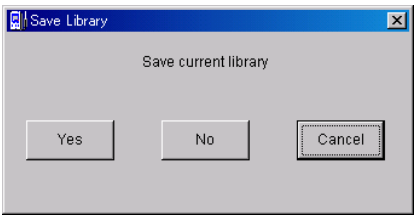
A new library is opened and checked.
When no library is currently open:

1. When the [**Open**] dialog box appears, select the new library you want to open.
2. Click [**Open**] to display the [**Library**] window.

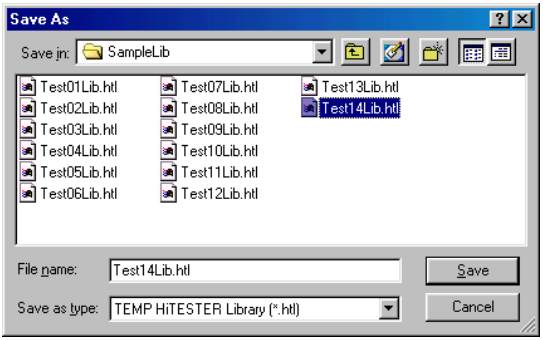


When a library is currently open:

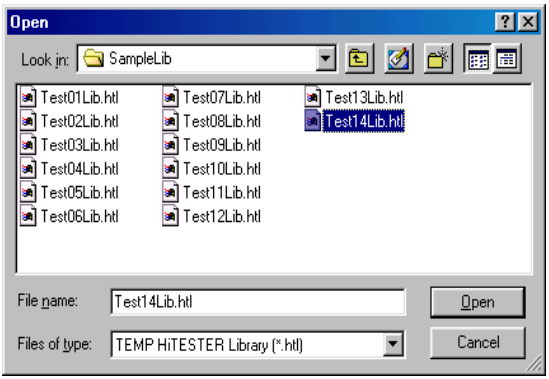
1. If you want to save the changes you made to the library file, click [**Yes**] in the [**Save Library**] dialog box to save the library that is currently open.



2. If you select [**Yes**], the [**Save As**] dialog box appears. Save the currently open library. If you select [**No**], the changes you made to the currently open library are not saved, and the dialog box closes.

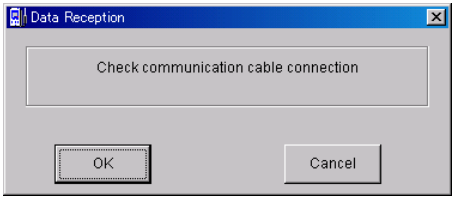


3. When the [**Open**] dialog box appears, select the library you want to open.

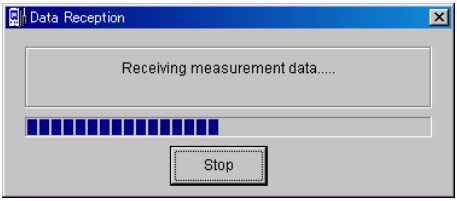


When [No Reference] is selected:

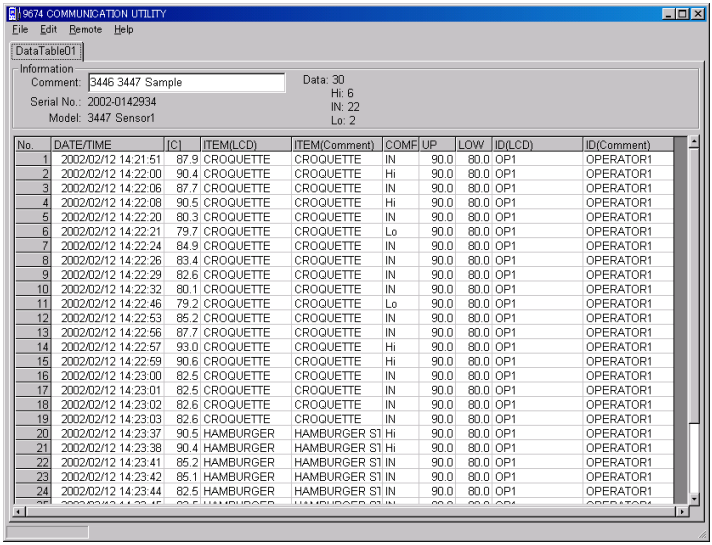
Blocks checking of the library. Therefore, ITEM (Comment) and ID (Comment) of received measurement data are empty.
When the [**Data Reception**] dialog box appears, check the communications cable connection and click [**OK**].



Data reception starts. (Do not start up or use any other applications during data reception.)



When data reception is complete, the loaded measurement data is displayed as a data table.

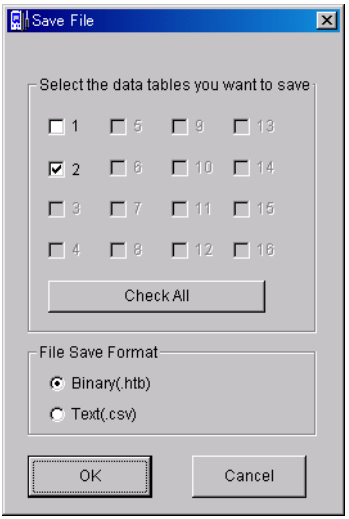


No.	DATE/TIME	[C]	ITEM(LCD)	ITEM(Comment)	COMF	UP	LOW	ID(LCD)	ID(Comment)
1	2002/02/12 14:21:51	87.9	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
2	2002/02/12 14:22:00	90.4	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1	OPERATOR1
3	2002/02/12 14:22:06	87.7	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
4	2002/02/12 14:22:08	90.5	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1	OPERATOR1
5	2002/02/12 14:22:20	80.3	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
6	2002/02/12 14:22:21	79.7	CROQUETTE	CROQUETTE	Lo	90.0	80.0	OP1	OPERATOR1
7	2002/02/12 14:22:24	84.9	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
8	2002/02/12 14:22:26	83.4	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
9	2002/02/12 14:22:29	82.6	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
10	2002/02/12 14:22:32	80.1	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
11	2002/02/12 14:22:46	79.2	CROQUETTE	CROQUETTE	Lo	90.0	80.0	OP1	OPERATOR1
12	2002/02/12 14:22:53	85.2	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
13	2002/02/12 14:22:56	87.7	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
14	2002/02/12 14:22:57	93.0	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1	OPERATOR1
15	2002/02/12 14:22:59	90.6	CROQUETTE	CROQUETTE	Hi	90.0	80.0	OP1	OPERATOR1
16	2002/02/12 14:23:00	82.5	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
17	2002/02/12 14:23:01	82.5	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
18	2002/02/12 14:23:02	82.6	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
19	2002/02/12 14:23:03	82.6	CROQUETTE	CROQUETTE	IN	90.0	80.0	OP1	OPERATOR1
20	2002/02/12 14:23:37	90.5	HAMBURGER	HAMBURGER S1	Hi	90.0	80.0	OP1	OPERATOR1
21	2002/02/12 14:23:38	90.4	HAMBURGER	HAMBURGER S1	Hi	90.0	80.0	OP1	OPERATOR1
22	2002/02/12 14:23:41	85.2	HAMBURGER	HAMBURGER S1	IN	90.0	80.0	OP1	OPERATOR1
23	2002/02/12 14:23:42	85.1	HAMBURGER	HAMBURGER S1	IN	90.0	80.0	OP1	OPERATOR1
24	2002/02/12 14:23:44	82.5	HAMBURGER	HAMBURGER S1	IN	90.0	80.0	OP1	OPERATOR1

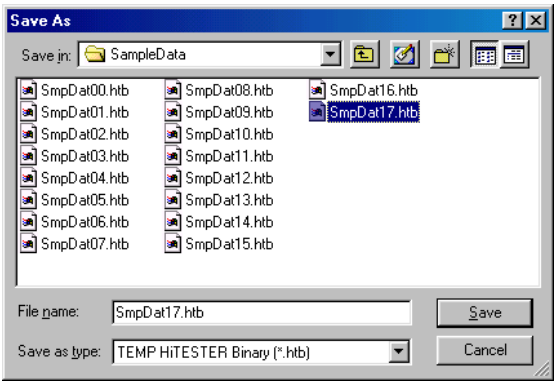
For data measured using the 3447-01, if only one sensor was used, a single data table appears, and if two sensors were used, two data tables appear.
Up to 16 data tables can be displayed at any one time.
When using the 3447-01, if 15 or more data tables are already displayed, data reception may not be possible. Before receiving data, make sure that the number of data tables displayed is no greater than 14.

3.10 Saving Received Data

1. Select [**File**], then [**Save Data Table**] from the menu bar in the Main window.
   The [**Save File**] dialog box appears.



2. Select the number of the data table you want to save and the file format for saving.
   When using the 9674, you can only open files in binary format (file extension ".htb").
3. Click [**OK**] to display the [**Save As**] dialog box. Select the file name and location where you want to save the file.



4. Click [**Save**] to save the file.

NOTE

- When multiple data tables are selected, you cannot save files in text format.
  If multiple data tables are saved in a single file, you can only load the data table with the smallest data table number using COMMUNICATION UTILITY for 3911.
- When using COMMUNICATION UTILITY for 3911, you can only load files in binary format (file extension ".htb").
- When using COMMUNICATION UTILITY for 3911, only interval recording data in the data table is displayed as a graph. Manual recording data is ignored.

File Sizes

The size of binary format data files is as follows.
(You can save up to 300 items and 100 IDs.)
The data file sizes given below are for a single data table. When using the 3447-01, if you use two sensors to measure data and then receive the measurement data, you can display two data tables, but the data size given below is for a single data table only.
The file size for files saved in text format depends on the temperatures recorded and the number of characters used in the character string.

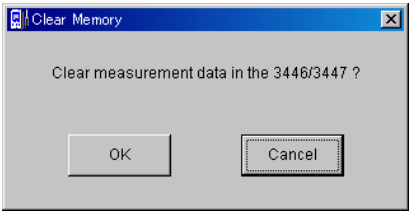
File format	Number of sensors used	Recording mode	Number of data items	Data size
Binary	1	Interval	28,800	505 KB
	2	Interval	14,400	260 KB
	1	Manual	7,200	138 KB
	2	Manual	4,800	98 KB

3.11 Clear Memory for the 3446-01/3447-01 TEMPERATURE HiTESTER

You can clear the measurement data stored in the 3446-01/3447-01. (Item data and ID data is not cleared.)

Firstly, you must make communications settings. For information on how to make communication settings, see 3.2 "Communication Settings" (page 16).

1. Select [**Remote**], then [**Clear Memory**] on the menu bar in the Main window.
   The [**Clear Memory**] confirmation dialog box appears.



2. Click [**OK**] to clear the measurement data stored in the 3446-01/3447-01.

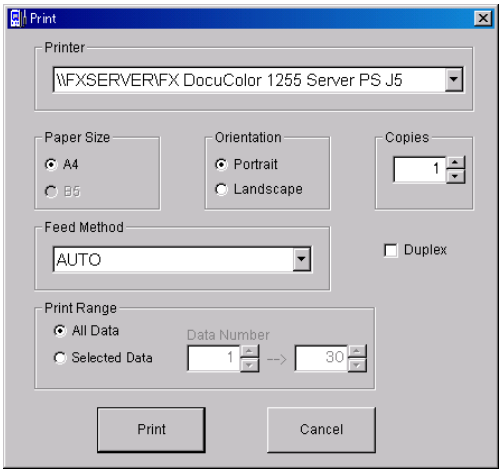
3.12 Printing

3.12.1 Printing Data Tables

1. Select [**File**], then [**Open Data Table**] from the menu bar in the Main window, and select the data table file you want to print and display it.
   The data is loaded from the 3446-01/3447-01.

NOTE If multiple data tables are displayed, click the tab for the data table you want to print to bring that tab to the front of the screen.

2. Select [**File**], then [**Print**] from the menu bar.
   The [**Print**] dialog box appears.



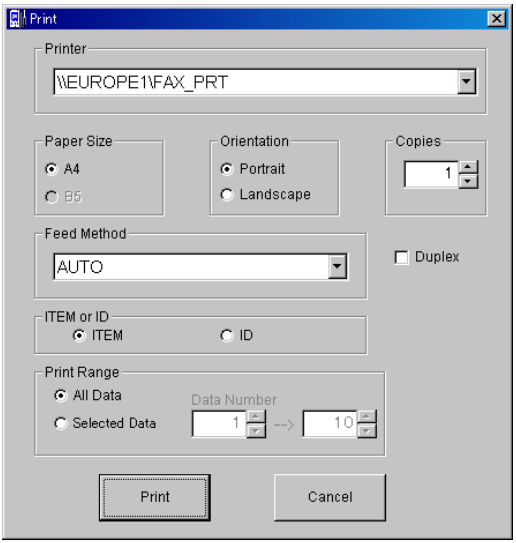
3. Make settings for the printer, paper orientation, number of copies, feed method, and print range.
4. Click [**Print**] to start printing.

NOTE

- The 9674 only supports printing on A4-size paper. When using a general printer to print in the portrait orientation, up to 40 data items can be printed per page, and when printing in the landscape orientation, up to 26 data items can be printed per page.
- Depending on your computer, printer driver, and printer settings (local or network), you may not be able to set the paper orientation, number of copies, or feed method. In this case, change the default settings for the printer in [**Printers**] located in [**Settings**] on the Windows [**Start**] menu.

3.12.2 Printing Libraries and Setting Files

1. In the [**Library**] or [**Setting File**] window, select [**Print**] from [**File**] on the menu bar.
   The [**Print**] dialog box appears.



2. Make settings for the printer, paper orientation, number of copies, feed method, print data, and print range.
3. Click [**Print**] to start printing.

NOTE

- The 9674 only supports printing on A4-size paper. When using a general printer to print in the portrait orientation, up to 81 data items can be printed per page, and when printing in the landscape orientation, up to 53 data items can be printed per page.
- Depending on your computer, printer driver, and printer settings (local or network), you may not be able to set the paper orientation, number of copies, or feed method. In this case, change the default settings for the printer in [**Printers**] located in [**Settings**] on the Windows [**Start**] menu.

3.13 Function List

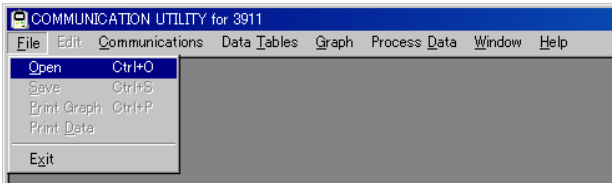
Data table display function	Allows you to display measurement data in up to 16 different data tables.	
Create/edit a library function	Allows you to create or edit an item data or ID data library.	
Communication function	Allows you to send measurement data transfer, configuration transfer, item character string, upper and lower limit, and ID character string data to the 3446-01/3447-01 TEMPERATURE HiTESTER.	
	Date transfer	Allows you to send the current date and time to the 3446-01/3447-01.
	Clear memory	Allows you to clear the measurement data stored in the 3446-01/3447-01.
	Receive measurement data	Allows you to receive measurement data, item character strings, upper and lower limits, and ID character strings from the 3446-01/3447-01. Further, you can search libraries for an item (product name) or ID (worker name) that corresponds to a received item (display name) or ID (display name) character string.
Print function	The 9674 only supports printing on A4-size paper. Allows you to print data tables, libraries, and setting files. Further, you can save or call up data tables, libraries, and setting files.	
File function		

Displaying Graphs 4

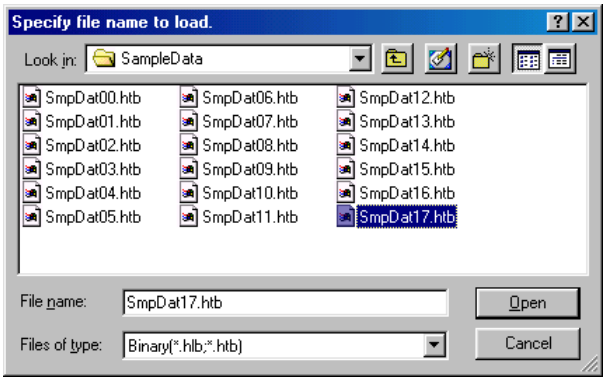
To display data in a graph, COMMUNICATION UTILITY for 3911 must be installed.
For information on installing the software, see 2.1.2 "COMMUNICATION UTILITY for 3911" (page 9).

4.1 Opening Measurement Data Files

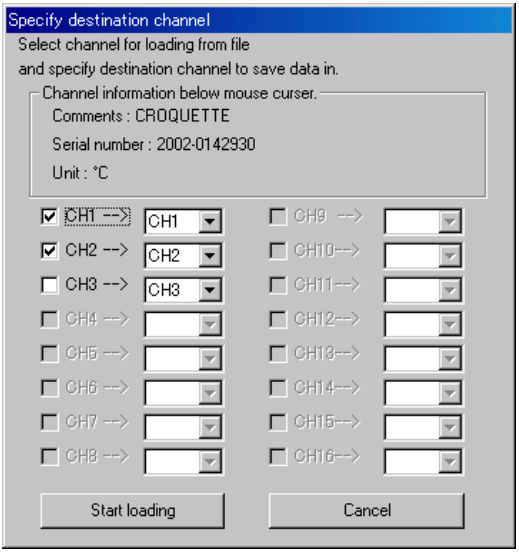
Start up COMMUNICATION UTILITY for 3911.
1. Select [**File**], then [**Open**] from the menu bar.



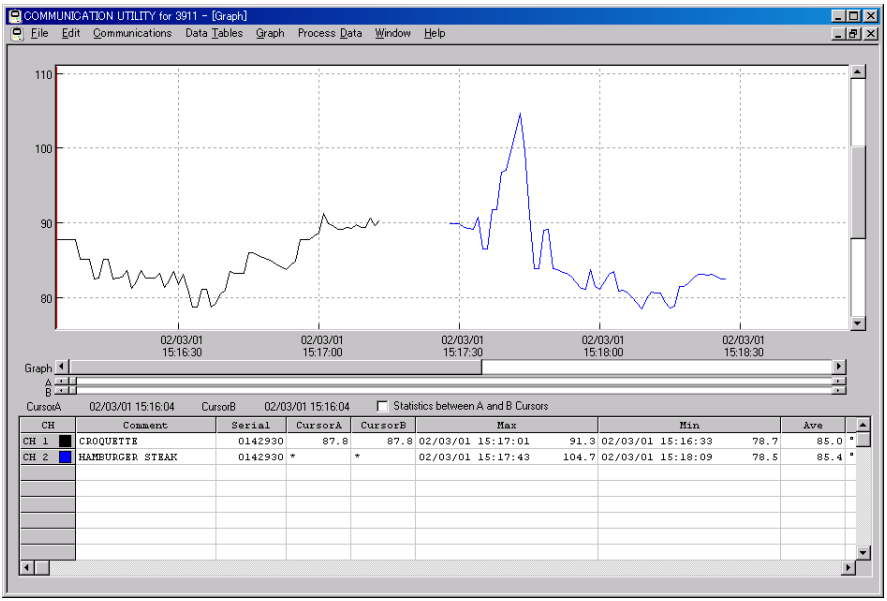
2. Select the file you want to open, and then click [**Open**]. (You can only open files with the file extension ".htb" or ".hlb" (files created using a HIOKI logger series).)



3. In the [**Specify destination channel**] dialog box, select the checkbox for the item you want to display in a graph.
   By aligning the mouse pointer with "**CH x -->**", you can display the ITEM (comment), serial number, and unit for the channel in the channel information column.



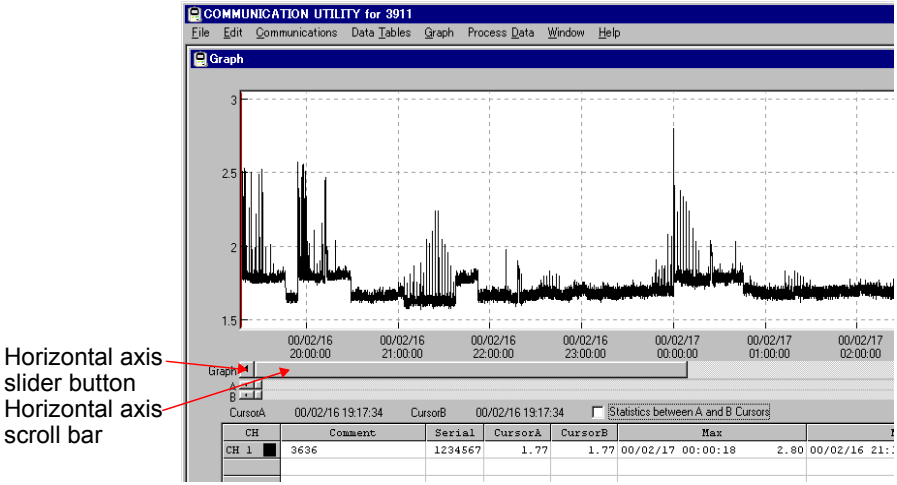
4. Click the [**Start loading**] button to load the data and display the graph.



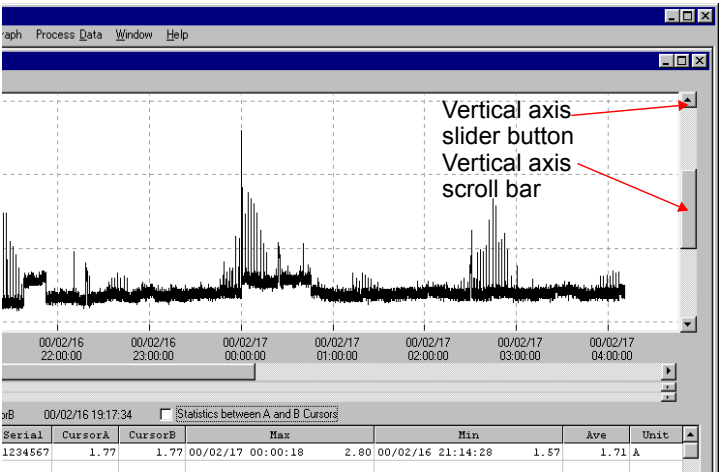
4.2 Graph Operation

Scrolling measurement data

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

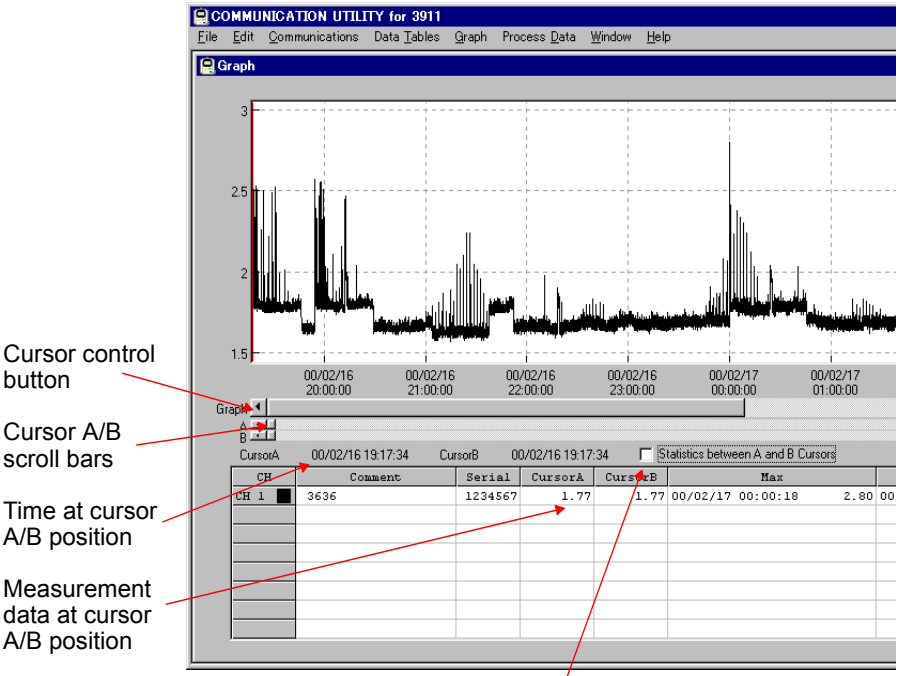


Click vertical axis slider button or drag vertical axis scroll bar to move vertical axis.



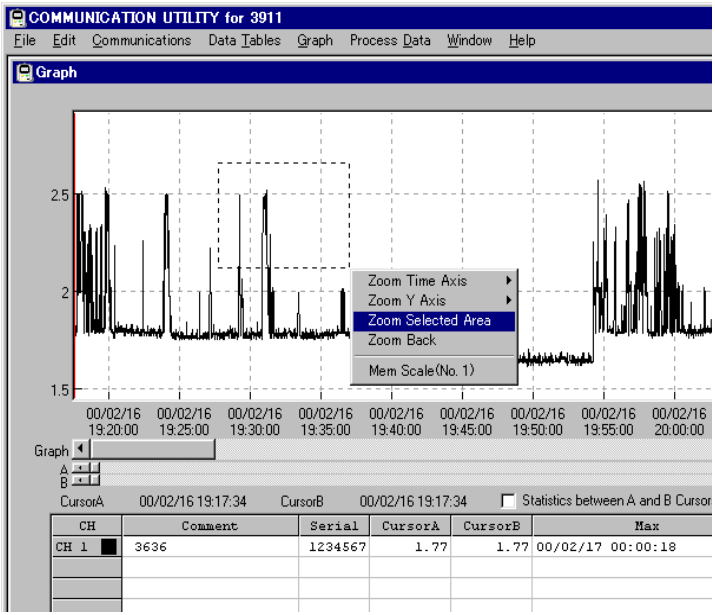
Measuring with A/B cursors

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

1. Use mouse button left to drag and select the area to be magnified with box cursor.
2. Click mouse button right to select [**Zoom Selected Area**].



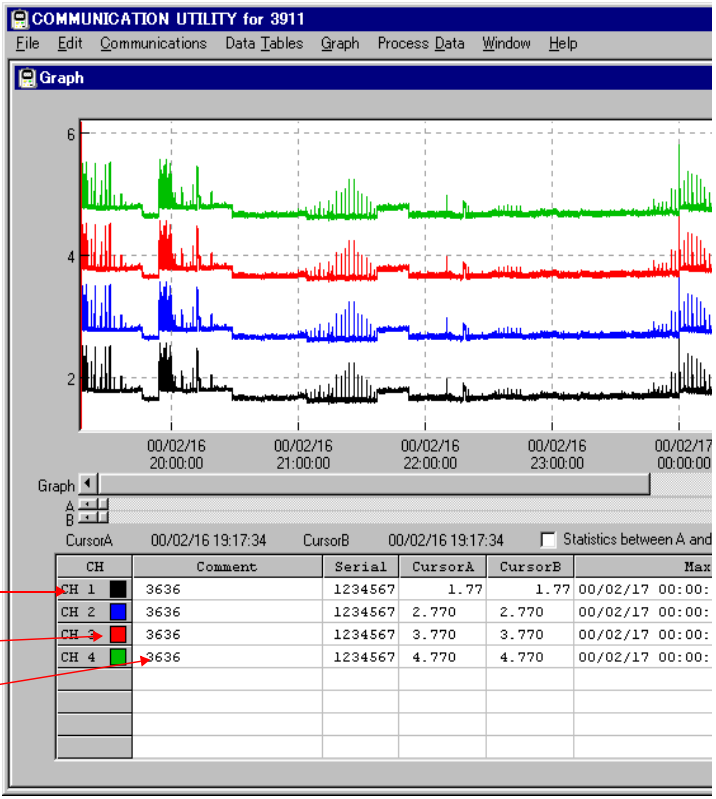
3. When graph is magnified and scale is modified, click [**Mem scale**] to store the scale. Up to five recent scales can be stored.

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.



CH button

Waveform color

Comment

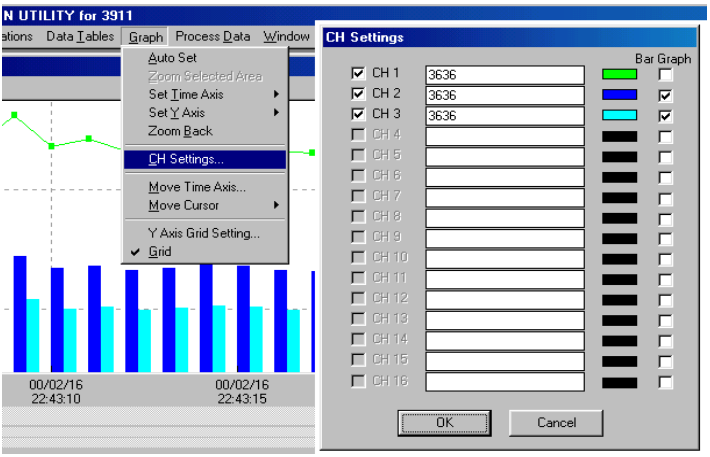
Double click either value or unit cell to display average value of selected CH data in center of graph.
Double click comment cell to change comment.

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

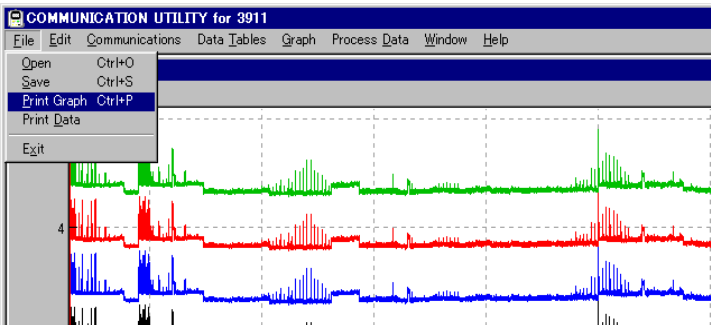
The graph type (line graph, bar graph) can be set individually for each channel. (This function can only be used with data that was measured using a HIOKI logger series.)
To alter the settings, first select [**CH Settings**] from [**Graph**] on the menu bar. In the [**CH Settings**] window, select the [**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.

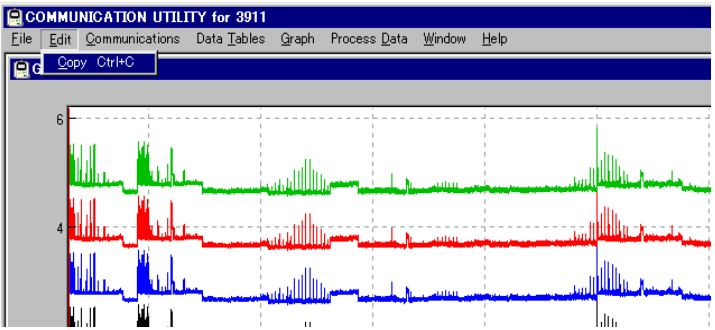
Printing data

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



Copying graph

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.



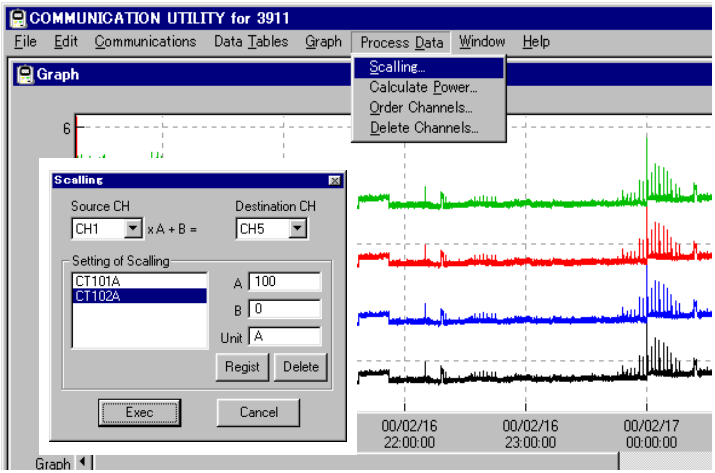
NOTE

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 Loaded Data

You can sort, delete, or scale the loaded data for each channel. (This function can only be used with data that was measured using a HIOKI logger series.)

1. Select [**Process Data**], then [**Scaling**] from the menu bar. The [**Scaling**] dialog box appears.
2. The loaded data is processed.



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.

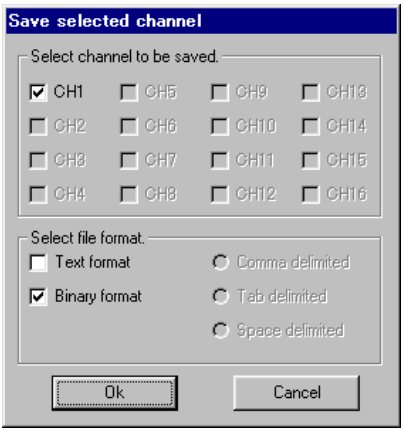
4.3 List of Functions

COMMUNICATION UTILITY for 3911 functions

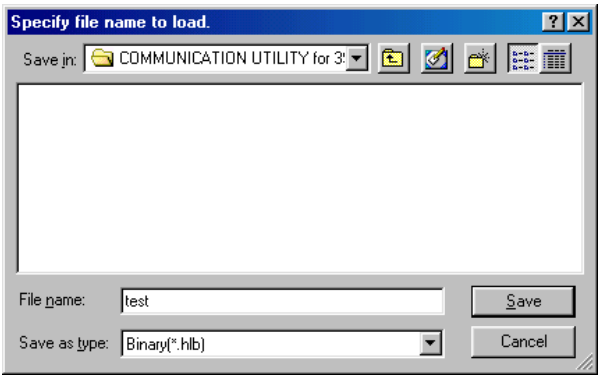
Display functions	Displays single graph with up to 16 channels of data recorded regardless of recorder type, time and date of recording, interval or unit.	
	Graph display	Displays recording data change and cursor A and B. Line and bar graph displays can be set individually for each channel.
	Data information 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.
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.	
File functions	Allows you to print graphs and data lists. (You can specify all of the data, or the data between the A and B cursors.) Saves data, reads loaded data and generates text file can be exported to spread sheet application software.	

4.4 Saving Measurement Data

1. Select [**File**], then [**Save**] from the menu bar.
   The [**Save Selected Channel**] dialog box appears.



2. Select the channel you want to save and the file format for saving.
   Click [**OK**] to display the dialog box for selecting the file name and location where you want to save the file.



3. Click [**Save**] to save the file.

NOTE

- Data saved in text file format (file extension ".csv") cannot be opened using COMMUNICATION UTILITY for 3911.
- Here, data saved in binary file format (file extension ".hlb") cannot be opened using 9674 COMMUNICATION UTILITY.

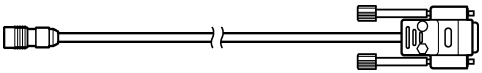
Specifications 5

Specifications for communicating between the 3446-01/3447-01 TEMPERATURE HiTESTER and 9674 are as follows:

Item	Setting value
Transmission speed	19200 bps
Bit length	8 bits
Stop bit	1 bit
Parity	No
X flow	No
Hard flow	No
Delimiter	CR+LF

Specifications for the RS-232C cable are as follows:

Cable length	2 m
Connector type	Special connector (3446-01/3447-01 side) Dsub-9pin female (PC side)
Operating Temperature & Humidity	0 to 40°C (32 to 104°F), 80%RH or less (no condensation)
Storage Temperature & Humidity	-10 to 50°C (14 to 122°F), 80%RH or less (no condensation)



Specifications for printers compatible with the 3446-01/3447-01 are as follows:
Check the specifications and settings for the printer before connecting it to the TEMPERATURE HiTESTER.

Interface	RS-232C
Characters per line	Greater than 40 characters
Transmission speed	19200 bps
Data bit	8 bit
Parity	No
Stop bit	1 bit
Flow control	Xon/off

The connector terminal functions of the RS-232C cable supplied with the 9674 RS-232C PACKAGE are as follows:
Connector type: Dsub-9 pin (female)

Pin No.	Signal name	Function
1	NC	Not connected
2	TxD	Send data
3	RxD	Receive data
4	NC	Not connected
5	GND	Ground
6	NC	Not connected
7	NC	Not connected
8	NC	Not connected
9	NC	Not connected

NOTE

With some types of printer, an adapter is required between the cable and the printer.
With the optional 9670 printer, please connect the following adapter between the cable and the printer.
Dsub-9 pin (male)↔Dsub-25pin (male)

Maintenance and Service 6

6.1 Cleaning

To clean the product, wipe it gently with a soft cloth moistened with water or mild detergent. Never use solvents such as benzene, alcohol, acetone, ether, ketones, thinners or gasoline, as they can deform and discolor the case.

6.2 Service

If the product seems to be malfunctioning, contact your dealer or Hioki representative.

HIOKI 9674 RS-232C PACKAGE
Instruction Manual

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