Operation Guide

# MW100
# Data Acquisition Unit

YOKOGAWA
Yokogawa Electric Corporation

IM MW100-02E
4th Edition

# User Registration

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PRS 105-02E

# Contents

**Checking the Contents of the Package** ..... **5**
**Introduction to Functions** ..... **10**
Overview of the MW100 Data Acquisition Unit ..... 10
Overview of MW100 Viewer Software ..... 11
Address Setting Software ..... 11
Viewer ..... 12
Calibrator ..... 12
Flow of Operations during Installation ..... 13
**Connecting to a Network** ..... **14**
Connecting an Ethernet Cable to the Main Module ..... 14
Checking the Communication Status ..... 14
Connection to the PC ..... 14
**Connecting the Main Module to a PC** ..... **15**
Ethernet Connection ..... 15
**Entering Settings on the MW100 Using a Browser** ..... **17**
MW100 System Settings ..... 17
Measurement Groups and Measurement Module Settings ..... 18
Settings for Recording to CF Card ..... 19
Recording Channel Settings ..... 19
Measuring Interval and Range Settings (for the Universal Input Module) ..... 20
Alarm and Relay Settings ..... 21
**Changing Monitor Screen Display Conditions** ..... **22**
Tag Settings ..... 22
Setting Messages ..... 22
Display Scale Settings ..... 23
Display Color Settings ..... 24
Display Group Settings ..... 24
**Starting and Stopping Measurement and Recording** ..... **25**
Starting Measurement ..... 25
Starting Recording ..... 26
Stopping Recording ..... 26
Stopping Measurement ..... 26
**Viewing Measured Data on the Monitor Screen and Starting/Stopping Recording** ..... **27**
Transferring Measured Data to the FTP Server ..... 30
**Viewing Measured Data on the Viewer Software** ..... **31**
Displaying Data ..... 31
Changing the Display on the Waveform Display Window ..... 32
Changing the Display Using the Toolbar ..... 32
Changing the Display Using the Menu ..... 32
Changing the Display Using the Display Setup Window ..... 33
Numerical Display ..... 33
Reading Values Using the Cursor ..... 34
Statistical Computation over an Area of Measured/Computed Data ..... 34
Alarm/Mark List ..... 35
Setting the Contents to Be Printed ..... 36
Converting Data Formats ..... 36

Thank you for purchasing the MW100 Data Acquisition Unit.
This manual provides an overview of the operating procedures of the MW100 Data Acquisition Unit, and the basic operating procedures of the Viewer software. To ensure correct use, please read this manual thoroughly before beginning operation.
The following manuals relating to the MW100 Data Acquisition Unit are provided in addition to this one. Read them along with this manual. The MW100 User's Manual (IM MW100-01E), MW100 Viewer Software User's Manual (IM MW180-01E), MW100 Communication Command Manual (IM MW100-17E), and this manual (IM MW100-02E) are all available on the MW100 Manual CD-ROM.

| Manual Title | Manual No. | Description |
|---|---|---|
| MW100 Data Acquisition Unit User's Manual | IM MW100-01E | Explains the MW100 Data Acquisition Unit functions, installation and wiring procedures, precautions, and browser operations. |
| MW100 Communication Command Manual | IM MW100-17E | Describes the communication command of the MW100 main module. |
| MW100 Connecting Ethernet and Checking the Connection | IM MW100-71E | Explains the procedure to check the Ethernet connection. |
| Precautions on the Use of the MX100/MW100 | IM MX100-71E | Summarizes the precautions regarding the use of the MW100 Data Acquisition Unit. |
| MX100 Data Acquisition Unit Installation and Connection Guide | IM MX100-72E | Describes concisely the installation procedures and wiring procedures of the MW100 Data Acquisition Unit. |
| MX100/MW100 Quick Start Package Checking the Contents of the Package | IM MX100-79E | Explains the contents of the quick start package (/SL1, /SL2, and /SL3 options). |
| Control of pollution caused by MX100/MW100 products | IM MX100-91C | Describes control of pollution caused by the product. |
| 772075 AC Adapter | IM 772075-01E | Describes the specifications of the AC adapter (power supply suffix code "-2"). |
| MW100 Viewer Software User's Manual | IM MW180-01E | Describes the functions and operations of the MW100 Viewer Software that comes standard with the MW100 main module. |

## Notes

- This manual describes style number S3 of the MW100 Data Acquisition Unit. It also describes release number R3.03 of the MW100 Viewer Software.
- When configuring an MW100 system, the versions of the instruments used in the system indicated by the hardware style number and software release number must meet the following conditions.
  - The main module style number must be greater than or equal to the style numbers of any input/output modules.
  - The PC software release number must be greater than or equal to the style number of the main module.

  Certain functions may become disabled on instruments or software that do not meet these conditions, or the system may not be able to be built.
- Every effort has been made in the preparation of this manual to ensure the accuracy of its contents. However, should you have any questions or find any errors, please contact your nearest YOKOGAWA representative, dealer, or sales office.
- This user's manual does not cover the handling and operating procedures of Windows.
- Copying or reproducing all or any part of the contents of this manual without YOKOGAWA's permission is strictly prohibited.
- The TCP/IP software and related documentation for this product was developed and created by Yokogawa based on BSD Networking Software Release 1, licensed from the University of California.

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## Revisions

1st Edition: June, 2005
2nd Edition: October, 2006
3rd Edition: October, 2007
4th Edition: March, 2012

4th Edition: March 2012 (YK)
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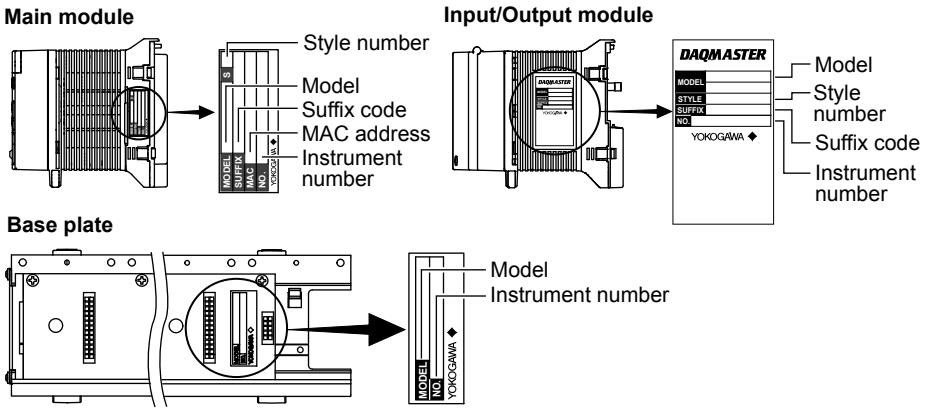
# Checking the Contents of the Package

Unpack the box and check the contents before operating the instrument. If some of the contents are not correct, or if any items are missing or damaged, contact the dealer from whom you purchased them.

### Checking the Model and Suffix Code

Check the model and suffix code on the name plate indicated in the figure below.




**Note**

When contacting the dealer from which you purchased the instrument, please give them the NO. (instrument number) on the name plate.

## Main Module

| Model | Suffix Code | | Description |
|---|---|---|---|
| MW100 | | | Main module |
| Displayed Language | -E | | English[*1] |
| Supply voltage | -1 | | 100 VAC-240 VAC |
| | -2 | | 12 VDC-28VDC, with AC adapter[*2] |
| | -3 | | 12 VDC-28VDC, without AC adapter[*3] |
| Power supply and power cord | | -D | AC power: 3-pin inlet, UL/CSA Standard power cord<br>DC power: Screw terminal, UL/CSA cable for AC adapter |
| | | -F | AC power: 3-pin inlet, VDE Standard power cord<br>DC power: Screw terminal, VDE cable for AC adapter |
| | | -R | AC power: 3-pin inlet, AS Standard power cord<br>DC power: Screw terminal, AS cable for AC adapter |
| | | -Q | AC power: 3-pin inlet, BS Standard power cord<br>DC power: Screw terminal, BS cable for AC adapter |
| | | -H | AC power: 3-pin inlet, GB (CCC) Standard power cord<br>DC power: Screw terminal, GB (CCC) cable for AC adapter |
| | | -W | Screw terminal, power supply cord not included[*2, *3] |
| Options | | /C2 | RS-232 communications interface[*4, *5] |
| | | /C3 | RS-422A/485 communications interface[*4, *5] |
| | | /M1 | Mathematical function[*5, *6] |
| | | /M3 | Report function |
| | | /SL1 | 10ch Quick Start Package[*7] |
| | | /SL2 | 20ch Quick Start Package[*7] |
| | | /SL3 | 30ch Quick Start Package[*7] |

*1 Displays Celsius or Fahrenheit, Daylight savig time can be set.
*2 “W” cannot be selected with “-2.”
*3 “-3” can only be selected with “W”
*4 “/C2” and “/C3” may not be selected together.
*5 “/C2” or “/C3” must be selected to use the Modbus/RTU slave function. Also, “/M1” must be selected for use of the Modbus/RTU master function.
*6 “/M1” must be selected to use the Modbus/TCP client function.
*7 “/SL1”, “/SL2”, and “/SL3” may not be selected together.

## Universal Input Module, DCV/TC/DI Input Module, and Four-Wire RTD Resistance Input Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX110 | | | | |
| Input type | -UNV | | | For DCV/TC/DI/3-wire RTD input |
| | -VTD | | | For DCV/TC/DI input |
| | -V4R | | | For DCV/DI/4-wire RTD/4-wire resistance input |
| Number of channels and measurement interval | | -H04*1 | | 4-CH, high-speed measurement (minimum measurement Interval: 10 ms) |
| | | -M06*1 | | 6-CH, medium-speed measurement (minimum measurement interval: 100 ms) |
| | | -M10*1 | | 10-CH, medium-speed measurement (minimum measurement interval: 100 ms) |
| | | -L30*1 | | 30-CH, medium-speed measurement (minimum measurement interval: 500 ms) |
| Options | | | /NC*2 | Without the plate with the clamp terminals |
| | | | /H3*3 | M3 screw terminals |

*1 “-H04” or “-M10” must be selected if “-UNV” is selected. “-M06” must be selected if “-V4R” is selected. “-VTD” must be selected if “-L30” is selected.
*2 The “/NC” option can be specified only when “-M10” is specified.
*3 The “/H3” option can be specified only when “-L30” is specified.

## Strain Input Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX112 | | | | |
| Input type | -B12 | | | Internal bridge resistance: 120 Ω |
| | -B35 | | | Internal bridge resistance: 350 Ω |
| | -NDI | | | NDIS connector for connections to an external bridge head |
| Number of channels and measurement interval | | -M04 | | 4-CH, medium-speed measurement (minimum measurement and measurement interval: 100 ms) |

## Pulse Input Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX114 | | | | |
| Input type | -PLS | | | Non-voltage contact, 5-V logic, open collector input |
| Number of channels and measurement interval | | -M10 | | 10-CH, medium-speed measurement (minimum measurement interval: 100 ms) |
| Options | | | /NC | Without the plate with the clamp terminals |

## Digital Input Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX115 | | | | |
| Input type | -D05 | | | Non-voltage contact, 5-V logic, open collector input |
| | -D24 | | | 24 V logic input |
| Number of channels and measurement interval | | -H10 | | 10-CH, high-speed measurement (minimum measurement and measurement interval: 10 ms) |
| Options | | | /NC | Without the plate with the clamp terminals |

## Analog Output Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX120 | | | | |
| Output type | -VAO | | | Voltage/current output |
| | -PWM | | | Pulse width modulation output |
| Number of channels and output update interval | | -M08 | | 8-CH, minimum output update interval: 100 ms |

## Digital Output Module

| Model | Suffix Code | | | Description |
|---|---|---|---|---|
| MX125 | | | | |
| Output type | -MKC | | | A contact output |
| Number of channels and output update interval | | -M10 | | 10-CH, minimum output update interval: 100 ms |

## Base Plate

| Model | Suffix Code | Description |
|---|---|---|
| MX150 | | Includes two brackets for DIN rail mount |
| Base type | -1 to -6* | The value of the suffix code corresponds to the maximum number of input output modules that can be installed. MX150-6 is for one main module, and six input/output modules. |

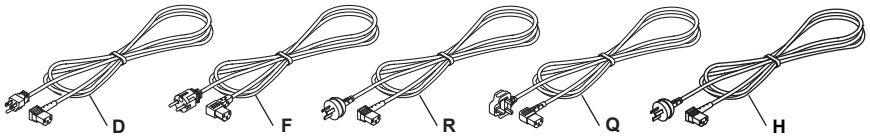
* One unit of the MX110-VTD-L30 requires three modules worth of space when installing.

## Standard Accessories

The following standard accessories are supplied with the main module. Check that all contents are present and that they are undamaged.

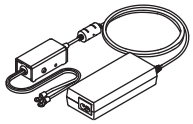
**Power Cord (one of the following power cords is supplied according to the instrument's suffix codes)**

**UL/CSA Standard A1074WD** | **VDE Standard A1009WD** | **AS Standard A1024WD** | **BS Standard A1054WD** | **GB Standard (complies with CCC) A1064WD**



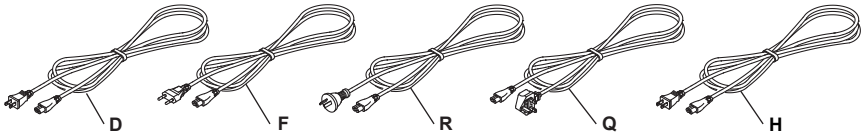

**Note: Not included when screw terminals are specified for the power section (Suffix code: W).**

**AC adapter and Power cord*1**
**Model: 772075**



***1 Power Cord for AC adapter (one of the following power cords is supplied according to the instrument's suffix codes)**

**UL/CSA Standard** | **VDE Standard** | **AS Standard** | **BS Standard** | **GB Standard (complies with CCC)**



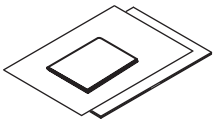

**Note: Not included when screw terminals are specified for the power section (Suffix code: W).**

**MW100 Viewer Software**
**Model: MW180-1**

**MW100 Manual CD-ROM*2**
**Part number: B8724XA**

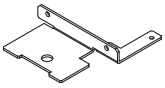
***2 Includes:**
- **MW100 Data Acquisition Unit User's Manual (IM MW100-01E)**
- **This manual (IM MW100-02E)**
- **MW100 Communication Command Manual (IM MW100-17E)**
- **MW100 Viewer Software User's Manual (IM MW180-01E)**

**Paper Manuals**



- **MW100 Data Acquisition Unit Operation Guide (IM MW100-02E)**
- **Precautions on the Use of the MX100/MW100 Data Acquisition Unit (IM MX100-71E)**
- **MX100/MW100 Data Acquisition Unit Installation and Connection Guide (IM MX100-72E)**
- **Control of pollution caused by MX100/MW100 products (IM MX100-91C)**

**Bracket for base plate***
**Part number: B8724EF**



**Screw for bracket***
**Part number: B9988DL**

*** Comes pre-installed for the quick start package (/SL1, /SL2, or /SL3 option).**

# Optional Accessories (Sold Separately)

## AC adapter

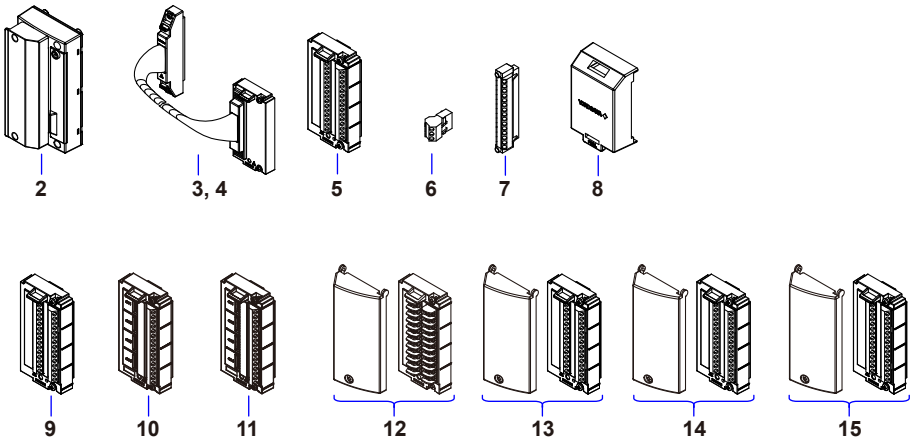
| No. | Name | Model | Basic Suffix Code | Min. Q'ty | Note |
|---|---|---|---|---|---|
| 1 | AC adapter | 772075 | | | |
| | Power supply code | | -D | 1 | Cable for UL/CSA |
| | | | -F | 1 | Cable for VDE |
| | | | -R | 1 | Cable for AS |
| | | | -Q | 1 | Cable for BS |
| | | | -H | 1 | Cable for GB (CCC) |

## Terminals

| No. | Name | Model | Min. Q'ty | Note |
|---|---|---|---|---|
| 2 | 10-CH screw terminal block (with RJC) | 772061 | 1 | Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10 |
| 3 | Connection cable between the input module and screw terminal block | 772062-050 | 1 | Cable length: 50 cm*1 |
| 4 | Connection cable between the input module and screw terminal block | 772062-100 | 1 | Cable length: 100cm*1 |
| 5 | Plate with clamp terminals (with RJC) | 772063 | 1 | Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10 |
| 6 | Clamp terminal | 772064 | 1 | Dedicated to the MX110-UNV-H04 |
| 7 | Clamp terminal | 772065 | 1 | Dedicated to the MX120-VAO-M08/ MX120-PWM-M08/MX125-MKC-M10 |
| 8 | Connector cover | 772066 | 1 | For empty slots with no module installed |
| 9 | Plate with clamp terminals | 772067 | 1 | Dedicated to the MX110-V4R-M06 |
| 10 | Plate with clamp terminals (Built in bridge: 120 Ω) | 772068 | 1 | Dedicated to the MX112-B12-M04*2 |
| 11 | Plate with clamp terminals (Built in bridge: 350 Ω) | 772069 | 1 | Dedicated to the MX112-B35-M04*2 |
| 12 | Plate with screw terminal | 772080 | 1 | Dedicated to the MX110-UNV-M10/ MX114-PLS-M10/MX115-D05-H10/ MX115-D24-H10 |
| 13 | Plate with clamp terminal for current (Built-in shunt resistor of 10 Ω) | 772081 | 1 | Dedicated to the MX110-UNV-M10 |
| 14 | Plate with clamp terminal for current (Built-in shunt resistor of 100 Ω) | 772082 | 1 | Dedicated to the MX110-UNV-M10 |
| 15 | Plate with clamp terminal for current (Built-in shunt resistor of 250 Ω) | 772083 | 1 | Dedicated to the MX110-UNV-M10 |

*1 For the 772062, only applies from MX110-UNV-M10 to screw terminal block (772061), MX114-PLS-M10 to screw terminal block (772061), MX115-D05-H10 to screw terminal block (772061), and MX115-D24-H10 to screw terminal block (772061).

*2 772068 is only applicable to MX112-B35-M04. 772069 is only applicable to MX112-B12-M04.




### Shunt resistor

| No. | Name | Model | Min. Q'ty | Note |
|---|---|---|---|---|
| 16 | Shunt resistor (for the clamp terminal) | 438920 | 1 | Resistance: 250 Ω±0.1% |
| 17 | Shunt resistor (for the clamp terminal) | 438921 | 1 | Resistance: 100 Ω±0.1% |
| 18 | Shunt resistor | 438922 | 1 | Resistance: 10 Ω±0.1% |
| 19 | Shunt resistor | 415920 | 1 | Resistance: 250 Ω±0.1% |
| 20 | Shunt resistor | 415921 | 1 | Resistance: 100 Ω±0.1% |
| 21 | Shunt resistor | 415922 | 1 | Resistance: 10 Ω±0.1% |

### Memory card

| No. | Name | Model | Min. Q'ty | Note |
|---|---|---|---|---|
| 22 | Adapter for CompactFlash card | 772090 | 1 | |
| 23 | CompactFlash card | 772093 | 1 | 512 MB* |
| 24 | CompactFlash card | 772094 | 1 | 1 GB* |
| 25 | CompactFlash card | 772095 | 1 | 2 GB* |

* Operating temperature range: -40 to 85°C

## Software Application (Sold Separately)

| No. | Name | Model | Note |
|---|---|---|---|
| 1 | GateMX/MW | WX1 | MX100/MW100 Gate software for connecting to DAQLOGGER data acquisition software. |

## Style Upgrade Kit (Sold Separately)

| No. | Name | Model | Note |
|---|---|---|---|
| 1 | Style upgrade kit for the MW100 | 772050-02 | Upgrades the MW100 to the latest style of MW100. |

# Introduction to Functions

For details on individual functions, see one of the following user's manuals located on the enclosed CD-ROM: *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E, *MW100 Communication Command Manual* (IM MW100-17E), or *MW100 Viewer Software User's Manual* (IM MW180-01E).

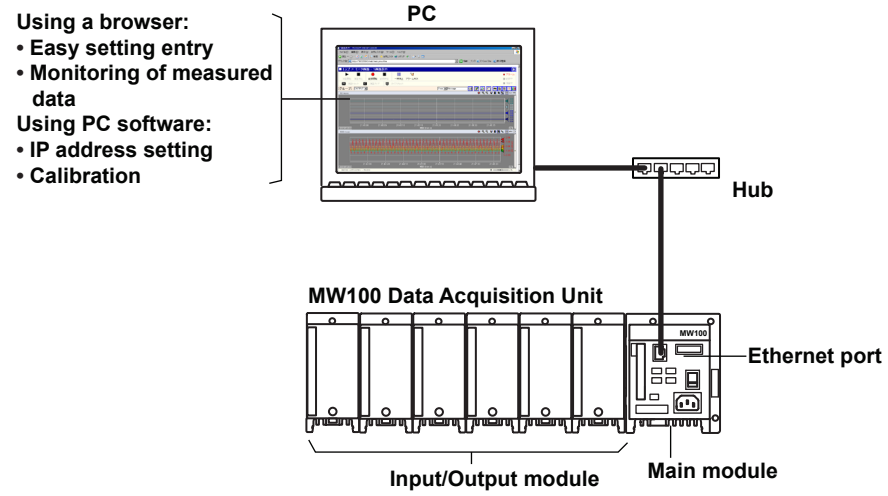
## Overview of the MW100 Data Acquisition Unit

The MW100 Data Acquisition Unit consists of a main module equipped with an Ethernet port, I/O modules for input and output of signals (these are the same as those for the MX100 Data Acquisition Unit), and a base plate to which the first two items are mounted. The main module comes with a HTTP server function, allowing users to easily enter settings and monitor measured data from a PC using a browser. The MW100 can be used for data acquisition on site as a standalone, enabling data acquisition on up to 360 channels using the Modbus TCP or RTU function.

The MW100 Data Acquisition Unit can be flexibly configured for a variety of measuring environments.

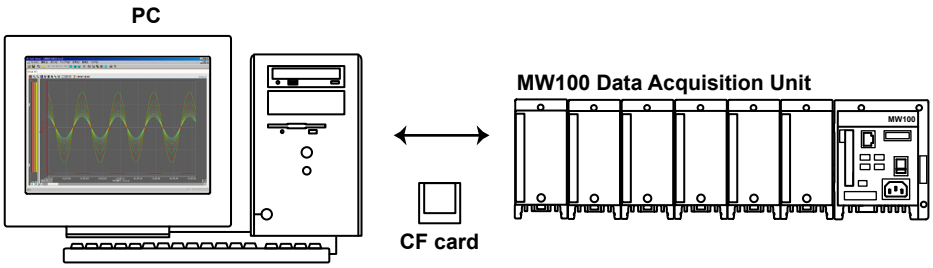
### One-to-one Connection with a PC

This is an example of a system for small scale logging, IP address settings, and other capabilities.




### Standalone Configuration

This is an example of configuration for an on-site standalone data acquisition system.




### One-to-N Connection with a PC

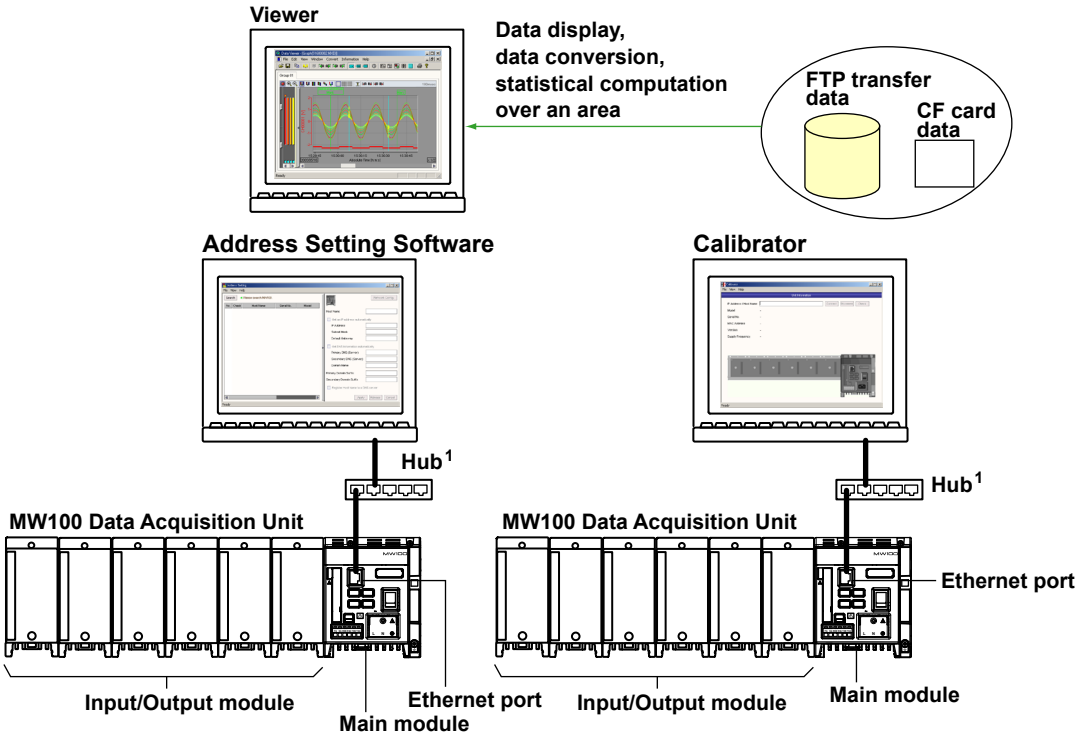
Connections can be made via Ethernet or RS-422A/485. For connection examples, see the MW100 Data Acquisition Unit User's Manual (IM MW100-01E).

### Connecting to Modbus Devices

You can connect to Modbus devices. For connection examples, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E).

## Overview of MW100 Viewer Software

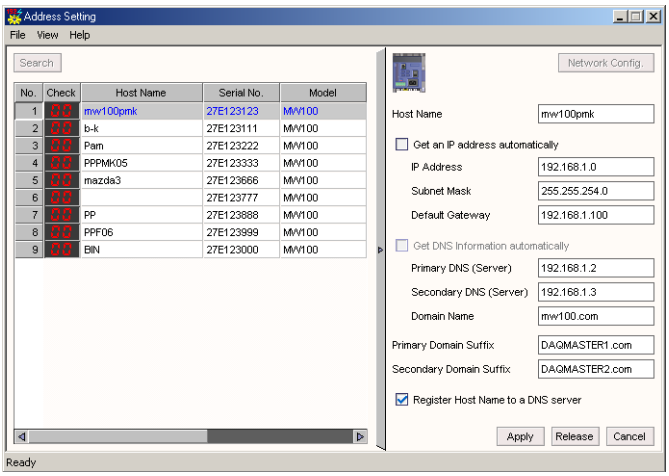
MW100 Viewer Software consists of the three software components described below.




[1] To change the factory default IP address set, open a local (1:1) connection.

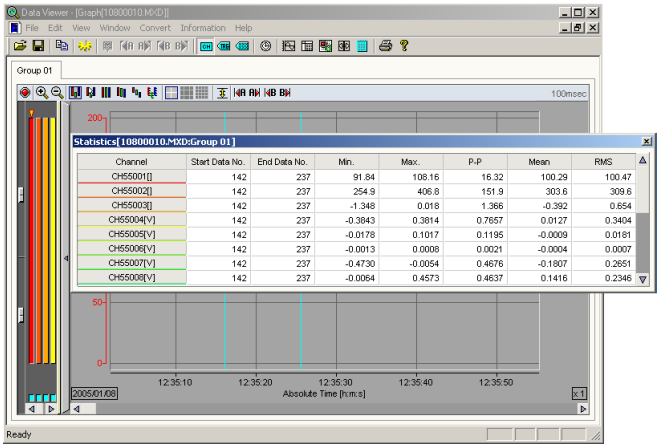
## Address Setting Software

The address setting software allows you to enter initial communication settings on the MW100 main unit. The software opens a local (1-to-1) connection with the MW100 main unit, allowing changes to the factory default IP address, and it searches for and displays other MW100s on the same segment. The software allows you to change settings such as the MW100 host name, IP address, DNS server, domain name, and domain suffix, and register a host name on the DNS server.




The Address Setting software can also be run directly from the CD-ROM without being installed on the PC. Click a language selection button in the MW100 Viewer Software CD-ROM address setting startup screen.

## Viewer

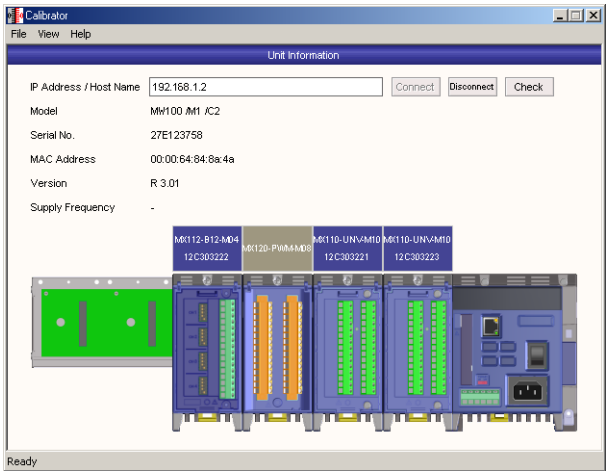



You can load the measured/computed data that was saved in the past and carry out the operations below. You can also display manual sample files and report files.

- Joining
  When opening a divided data file, related files can be joined and displayed.
- Display waveforms and numerical values
- Display the alarm/mark list
- Change the display conditions (group assignments, scale, trip point, display color and other parameters)
- Read data values using the cursor
- Perform statistical computation over an area
- Display and add marks
- Save or load display conditions
- Display the file information
- Convert data formats (ASCII, Excel, and Lotus)
- Print data (waveforms, numeric values, alarm/marker list, cursor values, statistics over an area, and computed values)
- Use and save templates

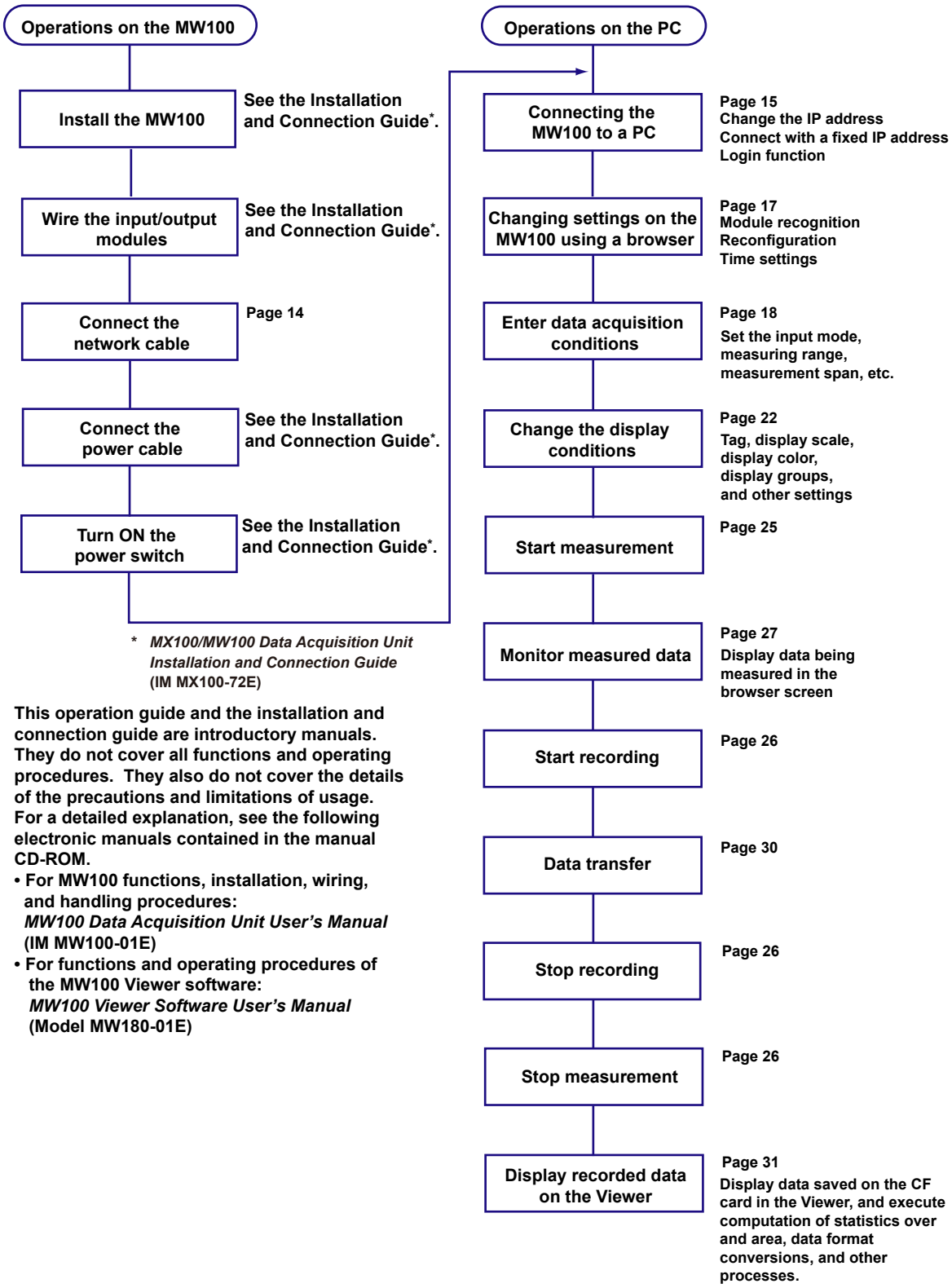
## Calibrator

This software is used to calibrate the MW100 input/output modules.
You can connect to the MW100, display the modules that can be calibrated, and carry out calibration at each measurement range and output range.



## Flow of Operations during Installation

The figure below shows the general flow of operation when the MX100 is installed initially.




* *MX100/MW100 Data Acquisition Unit Installation and Connection Guide* (IM MX100-72E)

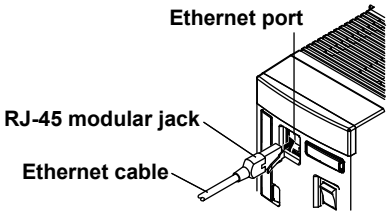
**This operation guide and the installation and connection guide are introductory manuals. They do not cover all functions and operating procedures. They also do not cover the details of the precautions and limitations of usage. For a detailed explanation, see the following electronic manuals contained in the manual CD-ROM.**

- **For MW100 functions, installation, wiring, and handling procedures:**
  ***MW100 Data Acquisition Unit User's Manual*** **(IM MW100-01E)**
- **For functions and operating procedures of the MW100 Viewer software:**
  ***MW100 Viewer Software User's Manual*** **(Model MW180-01E)**

# Connecting to a Network

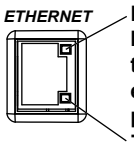
## Connecting an Ethernet Cable to the Main Module

Connect the Ethernet cable to the Ethernet port on the main module. Use a UTP (category 5 or higher) or STP Ethernet cable.




## Checking the Communication Status

You can check the status on the two LEDs at the upper-right and lower-right of the Ethernet port.

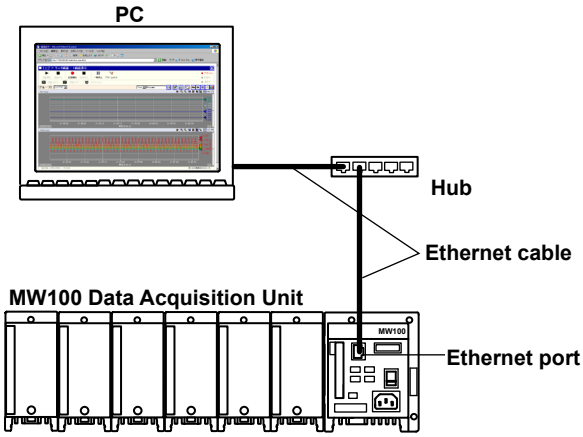



**LINK LED**
**Illuminates in orange when the link between the MW100 and the connected device is established and communication is mutually possible.**

**TX LED**
**Blinks in green when packet transmission is being carried out normally.**

## Connection to the PC

Make the connection via a hub. For a one-to-one connection with a PC, make the connection as shown in the figure below. In the same manner, you can connect multiple MW100 Data Acquisition Units to a single PC.



# Connecting the Main Module to a PC

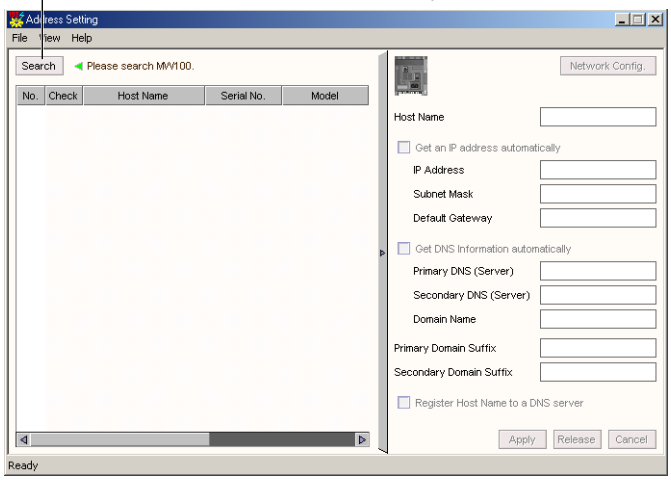
## Ethernet Connection

### Setting the IP Address

Because the IP address is not set by factory default, set the IP address first.

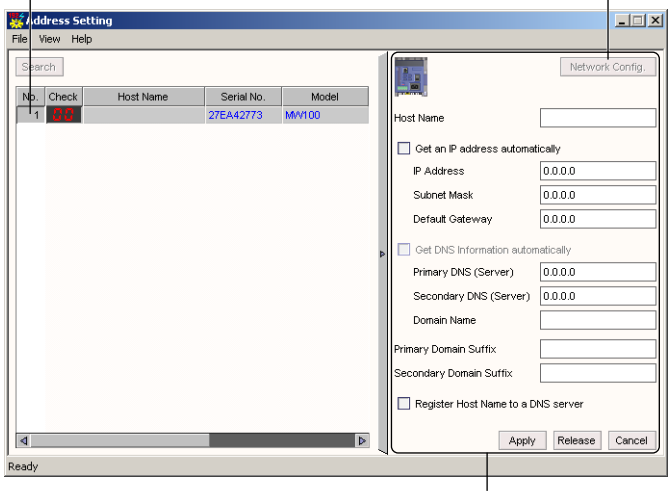
1. After opening an Ethernet connection between the MW100 and PC, run the MW100 Viewer Software CD-ROM or the IP address setting software installed on the PC.

2. Click here.
   The MW100 information is displayed.




3. Click here.
   Information appears in the address setting screen.

4. Click here.
   Setting changes are enabled.




**Address Setting Screen**

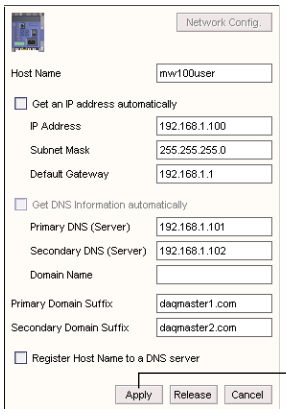
***Note***

If your OS is Windows XP, Windows Vista, or Windows 7 and the firewall is enabled, it may not be recognized even if you click the Search button. To solve the problem, see appendix 1, in the MW100 Viewer Software User's Manual (this phenomenon may also occur with some third party anti-virus programs).

**5.** Make entries in the address setting screen.
The following is an example of editing such entries.

Host name: mw100user
Specify IP address: 192.168.1.100
Subnet mask: 255.255.255.0
Default gateway: 192.168.1.1
Specify a DNS server
Primary DNS server: 192.168.1.101
Secondary DNS server: 192.168.1.102
Specify a domain suffix
Primary domain suffix: daqmaster1.com
Secondary domain suffix: daqmaster2.com

In this example, the PC and the MW100 can communicate when, for example, the PC has an IP address of 192.168.1.10 and a subnet mask of 255.255.255.0.




**6.** Click here.
The edited items are applied to the MW100.

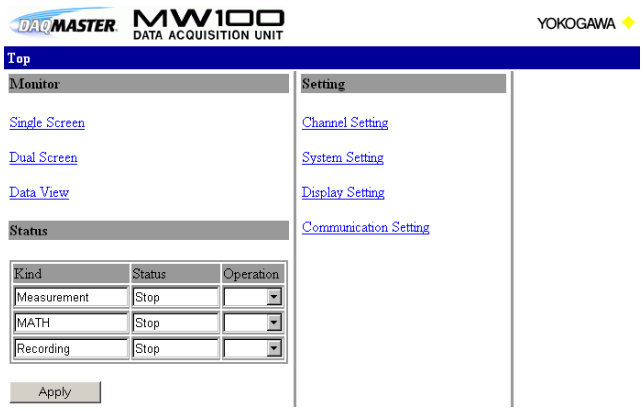
## Connecting with a Browser

**7.** Connect an Ethernet cable between the MW100 and PC, then start the browser.

**8.** Enter the IP address of the MW100 in the browser's URL/Address box.

**Ex. Specifying the IP address using the browser**

The MW100 top screen appears. From the browser, you can change MW100 settings, or acquire/record data.

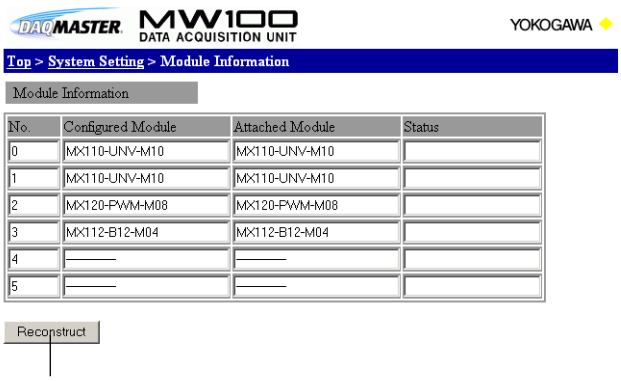


# Entering Settings on the MW100 Using a Browser

## MW100 System Settings

### Display of Module Information and Reconfiguration

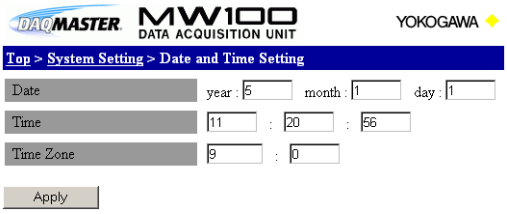
1. From the browser top screen, click System Setting > Module Information.
   The module information screen is displayed.



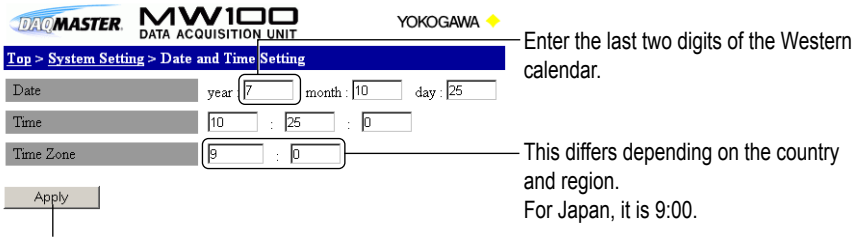

2. If the Configured Module and Attached Module displays are different, click here.
   System reconfiguration is executed.
   The Configured Module and Attached Module displays become the same.
   If the attached module does not appear, turn OFF the power and check that the module is attached correctly.

### Setting the Date and Time

3. After choosing System Setting in step 2, click Date and Time Setting.
   The date/time setting screen appears.



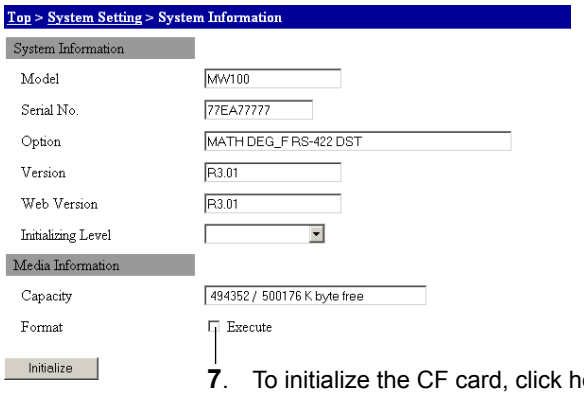

4. Change the date and time setting.
   The following is an example.
   Date: October 25, 2007
   Time: 10:25:00
   Time zone: 9:00.




5. Click here.
   The date and time settings are changed.

### Checking Free Space on the CF Card and Initializing

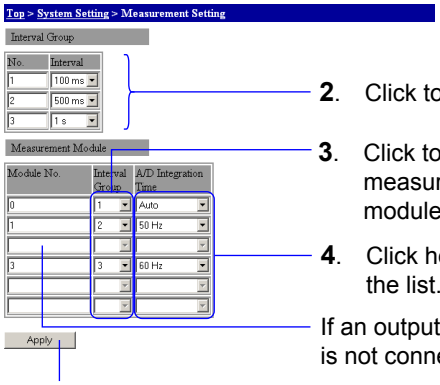
**6.** After choosing System Setting in step 5, click System Information.
The amount of free space on the CF card is shown under Media Information.




**7.** To initialize the CF card, click here, then click the Initialize button.

## Measurement Groups and Measurement Module Settings

**1.** From the browser top screen, click System Setting > Measurement Setting.
The measurement operation setting screen in displayed.




**2.** Click to select the measuring interval.

**3.** Click to select measurement groups of the measurement intervals above for the input modules.

**4.** Click here, then select the integral time from the list.

If an output module is connected, or if a module is not connected, it is not displayed.

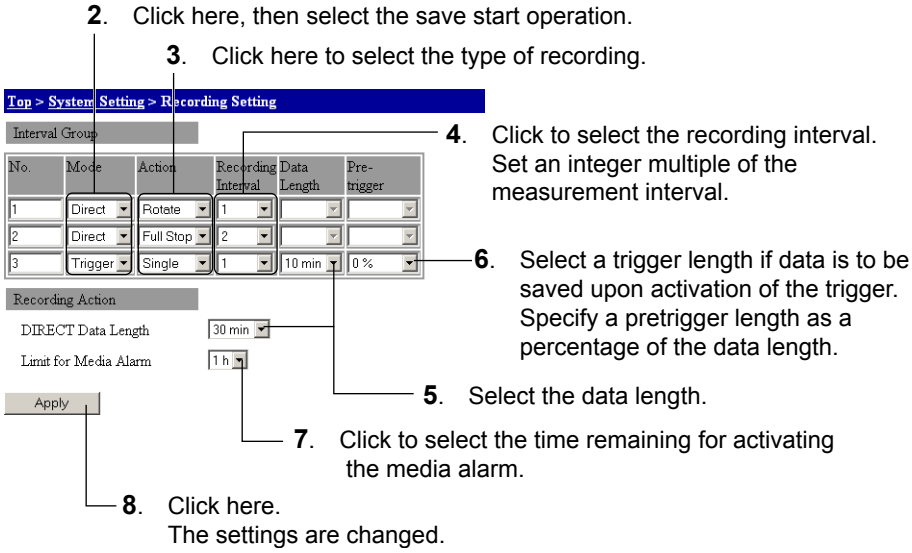
**5.** Click here.
The settings are changed.

### *Note*

- The Interval Group that is assigned to the measurement group number is set as:
  (interval is short) Interval group1 ≤ Interval group2 ≤ Interval group 3 (interval is long)
- The equivalent of three modules worth of settings are entered for the 30-CH Medium Speed DCV/TC/DI Input Module.
  - Select the same measurement group for the three measurement groups.
  - Select the same integral time for the three A/D integral times.

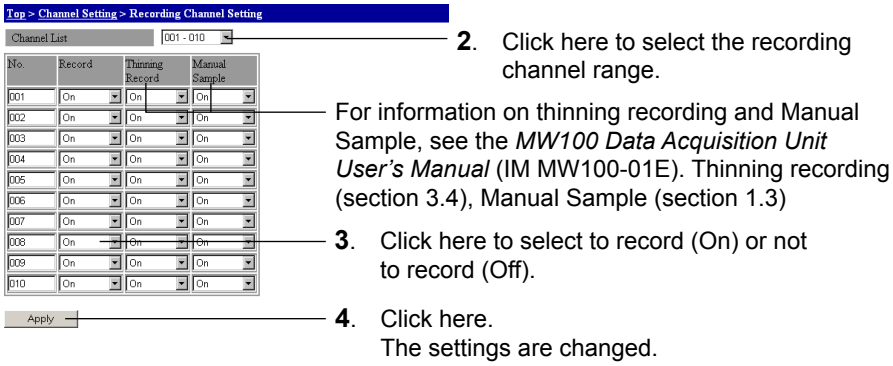
## Settings for Recording to CF Card

1. From the browser top screen, click System Setting > Recording Setting.
   The recording operation setting screen in displayed.




## Recording Channel Settings

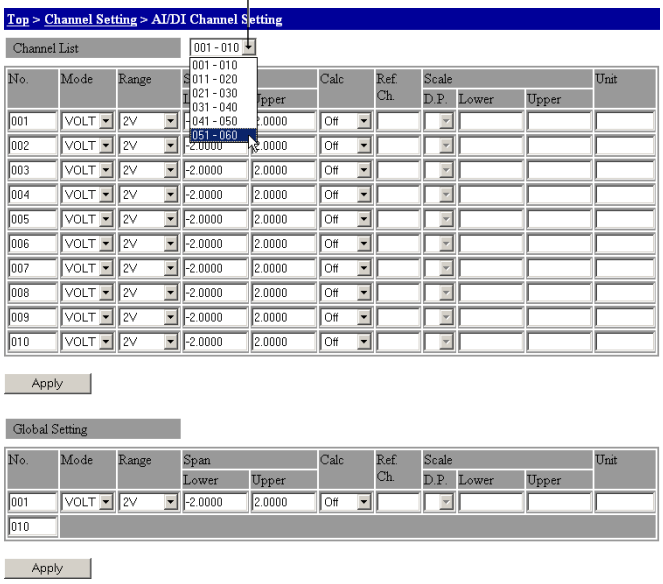
1. From the browser top screen, click Channel Setting > Recording Channel Setting.
   The recording channel setup screen appears.



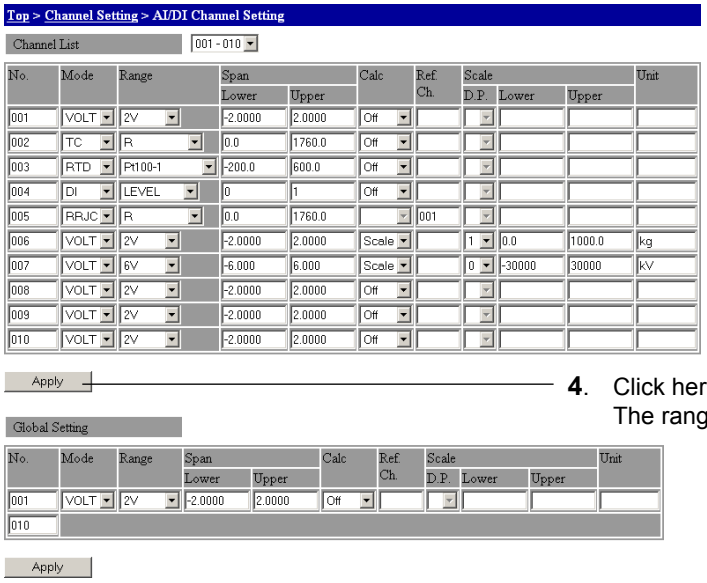
## Measuring Interval and Range Settings (for the Universal Input Module)

**1.** From the browser top screen, click Channel Setting > AI/DI Channel Setting.
The input range setting screen appears.

**2.** Click the list, then select the channel range you wish to set.



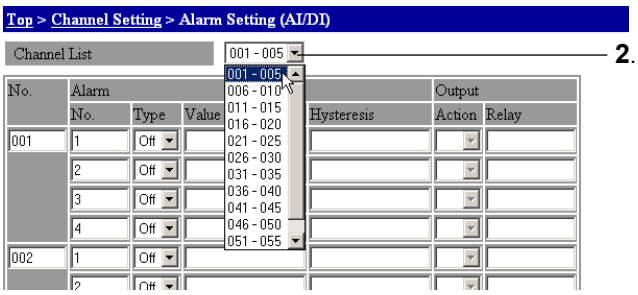

**3.** Set the input type, measuring range, measurement span, scale, and other items.
The following is an example. For procedures for setting up an input module other than the universal input module, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E), chapter 3.




**4.** Click here.
The range is changed.

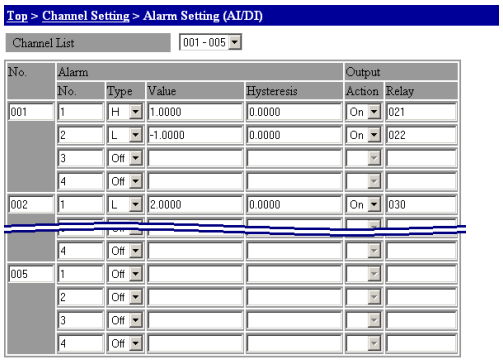
## Alarm and Relay Settings

**1.** From the browser top screen, click Channel Setting > Alarm Setting (AI/DI).
The alarm setting screen in displayed.



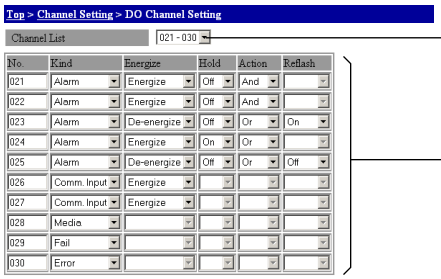

**2.** Select the channel range you wish to set in the list.

**3.** Select the alarm type, then enter the alarm value and hysteresis.
For details on alarm setting items, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E), section 1.3.




**4.** Click here.
The alarm settings are changed.

**5.** After choosing Channel Setting in step 4, click DO Channel Setting.
The relay setting screen in displayed. For details, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E), sections 3.7 and 3.8.




**6.** Click the channel range for which you wish to set relays.

**7.** Enter or select each item.
For details on relays, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E), section 1.12.

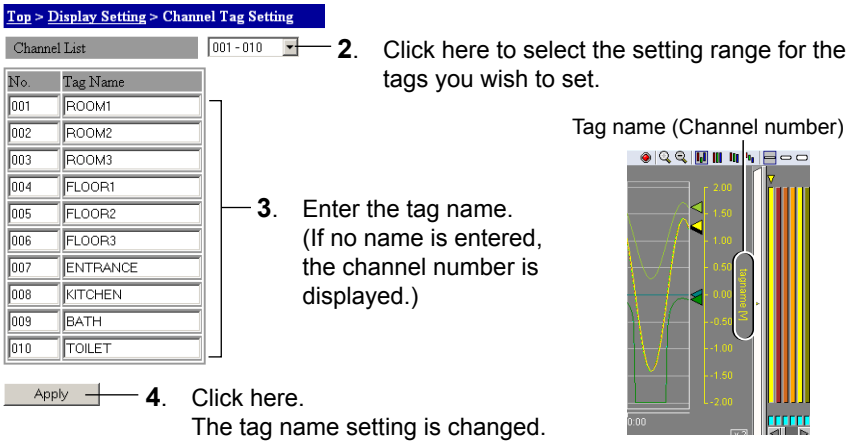
**8.** Click here.
The relay settings are changed.

# Changing Monitor Screen Display Conditions

Stop measurement, then change the display method.
After changing the display method, start measurement and display the monitor screen.
The screen is updated according to the new settings. For details on display settings, see the *MW100 Data Acquisition Unit User's Manual* (IM MW100-01E), section 3.15.

## Tag Settings

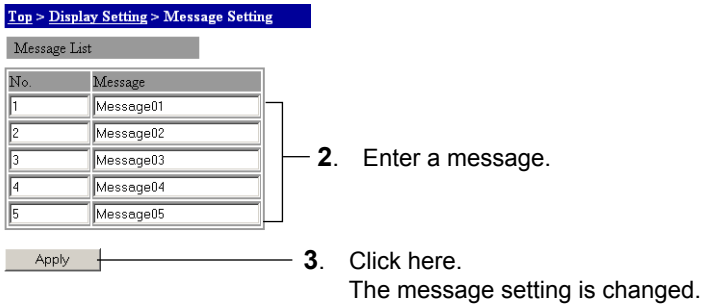
**1.** From the browser top screen, choose Display Setting > Channel Tag Setting.
The tag setting screen in displayed.



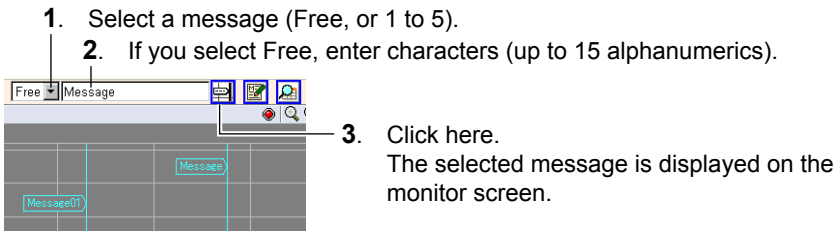

**5.** After choosing Display Setting in step 4, click Other Settings.

## Setting Messages

**1.** From the browser top screen, choose Display Setting > Message Setting.
The message setting screen in displayed.

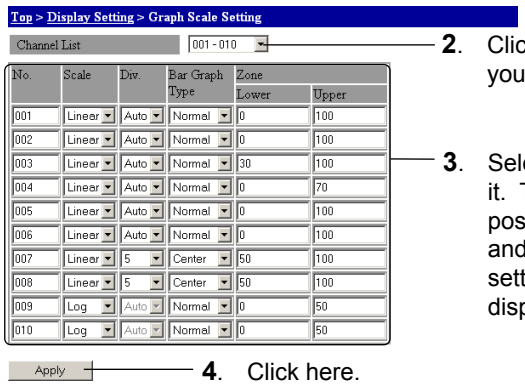



### Operation in the browser's monitor screen



## Display Scale Settings

**1.** From the browser top screen, choose Display Settings > Graph Scale Setting.
The scale setting screen in displayed.



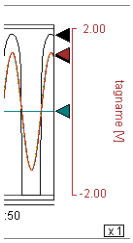

**2.** Click to select the channel range you wish to set.

**3.** Select each setting item, or specify it. The graph display reference position is applied to the numerical and bar graph displays. Other settings are applied to all types of display screens.

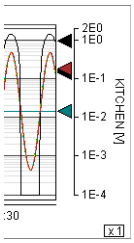
**4.** Click here.
The display settings are changed.

**Scale Setting Example**

Linear
(no. of scale divisions can be selected)

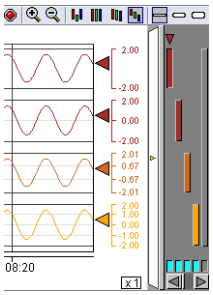



Log
(no. of scale divisions: fixed to Auto)

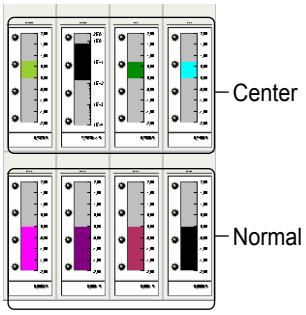



**Scale division setting example**

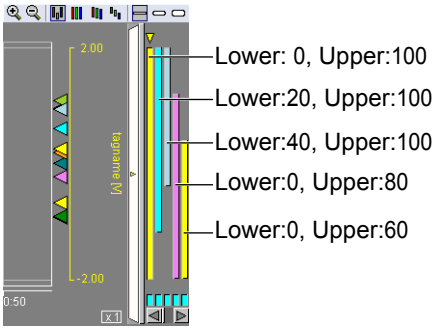
From the top, 1, 2, 3, or 4 divisions



**Graph display position setting example**

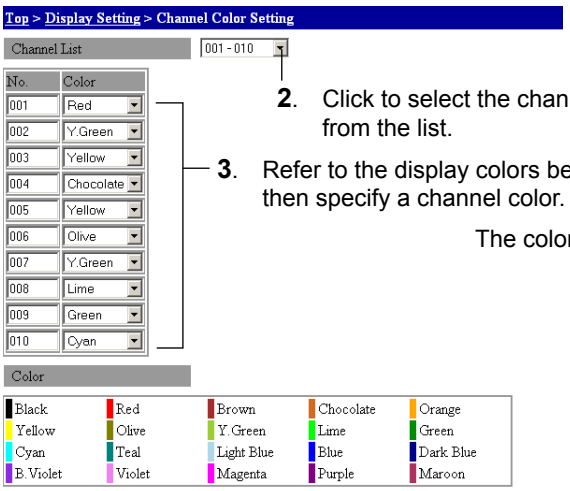



**Zone Setting Example**



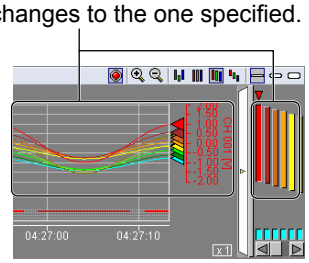
## Display Color Settings

1. From the browser top screen, choose Display Setting > Channel Color Setting.
   The color setting screen in displayed.




2. Click to select the channel range you wish to set from the list.
3. Refer to the display colors below, then specify a channel color.

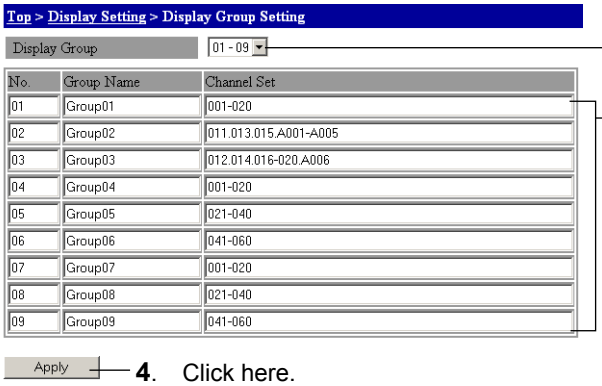
The color changes to the one specified.




4. Click here.
   The color settings are changed.

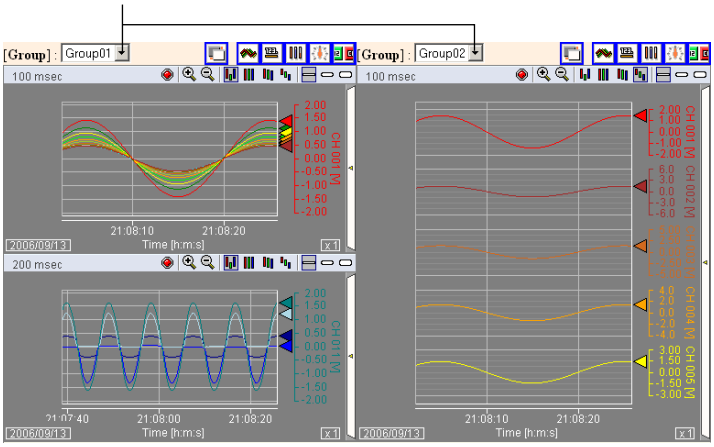
## Display Group Settings

1. From the browser top screen, choose Display Setting > Display Group Setting.
   The display group setting screen in displayed.




2. Click to select the display group range you wish to set from the list.
3. Enter group names and channels to include.
   You can specify a group name using up to fifteen alphanumeric characters.
   Up to twenty display channels can be registered to a single group. Individual channel numbers are delimited with periods ( . ), and ranges of channels can be specified with hyphens.
   The following is an example of a channel specification.
   001.003.005 (001, and 003, and 005)
   004-008 (004 through 008)
   001.A001-A005 (001, and A001 through A005)
4. Click here.
   The group settings are changed.

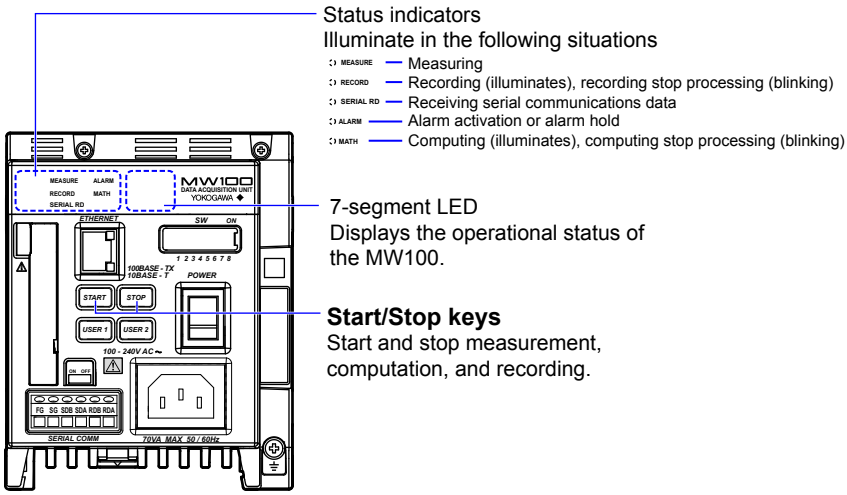
Click here. The set group names are displayed in the list. Select the group you wish to display. The measured data of the channels specified for the group is displayed.



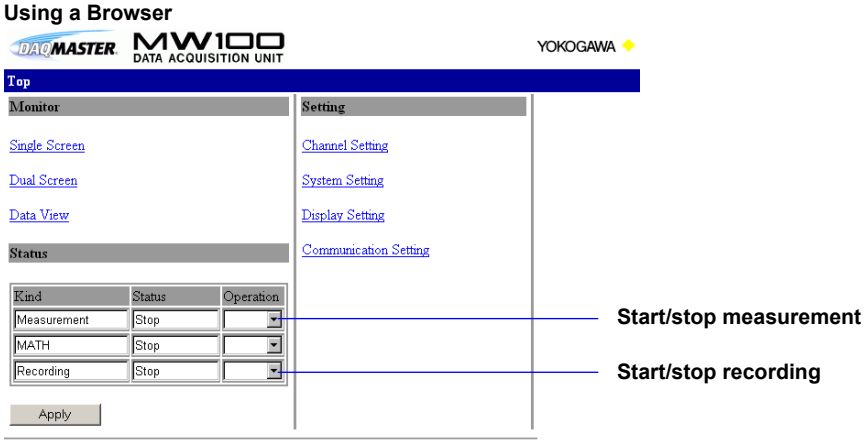
# Starting and Stopping Measurement and Recording

To start and stop measurement and recording, you can use the keys on the MW100 Main Module, or use the browser.

**• Using the Keys**




**• Using a Browser**




## Starting Measurement

1. Check whether the instrument is measuring or recording by looking at the MW100 main module's status lamp, or the browser's top screen.
2. Briefly press the MW100 main module's START key, or select Start in the Operation list under Measurement in the browser top screen's Status table.
   Measurement begins.

## Starting Recording

1. Check whether the instrument is measuring by looking at the MW100 main module's status indicator, or in the browser's top screen.
2. Press the MW100 main module's START key for about two seconds, or select Start in the Operation list under Recording in the browser top screen's Status table.
   Measured data is saved to the CF card.
   File menus are automatically generated using the date and serial number.

   **MDDIXXXX.MXD**

   | | |
   |---|---|
   | M: | Month file created (local time), 1 to 9, X (October), Y (November), Z (December) |
   | DD: | Date when file created (local time), 1 to 31 |
   | I: | Files in measurement groups 1 to 3 are 1 to 3<br>Computed data file is M<br>Thinned values, T |
   | XXXX: | Sequence number 0000 to 9999 |
   | MXD: | MW100 file extension (uppercase) |

## Stopping Recording

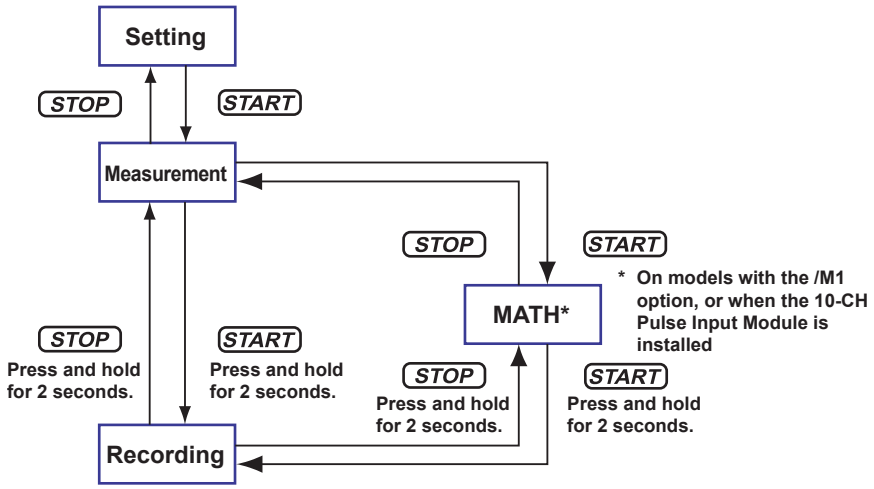
1. Check whether the instrument is measuring or recording by looking at the MW100 main module's status indicator, or the browser's top screen.
2. Press the MW100 main module's STOP key for about two seconds, or select Stop in the Operation list under Recording in the browser top screen's Status table.
   Recording stops.

## Stopping Measurement

1. Check whether the instrument is measuring or stopping recording by looking at the MW100 main module's status indicator, or the browser's top screen.
2. Briefly press the MW100 main module's STOP key, or select Stop in the Operation list under Measurement in the browser top screen's Status table.
   Measurement stops.

***Note***

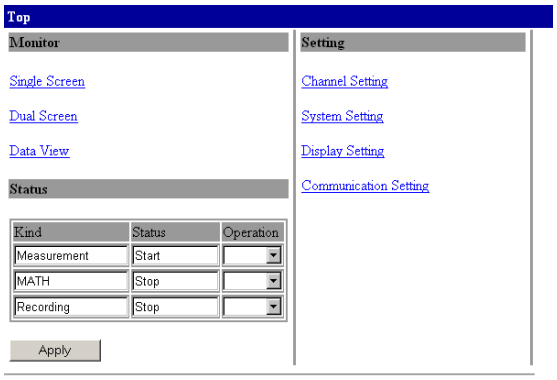
This document does not cover MATH settings, or how to start and stop computation. Please refer to the *MW100 Data Acquisition Unit user's manual* (IM MW100-01E).
The process is described in the status transition diagram.



# Viewing Measured Data on the Monitor Screen and Starting/Stopping Recording

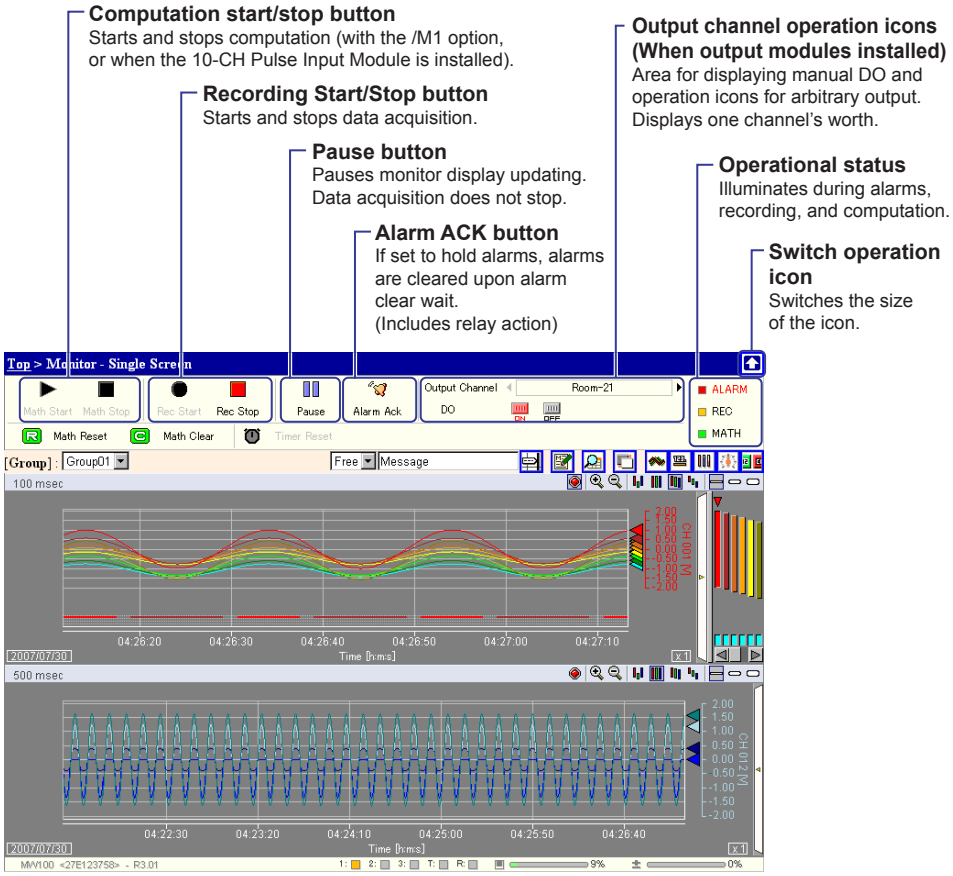
In the browser monitor screen, you can view data being measured in a trend, numerical, meter, or bar graph display. You can also start and stop recording, pause the monitor display, write messages, and perform other functions.

1. Check whether the instrument is measuring by looking at the MW100 main module's status indicator, or in the browser's top screen.
2. From the browser top screen, click Single Screen or Dual Screen.



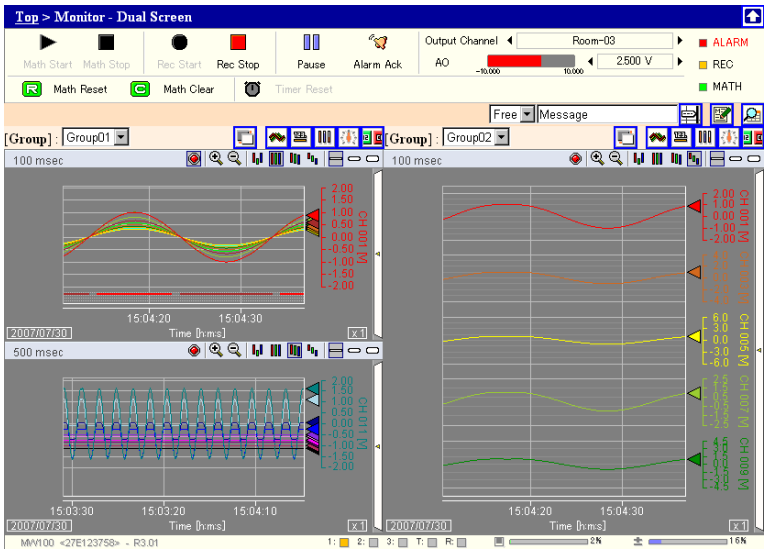

The Measured data screen appears.

## Single Screen (Trend Display)

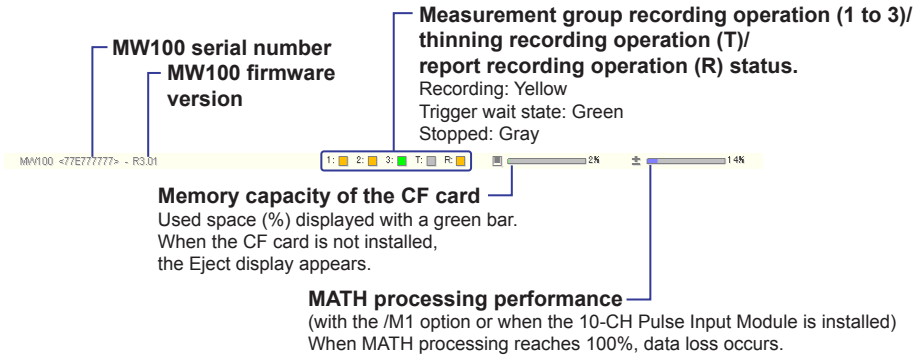


### Dual Screen (Trend Display)

Use this when the monitor screen contains two screens. You can display two groups.
From the top screen, click Dual Screens.




The contents of the status bar are as follows:

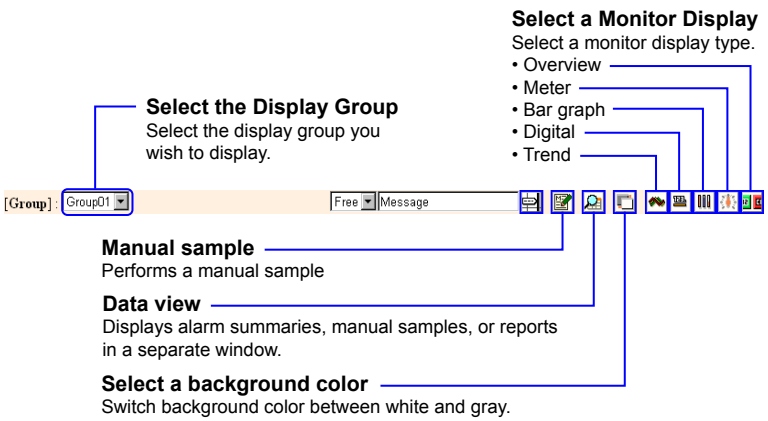



### Switching the Display Group and Monitor Display

**3.** To change the displayed group, select a group in the Select Display Group list in the figure below.

To switch the monitor display, click the Select Monitor Display button in the figure below.

The screen display switches.



- **Digital Display**

  Displays measured values as numerical values. When alarms are set, the alarm status is displayed to the left of the numerical value.

**Alarm status**

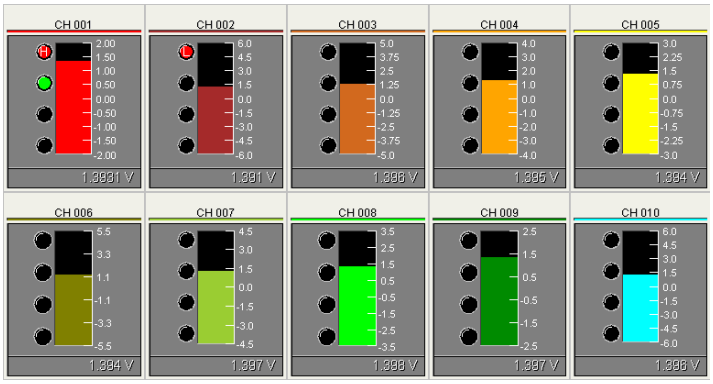
Black
Alarm not set up

Green
Illuminated: No alarm occurring
Blinking: Alarm hold clear wait after alarm factor cleared

Red
Illuminated: Alarm occurring
(symbol in circle is alarm type: H/L/rH/rL/dH/dL/tH/tL)
Blinking: Alarm hold clear wait after alarm factor occurrence

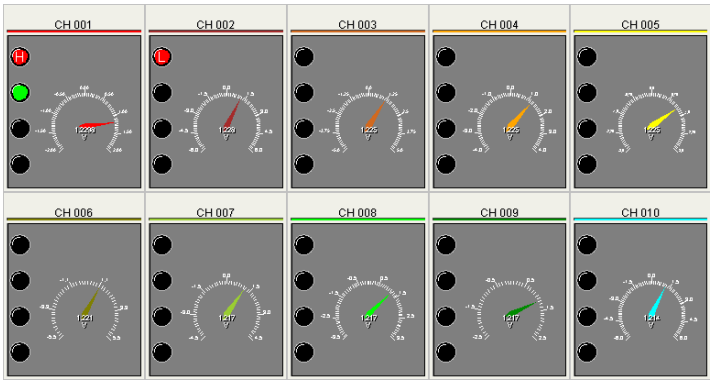
- **Bar Graphs**

  Displays measured values in a bar graph. When alarms are set, the alarm status is displayed to the left of the bar graph. For information on alarm statuses, see Digital Display.




- **Meters**

  Displays measured values in a meter. When alarms are set, the alarm status is displayed to the left of the meter. For information on alarm statuses, see Digital Display.

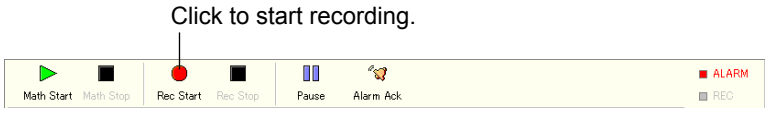


- **Overview Display**

  Alarms (status and type) and measured values are displayed as numerical values in the monitor display screen. Skipped channels are not displayed. If the size of the window is reduced, only the alarms are displayed.

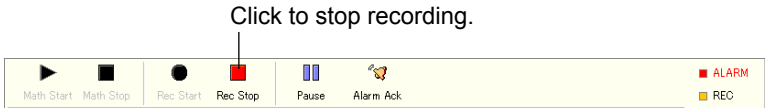
### Starting Recording

**4.** Click the Record Start button in the screen display.
Saving of data to the CF card begins.



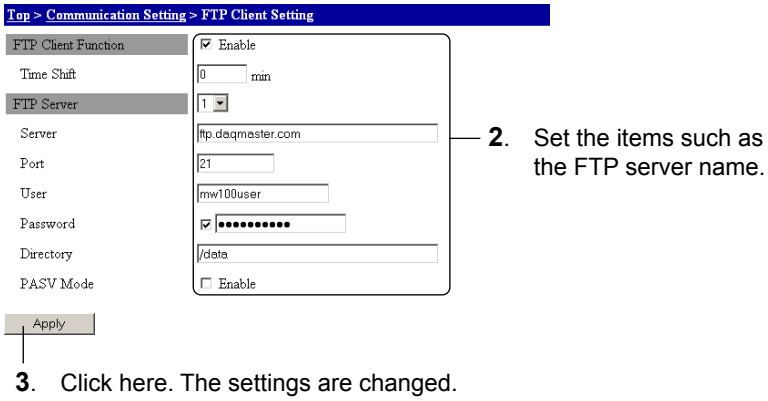

### Stopping Recording

**5.** Click the Record Stop button in the screen display.




## Transferring Measured Data to the FTP Server

**1.** From the browser top screen, choose Communication Setting > FTP Client Setting. The FTP client settings screen opens.



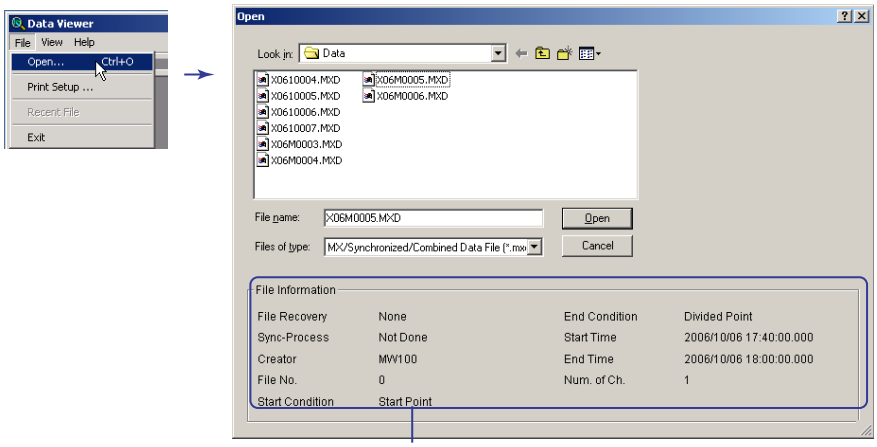

**4.** Start the measurement and then start the recording. (For the procedure to start the measurement and recording, see page 25 in this manual.)
When a file is created, the file is transferred to the folder on the specified FTP server.

# Viewing Measured Data on the Viewer Software

## Displaying Data

You can view data files saved to the CF card and data files that have been transferred to the PC from the FTP server using the Viewer.

1. Choose Programs > MW100 Viewer > MW100 Viewer to start the Viewer.
2. Click the button on the toolbar or choose Open from the File menu.
   The Open dialog box opens.

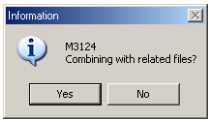



**File information**

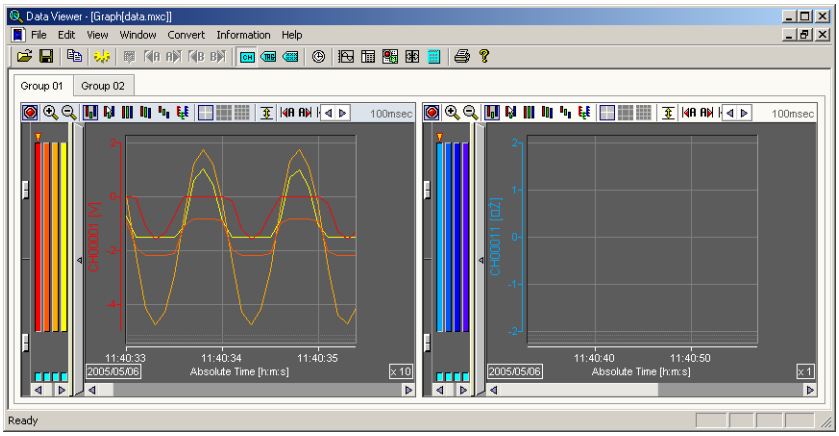
3. Select the file you wish to load and click the Open button.
   The waveform display window opens.

   **When Loading Divided Data Files on the MW100**

   Before the waveform display window is displayed, if a file that can be joined exists, a dialog box opens with the message “Combining with related files?” To join the data files, click Yes. To display only the specified file, click No.



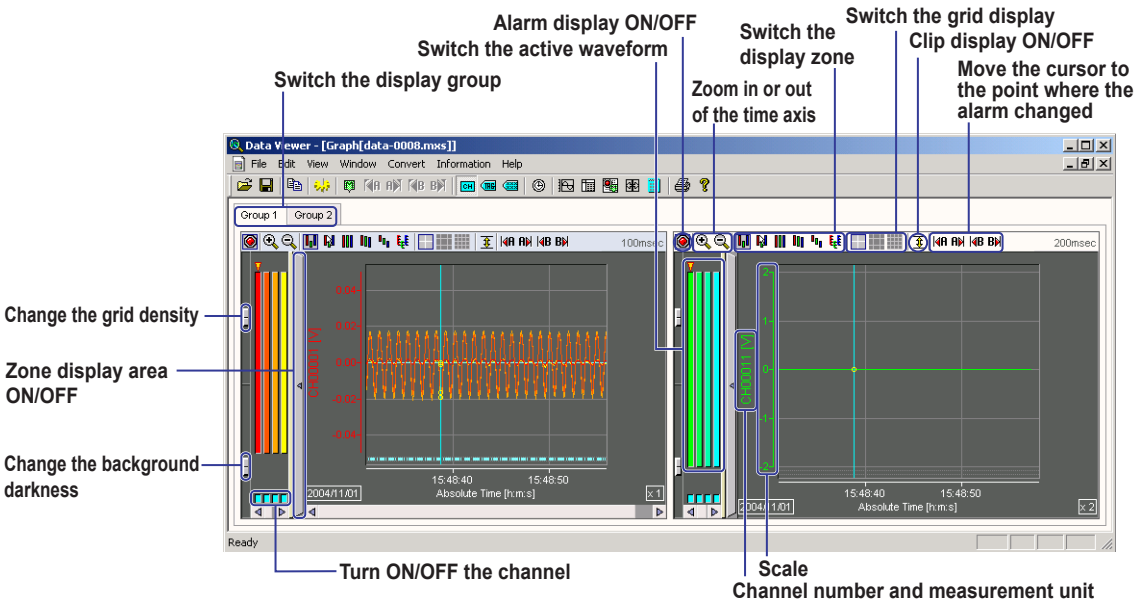

**Opens the waveform display window**




**Files are divided into the graphs and math channel graphs at the recording interval specified on the browser even when in the same group.**

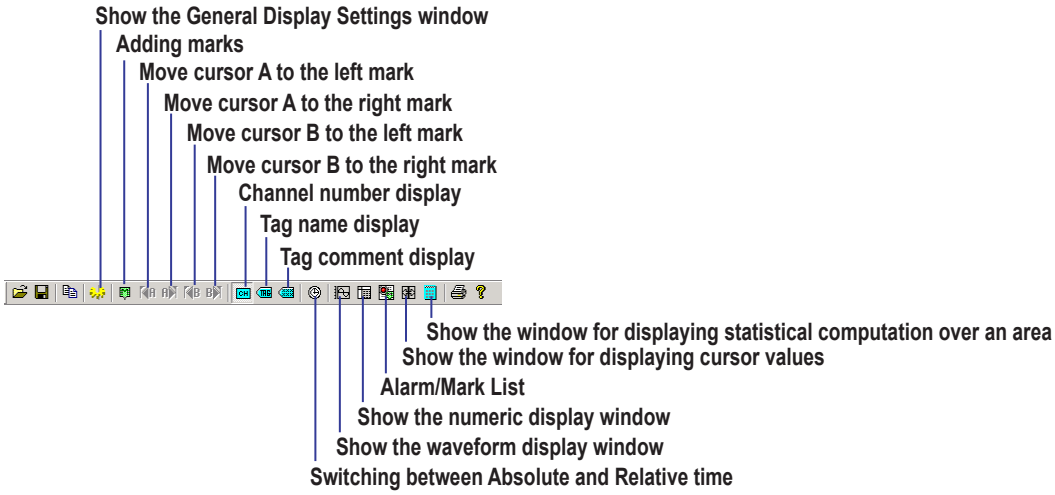
## Changing the Display on the Waveform Display Window

Change the display settings according to the explanation in the figure below.



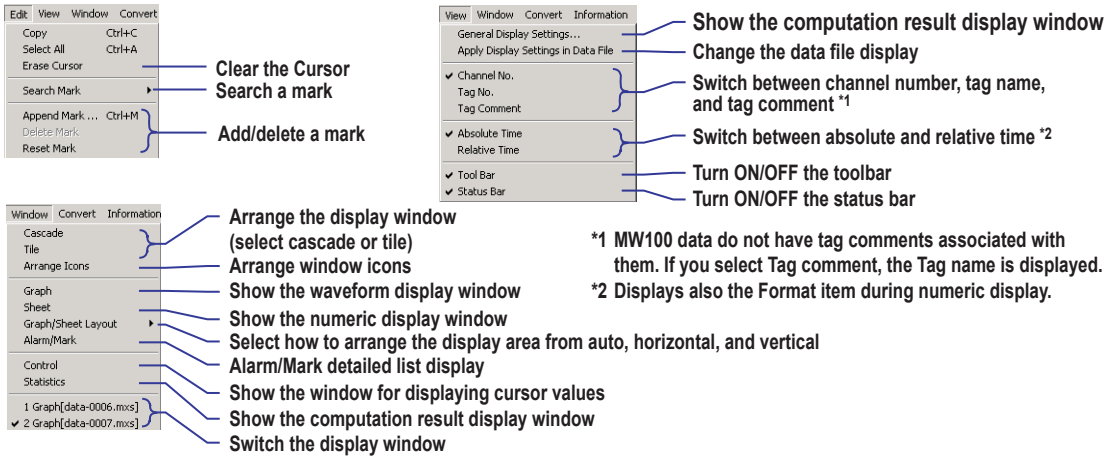

## Changing the Display Using the Toolbar

Change the display settings according to the explanation in the figure below.




## Changing the Display Using the Menu

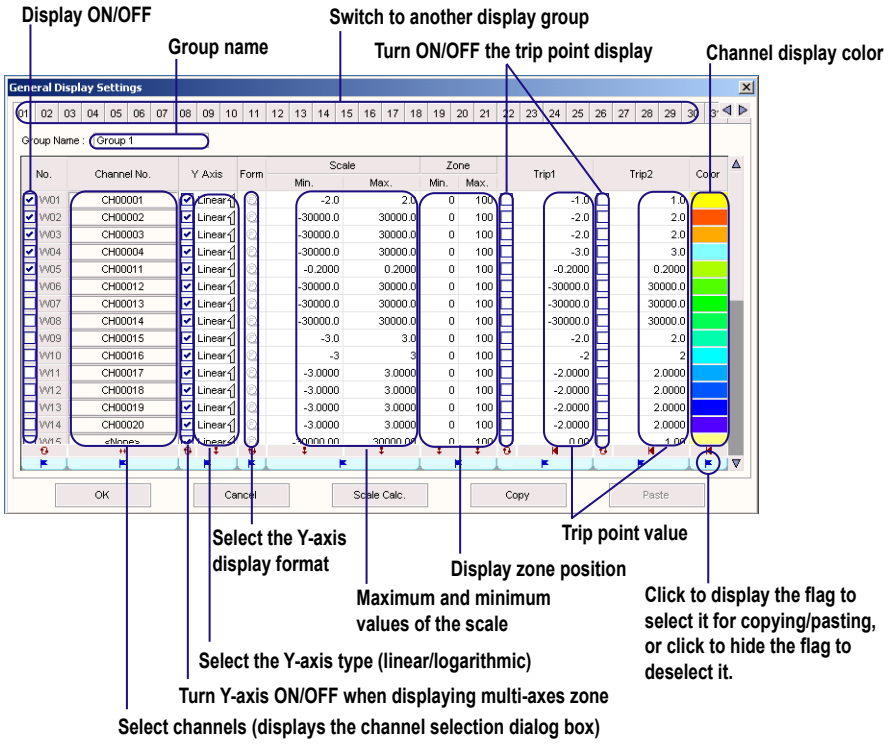
You can display the Edit, View, and Window menus.




*1 MW100 data do not have tag comments associated with them. If you select Tag comment, the Tag name is displayed.
*2 Displays also the Format item during numeric display.

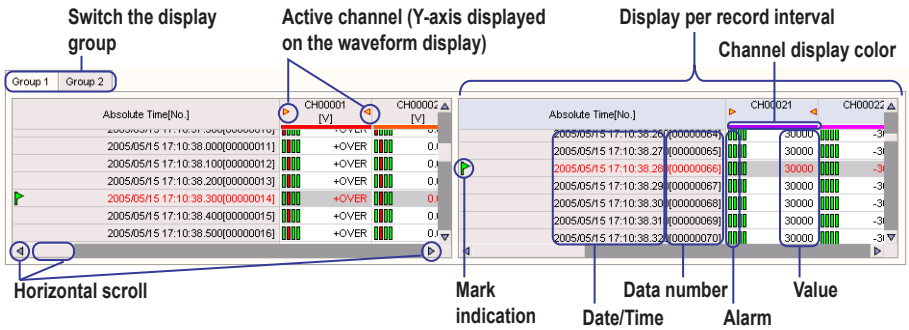
## Changing the Display Using the Display Setup Window

See the explanation in the figure below. Change the display settings and click OK.
Set the display for each display group.

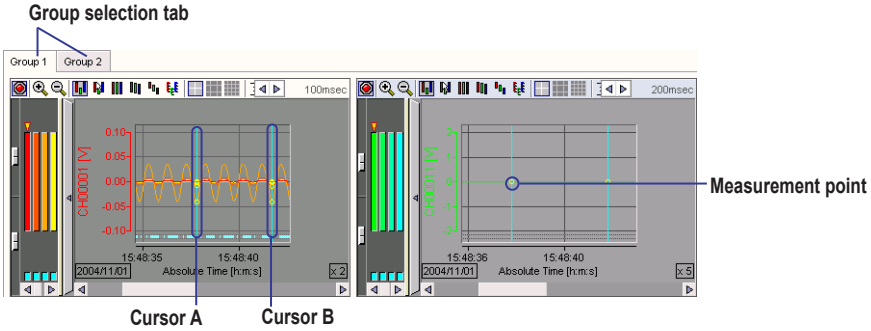



## Numerical Display

While the waveform display window is displayed, click the button on the toolbar or select Window > Numerical Display to display a numerical value window as in the figure below. If there are groups with differing monitor intervals, the screen is split.

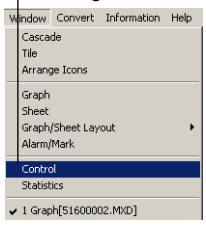


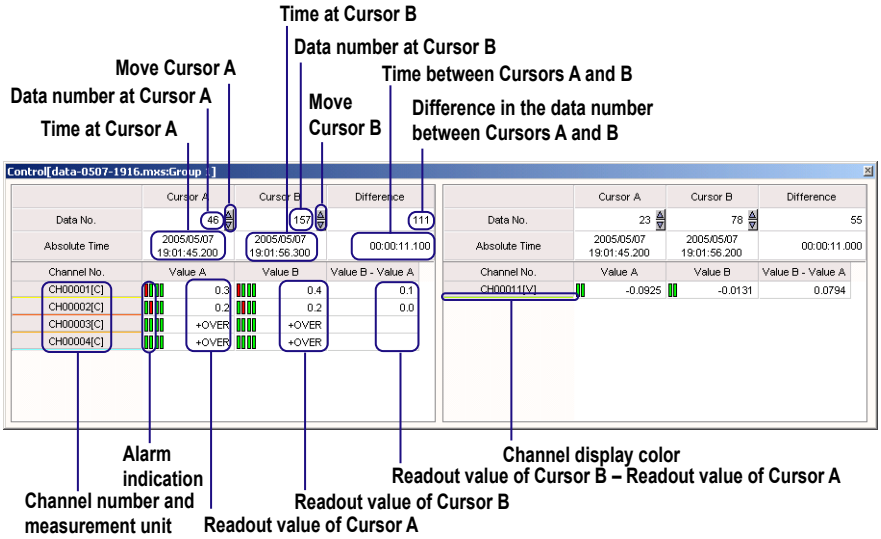
## Reading Values Using the Cursor




2. Click the mouse where you wish to read the data in the waveform display window.
   If you wish to read another point simultaneously, drag the cursor. Cursor A appears at the position where you first clicked; Cursor B appears at the position where you released the mouse button.

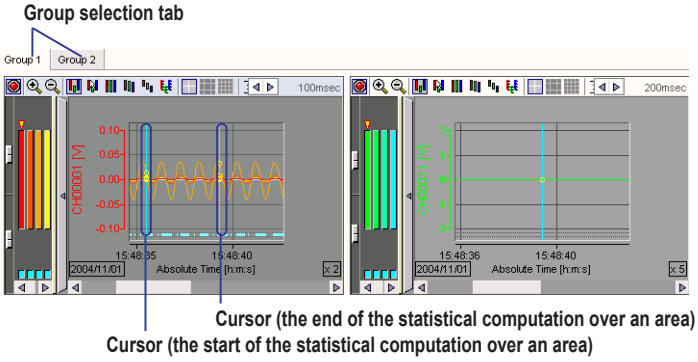
3. From the Window menu, choose Cursor value display. The Cursor window opens as shown in the figure on the right.



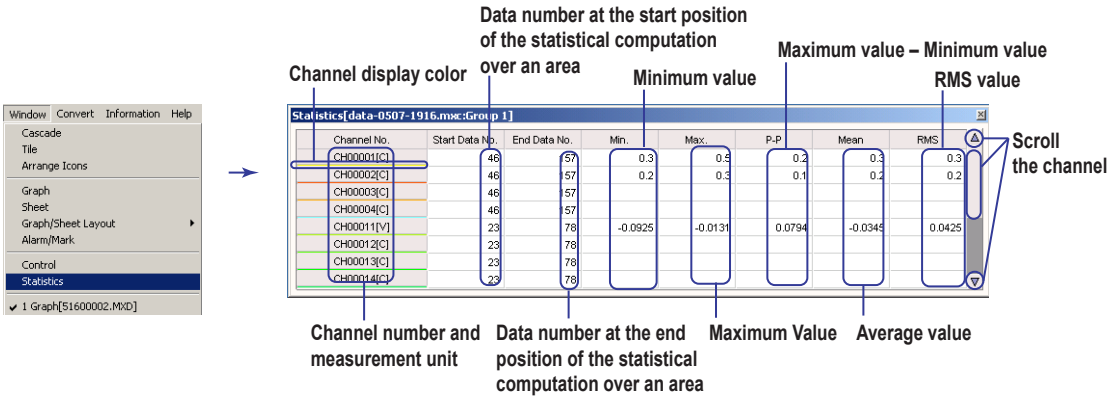




## Statistical Computation over an Area of Measured/Computed Data

1. In the waveform display window, click the tab of the group on which you wish to perform statistical computation over an area.
2. Click the start position of the computation area in the waveform display area.
   A light-blue cursor appears in the waveform display area. If multiple waveform display areas are displayed, the cursor is displayed at the time position each waveform display area.
3. Drag the cursor to the end position of the computation area
   Another light-blue cursor appears at the position where the cursor was dragged.



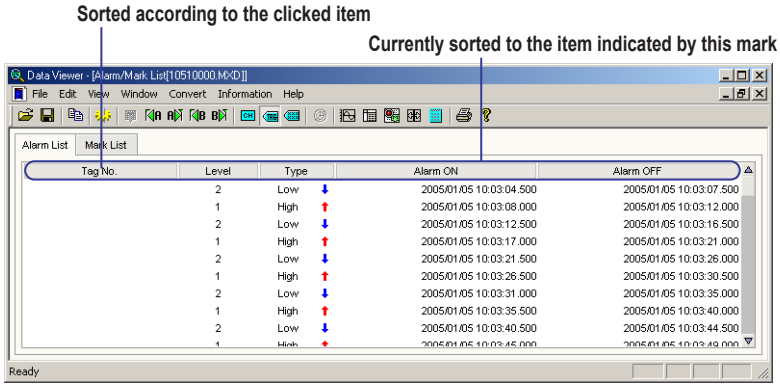
**4.** From the Window menu, choose Statistics.
The Statistics window opens.



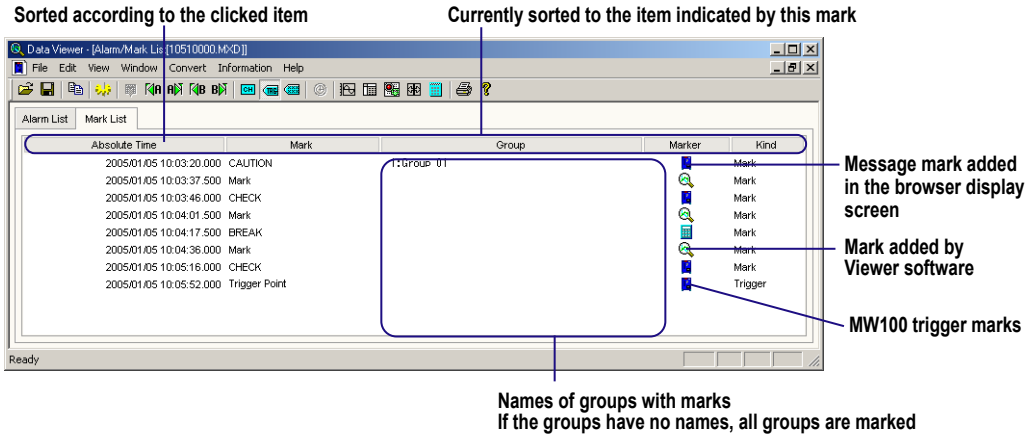

## Alarm/Mark List

Click the button on the toolbar or choose Alarm/Marker List from the Window menu.

- Alarm List Display

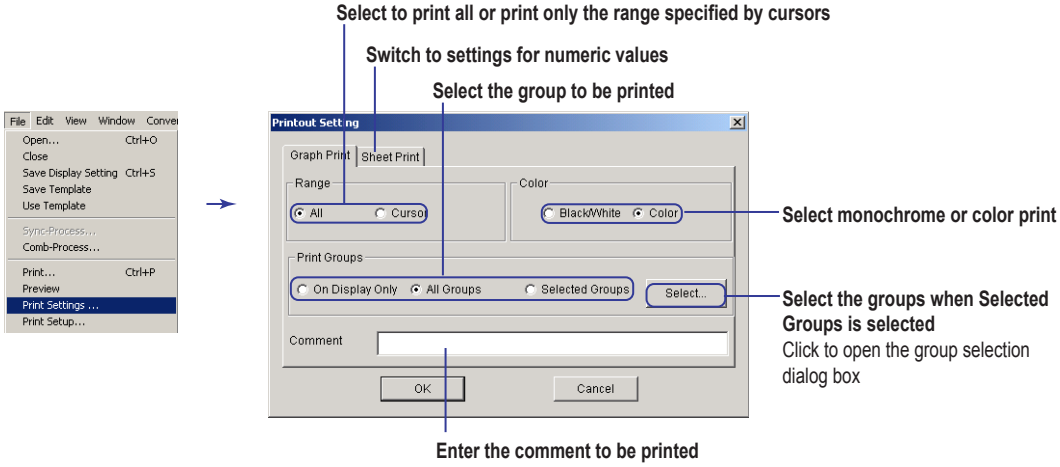



- Mark List Display



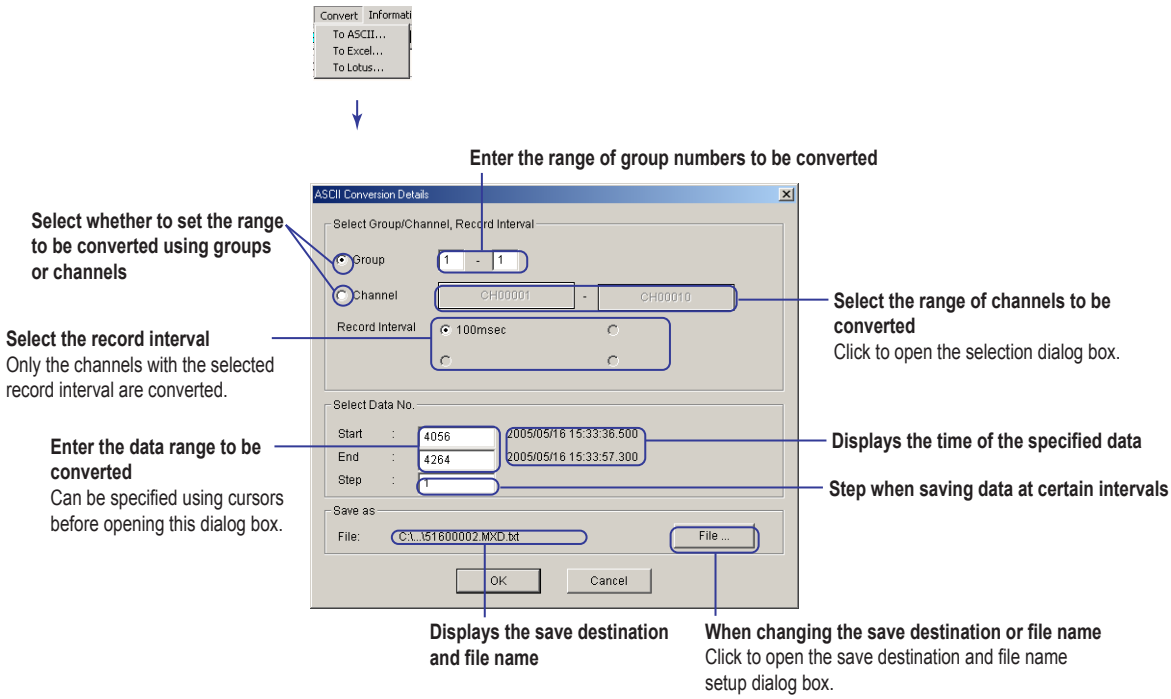
## Setting the Contents to Be Printed

1. From the File menu, choose Print Settings.
   The Print Settings dialog box in the figure below opens.
2. Edit the print settings.




## Converting Data Formats

The data formats below can be changed.

| | |
|---|---|
| ASCII | Text data with each data point separated by a comma. The extension is .txt. |
| Excel | Data that can be opened using Microsoft's spreadsheet application Excel version 8.0 (Excel 97) or later. The extension is .xls. |
| Lotus | Data that can be opened using IBM's Lotus 1-2-3 spreadsheet application version 2.0 or later. The extension is .wj2. |

From the Convert menu, choose ASCII, Excel, or Lotus, then execute the conversion in the dialog box that is displayed as shown in the figure below. There is a limit to the number of data points that Excel and Lotus1-2-3 can handle. Before executing the conversion, set the channels/groups to be converted, the conversion range, and the step so that the number of data points is appropriate.