

# User's Guide

OMEGASOFT®

RD-DXA100-02  
DAQSTANDARD SOFTWARE  
For RD-MV100  
and RD-MV200



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**WARNING:** These products are not designed for use in, and should not be used for, patient-connected applications.

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## Foreword

Thank you for purchasing the DAQSTANDARD Software.

This manual explains how to use the software on Windows 95/98 and NT4.0. 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

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## Revisions

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# How to Use this Manual

## Structure of the Manual

This manual consists of the following five chapters and index.

Chapter	Title	Content
1	Before using the DAQSTANDARD Software	Explains the PC -system environment required for use of the software. Also explains how to install it.
2	Launcher	Explains Launcher which is used to start the utility programs. Also explains how to set communications between the RD-MV100/RD-MV200 and your computer.
3	Hardware Configurator	Explains how to set measurement conditions of the RD-MV100/RD-MV200.
4	Data Viewer	Explains how to display data stored in the hard disk etc. Also explains how to convert data to various data formats such as ASCII.
5	Troubleshooting	Gives a list of error messages and corrective measures.
	Index	Gives a list of important terms used in this manual.

## Range of Explanation in this Manual

This manual does not provide a description of basic operations of Windows 95/98. For such descriptions, refer to the Windows User's Guide etc.

## Conventions Used in This Manual

- **Unit**  
K ..... Indicates "1024". (Example: 100KB)
- **Menus, commands, dialog boxes and buttons**  
Enclosed in [ ].
- **Note**  
Provides useful information regarding operation of the software.

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## 1.1 Overview of the DAQSTANDARD Software

The DAQSTANDARD Software consists of the following three utility programs.

- Launcher
- Hardware Configurator
- Data Viewer

### Launcher

Launcher is provided to start the last two utility programs. It also allows you to set communication conditions between the RD-MV100/RD-MV200 and this DAQSTANDARD Software. Launcher and Data Viewer will be automatically registered to the Start menu of Windows when the DAQSTANDARD Software is installed.

### Hardware Configurator

Allows you to set the RD-MV100/RD-MV200 hardware (measurement/math channels, display method etc.). It also allows transfer of the setup data to the RD-MV100/RD-MV200 and saving it to the personal computer's hard disk. Setup data can be set by the following three methods.

- (1) Receiving the setup data from the RD-MV100/RD-MV200 currently connected to the PC
- (2) Loading existing setup data
- (3) By configuring a system

**Data Viewer**

Displays the following three types of data generated by the RD-MV100/RD-MV200 and prints them. The data can be displayed graphically or digitally. If you want to open two or more Data Viewers, select [Program] - [DAQSTANDARD Software] - [Viewer] from the Start menu.

- Display data file (.dds)
- Event data file (.dev)
- TLOG file (.dtg)



## 1.2 Required PC System Environment

### Hardware

#### **Personal computer**

A computer which runs on Windows 95/98 or Windows NT4.0, and is equipped with Pentium 133MHz or higher (Pentium II 200MHz or higher is recommended)

#### **Main memory**

32MB or more (generally, 64 to 96MB is recommended with Pentium II, though the computer performance depends on the graphic board) However, some application programs may require more memory.

#### **Hard disk**

A free space of 100MB or more

#### **Floppy disk drive**

One floppy disk drive (1.44MB)

#### **Mouse**

A mouse supported by Windows 95/98 or Windows NT4.0

#### **Monitor**

A monitor supported by Windows 95/98 or Windows NT4.0, Resolution: 800 x 600 dots or higher, Number of colors: 32K or more (A monitor with 1024 x 768 dots and 65536 colors is recommended)

#### **Interface board**

For RS-232, a COM port (COM1, COM2, COM3, COM4) which is supported by Windows must be used.

For RS-422-A/RS-485, a converter must be connected to the RS-232 port. This software supports 4-wire system.

For Ethernet, an Ethernet card supported by Windows is required. TCP/IP protocol also needs to be installed.

**Printer**

A printer supported by Windows 95/98 or Windows NT4.0 is required. An appropriate printer driver is also required.

**Operating System (OS)**

Windows 95/98 or Windows NT4.0

**Note**

- 
- If your computer runs on Windows 95, Internet Explorer (3.02 or higher) is required.
  - The time zone can be set in [Date/Time] which can be opened from [Control Panel].
  - If daylight saving time is used, mark the check box of "Automatically adjust clock for daylight saving changes".
  - The time zone should not be set using the autoexec.bat file. If "TZ=GTM0" is set in the file, specify "rem" to disable it.
  - Data created in 2038 or later cannot be handled.
  - The font "Courier New" needs to be installed on your personal computer.
-

## 2.1 Functions of Launcher

### Starting

The utilities of the DAQSTANDARD Software can be started from Launcher.

From the Start menu, select [Programs] - [DAQSTANDARD Software] - [Launcher]. Launcher will start, and the following window will appear. If communications have not been set, the [Network] dialog box will appear. Hardware Configurator (CONFIG), Data Viewer (VIEWER) and [Network] dialog box (NETWORK) can be started from Launcher.



### Description of Each Button

The following three tool buttons are available.

CONFIG	Hardware Configurator Start button. Used to start Hardware Configurator. Once Hardware Configurator has started, this button will be disabled.	
VIEWER	Data Viewer Start button. Used to start Data Viewer. Once Data Viewer has started, this button will be disabled.	
NETWORK	[Network] Dialog Box Display button. Used to open the [Network] dialog box to set communication conditions. Once Hardware Configurator has started, this button will be disabled.	

### Description of Each Menu

The following two menus are available.

Launcher	Hardware Configurator	Same as the CONFIG button
	Data Viewer	Same as the VIEWER button
	Network Configuration	Same as the NETWORK button
Help About	Displays the version number of Launcher.	

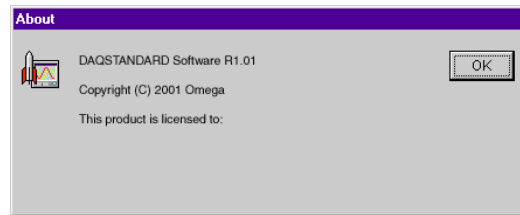
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## 2.2 Displaying the Version Information

To find the version of the DAQSTANDARD Software, display the [About] dialog box.

### Operating Method

1. From the menu bar of Launcher, select [Help] - [About].  
The [About] dialog box will appear.



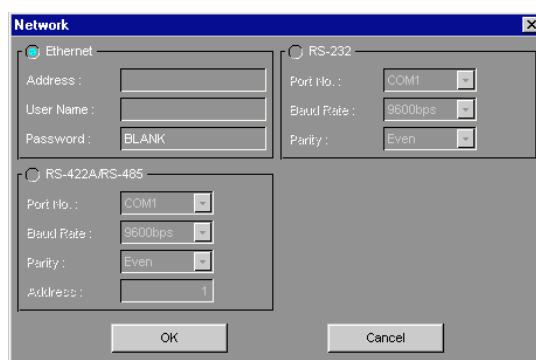
2. To close the dialog box, click [OK].

## 2.3 Setting the Communication Method

Your computer can be communicated with the RD-MV100/RD-MV200 via a network. To use a network, start Network Configurator and set parameters according to the RD-MV100/RD-MV200.

### Operating Method

1. Click the CONFIG button of Launcher, or select [Launcher] - [Network Configuration] from the menu bar. The [Network] dialog box will appear. Ethernet or serial interface (RS-232 or RS-422A/RS-485) can be used.



2. Select the desired network type. The color of the selected network will turn to blue.
3. Set each parameter. (For a description of the parameters, refer to “Description of Each Parameter”.)
4. When all the parameters are set, click [OK]. To cancel the settings, click [Cancel].  
The dialog will close, and the settings will be reflected to enable communications. (If communications are in progress, the dialog will close and communications will be re-started.)

### Description of Each Parameter

Ethernet

Address : Specify the IP address or host name.

User Name : Specify the user name.

Password : Specify the password of the user name.

Serial interface (RS-232 or RS-422A/RS-485)

Port No. : Specify the port no. (COM1 to COM4) to be used.

Baud Rate : Specify the baud rate (2400 to 38400).

Parity : Specify the parity check (None, Odd or Even).

Address : Specify the address (for RS-422A/RS-485 only)

## 3.1 Starting Hardware Configurator

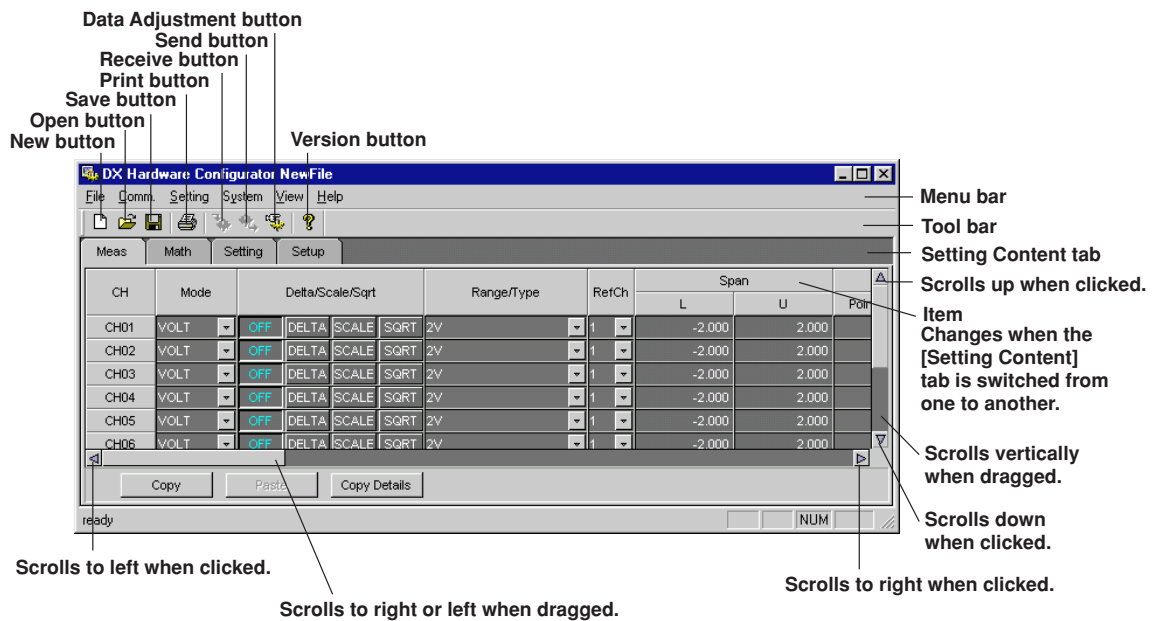
Hardware Configurator allows setting of the RD-MV100/RD-MV200 hardware (measurement/math channels, display method etc.).

### Starting Method

Click the [CONFIG] button of Launcher, or select [Launcher] - [Hardware Configurator] from the menu bar.

### Hardware Configurator Window

The following window will appear when Hardware Configurator is started. (The following window shows an example of RD-MV200/10CH.)



## 3.2 Loading Existing Setup Data

### Operating Method

The setup data to be modified can be loaded as follows.

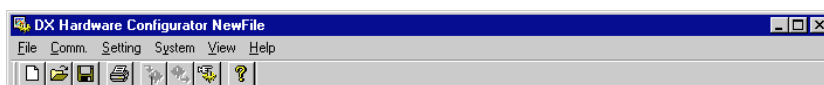
#### Loading the setup data from the RD-MV100/RD-MV200 currently connected to the PC

1. Start Hardware Configurator.



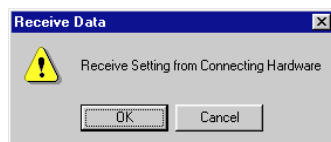
Hardware Configurator start button (CONFIG)

2. Click the [Receive] button, or select [Comm.] - [Receive Setting] from the Menu bar.



Receive button

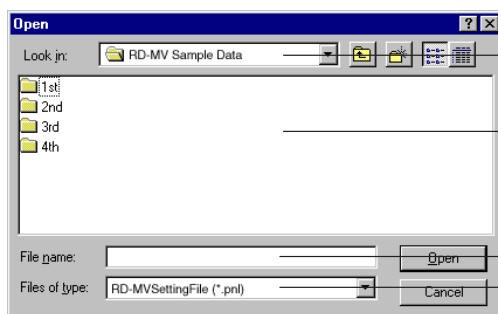
3. A message asking you whether or not to receive the data will appear, so click [OK].  
The setup data currently set on the RD-MV100/RD-MV200 will be loaded.



#### Loading the setup data from a floppy disk or hard disk

The setup data (.pnl) which has been created on the RD-MV100/RD-MV200 and saved to a floppy disk or hard disk can be loaded.

1. Start Hardware Configurator.
2. Click the Open button or select [File] - [Open] from the menu bar.



Directory

File list

Selected file

File type

3. From the file list, select the file to be loaded.
4. Click [Open]. The selected file will be loaded.  
If the setup data currently edited has not been saved, a message asking you whether or not to save the data will appear. Click [Yes] if you want to save it, or click [No] if not.  
If you want to cancel opening the file, click [Cancel].

### Utilizing the default setup data of the DAQSTANDARD Software

#### 1. Start Hardware Configurator.

Hardware Configurator will start with the default settings.

The default settings are as follows:

System	RD-MV200, 10CH
Serial interface	OFF
Math function	ON
External media	FDD
Alarm relay	2
Option	None
Setup data	Default setup data of RD-MV100/RD-MV200 (refer to the RD-MV100/RD-MV200 manual)

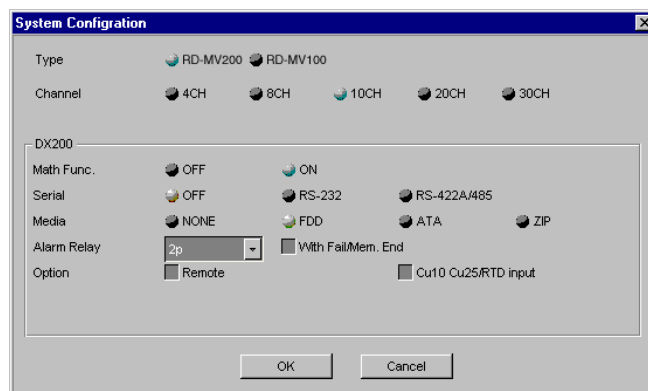


### 3.3 Configuring a New System and Creating Setup Data

This section explains how to create new setup data without utilizing an existing one. For this, the configuration of the RD-MV100/RD-MV200 must be specified first.

#### Operating Method

1. Start Hardware Configurator.
2. Click the New button, or select [File] - [New...] from the menu bar.  
If the setup data currently edited has not been saved, a message asking you whether or not to save the data will appear. Click [Yes] if you want to save it, or click [No] if not. If you want to cancel creating a new file, click [Cancel].
3. If [Yes] or [No] is clicked, the [System Configuration] dialog box will open. Specify the configuration so that it matches that of the RD-MV100/RD-MV200 to be used.



4. When the configuration has been set, click [OK]. The [System Configuration] dialog box will close, and the Hardware Configurator window will reappear. Make sure that the configuration set in the [System Configuration] dialog box is reflected in the Hardware Configurator window.  
To cancel the changes to the configuration, click [Cancel].
5. Proceed to section 3.4.

#### Description of Each Item

Item	Description
Type	Select the RD-MV type (RD-MV200 or RD-MV100).
Channel	Select the number of channels. RD-MV200 4CH or 8H for RD-MV204 or RD-MV208, 10CH, 20CH or 30H for RD-MV210, RD-MV220 or RD-MV230 RD-MV100 2CH or 4CH for RD-MV102 or RD-MV104, 6CH or 12CH for RD-MV106 or RD-MV112
Math Func.	Specify whether the RD-MV has a math function.
Serial	Select the type of the serial interface to be used from OFF (not used), RS-232C and RS-422.
Media	Select the type of external media to be used from NONE (not used), FDD, ATA and ZIP.
Alarm Relay	Specify the number of alarm relays to be used. Also specify whether FAIL/memory end output relay is to be used. The number of alarm relays must be selected from the following: RD-MV200: NONE (no alarm), 2, 4, 6, 12, 24 RD-MV100: NONE (no alarm), 2, 4, 6
Option	Specify whether the remote function is available. Also specify whether Cu10 and Cu25 are available.

## 3.4 Overview of Measurement Channels

This section explains how to set items regarding measurement channels.

### Operating Method

1. Start Hardware Configurator.
2. Click the [Meas] tab, or select [Setting] - [SET [Regular] Setting] - [Meas Channels] from the menu bar. The following measurement channel page will open.
3. Set each item.

Meas Math Setting Setup														
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span		Scale			Unit		
		DELTA	SCALE	SQRT			L	U	Point	L	U			
CH01	VOL	DELTA	SCALE	SQRT	2V		-2.000	2.000						

Mode (input mode)      Delta/scale/square      Range/type      Reference channel      Span      Scale      Unit

Meas Math Setting Setup														
CH	Alarm 4		Moving Ave	Tag	Zone		Graph		Partial			Color		
	Vvalue	Relay			L	U	Div	Bargraph	Scale	Expand (%)	Boundary			
CH01	0.00	NONE	OFF		0	100	10	Normal	1	OFF	50	0.00		

Alarm      Alarm output relay      Moving averaging (or filter)      Tag      Zone      Graph      Partial expand      Display color

### Note

- The [Meas] page is organized in spreadsheet form. Measurement channels are viewed in rows and items are viewed in columns.
- If the desired channel or item is not shown in the page, enlarge the window size or drag the vertical (or horizontal) scroll bar until it appears.
- Items can also be set using a dialog box which can be opened for each individual channel (to open the dialog box, double-click the desired channel no.). For a detailed description, refer to 3.14, "Making Settings for Each Individual Measurement Channel".

## 3.5 Setting a Channel to Measure DC Voltage (VOLT Mode)

This section explains how to set a channel to measure DC voltage.

### Operating Method

#### 1. Mode

Click the Mode Select button of the target channel. A pull-down menu will appear, so select [VOLT].

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span			
							L	U	Point	
CH01	VOLT	OFF	DELTA	SCALE	SQRT	2V	-2.000	2.000		

Mode Select button

#### 2. Range

Click the Range/Type Select button. A pull-down menu will appear, so select the desired input range.

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span			
							L	U	Point	
CH01	VOLT	OFF	DELTA	SCALE	SQRT	60mV	-2.00	2.00		

Range/Type Select button

#### 3. Span L, Span U

Click the currently set span L (or span U). It can now be changed, so enter the desired lower (span L) and upper (span U) limits.

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span			
							L	U	Point	
CH01	VOLT	OFF	DELTA	SCALE	SQRT	60mV	-2.00	2.00		
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	-2.000	2.000		

Click

### Note

- If a value outside the settable range is entered or if the same value is entered for Span L and Span U, the value will be corrected when data adjustment is performed.

## 3.6 Setting a Channel to Measure TC/RTD Input (TC/RTD Mode)

This section explains how to set a channel to measure the input from a thermocouple (TC) or resistance temperature detector (RTD).

### Operating Method

#### 1. Mode

Click the Mode Select button of the target channel. A pull-down menu will appear, so select [TC] or [RTD].

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span		Point	
CH01	TC	OFF	DELTA	SCALE	SQRT	TypeR	1	-2.0	2.0	

Mode Select button

#### 2. Type

Click the Range/Type Select button. A pull-down menu will appear, so select the desired TC or RTD type.

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span		Point	
CH01	TC	OFF	DELTA	SCALE	SQRT	TypeR	1	-2.0	2.0	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	1	-2.000	2.000	

Range/Type Select button

#### 3. Span L, Span U

Click the currently set span L (or span U). It can now be changed, so enter the desired lower (span L) and upper (span U) limits.

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span		Point	
CH01	TC	OFF	DELTA	SCALE	SQRT	TypeR	1	-2.0	2.0	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	1	-2.000	2.000	

Click

### Note

- If a value outside the settable range is entered or if the same value is entered for Span L and Span U, the value will be corrected when data adjustment is performed.

## 3.7 Setting a Channel to Measure Voltage Level (DI Mode)

This section explains how to set a channel to measure voltage level.

### Operating Method

#### 1. Mode

Click the Mode Select button of the target channel. A pull-down menu will appear, so select [DI].

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point
								L	U	
CH01	DI	OFF	DELTA	SCALE	SQRT	LEVEL	1	-2	2	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	1	-2.000	2.000	

Mode Select button

#### 2. Range

Click the Range/Type Select button. A pull-down menu will appear, so select [LEVEL] (voltage level) or [CONT] (contact).

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point
								L	U	
CH01	DI	OFF	DELTA	SCALE	SQRT	LEVEL	1	-2	2	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	1	-2.000	2.000	

Range/Type Select button

#### 3. Span L, Span U

Click the currently set span L (or span U). It can now be changed, so enter the desired lower (span L) and upper (span U) limits.

Meas	Math	Setting	Setup							
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point
		L	U							
CH01	DI	<div><div></div><div>OFF</div></div>	DELTA	SCALE	SQRT	LEVEL	<div><div></div><div>1</div></div>	<div><div></div><div>-1</div></div>	<div><div></div><div>2</div></div>	
CH02	VOLT	<div><div></div><div>OFF</div></div>	DELTA	SCALE	SQRT	2V	<div><div></div><div>1</div></div>	<div><div></div><div>-2.000</div></div>	<div><div></div><div>2.000</div></div>	

Click

### Note

- If a value outside the settable range is entered or if the same value is entered for Span L and Span U, the value will be corrected when data adjustment is performed.

## 3.8 Setting a Channel to Exclude Measure/Display (SKIP Mode)

This section explains how to set a channel so that it does not perform measurement.

### Operating Method

#### 1. Mode

Click the Mode Select button of the target channel. A pull-down menu will appear, so select [SKIP].

Meas		Math		Setting		Setup					
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point	
								L	U		
CH01	<div>SKIP</div>	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	<div>LEVEL</div>	<div>-1</div>	<div>-1</div>	<div>2</div>		
CH02	<div>VOLT</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	<div>2V</div>	<div></div>	<div>-2.000</div>	<div>2.000</div>			

Mode Select button

Items such as Delta/Scale/Sqrt and Range/Type will be invalidated.



## 3.10 Setting the Scale Math Function

If an input mode other than SKIP is selected, the display scale can be set. This section explains the method.

### Operating Method

#### 1. Mode

Make sure that an input mode other than SKIP is selected for the target channel.

#### 2. Delta/Scale/Sqrt

Click [SCALE] to select it. The color of [SCALE] will switch to blue. [OFF] is selected as the default.

Meas	Math	Setting	Setup										
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Scale			Unit
								L	U	Point	L	U	
CH01	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	50mV	<div>10</div>	-1.00	2.00	<div>2</div>	0.00	200.00	
CH02	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	2V	<div>1</div>	-2.000	2.000				

Click

#### 3. Range

Make sure that an appropriate range/type is selected.

#### 4. Span L, Span U

Make sure that appropriate span L and U are selected.

#### 5. Scale L, Scale U, Point

Click the currently set scale L (or scale R). It can now be changed, so enter the desired lower (scale L) and upper (scale U) limits.

Meas	Math	Setting	Setup										
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Scale			Unit
								L	U	Point	L	U	
CH01	VOLT	OFF	DELTA	SCALE	SQRT	50mV	10	-1.00	2.00	2	0.00	200.00	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	1	-2.000	2.000				

### Note

- If a value outside the settable range is entered or if the same value is entered for Scale L and Scale U, the value will be corrected when data adjustment is performed.

#### 6. Unit

Click the currently set unit. It can now be changed, so enter the desired unit (up to six characters).

Meas	Math	Setting	Setup															
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Scale			Unit					
								L	U	Point	L	U						
CH01	VOLT	<div><div></div><div></div><div></div></div>	OFF	DELTA	SCALE	SQRT	50mV	<div><div></div><div></div><div></div></div>	10	<div><div></div><div></div><div></div></div>	-1.00	2.00	2	<div><div></div><div></div><div></div></div>		0.00	200.00	<div><div></div><div></div><div></div></div>
CH02	VOLT	<div><div></div><div></div><div></div></div>	OFF	DELTA	SCALE	SQRT	2V	<div><div></div><div></div><div></div></div>	1	<div><div></div><div></div><div></div></div>	-2.000	2.000						<div><div></div><div></div><div></div></div>

### Note

- For characters which can be used for the unit, refer to 3.62, "Usable Characters".



## 3.11 Setting the Square Math Function

SQUARE can be selected only if VOLT has been selected as the input mode. Selecting SQUARE will calculate the square root of the input and display the result at the specified scale.

### Operating Method

#### 1. Mode

Make sure that [VOLT] is selected as the input mode for the target channel.

#### 2. Delta/Scale/Sqrt

Click [SQUARE] to select it. The color of [SQUARE] will switch to blue.

[OFF] is selected as the default.

Meas	Math	Setting	Setup										
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point	Scale		Unit
		L	U	L	U								
CH01	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	60mV	<div>10</div>	-1.00	2.00	2	<div>0.00</div>	200.00	
CH02	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	2V	<div>1</div>	-2.000	2.000				

Click

#### 3. Range

Set an appropriate range/type.

#### 4. Span L, Span U

Set appropriate span L and U.

#### 5. Scale L, Scale U, Point

Click the currently set scale L (or scale R). It can now be changed, so enter the desired lower (scale L) and upper (scale U) limits.

Meas	Math	Setting	Setup										
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point	Scale		Unit
								L	U		L	U	
CH01	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	80mV	<div>10</div>	-1.00	2.00	<div>2</div>	<div>0.00</div>	200.00	
CH02	VOLT	<div>OFF</div>	<div>DELTA</div>	<div>SCALE</div>	<div>SQRT</div>	2V	<div>1</div>	-2.000	2.000				

### Note

- If a value outside the settable range is entered or if the same value is entered for Scale L and Scale U, the value will be corrected when data adjustment is performed.

#### 6. Unit

Click the currently set unit. It can now be changed, so enter the desired unit (up to six characters).

Meas	Math	Setting	Setup										
CH	Mode	Delta/Scale/Sqrt				Range/Type	RefCh	Span		Point	Scale		Unit
		L	U	L	U			L	U				
CH01	VOLT	OFF	DELTA	SCALE	SQRT	60mV	10	-1.00	2.00	2	0.00	200.00	
CH02	VOLT	OFF	DELTA	SCALE	SQRT	2V	10	-2.000	2.000				

### Note

- For characters which can be used for the unit, refer to 3.62, "Usable Characters".


## 3.12 Setting Alarms to a Measurement Channel

Alarms 1 to 4 can be set for each measurement channel. This section explains how to set them.

### Operating Method

#### 1. Alarm 1: Type

Click the Alarm Type Select button. A pull-down menu will appear, so select the desired alarm type. If you are not going to set alarm, select [OFF].

Meas	Math	Setting	Setup												
CH	Alarm 1			Alarm 2			Alarm 3			Alarm 4					
	Type	Value	Relay	Type	Value	Relay	Type	Value	Relay	Type	Value	Relay			
CH01		0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE			
CH02	OFF	0.000	NONE	OFF	0.000	NONE	OFF	0.000	NONE	OFF	0.000	NONE			

Alarm Type Select button

#### 2. Alarm 1: Value


Click the currently set alarm value. It can now be changed, so enter the desired value.

#### Note

- The settable range for the alarm value will vary with the selected input mode, math function (Delta/Scale/Sqrt), range/type and alarm type.
- If a value outside the settable range is entered, the value will be corrected when data adjustment is performed.

#### 3. Alarm 1: Relay

Click the Relay Select button. A pull-down menu will appear, so select [NONE] if you are not going to use any output relays or select the desired output relay no. if you are going to use one.

Meas	Math	Setting	Setup												
CH	Alarm 1			Alarm 2			Alarm 3			Alarm 4					
	Type	Value	Relay	Type	Value	Relay	Type	Value	Relay	Type	Value	Relay			
CH01	H	0.00		OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE			
CH02	OFF	0.000	NONE	OFF	0.000	NONE	OFF	0.000	NONE	OFF	0.000	NONE			

Relay Select button

4. If necessary, repeat the above steps to set other alarms (2 to 4).

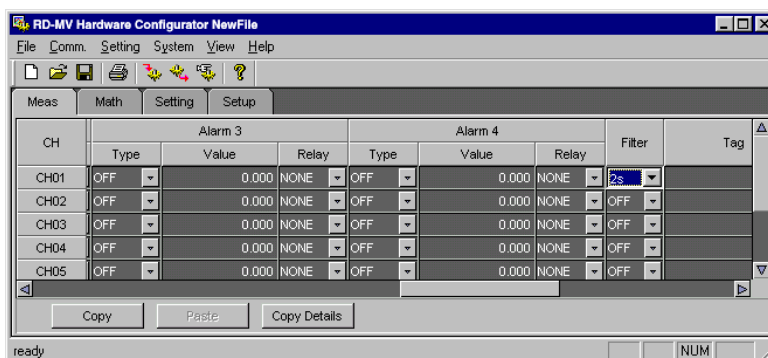
## 3.13 Setting the Input Filter/Moving Averaging

An input filter or moving averaging can be set to measurement channels. The input filter can be set for RD-MV102, RD-MV104, RD-MV204 and RD-MV208 and moving averaging for RD-MV106, RD-MV112, RD-MV210, RD-MV220 and RD-MV230.

### Operating Method

#### 1. Filter

Use to select the desired filter. Select [OFF] if you are not going to use any filters. If you want to use a filter, select the desired time constant (from 2s, 5s and 10s). [OFF] is selected as the default.



#### 2. Moving Ave

Select the desired moving averaging times (sampling times). Select [OFF] if you are not going to use moving averaging. If you want to use it, select the desired sampling times (2 to 16). [OFF] is selected as the default.

CH	Alarm 4				Moving Ave	Tag
	Type	Value	Relay			
CH01	OFF	0.00	NONE		OFF	
CH02	OFF	0.000	NONE		OFF	

## 3.14 Making Settings for Each Individual Measurement Channel

Settings can be made for each individual measurement channel.

### Operating Method

1. Double-click the desired channel no.

Meas	Math	Setting	Setup
CH	Mode	Delta/Scale/Sqrt	Range/Type
CH01	VOLT	OFF DELTA SCALE SQRT	2V
CH02	VOLT	OFF DELTA SCALE SQRT	2V

Double-click

2. The following dialog box will appear. The dialog box consists of two pages: Meas Channel Setting and Display.

### [Meas Channel Setting] Page

1. Set each item.

The contents of each item are the same as those in the spreadsheet form, so refer to the related sections.

2. When all the items are set, click [OK] to close the dialog box.

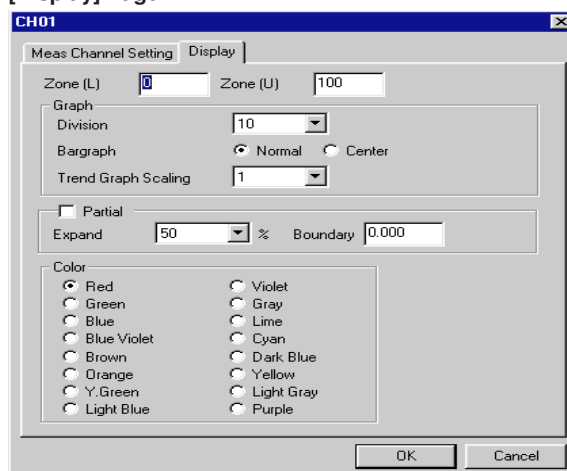
### Note

- The settings made will be reflected in the spreadsheet form.
- If you want to cancel the changes and restore the previous settings, click [Cancel] and close the dialog box.

### 3.14 Making Settings for Each Individual Measurement Channel

Item	Description	Related Sections
Input	Select the input mode.	3.5 to 3.8
Range/Type	Select the measuring range/type.	3.5 to 3.8
Span (L), Span (U)	Set the lower and upper limits of the span.	3.5 to 3.8
Move Ave	Set the sampling times (this item is displayed only for medium-speed type).	3.13
Filter	Set the filter (this item is displayed only for high-speed type).	3.13
Sub Input	Select the math function to be used.	3.9 to 3.11
Point, Scale (L), Scale (U)	Set the display scale.	3.10, 3.11
Ref Ch	Select the reference channel.	3.9
Unit	Set the unit if SCALE or SQRT is selected.	3.10, 3.11
Alarm	Set the alarms.	3.12
Tag	Set the tag name.	3.23

#### [Display] Page



#### 1. Set each item.

The contents of each item are the same as those in the spreadsheet form, so refer to the related sections.

#### 2. When all the items are set, click [OK] to close the dialog box.

#### Note

- The settings made will be reflected in the spreadsheet form.
- If you want to cancel the changes and restore the previous settings, click [Cancel] and close the dialog box.

Item	Description	Related Sections
Zone (L), Zone (U)	Set the display zone.	3.30
Graph	Set the bar graph.	3.31
Partial	Set the partial expand function.	3.32
Color	Select the display color.	3.29

## 3.15 Overview of Math Channels

It is possible to specify an expression which uses the measured data as a variable, and display or save the math results. An expression can be set for each math channel.

### Operating Method

1. Start Hardware Configurator.
2. Click the [Math] tab, or select [Setting] - [SET [Regular] Setting] - [Math Functions] from the menu bar. The following math channel page will open.
3. Set each item.

		Expression setting section				Separator		Constant setting section	
Meas	Math	Setting	Setup	Expression			Unit	Type	Constant
CH				Point	L	U			
CH31	<input type="checkbox"/> OFF	01		2	-200.00	200.00		OFF	K01 1
CH32	<input type="checkbox"/> OFF	01		2	-200.00	200.00		OFF	K02 1
CH33	<input type="checkbox"/> OFF	01		2	-200.00	200.00		OFF	K03 1
CH34	<input type="checkbox"/> OFF	01		2	-200.00	200.00		OFF	K04 1
CH35	<input type="checkbox"/> OFF	01		2	-200.00	200.00		OFF	K05 1

### Note

- The [Math] page consists of the expression setting and constant setting sections. They are separated by the separator bar.
- Each time the separator bar is clicked, the constant setting section appears and disappears alternately.
- The expression setting section is organized in a spreadsheet form. Math channels are viewed in rows and items are viewed in columns. The constant setting section have constants (K01 to K30) in rows.
- If the desired channel or item is not shown in the page, enlarge the window size or drag the vertical (or horizontal) scroll bar until it appears.
- Items can also be set using a dialog box which can be opened for each individual channel (to open the dialog box, double-click the desired channel no.). For a detailed description, refer to 3.21, "Making Settings for Each Individual Math Channel".




## 3.16 Setting a Math Channel

It is possible to set an expression, span and unit and whether the expression is to be used. This setting can be made for each math channel.

### Operating Method

#### 1. ON/OFF

Set whether the expression set at step 2 is to be used or not. Select [ON] if you are going to use it, or select [OFF] if not.

Meas	Math	Setting	Setup										
CH		Expression	Point	Span		Unit	Type		Constant				
				L	U								
CH31	 OFF	01	2	-200.00	200.00		OFF		K01	1			
CH32	 OFF	01	2	-200.00	200.00		OFF		K02	1			
CH33	 OFF	01	2	-200.00	200.00		OFF		K03	1			

#### 2. Expression

Specify the desired expression (up to 40 characters). Click the currently specified expression. It can now be changed, so specify the desired expression. The expression can consist of measurement/math channel nos., constant nos. (K01 to K30) and various operators.

For details on expression, refer to the RD-MV100 or RD-MV200 manual.

#### Note

- A method that allows you to select operators just by selecting them from a list is also available. For details, refer to 3.21, "Making Settings for Each Individual Math Channel".

#### 3. Span L, Span U

Set the lower (span L) and upper (span U) limits of the display span. Click the currently set span L (or span U). It can now be changed, so enter the desired lower (span L) and upper (span U) limits.

#### Note

- Settable range: -9999999 to 99999999
- The number of decimal places must be 4 or less.
- If a value outside the settable range is entered or if the same value is entered for Span L and Span U, the value will be corrected when data adjustment is performed.

#### 4. Unit

Used to specify the unit to be used for the math channel. Click the currently set unit. It can now be changed, so enter the desired unit (up to six characters).

#### Note

- For characters which can be used for the unit, refer to 3.62, "Usable Characters".

## 3.17 Setting Alarms to a Math Channel

### Operating Method

Alarms 1 to 4 can be set for each math channel. This section explains how to set them.

#### 1. Alarm 1: Type

Click the Alarm Type Select button. A pull-down menu will appear, so select the desired alarm type. If you are not going to set alarm, select [OFF].

Meas	Math	Setting	Setup										
CH	Unit	Alarm 1			Alarm 2			Alarm 3					
		Type	Value	Relay	Type	Value	Relay	Type	Value	Relay	Type	Value	
CH31		H	0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	
CH32		OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	

Alarm Type Select button

#### 2. Alarm 1: Value

Click the currently set alarm value. It can now be changed, so enter the desired value.

#### Note

- The settable range is from span L to span U.
- If a value outside the settable range is entered, the value will be corrected when data adjustment is performed.

#### 3. Alarm 1: Relay

Click the Relay Select button. A pull-down menu will appear, so select [NONE] if you are not going to use any output relays or select the desired output relay no. if you are going to use one.

Meas	Math	Setting	Setup										
CH	Unit	Alarm 1			Alarm 2			Alarm 3					
		Type	Value	Relay	Type	Value	Relay	Type	Value	Relay	Type	Value	
CH31		H	0.00	01	OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	
CH32		OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	NONE	OFF	0.00	

Relay Select button

4. If necessary, repeat the above steps to set other alarms (2 to 4).



---

## 3.18 Setting the TLOG Math Function (Setting the Timer/Sum Scale)

This section explains how to set the timer to be used for a math channel to which TLOG is designated. The sum scale to be used for TLOG.SUM.

### Operating Method

#### 1. Timer

Select the desired timer from timers 1 to 3 set in setup mode.

Click the Timer Select button. A pull-down menu will appear, so select the desired timer no. The time set on the selected timer will be the math interval for TLOG.SUM.

TLOG		
Timer	Sum Scale	
1	▼	OFF ▼
1	▼	OFF ▼

#### 2. Sum Scale

Used to select the desired sum scale. Click the Sum Scale Select button. A pull-down menu will appear, so select the desired sum scale.

## 3.19 Setting the Rolling Averaging Function

It is possible to set whether the math result is to be subjected to rolling averaging. This setting can be made for each math channel.

### Operating Method

#### 1. ON/OFF

Set whether rolling averaging is to be used or not. Select [ON] if you are going to use it, or select [OFF] if not.

Rolling Average		
	Interval	Times
<input type="checkbox"/> OFF	10s	1
<input type="checkbox"/> OFF	10s	1

#### 2. Interval

Used to set the data collection interval (sampling interval) for rolling averaging. Click the Interval Select button. A pull-down menu will appear, so select the desired sampling interval.

#### 3. Times

Used to set the number of data sets (sampling times) to be subjected to rolling averaging. Click the Times Select button. A pull-down menu will appear, so select the desired sampling times.

## 3.20 Setting a Constant

It is possible to set constants to be used for the expression.

### Operating Method

#### 1. Constant

Used to set a constant. Click the currently set constant. It can now be changed, so enter the desired constant.

Meas	Math	Setting	Setup										
CH		Expression	Span			Unit	Type						Constant
			Point	L	U								
CH31	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K01
CH32	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K02
CH33	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K03
CH34	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K04
CH35	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K05
CH36	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K06
CH37	<input type="checkbox"/> OFF	01	2	▼	-200.00	200.00	OFF						K07

#### Note

- Up to 30 constants (K01 to K30) can be set.
- Constants can be specified using an exponent (e.g. 1.00E+19). For details, refer to the RD-MV100/RD-MV200 manual.

## 3.21 Making Settings for Each Individual Math Channel

Settings can be made for each individual math channel.

### Operating Method

1. Double-click the desired channel no.

Meas	Math	Setting	Setup				
CH		Expression	Point	L	U	Unit	
CH31	<input checked="" type="checkbox"/> OFF	01	2	-200.00	200.00		
CH32	<input type="checkbox"/> OFF	01	2	-200.00	200.00		
CH33	<input type="checkbox"/> OFF	01	2	-200.00	200.00		

Double-click

2. The following dialog box will appear. The dialog box consists of two pages: Math Channel Setting and Display.

### [Math Channel Setting] Page

CH31

Math Channel Setting | Display

Function: ☐ Use ☒ Not

Expression: 01 Operator

Point: 2 Span (L): -200.00 Span (U): 200.00 Unit

☐ Rolling Average Interval: 10s Number of samples: 1

Alarm

Alarm	Type	Value	Relay	value span H/L
Alarm 1	OFF	0.00	NONE	-200.00/ 200.00
Alarm 2	OFF	0.00	NONE	
Alarm 3	OFF	0.00	NONE	
Alarm 4	OFF	0.00	NONE	

Tag TLOG Timer: 1 Sum Scale: OFF

OK Cancel

1. Set each item.

The contents of each item are the same as those in the spreadsheet form, so refer to the related sections.

2. When all the items are set, click [OK] to close the dialog box.

### Note

- Clicking [Operator] will display the [Select Operator] dialog box. This allows you to specify an operator just by selecting it from the list.

Select Operator

Type: ☒ Basic ☐ Logical ☐ Relation ☐ Channel

Operators:

+	Addition	ABS	Absolute value
-	Subtraction	SQR	Square root
*	Multiplication	LOG	Common
/	Division	EXP	Exponent
**	Power		

Close

### 3.21 Making Settings for Each Individual Math Channel

**Note**

- The settings made will be reflected in the spreadsheet form.
- If you want to cancel the changes and restore the previous settings, click [Cancel] and close the dialog box.

Item	Description
Function	Select whether the math function is to be used or not.
Expression	Specify the desired expression (up to 40 characters).
Operator	Clicking [Operator] will display a list of operators. Select the desired operator from the list.
Point, Span (L), Span (U)	Set the lower and upper limits of display span.
Unit	Set the unit to be used for the math channel.
Rolling Average	Set the sampling interval and times.
Alarm	Set the alarms.
Tag	Set the tag name.
TLOG Timer	Select a timer from timers 1 to 3 set in setup mode.
Sum Scale	Set the sum scale.

**[Display] Page**

The screenshot shows a dialog box titled "CH31" with a tabbed interface. The "Display" tab is selected. The "Math Channel Setting" tab is also visible. The "Display" tab contains the following settings:

- Zone (L): 0, Zone (U): 100
- Graph Division: 10 (dropdown)
- Bargraph: ☒ Normal, ☐ Center
- Trend Graph Scaling: 1 (dropdown)
- ☐ Partial
- Expand: 50 (dropdown) %, Boundary: 0.00
- Color: A list of 16 color options with radio buttons. The selected color is Red.

At the bottom of the dialog box are "OK" and "Cancel" buttons.

Same as that for measurement channels. Refer to 3.14, "Making Settings for Each Individual Measurement Channel".

## 3.22 Copying the Settings From one Channel to Another

The settings made to one channel can be copied to another channel. The method is basically the same, irrespective of measurement or math channels.

### Operating Method

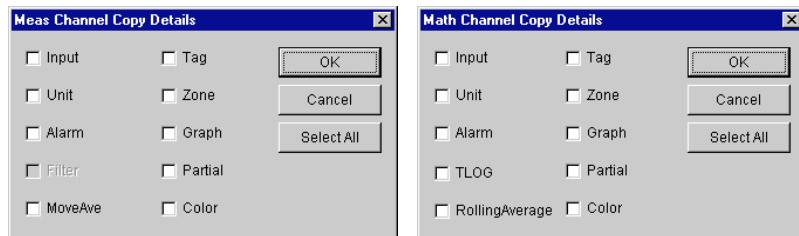
1. Click the source channel no. The row of the selected channel will be highlighted, and the color of the channel no. will switch to red.

Meas Math Setting Setup										
CH	Mode	Delta/Scale/Sqrt			Range/Type	RefCh	Span			
							L	U	Point	
CH01	VOLT	OFF	DELTA	SCALE	SGRT	2V	1	-2.000	2.000	
CH02	VOLT	OFF	DELTA	SCALE	SGRT	2V	1	-2.000	2.000	

### Note

- If you want to copy the settings of two or more channels, select the corresponding channel nos. by dragging them

2. Click [Copy Details]. The [Meas Channel Copy Details] dialog box will open. (In the case of math channels, the [Math Channel Copy Details] dialog box will open.)



3. Select the item(s) to be copied, and then click [OK]. To select all the items, click [Select All]. The dialog box will close.
4. Click [Copy]. Selection of the source channels and items will be confirmed.
5. Click the destination channel no. The row of the selected channel will be highlighted, and the color of the channel no. will switch to red.

### Note

- If you want to copy the settings to two or more channels, select the corresponding channel nos. by dragging them

6. Click [Paste]. The settings will be copied.

---

## 3.23 Assigning a Tag Name to a Channel

A tag name can be assigned to a channel and displayed instead of the channel no. The method is the same, irrespective of measurement or math channel.

Selection of whether the channel nos. or tag names are to be displayed can be made in setup mode (refer to 3.42, "Selecting to Display Tag Names or Channel Nos.").

### Operating Method

#### 1. Tag

Click the currently set tag name. It can now be changed, so enter the desired tag name.

Meas	Math	Setting	Setup				
CH		Relay	Moving Ave	Tag	Zone		
					L	U	
CH01	0.000	NONE	OFF		0	100	
CH02	0.000	NONE	OFF		0	100	

### Note

- The tag name can consist of up to 16 characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".
  - If no tag name is assigned even though a setting has been made so that the tag name would be displayed, the channel no. will be displayed.
  - The same setting method will also apply to math channels.
-

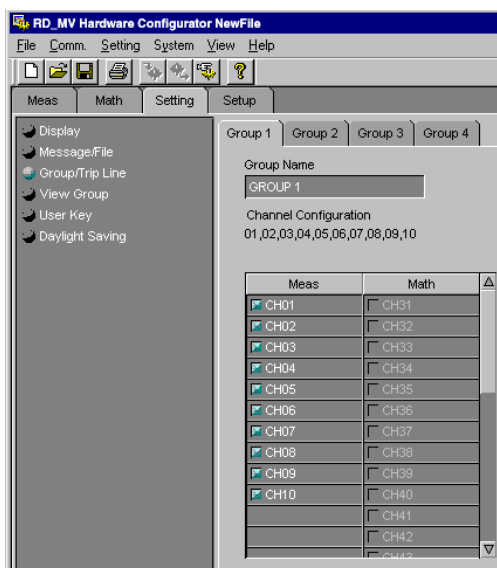
## 3.24 Assigning a Channel to a Group

Measurement/math channels can be assigned to groups.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Group/Trip Line], or select [Setting] - [SET [Regular] Setting] - [Group] from the menu bar.



#### 2. Group number

Click the tab of the desired group no. (in the above example, group 1 is selected).

#### 3. Group Name

Click the currently set group name. It can now be changed, so enter the desired group name.

#### Note

- The group name can consist of up to 16 characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 4. Meas/Math

Click the channel(s) to be assigned to the selected group. The color of the selected channels will switch to blue.

#### Note

- Up to 10 channels can be assigned to each group in the case of RD-MV200 (6 channels in the case of RD-MV100).
- The assigned channels will be displayed under Channel Configuration.
- If no channels are assigned, CH01 will be assigned automatically.



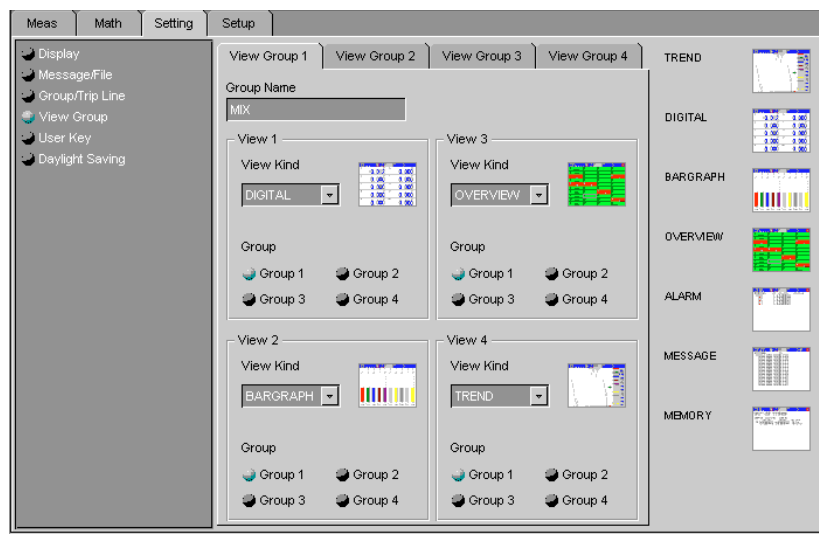
## 3.25 Assigning Display Contents to a View Group (RD-MV200 Only)

The view type (i.e. the contents to be displayed) can be assigned to each group. Seven view kinds are available (e.g. trend display, digital display, bar graph).

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [View Group], or select [Setting] - [SET [Regular] Setting] - [View Group] from the menu bar.



#### 2. View Group 1/2/3/4

Click the tab of the desired view group no. (in the above example, view group 1 is selected).

#### 3. Group Name

Click the currently set view group name. It can now be changed, so enter the desired view group name.

#### Note

- The view group name can consist of up to 16 characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 4. View Kind

Used to select a view kind for each view (each view group can have four views). Click the button in the combo box. A list of view kinds will appear, so select the desired view kind.

The selected view kind will be displayed graphically next to View Kind.

#### 5. Group

Select the group to be displayed in each view. The color of the selected group will switch to blue.

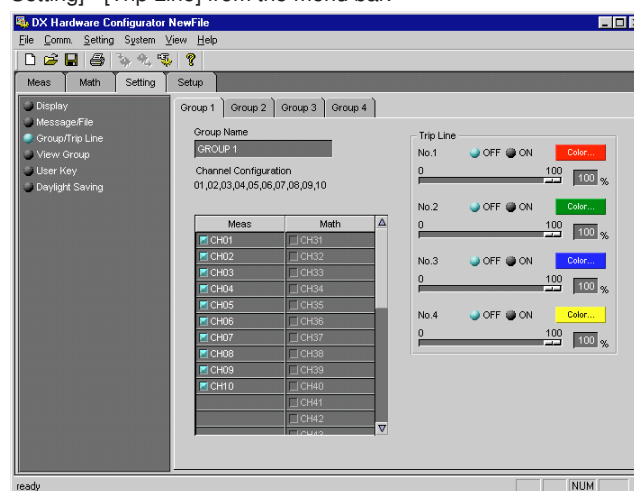
## 3.26 Setting Trip Lines

For trend display, trip lines can be displayed to indicate target positions on the scale. Up to four trip lines can be set for each group.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Group/Trip Line], or select [Setting] - [SET [Regular] Setting] - [Trip Line] from the menu bar.



#### 2. Group 1/2/3/4

Click the tab of the desired group no. (in the above example, group 1 is selected).

#### 3. Trip Line

Use to select trip lines to be displayed. Select [ON] if you want to display the trip line, or select [OFF] if not.

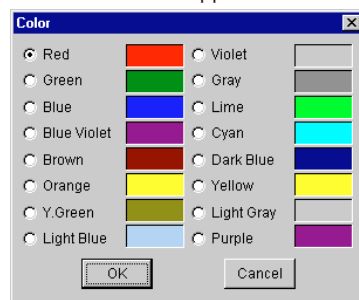
#### 4. Display position (slider)

Used to set the display position of the trip line as the position (%) on the display scale. The position can be set by dragging the slider to right/left or by entering the desired value (%).

#### 5. Color

The currently selected color is displayed in the [Color...] button. To change the color, click the button.

The [Color] dialog box will appear, so select the desired color and click [OK]. The selected color will appear in the button.



#### Note

- A color can be selected from a total of 16 colors.
- To cancel change and restore the previously selected color, click [Cancel].

#### 6. Repeat steps 3 to 5 to set other trip lines.

---

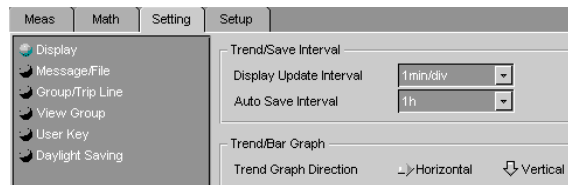
## 3.27 Setting the Display Update Interval

The time per division for the trend display time axis can be set.

**Operating Method**

### 1. Displaying the menu

Click the [Setting] tab and select [Display], or select [Setting] - [SET [Regular] Setting] - [Trend/Save Interval] from the menu bar.



### 2. Display Update Interval

Set the time per division.

## 3.28 Entering a Message

Messages can be set and displayed in trend display or saved together with the display/event data. Up to eight messages can be set.

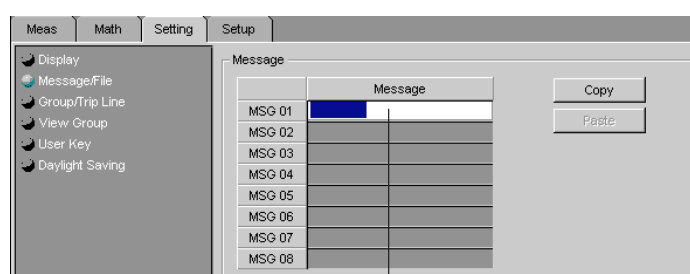
### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Message/File], or select [Setting] - [SET [Regular] Setting] - [Message] from the menu bar.

#### 2. Message

Click the message display area of the desired message no. The currently set message can now be changed, so enter the desired message.



Click

#### Note

- Messages can consist of up to 16 characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

3. To set a message for other message nos., repeat step 2.

#### Copying a Message

The message set to a message no. can be copied to another message no.

1. Click the source message no. The color of the message no. will switch to red.

#### Note

- If you want to copy two or more messages, select the corresponding message nos. by dragging them

2. Click [Copy].

3. Click the destination message no. The color of the selected message no. will switch to red.

#### Note

- If you want to copy the message to two or more message nos., select the corresponding channel nos. by dragging them

4. Click [Paste].

The message will be copied.

## 3.29 Setting the Display Color

The display color can be set for each channel. The method is the same, irrespective of measurement or math channel.

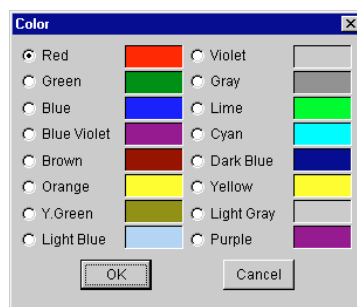
### Operating Method

#### 1. Displaying the [Color] dialog box

Click the currently selected color of the desired channel.

Graph			Partial			Color
Div	Bargraph	Scale		Expand (%)	Boundary	
10	Normal	1	<input type="checkbox"/> OFF	50	0.00	Red
10	Normal	1	<input type="checkbox"/> OFF	50	0.00	Green
10	Normal	1	<input type="checkbox"/> OFF	50	0.00	Blue
10	Normal	1	<input type="checkbox"/> OFF	50	0.00	Purple

The [Color] dialog box will appear.



#### 2. Selecting a color

Select the desired color and click [OK].

The selected color will appear.

### Note

- A color can be selected from a total of 16 colors.
- To cancel change and restore the previously selected color, click [Cancel].

## 3.30 Setting the Display Zone

By setting the display zone, waveforms can be displayed in different areas of the window. This avoids overlapping of waveforms, making them easier to view. The waveforms are displayed between the specified upper and lower limits of the display zone. The setting method is the same, irrespective of measurement or math channels.

### Operating Method

1. Click the [Meas] (or [Math]) tab.

2. **L**

Click the currently set lower limit. It can now be changed, so enter the desired lower limit.

Meas	Math	Setting	Setup					
CH	Tag	Zone		Graph				
		L	U	Div	Bargraph	Scale		
CH31		0	100	10	Normal	1		
CH32		0	100	10	Normal	1		

3. **U**

Click the currently set upper limit. It can now be changed, so enter the desired upper limit.

### Note

- Both lower and upper limits must be set in percentage (%) of the display scale.
- The settable range of the zone is given below.  
Settable range: 0% to 100%  
Lower limit < Upper limit  
The difference between the lower and upper limits: 5 or more
- If a value outside the settable range entered, the value will be corrected when data adjustment is performed.

---

## 3.31 Setting the Graph Properties

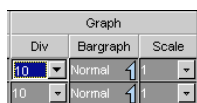
It is possible to set the number of divisions of graph, reference position of the bar graph and scale of the trend graph. The setting method is the same, irrespective of measurement or math channels.

### Operating Method

1. Click the [Meas] (or [Math] tab).

2. **Div**

Set the number of divisions of the display scale. The scale will be equally divided, and a mark will appear at each division position. A value between 4 and 12 can be selected (default: 10).



3. **Bargraph**

Used to set the reference position of the bar graph. Normal or Center can be selected.

### Note

- If the bar graph is set to be displayed vertically, selection of Center will be ignored. Normal will be selected when data adjustment is performed.

4. **Scale**

Used to set the scale display for trend graph. Select OFF or 1 to 10 for RD-MV200, and OFF or 1 to 6 for RD-MV100.

## 3.32 Setting the Partial Expand Function

The partial expand function allows you to enlarge the desired part of the waveform along the axis of measured values (i.e. the remaining part is compressed). The setting method is the same, irrespective of measurement or math channels. However, for a math channel, this function will be disabled if the channel is set to ignore use of the math function.

### Operating Method

1. Click the [Meas] (or [Math]) tab.

#### 2. ON/OFF

Used to select whether the partial expand function is to be used or not. Select [ON] if you are going to use it, or select [OFF] if not.

Partial		
	Expand (%)	Boundary
<input checked="" type="checkbox"/> ON	50	0.00
<input type="checkbox"/> OFF	50	0.00

#### 3. Expand (%)

Used to set the position of the boundary. Set it in relation to the display scale. A value from 1% to 99% can be set.

#### 4. Boundary

Used to set the display range. By moving to another position within the display range (step 3), the areas before and after the boundary will be expanded or compressed.

### Note

- Boundary setting conditions (for measurement channels)
  - When neither SCALE nor SQRT is selected : Span L < Boundary < Span U
  - When SCALE or SQRT is selected : Scale L < Boundary < Scale U
- Boundary setting conditions (for math channel)
  - Span L < Boundary < Span U
- To enable this function, [Partial] must be set to [Use] in the setup mode (refer to 3.43, "Selecting Whether or Not to Use the Partial Expand Function").
- This setting cannot be made if DI is selected as the input mode.
- If the settings are incorrect, they will be corrected automatically when data adjustment is performed.



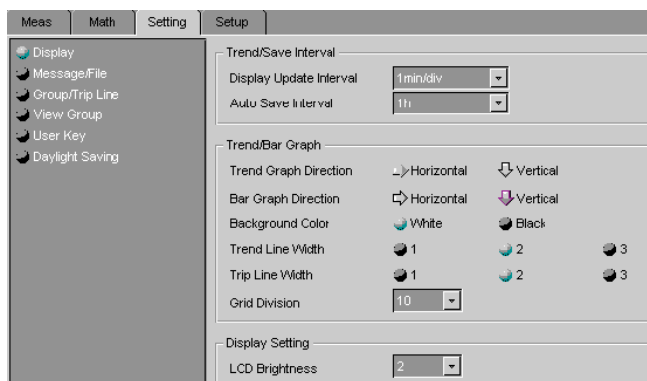
## 3.33 Setting the Display Direction, Background Color, Trend/Trip Line Width and Grid

Trend or bar graphs can be displayed vertically or horizontally, and the screen's background color can be set to white or black. Furthermore, trend/trip line width can be changed and the grid in the trend display area can be divided between 4 and 12.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Display], or select [Setting] - [SET [Regular] Setting] - [Trend/Bar Direction] from the menu bar.



#### 2. Trend Graph Direction

Select the desired direction. The color of the arrow will switch to blue if [Horizontal] is selected, or it will switch to red if [Vertical] is selected.

#### 3. Bar Graph Direction

Select the desired direction. The color of the arrow will switch to blue if [Horizontal] is selected, or it will switch to red if [Vertical] is selected.

#### 4. Background Color

Select the desired background color.

#### 5. Trend Line Width

Three widths (1, 2, 3) are available for trend lines (the larger, the thicker). Select the desired width by clicking the corresponding number. The color of the selected width will switch to blue.

#### 6. Trip Line Width

Three widths (1, 2, 3) are available for trip lines (the larger, the thicker). Select the desired width by clicking the corresponding number. The color of the selected width will switch to blue.

#### 7. Grid Division

Used to set the number of grid divisions. Click the button in the combo box. A list will appear, so select the desired number (4 to 12).

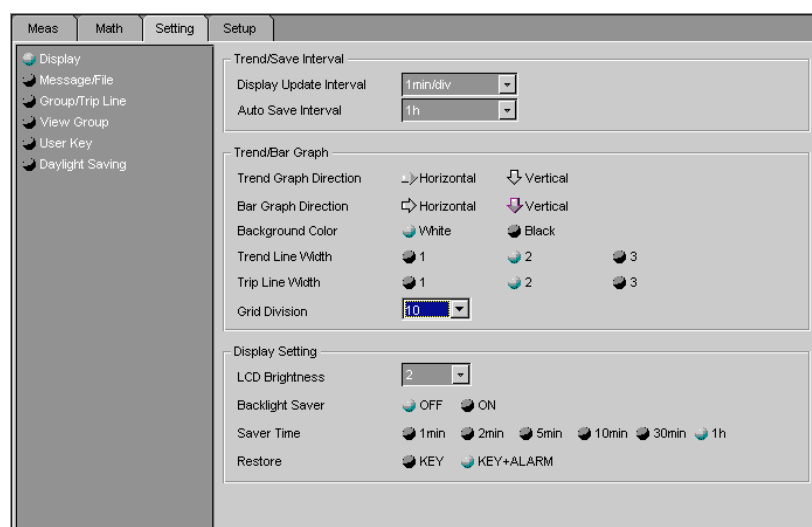
## 3.34 Setting the LCD Brightness and Saver Function

The screen brightness and saver function can be set. If the saver function is enabled (ON), the screen will become blank if no key is pressed or no alarm occurs during the specified save time.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Display], or select [Setting] - [SET [Regular] Setting] - [LCD Brightness] or [View Saver] from the menu bar.



#### 2. LCD Brightness

Used to set the brightness of the LCD screen. Click the button in the list box. A list will appear, so select the desired brightness (the larger, the brighter). (Brightness levels 1 to 4 are available for RD-MV200, and 1 to 8 for RD-MV100.)

#### 3. Backlight Saver

Used to select whether the saver function is to be used or not. Select [ON] if you are going to use it, or select [OFF] if not.

#### 4. Saver Time

Used to set the saver time. If no key is pressed or no alarm occurs during the saver time, the screen will automatically become blank.  
The color of the selected time will switch to blue.

#### 5. Restore

Used to set the conditions which cause the screen to restore (i.e. display the contents). Select [KEY] if you want the screen to restore when a key is pressed, or select [KEY+ALARM] if you want the screen to restore when a key is pressed or an alarm occurs.

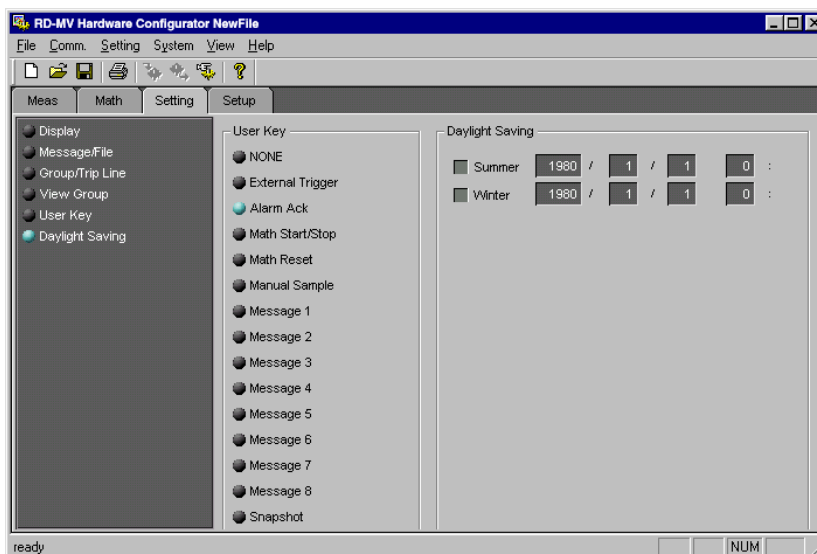
## 3.35 Setting the Daylight Saving Time

### Operating Method

This section explains how to set summer/winter time.

#### 1. Displaying the menu

Click the [Setting] tab and select [Daylight Saving], or select [Setting] &ndash; [SET [Regular] Setting] &ndash; [Daylight Saving] from the menu bar.



#### 2. Summer/Winter

Used to set the summer or winter time. Click the check box on the left of the desired item (Summer or Winter). The selected check box will switch to blue.

#### 3. Setting the year/month/day/time

Click the currently set year, month, day or time to be changed. It can now be changed, so enter the desired year, month, day or time.

#### Note

- Year 2038 and later cannot be set.

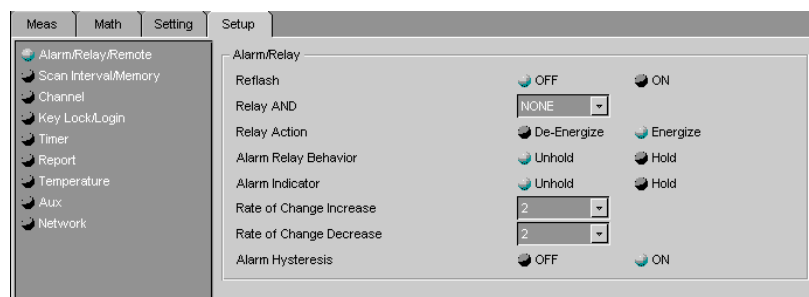
## 3.36 Setting the Alarm Method

### Operating Method

This section explains how to set the alarm method.

#### 1. Displaying the menu

Click the [Setup] tab and select [Alarm/Relay/Remote], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Alarm] from the menu bar.



#### 2. Reflash

Used to select whether reflash alarms are to be used for alarm output relays. Select [ON] if you are going to use, or select [OFF] if not.

#### 3. Relay AND

Used to select the range of the alarm output relays to be used in AND mode. Select the last relay of the range. The relays from the first one to the one selected here will be used in AND mode. The other relays will be used in OR mode. To use all the relays in OR mode, select [NONE].

#### 4. Relay Action

Select whether alarm output relays are to be energized (Energize) or de-energized (Re-energize) in case of an alarm. The color of the selected option will switch to blue.

#### 5. Alarm Relay Behavior

Select whether alarm output relays are to hold the status (Hold) or not (Unhold). The color of the selected option will switch to blue.

#### 6. Alarm Indicator

Select whether alarm indication is to be held (Hold) or not (Unhold) even if the alarm has been cleared. The color of the selected option will switch to blue.

#### 7. Rate of Change Increase

Used to set the interval for upper change rate alarms. Select the desired interval (1 to 15).

#### 8. Rate of Change Decrease

Used to set the interval for lower change rate alarms. Select the desired interval (1 to 15).

#### 9. Alarm Hysteresis

Used to provide a hysteresis between the value which causes an alarm to occur and the one which causes it to clear. Select [ON] if you want to provide a hysteresis, or select [OFF] if not. The color of the selected option will switch to blue.

---

## 3.37 Setting the Scan Interval

### Operating Method

This section explains how to set the scan interval and A/D integration time.

#### 1. Displaying the menu

Click the [Setup] tab and select [Scan Interval/Memory], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Interval] from the menu bar.



#### 2. Scan Interval

Set the scan interval. The color of the selected scan interval will switch to blue.

#### Note

- The available scan intervals differ between the medium-speed and high-speed types.  
RD-MV102, RD-MV104, RD-MV204, RD-MV208 : 1s, 2s  
RD-MV106, RD-MV112, RD-MV210, RD-MV220, RD-MV230 : 125ms, 250ms

#### 3. A/D Integrate

Set the A/D integration time. The color of the selected A/D/D integration time will switch to blue.

#### Note

- A/D integration time 100ms can be selected only when 2s is selected for the scan interval.

## 3.38 Selecting the Burn-out and RJC

This section explains the method for setting how the measurement result is to be treated in case of a burnout of the thermo-couple in TC input mode. It also explains how to set the RJC type (internal or external).

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Channel], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Burnout] from the menu bar.

Channel	Burnout			RJC		Volt (uV)
	OFF	UP	DOWN	Type		
CH01	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH02	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH03	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH04	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH05	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH06	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH07	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH08	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH09	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0
CH10	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> Internal	<input type="radio"/> External	0

Copy Paste Copy Details

#### 2. BURN OUT

Used to select how the measurement result is to be treated in case of a burnout of the thermo-couple. Select [OFF], [UP] (+ over) or [DOWN] (- over).

#### 3. RJC Type

Used to select the RJC type. Select Internal or External.

#### 4. RJC Volt (uV)

Used to specify the compensation value if [External] is selected as the RJC type. Enter the desired value (-20,000 to 20,000).

#### Copying the Settings

The burnout and RJC settings made to a channel can be copied to another channel.

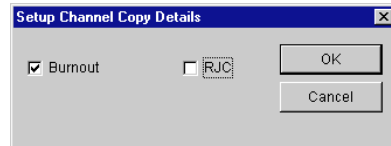
#### Operating Method

1. Click the source channel no. The color of the channel no. will switch to red.

---

**Note**

- If you want to copy the settings of two or more channels, select the corresponding channel nos. by dragging them
- 



2. Click [Copy Details].
3. Select the item(s) to be copied, and then click [OK].
4. Click [Copy].
5. Click the destination channel no. The color of the channel no. will switch to red.

---

**Note**

- If you want to copy the settings to two or more channels, select the corresponding channel nos. by dragging them
- 

6. Click [Paste].

The settings will be copied.

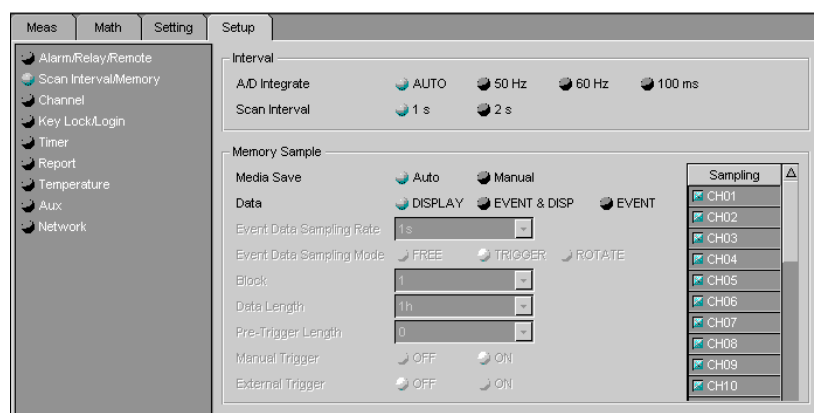
## 3.39 Setting the Save Method for Measurement/Math Data

This section explains how to set the save method for measurement/math data.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Scan Interval/Memory], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Memory Sample] from the menu bar.



#### 2. Media Save

Used to set whether the data is to be saved manually or automatically. Select [Auto] if you want to save it automatically, and select [Manual] if you want to save it manually.

#### 3. Data

Used to set the type of data to be saved. Select [DISPLAY] if you want to save display data only, select [EVENT] if you want to save event data only, or select [EVENT & DISP] if you want to save both.

#### Note

Steps 4 to 10 are necessary only if [EVENT] or [EVENT & DISP] is selected at step 3, since they relate to event data.

#### 4. Event Data Sampling Rate

Set the sampling rate for event data. The sampling rate differs between high-speed and medium-speed types.

#### 5. Event Data Sampling Mode

Used to select the sampling mode. Select from [FREE], [TRIGGER] and [ROTATE].



#### 6. Block

Used to divide the event data save area (memory) into blocks. Select the desired number of blocks from "1" (does not divide), "2", "4", "8" and "16".

---

#### **Note**

The number of blocks can be selected only from "1", "2" and "4" if [EVENT & DISP] is selected as the data type at step 3.

---

#### 7. Data Length

Used to set the length (i.e. size) of the event data file. The size must be set in terms of sampling time. The size varies with the specified event data sampling rate and number of blocks.

#### 8. Pre-Trigger Length

Used to set the portion of the data to be written before generation of a trigger. The portion must be set in ratio (0, 5, 25, 50, 75, 95 and 100%) to the data length.

---

#### **Note**

0% means that the entire event data is written after generation of the trigger, and 100% means that the entire event data is written before generation of the trigger.

---

#### 9. Manual Trigger

Select [ON] if you want to cause a trigger to be generated when a manual trigger is designated.

#### 10. External Trigger

Select [ON] if you want to cause a trigger to be generated when the external contact (remote input) is turned ON.

#### 11. Alarm Trigger

Select [ON] if you want to cause a trigger to be generated when any of the alarms occur.

#### 12. Sampling

Select the channel whose display/event data is to be saved.

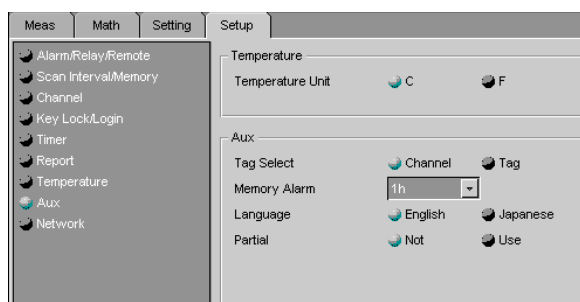
## 3.40 Selecting to Display Channels in Tag Names or Channel Nos.

This section explains how to set whether channels are to be displayed in tag names or channel nos. For a description of how to set a tag name to a channel, refer to 3.23, "Assigning a Tag Name to a Channel".

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Aux], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Tag] from the menu bar.



#### 2. Tag Select

Select [Channel] if you want to display channels in channel nos., or select [Tag] if you want to display channels in tag names. The color of the selected option will switch to blue.

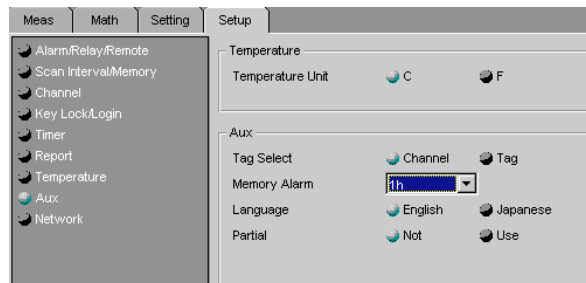
## 3.41 Setting the Memory Full Relay Output Time

The software can check the current free space in the internal memory and cause the memory full relay to activate at the specified time prior to the time at which the internal memory is expected to run out of free space. This time is called memory alarm time.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Aux], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Memory Alarm] from the menu bar.



#### 2. Memory Alarm

Set the desired memory alarm.

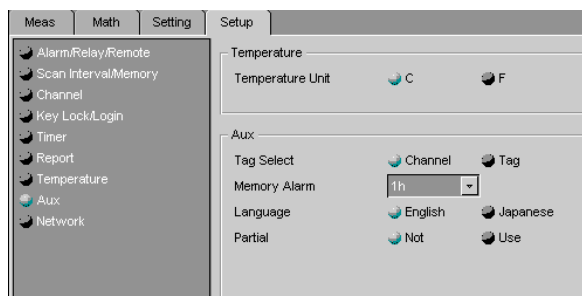
## 3.42 Selecting the Display Language

The language of messages to be displayed can be selected. The selectable languages vary with the options and RD-MV currently connected to the PC.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Aux], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Language] from the menu bar.



#### 2. Language

Select the desired language.

---

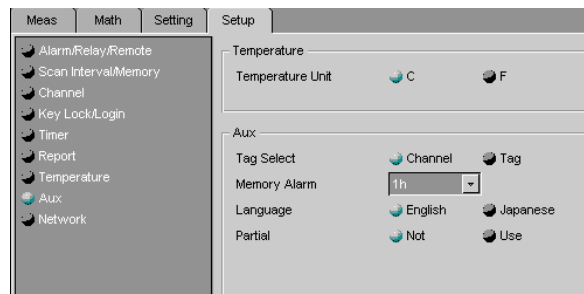
## 3.43 Selecting Whether or Not to Use the Partial Expand Function

This section explains how to select whether or not the partial expand function is to be used.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Aux], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Partial] from the menu bar.



#### 2. Partial

Select [Use] if you are going to use the partial expand function, or select [Not] if not. The color of the selected option will switch to blue.

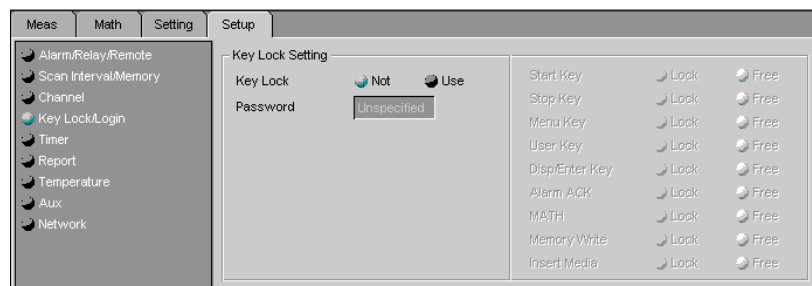
## 3.44 Setting the Key Lock Function

The key lock function for keys and external media can be enabled or disabled. The password to be used to cancel the key lock function can also be specified.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Key Lock/Login], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Key Lock] from the menu bar.



#### 2. Key Lock

Used to select whether or not to use the key lock. If [Use] is selected, a list of the keys and external media which can be subjected to this function will be displayed.

#### 3. Lock/Free

For each key and media, select [Free] if you want to enable the function, or select [Lock] if you want to disable the function.

#### 3. Password

Enter the password to be used to cancel the function.

#### Note

- The password can consist of up to six characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

## 3.45 Setting the Login/Logout Function

The login function and user ID can be set.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Key Lock/Login], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Login] from the menu bar.

		User Name	User ID	Password	Setup
1	ON	user1	Unspecified	Unspecified	Enable
2	OFF	user2	Unspecified	Unspecified	Enable
3	OFF	user3	Unspecified	Unspecified	Enable
4	OFF	user4	Unspecified	Unspecified	Enable
5	OFF	user5	Unspecified	Unspecified	Enable
6	OFF	user6	Unspecified	Unspecified	Enable
7	OFF	user7	Unspecified	Unspecified	Enable

#### 2. Use Login

Select [Use Login] if you want to use the login function.

#### 3. Auto Logout

Select [Auto Logout] if you want to use the auto logout function. If this function is used, a logout will be made after a certain time has elapsed following the login.

#### 4. Use ID

Select [User ID] if you want to use the user ID. When [User ID] is selected, the [User ID] field will become available.

#### 5. ON/OFF

Select [ON] if you want to use the user settings, or select [OFF] if not. If [ON] is selected, the current user registration will be effective.

#### 6. User Name

Enter a user name (up to 16 characters). For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 7. User ID

Enter a user ID (up to 4 characters). For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 8. Password

Enter a password (up to 6 characters). For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 9. Setup

Used to select whether or not to permit the ID setting to be changed in setup mode.

Enable      Possible to enter setup mode.

Disable     Not possible to enter setup mode.

### Note

- If a user name for which [ON] is selected is also used for another user, [OFF] will be selected for the user that has the larger user no.
- If [Disable] is selected for all the users for which [ON] is selected, [Enable] will be selected for the user who has the smallest user no.

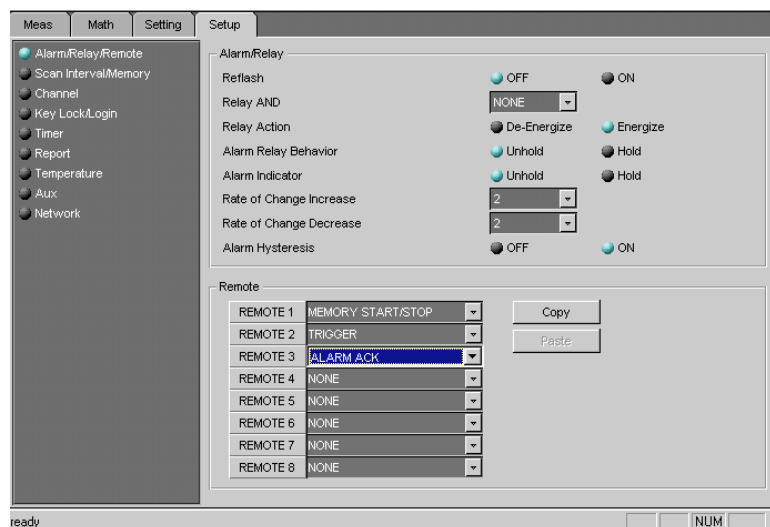
## 3.46 Assigning a Remote Control Function to Each Remote Control Terminal

A remote control function can be assigned to a total of eight remote control terminals. This setting is available if the RD-MV100/RD-MV200 has the remote function.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Alarm/Relay/Remote], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Remote Action] from the menu bar.



#### 2. Selecting a remote control function for each remote no.

The following control functions are available.

NONE, ALARM ACK, MEMORY START/STOP, MANUAL SAMPLE, TRIGGER, MESSAGE 1, MESSAGE 2, MESSAGE 3, MESSAGE 4, MESSAGE 5, MESSAGE 6, MESSAGE 7, MESSAGE 8, PANEL 1 LOAD, PANEL 2 LOAD, PANEL 3 LOAD, MATH START/STOP, MATH RESET, TIME ADJUST

#### Copying the Settings

The settings made to a remote no. can be copied to another remote no.

1. Click the source remote no. The color of the remote no. will switch to red.

#### Note

- If you want to copy the settings of two or more remote nos., select the corresponding remote nos. by dragging them

2. Click [Copy].

3. Click the destination remote no. The color of the remote no. will switch to red.

#### Note

- If you want to copy the settings to two or more remote nos., select the corresponding remote nos. by dragging them

4. Click [Paste].

The settings will be copied.



---

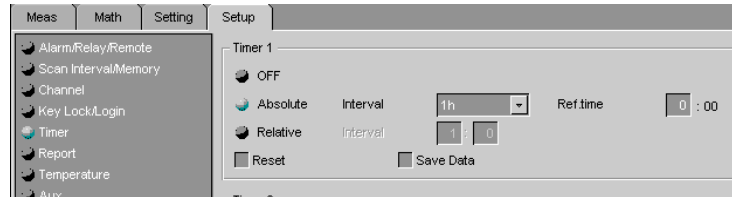
## 3.47 Setting the Timers to be Used for TLOG

A total of three timers to be used for TLOG can be set. When the time set on a timer expires, the data will be saved to the TLOG file or math will be reset.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Timer], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Timer] from the menu bar.



#### 2. OFF

Select [OFF] if you are not going to use the timer.

#### Using as an Absolute Timer

#### 3. Select [Absolute].

#### 4. Interval

Select the period of time to be elapsed before a time-up.

#### 5. Ref.time

Set the clock time to be used as the reference. The timer starts at the specified clock time, and a time-up will occur when the specified interval elapses.

#### 6. Save Data

Select this option if you want to save the data to the TLOG file when a time-up occurs.

#### 7. Reset

Select this option if you want to reset math when a time-up occurs.

#### 8. Repeat the above steps for each timer.

#### Using as a Relative Timer

#### 3. Select [Relative].

#### 4. Interval

Set the interval between time-ups. A time-up occurs each time the specified interval expires.

#### 5. Save Data

Select this option if you want to save the data to the TLOG file when a time-up occurs.

#### 6. Reset

Select this option if you want to reset math when a time-up occurs.

#### 7. Repeat the above steps for each timer.

## 3.48 Setting the Report Function

Various reports (hourly, daily, weekly and monthly) can be created. It is possible to create an hourly report only, daily only, daily and weekly, or daily and monthly. A total of 30 channels are available for this function in the case of RD-MV200 (12 channels in the case of RD-MV100).

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Report], or select [Setting] - [SET [Basic] Setting] - [Setting] - [Report] from the menu bar.



#### 2. Type

Select the desired type of report. The color of the selected type will switch to blue.

#### 3. Time

Set the date/time or day of week/time on which the report is to be created.

#### 4. ON/OFF

Used to enable (ON) or disable (OFF) the report channel.

#### 5. RefCh

Assign a target channel (measurement/math channel) to the report channel.

#### 6. Sum Scale

Used to set whether the math result of the TLOG.SUM math channel is to be converted to time values before being reported. Select [Off] if you are not going to convert.

#### Copying the Settings

The settings made to a report channel can be copied to another report channel.

#### Operating Method

1. Click the source report channel no. The color of the channel no. will switch to red.

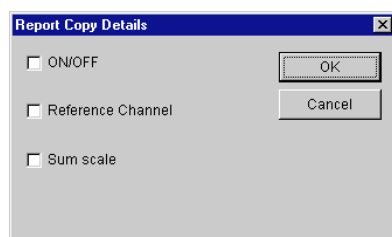
**Note**

- If you want to copy the settings of two or more channels, select the corresponding channel nos. by dragging them
- 

2. Click [Copy Details].

3. Select the item(s) to be copied, and then click [OK].

4. Click [Copy].



5. Click the destination report channel no. The color of the channel no. will switch to red.

**Note**

- If you want to copy the settings to two or more channels, select the corresponding channel nos. by dragging them
- 

6. Click [Paste].

The settings will be copied.

## 3.49 Setting the TCP/IP

Before communicating with the RD-MV100/RD-MV200 via Ethernet, the IP address, subnet mask and default gateway of the RD-MV100/RD-MV200 must be set.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab, select [Network], and then click the [TCP/IP] tab.

Selecting [Setting] - [SET [Basic] Setting] - [Comm] - [Ethernet], [Keep Alive], [DNS] or [Timeout] from the menu bar will also have the same result.

#### 2. IP Address

Set the IP address.

#### 3. Subnet Mask

Set the subnet mask.

#### 4. Default Gateway

Set the default gateway.

#### 5. DNS

Used to select whether or not to use DNS. Select [ON] if you are going to use it, or select [OFF] if not.

#### 6. Primary Sever IP Address

Set the IP address of the primary DNS server.

#### 7. Secondary Sever IP Address

Set the IP address of the secondary DNS server.

#### 8. Host Name

Enter the host name.

**9. Domain Name**

Enter the domain name.

**10. Domain Suffix 1**

Enter the domain suffix 1.

**11. Domain Suffix 2**

Enter the domain suffix 2.

**12. Keep Alive**

Used to select whether to enable or disable keep alive. Select [ON] to enable it, or select [OFF] to disable.

**13. Time Out**

Used to select whether to enable or disable time out. Select [ON] to enable it, or select [OFF] to disable. If [ON] is selected, enter the desired time out value.

**14. Memory Data Out**

Used to select the communication module to which the memory data is to be output. Select [Ethernet] to use Ethernet, or select [Serial] to use the serial interface.

**Note**

---

- [Serial] is displayed only if the RD-MV100/RD-MV200 has the serial communication function.
-

## 3.50 Setting the FTP Function

Use of the FTP function enables automatic transfer of a measurement/math data file to the personal computer.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab, select [Network], and then click the [FTP] tab, or select [Setting] - [SET [Basic] Setting] - [Comm] - [FTP] from the menu bar.

#### 2. Click the [Primary] or [Secondary] tab.

(The following steps apply whether the [Primary] or [Secondary] tab is clicked.)

#### 3. Server Name

Enter the server name.

#### 4. Port Number

Enter the port number.

#### 5. Login Name

Enter the login name.

#### 6. Password

Enter the password.

#### 7. Account

Enter the account.

#### 8. PASV

Used to select whether or not to use PASV. Select [Use] if you are going to use it, or select [Not] if not.

#### 9. Initial Path

Enter the initial path.

#### 10. Disp & Event Data

Select [ON] if you want to send a file when memory data is created.

#### 11. Report

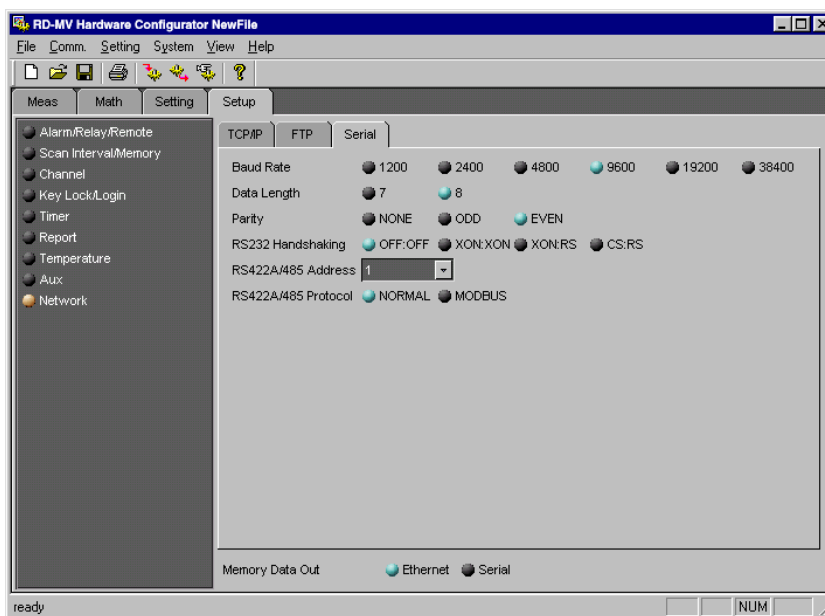
Select [ON] if you want to send a file when the report time expires.

## 3.51 Setting the Serial Communication Function

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab, select [Network], and then click the [Serial] tab, or select [Setting] - [SET [Basic] Setting] - [Comm] - [Serial] from the menu bar.



#### 2. Baud Rate

Select the desired baud rate.

#### 3. Data Length

Select the desired data length.

#### 4. Parity

Used to select the type of parity check. Select [ODD] for odd parity check, select [EVEN] for even parity check, or select [NONE] if you do not want to perform any parity checks.

#### 5. RS232 Handshaking

Select the handshaking method for RS232.

#### 6. RS422A/485 Address

Select the address for RS422A/485.

#### 7. RS422A/485 Protocol

Used to select the protocol for RS422A/485. [NORMAL] or [MODBUS] can be selected

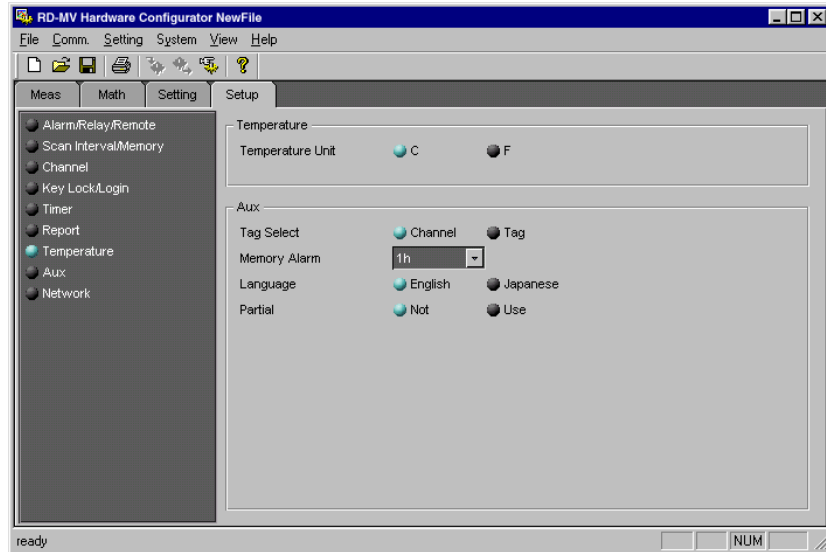
## 3.52 Setting the Temperature Unit

This section explains how to set the unit for temperature measurement. Either Celsius (C) or Fahrenheit (F) can be set.

### Operating Method

#### 1. Displaying the menu

Click the [Setup] tab and select [Temperature], or select [Setting] - [SET [Basic] Setting] - [Temperature Unit] from the menu bar.



#### 2. Select C of F by clicking it.



---

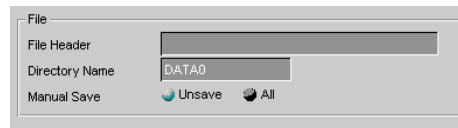
## 3.53 Setting the File Header, Destination Directory Name and the Data to be Saved in Manual Save Mode?

The software allows you to write a comment in the header of a measurement/math data file, and set the directory where the file is to be saved. It also allows you to select whether to save all the data or only the data which has not been saved.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Message/File], or select [Setting] - [SET [Regular] Setting] - [File Header] from the menu bar.



#### 2. File Header

Used to enter a comment in the header of the measurement/math data file. Click the header display area. A comment can now be entered, so enter the desired comment. Up to 32 characters can be entered. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

#### 3. Directory Name

Used to specify the directory where the measurement/math data file is to be saved. Click the currently set directory name. The directory name can now be changed, so enter the desired directory name.

---

#### Note

- The directory name can consist of up to eight characters. For characters which can be used for the unit, refer to 3.62, "Usable Characters".

The following cannot be used:

AUX, CON, PRN, NUL, CLOCK

- If no directory name is entered, "DATA0" (default directory name) will be given automatically.
- 

#### 4. Manual Save

Used to select whether to save all the data or only the data which has not been saved in the case of manual save mode. Select [All] to save all the data, or select [Unsave] to save only the data which has not been saved.

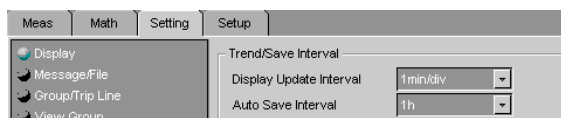
## 3.54 Setting the Auto Save Interval for Displayed Data

If an external media (floppy disk, ZIP, ATA memory card) is set on the RD-MV100/RD-MV200, the data in the internal memory can be saved to the media automatically at the specified intervals. This section explains how to set the interval (i.e. auto save interval).

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [Display], or select [Setting] - [SET [Regular] Setting] - [Trend/Save Interval] from the menu bar.



#### 2. Auto Save Interval

Select the desired auto save interval.

#### Note

- This setting is available only if [Event Data Sample Mode] is set to [Free] and [Data] is set to either [DISPLAY] or [EVENT & DISP] in Memory Sample setting. For details, refer to 3.39, "Setting the Save Method for Measurement/Math Data".

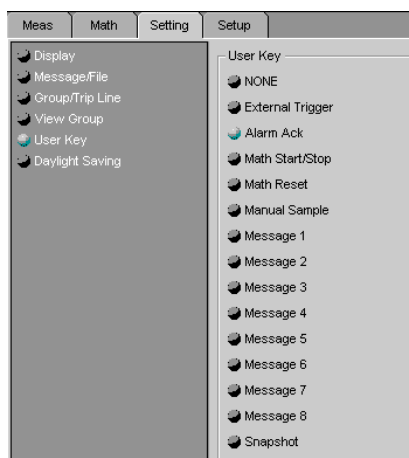
## 3.55 Assigning a Function to the USER Key

A function can be assigned to the [USER] key. Pressing the [USER] key during operation will cause the assigned function to be performed.

### Operating Method

#### 1. Displaying the menu

Click the [Setting] tab and select [User Key], or select [Setting] - [SET [Regular] Setting] - [User Key] from the menu bar.



#### 2. User Key

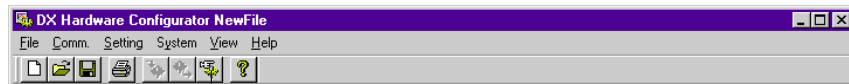
Select the desired function from the list. The color of the selected function will switch to blue.

## 3.56 Adjusting the Setup Data

This section explains how to check whether the setup data matches the actual system. If they do not match, the data will be corrected automatically.

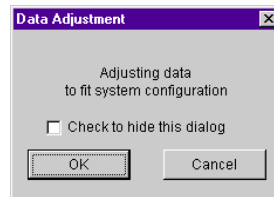
### Operating Method

1. Click the Data Adjust button.



Data Adjust button

2. The [Data Adjustment] dialog box will appear, so click [OK] to start data adjustment.



---

## 3.57 Initializing the Setup Data

This section explains how to initialize the currently edited setup data.

### Operating Method

1. From the menu bar, select [Setting] - [Initialize].
2. The [Initialize] dialog box will appear, so click [OK] to start initialization.

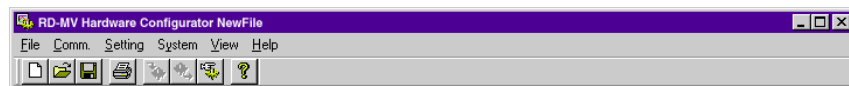


## 3.58 Sending the Setup Data

This section explains how to send the setup data created by Hardware Configurator to the RD-MV100/RD-MV200.

### Operating Method

1. Click the Send button, or select [Comm] - [Send Setting] from the menu bar.



2. A message asking you whether to send the data or not will appear, so click [OK]. All the created setup data will be sent to the RD-MV100/RD-MV200.

## 3.59 Saving the Setup Data

### Operating Method

This section explains how to save the setup data created by Hardware Configurator.

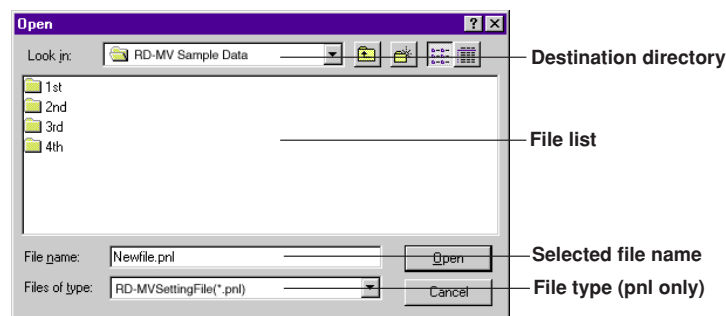
1. From the menu bar, select [File] - [Save] or [Save As].

When [Save] is selected:

The existing file will be overwritten by the setup data. Clicking the Save button will have the same result.

When [Save As] is selected:

The [Save As] dialog will appear.



2. Select the destination directory and desired file name, and then click [Save]. The setup data will be saved.

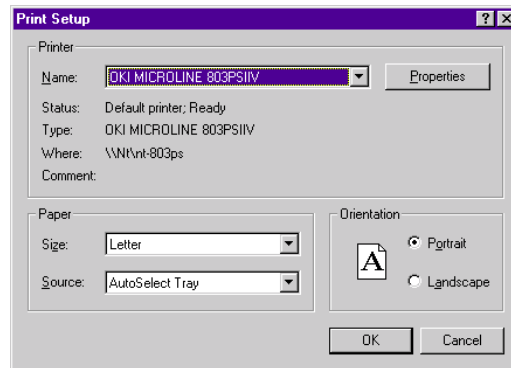
## 3.60 Printing the Setup Data

This section explains how to print the currently edited setup data.

### Operating Method

#### Setting the printer

1. From the menu bar, select [File] - [Print Setting].



2. Select the printer to be used, paper and print direction.

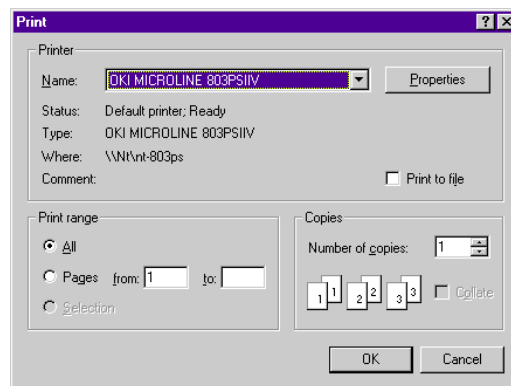
#### Showing a print preview

Before starting print, it is possible to view how the data will be printed.

1. Select [File] - [Preview].  
The [Preview] window will appear.

#### Starting Print

1. Click the Print button or select [File] - [Print].



2. Select the printer to be used, page range and number of copies, then click [OK].



---

## 3.61 Writing Measured Data and Performing Math

The RD-MV100/RD-MV200 can be controlled from Hardware Configurator to start and stop writing of measured data and math function.

### Operating Method

#### Starting

1. From the menu bar, select [Comm] - [Action] - [Memory & Math] - [Start].  
Writing the measured data to the memory and math will start.

#### Stopping

1. From the menu bar, select [Comm] - [Action] - [Memory & Math] - [Stop].  
The measured data will be written to the memory and math will start.  
Writing the measured data to the memory and math will stop.

## 3.62 Usable Characters

The following characters can be used for group names, view group names, messages, comments for file header, name of the directory where files are to be saved, password for key lock function, user name, user ID and password for login.

SP	#	%	(	)	*	+	-	.	/
0	1	2	3	4	5	6	7	8	9
A	B	C	D	E	F	G	H	I	J
K	L	M	N	O	P	Q	R	S	T
U	V	W	X	Y	Z				
A	B	c	D	E	F	g	H	I	j
K	L	m	N	O	P	q	R	s	t
U	V	w	X	Y	Z				
_	^	"	'	@					

### Note

- " ° " is used instead of "^" for the RD-MV100/RD-MV200, and "^" is used instead of " ° " for Hardware Configurator.
- (") and ( ° ) cannot be used for the following.  
 Password for key lock  
 User ID for login  
 DNS host name for TCP/IP  
 DNS domain name for TCP/IP  
 DNS domain suffix 1 for TCP/IP  
 DNS domain suffix 2 for TCP/IP  
 Password for FTP
- (\*), (+), (.), (/), (") and ( ° ) cannot be used for the name of the directory where files are to be saved.

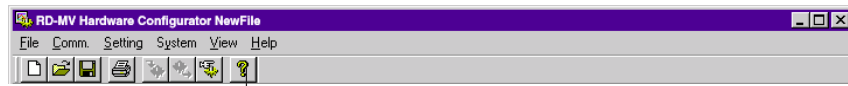
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## 3.63 Displaying the Version Information

### Operating Method

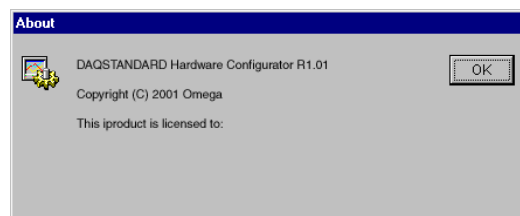
To find the version of the Hardware Configurator, display the [About] dialog box.

1. Click the Version Display button, or select [Help] - [About].



Version Display button

The [About] dialog box will appear.



2. To close the dialog box, click [OK].

## 4.1 Overview of Data Viewer

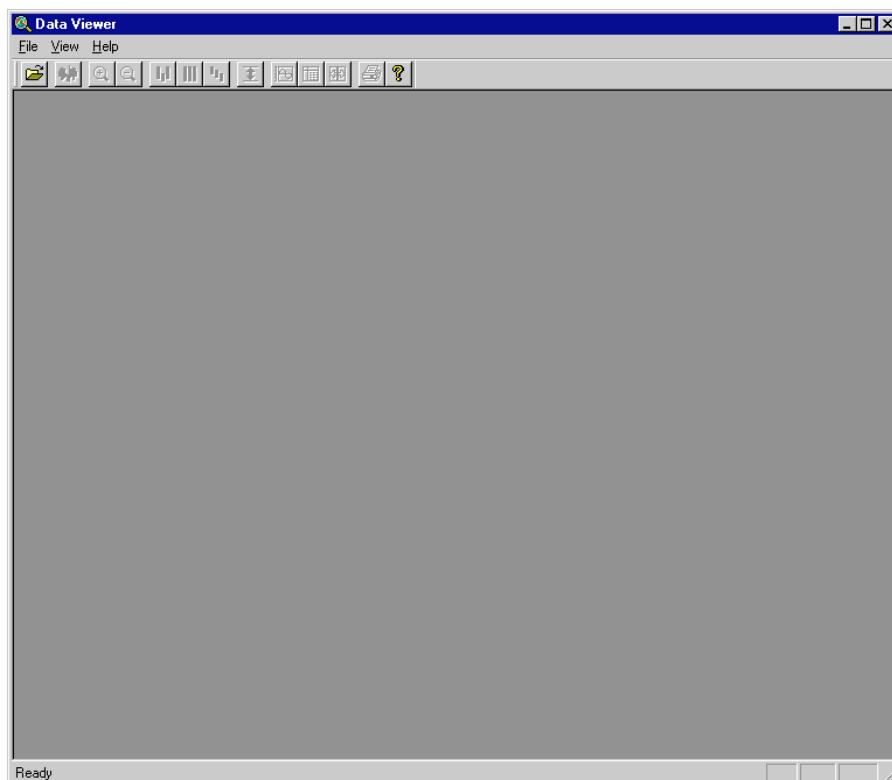
### Starting Method

Data Viewer allows the data created by the RD-MV100/RD-MV200 to be displayed in waveforms or digital values, as well as to be printed

Click the [VIEWER] button of Launcher, or select [Launcher] – [Data Viewer] from the menu bar. Data Viewer will start and the following window will appear.

#### Note

- If you want to open two or more Data Viewers, select [Program] - [RD-MV Standard Software] - [Viewer] from the Start menu.



### Display Contents

Among the files created by the RD-MV100/RD-MV200, the following files can be displayed:

- Display data file (.dds)
- Event data file (.dev)
- TLOG file (.dtg)

#### Display and Event data files

Select one group from three groups. A total of 10 measurement and math channels can be registered to each group.

The following data can be displayed:

- Measurement/math data
- Measurement/math data between cursors

#### TLOG File

TLOG math results are displayed in a spreadsheet form for each timer.

## 4.2 Opening a File

Display data files (.dds), Event data files (.dev) and TLOG files (.dtg) created by the RD-MV100/RD-MV200 can be opened in Data Viewer.

### Operating Method

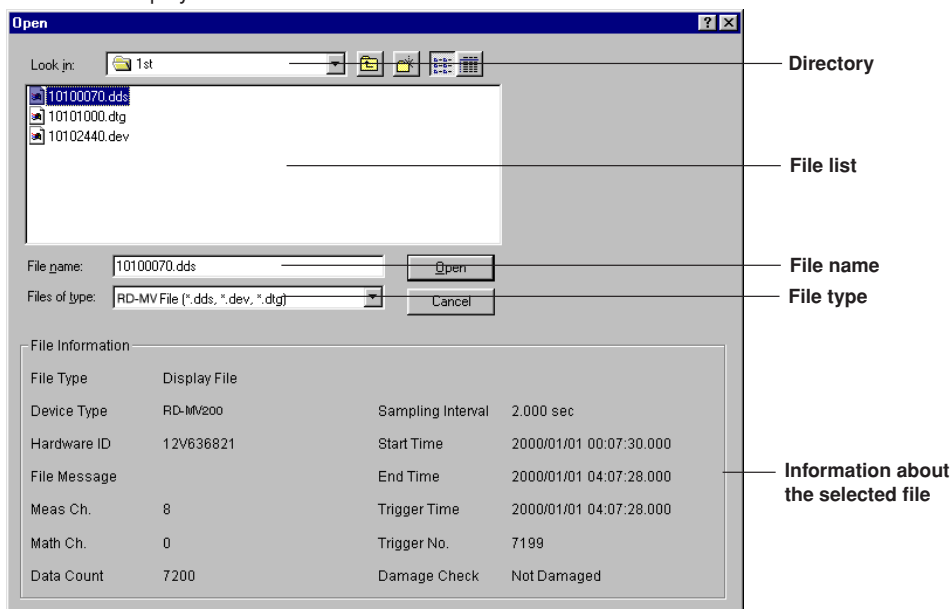
#### 1. Displaying the menu

Click the Open button or select [File] - [Open] from the menu bar.



Open button

#### 2. Select the correct directory and file type, and select the name of the file to be displayed from the list.



#### 3. Click [Open]. The selected file (waveform) will be displayed.

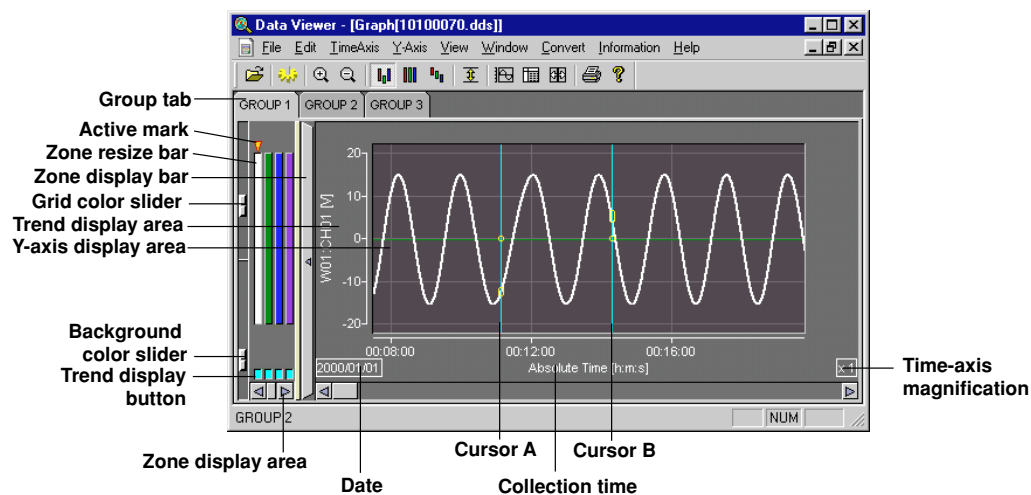
#### Note

- Two or more files can be opened simultaneously.
- The number of the files which can be opened simultaneously depends on the personal computer's memory size and free space on the disk.

## Display Type

Display (event) files can be displayed in two ways: waveform display (trend display) and digital display.

### Waveform Display (Trend Display)



4

Data Viewer

Group tab	<p>Selects the group to be displayed.</p> <p>Interlocked with the digital and cursor value display windows.</p>
Trend display area	<p>Area provided to display waveforms.</p> <p>Waveforms are displayed in the assigned colors and according to the specified display method.</p> <p>Dragging the mouse in this area displays cursor A at the start point and cursor B at the end point.</p>
Measured values	<p>Displays measured values.</p> <p>In the case of a Display data file, the maximum and minimum values are shown above and below the line respectively.</p>
Cursor A	<p>Circles the cross point of the waveform and cursor.</p> <p>Interlocked with the digital and cursor value display windows.</p>
Cursor B	<p>Circles the cross point of the waveform and cursor.</p> <p>Interlocked with the digital and cursor value display windows.</p>
Trigger mark	<p>Indicates the trigger position.</p>
Y-axis display area	<p>Area to display the Y-axis</p> <p>When Full Zone or User Zone is selected, only the Y-axis of the active channel is displayed. When Auto Zone is selected, the Y-axis of every channel is displayed.</p>
Time-axis display area	<p>Area to display the time-axis</p> <p>The display range can be selected by the horizontal scroll bar.</p>
Time-axis magnification	<p>Displays the zoom in/out magnification.</p>

## 4.2 Opening a File

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Zone display area	Area to display/change the display status of each channel	
	Active mark	Indicates the active channel. The active channel is displayed on top of the other channels.
	Grid color slider	Adjusts the grid color between white and black when dragged vertically.
	Background color slider	Adjusts the background color between white and black when dragged vertically.
	Axis button	Displayed in the color assigned to the channel. Causes the channel to be active when clicked.
	Zone display bar	Displays/hides the zone display area.
	Zone resize bar	Changes the size of zone display area when dragged to left/right.
	Trend display button	Displays/hides the channel.

---

Digital Value Display

Display data file

Active mark

Group tab

Time/data no. display area

Data Viewer - [Sheet[10100070.dds]]

GROUP 1

GROUP 2

GROUP 3

Date [No.]

2000/01/01 00:07:30.000[00000000]

2000/01/01 00:07:32.000[00000001]

2000/01/01 00:07:34.000[00000002]

2000/01/01 00:07:36.000[00000003]

2000/01/01 00:07:38.000[00000004]

2000/01/01 00:07:40.000[00000005]

2000/01/01 00:07:42.000[00000006]

2000/01/01 00:07:44.000[00000007]

2000/01/01 00:07:46.000[00000008]

2000/01/01 00:07:48.000[00000009]

2000/01/01 00:07:50.000[00000010]

2000/01/01 00:07:52.000[00000011]

W01:CH01 [V]

W02:CH02 [V]

W03:CH03 [V]

Min

Max

Min

Max

Min

-12.54

-12.47

0.00

0.00

0.00

-12.47

-11.35

0.00

0.00

0.00

-11.35

-10.06

0.00

0.00

0.00

-10.06

-8.61

0.00

0.00

0.00

-8.61

-7.09

0.00

0.00

0.00

-7.09

-5.41

0.00

0.00

0.00

-5.41

-3.62

0.00

0.00

0.00

-3.62

-1.82

0.00

0.00

0.00

-1.82

-0.03

0.00

0.00

0.00

-0.03

1.76

0.00

0.00

0.00

1.76

3.56

0.00

0.00

0.00

3.56

5.36

0.00

0.00

0.00

GROUP 3

NUM

Channel information display area

Cursor A

Selected cursor range

Cursor B

Maximum value field

Minimum value field

4

Data Viewer

Event data file

Group tab

Active mark

Time/data no. display area

Data Viewer - [Sheet[10102440.dev]]

GROUP 1

GROUP 2

GROUP 3

Date [No.]

2000/01/01 02:44:03.000[00000000]

2000/01/01 02:44:03.125[00000001]

2000/01/01 02:44:03.250[00000002]

2000/01/01 02:44:03.375[00000003]

2000/01/01 02:44:03.500[00000004]

2000/01/01 02:44:03.625[00000005]

2000/01/01 02:44:03.750[00000006]

2000/01/01 02:44:03.875[00000007]

W01:CH01 [V]

W02:CH02 [V]

W03:CH03 [V]

-1.00

0.00

0.00

-0.89

0.00

0.00

-0.78

0.00

0.00

-0.67

0.00

0.00

-0.55

0.00

0.00

-0.44

0.00

0.00

-0.33

0.00

0.00

-0.22

0.00

0.00

Ready

NUM

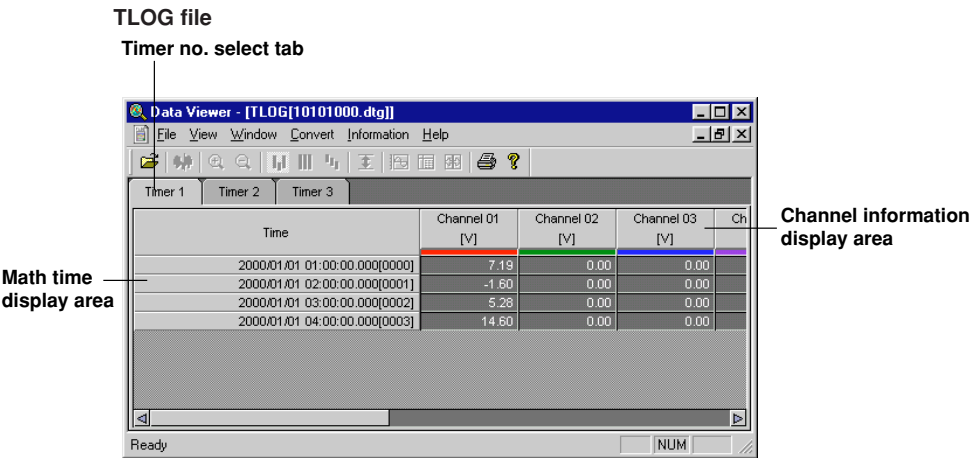
Channel information display area

Data display area

Group tab	Selects the group to be displayed. Interlocked with the digital and cursor value display windows.
Channel information display area	Displays the channel no., unit and color assigned to the channel.
Active mark	Clicking this area causes the channel to be active and these marks to appear. The channel indicated by the marks is interlocked with the active channel in the trend display window.
Time/data no. display area	Displays time and data no. Dragging the mouse in this area displays cursor A at the start point and cursor B at the end point. The area enclosed by cursors A and B is highlighted.
Cursor A	Interlocked with the digital and cursor value display windows.
Cursor B	Interlocked with the digital and cursor value display windows.
Data display area	Displays the recorded values for each channel.
Maximum value field	Displays the maximum values.
Minimum value field	Displays the minimum values.



4.2 Opening a File



Timer no. select tab	Select the timer to be displayed.
Channel information display area	Displays the channel no., unit and color assigned to each channel.
Math time display area	Displays the date/time when a time-up occurred. Also displays the status.
	: TLOG was stopped.
	: Date/time set on the DX was changed during TLOG.
	: Power failure occurred during TLOG.

## 4.3 Displaying the File Information

The information of the active data file can be displayed.

The display contents vary depending on the type of the data file.

### Operating Method

1. From the menu bar, select [Information] – [About Document]. The [File Information] dialog box will appear.



2. Enter a comment. If a comment has already been entered, it can be changed.

### Note

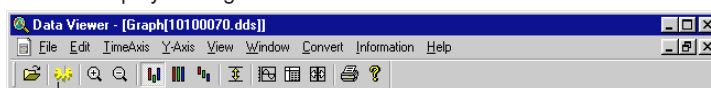
- The [Print Setting] dialog box can also be used to enter a comment or change the current comment (refer to 4.9, "Printing the Data"). An entry or change made in the [File Information] dialog box will reflect on the comment in the [Print Setting] dialog box.
- The comment can consist of up to 255 characters. The printable number of characters is restricted.

## 4.4 Making General Display Settings

### Operating Method

1. Click the General Display Settings button, or select [View] - [General Display Settings] from the menu bar.

General Display Settings button



General Display Settings button

Display range

Channel to be registered

Zone (display position)

Group tab

Global select button  
All the waveforms are selected or de-selected each time this button is clicked.

Display button  
The waveform is displayed or hidden alternately each time this button is clicked.

Waveform no.

Global display button  
All the waveforms are displayed or hidden each time this button is clicked.

Display color

Default button

Incremental copy button  
Channels are set in ascending order, starting from the first channel in the selected channel range.

Copy button

No.	Channel	Scale		Zone		Color
		Minimum	Maximum	Minimum	Maximum	
<input checked="" type="checkbox"/> W01	CH01	-20.00	20.00	0	100	Red
<input checked="" type="checkbox"/> W02	CH02	-20.00	20.00	0	100	Green
<input checked="" type="checkbox"/> W03	CH03	-20.00	20.00	0	100	Blue
<input checked="" type="checkbox"/> W04	CH04	-20.00	20.00	0	100	Purple
<input checked="" type="checkbox"/> W05	CH05	-20.00	20.00	0	100	Orange
<input checked="" type="checkbox"/> W06	CH06	-20.00	20.00	0	100	Yellow
<input checked="" type="checkbox"/> W07	CH07	-20.00	20.00	0	100	Light Green
<input checked="" type="checkbox"/> W08	CH08	-20.00	20.00	0	100	Light Blue
<input type="checkbox"/> W09	<None>	-10.00	10.00	0	100	
<input type="checkbox"/> W10	<None>	-10.00	10.00	0	100	

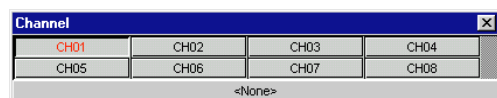
OK Cancel Copy Paste

2. Click the desired group tab. Three groups are available.

### 3. Channel

Used to set the channel no. to be registered to a waveform no.

The currently registered channel no. is displayed. If you want to register another channel no., click the currently registered channel no. A list of channels nos. will appear, so select the desired channel no.



### Note

- If you do not want to register any channels, click [None].
- Clicking the Incremental copy button allows registration of channels in ascending order, starting from the first channel in the selected channel range. For instance, if the Incremental copy button is clicked when CH01 has been registered to W01, CH02 will be registered to W02, CH03 to W03, ..., and CH08 to W08.

4. Setting whether or not to display the data

To display the data of a waveform no. (W01 to W10), click the box next to the waveform no. The data will be displayed when the color of the box is blue. The box is interlocked with the Trend Display button provided in the trend display window. To display or hide all the waveforms in the selected channel range, click the Global Display button.

5. Scale Minimum/Maximum

Used to set the minimum and maximum limits of the display scale. Click the currently set minimum (maximum) limit. The currently set minimum (maximum) limit can now be changed, so enter the desired value.

Note

- If the same value is entered for both the minimum and maximum limits, the value greater than the entered value by one will be set to the maximum value, and the value smaller than the entered value by one will be set to the minimum value.
- Clicking the Copy button will copy the scale values entered in the first row in the selected channel range to all the rows in the entire channel range.

6. Zone Minimum/Maximum

Used to set the position (zone) where the waveform is to be displayed. Click the currently set minimum (maximum) value. The currently set minimum (maximum) value can now be changed, so enter the desired value.

Note

- The settable range is 0 to 99% for the minimum zone value, and 1 to 100% for the maximum zone value.
- "0%" indicates the lower edge of the trend display area, and "100%" indicates the upper edge.
- Clicking the Copy button will copy the zone values entered in the first row in the selected channel range to all the rows in the entire channel range.

7. Color

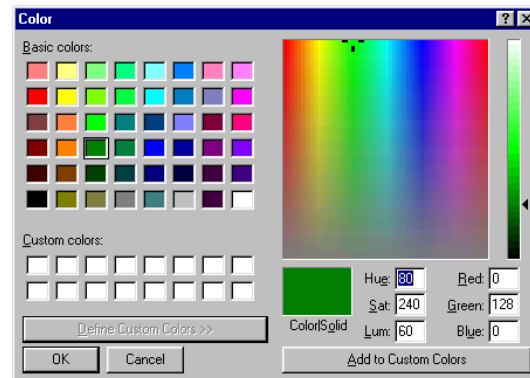
Used to set a display color for each waveform. Click the currently selected color. The [Color] dialog box will appear, so select the desired color and click [OK].



## 4.4 Making General Display Settings

---

If you cannot find the desired color and therefore want to create a new color, click [Define Custom Colors]. The [Color] dialog box will change as follows.



After you have created the desired color, click [?]. The created color will appear in ?, so click [OK] to accept it.

To restore the default colors for the channels inside the selected channel range, click [Default].

### 8. Applying the conditions to the window.

In the [General Display Settings] dialog box, click [OK]. The specified conditions will apply to the window and the dialog box will close.

### Copying the Settings

The settings made to a waveform no. can be copied to another waveform no.

1. Click the source waveform no. The row of the selected waveform no. will be highlighted.
2. Click [Copy].
3. Click the destination remote no. The color of the remote no. will switch to red.

### Note

---

- If you want to copy the settings to two or more remote nos., select the corresponding remote nos. by dragging them
- 

4. Click [Paste].  
The settings will be copied.

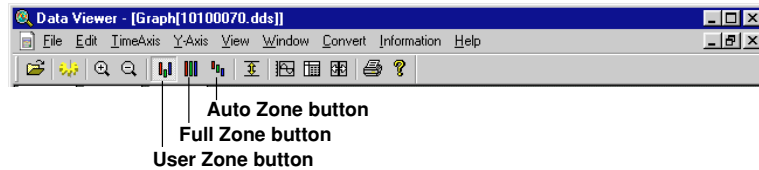
## 4.5 Setting the Display Zone and Clip

Data Viewer allows you to set where waveforms are to be displayed. It also allows you to clip the waveforms.

### Operating Method

#### Zone

1. Click the User Zone, Full Zone or Auto Zone button, or select [Y-Axis] from the menu bar and select the desired zone from the pull-down menu.

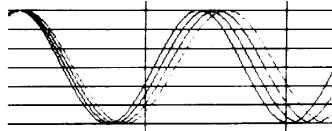


#### User Zone

Displays the waveforms in their own zones specified in the [General Display Settings] dialog box.

#### Full Zone

Displays all the waveforms fully in the entire trend display area.



#### Auto Zone

Divides the trend display area into blocks so that each waveform can be displayed in one block.

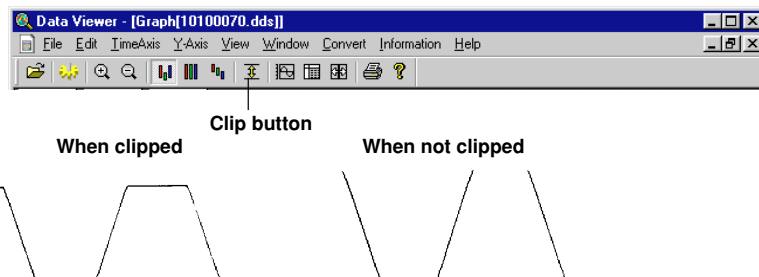


#### Clip

The currently displayed waveforms can be clipped. They will be clipped in Y-axis direction according to the minimum and maximum scale values specified in the [General Display Settings] dialog box.

Measured values smaller than the minimum scale value will be adjusted to the minimum scale value, and measured values greater than the maximum scale value will be adjusted to the maximum scale value.

1. Click the Clip button, or select [Y-Axis] – [Clip] from the menu bar.



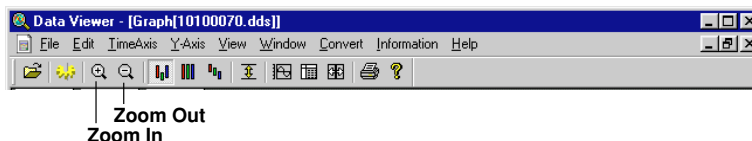
---

## 4.6 Expanding/Contracting the Time Axis in Trend Display

While waveforms are displayed, the time axis can be expanded (zoom in) or contracted (zoom out).

### Operating Method

1. Click the Zoom In or Zoom Out button, or select [Time Axis] – [Zoom In] or [Zoom Out] from the menu bar.



The waveforms will be expanded or contracted along the time axis each time the button is clicked or the menu is selected.

---

### Note

- The following zoom in/out magnifications are available:  
1/000, 1/500, 1/200, 1/100, 1/50, 1/20, 1/10, 1/5, 1/2, 1, 2, 5, 10, 20
  - If a cursor is displayed and the first data is not displayed, the waveforms will be expanded or contracted at the cursor in the center of the screen.
  - If both cursors A and B are displayed and the first data is not displayed, the waveforms will be expanded or contracted at the center between the cursors (the center between the cursors will be located at the center of the trend display area).
-

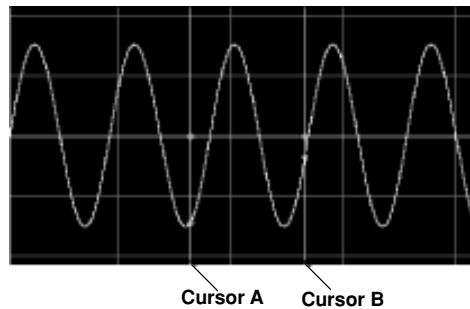
## 4.7 Reading the Measured Values at Cursors and Erasing the Cursors

In trend display, the measured values at the positions pointed to by the cursors can be displayed. Two cursors are available; cursor A and cursor B. It is possible to display the measured values at both cursor A and B positions, as well as the difference between the two measured values. The cursors can be erased.

### Operating Method

#### 1. Setting cursors

In trend display, point to the position whose measured value is to be displayed, then drag the mouse to another position. Cursor A will appear at the first position, and cursor B at the second position.



In digital value display, point to the Date[No.] whose measured value is to be displayed, then drag the mouse to another Date[No.]. The measured values within the selected range will be highlighted.

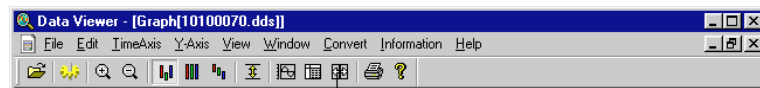
Date [No.]	W01:CH01 [V]	
	Min	Max
2000/01/01 00:11:38.000 [00000123]	4.23	6.63
2000/01/01 00:11:38.000 [00000124]	5.53	6.77
2000/01/01 00:11:40.000 [00000125]	6.77	7.93
2000/01/01 00:11:42.000 [00000126]	7.93	9.01
2000/01/01 00:11:44.000 [00000127]	9.01	9.97
2000/01/01 00:11:46.000 [00000128]	9.97	10.90
2000/01/01 00:11:48.000 [00000129]	10.90	11.79
2000/01/01 00:11:50.000 [00000130]	11.79	12.60
2000/01/01 00:11:52.000 [00000131]	12.60	13.26
2000/01/01 00:11:54.000 [00000132]	13.26	13.90
2000/01/01 00:11:56.000 [00000133]	13.90	14.44
2000/01/01 00:11:58.000 [00000134]	14.44	14.81
2000/01/01 00:12:00.000 [00000135]	14.81	15.05
2000/01/01 00:12:02.000 [00000136]	15.05	15.20
2000/01/01 00:12:04.000 [00000137]	15.18	15.25
2000/01/01 00:12:06.000 [00000138]	14.99	15.18
2000/01/01 00:12:08.000 [00000139]	14.65	14.99
2000/01/01 00:12:10.000 [00000140]	14.06	14.65
2000/01/01 00:12:12.000 [00000141]	13.31	14.06
2000/01/01 00:12:14.000 [00000142]	12.39	13.31

Cursor A

Cursor B

#### 2. Displaying the values at the cursor positions

Click the Cursor Value Display button, or select [Window] – [Control] from the menu bar.






Cursor Value Display button



## 4.7 Reading the Measured Values at Cursors and Erasing the Cursors

The [Control] window will open, and the measured values at the cursor positions and the time on which measurements were performed will be displayed. To fine-adjust the position of a cursor, click the Cursor Move button located next to the data number. The cursor will move one data at a time.

Control[10100070.dds]				
		Cursor A	Cursor B	Difference
Data Number		85 	221 	136
Absolute Time		2000/01/01 00:10:20.000	2000/01/01 00:14:52.000	00:04:32.000
Channel		Value A	Value B	Value B-A 
VW01:CH01[V]	Min	4.45	-15.14	-19.59
	Max	6.08	-15.05	-21.13
VW02:CH02[V]	Min	0.00	0.00	0.00
	Max	0.00	0.00	0.00
VW03:CH03[V]	Min	0.00	0.00	0.00
	Max	0.00	0.00	0.00
VW04:CH04[V]	Min	0.00	0.00	0.00
	Max	0.00	0.00	0.00

### 3. To erase the cursors, select [View] – [Erase Cursor] from the menu bar.

To select all the measured values from the start to end of measurement, select [Edit] – [Select All].

When the cursors are erased, all the fields in the [Control] window will become blank.

The cursors in trend display are interlocked with those in digital value display.

When the group is switched to another, the cursors will remain in the same positions but the measured values for the newly selected group will be displayed.

Moving a cursor in the trend display area while the [Control] window is opened will cause the values in the [Control] window to change.

## 4.8 Converting the Data Format

While measured data is displayed in waveforms or digital values or a TLOG file is displayed, the data can be converted to various data formats (ASCII, Lotus and Excel).

### Operating Method

#### 1. Displaying the menu

Select [Convert] – [To ASCII], [To Lotus] or [To Excel]. A dialog box like the one shown below will appear (in the following example, [To ASCII] is selected).

#### Display data file/event data file

The screenshot shows the 'ASCII Conversion Details' dialog box. It has a title bar with a close button. Inside, there are input fields for 'Start' (85), 'End' (221), and 'Step' (1). To the right of these fields are timestamps: '2000/01/01 00:10:20.000' for Start and '2000/01/01 00:14:52.000' for End. Below these are radio buttons for 'Group' (selected) and 'Channel'. The 'Group' section shows '1 - 1'. The 'Channel' section shows 'CH01 - CH08'. At the bottom, there is a 'File' field with the path 'C:\yasue\DX Sample Data\1ST\10100070.bt' and a 'File...' button. At the very bottom are 'OK' and 'Cancel' buttons.

#### TLOG file

The screenshot shows the 'Ascii(CSV) Conversion' dialog box. It has a title bar with a close button. Inside, there are three checked checkboxes labeled 'Timer 1', 'Timer 2', and 'Timer 3'. At the bottom, there is a 'File' field with the path 'C:\yasue\DX Sample Data\1ST\10101000.bt' and a 'File...' button. At the very bottom are 'OK' and 'Cancel' buttons.

For TLOG file, proceed to step 5.

#### 2. Start/End

Used to set the data conversion range. Enter the first and last data nos. of the conversion range.

#### Note

- If the cursors are currently displayed, the range between the cursors will be entered automatically.
- If no cursors are currently displayed, the first and last data nos. of the file will be entered automatically.

#### 3. Step

Used to set the conversion data step. If you want to convert all the data within the selected range, enter "1". The default is "1".

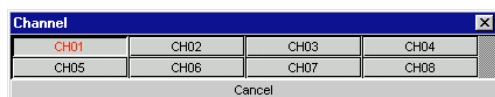
## 4.8 Converting the Data Format

---

### 4. Group/Channel

If you want to convert data for certain groups, click the Group radio button, and enter the group range. All the channels included in the selected groups will be subjected to conversion.

If you want to convert data for certain channels, click the Channel radio button. Two buttons displaying the currently selected channels are now available. Click them one at a time, and select the desired channels from the list.



### Note

- For group, the currently displayed groups have been set as default.
- For channel, all the channels have been set as default.

### 5. Timer 1/2/3

Select the timers to be subjected to data conversion. The data for the channels to which the selected timer nos. are assigned will be converted.

### 6. File

If you want to change the directory where the converted data file is to be saved or the file name, click [File]. The [Save As?] dialog box will appear.



Select the desired directory from the [Save In?] list box, and enter the file name in the [File name?] text box. Select the file type from the [Save as type?] list box.

An appropriate extension will be attached to the file name automatically ("txt" for ASCII, "wj2" for Lotus, "xls" for Excel). Files converted in Lotus format can be opened by Lotus1-2-3 (Ver2.0 or higher), and those converted in Excel format can be opened by Excel (Ver4.0 or higher).

### 7. Click [OK].

The measured data will be converted in the selected data format, and saved in a file under the specified file name.

### Example of Data Conversion

ASCII (TLOG file)

DAQSTANDARD Software "R1.01"										
"Data Viewer", "R1.01.01"										
"Omega", "123-45678-999 "										
"Model", RD-MV										
"Hardware ID", "12V636821 "										
"File Message", "										
"Meas Ch.", 8										
"Math Ch.", 8										
"Interval Up", 4										
"TLOG Start", "2000/01/01", "00:07:29", 0.875										
"File Status", "Valid"										
"Timer No.", 3										
"Valid Meas Ch. Num", 8										
"Valid Math Ch. Num", 0										
"Data Number", 4										
"Channel", "Channel 01", "Channel 02", "Channel 03", "Channel 04", "Channel 05", "Channel 06", "Channel 07", "Channel 08"										
"Flags", "Date", "Time", "Second", "V", "V", "V", "V", "V", "V", "V", "V", "V", "V", "V", "V"										
"---", "2000/01/01", "01:00:00", 0.000, 7.19, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00										
"---", "2000/01/01", "02:00:00", 0.000, -1.60, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00										
"---", "2000/01/01", "03:00:00", 0.000, 5.28, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00										
"---", "2000/01/01", "04:00:00", 0.000, 14.60, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00, 0.00										

Excel (TLOG file)

The file can be read by Excel.

[illegible]

---

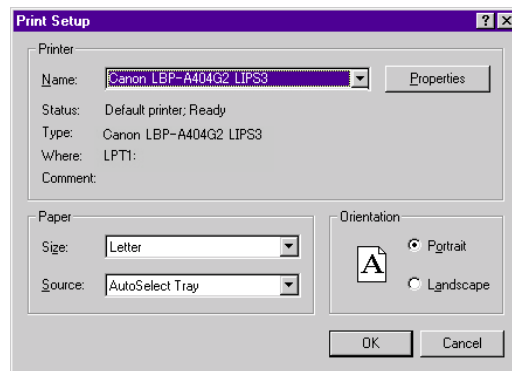
## 4.9 Printing the Measured Data

This section explains how to print the measured data (trend or digital). Before starting printing, make sure that the file to be printed is displayed in Data Viewer.

### Operating Method

#### Setting the printer

1. From the menu bar, select [File] – [Print Setting].



2. Select the printer to be used, paper and print direction.

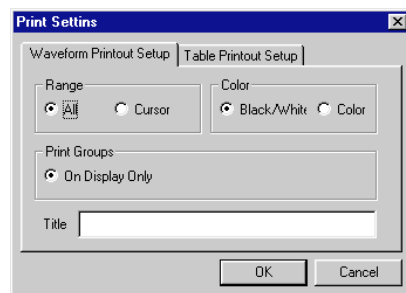
---

#### Note

- Make the printer settings according to the system used.
- 

#### Setting the print contents (Display data file/Event data file)

1. Select [File] – [Print Settings] from the menu bar. The [Print Settings] dialog box will appear.



2. **Waveform Printout Setup/Table Printout Setup**

Click the tab for which print settings are to be made.

3. **Range (common to both tabs)**

Select [All] to print the entire contents of the file, or select [Cursor] to print the range specified by the cursors.

4. **Color**

Select [Black/White] to print in black and white, or select [Color] to print in color.

**5. Print Groups ([Waveform Printout Setup] tab only)**

Only one option (On Display Only) is available. The data of the currently displayed group will be printed.

**6. Title ([Waveform Printout Setup] tab only)**

Enter the desired comment.

**Note**

- The [File Information] dialog box can also be used to enter a comment or change the current comment (refer to 4.3, "Displaying the File Information"). An entry or change made in the [Print Setting] dialog box will reflect on the comment in the [File Information] dialog box.
- The comment can consist of up to 255 characters. The printable number of characters is restricted.

7. Click [OK]. The settings will be saved and the dialog box will close.

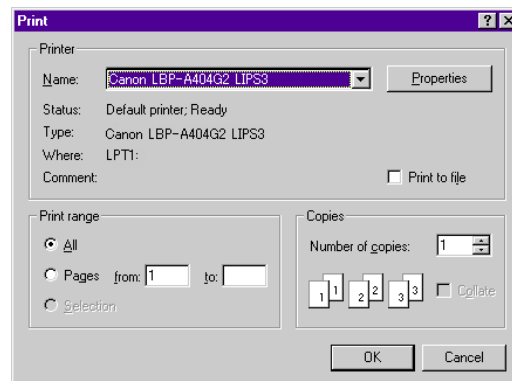
**Showing a print preview**

Before starting print, it is possible to view how the data will be printed.

1. While the data is displayed in waveforms or digital values, select [File] – [Print Preview] from the menu bar.  
The [Preview] window will appear.

**Starting Print**

1. Click the Print button or select [File] – [Print].



2. Select the printer to be used, page range and number of copies, then click [OK].  
The contents of the currently active window will be printed.

---

## 4.10 Displaying the Version Information

To find the version of the Data Viewer, display the [About] dialog box.

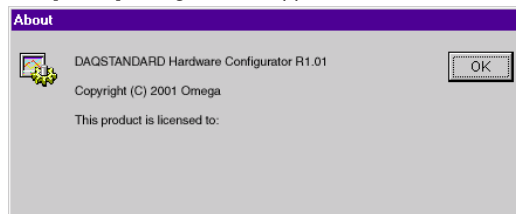
### Operating Method

1. Click the Version Display button, or select [Help] - [About].



Version Display button

The [About] dialog box will appear.



2. To close the dialog box, click [OK].

## 5. Troubleshooting

### Launcher

Message	Corrective Action	Reference Pages
Check communication settings.	Open the [Network] dialog box and check the settings.	2-3

### Hardware Configurator

#### Warning Message List

Message	Reference Pages
System settings have been changed. Input configuration and data will be initialized. Do you want to proceed?	3-4
Data created in 2038 or later cannot be handled.	—
Some A/D converters are faulty. Some items cannot be set.	—
Some information cannot be set. Do you still want to continue?	—
Settings may not be made correctly since the configuration does not match the connected DX. Do you still want to send?	3-65
The current setup data will be initialized.	3-64
Setup data will be received from the DX.	3-2
The setup data will be sent.	3-65
Memory sampling will be stopped.	3-68
Memory sampling will be started.	3-68

#### Error List

Message	Corrective Action	Reference Pages
Illegal file to load	Select another file.	3-2
Failed to load the file.	Try to load the file again. If still not possible, the file may be damaged. Select another file.	3-2
Failed to create a file.	Check the free space in the directory.	—
Memory sampling in progress Stop sending.	Send after data has been written to the internal memory of the DX.	3-65
Math in progress Stop sending.	Send after math is completed.	3-65
Memory sampling & math in progress Stop sending.	Send after data has been written to the internal memory of the DX and math is completed.	3-65
Saving to the media. Re-send later.	Send after data has been saved to the external media.	3-65
Communication error	Check the communication settings.	2-3
Time out	Traffic may be busy. Retry later.	—
Illegal user information	Check whether the user name is correct.	3-50
Failed to connect.	Check the communication settings. Check whether the DX is powered ON.	2-3
Communication busy	Retry later.	—
Memory error	Exit other programs then restart, or reboot the OS then restart.	—
User level error	No right is given to the login user ID	—



## 5. Troubleshooting

---

### Message

---

#### Message

Data has been sent.  
Data has been received.  
Some information has not been sent.  
Not allowed.  
A password is required.  
A user name is required.  
Some information requires attention.

---

### Data Viewer

Message	Corrective Action	Reference Pages
Insufficient memory. Exit immediately.	Exit other programs then restart, or reboot the OS then restart.	—
Cannot write to the file.	Check the free space in the directory. The file may be currently used by another program, so check it.	—
Cannot load the file.	Check whether the file exists. Also check whether the file system is correct.	—
Cannot open the file.	Check whether the file exists. Also check whether the file system is correct.	—
Illegal file	Select another file.	4-2
The number of data sets is “0”.	Select another file.	4-2
The number of channels is “0”.	Select another file.	4-2
Some files may be overwritten. Do you still want to continue?	Continue if OK. If not, change the file names.	4-14

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