User's Manual

RXA10-01 and RXA10-02 Configuration Software

vigilantplant.®

4P1B161E04

YOKOGAWA
Yokogawa Electric Corporation

IM 04P01B01-61E
4th Edition

Foreword

Thank you for purchasing the RXA10 Configuration Software (Model: RXA10, hereafter referred to as the “configuration software”).
This manual explains how to use the Configuration software. Please read this manual carefully before operating the software to ensure its correct use.
After you have read this manual, keep it in a safe place where it can be referred to anytime a question arises.

Notes

- This manual describes the RXA10 that is used with the μR10000 and μR20000, version number 1.31 or before.
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Revisions

1st Edition February 2005
2nd EditionJanuary 2006
3rd Edition June 2006
4th Edition December 2007

4th Edition: December 2007 (YK)
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Products Described in This Manual

Product Version and Principal Changes

2nd Edition

- **Recorder version: before 1.31**
- **Configuration software: R2.0x**

No.	Principal Changes	Reference Section
1	The printout/display format of the date can be changed.	2.4
2	Selectable range of alarm values during linear scaling is –5% to 105% of the scale span.	2.7
3	French and German added to suffix code -2.	2.7
4	Calibration correction (/CC1 option) added.	2.3, 2.4, and 2.7

3rd Edition

- **Recorder version: before 1.3x**
- **Configuration software: Up to R3.02**

No.	Principal Changes	Reference Section
1	Header printout (/BT1 option) added.	2.3, 2.6, and 2.7
2	Customized menu added.	2.7

4th Edition

- **Configuration Software: R3.0x**
- **CopyTool: R3.0x**

No.	Principal Changes	Reference Section
1	Support for Windows Vista.	1.2
2	Addition of CopyTool.	Chapter 4

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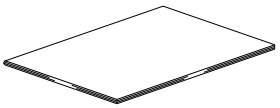
Checking the Contents of the Package

Please check the contents of the package before using this product. If some of the contents are not correct or missing or if there is physical damage, contact the dealer from which you purchased them.

- **Contents of the Package**

RXA10 Configuration Software and **CopyTool (CD)**

RXA10-01, RXA10-02 Configuration Software User's Manual



Interface Unit (for the RXA10-02 model)

- **MODEL and SUFFIX Code**

Model	Suffix Code	Note
RXA10	-01	Configuration software
	-02	Configuration software (with interface unit)

How to Use This Manual

Structure of This Manual

This user's manual consists of the following sections.

Chapter	Title	Description
1	**Before Using the Software**	Describes the PC system requirements for using the configuration software, the software installation procedure, and the procedure for connecting to the recorder.
2	**Configuring the Recorder**	Describes how to create the setup data of the recorder and configure the recorder or save the data.
3	**Troubleshooting**	Describes the error messages and their corrective actions.
4	**Using CopyTool**	Explains how to use CopyTool to copy settings from one recorder to another.
Index		Gives an index.

Scope of the Manual

This manual does not cover the basic operations of the operation systems. For such information, see the Windows user's guide or other relevant documents.

Conventions Used in This Manual

- **Unit**
  K: Denotes 1024. Example: 100 KB
  k: Denotes 1000.

- **Notations of Menus, Commands, Dialog Boxes, and Buttons**
  Typed in boldface in the operating procedure.

- **Note**
  Note Gives useful tips on the operation of the software.

Contents

1.1 Overview of the Configuration Software

Function

This software program is used to configure the μR10000 and μR20000 from a PC.
The setup data can be created using any of the methods below to configure the recorder.

- Load the setup data from the connected recorder and change the settings.
- Open a saved setup data and change the settings.
- Create new setup data.

The setup data can be saved to the hard disk on the PC. The setup information can also be printed.

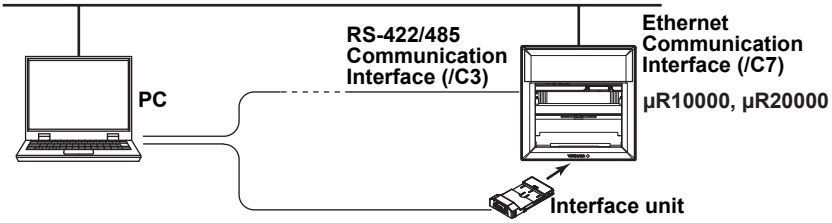
Note

This program cannot be used to set the following items.

- Date/Time (Setting mode)
- RS-422/485, Ethernet, and pen and dot printing position adjustment (Basic Setting mode)

Connecting to the Recorder

A connection to a PC can be made using the RS-422/485 communication interface (/C3 option) or the Ethernet communication interface (/C7 option) of the recorder. In the case of the RXA10-02, the interface unit can be used to connect to the recorder through the RS-232 communication interface of the PC even if the recorder is not equipped with a communication interface.

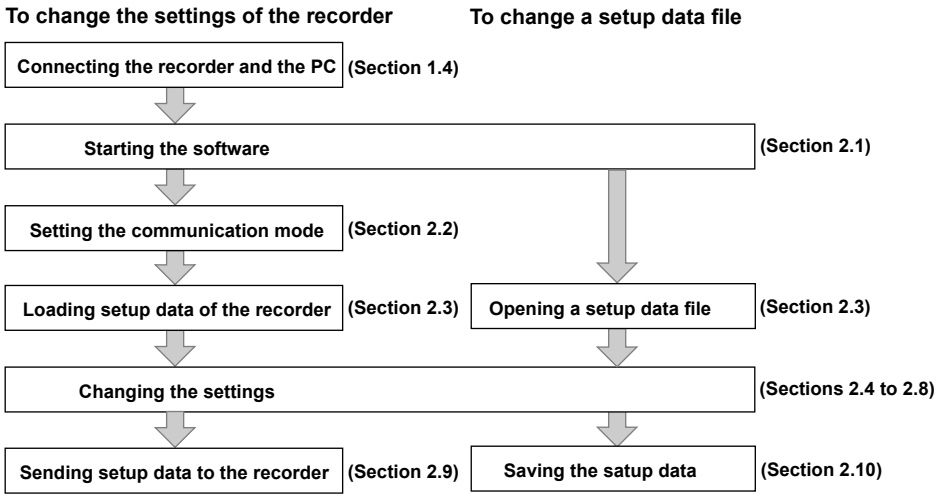


Note

When using the interface unit, turn OFF the device that is connected to the RS-422/485 communication interface (/C3 option) on the recorder rear panel or disconnect the cable. Data may be sent to the device connected to the RS-422/485 communication interface on the rear panel when the interface unit is communicating.

Flow of Operation

The flow of operation of the program is shown below.



1.2 PC System Requirements

Hardware

- **PC**
  When Using Windows 2000 or Windows XP
  CPU: Pentium III 600-MHz or higher (800-MHz Pentium III or higher recommended).
  Memory: 256 MB or more.
  Hard disk: Free disk space of 10 MB or more.
  When Using Windows Vista
  CPU: Pentium 4, 3 GHz or faster
  Memory: 1024 MB or more.
  Hard disk: Free disk space of 200 MB or more.

- **CD-ROM drive**
  A CD-ROM drive supported by the OS.

- **Mouse**
  A mouse supported by the OS.

- **Monitor**
  When Using Windows 2000 or Windows XP
  A monitor supported by the OS of 1024 × 768 dpi or higher and 32K colors or more (64 K colors recommended).
  When Using Windows Vista
  A monitor supported by the OS of 1024 × 768 dpi or higher and 65,536 colors or more.

- **Communication port**
  An RS-232 port or an Ethernet port supported by the OS.

- **Printer**
  A printer supported by the OS. An appropriate printer driver for the OS is also required.

Operating System

Windows XP or Windows 2000 Service Pack 2 or later
Windows Vista Home Premium or Windows Vista Business (excluding the 64-bit edition)

Note

The PC must have Courier New font installed.

1.3 Installing the Configuration Software

A serial number is required to install the configuration software. The serial number is indicated on the CD-ROM case. Please have the serial number ready.

Installing the Software

1. Start Windows. Log onto Windows as an administrator.
2. Insert the CD-ROM containing the software into the CD-ROM drive.
3. The installation program starts automatically. Proceed with the installation according to the instructions that appear on the screen.

   If the installation program does not start automatically, carry out the procedures below.

4. Double-click the CD-ROM icon from “My Computer” to open the CD-ROM drive window.
5. Double-click the “install.exe” file in the root directory. The installation will start after a short time. Then, follow the instructions on the screen.

Note

- Exit memory resident programs such as virus protection programs before installation.
- When reinstalling the software, uninstall it first.
- To uninstall the program, follow the procedures below.
  1. Double-click “Add/Remove Programs” in the Control Panel and uninstall the program.
  2. As necessary, back up the setup data files with .pul extension in the directory in which the configuration software was installed to a different directory.
  3. Delete the files (various data files and subdirectories) that were created after the installation of the program. Also, delete the directory in which the program was installed.

1.4 Connecting the Recorder and the PC

Using the Ethernet Communication Interface (/C7 Option)

For the procedure to connect the recorder and the PC, see section 2.2, “Connecting the Ethernet Interface” in the *μR10000/μR20000 Communication Interface User’s Manual (IM 04P01B01-17E)*.

Using the RS-422/485 Communication Interface (/C3 Option)

For the procedure to connect the recorder and the PC, see section 3.2, “Terminal Arrangement and Signal Names and the Connection Procedure of the RS-422/485 Communication Interface” in the *μR10000/μR20000 Communication Interface User’s Manual (IM 04P01B01-17E)*.

Using the Interface Unit (For the RXA10-02)

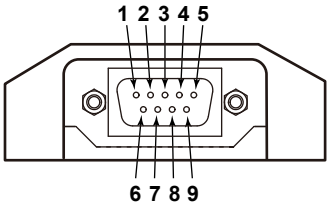
CAUTION

Do not insert or remove the interface unit while the recorder is turned ON. If you do, the internal circuit of the recorder and/or the interface unit may be damaged.

Note

- When using the interface unit, turn OFF the device that is connected to the RS-422/485 communication interface (/C3 option) on the recorder rear panel or disconnect the cable. Data may be sent to the device connected to the RS-422/485 communication interface on the rear panel when the interface unit is communicating.
- Use a D-Sub 9-pin RS-232 cable (cross cable) to connect the PC and the interface unit (The connector on the interface unit is a D-Sub 9-pin plug (male)).

Interface unit (D-Sub 9-pin plug)



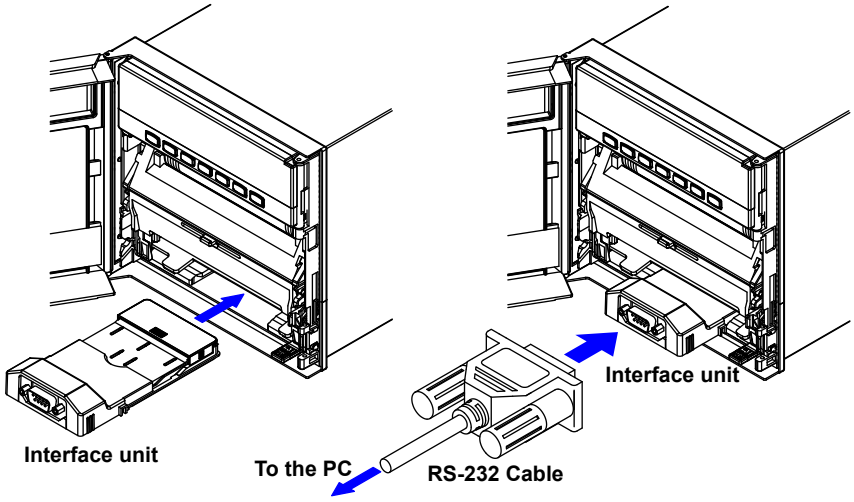
Pin	Assignments	
1	CD	Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	System Ground
6	SDR	Data Set Ready
7	RTS	Request to Send
8	CTS	Clear to Send
9	RI	Ring Indicator

Pins 4 and 6 are shorted internally.

Pins 7 and 8 are shorted internally.

- **Connecting the Recorder and the PC**

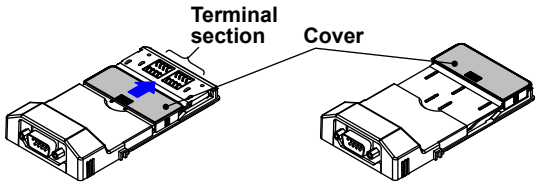
  1. Turn OFF the recorder and the PC.
  2. Insert the interface unit in the opening under the chart cassette.
     Insert it until it clicks in place.



  3. Connect the interface unit and the PC's RS-232 connector with an RS-232 cable.
  4. Turn ON the recorder first and then the PC.

- **Disconnecting the Recorder from the PC**

  1. Turn OFF the recorder and the PC.
  2. Pull out the interface unit.
  3. Place the cover over the terminal section of the interface unit.

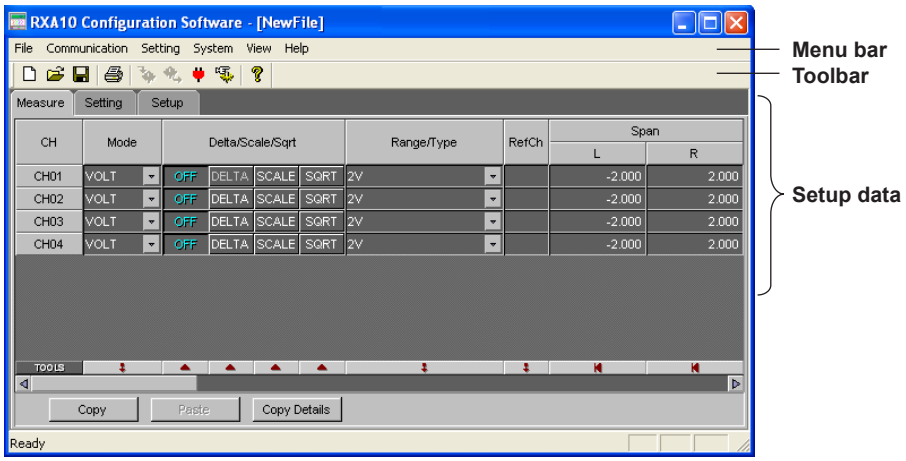


2.1 Starting/Closing the Software and Showing Version Information

Starting the Software

From the task bar, click Start, point to **Programs**, and choose **RXA10 Configuration Software**.

The software starts.



Closing the Software

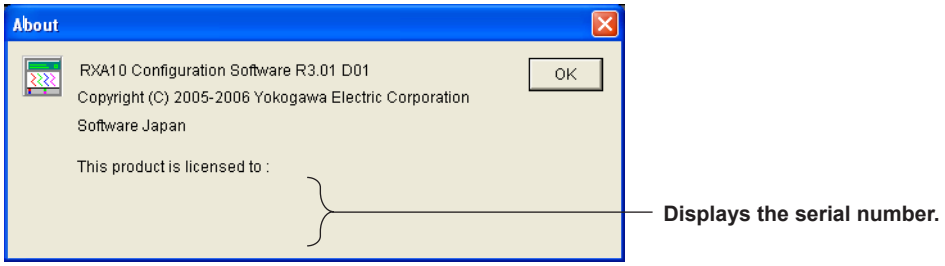
From the **File** menu, choose **Exit**, or click the **X** button.

The configuration software window closes.

Showing Version Information

From the **Help** menu, choose **About**. You can also click the icon (?) on the toolbar.

The **About** dialog box opens.

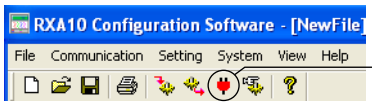


Click **OK** to close the dialog box.

2.2 Setting the Communication Mode for Connecting to the Recorder

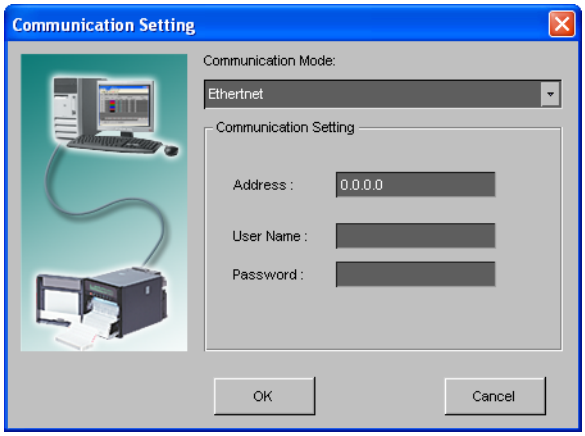
Set the communication mode and parameters according to the type of connection between the PC and the recorder.

1. From the **Communication** menu, choose **Communication Setting**. You can also click the Communication Setting icon on the toolbar. The **Communication Setting** dialog box opens.

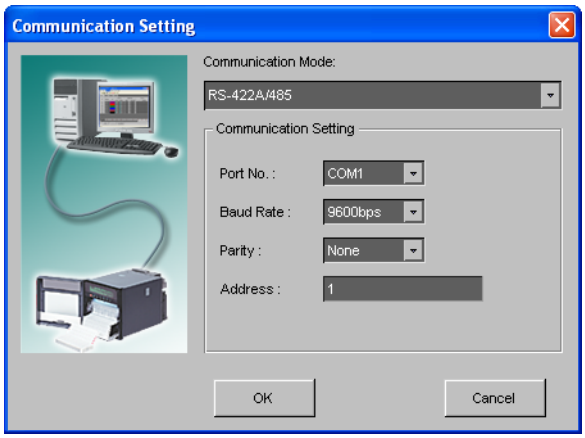


2. Set the communication mode and parameters.

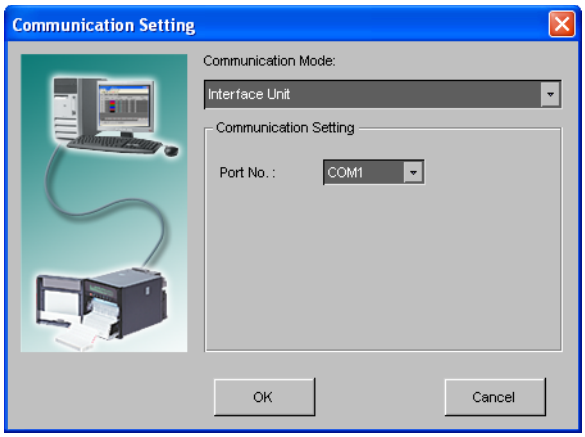
When using Ethernet (/C7 option)



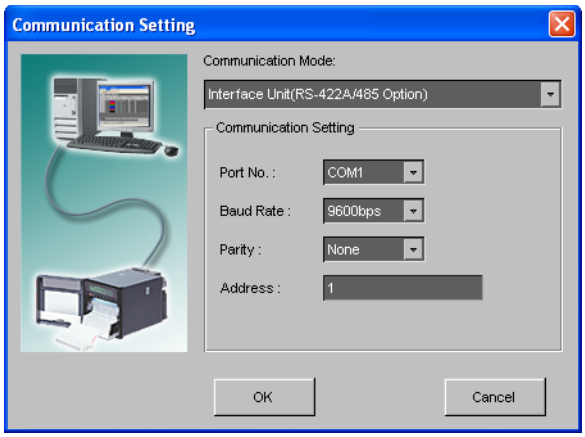
When using the RS-422/485 interface (/C3 option)



When using the interface unit



When using the interface unit on a model with the RS-422/485 interface (/C3 option)



3. Click **OK**.

   The dialog box closes, and the communication between the PC and the recorder is enabled.

   Click **Cancel** to cancel the settings and close the dialog box.

Note

After starting the program, be sure to check the communication settings and click **OK**.
After the communication settings are checked, **Receive setting** and **Send setting** of the **Communication** menu become selectable.

- **Ethernet**
  - **Address**
    Enter the IP address or host name of the recorder.
  - **User Name and Password**
    - When using the login function on the recorder
      Login as an administrator.
    - When not using the login function on the recorder
      Login with the user name “Admin.”
      Password is not necessary.

- **RS-422/485**
  - **Port No.**
    Select the port from COM1 to COM9.
  - **Baud Rate and Parity**
    Set the same values as the recorder.
  - **Address**
    Enter the recorder’s address.

- **Interface Unit**
  - **Port No.**
    Select the port from COM1 to COM9.

- **Interface Unit (RS-422/485 Option)**
  - **Port No.**
    Select the port from COM1 to COM9.
  - **Baud Rate and Parity**
    Set the same values as the recorder.
  - **Address**
    Enter the recorder’s address.

2.3 Loading the Setup Data or Creating New Setup Data

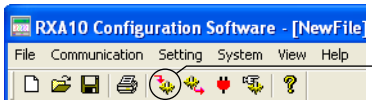
The following three methods are available for creating setup data.

- Load the setup data of the recorder
- Open a setup data file.
- Create new setup data.

Loading the Setup Data of the Recorder

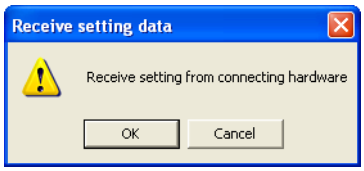
Before carrying out the following procedure, check to see that the communication mode and parameters are set correctly. For details, see section 2.2, “Setting the Communication Mode for Connecting to the Recorder.”

1. From the **Communication** menu, choose **Receive Setting**. You can also click the Receive setting icon on the toolbar. A confirmation dialog box for receiving settings opens.



2. Click **OK**.

   The reception starts. When the reception of the settings is complete, a message appears to indicate it.



3. Click **OK**.

   The loaded setup data is displayed.

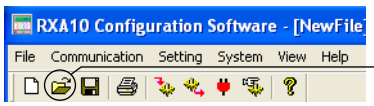
Note

- If the message in the figure below appears, check the following:
  - That the communication settings are matched with the settings on the recorder.
  - That there are no users accessing the recorder or that the maximum number of users is not exceeded.

- Note that if setup data is received when the recorder is in Basic Setting mode, the setup data in the middle of the configuration will be received.

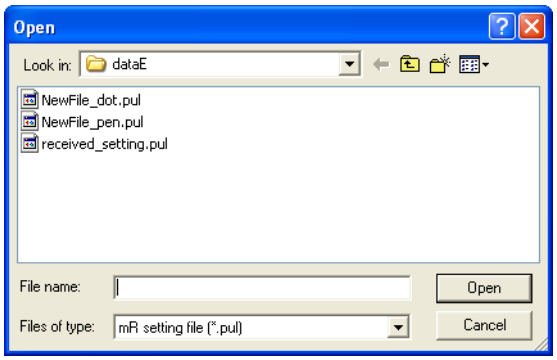
Opening a Setup Data File

1. From the **File** menu, choose **Open**. You can also click the Open icon. The **Open** dialog box opens.



2. Select the desired file, and click **Open**.

   The setup data is displayed.

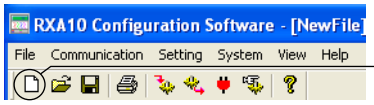


Note

The extension to setup data files is .pul.

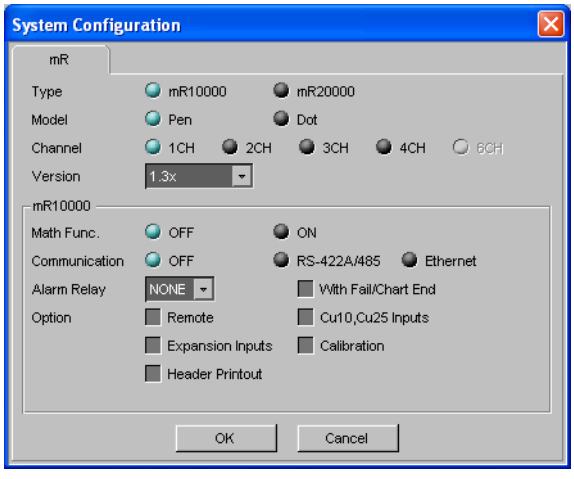
Creating New Setup Data

1. From the **File** menu, choose **New**. You can also click the New icon. The **System Configuration** dialog box opens.



2. Set the system configuration of the recorder, and click **OK**.

   A setup window with the specified system configuration opens with the settings set to default values.



- **Type, Model, Channel, and Style**

  Type: Recorder types.
  Model: Pen model or dot model.
  Channel: The number of measurement channels on the recorder.
  Style: The style number of the recorder.

- **Options**

Math Func.:	Computation function (/M1 option)
Communication RS-422/485:	RS-422/485 Communication Interface (/C3)
Communication Ethernet:	Ethernet Communication Interface (/C7)
Alarm Relay 2p:	Alarm output relay 2 points (/A1)
Alarm Relay 4p:	Alarm output relay 4 points (/A2)
Alarm Relay 6p:	Alarm output relay 6 points (/A3)
Alarm Relay 12p:	Alarm output relay 6 points (/A4, µR20000)
Alarm Relay 24p:	Alarm output relay 6 points (/A5, µR20000)
With FAIL/Chart End:	FAIL/Chart End Detection and Output (/F1)
Remote:	Remote Control Input (/R1)
Cu10, Cu25 Inputs:	Cu10, Cu25 RTD Input (/N1)
Expansion Inputs:	Expansion Inputs (/N3)
Calibration:*	Calibration Correction (/CC1)
Header Printout:**	Header Printout (/BT1)

* Function available on recorders with firmware version 1.21 or later.

** Function available on recorders with firmware version 1.31 or later.

Checking/Changing the System Configuration of the Setup Data

- **Checking the System Configuration**

With the setup data displayed in the window, choose **System Configuration** from the **System** menu.
The **System Configuration** dialog box opens.

Check the system configuration that is shown, and click **OK**.
The dialog box closes.

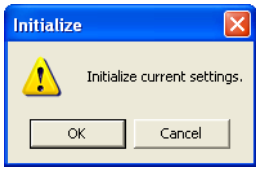
- **Changing the System Configuration**

With the setup data displayed in the window, choose **System Configuration** from the **System** menu.
The **System Configuration** dialog box opens.

Change the system configuration, and click **OK**.
The confirmation dialog box opens. Click **OK** to open a setup window with the specified system configuration with the settings set to default values.

Initializing the Settings

1. From the **Setting** menu, choose **Initialize**.
   The **Initialize** dialog box opens.
2. Click **OK** to initialize the settings.



Note

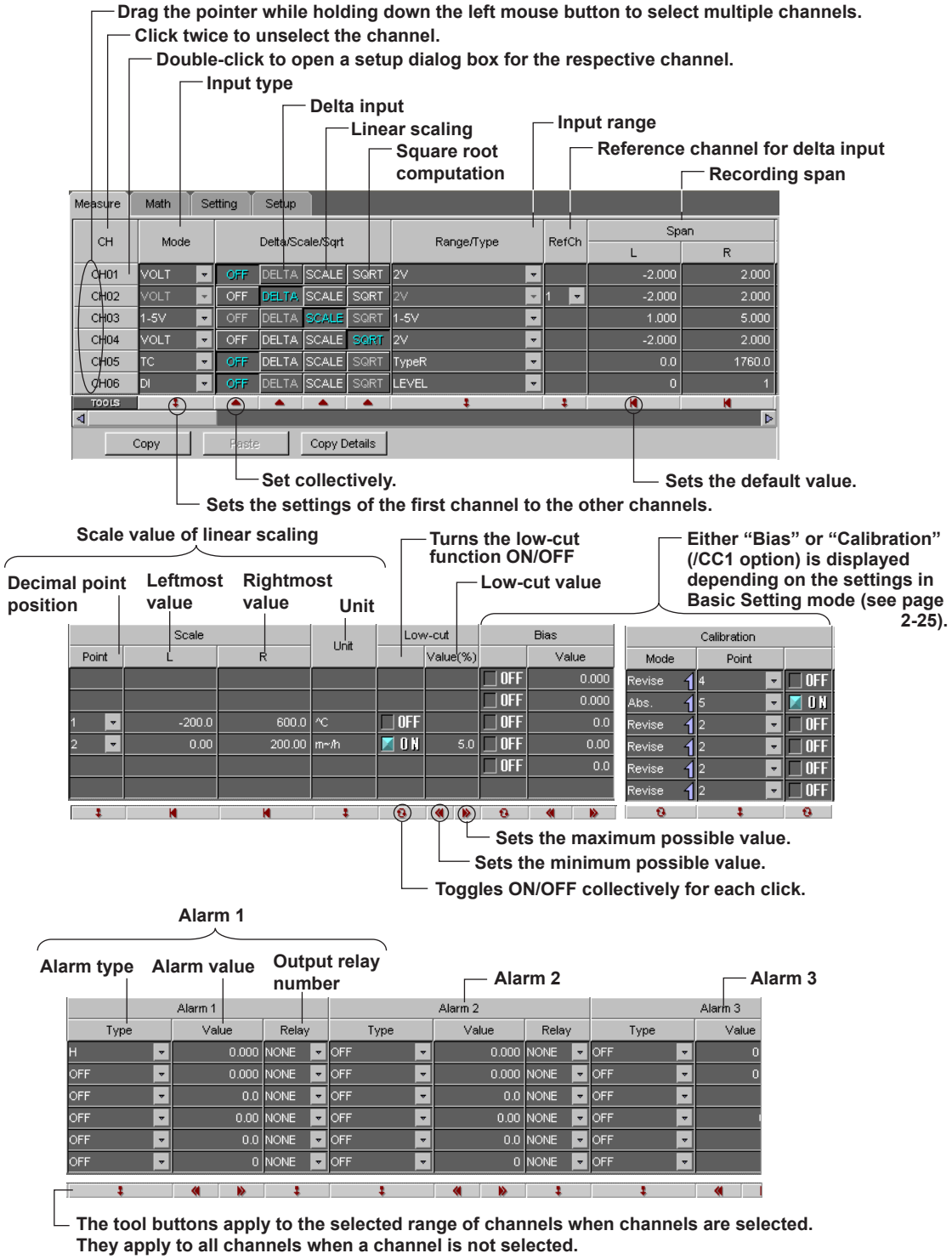
For the default settings, see section 4.3, “Menu Structure, Settings, and List of Default Values” in the *µR10000 Recorder User’s Manual (IM 04P01B01-01E)* or *µR20000 Recorder User’s Manual (IM 04P02B01-01E)*.

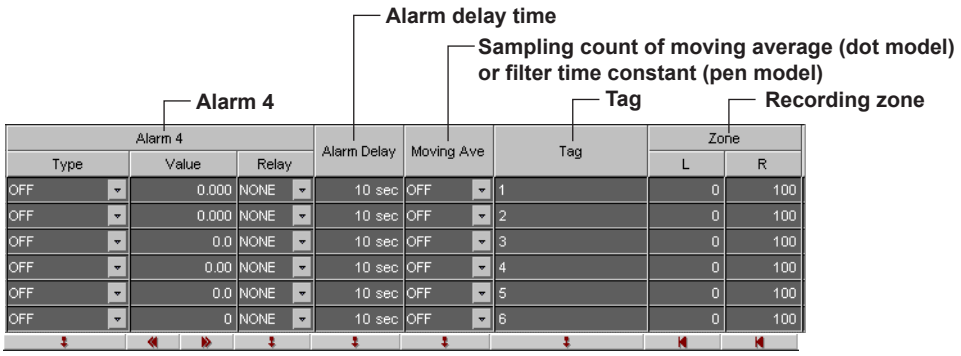
2.4 Setting the Measurement Channels

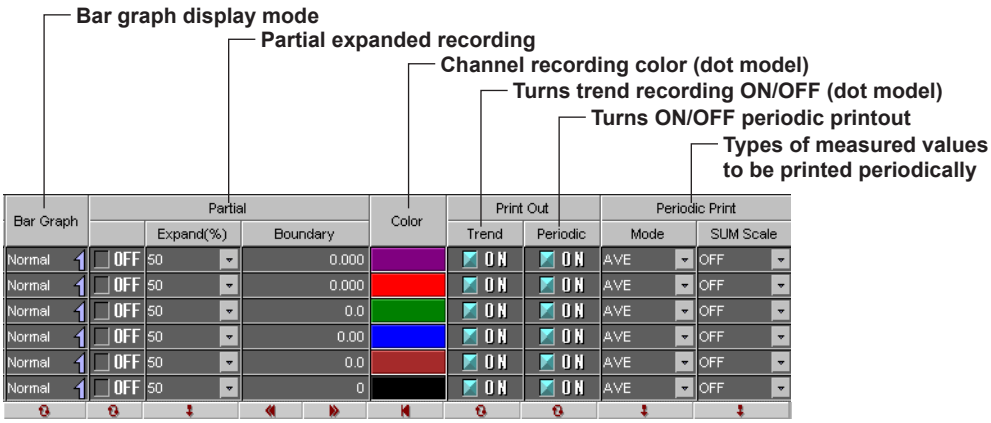
Click the **Measure** tab. You can also choose **Measure Channels** from the **Setting** menu.

Note

The following items may be shown or hidden depending on the settings in the Basic Setting mode.
Low-cut, Bias, Calibration Correction (/CC1 option), Alarm Delay, and Partial.





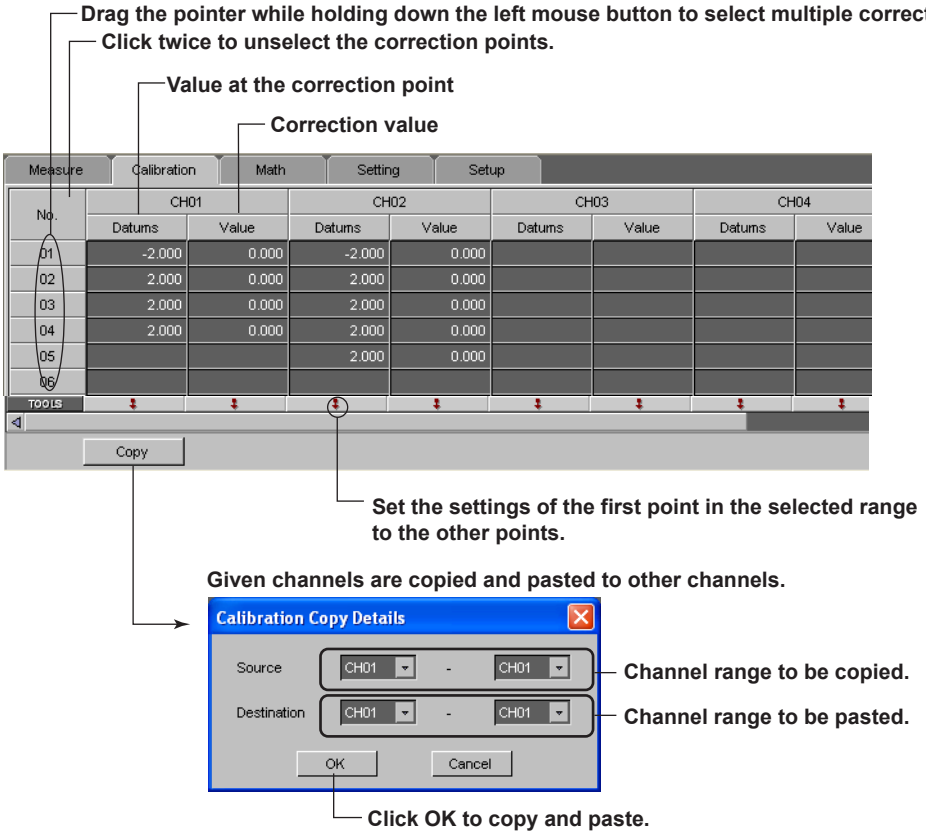


Correction Points for Calibration Correction (/CC1 Option)*

* For recorders with firmware version 1.21 or later

Set the correction points for each channel to use the calibration correction. You can set these points after setting the **Calibration** on the **Measure** tab.

Click the **Calibration** tab. You can also choose **Calibration** from the **Setting** menu.



Input (Mode, Range/Type, and Span)

Set the input type (Mode, Range/Type) and the recording span (Span).

Mode		Relevant Settings
VOLT	(voltage)	Range/Type, Span L, and Span R
TC	(thermocouple)	Range/Type, Span L, and Span R
RTD	(resistance temperature detector)	Range/Type, Span L, and Span R
1-5V	(1-5V)	Range/Type, Span L, and Span R
DI	(voltage level/contact input)	Range/Type, vpan L, and Span R
SKIP	(Measurement OFF)	None

Note

- Click the Default button (⏮) for Span L to set the minimum value within the measurable range. Click the Default button for Span R to set the maximum value within the measurable range.
- The span L and R values that have been changed are displayed in orange, but the values are valid. When data adjustment (see section 2.8) is executed, the values change back to white.
- When a value outside the measurable range is entered or when the span L and span R values are set to the same value, they are corrected when the data is checked.
- If SKIP is selected, other settings are discarded.

Delta Computation (Delta and RefCh)

Measures the difference between the input value of its own channel and that of the reference channel. Delta computation can be specified when the Mode setting is VOLT, TC, or RTD.

Delta/Scale/Sqrt

Select DELTA.

RefCh

Select the reference channel.

Specify a channel that is smaller in channel number than itself for the reference channel.

Square Root Computation

The square root of the input value is calculated, the result is scaled to a value in the appropriate unit, and used as the measured value of the channel. Also, the low-cut function can be used. This setting can be used only when the input mode is set to VOLT.

Delta/Scale/Sqrt

Select SQRT.

Low-cut

This appears when low-cut is enabled (see page 2-25) in Basic Setting mode.

For Square Root Computation

ON: Sets measured values below the specified value to 0 (the leftmost value of the scale).

Value (%): The measured value to be low-cut. Set the value in the range of 0.0% to 5.0% of the recording span.

For 1-5V Input

ON: Sets measured values below 0% input to 0 (the leftmost value of the scale).

Linear Scaling

Scale (Point, L, and R)

The input values are scaled to values in the appropriate unit to be used as measured values. Set the leftmost value of the scale (L) and the rightmost value of the scale (R) using a mantissa and decimal point position.

Mantissa: –20000 to 30000

Decimal position: 0 (the number of digits right of the decimal is 0) to 4 (the number of digits to the right of the decimal is 4)

Note

The L and R values that have been changed are displayed in orange, but the values are valid. When data adjustment (see section 2.8) is executed, the values change back to white.

Unit

Enter the unit using up to six characters. The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), µ, Ω, ^{2}, ^{3}, .), and space

Bias

This appears when bias is enabled (see page 2-25) in Basic Setting mode.

ON/OFF and Value

Select ON to use bias.

The range of bias that can be specified is ±10% of the measurable range of the input range. For example, the range is –0.4 V to 0.4 V for the 2 V input range. For channels on which scaling is set, the range is ±10% of the scaling range span. A bias cannot be set on channels set to ON/OFF input (DI).

Calibration (/CC1 Option)*

* For recorders with firmware version 1.21 or later

Settings on the Measure Tab

Setting items are displayed when the calibration correction is enabled in Basic Setting mode (see page 2-25).

- **Mode**
  Select **Revise** or **Abs.** to specify correction values. See the table below.
- **Point**
  Input number of correction points (up to 16 points) including first and last points.
- **ON/OFF**
  Select **ON** to use the calibration correction.

Settings on the Calibration Tab

- **Datums**
  Set a value of the correction point (input value). Follow the conditions below.
  Datum of first correction point < Datum of second correction point ≤ Datum of third correction point ≤ Datum of fourth correction point ≤ .....
- **Value**
  Set a correction value corresponding to the datum. Follow the conditions below.
  - **When Mode is set to Revise**
    “Datum + Value” of first correction point < “Datum + Value” of second correction point < “Datum + Value” of third correction point < .....
  - **When Mode is set to Abs.**
    Value of of first correction point < Value of of second correction point < Value of third correction point < .....
    The table below shows some examples.

Datum (Correction point)	Value after Correction	Value (Correction value)	
		when Mode is Revise	when Mode is Abs.
9.8°C	10.0°C	0.2°C	10.0°C
90.5°C	90.0°C	–0.5°C	90.0°C

Note

If the difference between values of the correction points, or the difference between values after correction, are small, for example several digits, an error may occur when you send the setup data to the recorder. In that case, change the set values.

Alarm 1 to 4

Four alarms (Alarm 1 to 4) can be specified on each channel.

Type

Type Values	Description
H	An alarm occurs when the measured value exceeds the specified value.
L	An alarm occurs when the measured value falls below the specified value.
h(dH)*	An alarm occurs when the difference in the input values of two channels is greater than or equal to the specified value.
l(dL)*	An alarm occurs when the difference in the input values of two channels is less than or equal to the specified value.
R(RH)	The rate-of-change of the measured values is checked over a certain time (interval). An alarm occurs if the rate-of-change of the measured value in the rising direction is greater than or equal to the specified value.
r(RL)	The rate-of-change of the measured values is checked over a certain time (interval). An alarm occurs if the rate-of-change of the measured value in the falling direction is greater than or equal to the specified value.
T**	An alarm occurs when the measured value remains above the alarm value for the specified time period.
t**	An alarm occurs when the measured value remains below the alarm value for a specified time period.

* Can be specified on channels set to delta computation.

** T and t can be selected when the alarm delay function is enabled in Basic Setting mode.

Alarm Value

Alarm is generated using the specified value as the boundary. The selectable range of alarm values vary depending on the input mode and range.

Relay

To output relays, select the output relay number. Otherwise, select NONE.

Alarm Delay

An alarm occurs when the measured value remains above or below the alarm value for a specified time period (alarm delay time).

Filter and Moving Average

Filter (Pen Model)

To use the input filter, select the time constant (2 s, 5 s, or 10 s).

Moving Average (Dot Model)

To use the moving average, select the sampling count (2 to 16).

Tag

Enter the tag using up to 7 characters. The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), µ, Ω, ^{2}, ^{3}, .), and space

Note

The setting of whether to use channel numbers or tags for printing is specified in Print Setting under the Setup tab.

Zone

Sets the zone in which the measured values of each channel are recorded. Set the position (mm) on the chart paper for the leftmost value of the recording zone (L) and rightmost value of recording zone (R).

- Selectable range: 0 to 100 mm (µR10000), 0 to 180 mm (µR20000)
  Set R to a value greater than L, and make the zone width (R – L) greater than or equal to 5 mm.

Bar Graph

Selects the display mode of the bar graph.

Normal: Sets the base point of the graph to the smaller of the values Span L or Span R (or Scale L or Scale R).

Center: Sets the base point of the bar graph to the 50% position of the span.

Partial

This appears when partial expanded recording is enabled in Basic Setting mode.

Expand (%)

Set the boundary position for the partial expanded recording. The range is from 1 to 99%.

Boundary

Set the boundary value to a value within the span (within the scale when linear scaling is used).

Color (Dot Model)

Click the appropriate box in the Color column to open the Recording Color dialog box. Select the recording color of the respective channel.

Print Out

Trend (Dot Model)

Turns trend recording ON/OFF.

Periodic

Turns periodic printout ON/OFF.

Periodic Printout

Selects the type of measured values to be printed in periodic printout. This setting is activated when Mode for Periodic Print in Print Setting (see page 2-24) in Basic Setting mode is set to Report.

Mode

AVE: Average value over the interval.

MIX: Minimum, maximum, and average values over the interval.

SUM: Sum value over the interval.

MIN: Minimum value over the interval.

MAX: Maximum value over the interval.

INST: Instantaneous value

SUM Scale

When the mode is SUM, set the sum scale.

SUM sums the data every computation interval. For flow values that have units /s, /min, /h, or /day, a simple summation results in the actual value not matching the computed result, because the scan interval and the unit of the input values are different. In such cases, set the sum scale to match the unit of the input value. In effect, the sum value with the same unit as that of the input value is calculated.

For example, if the scan interval is 1 s, and the input value is 100 m^3/min, a simple summation would add 100 every 1 s resulting in 6000 after one minute. However, if the sum scale is set to /min, then 1 s/60 s is multiplied every scan interval before the value is added giving a result with an m^3/min unit.

OFF: Simply sums the measured values.

/s: Sums by converting the measured values to a value over 1 second.

/min: Sums by converting the measured values to a value over 1 minute.

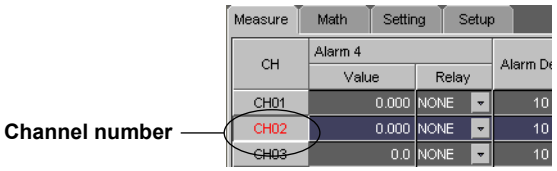
/h: Sums by converting the measured values to a value over 1 hour.

/day: Sums by converting the measured values to a value over 1 day.

Copying and Pasting the Settings

The settings specified for a given channel can be copied and pasted to other channels.

1. Click the copy source channel number. To select multiple channels, drag the pointer while holding down the left mouse button.

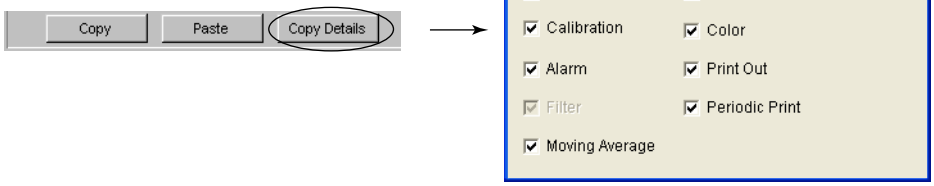


2. Click **Copy** (Copy).
3. Click the copy destination channel number. To select multiple channels, drag the pointer while holding down the left mouse button.
4. Click **Paste** (Paste).

The items that are to be copied/pasted can be limited

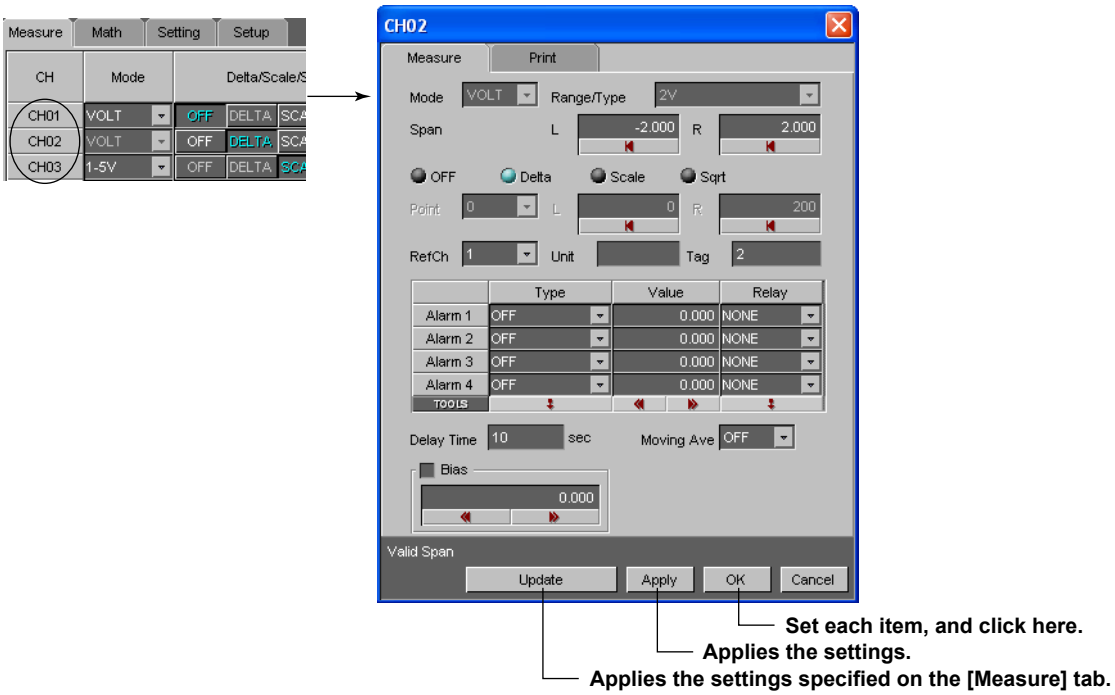
Click **Copy Details** to open the **Channel Copy Details** dialog box.

Select the check boxes for the items you wish to copy/paste, and click **OK**.



Setting Each Channel

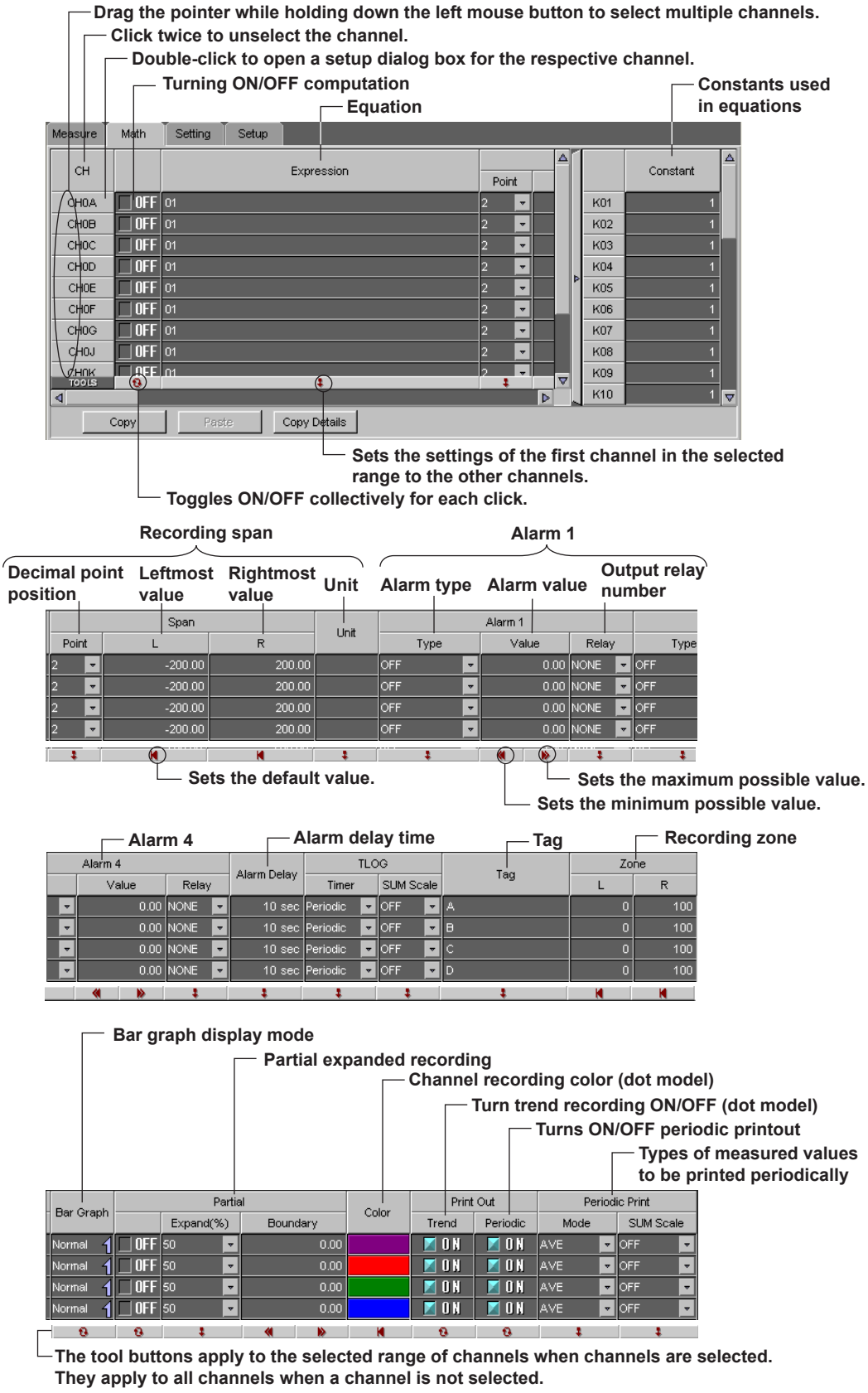
Double-click a channel number. The dialog box for that channel opens.



The settings in this dialog box are the same as those on the Measure tab.

2.5 Setting the Computation Channels (/M1 Option)

Click the **Math** tab. You can also choose **Math Channels** from the **Setting** menu.



Turning ON/OFF Computation

Turns ON/OFF computation.

Expression

Enter the expression using up to 120 characters. For details on the expression, see section 9.2, “Setting the Computing Equation” in the *μR10000 Recorder User’s Manual (IM 04P01B01-01E)* or *μR20000 Recorder User’s Manual (IM 04P02B01-01E)*.

Constant

Sets the constants to be used in computing equations. Up to 30 constants can be specified.
Range of values (maximum significant digits is 5):
–9.9999E+29 to –1.0000E–30, 0, 1.0000E–30 to 9.9999E+29

Span

Set the recording span.

Span (Point, L, and R)

Set the leftmost value of the span (L) and the rightmost value of the span (R) using a mantissa and decimal point position.

Mantissa: –9999999 to 99999999
Decimal position: 0 (the number of digits right of the decimal is 0) to 4 (the number of digits to the right of the decimal is 4)

Unit

Enter the unit using up to six characters. The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), μ, Ω, ^{2}, ^{3}, .), and space

Alarm 1 to 4

For the procedure, see section 2.4, “Setting the Measurement Channels.”
The alarm types that can be specified on a computation channel is high limit (H), low limit (L), delay high limit (T), and delay low limit (t).

TLOG Computation (TLOG)

Sets TLOG computation and the printing of the computed values.

Timer

Sets the timer used in TLOG computation and printout to Periodic (periodic printout timer), 1 (timer 1), or 2 (timer 2). For a description of the timer setting, see page 2-24.

SUM Scale

Sets the sum scale when determining the sum value in TLOG computation. For a description of sum scale, see page 2-12.

Tag, Zone, Bar Graph, Partial, Color (Dot Model), and Trend

For the procedure, see section 2.4, “Setting the Measurement Channels.”

Copying and Pasting the Settings

The settings specified for a given channel can be copied and pasted to other channels. For the procedure, see “Copying and Pasting the Settings” on page 2-13.

Setting Each Computation Channel

Double-click a channel number. The dialog box for that channel opens.

Setting the Equation

Click the **Ope.** button to open the **Select Operator** dialog box.

Select the operator type to switch the displayed operator buttons. Click a operator button to enter the operator in **Exp.**

The items in the math channel tab can be configured for each channel. The settings in this dialog box are the same as those on the Math tab.

2.6 Setting the Items in Setting Mode and the Data Display Method

Click the **Setting** tab. You can also select the item by choosing **SET [Regular] Setting** from the **Setting** menu.

Chart Speed/Trend Interval

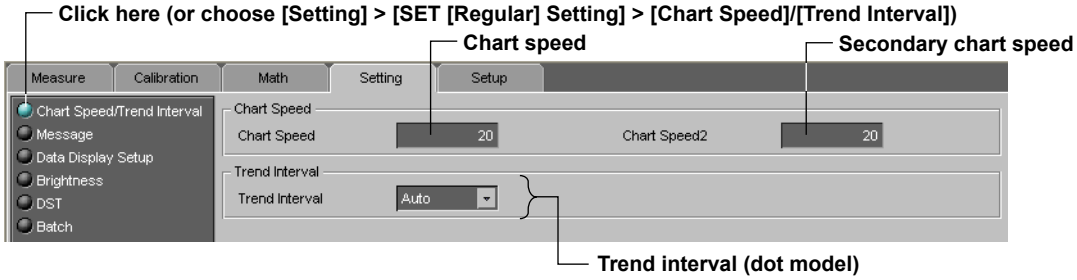


Chart Speed

- **Pen Model**

  The chart speed can be selected from 82 settings shown below.

Chart speed on the pen model (unit: mm/h)

5	6	8	9	10	12	15	16	18	20
24	25	30	32	36	40	45	48	50	54
60	64	72	75	80	90	96	100	120	125
135	150	160	180	200	225	240	250	270	300
320	360	375	400	450	480	500	540	600	675
720	750	800	900	960	1000	1080	1200	1350	1440
1500	1600	1800	2000	2160	2250	2400	2700	2880	3000
3600	4000	4320	4500	4800	5400	6000	7200	8000	9000
10800	12000								

- **Dot Model**

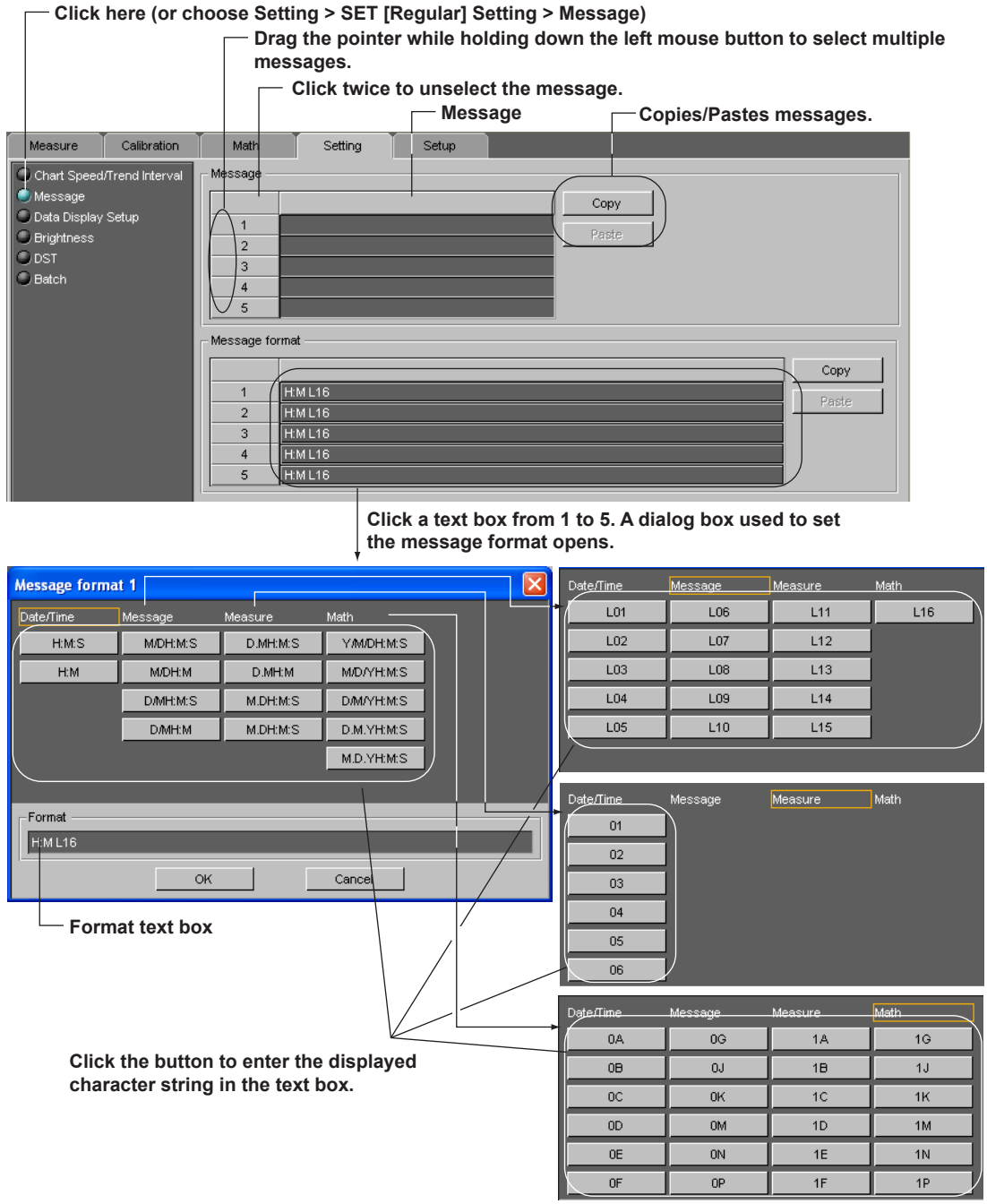
  The chart speed can be set in the range of 1 to 1500 mm/h in 1 mm steps.

Trend Interval (Dot Model)

Auto: The trend recording interval is set according to the chart speed in the range of 10 s to 90 s so that the dots do not overlap.

Fix: The trend recording interval is fixed to 10 s/6 dots. On models with the computation function (/M1 option), the dot printing interval varies depending on the number of measurement and computation channels to be trend recorded.

Message



Messages

Set a message using up to 16 characters.

The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), µ, Ω, ^{2}, ^{3}, .), and space

Message Format (/BT1 Option)*

* Function available on recorders with firmware version 1.31 or later.

Set the message format.

Click a text box from 1 to 5. A dialog box used to set the message format opens. Set the format using the selectable items displayed in the dialog box and space.

Number of characters per message: Up to 35 (µR10000) and up to 69 (µR20000).

Format symbols and number of characters used

Symbol	Num. of Chars	Symbol	Num. of Chars	Symbol	Num. of Chars
H:M	5	H:M:S	8	L01 to L16	1 to 16
M/D H:M	11	M/D H:M:S	14	01 to 24	7
D/M H:M	11	D/M H:M:S	14	0A to 1P	9
D.M H:M	11	D.M H:M:S	14		
M.D H:M	12	M.D H:M:S	15		
Y/M/D H:M:S	19	M/D/Y H:M:S	19		
D/M/Y H:M:S	19	D.M.Y H:M:S	19		
M.D.Y H:M:S	20				

H, M, and S are hour, minute, and second, respectively, for H:M and H:M:S.
M, D, and Y are month, day, and year, respectively for M/D, D/M, D.M , M.D, Y/M/D, M/D/Y, D/M/Y, D.M.Y, and M.D.Y.

Setup Example

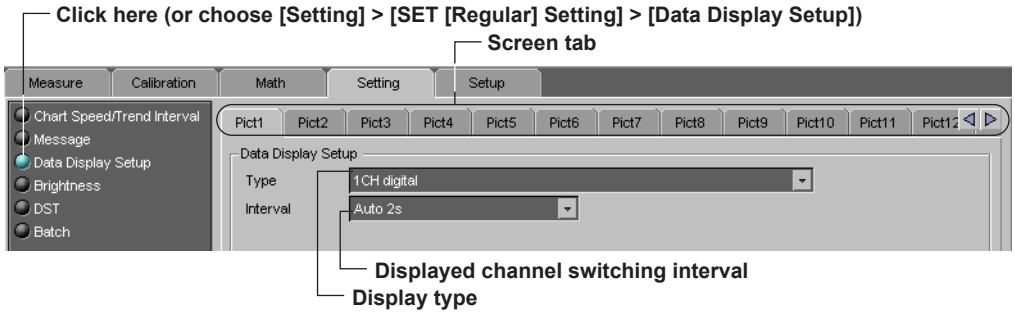
Message 1 string of the standard function: `Process-1°C`

Message 1 printout result: `06/30 10:10 Process-1 134.8°C`

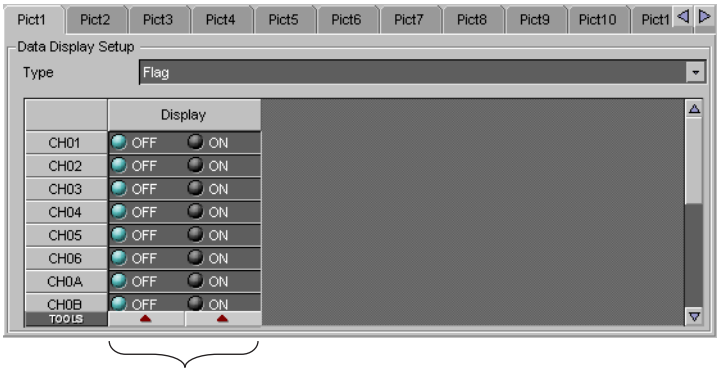
Message format 1: `M/D H:M L09 01L02`

- **10th and 11th characters of the message string (9 characters already used, so this represents the next characters.)**
- **Message value on CH1 (no unit)**
- **Space**
- **1-9th characters of the message string**
- **Space (number of characters: 1)**
- **Date/Time**

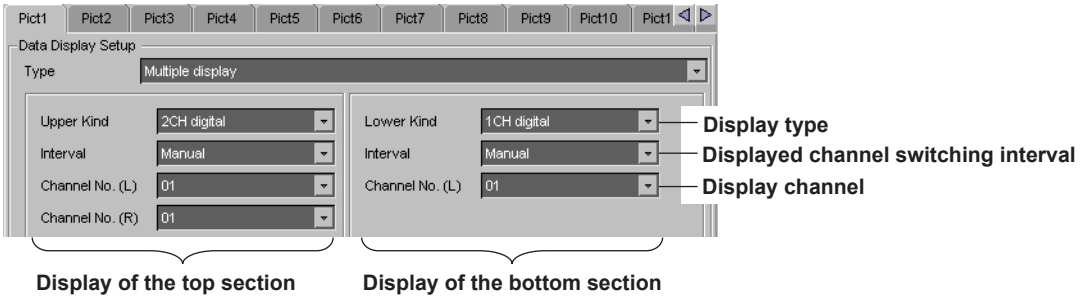
Data Display Setup



When display type is [Flag]



When display type is [Multiple display]



Pict1 Tab to Pict15 Tab

Corresponds to Screen 01 to Screen 15.

- **Type**

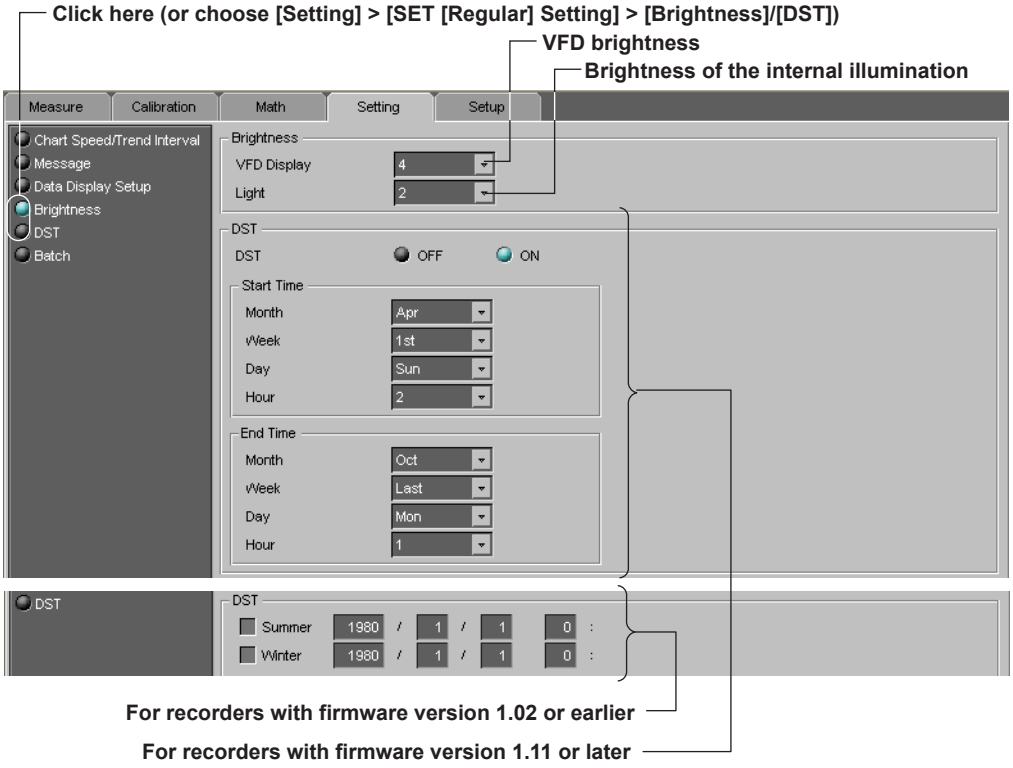
  The following display types available. For details on the display types, see section 12.4, “Display Function Specifications” in the *μR10000 Recorder User’s Manual (IM 04P01B01-01E)* or *μR20000 Recorder User’s Manual (IM 04P02B01-01E)*.

Display Type	Display Type
Skip (the screen is not displayed)	Time/Chart speed
1 CH digital	DI/DO
2 CH digital	Multiple display (Display in which different screens can be assigned to the top and bottom sections)
4 CH digital	
6 CH digital (6-dot models)	Tag_1 CH digital
12 CH digital (12/18/24-dot models, μR20000)	Tag_2 CH digital
1 CH digital + 1 CH bargraph	Tag_1 CH digital + 1 CH bargraph
1 CH digital + 4 CH bargraph (pen models)	Tag_1 CH digital + 4 CH bargraph (pen models)
2 CH digital + 2 CH bargraph	Status
4 CH bargraph (pen models)	System
6 CH bargraph (dot models, μR10000)	Batch Name*
Flag	Lights out (display with no contents)
Channel alarm status	

* Selectable on recorders with firmware version 1.31 or later and header printout (/BT1 option).

- **Interval**
  Sets the displayed channel switching interval. This item appears when the display type requires this setting.
  Auto 1s to Auto 5s: Switches the channel at the specified time interval.
  Manual: Switch the channel manually.
- **Display (For Flag)**
  Selects the channels on which flag is to be displayed.
- **Channel No. (L)/Channel No. (R) (For Multiple display)**
  Specifies the channels to be displayed simultaneously.

Brightness and DST



VFD Display

The brightness can be set to an integer between 1 and 8. The darkest setting is 1; the brightest setting is 8.

Light

The brightness of the internal light can be set to an integer between 1 and 4. The darkest setting is 1; the brightest setting is 4. Select OFF to turn off the internal light.

DST

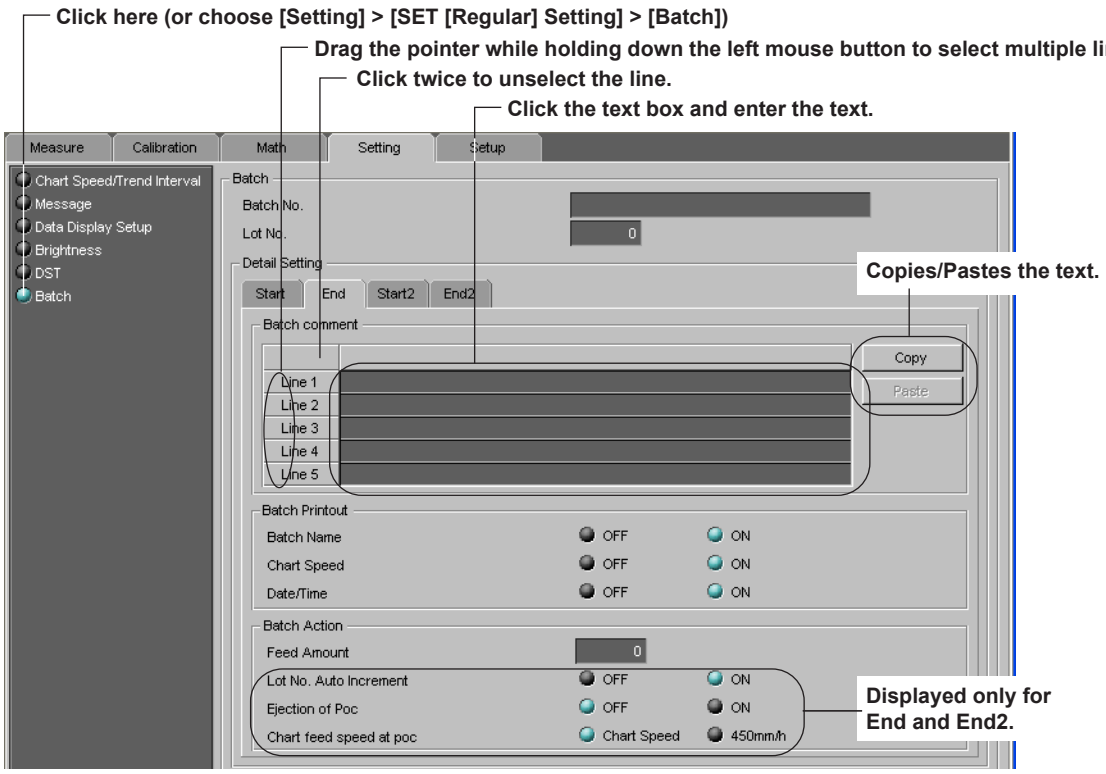
Sets the date/time for switching between standard time and DST.

- **For recorders with firmware version 1.02 or earlier**
  Summer: Date/Time when switching from standard time to DST
  Winter: Date/Time when switching from DST to standard time
- **For recorders with firmware version 1.11 or later**
  Start Time: Date/Time when switching from standard time to DST. Specify the day as **n** th day of the week of the month.
  End Time: Date/Time when switching from DST to standard time. Specify the day as **n** th day of the week of the month.

Batch (/BT1 Option)*

* Function available on recorders with firmware version 1.31 or later.

This appears when batch function is enabled (see page 2-33) in Basic Setting mode.



Set the contents of the start printout and end printout.

The Start2 and End2 tabs are valid when Dual Comment is enabled in Basic Setting mode.

Batch No.

Enter the batch number using up to 26 characters.

The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), µ, Ω, ^{2}, ^{3}, and .), and space

Lot No.

This appears when Digit of lot number is specified (see page 2-33) in Basic Setting mode.

Set the number in the range of 0000 to 9999 or 000000 to 999999. Digit of lot number is set in Basic Setting mode.

Batch Comment

Set the batch comment using up to 32 characters by 5 lines (µR10000) or 64 characters by 5 lines (µR20000).

The characters that can be used are as follows (see section 2.12):

Alphabet, numbers, symbols (%, #, °, @, +, –, *, /, (,), µ, Ω, ^{2}, ^{3}, and .), and space

Batch Printout

- **Batch Name**
  On: Prints the batch name.
- **Chart Speed**
  On: Prints the chart speed.
- **Date/Time**
  On: Prints the date and time.

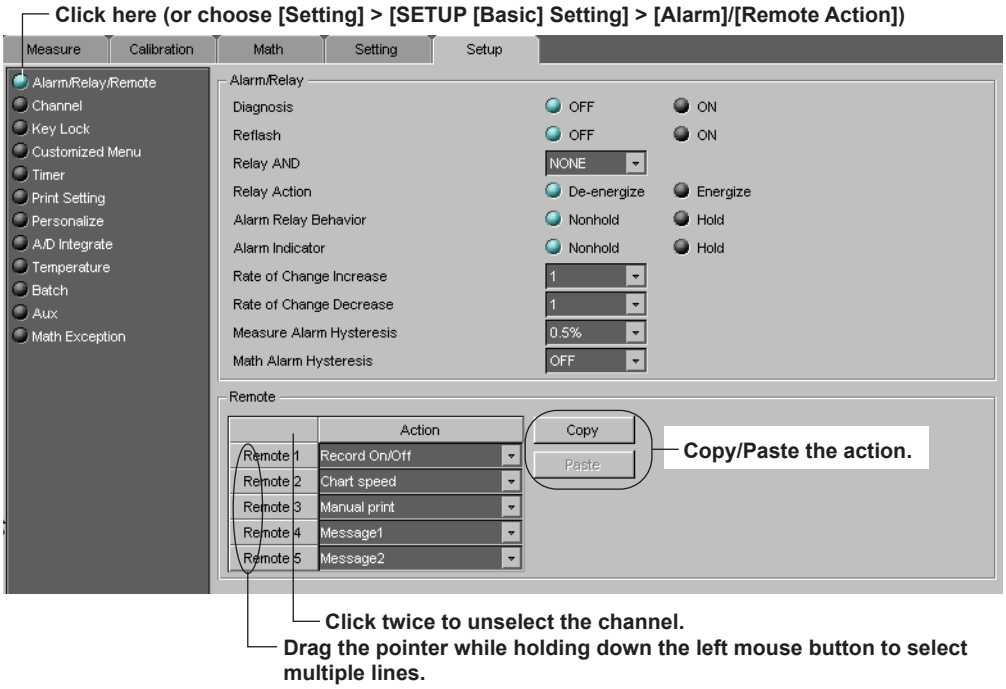
Batch Action

- **Feed Amount**
  Set the length of chart paper to be fed out before start printout or after end printout in 1-mm steps up to 50 mm.
- **Lot No. Auto Increment**
  On: Increments the lot number when the header printout is completed.
- **Ejection of POC**
  On: Records the portion of the data that remains after recording stops when the pen offset compensation function is enabled on the pen model.
- **Chart feed speed at POC**
  Specifies the chart feed speed when recording the portion of the data that remains.

2.7 Setting the Items in Basic Setting Mode

Click the **Setup** tab. You can also select the item by choosing **SETUP [Basic] Setting** from the **Setting** menu.

Alarm/Relay/Remote



Diagnosis
ON: Alarm output relay I01 is used for diagnosis output.

Reflash
ON: Alarm output relays I01, I02, and I03 are set to reflash alarm operation.

Relay AND
Set the range of relays (from alarm output relay I01) to take the AND operation. If NONE is selected, no relays are set to AND operation. All relays are set to OR operation.

Relay Action
Sets whether the output relay is energized or de-energized when an alarm occurs.

Alarm Relay Behavior
Nonhold: Releases the relay output at the same time the alarm is released.
Hold: Holds the relay output until the alarm ACK operation is executed.

Alarm Indicator
Nonhold: Releases the alarm indication at the same time the alarm is released.
Hold: Holds the alarm indication until the alarm ACK operation is executed.

Rate of Change Increase and Rate of Change Decrease
Set the interval of the high limit and low limit on rate-of-change alarm to an integer between 1 and 15. The interval is set to scan interval × (1 to 15).
The scan interval on the pen model is 125 ms. The scan interval on the dot model is 1 s or 2.5 s.

Measure Alarm Hysteresis

Sets the alarm hysteresis of measurement channels in the range of 0.0% (OFF) to 1.0% of the recording span in 0.1 steps. The hysteresis applies to all high limit and low limit alarms of measurement channels.

Math Alarm Hysteresis (Models with the Computation Function (/M1 Option))

Sets the alarm hysteresis of computation channels in the range of 0.0% (OFF) to 1.0% of the recording span in 0.1 steps. The hysteresis applies to all high limit and low limit alarms of computation channels.

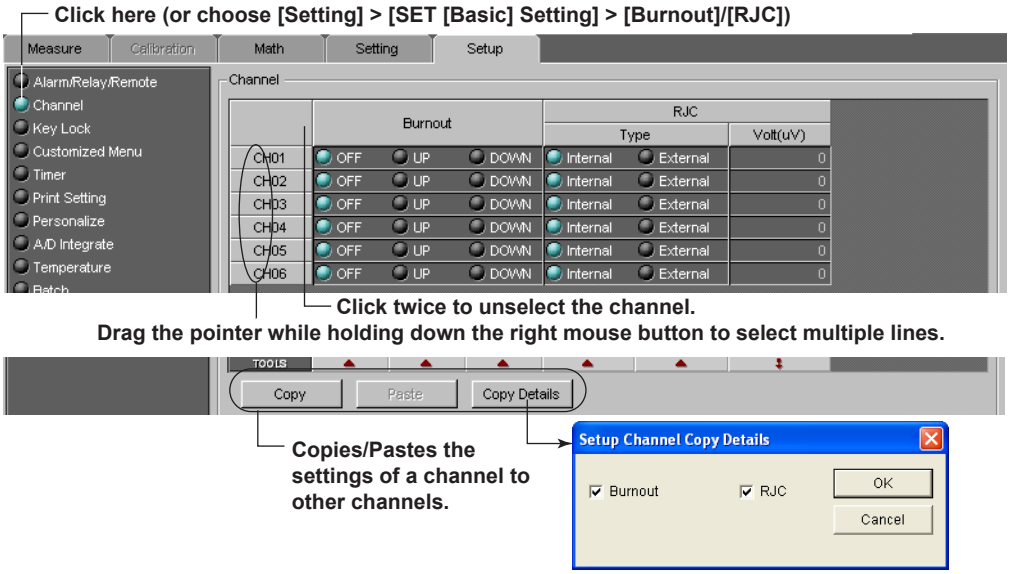
Remote (Models with Remote Control Input (/R1 Option))

Remote 1 to Remote 5 corresponds to remote control input terminals 1 to 5. The following functions can be assigned.

Display	Description
NONE	No function is assigned.
Record On/Off	Starts/stops recording.
Chart speed	Changes the chart speed.
Time adjust	Adjusts the internal clock to the nearest hour.
MATH start/stop	Starts/stops the computation on the computation function (/M1 option).
MATH reset	Resets the computed result of the computation function (/M1 option).
Manual print	Executes manual printout.
Alarm ACK	Executes alarm output release.
message #	Prints message # (where # is a value between 1 and 5).
Priority to Remote Recording*	Starts/stops recording.
Switching Batch Comment*	Switches between start printout and start printout 2. Or, switches between end printout and end printout 2.

* Selectable on recorders with firmware version 1.31 or later and header printout (/BT1 option).

Channel



Burnout

Up: Records off the scale on the 100% side when a thermocouple burnout is detected.

Down: Records off the scale on the 0% side when a thermocouple burnout is detected.

OFF: Disable the burnout detection function.

RJC

- **Type**

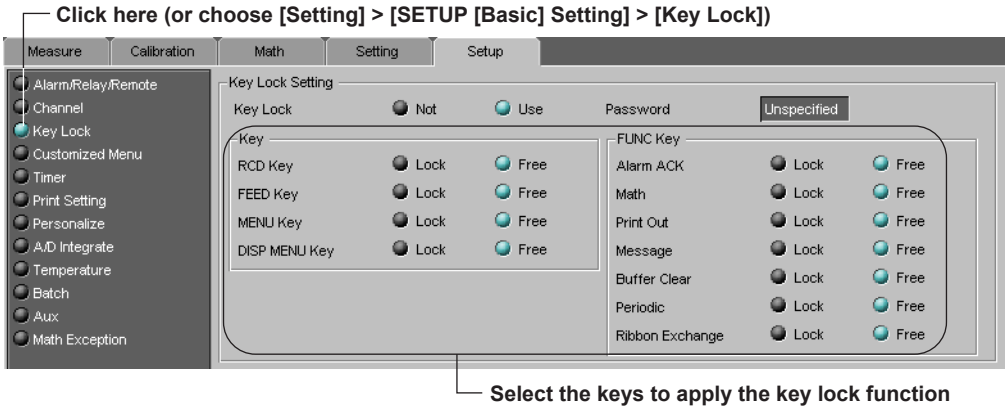
  Internal: Uses the RJC function of the recorder.

  External: Uses an external RJC function.

- **Volt (uV)**

  Sets the compensation voltage when using an external RJC function. The compensation voltage can be set in the range of –20000 µV to 20000 µV.

Key Lock



Key Lock

Specify whether to use key lock.

Password

Sets the password for releasing the key lock. Set the password using numbers and spaces up to 4 digits.

Note

Note that if the firmware version of the µR10000 is 1.01, a password that starts with spaces is read with the spaces removed on the recorder. The firmware version of the recorder can be checked on the system display (see “Data Display Setup” on page 2-20).

Keys That Can Be Locked

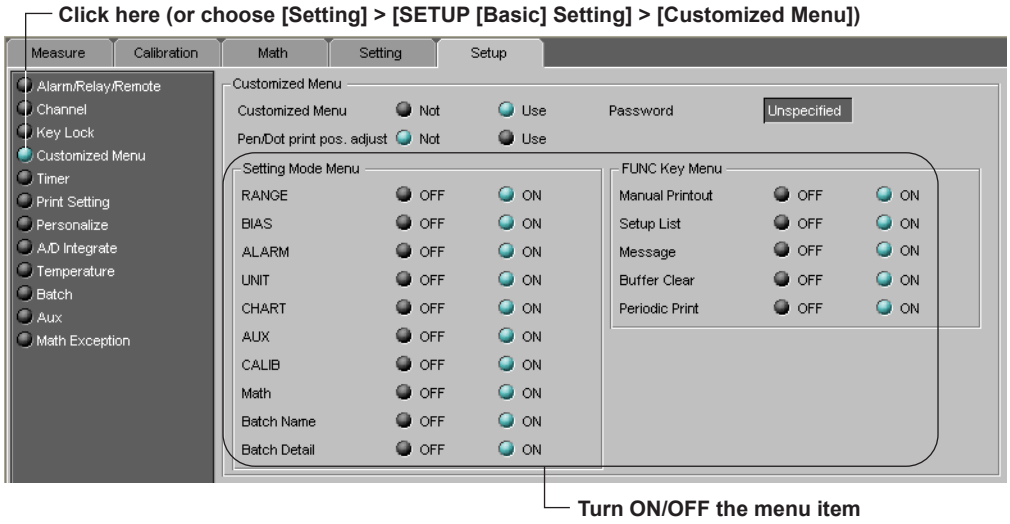
Below are operations in the FUNC key menu.

- Alarm ACK: Alarm ACK operation
- Math: Math start, stop, and reset operations
- Print Out: Printout start/stop operation
- Message: Message printout operation
- Buffer clear: Operation for clearing the printout buffer memory
- Periodic: Operation for clearing the report data of the periodic printout
- Pen exchange: Operation for moving the pen to a position that is easily accessible for replacement (pen model)
- Ribbon exchange: Operation for moving the printer to a position that is easily accessible for ribbon cassette replacement (dot model)*

* For recorders with firmware version 1.11 or later

Customized Menu*

* Function available on recorders with firmware version 1.31 or later.



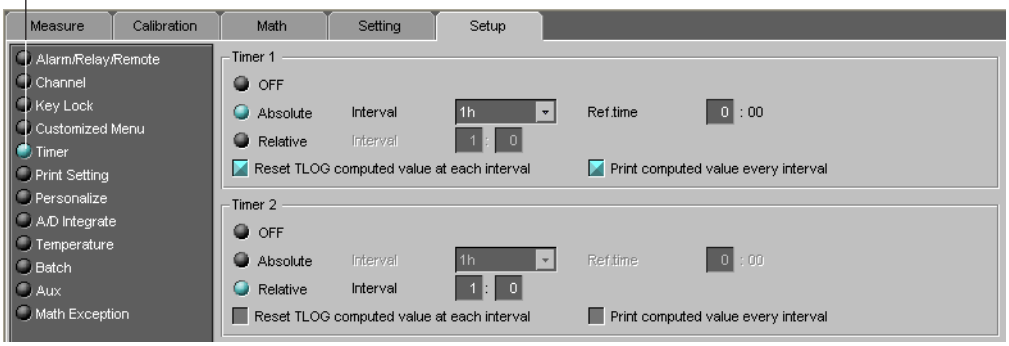
Customized Menu

The FUNC key menu and Setting mode menu can be customized to display only the menus that you use.

- **Customized Menu**
  Set whether or not to use this function.
- **Password**
  This is the password used to release the customized menu or to enter Basic Setting mode. Set the password using a number up to 4 digits and space.
- **Pen/Dot print pos. adjust**
  Use: Use the pen position adjustment (pen model) and dot printing position adjustment (dot model) without the password.
  Not: Enter the password to enter Basic setting mode to use the pen position adjustment (pen model) and dot printing position adjustment.
- **Setting Mode Menu**
  Menu items of Setting mode.
  OFF: Hides the menu items.
- **FUNC Key Menu**
  Menu items using the FUNC key.
  OFF: Hides the menu items.

Timer

Click here (or choose [Setting] > [SETUP [Basic] Setting] > [Timer])

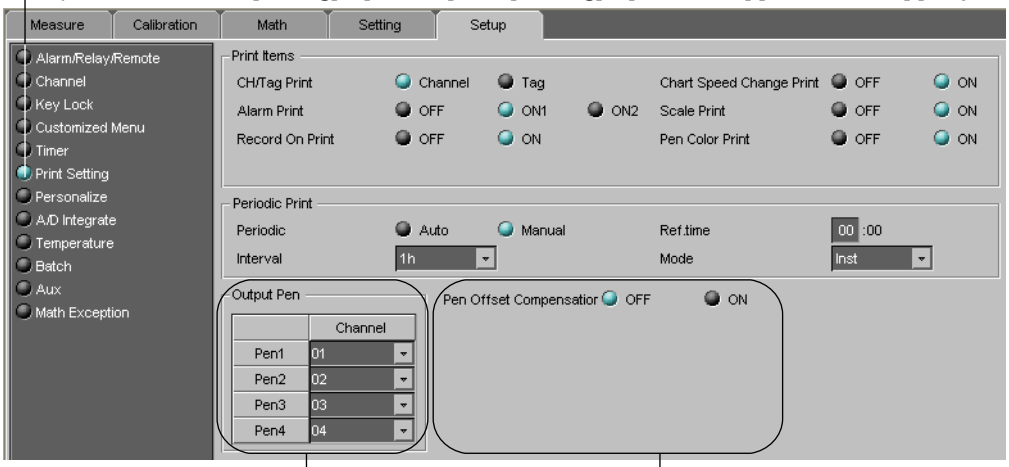


Can be specified on models with the computation function (/M1 option).
Two timers to be used in TLOG computation (timer 1 and timer 2) can be specified. The timers can be used to print out computed values or reset the computed result when the specified time elapses.

- Absolute: The timer expires at specified intervals from the reference time.
- Relative: The clock is started in sync with the starting of the computation, and the timer expires at specified intervals.

Print Setting

Click here
(Dot model: select [Setting] > [SETUP [Basic] Setting] > [Print Items]/[Periodic Print]
(Pen model: select [Setting] > [SETUP [Basic] Setting] > [Print Items]/[Periodic Print]/[Output Pen]/[POC])



Displayed on the pen model.

Displayed on pen models with the computation function (/M1 option)

CH/Tag Print
Specifies whether to print channel numbers or tags.

Channel Print (Dot Model)
On: Prints the channel number by the trend recording.

Alarm Print
ON1: Prints the alarm information when an alarm occurs or releases.
ON2: Prints the alarm information only when an alarm occurs.
OFF: Does not print alarm information.

Recording On Print
On: Prints the time and chart speed when recording is started.

Chart Speed Change Print
On: Prints the time and chart speed when the chart speed is changed.

Scale Print
On: Prints the channel scale at periodic printouts.

Pen Color Print (Pen Model)
On: Prints the recording color at periodic printouts.

Periodic Print
Select the periodic printout interval mode.
Auto: Automatically sets the printout interval in sync with the chart speed.
Manual: Set the printout interval manually.

- **Interval**
  Select the interval from 10, 12, 15, 20, 30 min, 1, 2, 3, 4, 6, 8, 12, and 24 h.
- **Ref. time**
  Sets the reference time for determining the times for executing the periodic printout.
  The reference time is set in the range of 00 to 23 in 1 hour steps.

- **Mode**
  Sets the type of measured values to be printed.
  Inst: Prints the measured value at that point.
  Report: Prints the report data over the interval. If Report is selected, set the type of report data. See “Periodic Printout” in section 2.4, “Setting the Measurement Channels” and 2.5, “Setting the Computation Channels.”
  OFF: Does not print measured values.

Output Pen (Pen Model with the Computation Function (/M1 Option))

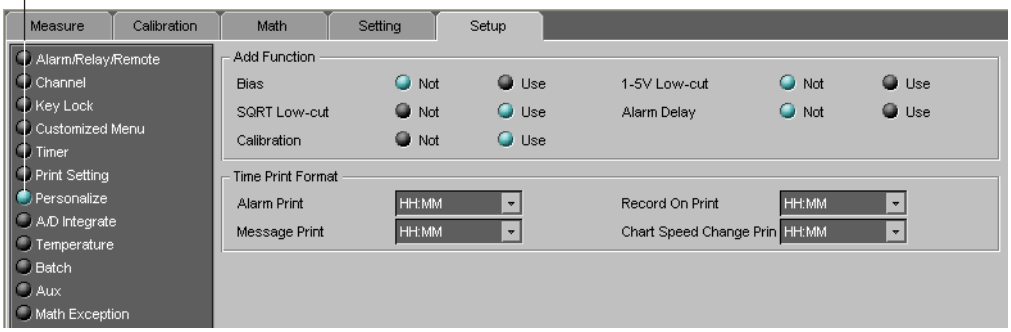
Trend can be recorded by arbitrarily assigning measurement channels and computation channels to recording pens.

Pen Offset Compensation (Pen Model)

ON: Records by compensating for the pen offset (phase difference) along the time axis.

Personalize

Click here (or choose [Setting] > [SET [Basic] Setting] > [Add Function]/[Time Print Format])



Add Function

- **Bias**
  Select **Use** to enable the setting of a bias for the measurement channels. **Bias** and **Calibration** cannot be enabled simultaneously.
- **SQRT Low-cut**
  Enables/Disables the square root low-cut function.
  Select **Use** to enable the setting of the low-cut function when measurement channels are set to square root computation.
- **1-5V Low-cut**
  Enables/Disables the 1-5V low-cut function.
  Select **Use** to enable the setting of the low-cut function when measurement channels are set to 1-5V signals.
- **Alarm Delay**
  Enables/Disables the alarm delay function.
  Select **Use** to enable the selection of the delay high/low limit alarm for the alarm type.
- **Calibration (/CC1 Option)***
  * For recorders with firmware version 1.21 or later
  Enables/Disables the calibration correction.
  Select **Use** to enable the calibration correction function. **Bias** and **Calibration** cannot be enabled simultaneously.

Time Print Format

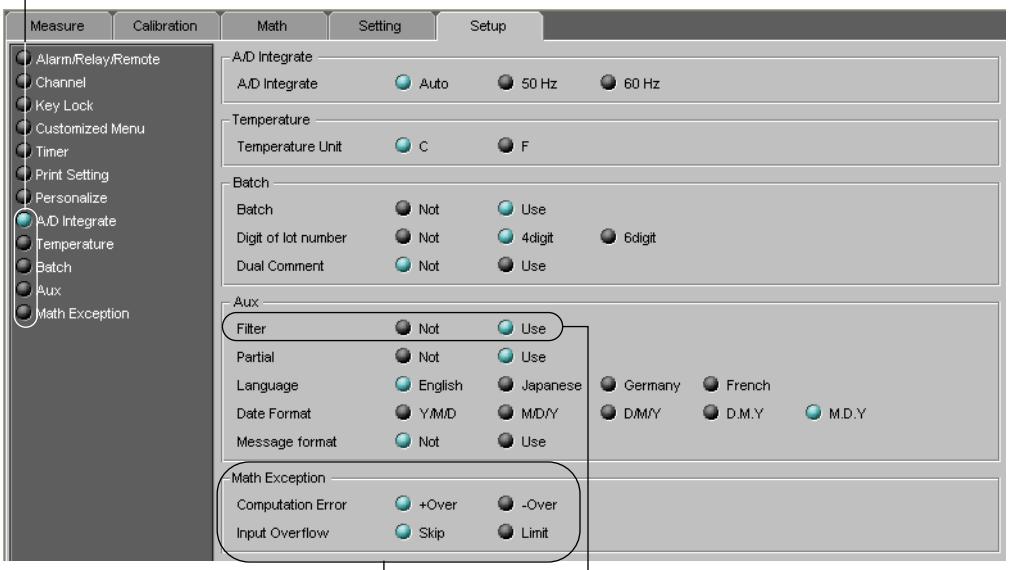
- **Alarm Print, Message Print, Record On Print, and Chart Speed Change Print**
  Sets the time printout format for each type of printout. The format of year, month, and day varies depending on the **Date Format** setting on next page.

Selections	Format (example)	Selections	Format (example)
HH:MM	10:00	M/D H:M:S	Nov.09 10:00:00
HH:MM:SS	10:00:00	YMD H:M:S	Nov.09.2005 10:00:00
M/D H:M	Nov.09 10:00	NONE	Does not print the date/time.*

* Selectable for Message Print only.

A/D Integrate, Temperature, Batch, Aux, and Math Exception

Click here (or choose [Setting] > [SET [Basic] Setting] > [A/D Integrate]/[Temperature]/[Batch]/[Aux]/[Math Exception])



Displayed on models with the computation function (/M1 option).

On the pen model, [Filter] is displayed.

A/D Integrate (Integration Time of the A/D Converter)

50 Hz: Sets the time to 20 ms.
60 Hz: Sets the time to 16.7 ms.
Auto: Set to the integration time synchronized to the power supply frequency (20 ms or 16.7 ms).
100 ms (dot model): Sets the integration time to 100 ms. The scan interval is set to 2.5 s.

Temperature

Sets the unit of temperature measurements using thermocouples and RTDs.
C: Celsius
F: Fahrenheit

Batch (/BT1 Option)*

* Function available on recorders with firmware version 1.31 or later.

- **Batch**
  Use: Enables start printout, end printout, and batch name.
- **Digit of lot number**
  Sets the number of digits of the lot number.
- **Dual Comment**
  Use: Enables start printout 2 and end printout 2.

Aux

- **Moving Ave (Dot Model)**
  Select Use to enable the setting of the sampling count of the moving average for the measurement channels.
- **Filter (Pen Model)**
  Select Use to enable the setting of the filter constant for the measurement channels.
- **Partial**
  Select Use to enable the setting of the boundary position and boundary value of the partial expanded recording function for measurement channels and computation channels.

- **Language**

  English: Uses English for the display and recording.
  German: Uses German for the display and recording*
  French: Uses French for the display and recording*
  Japanese: Uses Japanese for the display and recording.

  * For recorders with firmware version 1.21 or later

- **Date Format****

  ** For recorders with firmware version 1.11 or later

Selections	Printout example	Selections	Printout example
Y/M/D	2005/08/31	M.D.Y	Aug.31.2005
M/D/Y	08/31/2005	D.M.Y	31.08.2005
D/M/Y	31/08/2005		

- **Message Format*****

  *** Function available on recorders with firmware version 1.31 or later and header printout (/BT1 option).

  Use: Allows you to specify the message format.

Math Exception

Can be specified on models with the computation function (/M1 option).

- **Computation Error**

  Specifies how to handle the computed result when computation errors occur.
  +Over: Set to +over. Displayed/Printed as “+Over.”
  –Over: Set to –over. Displayed/Printed as “–Over.”

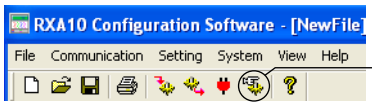
- **Input Overflow**

  Selects the procedure when a “over” value is input for TLOG.SUM or TLOG.AVE computation.
  Skip: The “over” value is not used in the computation.
  Limit: The limit value is used for the computation.

2.8 Checking the Consistency of the Settings

Checking the Consistency of the Settings

From the **System** menu, choose **Data Adjustment**. You can also click the Data Adjustment icon.

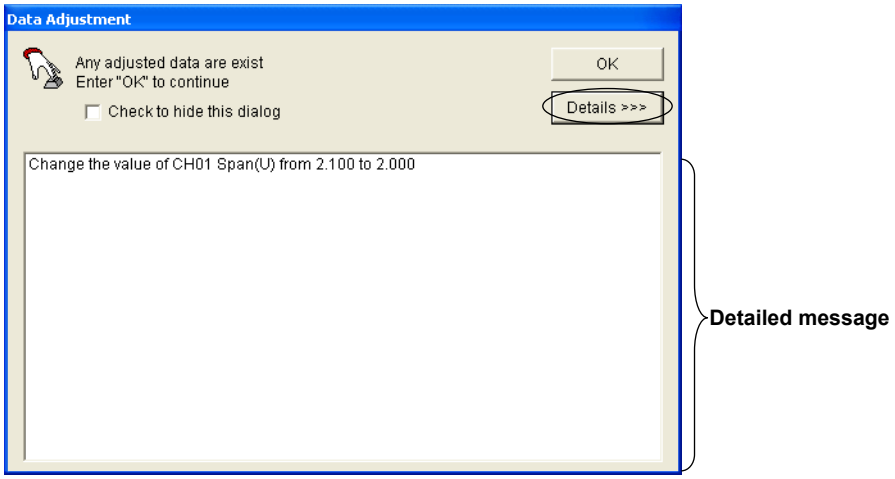


This function checks whether the settings are consistent with the system configuration and setup conditions and automatically corrects the data if they are not.
The data are corrected in the following cases:

- When the values of the items of the Measure/Math tab are outside the selectable range.
- When an invalid character string is used

Checking the Corrections

From the **View** menu, click **Data Adjustment Dialog** so that a check mark appears beside it. If the data is inconsistent when adjusting the data or when sending the data, the **Data Adjustment** dialog box opens. Click **Details** to display the details of the correction.

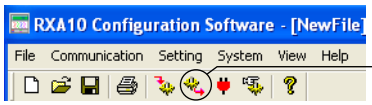


Note

When sending setup data to the recorder, the data is adjusted, and consistent data is sent to the recorder.

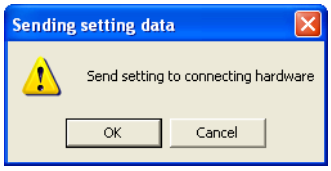
2.9 Sending Setup Data to the Recorder

1. From the **Communication** menu, choose **Send Setting**. You can also click the Send setting icon on the toolbar. The **Sending setting data** dialog box opens.



2. Click **OK**.

   The transmission starts. When the transmission of the settings is complete, a message appears to indicate it.



3. Click **OK**.

Note

- If a message appears, see section 3.1, “Error Messages.”
- If the difference between values of the correction points, or the difference between values after correction, are small, for example several digits, an error may occur when you send the setup data to the recorder. In that case, change the set values.

2.10 Saving the Setup Data

Saving to a File by Specifying a Name

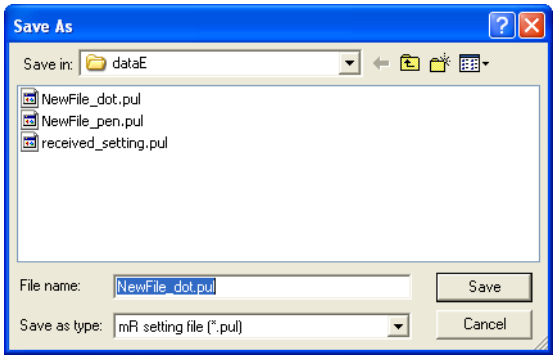
The setup data can be saved to a file by specifying the file name. The extension to setup data files is .pul.

Note

When using Windows Vista, do not specify the root directory of a disc drive as a destination for saving files. The software may not be able to save to the specified destination.

1. From the **File** menu, choose **Save As**.

   The **Save As** dialog box opens.



2. Specify the save destination, enter the file name, and click **Save**.

   The setup data is saved.

Saving (Overwriting) to the File

From the **File** menu, choose **Save**. You can also click the Save icon ( ). The setup data is saved (overwritten).

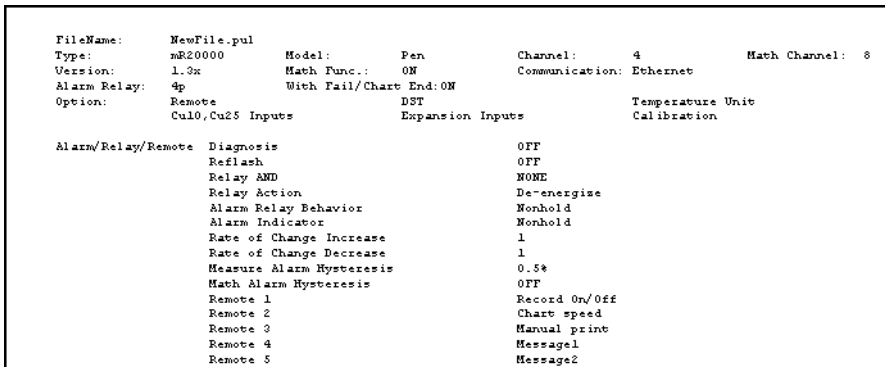
2.11 Printing the Setup Data

Setting the Printer

From the **File** menu, choose **Print Setup**. The Print Setup dialog box opens. Set the printer.

Previewing the Print

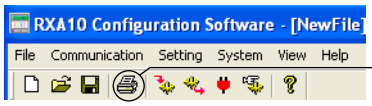
You can preview the print layout before actually printing the data.
From the **File** menu, choose **Print Preview**. The print preview window opens.



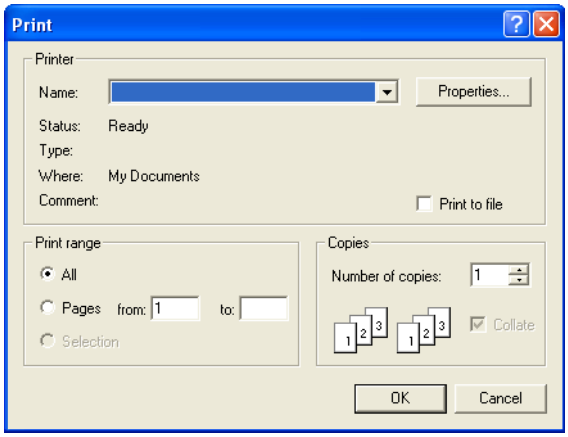
```
FileName:       NewFile.pul
Type:           mR20000          Model:          Pen             Channel:        4               Math Channel:   8
Version:        1.3x             Math Func.:     ON              Communication:  Ethernet
Alarm Relay:    4p               With Fail/Chart End:ON
Option:         Remote                           DST                             Temperature Unit
                Cu10,Cu25 Inputs                 Expansion Inputs                Calibration

Alarm/Relay/Remote  Diagnosis                                   OFF
                    Reflash                                     OFF
                    Relay AND                                   NONE
                    Relay Action                                De-energize
                    Alarm Relay Behavior                        Nonhold
                    Alarm Indicator                             Nonhold
                    Rate of Change Increase                     1
                    Rate of Change Decrease                     1
                    Measure Alarm Hysteresis                    0.5%
                    Math Alarm Hysteresis                       OFF
                    Remote 1                                    Record On/Off
                    Remote 2                                    Chart speed
                    Remote 3                                    Manual print
                    Remote 4                                    Message1
                    Remote 5                                    Message2
```

Printing

From the **File** menu, choose **Print**. You can also click the Print icon. The **Print** dialog box opens.



Click **OK** to execute printing.



2.12 Characters That Can Be Used

The ASCII character codes of characters that can be used are shown in the table below.
The type of characters that can be used are as follows:
Alphabet, numbers, symbols, and space

Characters for English

Note

The characters/symbols µ, Ω, ^{2}, ^{3}, and ° are mapped as shown below. The character inside the parentheses is the corresponding character on the keyboard. On the setup window, the keyboard character is displayed.
µ: 7BH ({), Ω: 7CH (|), ^{2}: 7DH (}), ^{3}: 7EH (~), and °: 5EH (^)

Upper 4 bits

Lower 4 bits	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP (space)	0	@	P		p								
1				1	A	Q	a	q								
2				2	B	R	b	r								
3			#	3	C	S	c	s								
4				4	D	T	d	t								
5			%	5	E	U	e	u								
6				6	F	V	f	v								
7				7	G	W	g	w								
8			(	8	H	X	h	x								
9			)	9	I	Y	i	y								
A			*		J	Z	j	z								
B			+		K		k	µ								
C					L		l	Ω								
D			–		M		m	^{2}								
E			.		N		n	^{3}								
F			/		O		o									

Characters for German and French

Note

The character Ω is mapped as shown below. The character inside the parentheses is the corresponding character on the keyboard. On the setup window, the keyboard character is displayed.

Ω: 7CH (|)

Lower 4 bits \ Upper 4 bits	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0			SP (space)	0	@	P		p				°			à	
1				1	A	Q	a	q								
2				2	B	R	b	r				2			â	
3			#	3	C	S	c	s				3				
4				4	D	T	d	t					Ä		ä	ô
5			%	5	E	U	e	u				µ				
6				6	F	V	f	v						Ö		ö
7				7	G	W	g	w					Ç		ç	
8			(	8	H	X	h	x							è	
9			)	9	I	Y	i	y							é	ù
A			*		J	Z	j	z							ê	
B			+		K		k						Ë		ë	û
C					L		l	Ω						Ü		ü
D			–		M		m									
E			.		N		n								î	
F			/		O		o						Ï	ß	ï	

- Characters for German only
  Ä Ö Ü ä ö ü ß
- Characters for French only
  Ë Ï Ü Ç é à è ù â ê î ô û ë ï ü ç

3.1 Error Messages

When an error message appears, take appropriate measures by referring to the table below.

Error Messages

Message	Corrective Action	Reference Section
User name or Password is not right or recorder is already connected by other program!	In the communication settings, check that the user name and password match with the settings on the instrument to be connected. In addition, check that other software programs are not performing communications with the instrument to be connected.	2.2
Connection error, please check communication setting!	In the communication settings, check that the communication mode and parameters match with those of the instrument to be connected.	2.2
Connection timeout.	There may be too much traffic. Retry after a little while.	–
Failed to open file.	If the file cannot be loaded the second time, the file may be corrupt. Select another file.	2.3
Failed to send data.	Displayed when the transmission of the setup data fails. Check that the system configuration matches that of the connected instrument.	2.9
Failed to make file.	Check the capacity of the directory, or check that other programs are not using it.	–
The setting information is mismatch current setting. Please select again.	A unsupported file is selected. Check the file. The extension to setup data files is .pul.	–
Now recording. Can't send settings.	Stop the recording on the μR before sending the data.	–
Now calculating. Can't send settings.	Stop the computation on the μR before sending the data.	–
Now recording & calculating. Can't send settings.	Stop the recording and computation on the μR before sending the data.	–
Sending data is not permitted to the current user level.	Change the user making communication settings to administrator level.	2.2
There is no format string.	Specify the character string in the message format.	2.6
Format string exceeds limit.	The character string written in message format is too long.	2.6
Printed string exceeds limit.	The character string written in message format is too long when it is actually printed.	2.6
Format string is wrong.	There is an error in the message format string.	2.6
Channel selection is wrong.	There is an error in the channel designation in the message format.	2.6
Message selection is wrong.	There is an error in the message designation in the message format.	2.6

Warnings

Message
Some data has been modified, continue sending data?
System configuration has been changed. The input configuration and data will be initialized. Continue?
Contains invalid data. Open this setting?
Hardware and software configurations don't match. Continue sending data?
Any destroyed A/D converter exists. Any settings may be failed to store.
This recorder doesn't match all, Continue or not?
File version x.xx is not supported. Setting data will be changed to latest version x.xx. Do you continue operation?
Version x.xx is not supported. Setting data will be received as latest version x.xx. Do you continue operation?
This device is not supported. Setting data will be received as supported version x.xx device. Do you continue operation?
Connected device is not supported. Some setting data may not be send. Do you continue sending?
Connected device is not supported hardware.

4.1 Overview of CopyTool

CopyTool is a software program that copies settings from one recorder to another.

Differences between CopyTool and the Configuration Software

The Configuration software supports the latest version of the recorder as of the purchase date.

CopyTool copies the source settings and sends them to the destination recorder regardless of the version of either the source or destination recorder. As long as the specifications of the copy source and copy destination recorders are the same, the settings can be copied successfully.

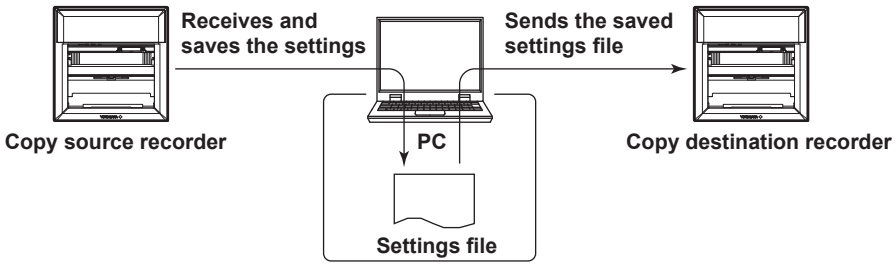
PC System Requirements

This software runs under the same environment as the RXA10 Configuration software. See section 1.2, “PC System Requirements” for details.

Copying

This function works as follows.

- A settings file is received from the recorder and saved.
- The saved settings file is sent to the copy destination recorder.



The settings that can be copied are as follows.

- Basic Setting mode settings
  However, this excludes the dot printing or pen position adjustment setting.
- Setting mode settings

Note

- CopyTool and the RXA10 Configuration software can be run simultaneously.
- Only one instance of CopyTool can be run at a time.

4.2 Installing CopyTool and Checking the Version

CopyTool is located on the RXA10 CD-ROM. No serial number is required when installing CopyTool.

Installation

1. Turn on the power to the PC and allow Windows to start up. Log on to Windows with Administrator privileges.
2. Insert the CD-ROM into the CD-ROM drive.
   The installation program starts automatically. A startup screen appears.
3. Click the button for the Japanese or English version of CopyTool. Follow the instructions on the screen to proceed with the installation.

   If the installation program does not start automatically when you insert the CD-ROM into the CD-ROM drive, use the following procedure to start it.
4. In My Computer, double-click the CD-ROM icon to open the CD-ROM drive window.
5. Double-click install.exe (in the root directory). A startup screen appears.

Note

- Before starting the installation, make sure to exit all resident programs such as anti-virus programs.
- To reinstall the software, first remove it, then reinstall it.
- To uninstall, open the Windows Control panel and double-click the Add or Remove Programs icon. Even if you uninstall CopyTool, your saved settings files will not be deleted.

Checking the Version of the Software

On the menu bar, click **Help** > **About**.
The version of CopyTool is displayed.

4.3 Copying Recorder Settings

Starting and Exiting CopyTool

Starting

On the Start menu, click **Programs** > **RXA10 CopyTool** > **RXA10 CopyTool**.
CopyTool starts up in the same condition when last exited, and displays a window.

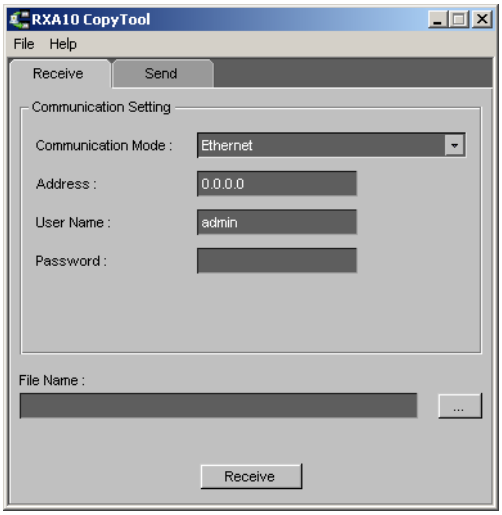
Exiting

Click **File** > **Exit** or click the **×** button in the upper right corner of the window.
The CopyTool window closes. When it closes, it remembers its condition upon closing so that it can be restored the next time the program is started.

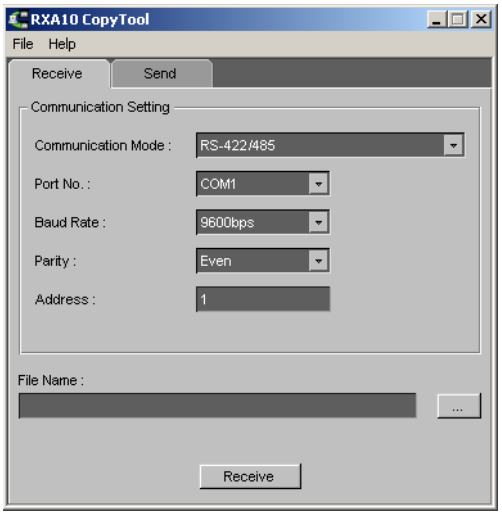
Receiving Settings

1. Click the **Receive** tab.
2. Select a mode from the Communication Mode list.
   The setting items for that communication mode appear in the tab page.

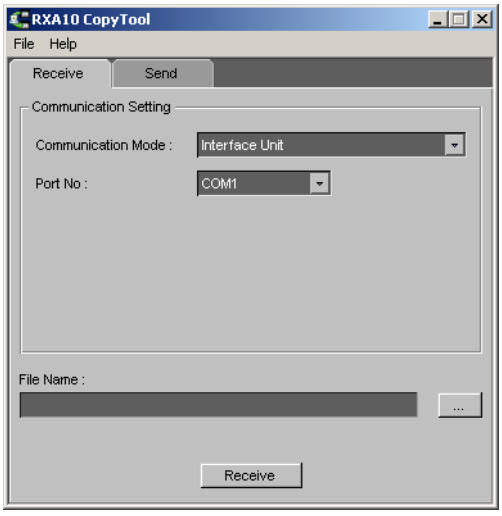
When using Ethernet (/C7 option)



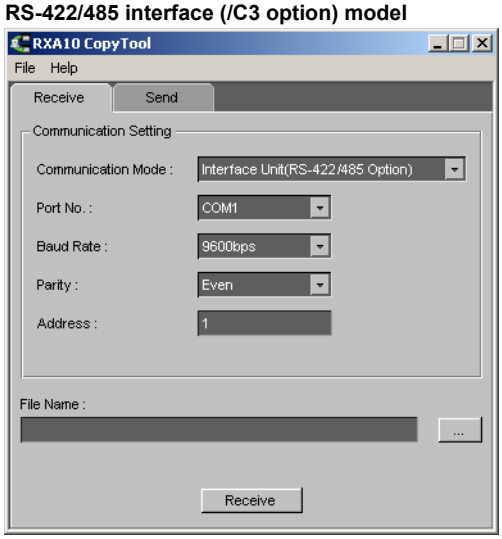
When using RS-422/485 (/C3 option)



When using the interface unit



When using the interface unit with an RS-422/485 interface (/C3 option) model



Ethernet

- **Communication Mode**
  Select **Ethernet**.
- **Address**
  Enter the host name or IP address of the recorder.
- **User Name/Password**
  - When using the Login function with the recorder
    Log on as the administrator.
  - When not using the Login function with the recorder
    Log on under the name “Admin.”
    A password is not required.

RS-422/485

- **Communication Mode**
  Select **RS-422/485**.
- **Port Number**
  Select COM1–COM9 as the PC port to use.
- **Baud Rate/Parity**
  Enter the same settings as those of the recorder.
- **Address**
  Enter the address of the recorder.

When Connecting the Interface Unit with a Model without the RS-422/485 Interface (/C3 Option)

- **Communication Mode**
  Select **Interface unit**.
- **Port Number**
  Select COM1–COM9 as the PC port to use.

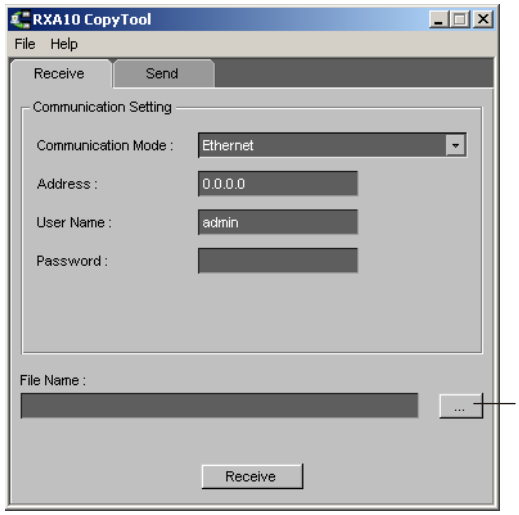
When Connecting the Interface Unit with an RS-422/485 Interface (/C3 Option) Model

- **Communication Mode**
  Select **Interface Unit (RS-422/485 Option)**.
- **Port No.**
  Select COM1–COM9 as the PC port to use.
- **Baud Rate/Parity**
  Enter the same settings as those of the recorder.
- **Address**
  Enter the address of the recorder.

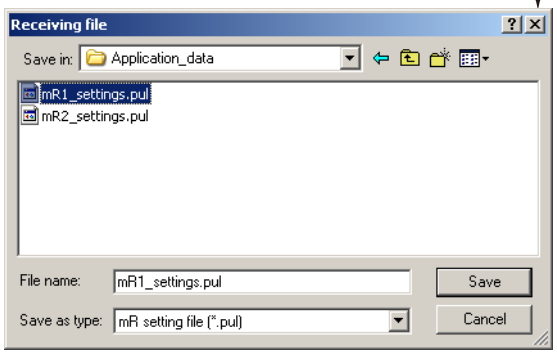
3. Specify the save destination for the received settings file.
Enter a path to the save destination using up to 256 alphanumeric characters.

Note

When using Windows Vista, do not specify the root directory of a disc drive as a destination for saving files. The software may not function normally.



Click to display a dialog box for specifying a file save destination and file name.



4. Click **Receive**.
Settings are received and saved to the specified file.

Note

- The extension for settings files is .pul.
- If a file of the same name exists in the save destination, a message appears asking whether or not to overwrite the existing file.
- If errors occur, see section 4.4, “Error Messages.”

Sending Settings

Please note the following when sending settings to a recorder.

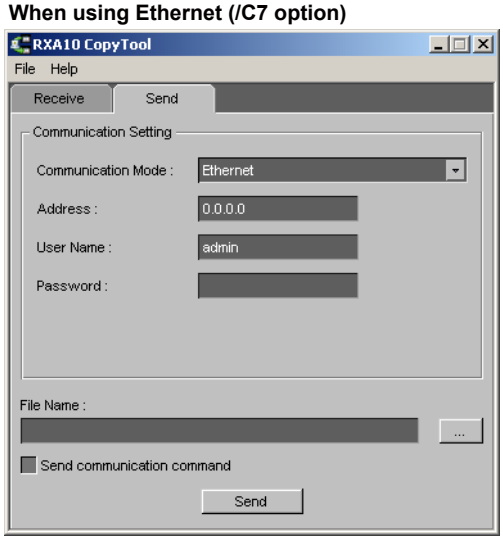
- CopyTool does not identify the model or version of the destination recorder. Of the settings that are sent, only parameters that can be set on (are supported by) the destination recorder are set.
- When settings are sent, the existing settings on the destination recorder are overwritten and permanently deleted.

1. Click the **Send** tab.
2. Select a mode from the Communication Mode list.

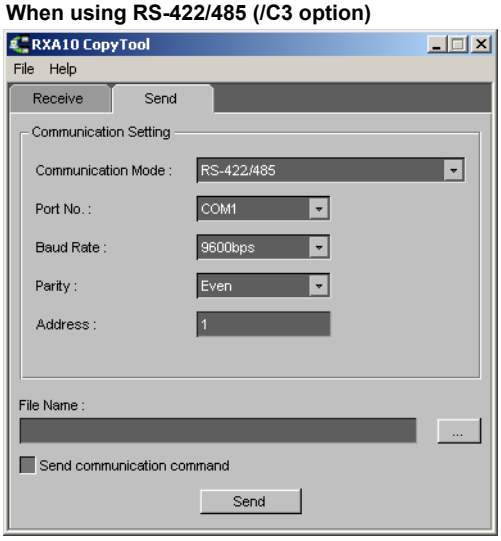
   The setting items for that communication mode appear in the tab page.

   For details on the setting items, see the explanation under “Receiving Settings.”

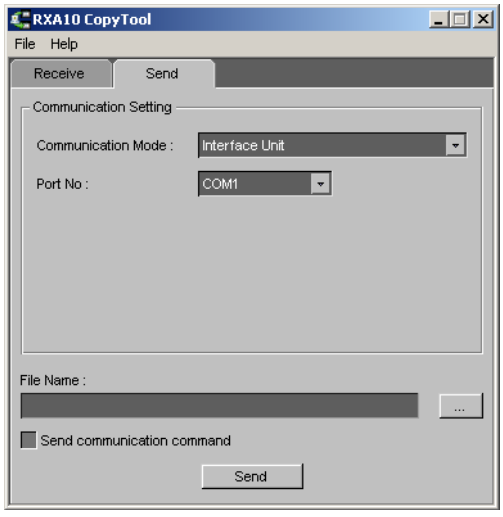
When using Ethernet (/C7 option)



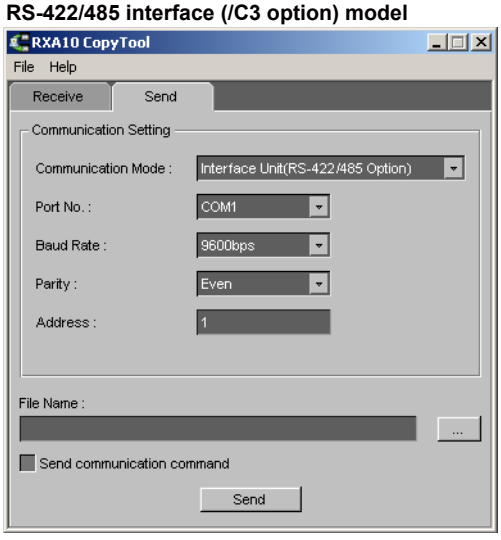
When using RS-422/485 (/C3 option)



When using the interface unit



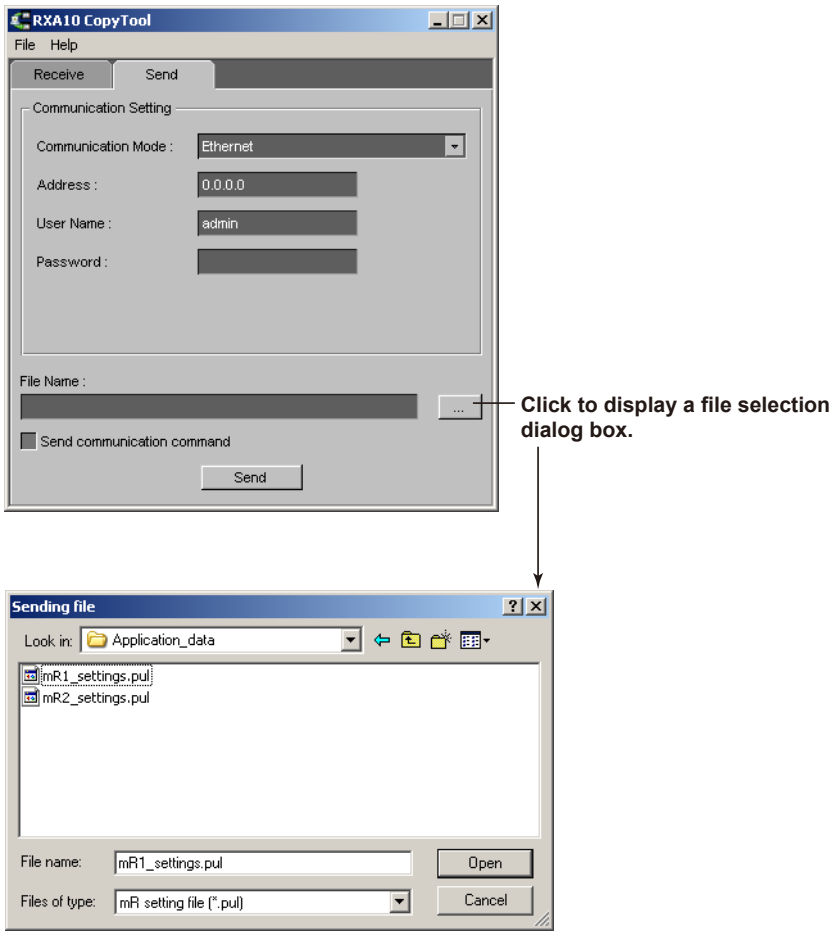
When using the interface unit with an RS-422/485 interface (/C3 option) model



3. Specify a settings file to send.

The extension for settings files is .pul.

Enter a path to the settings file using up to 256 alphanumeric characters.



4. Specify whether to send communication settings.

If you select the **Send communication command** check box (turns blue), the settings below are also sent.

- Host and domain name settings
- IP address setting
- DNS setting
- Use/do not use Login function
- User-specific settings for Login function
- Communication timeout setting
- Keep alive setting
- Serial interface settings

To enable the communication parameters in the settings file that was sent (for example, the baud rate), after sending is complete, turn the power to the recorder OFF, then ON again.

Note that if the communication mode in the sent settings file does not match that of the recorder (for example, if the communication mode in the file is Ethernet but that of the recorder is RS422), the send fails.

5. Click **Send**.

Click **OK** when the confirmation dialog box opens.

Settings are sent to the recorder.

Note

If errors occur, see section 4.4, “Error Messages.”

4.4 Error Messages

If error messages appear, refer to the table below and take the appropriate corrective action.

No.	Message	Explanation	Corrective Action
E001	Sending file doesn't exist!	The following are possible reasons for the failure. 1. The file to send does not exist. 2. The file to send was not specified.	Check the set name of the file to send.
E002	xxx (file name) Cannot create that file!	The following are possible reasons for the failure. 1. The specified folder does not exist. 2. A file name was not specified. 3. The file name was invalid.	Check the set name of the file to receive.
E003	Please input the file name!	The name of the file to receive was not entered.	Input the name of the file to receive.
E004	Failed to read file!	The following are possible reasons for the failure. 1. Another program is using the file. 2. The current user does not have access rights to the file. 3. The file is damaged.	Check the file association. If you try again and the file still cannot be loaded, select a different file.
E005	Failed to write file!	The following are possible reasons for the failure. 1. The disc (save destination) is damaged. 2. There is insufficient space in the save destination directory. 3. Another program is using the file. 4. The current user does not have access rights to the file.	1. Check whether the disc (save destination) is damaged. 2. Check the free space in the save destination directory. 3. Check whether read/write access has been granted for the relevant file and folder.
E006	Connection error. Please check communication setting!	Communication error.	Check whether the CopyTool communication settings match those of the recorder.
E007	Login failed!	The following are possible reasons for the failure. 1. The user name or password are not correct. 2. The recorder is already connected with another software program.	1. Check whether the user name and password match those set on the recorder. 2. Check whether other software is communicating with the recorder.
E008	Sending data is not permitted to the current user level!	The current user does not have permission to send settings.	Log on with administrator privileges.
E009	Now recording or calculating. Can't send settings!	Settings cannot be sent because the recorder is recording or calculating.	Resend after the recorder stops recording or calculating.
E010	Send failed!	Displayed when sending of the settings fails.	Check the connection between the recorder and computer.
E011	Receive failed!	Displayed when receiving of the settings fails.	Check the connection between the recorder and computer.
E012	Failed to send some settings.	Displayed when sending of some of the settings fails.	Check the specifications of the copy source and copy destination recorders (number of pens, options, etc.).

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