

INSTRUCTION MANUAL

DCS-100A

DYNAMIC DATA RECORDING SOFTWARE

[For NTB-500A/C Operation]

Thank you for purchasing KYOWA's product DCS-100A Dynamic Data Recording Software.

Read this Instruction Manual carefully in order to make full use of the high performance capabilities of the product.

Do not use the product in methods other than described in this Manual.

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NOTATIONS USED IN THE INSTRUCTION MANUAL

For your convenience, the following notes and memos are stated in this Instruction Manual to attract customer's attention to informative reference items when using the DCS-100A Dynamic Data Recording Software (hereinafter referred to as the DCS-100A) for operating the NTB-500A/C Medium Speed Network Terminal Box (hereinafter referred to as the NTB-500A/C).

Examples of Notations

NOTE

Essential precautions required when handling the DCS-100A.

MEMO

Reference items required when handling the DCS-100A.

ESSENTIAL PRECAUTIONS FOR USING THE DCS-100A

● For PC settings

Do not set your PC to the following state. Or, the DCS-100A may not properly operate.

- Screen saver is set to activate.
- Power consumption function including System standby is set to activate.
- Application software such as virus check software, etc. is set to activate on the way.
- PC is receiving access from the network. Or the PC is accessing to the network.

● For CAN communications

To communicate the NTB-500A/C, use the USB-CAN interface (Kvaser Leaf Light HS).

Check to make sure that the USB-CAN interface device driver is installed.

To communicate multiple NTB-500A/C units, check to make sure that every total cable length of the NTB-500A/C is the same. Or, communication cannot be executed.

Check to make sure that every total cable length of the NTB-500A/C is the same.

If the total cable length is not the same in all NTB-500A/C units, set them correctly. Turn OFF and turn ON the NTB-500A/C units.

● For controlling

While controlling the NTB-500A/C by using the DCS-100A, do not operate the optional switches and BOX No. on the NTB-500A/C.

1 OUTLINE

This Instruction Manual describes method for controlling the NTB-500A/C by using the DCS-100A. For the NTB-500A/C, see separate volume of "NTB-500A/C MEDIUM SPEED NETWORK TERMINAL BOX INSTRUCTION MANUAL (For Hardware)."

For common operations of the DCS-100A, see separate volume of "DCS-100A DYNAMIC DATA RECORDING SOFTWARE INSTRUCTION MANUAL (For Common Operation)."

The DCS-100A is measurement software that is capable of online measurement (such as displaying and recording data) on the PC with the NTB-500A/C connected via the USB-CAN interface.

- Maximum 8 NTB-500A/C units (max. 64 channels).
- The measured data can be displayed in various formats such as number, Y-Time graph, Bar graph, X-Y graph, Circle meter and Bar meter.
- You can easily operate the NTB-500A/C by using buttons on the Meas Operation Panel with a feeling like using a remote controller.
- The recorded measured data is saved in the Kyowa Standard Data File KS2 (extension: KS2) format.
- The DCS-100A can record the moving image data during testing and can check the calculation and analysis results in real-time as well as recording/monitoring data with the optional software DCS-101A.
- The DCS-100A can display the recorded data in numeric value or on graph, edit, cut out, convert, calculate, and analysis the recorded data after the measurement with the optional software DCS-102A.

You can load the recorded data by using the commercially available software since the DCS-100A can convert the recorded data into CSV format file.

- Measuring, calculation and analysis conditions are saved in a file. When you want to measure or analyze data with the same conditions later, the same conditions are set by loading the previous saved files.
- Please check the KYOWA's website for the firmware of the measurement unit, and upgrade to the latest version before use.

The NTB-500A and NTB-500C have different connectors for connecting to the measurement unit.

The circuit and firmware are the same.

For NTB-50A, NTB-50B, and NTB-50C, the connector to connect to the terminal block and measuring unit is different. The circuit and firmware are the same.

The NTB-51A and NTB-51C have different connectors for connecting to the measuring instrument.

The circuit and firmware are the same.

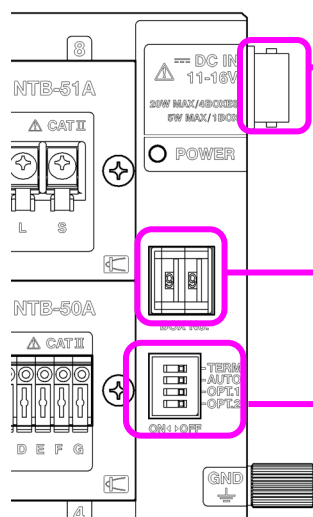
2 BASIC OPERATON FLOW

This chapter explains the basic operating procedure for controlling the NTB-500A/C by using the DCS-100A.

Turn ON the NTB-500A/C

- (1) Install a measuring unit. Set the BOX No.switch and optional DIP switches.

Connect the power connector. For details, see separate volume of "NTB-500A/C MEDIUM SPEED NETWORK TERMINAL BOX INSTRUCTION MANUAL (For Hardware)."



Power connector

BOX No. switch

Used for setting the BOX No. of the NTB-500A/C. (01 to 08)

Optional DIP switches

Used for setting the termination resistor, automated-measurement mode, and total cable length.

Connect sensors

- (2) Connect sensors to the measuring units of the NTB-500A/C.

Install the USB-CAN interface device driver

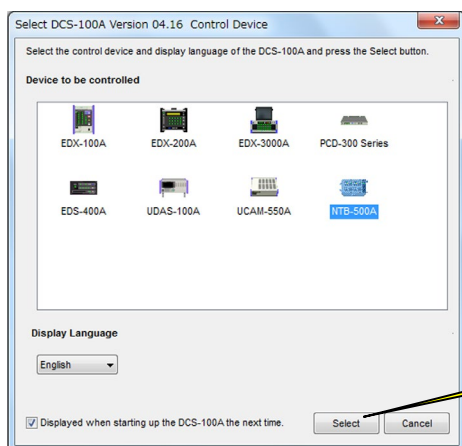
- (3) Install the USB-CAN interface device driver into the PC.

For details, see separate volume of "NTB-500A/C MEDIUM SPEED NETWORK TERMINAL BOX INSTRUCTION MANUAL (For Hardware)."

Start up the DCS-100A

- (4) Start up the DCS-100A. The Device to be controlled window appears.

Click the NTB-500A/C icon on the Device to be controlled window. Click the **Select** button.



Click

- (5) The main window of the DCS-100A appears.

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(Front page)

Configuration

- (6) Click the File - Environment or click the Envr. icon from the toolbar to open the Environment window For details, see CONFIGURATION.
- (7) Click the Connect tab.
Set the "Total cable length", "Number of Connected Units", and measuring units.
For details, see 4 - 1 CONFIGURATION – CONNECT TAB.
- (8) Click the **Connect...** button to connect the PC and NTB-500A/C units.
If the connection is executed successfully, click the **OK** button to close the window.

Set CH Conditions

- (9) Click the Set - Set CH Condition or click the CH Cond. icon from the toolbar to open the Set CH Condition window. For details, see 5 SETTING CH CONDITIONS.
- (10) Set the Mode, Range, Calibr. const., Unit, etc. for every CH of the NTB-500A/C on the Set CH Condition window. Click the **OK** button to close the window.

Set measuring conditions

- (11) Click the Set - Set Measure Condition or select the Meas Cond icon from the toolbar to open the Set Measure Condition window. For details, see 6 SETTING MEASURING CONDITION.
- (12) Click the Measure Mode tab.
Set the Measure Mode, Sampling Frequency, and Number of Data/CH.
For details, see 6 - 1 MEASURE MODE CONDITIONS.
- (13) Click the Data File tab. Set the Set Save Folder, File Name, and File No. For details, see 6 - 4 DATA FILE CONDITIONS.
- (14) Click the **OK** button to close the window.

Display windows

- (15) Click the Window or click the desired icon from the toolbar to display the target data window.

Measure data

- (16) Click the **MONITOR** button on the Meas Operation Panel. The measurement starts and the DCS-100A becomes monitoring state.
The measured data is displayed on windows. For details, see 9 MEASURING DATA.
- (17) Click the **ZERO** button to execute ZERO balance.
Close the ZERO result window. The DCS-100A gets back to monitoring state. For details, see 9 - 6 EXECUTING ZERO.
- (18) Click the **REC/PAUSE** button. The DCS-100A starts recording data according to the measure mode.
- (19) Click the **STOP** button or after finishing recording the data for the pre-set Number of Data/CH, the DCS-100A gets back to monitoring state.
- (20) Click the **STOP** button once again in monitoring state. The DCS-100A stops the measurement and becomes stopped state.

(Next page)

(Front page)

↓

Check Data

Click the Measurement – Latest Recorded Data File or click the Check Data icon from the toolbar to display the data checking dialog box.

For unnecessary data, click the Measurement – Delete the Latest Recorded Data File or click the Del Data icon from the tool bar for deleting.

For measuring the data again, click the **MONITOR** button.

↓

Reproduce Data (you need to install the optional software DAS-200A)

To display the recorded data in detail, to cut out, to convert file and to analysis the recorded data, click the File – Reproduce Data or Reproduce icon from the toolbar for reproducing the data.

↓

Exit the DCS-100A and NTB-500A/C

Exit the DCS-100A and turn OFF the NTB-500A/C.

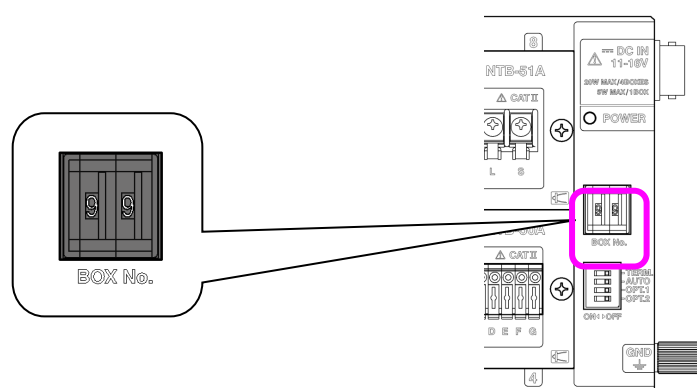
3 SETTING THE NTB-500A/C

Set the BOX No., termination resistor, and total cable length of the NTB-500A/C by using the optional DIP switches.

Before settings, be sure to turn OFF the NTB-500A/C.

3 - 1 SETTING BOX NO. OF THE NTB-500A/C

Set the BOX No. of the NTB-500A/C by using the BOX No. switch on the NTB-500A/C front panel.



Enlarged view of the BOX No. switch

Front panel

To record data with one NTB-500A/C, set the BOX No. to "01".

To record data with multiple NTB-500A/C units (in synchronous operation), set the BOX No. of the master unit to "01," and set the BOX No. of the slave units to any numbers from "02 to 08."

Be sure that BOX numbers do not overlap. Or, communication cannot be executed.

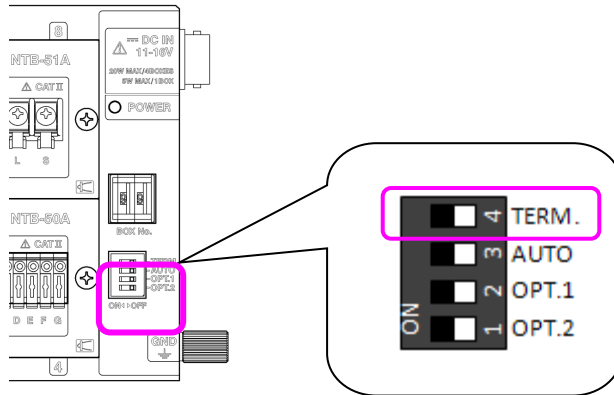
Number of connected units	Box No.
1	01
2	Synchronous master unit: 01 Synchronous slave unit: 02
:	:
8	Synchronous master unit: 01 Synchronous slave units: 02 to 08

The DCS-100A recognizes channels of NTB-500A/C units as follows.

Channels on the NTB-500A/C	Channels on the DCS-100A
CH01 to CH32 of the NTB-500A/C (BOX No.: 01)	CH01to CH08 of the DCS-100A
CH01 to CH08 of the NTB-500A/C (BOX No.: 02)	CH01to CH08 of the DCS-100A
:	:
CH01 to CH08 of the NTB-500A/C (BOX No.: 08)	CH57 to CH64 of the DCS-100A

3 - 2 SETTING TERMINATION RESISTORS OF THE NTB-500A/C

To record data with one NTB-500A/C, set the optional DIP switch "TERM." to the ON position.
To record data with multiple NTB-500A/C units, set the optional DIP switch "TERM.", located on the most remote NTB-500A/C from the PC, to the ON position.



3 - 3 SETTING COMMUNICATION CABLE OF THE NTB-500A/C

Set the total cable length by using the optional DIP switch "OPT.1 (SW2)" and optional DIP switch "OPT.2 (SW1)".

Be sure to set the optional DIP switches to match the total cable length.

Total cable length	OPT.1 (SW2)	OPT.2 (SW1)	Optional DIP switches
20 m	OFF	OFF	
	ON	ON	
80 m	ON	OFF	
100 m	OFF	ON	

NOTE

- While controlling the NTB-500A/C by using the DCS-100A, be sure to set the optional DIP switch "AUTO" to the OFF position.
- The DCS-100A loads the settings of the optional DIP switch when turning ON the NTB-500A/C.
- Set the optional DIP switches with the power OFF and then, turn ON the NTB-500A/C.

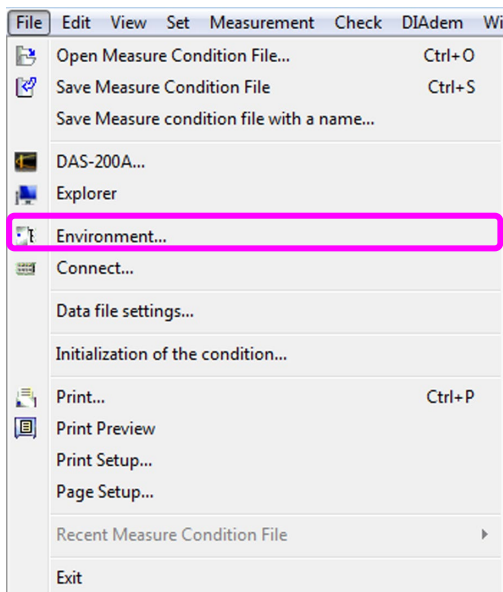
4 CONFIGURATION

Sets the total cable length, the number of connected units, measuring units, and optional settings.

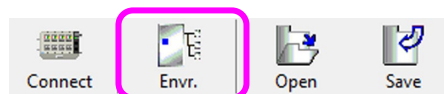
■ How to display

Open the Environment window as described below:

- Click the File - Environment.
- Click the Envr. icon from the toolbar.



File - Environment



Envr. icon

4 - 1 CONFIGURATION – CONNECT TAB

This section describes how to set the "Total cable length (between the PC and NTB-500A/C units)", "Number of Connected Units", and measuring units to connect the NTB-500A/C units.

Click the Connect tab.

Set Environment

General **Connect** Display Details Option

Number of Connected Units: 1

Total cable length: 20m

BOX	Device Name	Measure Unit-1	Measure Unit-2
01	NTB-500A	NTB-50A(Strain)	NTB-51A(Voltage/TC)

Connect... button: Tests the connection between the PC and the NTB-500A/C units. When the connection is available, the DCS-100A checks the loaded configuration (including the number of connected units, total cable length, BOX No., and measuring units) and the current configuration of the connected NTB-500A/C units.

Write device name... button: Sends the device name to the NTB-500A/C.

OK button: Determines the pre-set contents and closes the window.

Cancel button: Cancels the pre-set contents and closes the window.

NOTE

Before clicking the **Connect...** button, make sure the PC correctly recognizes the USB-CAN interface (Kvaser Leaf Light HS) in the Device Manager.

4 - 1 - 1 Configuration - Connect tab - Procedures

To connect the NTB-500A/C units, click the **Connect...** button on the Environment window.
Connect the NTB-500A/C units by following the procedures (1) to (7).

- (1) Set the "Number of Connected Units". The "Number of Connected Units" is maximum 8.

The screenshot shows the 'Connect' tab interface. At the top, there is a 'Number of Connected Units' dropdown menu, which is currently open and showing a list of numbers from 1 to 8. The number 1 is selected. To the right of this dropdown are two buttons: 'Connect...' and 'Write device name...'. Below these, there is a 'Total cable length' dropdown menu, which is currently set to 20m. At the bottom, there is a table with four columns: 'BOX', 'Device Name', 'Measure Unit-1', and 'Measure Unit-2'. The first row of the table has the following values: '01', 'NTB-500A', 'NTB-50A(Strain)', and 'NTB-51A(Voltage/TC)'.

- (2) Set the "Total cable length". Be sure to set the "Total cable length" to match the total cable length of the NTB-500A/C units.

The screenshot shows the 'Connect' tab interface. At the top, there is a 'Number of Connected Units' dropdown menu, which is currently set to 1. To the right of this dropdown are two buttons: 'Connect...' and 'Write device name...'. Below these, there is a 'Total cable length' dropdown menu, which is currently open and showing a list of values: 20m, 80m, and 100m. The value 20m is selected. At the bottom, there is a table with four columns: 'BOX', 'Device Name', 'Measure Unit-1', and 'Measure Unit-2'. The first row of the table has the following values: '01', 'NTB-500A', 'NTB-50A(Strain)', and 'NTB-51A(Voltage/TC)'.

- (3) Set the measuring units.

The screenshot shows the 'Connect' tab interface. At the top, there is a 'Number of Connected Units' dropdown menu, which is currently set to 1. To the right of this dropdown are two buttons: 'Connect...' and 'Write device name...'. Below these, there is a 'Total cable length' dropdown menu, which is currently set to 20m. At the bottom, there is a table with four columns: 'BOX', 'Device Name', 'Measure Unit-1', and 'Measure Unit-2'. The first row of the table has the following values: '01', 'NTB-500A', 'NTB-50A(Strain)', and 'NTB-51A(Voltage/TC)'. The 'Measure Unit-1' dropdown menu is currently open, showing a list of values: 'Not installed', 'NTB-50A(Strain)', and 'NTB-51A(Voltage/TC)'. The value 'NTB-50A(Strain)' is selected.

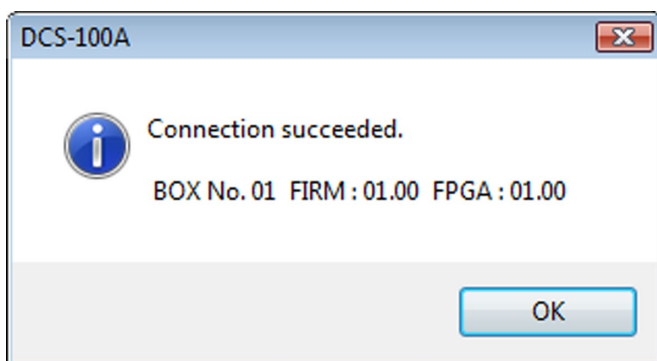
- (4) Click the **Connect...** button.

The NTB-500A/C units are connected based on the (1) to (3) settings. When the current configuration of the connected NTB-500A/C units is different from the loaded configuration, the connection will be failed.

The screenshot shows the 'Connect' tab interface. At the top, there is a 'Number of Connected Units' dropdown menu, which is currently set to 1. To the right of this dropdown are two buttons: 'Connect...' and 'Write device name...'. Below these, there is a 'Total cable length' dropdown menu, which is currently set to 20m. The 'Connect...' button is highlighted with a red rectangle.

(5) A connection result message appears.

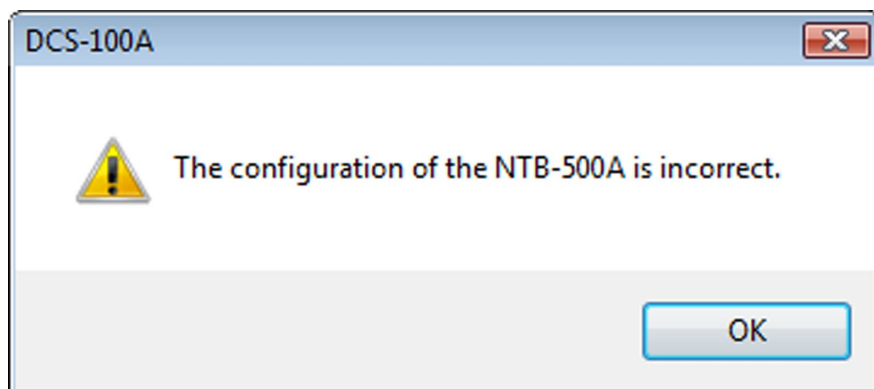
The following message appears when the connection is executed successfully.



Click the **OK** button on the Environment window to close the window.

- The following message appears when the connection is failed.

① When the current configuration of the connected NTB-500A/C units is different from the loaded configuration.

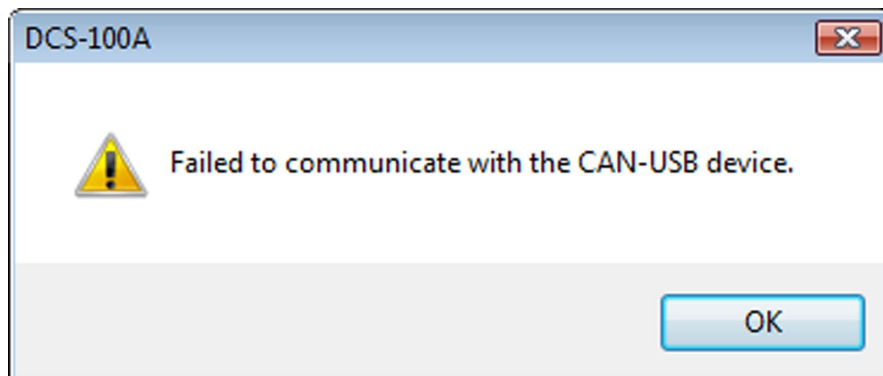


Click the **OK** button.

The message will appear requiring the user choose whether or not to load the current configuration.

For details, see “ (7) .”

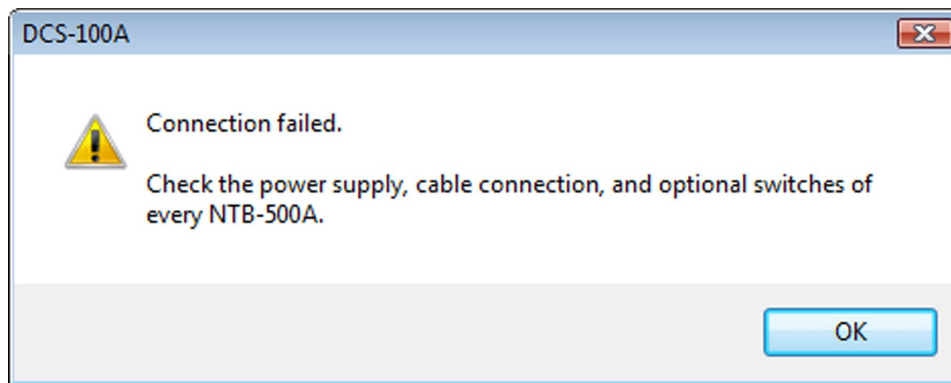
② When the USB-CAN interface cannot be connected.



The message indicates that no USB-CAN interface is connected or other application software is using the USB-CAN interface.

Check to make sure that the USB-CAN interface is correctly connected.

③ When the NTB-500A/C cannot be connected.



The message might appear because of the following causes.

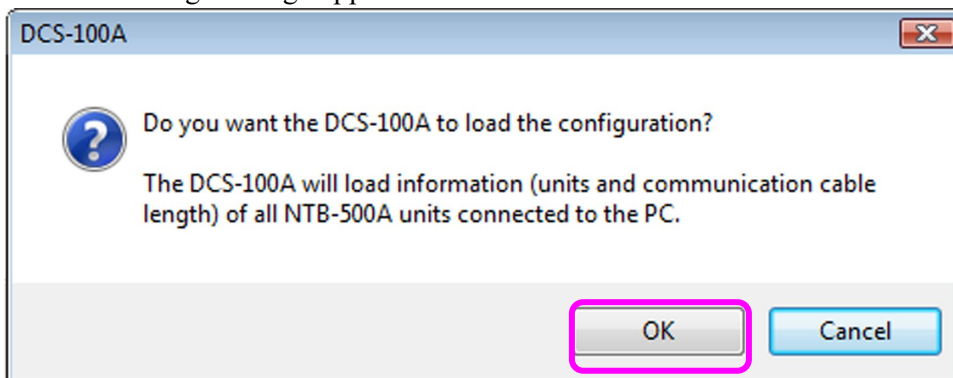
- The NTB-500A/C is not turned ON.
- The optional DIP switch of the NTB-500A/C is set to the automated-measurement mode.
- The cable is not connected or is broken.
- The BOX numbers of the NTB-500A/C units overlap.

Check the NTB-500A/C settings.

(6) Load the configuration.

When the current configuration of the connected NTB-500A/C units is different from the loaded configuration of the DCS-100A, the message "① " in the previous page appears.

The following message appears.



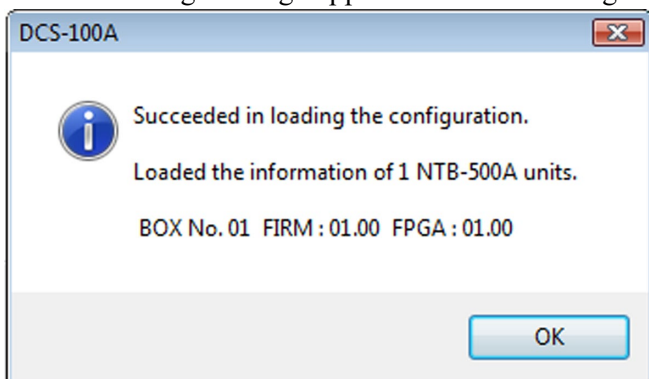
Click the **OK** button. The DCS-100A loads the current configuration of the connected NTB-500A/C units (number of connected units, total cable length, device name, and units).

NOTE

If the DCS-100A loads the current configuration by clicking the **OK** button, the pre-set configuration will be changed.

(7) A loading result message appears.

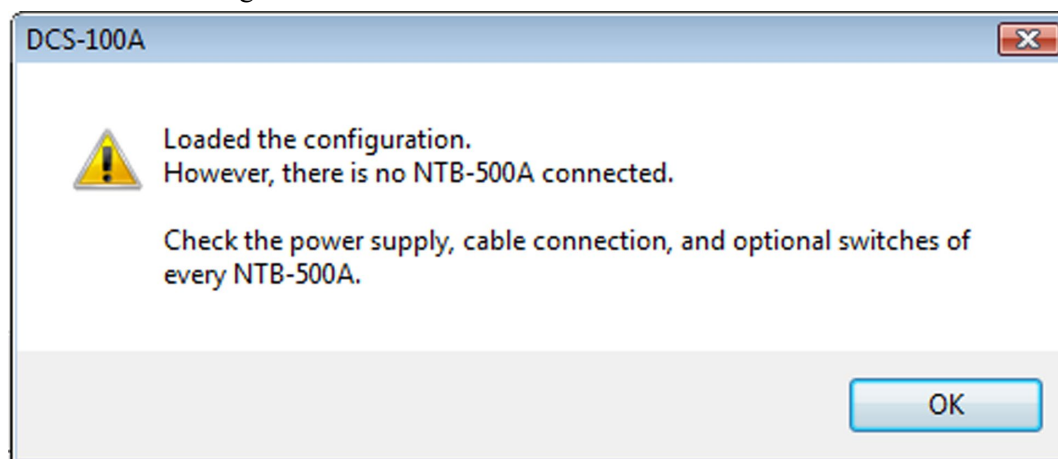
The following message appears when the configuration is loaded successfully.



Click the **OK** button on the Environment window to close the window.

- The following message appears when the loading is failed.

① When the configuration cannot be loaded from the NTB-500A/C

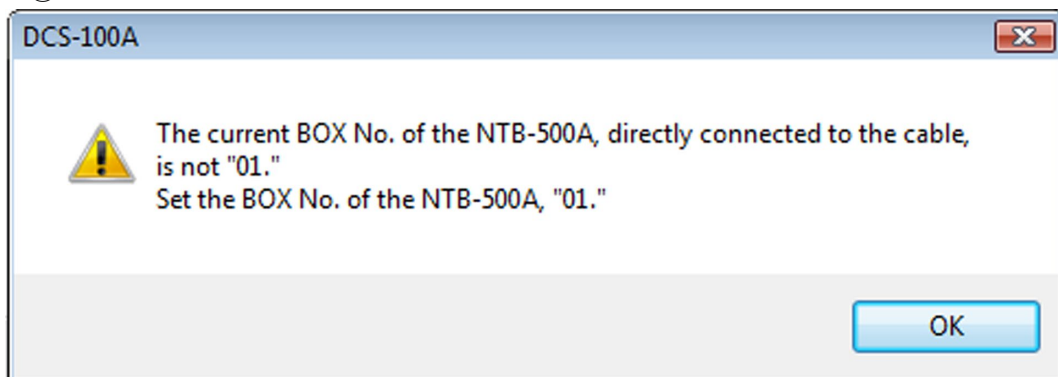


The NTB-500A/C is in communication-disabled state.

The message might appear because of the following causes.

- The NTB-500A/C is not turned ON.
- The optional DIP switch of the NTB-500A/C is set to the automated-measurement mode.
- The cable is not connected or is broken.
- The BOX numbers of the NTB-500A/C units overlap.

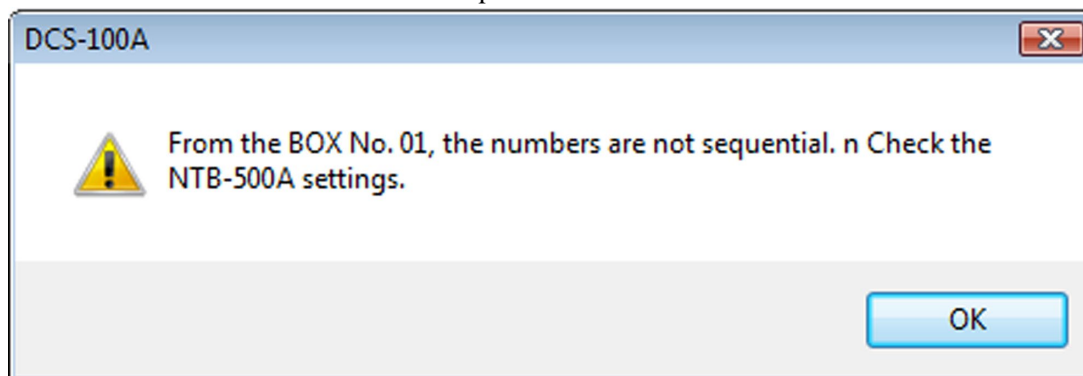
② When the BOX No. of the most remote NTB-500A/C from the PC is not 01.



The message appears when the BOX No. of the NTB-500A/C, connected with the USB-CAN interface, is not 01.

Be sure to set the BOX No. of the most remote NTB-500A/C from the PC to 01.

③ When the BOX numbers are not sequential numbers.



The message appears when the BOX numbers of the NTB-500A/C units are not sequential numbers.

Be sure to set the BOX numbers of the NTB-500A/C units sequentially.

NOTE

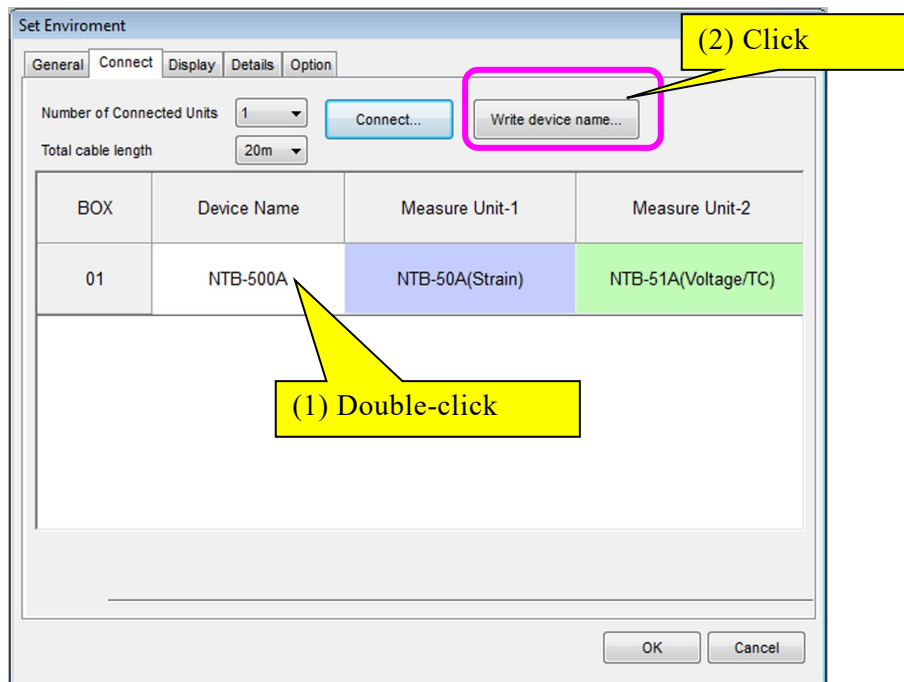
When the DCS-100A cannot find any PC-connected NTB-500A/C, check the followings.

- Check to make sure that the NTB-500A/C is turned ON.
- Check to make sure that the BOX numbers of the NTB-500A/C units do not overlap.
- Check to make sure that the PC correctly recognizes the USB-CAN interface in the Device Manager.
- Check to make sure that communication cables are correctly connected.
- Check to make sure that every total cable length of the NTB-500A/C is the same.

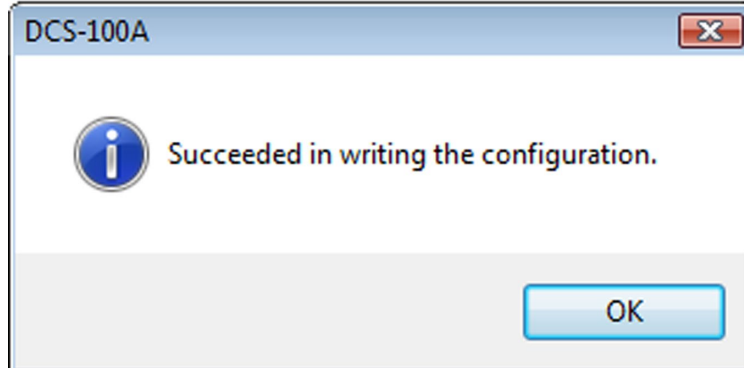
4 - 1 - 2 Configuration - Connect tab - Write device name

Input an arbitrary device name for NTB-500A/C units. Input the device name within 16 characters.

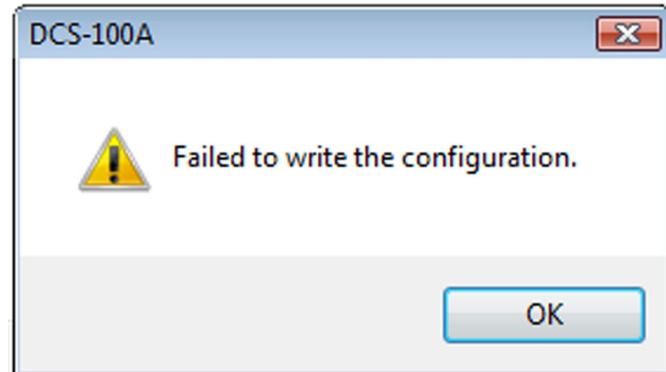
- (1) Double-click the desired item or press the SPACE key to be in input available state.
- (2) Click the Write device name... button to write the device name to the NTB-500A/C.



The following message appears when the device name is written successfully.



The following message appears when the writing is failed.

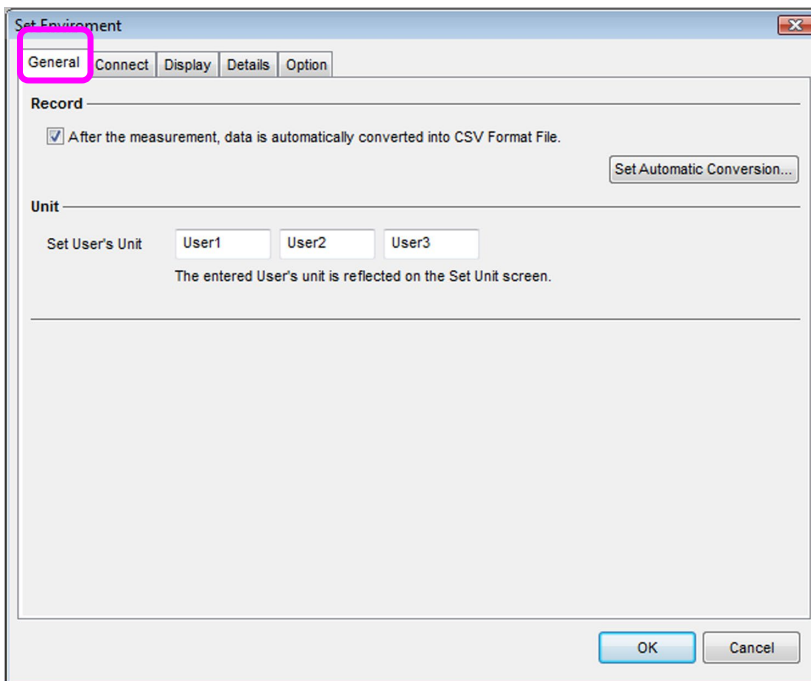


The connection may have failed. Connect the NTB-500A/C units again and write the device names.

For details, see 4 - 1 - 1 Configuration - Connect tab - Procedures.

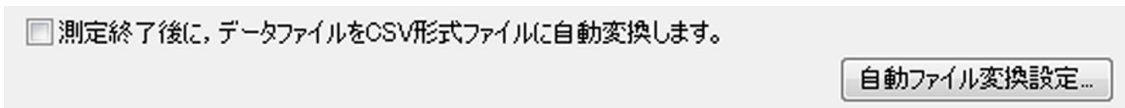
4 - 2 CONFIGURATION -GENERAL

This section describes how to set the Set Save Folder and real-time processions.
Click the General tab.

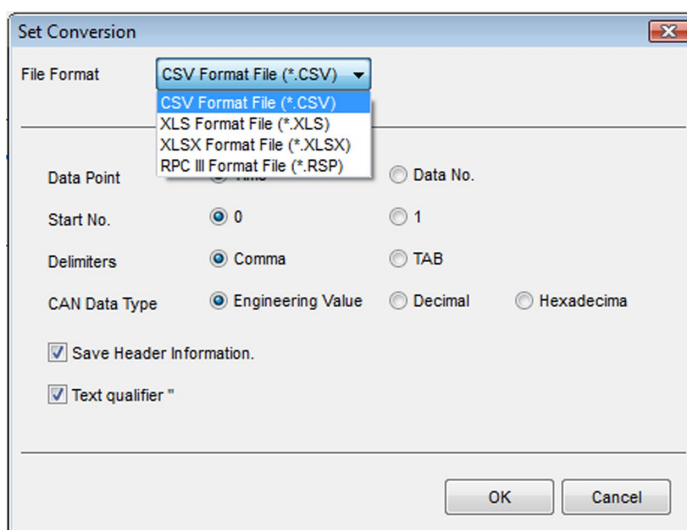


■ Converting the data file after the measurement

To automatically convert the KS2 file format to another after the measurement, put a check mark to the check box next to the “After the measurement, data is automatically converted into CSV format file.”



Click the **Set Automatic Conversion...** button and the following Set Conversion window appears.
Set conditions on the Set Conversion window.



■ Unit

Up to 3 user arbitrary units can be registered.

Input the user arbitrary unit within 7 characters.

Record

☒ After the measurement, data is automatically converted into CSV Format File.

[Set Automatic Conversion...](#)

The determined units can be selected by selecting Unit on the Set CH Condition window.

Set Unit CH01

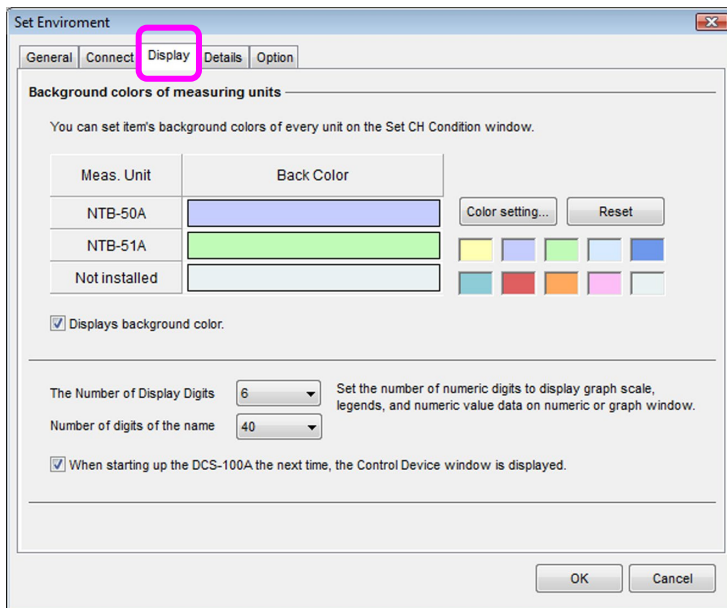
SI Unit

☒ um/m	☐ um/m	☐ mN	☐ N	☐ kN	☐ MN
☐ N.m	☐ kN.m	☐ N.cm	☐ Pa	☐ hPa	☐ kPa
☐ MPa	☐ N/mm2	☐ N/m2	☐ mmHg	☐ kgf/cm2	☐ mm
☐ cm	☐ m	☐ cm/s2	☐ m/s2	☐ G	☐ g
☐ kg	☐ t	☐ ms	☐ s	☐ min	☐ h
☐ mV	☐ V	☐ mA	☐ A	☐ K	☐ degC
☐ rad	☐ deg	☐ rad/s	☐ cm/s	☐ m/s	☐ m/min
☐ km/h	☐ Hz	☐ kHz	☐ MHz	☐ rpm	☐ OHM
☐ kOHM	☐ MOHM	☐ mW	☐ W	☐ kW	☐ dB
☐ %	☐ ppm	☐ pH	☐ R	☐	☐ User1
☐ User2	☐ User3				

OK **Cancel**

4 - 3 SETTING DISPLAY

This section describes how to set display conditions.
Click the Display tab.



■ Background colors of measuring units

Sets the background color of every measuring unit on the Set CH Condition window.

Color setting... button: Click the desired color on the Color dialog box to set the background color.

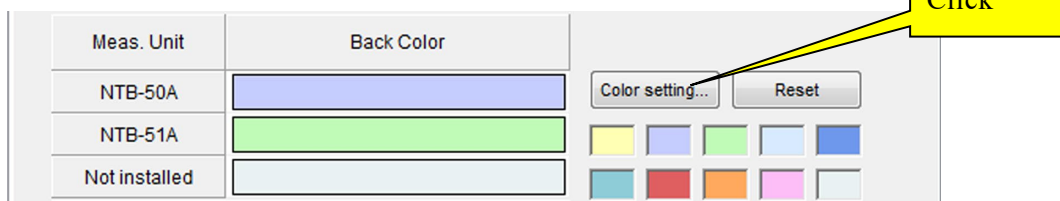
Reset button: Resets the item to the default state.

To valid the settings of the background color on the Set CH Condition window, put a check mark to the check box next to the "Displays background color."

• Operation example 1

This section describes how to change the background color of the NTB-50A by using the Back Color list.

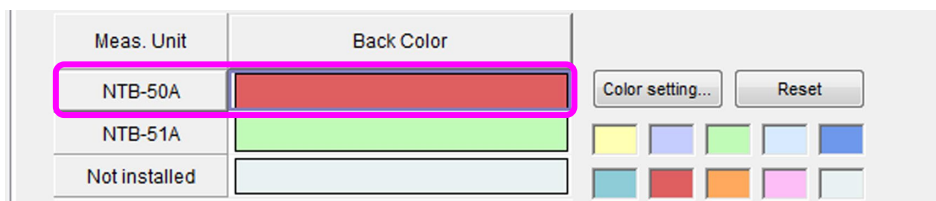
(1) Click the current background color of the NTB-50A.



(2) Click the target color from background color list.



(3) The background color of the NTB-50A is changed.



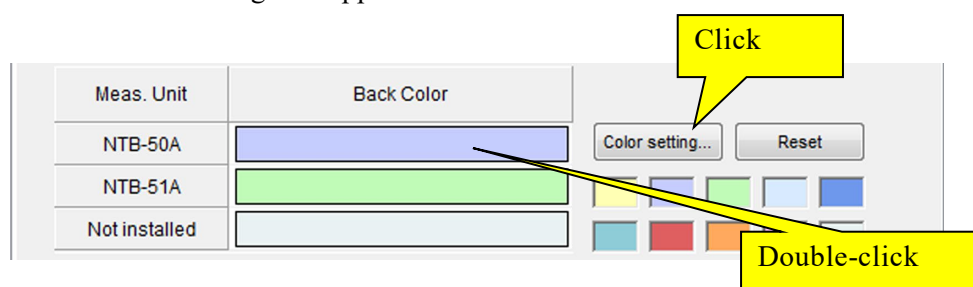
• Operation example 2

This section describes how to change the background color of the NTB-50A by using the Color dialog box.

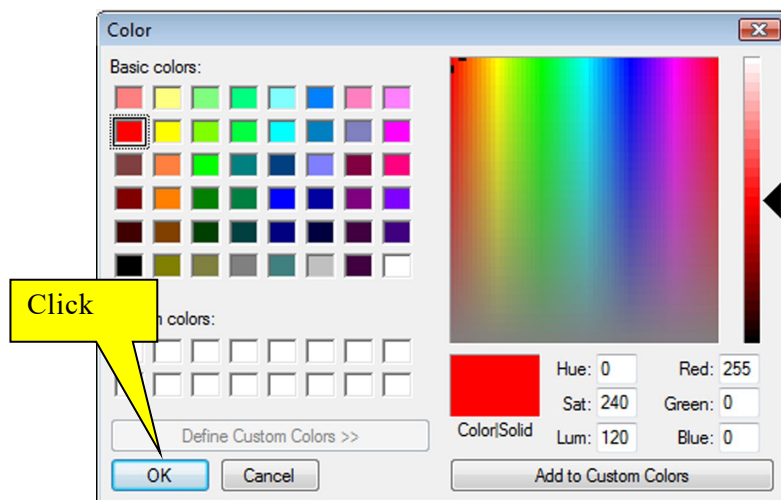
(1) Click the current background color of the NTB-50A.

(2) Click the **Color setting...** button or double-click the background color of the NTB-50A.

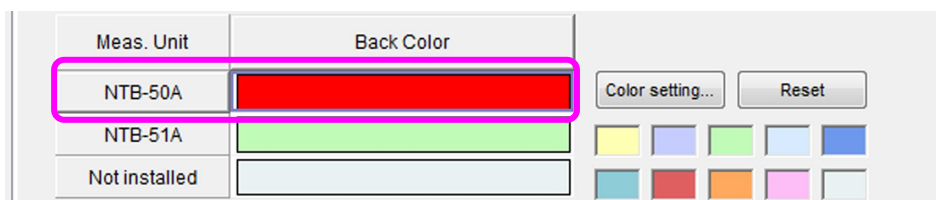
The Color dialog box appears.



(3) Click the target color on the Color dialog box and click the **OK** button.



(4) The background color of the NTB-50A is changed.



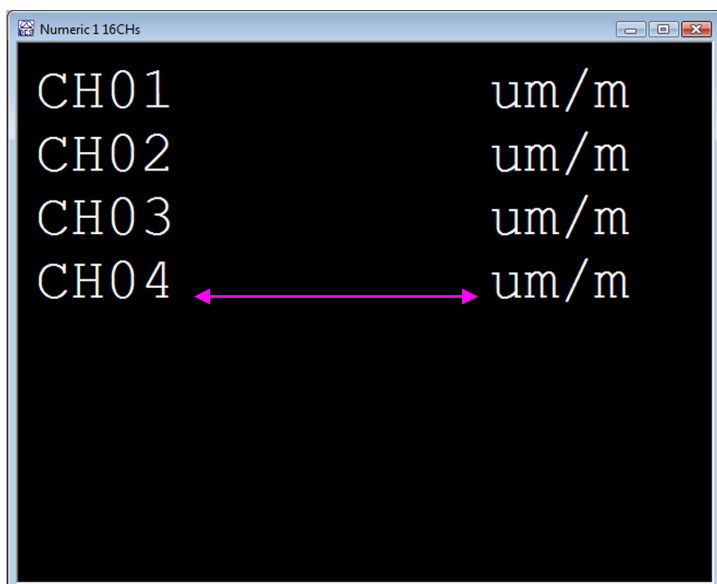
■ The number of numeric digits to be displayed

Sets the number of numeric digits to be displayed on numeric window, graph scale of the graph, window, legends, and numeric value display.

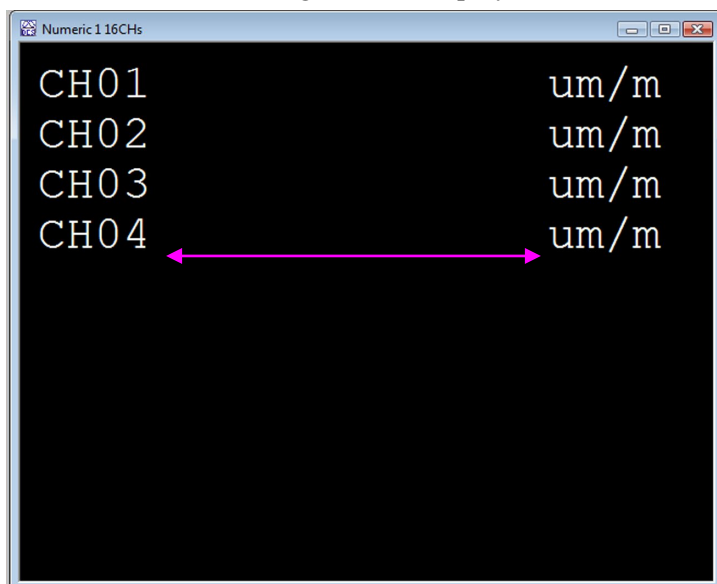
(Range: 6 to 11 digits)

If the number of numeric values exceeds the specified numeric display range, it shall be expressed in exponential notation.

- The number of numeric digits to be displayed: 6



- The number of numeric digits to be displayed: 11



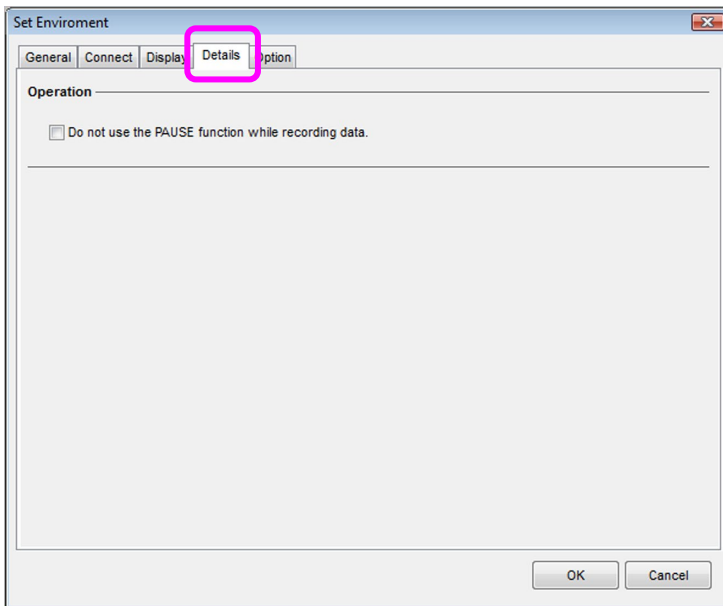
■ Show or hide the Device to be controlled window.

For displaying the Device to be controlled window when starting up the DCS-100A the next time, put a check mark to the check box next to the "Displayed when starting up the DCS-100A the next time."

4 -4 DETAILS

This section describes how to set detailed conditions.

Click the Details tab.



■ Operation

To disable the PAUSE function, put a check mark to the check box next to the "Do not use the PAUSE function while recording data." to disable the **REC/PAUSE** button (gray out).

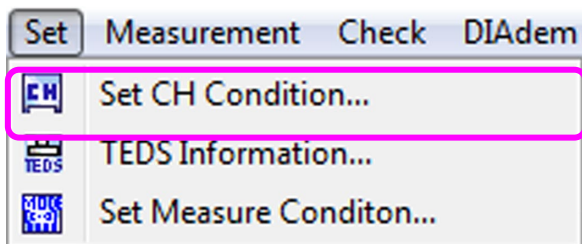
5 SETTING CH CONDITIONS

This chapter describes how to set measurement ON/OFF, Mode, Range, Calibr. const., Unit, etc. of every channel.

■How to display

Open the Set CH Condition window as described below:

- Click the Set - Set CH Condition.
- Click the CH Cond. icon from the toolbar.



Set - Set CH Condition



CH Cond. icon

■ Set CH Condition window

Set CH Condition (Number of Meas CHs : 8)

Reference junction compensation
☐ Calibration constant operation. ☒ Internal contact ☐ External contact

Meas. Unit	CH	Measurement	Mode	Range	Gage Factor	Calibr. const.	Unit	ZERO	Deci Digits	CH Name
NTB-50A	01	☒	4G	30kum/m	***	0.00	0.00	ON	0.00	
	02	☒	4G	30kum/m	***	0.00	0.00	ON	0.00	
	03	☒	4G	30kum/m	***	0.00	0.00	ON	0.00	
	04	☒	4G	30kum/m	***	0.00	0.00	ON	0.00	
NTB-51A	05	☒	Voltage	10V	***	0.00	0.00	NONE	0.00	
	06	☒	Voltage	10V	***	0.00	0.00	NONE	0.00	
	07	☒	Voltage	10V	***	0.00	0.00	NONE	0.00	
	08	☒	Voltage	10V	***	0.00	0.00	NONE	0.00	

Print... Print Preview... Change Setting Items... OK Cancel Apply

Calibration constant operation check box: ON/OFF of the calibration constant operation

Reference junction compensation button: Switches the reference junction compensation. Internal contact/External contact

Print... button:

Prints out the Set CH condition window.

Print Preview... button:

Check that the items will be printed the way you intend for prior to printing.

Change Setting Items... button:

Setting items displayed on the window are added, removed, or sorted.

OK button:

Determines the pre-set contents and closes the window.

Cancel button:

Cancels the pre-set contents and closes the window.

Apply button:

Determines the current set contents.

■ Setting Items

● BOX

Displays the Box No. of the NTB-500A/C.

● Device Name

Displays the device name of the NTB-500A/C that is set on the Environment window.

● Meas. Unit

Displays a model of the current installed measuring unit of the NTB-500A/C.

● CH

Display the CH No.

CH numbers are assigned sequentially from the CH01.

● BOX-CH

Displays the Box No. and channel numbers of the NTB-500A/C. CH numbers are assigned sequentially from 01 for every Box No.

Example: The BOX-CH "01-01" indicates the CH01 of the Box No. 01.

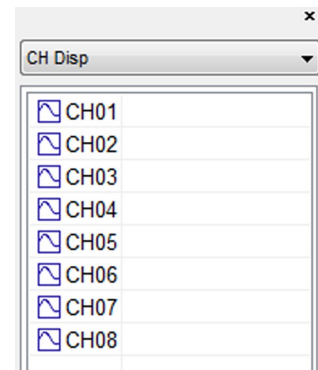
● Measurement

Put a check mark to the check box next to the CH to be measured.

The channels to be measured are displayed on the CH Disp bar on the main window.

The number of channels varies with the sampling frequency and total cable length.

For details, see " 1 1 THE NUMBER OF CHANNELS TO BE MEASURED.



● Mode

Set the mode.

The Mode varies with the current installed measuring unit of the NTB-500A/C.

Measuring Unit	Mode	Details
NTB-50A (Strain Unit)	1G120_2W	Quarter bridge system (2-wire), 120 ohm
	1G120_3W	Quarter bridge system (3-wire), 120 ohm
	2G	Half bridge system (active-active method), 120 to 1000 ohm
	4G	Full bridge system, 120 to 1000 ohm
NTB-51A (Voltage/Thermocouple Unit)	Voltage	Voltage
	TC/K	Thermocouple K (CA)
	TC/T	Thermocouple T (CC)

● Gage Factor

Used for compensating the gage factor. Input the gage factor of the target gage. (The gage factor of the NTB-5000A: 2.0) Available when selecting the 1G120_2W, 1G120_3W.

Double-click the desired item or press the SPACE key to be in input available state.

- **Range**

Set the measuring range.

The Range varies with the current installed measuring unit of the NTB-500A/C.

Since the Range is coupled with Meas. Range item, when changing the Range, the Meas. Range is automatically changed.

Mode	Range	Resolution
1G120_2W, 1G120_3W, 2G, 4G	30k μ m/m	0.1 μ m/m
	300k μ m/m	1 μ m/m
Voltage	10V	100 μ V
	50V	1mV
TC/K	1230°C	0.1°C
TC/T	400°C	

- **Meas. Range**

Set the measuring range. Numeric value of the Meas. Range is obtained by multiplying the Range and the Calibr. const.

Range	Meas. Range (Calibration constant operation: OFF)
30k μ ϵ	$\pm$ 30k μ m/m
300k μ ϵ	$\pm$ 300k μ m/m
10V	$\pm$ 10V
50V	$\pm$ 50V
1230°C	-200 to 1230°C
400°C	-200 to 400°C

- **Rated Capacity**

Input the rated capacity of sensors. Input the Rated Capacity of sensors together with the Rated Output. When changing the Rated Capacity, the Calibr. const. is automatically changed.

Double-click the desired item or press the SPACE key to be in input available state.

The item is available when the calibration constant operation is ON.

- **Rated Output**

Input the rated output of sensors. Input the Rated Output of sensors together with the Rated Capacity. When changing the Rated Output, the Calibr. const. is automatically changed.

Double-click the desired item or press the SPACE key to be in input available state.

The item is available when the calibration constant operation is ON.

- **Calibr. const.**

Input the Calibr. const. to be multiplied to the measured data. (-99,999 to -1×10^{-6} , 1×10^{-6} to 99,999)

For the Calibr. const., set coefficient that converts data into physical values corresponding to input sensors of CHs and compensation coefficient (lead wire compensation coefficient) to be used for gage compensation for gage factor compensation coefficient or extension cable in strain measurement.

When changing the Calibr. const., the Rated Capacity is automatically changed.

Double-click the desired item or press the SPACE key to be in input available state.

The item is available when the calibration constant operation is ON.

- **Offset**

Input the Offset value in a physical quantity (multiplied by the Calibr. const.).

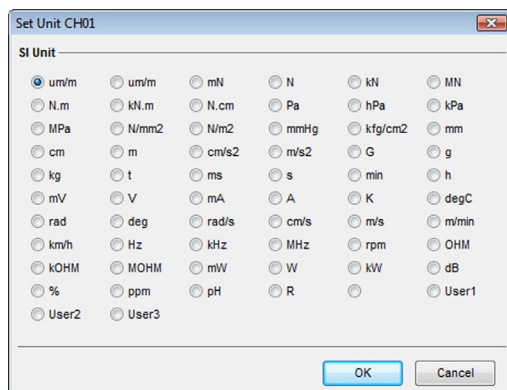
(-99,999 to -1×10^{-7} , 1×10^{-7} to 99,999) Set the offset value when it requires to parallel move the measured value at a certain amount. Double-click the desired item or press the SPACE key to be in input available state. The item is available when the calibration constant operation is ON.

• Unit

Set engineering value unit according to input sensors.

Double-click the desired item or press the SPACE key. Select an unit.

The item is available when the calibration constant operation is ON.



MEMO

- If the relevant unit is not on the Set Unit window, users can register up to 3 original units (User's unit).
- To register the original units, open the Environment window and click the General tab.

• ZERO Value

The ZERO value is an initial unbalance value of a sensor. The ZERO value is a value obtained when executing ZERO.

When the ZERO is NONE, "****" appears as the the ZERO value of the CH.

• ZERO

Operations when executing ZERO. The operations are as follows.

- ON: The NTB-500A/C obtains the ZERO value. The NTB-500A/C subtracts the ZERO value to output the measured value.
When the ZERO value exceeds the range, the NTB-500A/C always output the fixed value (999,999).
- OFF: The NTB-500A/C does not obtain the ZERO value. The NTB-500A/C subtracts the pre-obtained ZERO value to output the measured value.
When the ZERO value exceeds the range, the NTB-500A/C always output the fixed value (999,999).
- NONE: The NTB-500A/C does not obtain the ZERO value. The NTB-500A/C does not subtract the pre-obtained ZERO value.

	Obtain ZERO value when executing ZERO.	Subtract the ZERO value from the measured value.	The measured value when the ZERO value exceeds the range.
ON	✓	✓	999,999
OFF		✓	999,999
NONE			Full scaling value

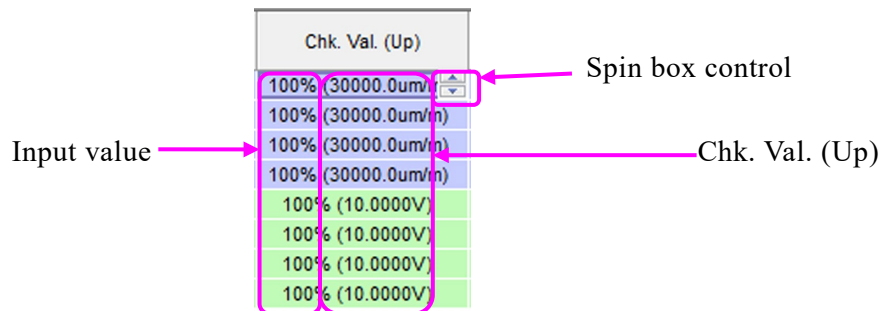
- **Chk. Val. (Up)**

Set the Chk. Val. (Up) of the Range in percent figures. (-100 to 100%)

After exceeding the Chk. Val. (Up), numbers on graph windows will be displayed in the Value (Over) color, pre-set in the View - Set Display Condition... - Details.

Double-click the desired item or press the SPACE key to be in input available state.

In addition, use the spin button to change the value.



- **Chk. Val. (Down)**

Set the Chk. Val. (down). (-100 to 100%)

Set the Chk. Val. (Down) in the same manner as the Chk. Val. (Up).

MEMO

By setting the Chk. Val. (Up) and Chk. Val. (Down), you can immediately detect erroneous status (the measured data of a CH exceeds the Check Values).

Chk. Val. (Up) and Chk. Val. (Down) are obtained as follows.

Chk. Val. (Up) and Chk. Val. (Down) = (Range × Calibr. const. + Offset) × Input value/100

- **Deci Digits**

Set the number of digits below the decimal point.

See separate volume of the "DCS-100A DYNAMIC DATA RECORDING SOFTWARE INSTRUCTION MANUAL (For Common Operation.)"

- **CH Name**

Input comments within 40 characters.

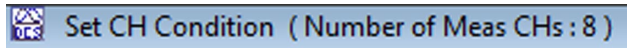
Double-click the desired CH item or press the SPACE key to be in input available state. Input the desired comments.

MEMO

The CAL Coefficient, Offset, Rated Capacity, and Rated Output are available when the calibration constant operation is ON.

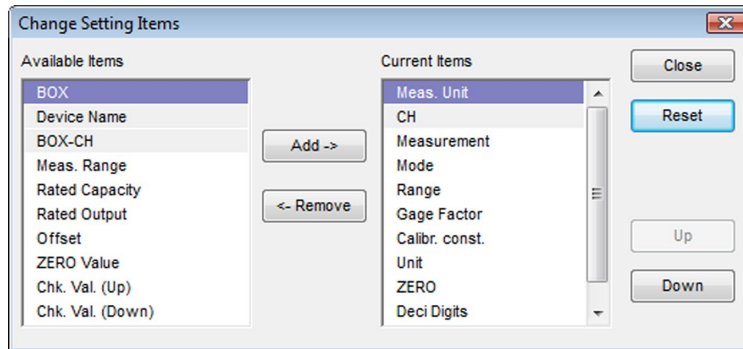
■ Title Bar

The number of current channels is displayed on the title bar.



■ Change Setting Items window

Click the **Change Setting Items...** button to display the following window
Setting items displayed on the window are added, removed, or sorted.



Add button:

The item currently not on the window is added to the window.

Remove button:

The item currently on the window is removed from the window.

Close button:

Determines the set contents and closes the window.

Reset button:

Resets the item to the default state.

Up and **Down** button:

Sorts the current setting items.

Choose the setting item you want to move, and click **Up** or **Down** button.

■ Copy and Paste

1) How to copy

- (1) Drag the setting item of the copy source CH.
- (2) Right-click
- (3) Select the Copy from the menu.

Meas. Unit	CH	Measurement	Mode	Range	Gage Factor	Calibr. Const.	Unit	ZERO	Deci Digits	CH Name
NTB-50A	01	☒	4G	300kum/m	***	***	***	ON	***	
	02	☐	2G	30kum/m				ON	***	
	03	☐	2G	30kum/m				ON	***	
	04	☐	2G	30kum/m				ON	***	
NTB-51A	05	☐	Voltage	10V				NONE	***	
	06	☐	Voltage	10V				NONE	***	
	07	☐	Voltage	10V	***	***	***	NONE	***	
	08	☐	Voltage	10V	***	***	***	NONE	***	

2) How to paste

- (1) Drag the channels to be pasted.
- (2) Right-click
- (3) Select the Paste from the menu.

Meas. Unit	CH	Measurement	Mode	Range	Gage Factor	Calibr. const.
NTB-50A	01	☒	4G	300kum/m	***	***
	02	☐	2G	30kum/m		***
	03	☐	2G	30kum/m	***	***
	04	☐				***
NTB-51A	05	☐				***
	06	☐				***
	07	☐				***
	08	☐				***

3) The setting items of the copy source are pasted to the setting items of the destination.

Meas. Unit	CH	Measurement	Mode	Range	Gage Factor	Calibr.
NTB-50A	01	☒	4G	300kum/m	***	
	02	☒	4G	300kum/m	***	
	03	☒	4G	300kum/m	***	
	04	☒	4G	300kum/m	***	
NTB-51A	05	☐	Voltage	10V	***	
	06	☐	Voltage	10V	***	
	07	☐	Voltage	10V	***	
	08	☐	Voltage	10V	***	

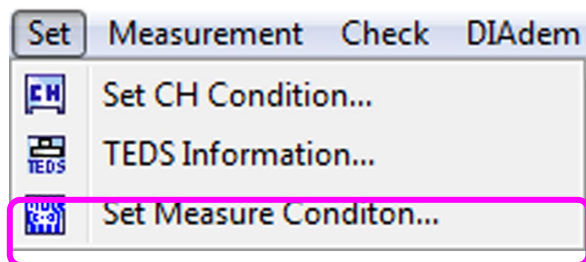
6 SETTING MEASURING CONDITION

This section describes how to set the measure mode conditions (Measure Mode, Sampling Frequency, and Record Data, etc.) and Data File.

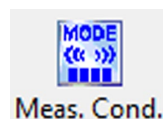
■ How to display

Open the Set Measure Condition window as described below:

- Click the Set - Set Measure Condition....
- Click the Meas Cond icon from the toolbar.



Set - Set Measure Condition...

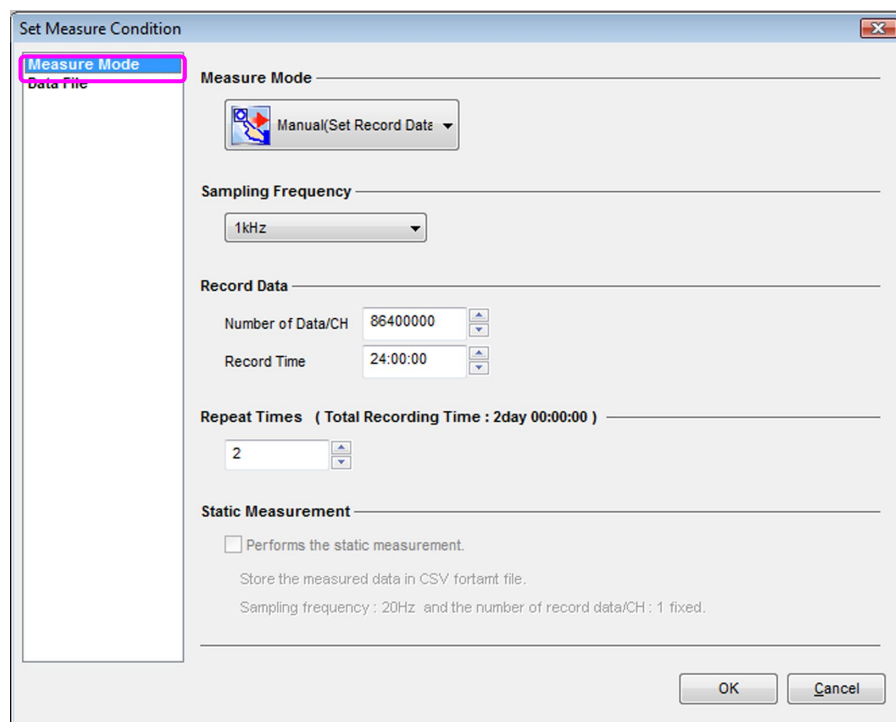


Meas Cond icon

6 - 1 MEASURE MODE CONDITIONS

This section describes how to set Measure Mode, Sampling Frequency, and Record Data on the Measure Mode window.

Click the Measure Mode tab.



OK button: Determines the pre-set contents and closes the window.

Cancel button: Cancels the pre-set contents and closes the window.

■ Measure Mode

Select the desired item from the following.

Manual:	Manually starts and stops the data recording.
Manual (Set Record Data):	Manually starts the data recording and records data for the pre-set number of recorded data.
Interval:	Automatically records data at the pre-set time interval.
Analog Trigger:	Automatically starts recording data when measured value of the specified analog CH satisfies the analog trigger conditions.

■ Sampling Frequency

Select the sampling frequency. The selected sampling frequency is common to all channels.

Available sampling frequencies are as follows.

1Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz, 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1k Hz

The sampling frequency varies with the number of channels to be measured and total cable length.

For details, see “1 1 THE NUMBER OF CHANNELS TO BE MEASURED.”

■ Record Data

If you click other than Manual in the Measure Mode, input the Number of Data/CH or Record Time.

Since the Number of Data/CH is coupled with Record Time item, when changing the Number of Data/CH, the Record Time automatically changed.

■ Repeat Times

Input the number of repeat times.

(1 to 9999. If you set "Repeat times: 0," the actual number of the repeat times is 65535.)

■ Static Measurement

For static measurements, put a check mark to the check box next to the "Performs the static measurement."

For details, see “9-9 STATIC MEASUREMENT.”

6 - 2 INTERVAL CONDITIONS

This section describes how to set the interval conditions.

■ How to display

Select the Interval on the Set Meas Condition dialog box to display the Interval tab in the left. Click the Interval tab.

Set Measure Condition

Measure Mode
Interval
Data File

Start Time

☒ Set Interval Start Time

2012/08/01 00:00:00

If start date is not set, the date when [REC/PAUSE] button is pressed shall be the start date.

Interval Table

STEP	Interval Time				Repeat Times	Status
	Day	Hour	Minute	Second		
1	00	00	05	00	1	STEP2
2	00	00	04	00	2	STEP3
3	00	00	03	00	3	STEP4
4	00	00	02	00	4	Next STEP
5	00	00	01	00	5	End

Note that interval measurements always start from the STEP1.

Set interval time to a time more than 'record time (1.000sec) + 10 second'.

OK Cancel

■ Start Time

To set the interval start time, put a check mark to the check box next to the "Set Interval Start Time."

■ Interval Table

The interval table has 5 steps. You can set every "Interval Time" and every "Repeat Times." With the NTB-500A/C, the interval measurement is executed by using the Interval Table.

Status: Indicates the next step after the current STEP is completed.

End: After completing the pre-set "Repeat Times" during the End STEP, the interval measurement ends.

MEMO

Note that interval measurements always start from the STEP 1.

■ How to operate

- (1) To set the interval start date and time, put a check mark to the check box next to the “Set Interval Start Time” and set the date.

The start time will be several seconds after the REC/PAUSE button is pressed if putting no check mark.

- (2) Set the interval table.

Interval Table

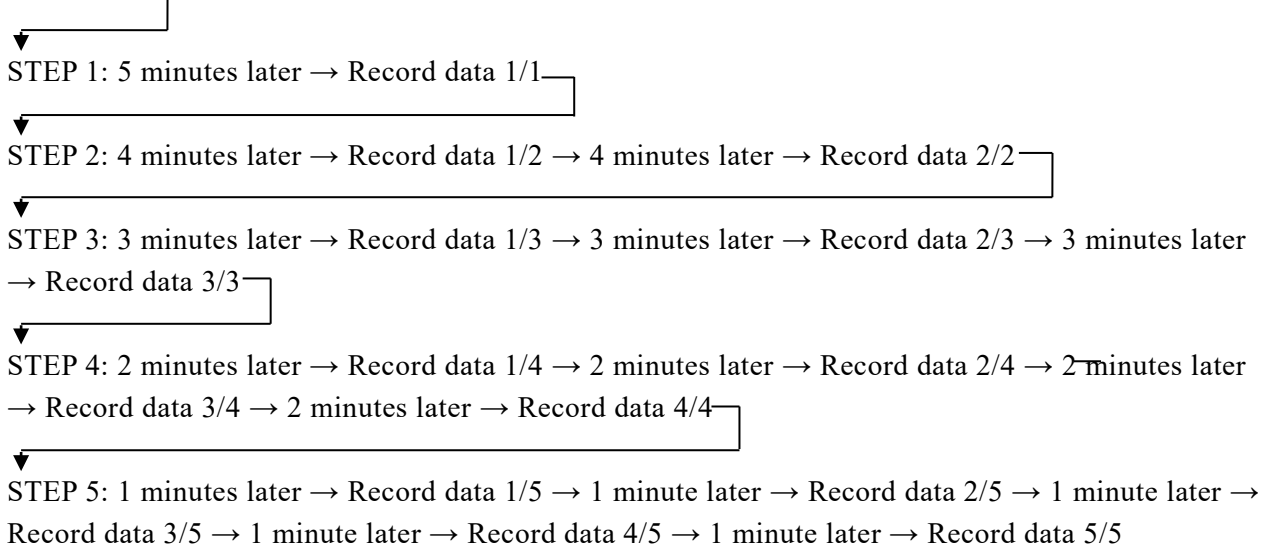
STEP	Interval Time				Repeat Times	Status
	Day	Hour	Minute	Second		
1	00	00	05	00	1	STEP2
2	00	00	04	00	2	STEP3
3	00	00	03	00	3	STEP4
4	00	00	02	00	4	Next STEP
5	00	00	01	00	5	End

Note that interval measurements always start from the STEP1.

Set interval time to a time more than 'record time (1.000sec) + 10 second'.

With the above settings, the DCS-100A operates as follows.

Click the **REC** button on the Meas Operation Panel. The DCS-100A records data once at the interval start time.



When the "Repeat Times" is 0, the DCS-100A repeatedly operates the STEP.

MEMO

If the **REC/PAUSE** button is pressed after the interval start time, the interval time and repeat times are automatically calculated from the current time and if the repeat time is left, the interval measurement is continued.

When the interval measurement is already finished for the pre-set repeat times, a message appears and the interval measurement finishes.

NOTE

“Recording time + 10 sec or more” should be set as the interval time.

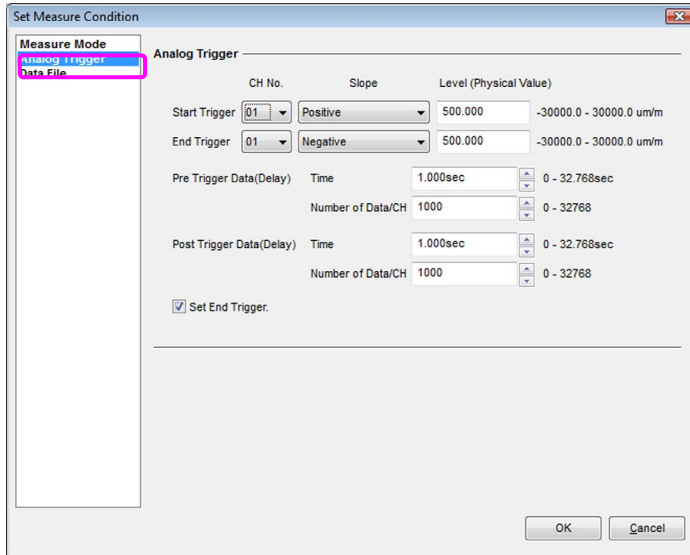
6 - 3 ANALOG TRIGGER CONDITIONS

This section describes how to set the analog trigger conditions.

■ How to display

Select the Analog Trigger on the Set Meas Condition window to display the Analog Trigger tab in the left.

Click the Analog Trigger tab.



■ How to operate

(1) Select trigger CH that you want to record from.

(2) Select the trigger slope from the following.

Positive: Triggered when the measured value of the trigger CH crosses the trigger level upward.

Negative: Triggered when the measured value of the trigger CH crosses the trigger level downward.

(3) Input the trigger level value (value to be triggered) in a physical quantity.

Input available range is displayed on the right.

(4) To record the measured data before the recording, input the Pre Trigger Data (Delay) in Time or Number of Data/CH.

Input available range is displayed on the right.

MEMO

The maximum value of the Pre Trigger Data (Delay) and Post Trigger Data (Delay) are obtained as follows.

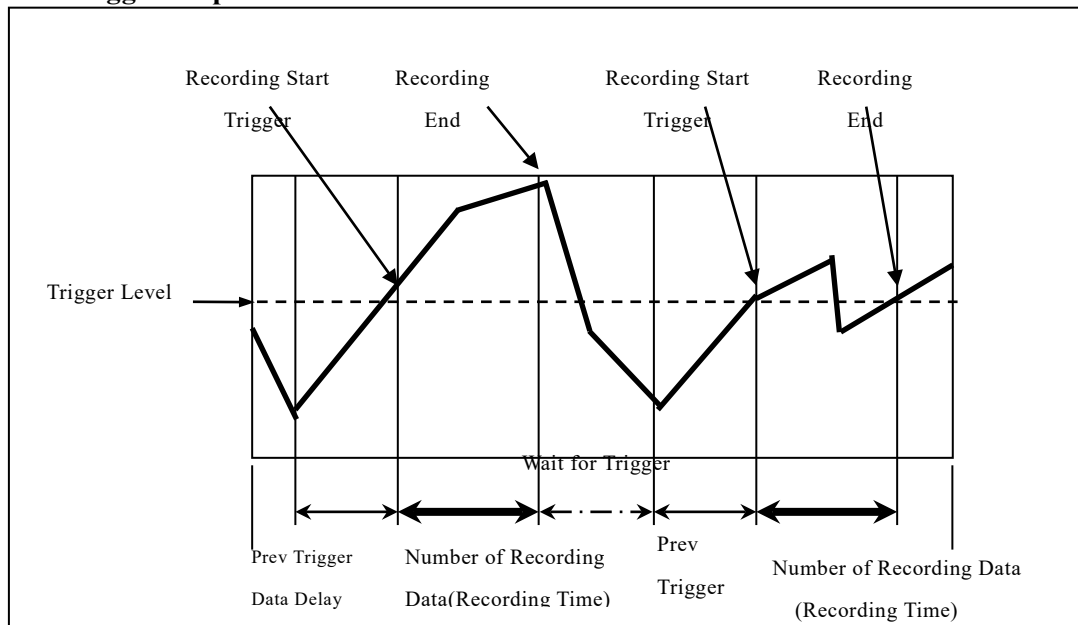
Maximum value of the data delay = $1,08,576 / (\text{Data size} \times \text{The number of channels to be measured})$

- (5) To set the end trigger, put a check mark to the check box next to the “Set End Trigger.”
Set the conditions of the End Trigger in the same manner as the Start Trigger.

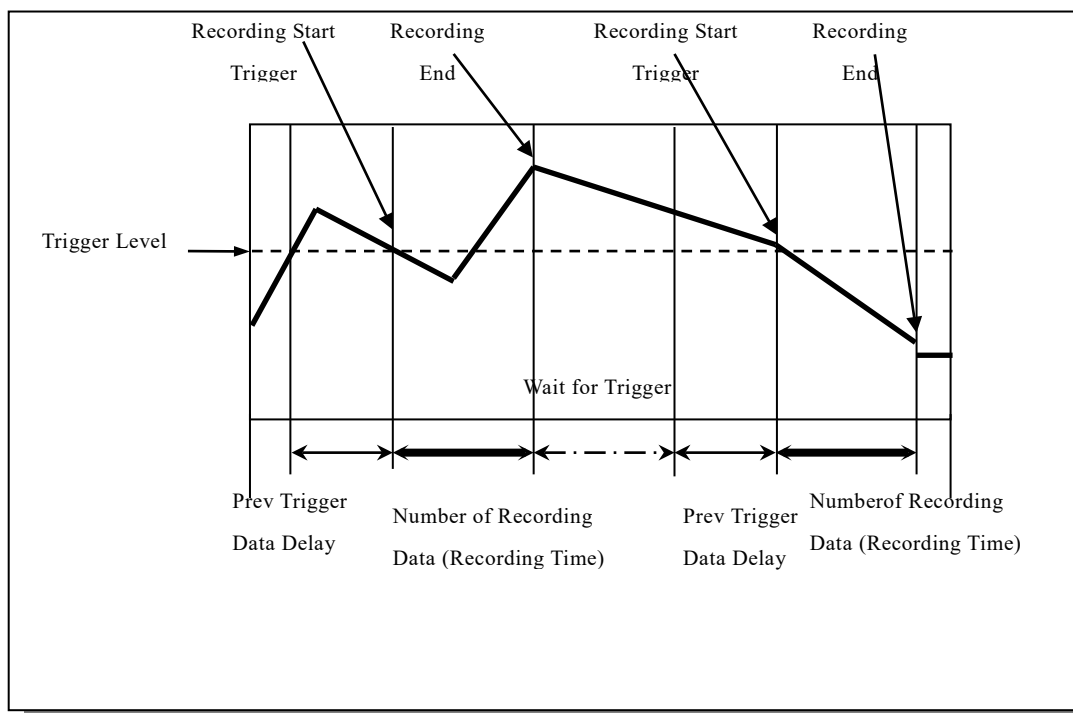
■ **Example of trigger slope with start trigger.**

After satisfying the start trigger conditions, the DCS-100A starts recording and records the pre-set number of data/channels.

Start Trigger Slope: Positive



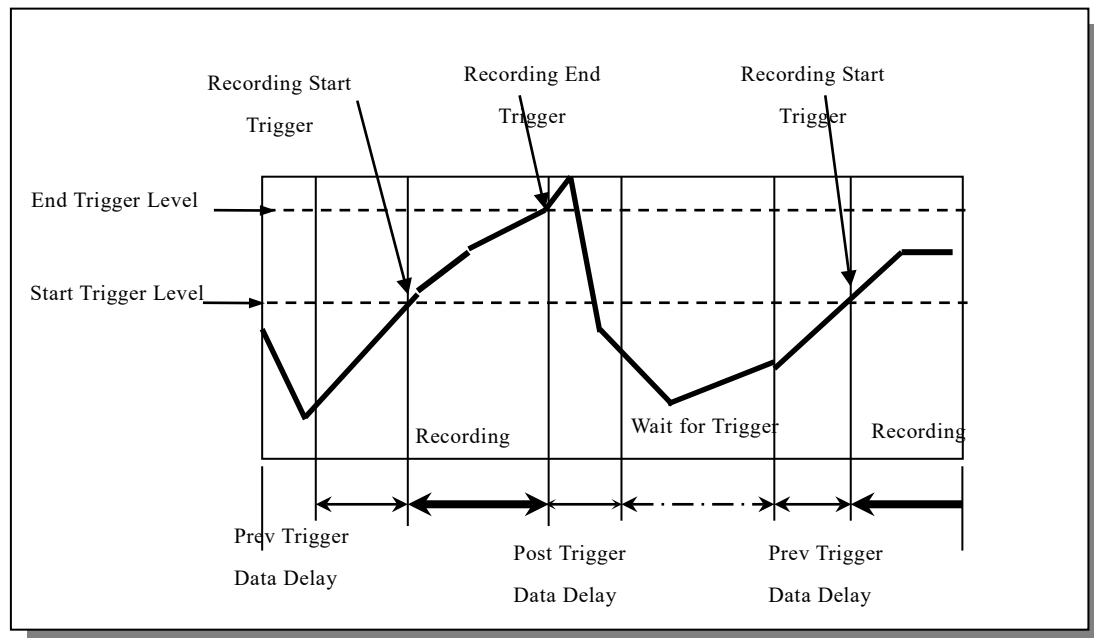
Start Trigger Slope: Negative



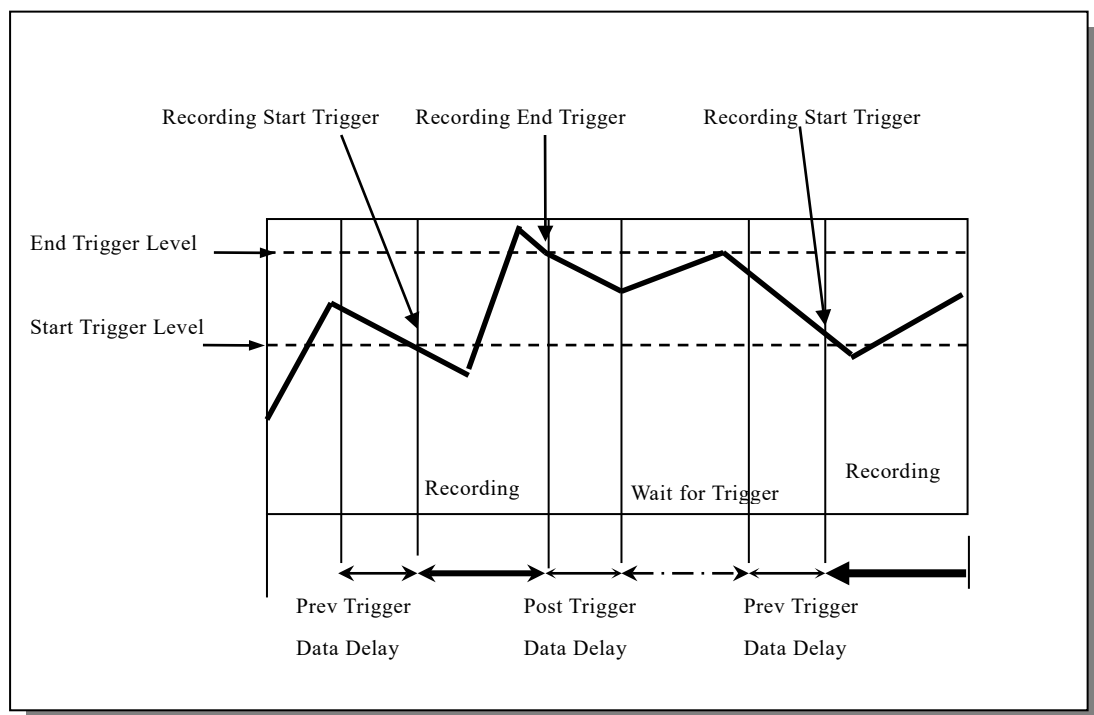
■ Example of trigger slope with end trigger.

After satisfying the start trigger conditions, the DCS-100A starts recording and records data until satisfying the end trigger conditions.

Start Trigger Slope, End Trigger Slope: Positive

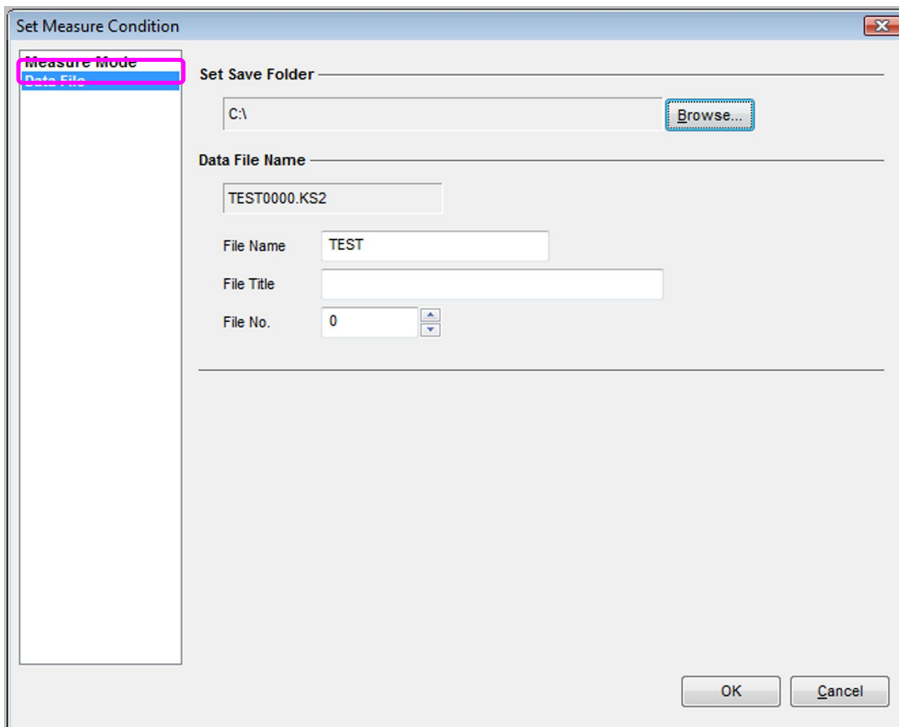


Start Trigger Slope, End Trigger Slope: Negative



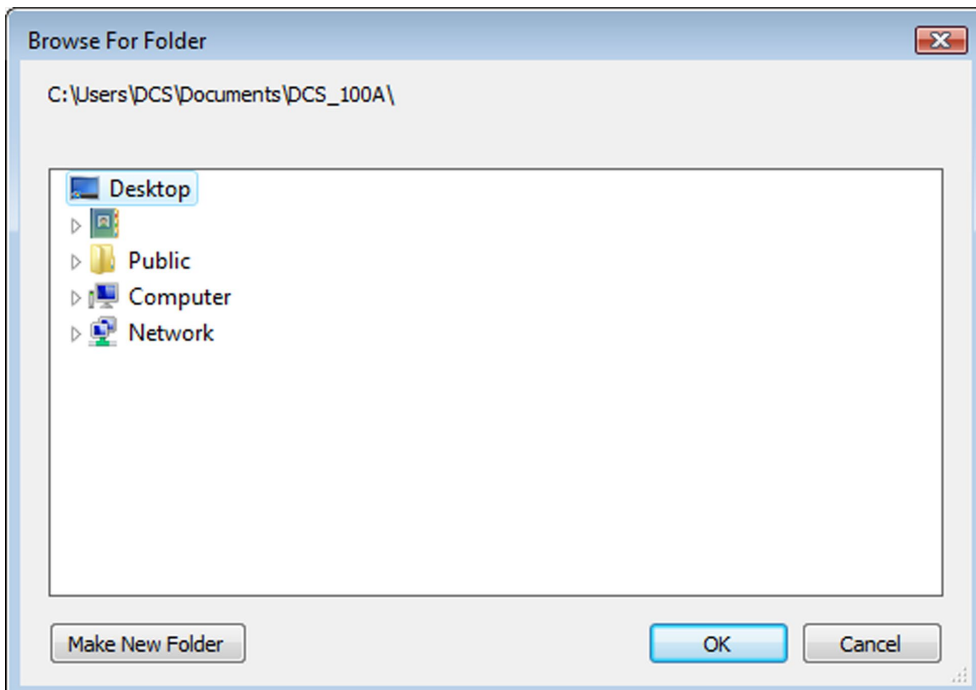
6 -4 DATA FILE CONDITIONS

This section describes how to set relating items of data files.
Click the Data File tab.



■ Set Save Folder

Set the destination folder for saving the collected data file.
Click the **Browse...** button to display the Browse For Folder.
Select the target folder.



■ File Name

Set a file name within 20 characters.

■ File Title

Set a file title within 40 characters.

■ File No.

Set a file No. (0 to 9999)

You can record data up to File No. 9999.

■ Data File Name

Data file names are specified as shown below.

Measure Mode	Data File Name
Manual	TEST0000 . KS2 (1) (2)
Manual (Set Record Data) when the repeat times is 1.	
Manual (Set Record Data) when the repeat times is 2 or larger.	TEST0000_△0000 . KS2 (1) (2) (3)
Interval	
Analog Trigger	

(1) File Name

(2) File No.: The file number is incremented by one after every recording.

(3) Repet times: The repeat times is automatically incremented by one after every recording. According to the Measure mode, alphabet is added in the △ part before the 4-digit repeat times.

M: "Manual (Set Record Data)"

I: "Interval",

A: "Analog trigger measurement"

7 LOADING TEDS SENSOR INFORMATION

The DCS-100A can load Transducer Electronic Data Sheet (TEDS) sensor information to reflect the information on the Set CH Condition window.

(Note that the DCS-100A cannot load all the TEDS sensor information.)

Available measuring unit

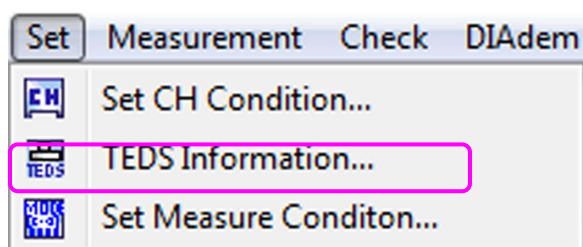
Measuring unit: NTB-50A

Available template ID

Template ID: 33

Open the TEDS Information window as described below:

- Click the Set - TEDS Information....
- Click the TEDS Info. icon from the toolbar.



Set - TEDS Information...

TEDS Information

Auto Set Items

Range(Meas. Range)	☒
Calibr. const.	☒
Unit	☒

Meas. Unit	CH	Set	Result	Mode	Range	Meas. Range	Calibr. const.	Unit	User Data	User Data Change
NTB-50A	01	☒	***	4G	30kum/m	-30000.0 - 30000.0 um/m	1.00000	um/m		***
	02	☒	***	4G	30kum/m	-30000.0 - 30000.0 um/m	1.00000	um/m		***
	03	☒	***	4G	30kum/m	-30000.0 - 30000.0 um/m	1.00000	um/m		***
	04	☒	***	4G	30kum/m	-30000.0 - 30000.0 um/m	1.00000	um/m		***
NTB-51A	05	☒	***	Voltage	10V	-10.0000 - 10.0000 V	1.00000	V		***
	06	☒	***	Voltage	10V	-10.0000 - 10.0000 V	1.00000	V		***
	07	☒	***	Voltage	10V	-10.0000 - 10.0000 V	1.00000	V		***
	08	☒	***	Voltage	10V	-10.0000 - 10.0000 V	1.00000	V		***

Load TEDS Info... Details of Sensor Info... Save User Data... Close

7 - 1 ITEMS TO BE LOADED

This section describes how to set items for loading TEDS sensor information.

7 - 1 - 1 Set (Setting of Channels)

To change the various conditions such as Mode, Range, Unit, Calibr. const. after loading the TEDS information, put a check mark to the check box on the Set column.

ON: The loaded TEDS information is set as the channel conditions.

OFF: The current channel conditions are not changed.

Meas. Unit	CH	Set
NTB-50A	01	☒
	02	☒
	03	☒
	04	☒

MEMO

- Regardless of check marks on the Set column, the DCS-100A loads the TEDS information of all the sensor-mounted channels.
- Items, satisfying the following both 2 conditions, will be set automatically on the Set CH condition window.
 - Channels with a check mark on the Set column
 - Items with a check mark on the Auto Set Items window

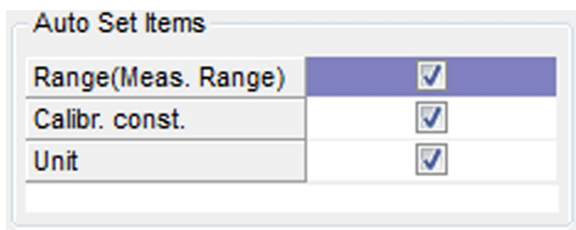
Make sure the target channel conditions have check marks on the Set column and on the Auto Set Items window.

7 - 1 - 2 Auto Set Items window

To change the channel condition after loading the TEDS information, put a check mark to the check box next to the channel condition.

You can put a check mark or release a check mark before loading TEDS information and after loading TEDS information.

Regardless of the check marks on the Auto Set Item window, a loaded result of the TEDS information appears.



NOTE

The Auto Set Items window is for all channels. You cannot set items of every channel.

■ Range (Meas. Range)

Set whether to allow (with a check mark) or prohibit (without a check mark) the change in Mode and Range (Meas. Range) after loading the TEDS information.

MEMO

- The Mode and Range are automatically calculated from the sensor type and rated capacity.
- The Meas Range is the maximum value calculated from mode, range, and Calibr. const.
When deciding the Range, see the Meas Range for reference.
- For a sensor with the rated capacity not stated on the TEDS information window, the Range is set to its maximum value.

■ Calibr. const.

Set whether to allow (with a check mark) or prohibit (without a check mark) the change in the Calibr. const. after loading the TEDS information.

NOTE

While the CAL Coefficient is automatically set after loading the TEDS information, the Offset is not changed after loading the TEDS information.

If the Mode or Range (Meas Range) is changed after loading the TEDS information, check the Offset.

■ Unit

Set whether to allow (with a check mark) or prohibit (without a check mark) the change in Unit after loading the TEDS information.

MEMO

- When the unit, not used in the DCS-100A, is stated on the TEDS information, 'V' appears.
- If the 'Pa' unit is stated on the TEDS information, convert values into 'kPa' or 'MPa' by using the rated capacity.

■ CH Name

Set whether to allow (with a check mark) or prohibit (without a check mark) the change in CH Name after loading the TEDS information.

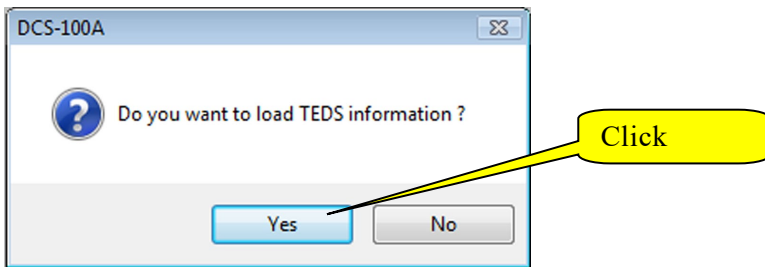
The CH Name is the user data of the ID=58 (Kyowa Electronic Instruments Co., Ltd.) TEDS sensor.

7 - 2 LOADING TEDS SENSOR INFORMATION

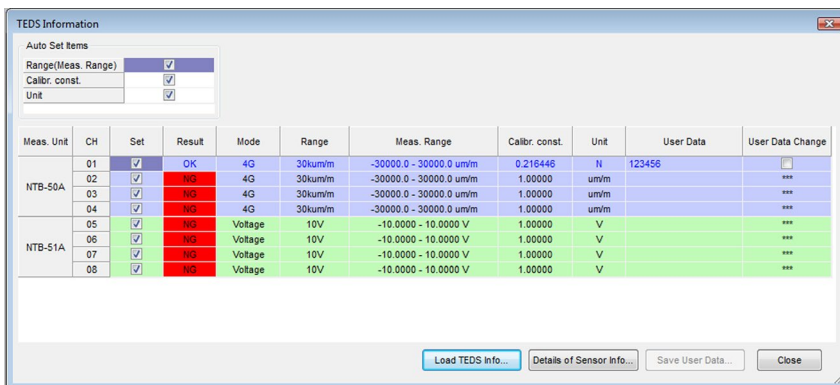
After executing the loading of the TEDS sensor information, regardless of check marks on the Set column and on the Auto Set Item window, the DCS-100A loads the TEDS information of all the sensor-mounted channels.

■ Operation Method

- (1) Click the **Load TEDS Info.** button.
- (2) The following message appears. Click the **Yes** button. The DCS-100A loads the TEDS information.



- (3) After completing the loading, the following window appears.



■ Colors

Based on the items on the Set column, Result column, and Auto Set items window, the TEDS information window is displayed as follows.

Font color	Background color	Set column	Result column	Auto Set Items window	Remarks
Blue	Remain the same	ON	OK	ON	Automatically set to the channel conditions. When the Range (Meas. Range) is changed, the background color becomes yellow.
Black	Remain the same	OFF	* * *	ON/OFF	
Black	Red	ON	Error	ON/OFF	

7 - 2 - 1 Range and Meas. Range

This section describes how to change the pre-set Range and Meas. Range automatically after loading the TEDS information.

MEMO

The Range (Meas Range) of the target CH is automatically changed when satisfying the following conditions.

- "OK" appears on the Result column.
- With a check mark on the Set column.
- With a check mark on the Range (Meas Range) on the Auto Set Items window.

For changing, select from the list box of the Range or Meas Range in the same manner as the channel conditions.

After changing the value, the corresponding Meas. Range or corresponding Range appears automatically.

Range	Meas. Range
300kum/m ▼	-300000 - 300000 um/m
30kum/m	-30000.0 - 30000.0 um/m
300kum/m	-30000.0 - 30000.0 um/m
30kum/m	-30000.0 - 30000.0 um/m

■ Measuring range

The Meas. Range is the maximum value, calculated from the Range and Calibr. const., obtained as follows.

MEMO

- After loading the TEDS information, you can change Range and Meas Range. If you change the item, the background color becomes yellow.
- You cannot change the Mode, Unit, CAL Coefficient, CH Name, etc. on this window. You can change the above items on the Set CH Condition window.

7 - 2 - 2 Displaying Details of TEDS Sensors

This section describes how to set detailed TEDS information of the target sensor.

MEMO

- You can click the **Details of Sensor Info...** button only when the TEDS information is correctly loaded.
- For details of items displayed on the Details of Sensor Information window, contact the TEDS sensor manufacturer.

■ Operation Method

Click the **Details of Sensor Info...** button. The Details of Sensor Information window appears.

TEDS Properties	Values
CH No.	01
Unique Registration Number	0x0000000003020101
Manufacture ID	58
Model Number	0
Version Letter	A
Version Number	5
Serial Number	11000045
Template ID	33
Physical Measurand	N
Minimum physical value	-500.000
Maximum physical value	500.000
Transducer Electrical Signal Type	Bridge Sensor
Minimum electrical output [V/V]	-0.00115502
Maximum electrical output [V/V]	0.00115502
Mapping Method	Linear
Bridge Type	FULL
Bridge element impedance [Ohm]	374.600
Response Time [sec]	1.00000E-6
Excitation level, nominal [V]	10.0000
Excitation level, min [V]	1.00000
Excitation level, max [V]	15.0000
Calibration Date	2005/12/15
Calibration Initials	GTO
Calibration Period [days]	365
Measurement location ID	0
User Data1	123456
User Data2	LUX-A-500N-ID,FD5350008,20051215,114.2

Prev CH button:

Displays the detailed information of the previous CH.

Next CH button:

Displays the detailed information of the next CH.

Close button:

Closes the window.

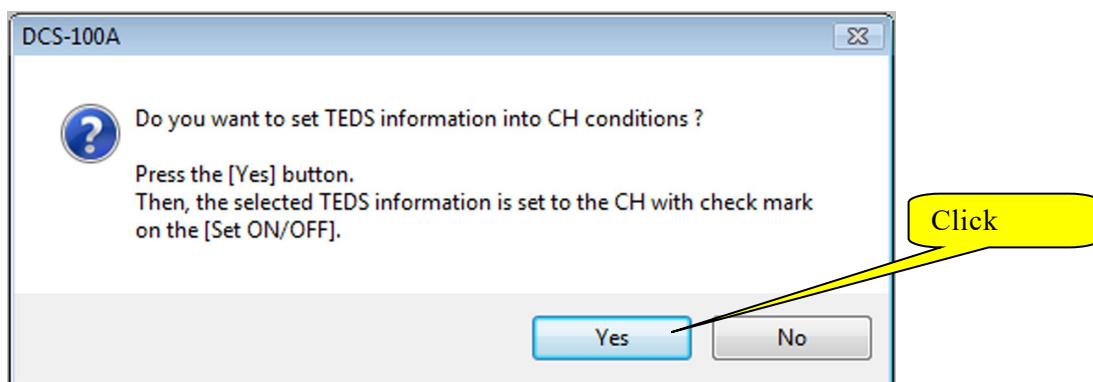
7 - 3 APPLYING TEDS INFORMATION TO THE CH CONDITIONS

After loading the TEDS information, close the "TEDS Information" window. When the Set column of the target CH has a check mark and when OK appears on the Result column, the items with check marks (background color is blue) on the TEDS Information window are applied to the channel conditions.

(Check the items, changed by loading the TEDS information, on the Set CH Condition window.)

■ Operation Method

Click the **C**lose button. The following message appears. Click the **Y**es button.



8 CHECK FUNCTION

The DCS-100A checks whether a sensor is working properly or not working properly. The DCS-100A also obtains the terminal temperature of a voltage/thermocouple unit.

8 - 1 SENSOR CHECKIN

The sensor checking checks whether a sensor is working properly or not working properly.

When a sensor is connected to the NTB-50A (strain unit), the DCS-100A executes cable-breakage checking.

When a sensor is connected to the NTB-51A (voltage/thermocouple unit), the DCS-100A executes burnout checking.

Note that the burnout checking is for the TC/K mode and TC/T mode only.

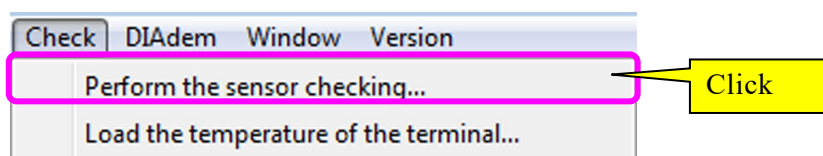
The voltage mode is not applicable.

To display the result, put a check mark to the check box in the Measurement column on the Set CH Condition window.

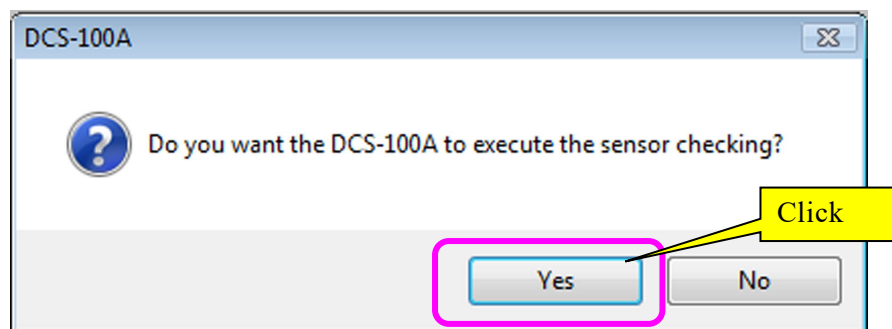
You can execute the sensor checking while the measurement is stopped.

■ Operation Method

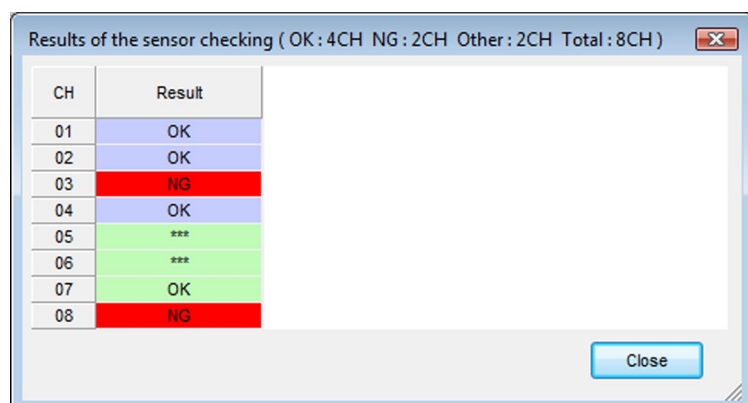
Click the Check - Perform the sensor checking....



The following message appears.



Click the **Yes** button. The DCS-100A executes the sensor checking. After executing the sensor checking, the following window appears.



■ Colors

The color of the Result of the sensor checking window is as follows.

Background color	Results	Status of the sensor
Remain the same	OK	Working properly
Remain the same	* * *	Not applicable.
Red	Error	Not working properly

The CH Names, pre-set on the Set CH Condition window, will appear on the Result of the sensor checking window

8 - 2 LOAD THE TEMPERATURE OF THE TERMINAL

When a sensor is connected to the NTB-51A (voltage/thermocouple unit), the DCS-100A can loads the temperature of the terminal.

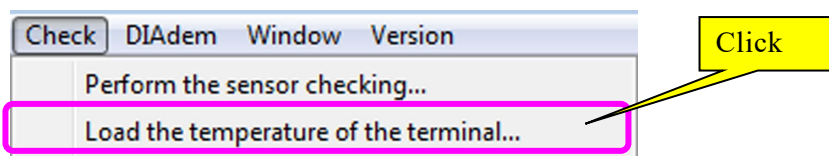
To check the temperature of the NTB-51A terminal, load the temperature of the terminal.

You can check one temperature/one NTB-51A.

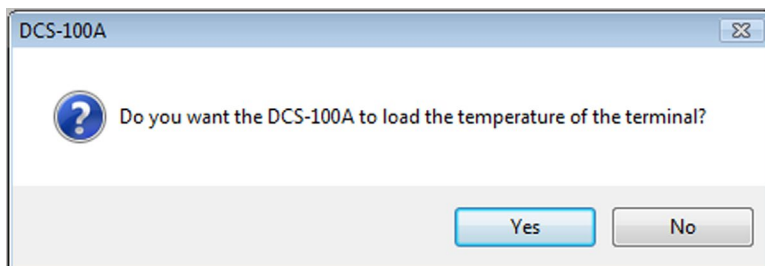
You can load the temperature of the terminal while the measurement is stopped.

■ Operation Method

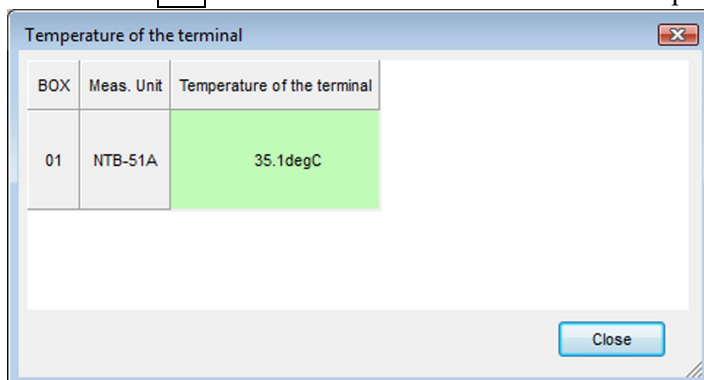
Click the Check - Load the temperature of the terminal....



The following message appears.



Click the **Yes** button. The DCS-100A loads the temperature of the terminal.

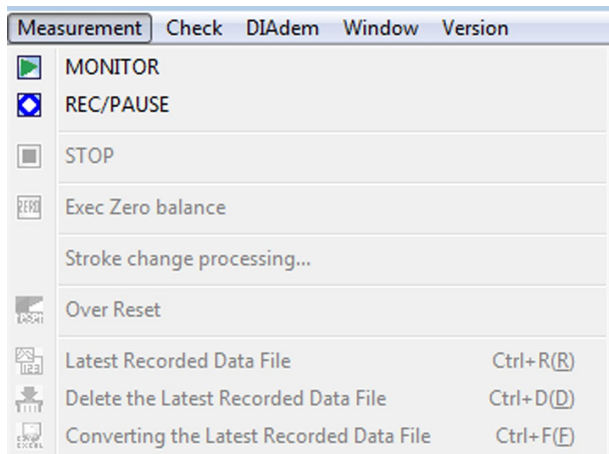


The loaded terminal temperature of every voltage/thermocouple unit will appear.

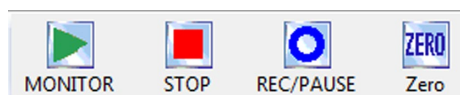
9 MEASURING DATA

Execute measurements by any of the following.

- Click the desired menu from the Measurement menu.
- Click the desired icon from the toolbar.
- Operate the DCS-100A from the Meas Operation Panel.



Measurement menu



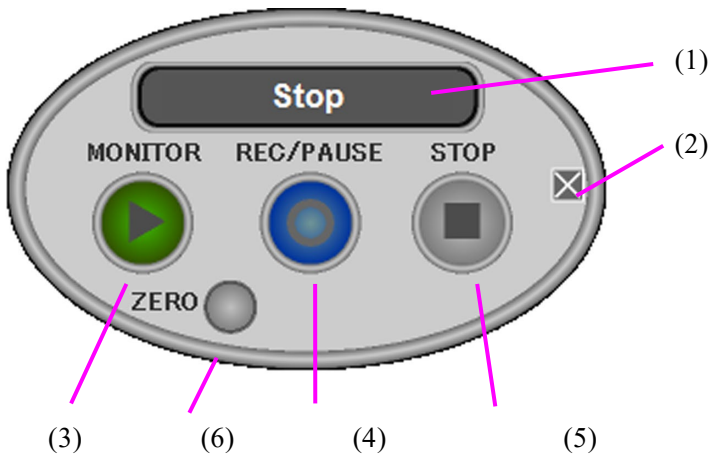
Toolbar

MEMO

On the default state, icons related to the measurements are not displayed on the toolbar.

For displaying the buttons, select the "View" - "Control Bar" - "Tool Bar" - "Customize..." to display the Customize Toolbar dialog box.

9 - 1 MEAS OPERATION PANEL



(1) Display state Displays the measurement state.

Stop	Stopping the measurement.
Monitoring	In the process of monitor measurement.
Recording	Recording data.
Pausing	Pausing with the REC/PAUSE button pressed.
Wait for Intvl	Interval measurement condition is not satisfied
Wait for Trg	A state that required conditions of each trigger measurement are not satisfied.

(2) **X** button Closes the Meas Operation Panel.

(3) **MONITOR** button The DCS-100A starts monitoring data.
The same operation is available by clicking the "Measurement" - "MONITOR."

(4) **REC/PAUSE** button Manual measurement: Starts recording.
Interval measurement and trigger measurement: Becomes a state for waiting.
The same operation is available by clicking the "Measurement" - "REC/PAUSE."

(5) **STOP** button Stops recording data or stops monitoring data.
The same operation is available by clicking the "Measurement" - "STOP."

(6) **ZERO** button Executes the ZERO and displays the Results of the ZERO balance window.
The same operation is available by clicking the "Measurement" - "Exec Balance."

MEMO

To hide the Meas Operation Panel, click the View - Control Bar - Meas Operation Panel - Disp to release a check mark.

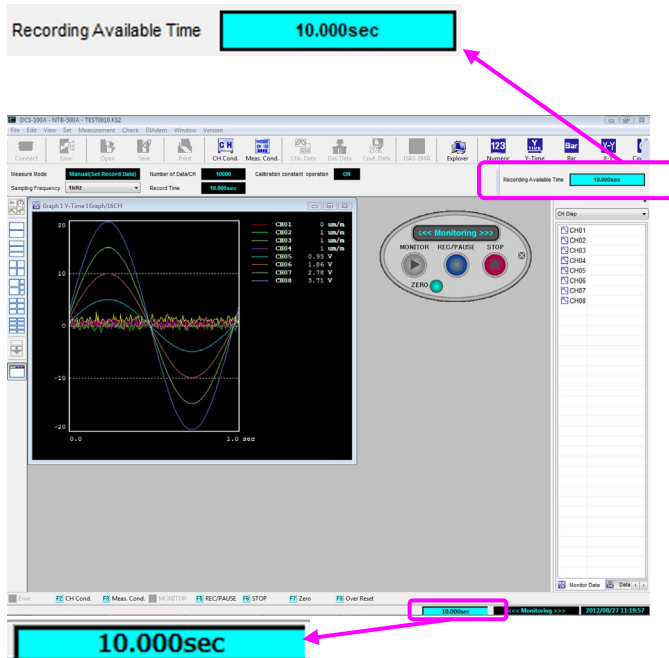
To show the Meas Operation Panel, click the View - Control Bar - Meas Operation Panel - Disp to put a check mark.

9 - 2 MEASURING MODE BAR AND STATUS BAR

Various items are displayed on the measuring mode bar and status bar.

■ Recording Available Time

When the DCS-100A starts monitoring data, the "Recording Available Time" appears on the measuring mode bar and status bar.



The "Recording Available Time" is as follows.

- When the number of recording data is specified, by using the number of recording data and sampling frequency, the "Recording Available Time" is calculated.
- When the number of recording data is not specified, the maximum recording available time of the destination storage capacity is displayed.

The "Recording Available Time" indicates the remaining time of the recording available time. When you start recording data, the "Recording Available Time" starts decreasing.

10.000sec



6.700sec

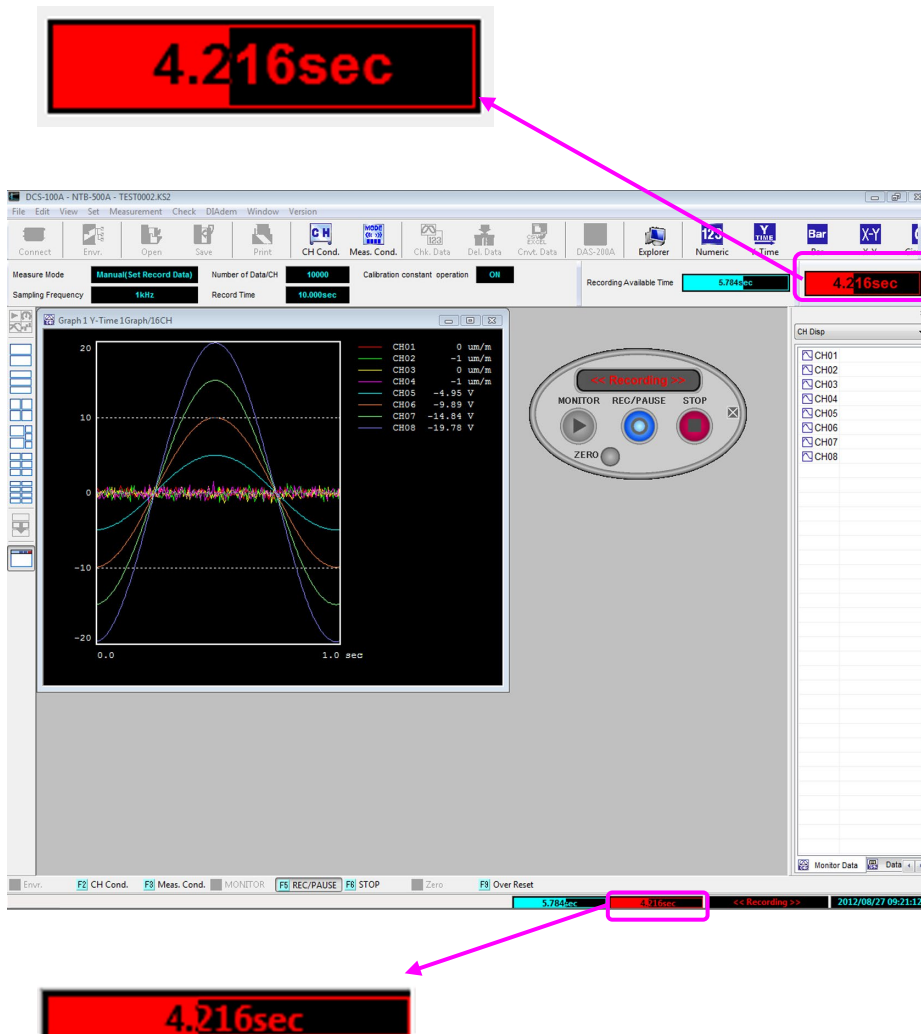
MEMO

- When selecting the "Manual (Set Record Data)" and "Interval" or when executing trigger measurements without setting the end trigger, the number of recording data is specified.
- When selecting the "Manual" or when executing trigger measurements with setting the end trigger, the number of recording data is not specified.
- When executing trigger measurements without setting the end trigger, the "Recording Available Time" is obtained as follows.

"Recording Available Time" = (The number of recording data + Pre Trigger Data Delay)/Sampling frequency

■ Recording time

When the DCS-100A starts monitoring data, the "recording time" (elapsed time after recording starts) appears on the measuring mode bar and status bar.



When the number of recording data is specified, the bar indicates the "recording time."
When you start recording data, the "recording time" starts increasing.



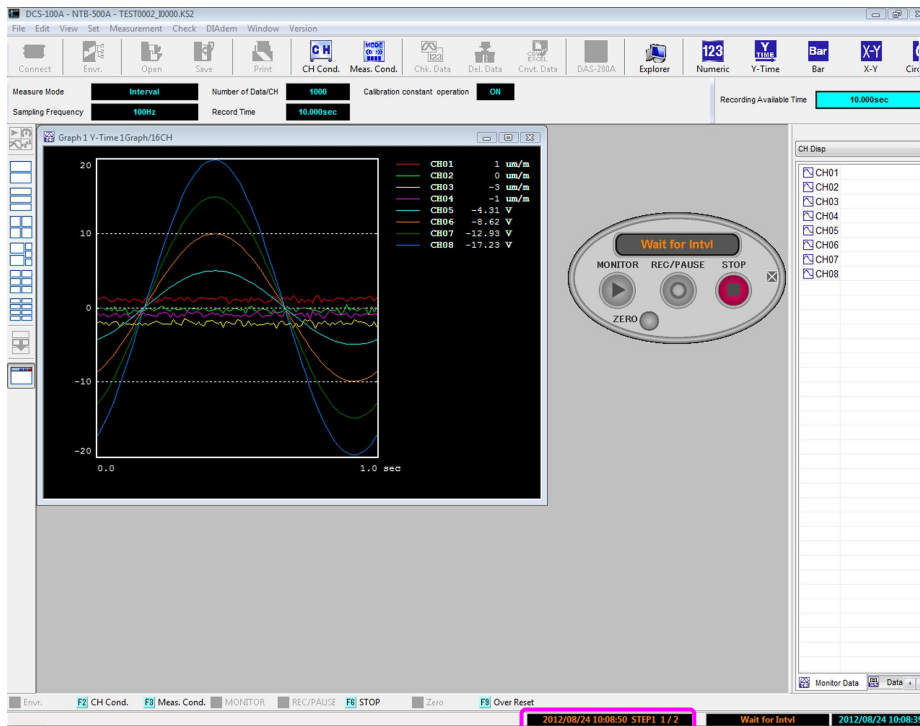
MEMO

When executing trigger measurements without setting the end trigger, the "recording available time" is obtained as follows.

"Recording Available Time" = (The number of recording data + Pre Trigger Data Delay)/Sampling frequency

■ Measuring conditions

When the DCS-100A becomes a state for waiting during interval measurements and trigger measurements, measuring conditions appear on the status bar.



• Interval measurement

2012/07/23 19:01:00 STEP1 1 / 2

The "data recording start time" and "the number of repeat times" appear.

• Analog trigger measurement

CH01 > 5000.0mm 1 / 10

The "trigger CH", "trigger level", and "the number of repeat times" appear.

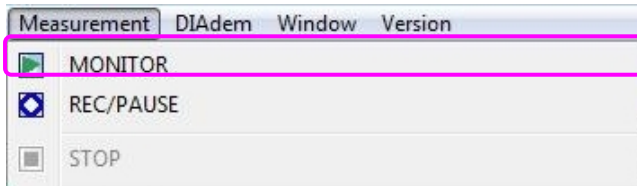
9-3 MANUAL MEASUREMENT

This section describes measurement flow when the Measure mode is Manual or Manual (Set Record Data) mode.

■ Operation Method

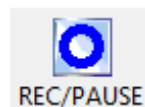
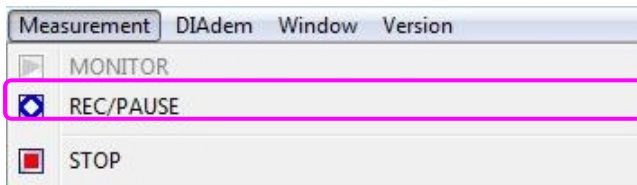
(1) Starts monitoring data by any of the following.

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.



(2) Starts recording data by any of the following.

- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button on the Meas Operation Panel.



(3) Recording starts and the recording status appears on the status bar.



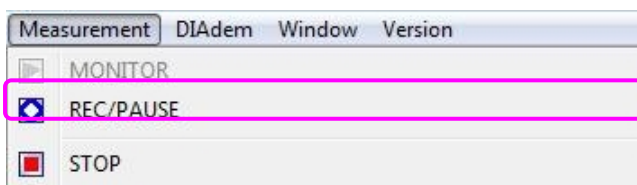
(4) To pause the data recording, execute any of the following operation during recording data.

To restart the data recording, execute any of the following operation during pausing.

- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button from the Meas Operation Panel.

(5) Stops recording data by any of the following.

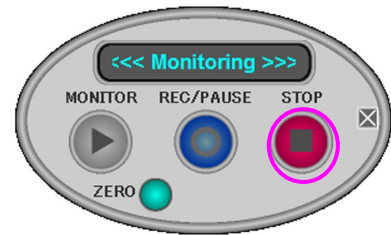
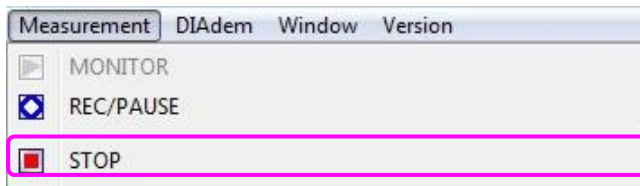
- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.



When Measure mode is the Manual (Set Record Data) mode, the DCS-100A records data until satisfying the Record Data on the Measure Mode window.

(6) Stops monitoring data by any of the following.

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.



9 - 3 - 1 Repeated Recording of Manual Measurements

When selecting the "Manual (Set Record Data)", you can execute the repeated recording by setting the number of repeat times.

When recording data for a long time, a data file is created by every pre-set number data (or by every pre-set time) by conducting the repeated recording.

■ Measuring conditions

The Measure mode is "Manual (Set Record Data)".

■ Operation Method

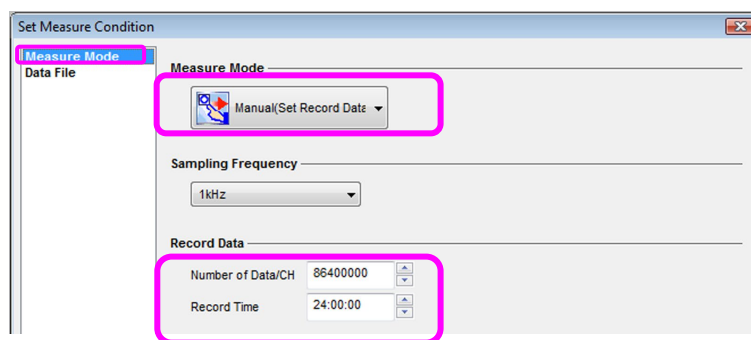
(1) Open the Set Meas Condition window as described below.

- Click the Set - Set Measure Condition....
- Click the Meas Cond icon from the toolbar.

(2) Select the Measure Mode tab.

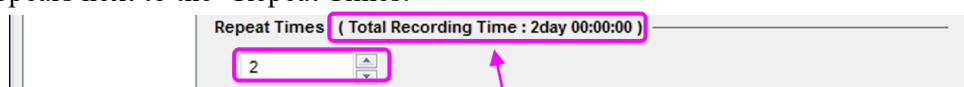
Select the Manual (Set Record Data). Select the Number of Data/CH or Record Time.

The number of recording data or data-recording time saved in one file is determined.



(3) Select the Repeat Times. (1 to 9999)

The DCS-100A records data by every pre-set number data (or by every pre-set time) for the number of repeat times. When the "Repeat Times" is 2 or larger, the "Total Recording Time" appears next to the "Repeat Times."



Total Recording Time

2 days = Record Time 24:00:00 × Record Time 2

(4) The DCS-100A starts recording as follows.

(Suppose the recording starts at 8:00, data file name is DATA, and File No. is 0000.)

First day, Start recording data at 8:00

Saved in the DATA0000_M0000.KS2.

Second day

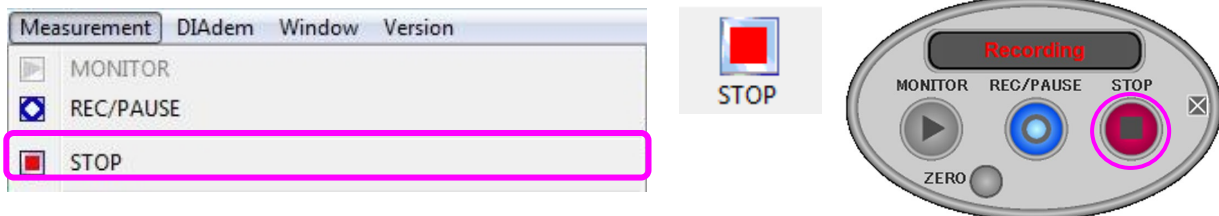
8:00

Saved in the DATA0000_M0001.KS2.

Third day, End recording data at 8:00

After executing the measurement for the pre-set number of repeat times, the DCS-100A becomes monitoring state.

If you stop the repeated recording by clicking the Measurement - REC/PAUSE or REC/PAUSE icon during the repeated recording, the DCS-100A becomes monitoring state.



■ Data File Name

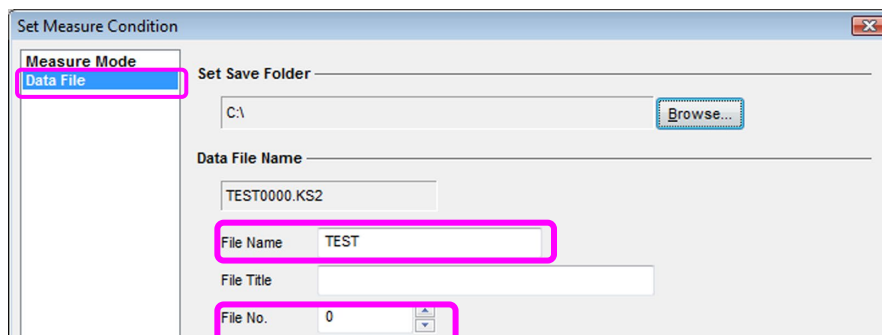
The "Data File Name" is determined by using the items and the "Repeat Times" on the Set Meas Condition window.

- When the Repeat Times is 1.

Data File Name: File name + File No.KS2

- When the Repeat Times is 2 to 9999.

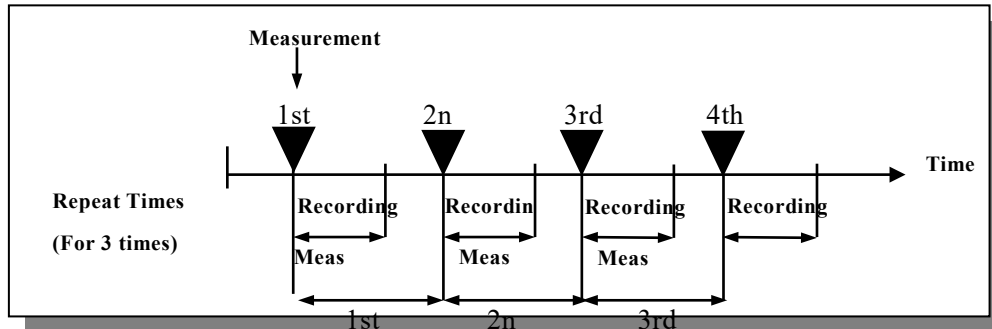
Data File Name: File name + File No._M Repeat Times.KS2



9 -4 INTERVAL MEASUREMENT

This section describes measurement flow when the Measure mode is Interval mode.

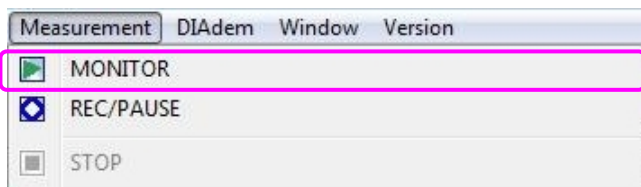
The Interval measurement automatically records data at the pre-set time interval until satisfying the Record Data on the Measure Mode window.



■ Operation Method

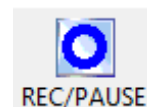
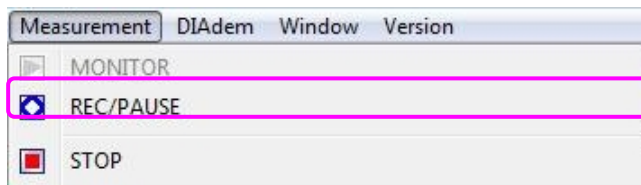
(1) Starts monitoring data by any of the following.

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.

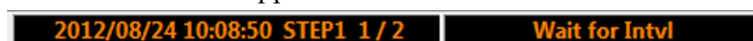


(2) The DCS-100A becomes a state for waiting by any of the following.

- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button on the Meas Operation Panel.



On the status bar, interval measurement start date and time, current STEP, repeat times, and measurement state appear.



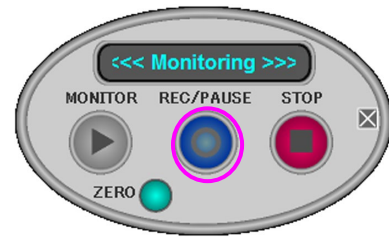
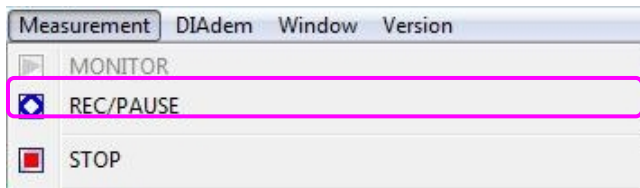
(3) Recording starts and the recording status appears on the status bar.



(4) After executing the measurement for the pre-set repeat times, the DCS-100A becomes monitoring state.

(5) Stops monitoring data by any of the following.

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.



9 - 5 ANALOG TRIGGER MEASUREMENT

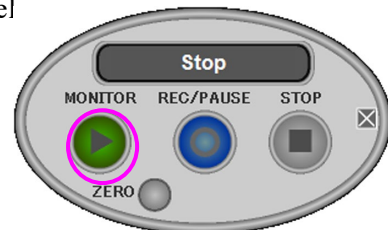
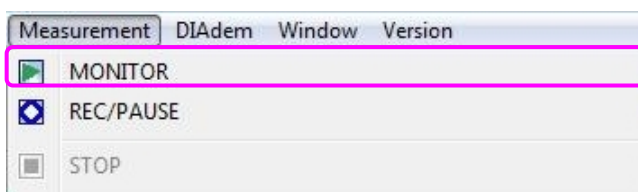
This section describes measurement flow when the Measure mode is Analog Trigger.

The Analog trigger mode measurement automatically starts recording data when measured value of the specified analog CH satisfies the start trigger conditions and records data until satisfying the Record Data on the Measure Mode window or until satisfying the end trigger conditions.

■ Operation Method

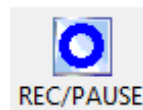
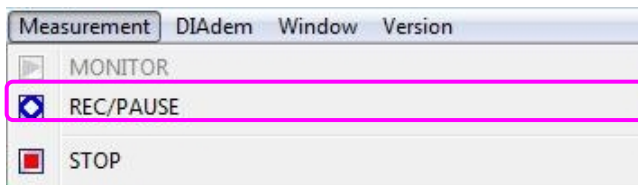
(1) Starts monitoring data by any of the following.

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel



(2) The DCS-100A becomes a state for waiting by any of the following.

- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button on the Meas Operation Panel



On the status bar, trigger CH, trigger level, the number of repeat times, and measurement state are displayed.



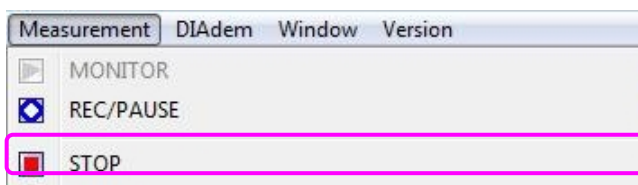
(3) Recording starts and the recording status appears on the status bar.



(4) After executing the measurement for the pre-set repeat times, the DCS-100A becomes monitoring state.

(5) Stops monitoring data by any of the following.

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.



9 -6 EXECUTING ZERO

The ZERO should be executed during monitoring data or during pausing.

The ZERO cannot be executed while the DCS-100A is in stopped state and is recording data.

■ Operation Method

(1) Open the Set CH Condition window as described below:

- Click the Set - Set CH Condition.
- Click the CH Condition icon from the toolbar.

(2) Put ON to the CH to be ZERO on the Set CH Condition window.

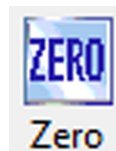
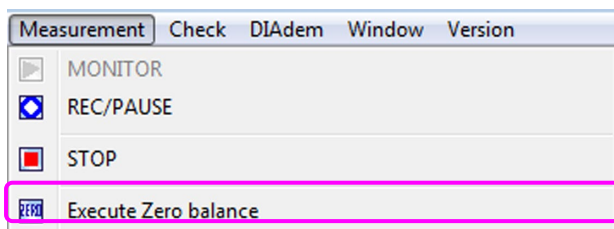


(3) Start monitoring data as described below:

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.

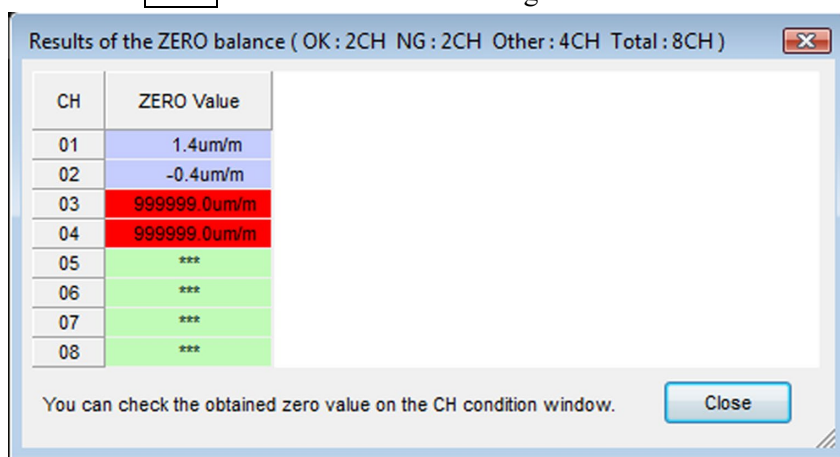
(4) Execute the ZERO as described below:

- Click the Measurement – Execute Zero balance.
- Click the Zero icon from the toolbar.
- Click the **ZERO** button on the Meas Operation Panel.



(5) The following Results of the ZERO balance window appears.

Click the **Close** button to monitor data again.



Background color	ZERO Value	Status
Remain the same	OK	Working properly
Remain the same	***	Not applicable. (ZERO: NONE)
Red	999,999	Not working properly

When the ZERO is NONE on the Set CH Condition window, the NTB-500A/C does not obtain the ZERO value. "****" appears on the Results of the ZERO balance window.

When the ZERO is OFF on the Set CH Condition window, regardless of the ZERO value, "Error" appears on the Results of the ZERO balance window. This is because the DCS-100A executes sensor checking when executing ZERO.

When the target channel did not pass the cable-breakage checking or burnout checking, regardless of the ZERO value, "NG" appears.

MEMO

- While the DCS-100A is monitoring data, you can put a check mark or remove a check mark on the ZERO column on the Set CH Condition window.
- You can check the ZERO value on the Set CH Condition window.

9 - 7 STROKE CHANGE PRESSION

This section describes how to measure displacements larger than the rated capacity of displacement sensors.

Every time the displacement exceeds the rated capacity of the displacement sensor, the stroke change procession is executed. And the output before the stroke change procession is added to the output after the stroke change procession. With the stroke change procession, you can handle the displacement sensor with larger rated capacity.

■ Measuring conditions

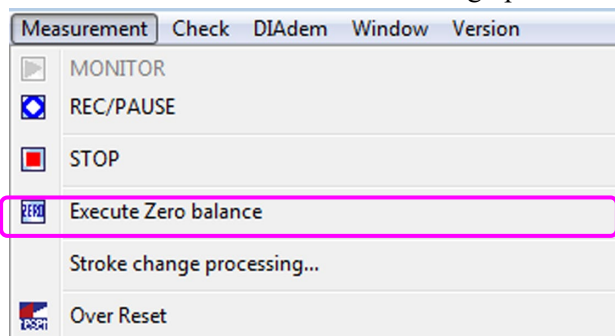
You can execute the stroke change procession while the sensor is connected to the NTB-50A (strain unit) and calibration constant operation is ON.

■ Operation Method

(1) Start monitoring data as described below:

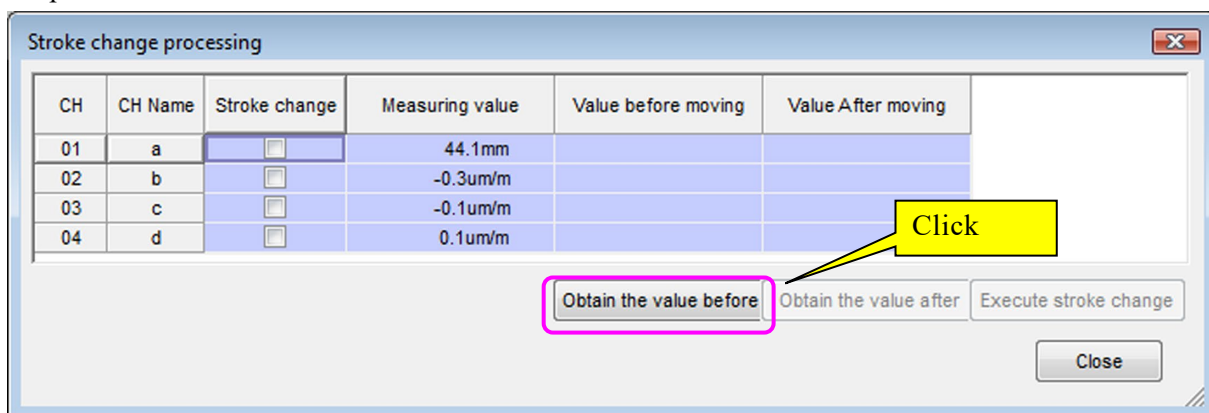
- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.

(2) Click the Measurement - Stroke change processing....

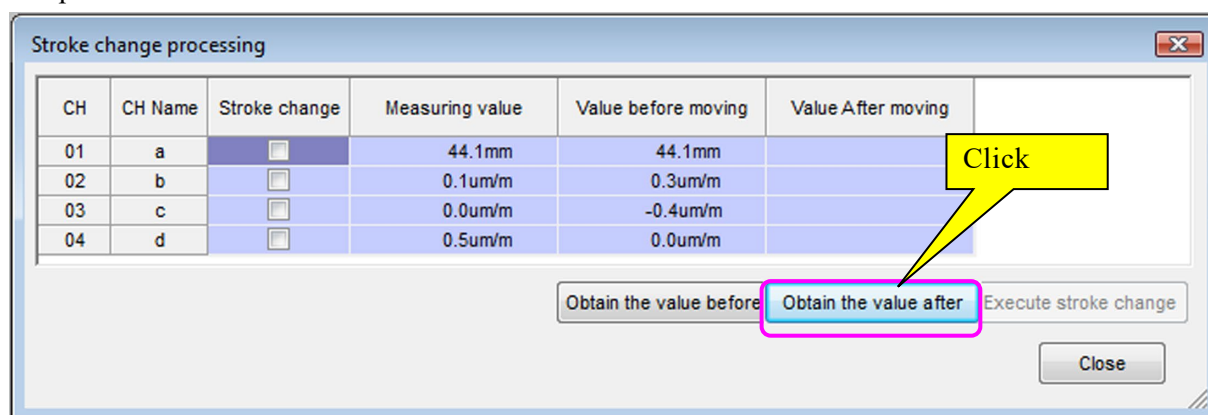


(3) The Stroke change processing window appears.

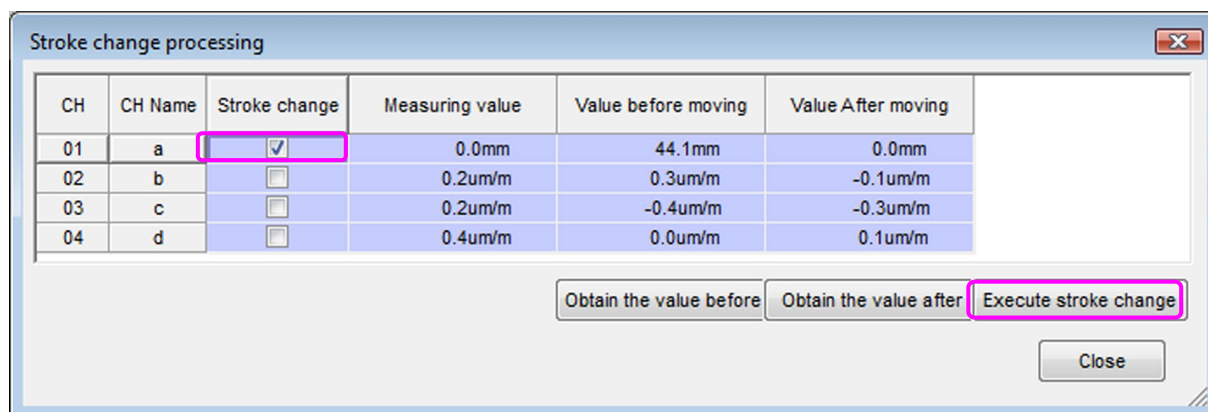
Click the **Obtain the value before** button to obtain the measured value before the stroke change procession.



- (4) Click the **Obtain the value after** button to obtain the measured value after the stroke change procession.



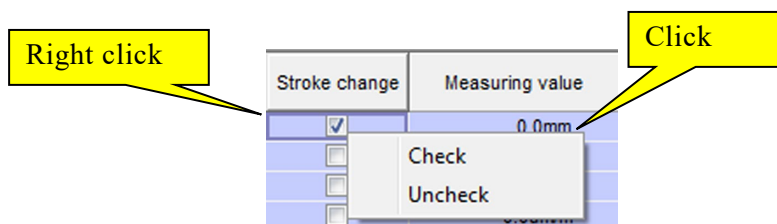
- (5) Put a check mark to a box next to the target CH. Click the **Execute stroke change** button.



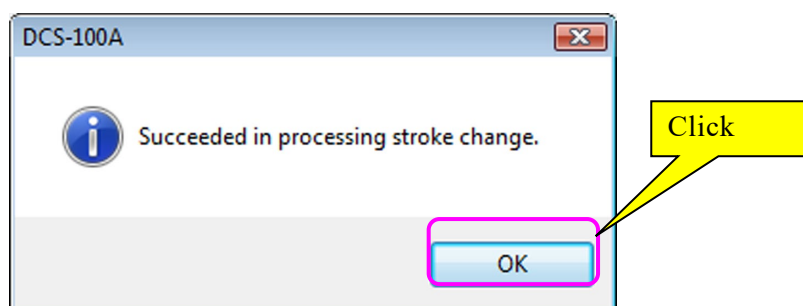
How to put a check mark

Right-click the mouse on the column with boxes.

By using the pop-up menu, you can put check marks to the boxes of the selected channels at one time.



- (6) The measured value before the stroke change procession subtracts from the measured value after the stroke change procession. And the obtained value is added to the ZERO value. After the stroke change procession succeeded, the following message appears. Click the **OK** button.



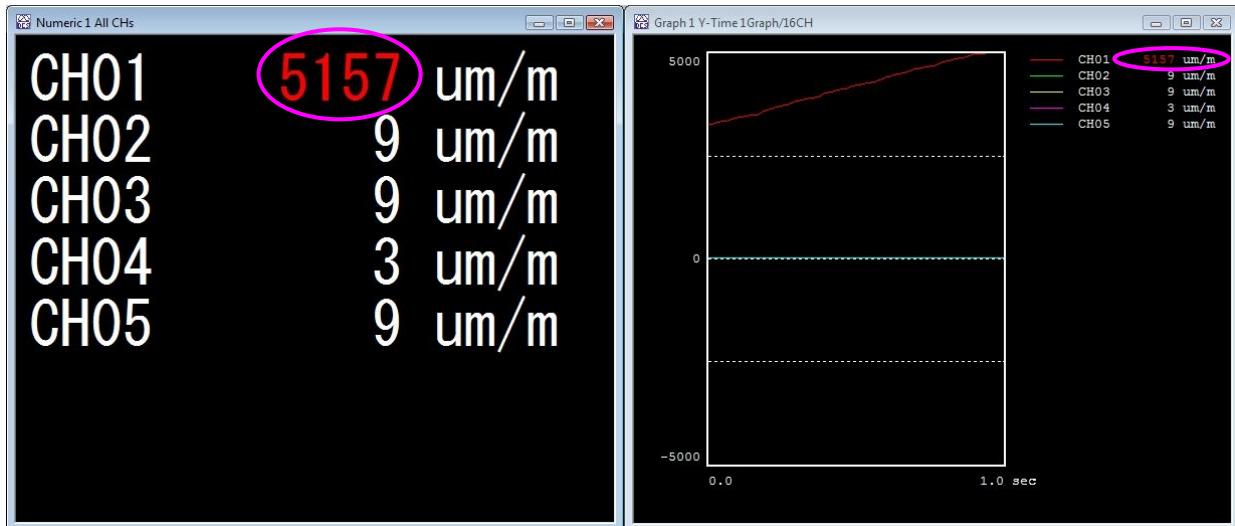
9-8 DISPLAYING EXCEEDING VALUE

When the measured data (raw data) exceeds the Chk. Val. (Up) or Chk. Val. (Down) once during monitoring and recording data, since then, the measured value on numeric and graph windows are displayed in red.

With this function, you can check that the input value of every CH is exceeding or not.

The numerical value will return to the normal color when you start monitoring or recording.

Example: The measured data (raw data) of CH01 exceeded the Chk. Val. (Up) value.



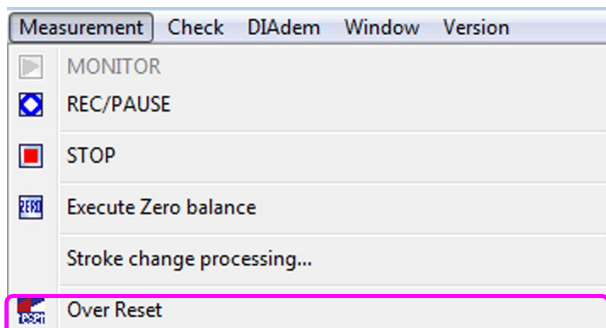
MEMO

For setting the Chk. Val. (Up) and Chk. Val. (Down), click the Set - Set CH Condition... for displaying the Set CH Condition window.

■ Over Reset

Reset the exceeding state to the previous state [before exceeding the check value (up) or check value (down)] as described below:

- Click the Measurement – Over Reset.
- Click the Over Reset icon from the toolbar.



Measurement – Over Reset



Over Reset icon

9 - 9 STATIC MEASUREMENT

The Measure mode is "Manual" and "Interval" modes only.

Every time you start a recording, the static measurement applies a moving-average function to measured data (averaging value data) and saves it to one CSV format file.

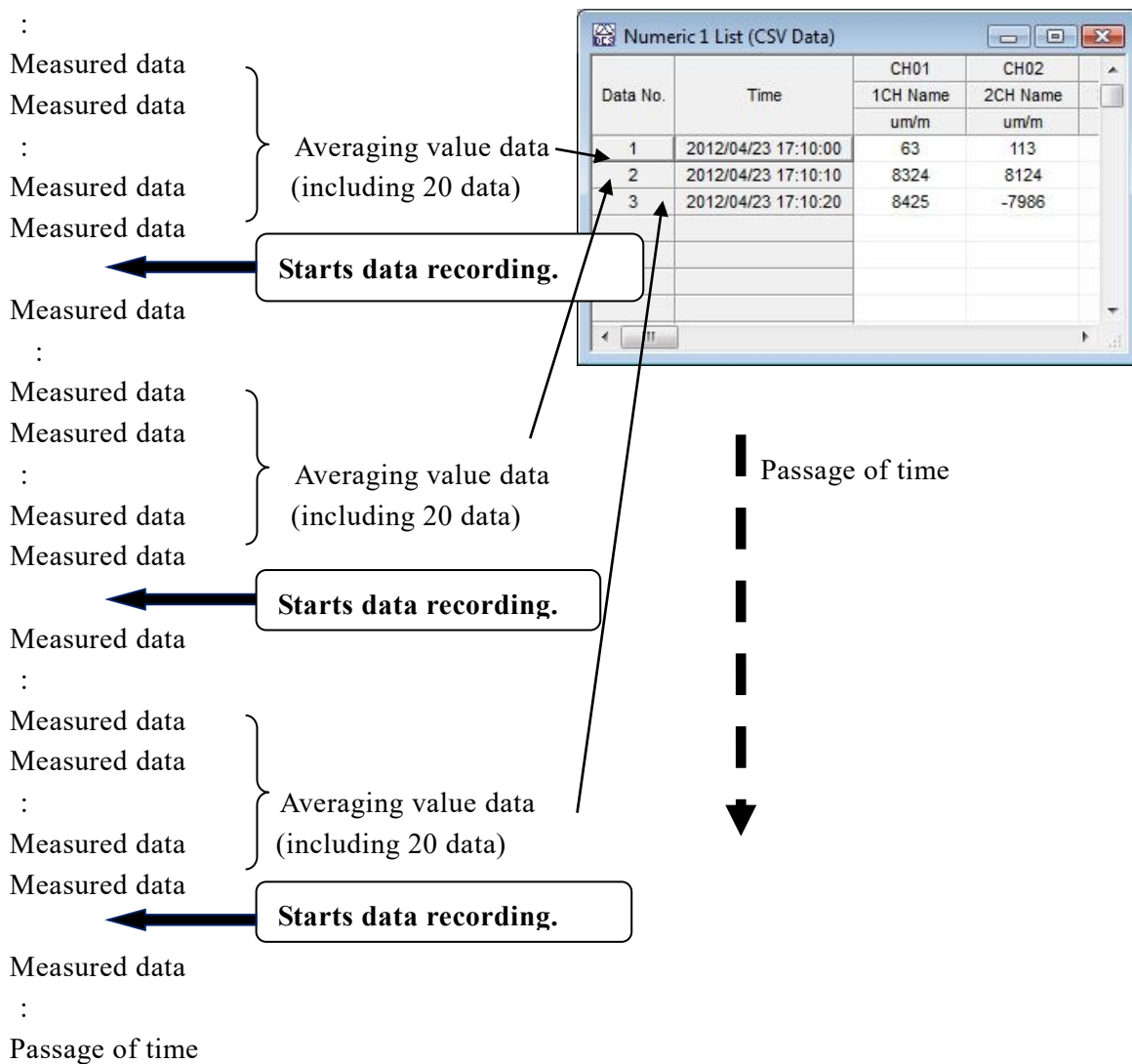
The averaging value data appears on the Numeric Lists of numeric windows and Y-Cycle graphs on graph windows.

■ Measuring conditions

- The Measure mode is "Manual" and "Interval" modes only.
- Sampling frequency: 20Hz fixed, Record data: 1 fixed

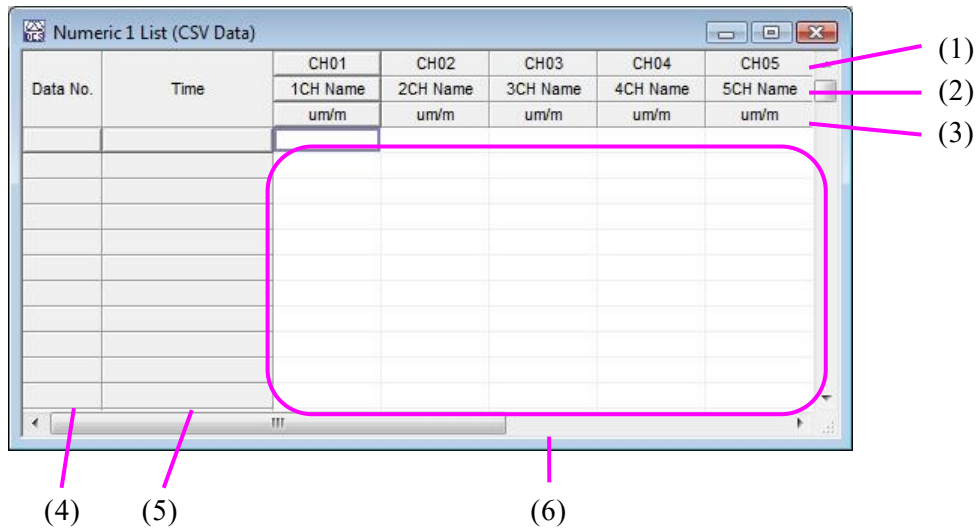
■ Operation flow

The averaging value data is the average value immediately after starting the recording.



9 - 9 - 1 Displaying list on Numeric Window

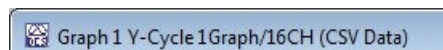
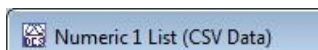
For the static measurement, the Numeric Lists on numeric windows are available.
You can display the latest 1000 items of the averaging value data on the list.



- (1) CH No.
- (2) The comment of the CH
- (3) The unit of the CH
- (4) Data No.
- (5) Time
- (6) The averaging value data of the CH

MEMO

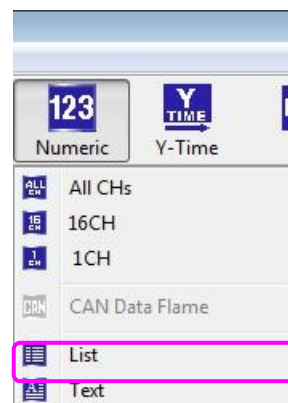
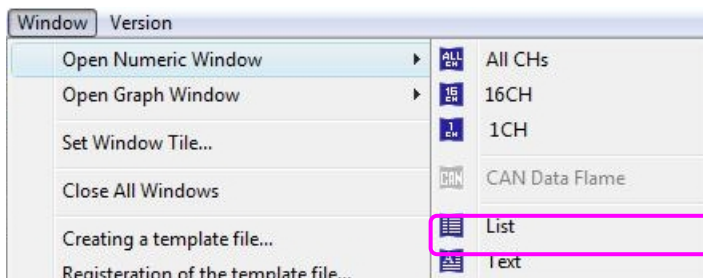
The averaging value data appears on the Numeric Lists of numeric windows and on the Y-Cycle of graphs of graph windows and the "(CSV Data)" is displayed on the window title.



• How to display

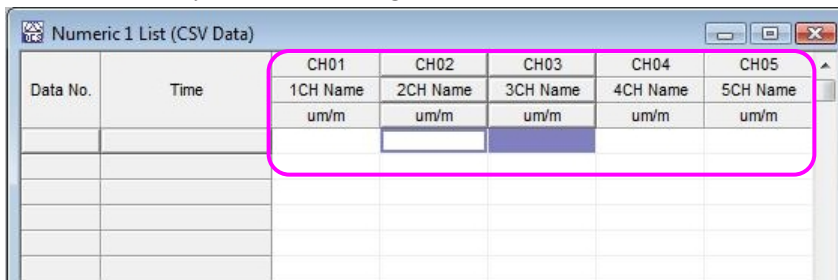
Open the numeric window as described below:

- Click the Window - Open Numeric Window - List.
- Point to Numeric icon from the toolbar and select the List.



■ Operation Method

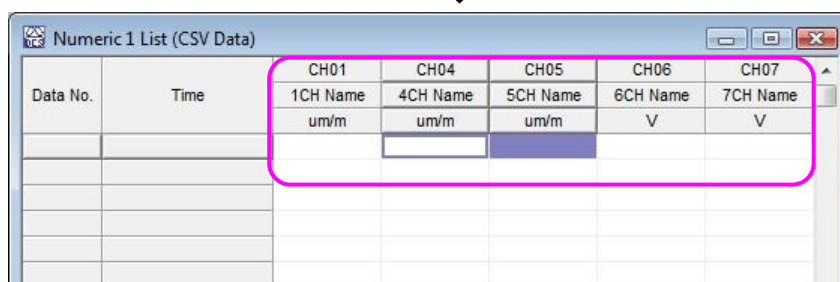
- Click the Delete key to hide the target CH column.



Data No.	Time	CH01	CH02	CH03	CH04	CH05
		1CH Name	2CH Name	3CH Name	4CH Name	5CH Name
		um/m	um/m	um/m	um/m	um/m

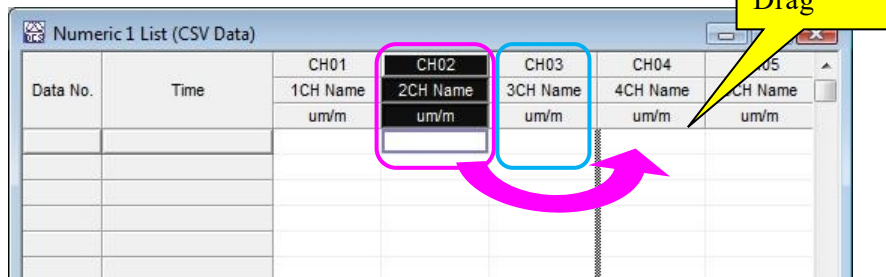


Click the Delete key.

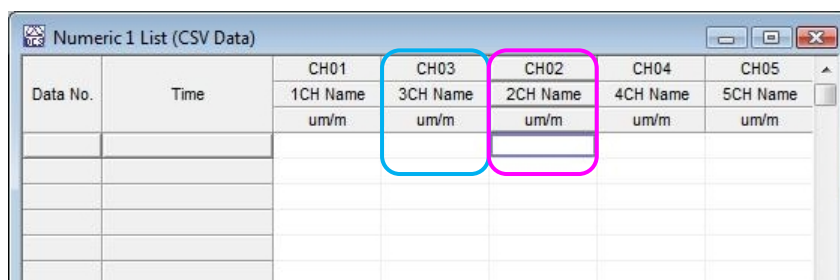


Data No.	Time	CH01	CH04	CH05	CH06	CH07
		1CH Name	4CH Name	5CH Name	6CH Name	7CH Name
		um/m	um/m	um/m	V	V

- Drag the fixed cells to change the order of channels.

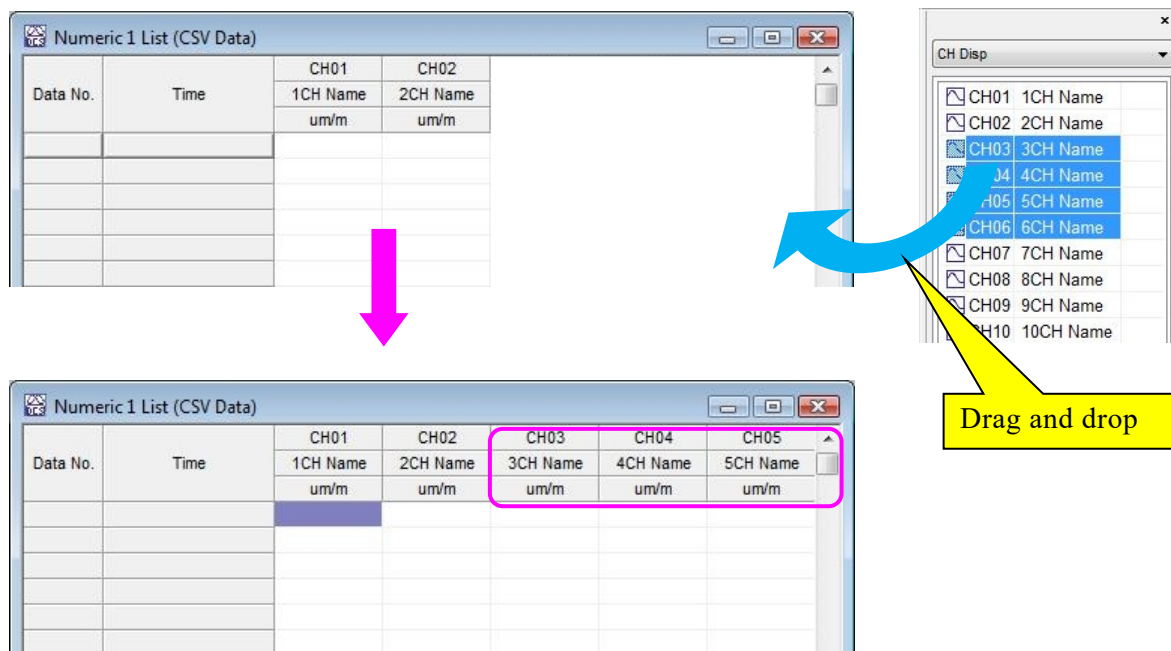


Data No.	Time	CH01	CH02	CH03	CH04	CH05
		1CH Name	2CH Name	3CH Name	4CH Name	5CH Name
		um/m	um/m	um/m	um/m	um/m

Data No.	Time	CH01	CH03	CH02	CH04	CH05
		1CH Name	3CH Name	2CH Name	4CH Name	5CH Name
		um/m	um/m	um/m	um/m	um/m

Left-click the mouse on the CH Disp Bar to select the target channels.
 Drag and drop them to the Numeric List window to display the target channels.



9 - 9 - 2 Data File Name

The name of the CSV format file is determined by using the items on the Set Measure Condition window.

The name of the CSV format file: **File name** **File No.** .CSV

The screenshot shows the 'Set Measure Condition' window. Under the 'Data File Name' section, the 'File Name' field is set to 'TEST' and the 'File No.' field is set to '0'. Both fields are highlighted with pink boxes. The 'Set Save Folder' section shows the path 'C:\' and a 'Browse...' button. The 'Data File Name' section also shows a text field containing 'TEST0000.CSV'.

MEMO

If the CSV format file having the same name already exists in the destination folder, the averaging value data is added to the existing file.

NOTE

You cannot reproduce the CSV format files with the DCS-100A.
 Use the commercially available softwares.

9 - 9 - 3 Manual measurement (static measurement)

This section describes measurement flow when the Measure mode is Manual.

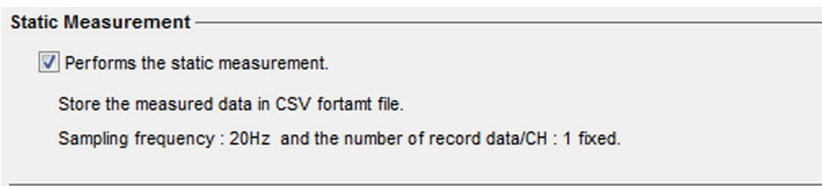
■ Operation Method

(1) Open the Set Measure Condition window as described below:

- Click the Set - Set Measure Condition....
- Click the Meas Cond icon from the toolbar.

(2) Click the "Measure Mode" on the left and select "Manual."

(3) Put a check mark to the check box next to the "Performs the static measurement."



Static Measurement

☒ Performs the static measurement.

Store the measured data in CSV format file.

Sampling frequency : 20Hz and the number of record data/CH : 1 fixed.

(4) Start monitoring data as described below:

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.

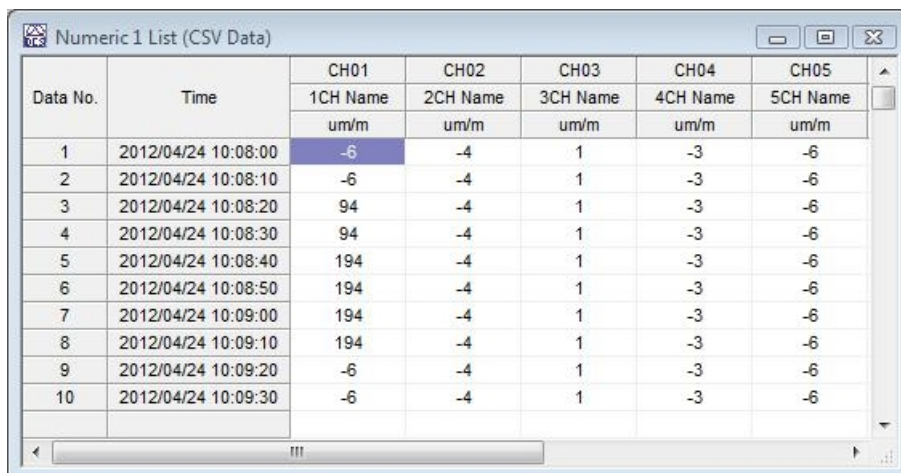
The DCS-100A becomes the monitoring state. The measured data appears on windows other than the Numeric Lists of numeric windows and Y-Cycle graphs of graph windows.

(5) Record data as described below:

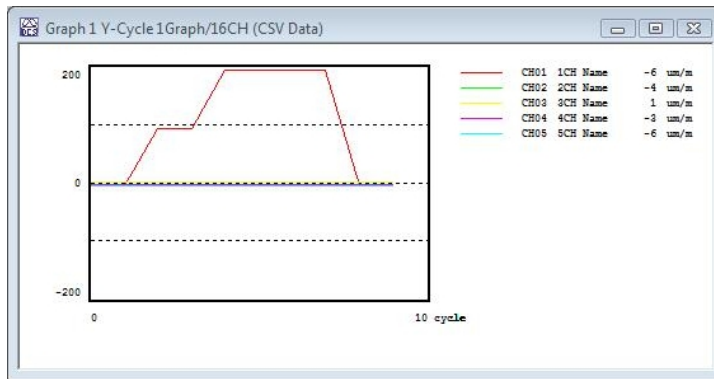
- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button on the Meas Operation Panel.

The averaging value data, saved in the CSV format file, appears on the Numeric Lists of numeric windows and Y-Cycle graphs on graph windows.

Example: Suppose the DCS-100A recorded data for 10 times.



Data No.	Time	CH01	CH02	CH03	CH04	CH05
		1CH Name	2CH Name	3CH Name	4CH Name	5CH Name
		um/m	um/m	um/m	um/m	um/m
1	2012/04/24 10:08:00	-6	-4	1	-3	-6
2	2012/04/24 10:08:10	-6	-4	1	-3	-6
3	2012/04/24 10:08:20	94	-4	1	-3	-6
4	2012/04/24 10:08:30	94	-4	1	-3	-6
5	2012/04/24 10:08:40	194	-4	1	-3	-6
6	2012/04/24 10:08:50	194	-4	1	-3	-6
7	2012/04/24 10:09:00	194	-4	1	-3	-6
8	2012/04/24 10:09:10	194	-4	1	-3	-6
9	2012/04/24 10:09:20	-6	-4	1	-3	-6
10	2012/04/24 10:09:30	-6	-4	1	-3	-6



(6) Stop monitoring data as described below:

(When recording data, the file No. is incremented by one after.)

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.

9 - 9 - 4 Interval measurement (static measurement)

This section describes measurement flow when the Measure mode is Interval mode.

(1) Open the Set Measure Condition window as described below:

- Click the Set - Set Measure Condition....
- Click the Meas Cond icon from the toolbar.

(2) Click the "Measure Mode" on the left and select "Interval."

(3) Put a check mark to the check box next to the "Performs the static measurement."

Static Measurement

☒ Performs the static measurement.

Store the measured data in CSV format file.

Sampling frequency : 20Hz and the number of record data/CH : 1 fixed.

(4) Click the Interval from the left and set the interval conditions.

NOTE

For the static measurement, you need to set 2 seconds or longer as the interval time.

(5) Start monitoring data as described below:

- Click the Measurement – MONITOR.
- Click the Monitor icon from the toolbar.
- Click the **MONITOR** button on the Meas Operation Panel.

The DCS-100A becomes the monitoring state. The measured data appears on windows other than the Numeric Lists of numeric windows and Y-Cycle graphs of graph windows.

(6) The DCS-100A becomes a state for waiting as described below.

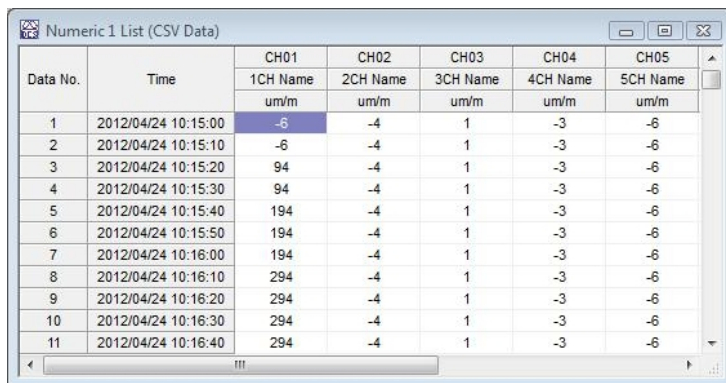
- Click the Measurement – REC/PAUSE.
- Click the REC/PAUSE icon from the toolbar.
- Click the **REC/PAUSE** button on the Meas Operation Panel.

Every time the recording start time will come, the averaging value data is saved in the CSV format file.

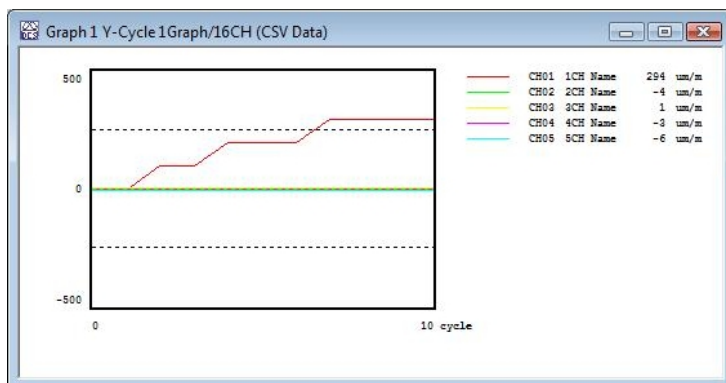
It appears on the Numeric Lists of numeric windows and Y-Cycle graphs of graph windows.

Example

Suppose the DCS-100A recorded data with the following conditions. Recording start time: 2012/04/15 18:25:00, the number of repeat times: 10, interval time: 10 seconds



Data No.	Time	CH01	CH02	CH03	CH04	CH05
		1CH Name	2CH Name	3CH Name	4CH Name	5CH Name
		um/m	um/m	um/m	um/m	um/m
1	2012/04/24 10:15:00	-6	-4	1	-3	-6
2	2012/04/24 10:15:10	-6	-4	1	-3	-6
3	2012/04/24 10:15:20	94	-4	1	-3	-6
4	2012/04/24 10:15:30	94	-4	1	-3	-6
5	2012/04/24 10:15:40	194	-4	1	-3	-6
6	2012/04/24 10:15:50	194	-4	1	-3	-6
7	2012/04/24 10:16:00	194	-4	1	-3	-6
8	2012/04/24 10:16:10	294	-4	1	-3	-6
9	2012/04/24 10:16:20	294	-4	1	-3	-6
10	2012/04/24 10:16:30	294	-4	1	-3	-6
11	2012/04/24 10:16:40	294	-4	1	-3	-6



After satisfying the Record Data on the Measure mode window or after executing the operations as described below, the DCS-100A becomes the monitoring state. (When recording data, the file No. is incremented by one after.)

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.

(7) Stop monitoring data as described below:

- Click the Measurement – STOP.
- Click the STOP icon from the toolbar.
- Click the **STOP** button on the Meas Operation Panel.

1 0 SAVING AND LOADING MEAS CONDITION FILE

This section describes details of saving and loading Meas condition file.

1 0 - 1 SAVING MEAS CONDITION FILE WITH A NAME

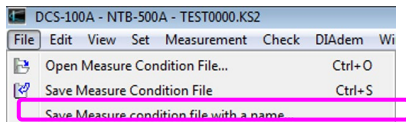
This section describes how to save the current measuring conditions to the existing Measure condition file (Extension: N5H).

When the measurement is carried out with the same condition the next time, loading this Meas condition file enables to set Meas condition at a time.

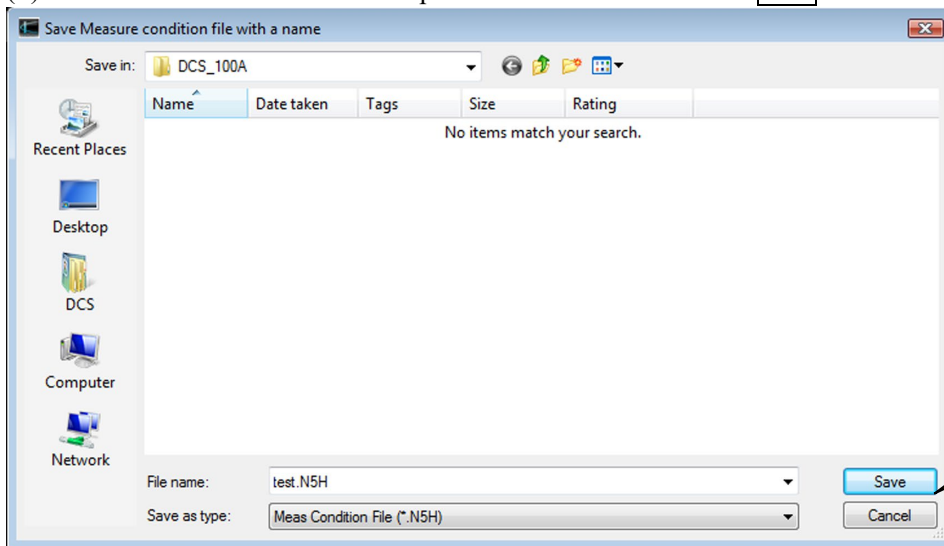
The Meas condition file includes environment settings, channel conditions, measuring conditions, display conditions on graphs and on numeric windows, and arithmetic operation conditions (optional).

■ Operation Method

- (1) Click the File - Save Meas Condition file with a name... to open the Save Meas Condition file with a name window.



- (2) Select the Save in folder and input the File name. Click the **Save** button.



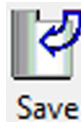
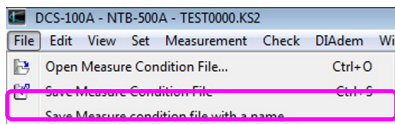
1 0 -2 SAVING MEAS CONDITION FILE

This section describes how to save the current measuring conditions to the existing Measure condition file (Extension: N5H).

■ Operation Method

Save the Meas condition file as described below:

- Click the File - Save Measure Condition File.
- Click the Save icon from the toolbar.



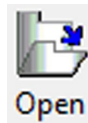
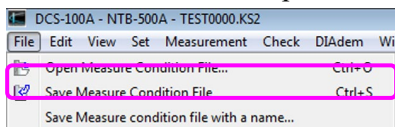
1 0 -3 OPENING MEAS CONDITION FILE

This section describes how to load the previously saved Measure condition file (Extension: N5H).

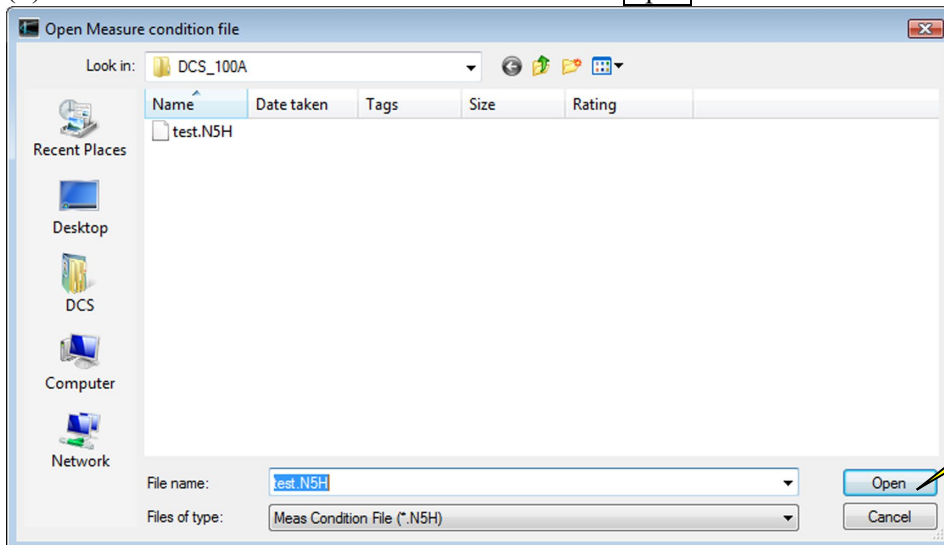
■ Operation Method

(1) Open the Open Meas Condition window as described below:

- Click the File - Open Measure Condition File....
- Click the Open icon from the toolbar.



(2) Select the file name or folder name. Click the **Open** button.



1 1 THE NUMBER OF CHANNELS TO BE MEASURED

The number of channels to be measured varies with the sampling frequency and total cable length.
The number of channels is as follows.

Sampling Frequency (Hz)	The maximum number of channels to be measured			
	Total cable length 20 m	Total cable length 80 m	Total cable length 100 m	Total cable length 400 m
1 k	8	4	---	---
500	16	8	4	---
200	40	20	8	4
100	64	40	20	8
50	64	64	40	20
20 to 1	64	64	64	40

1 2 SPECIFICATIONS

The DCS-100A is measurement software that is capable of online measurement (such as displaying and recording data) on the PC with the NTB-500A/C connected via the USB-CAN interface.

Number of connected units	Maximum 8 NTB-500A/C units (maximum 64 channels.)
Interface	USB-CAN interface
Saving format	Save data in the PC (KYOWA standard file format KS2).
Channel conditions	Channels to be measured, Mode, Range, ZERO, Calibr. const., Offset, Gage factor, Unit, Chk. Val. (up), Chk. Val. (down), CH name, Rated capacity, Rated output, and Deci digits (Display items can freely be selected.)
Loading TEDS sensor information	After loading TEDS sensor information, the TEDS sensor information is automatically set to the channel conditions.
Configuration	
Connection	Setting the number of connected units, total cable length, and device name. Configuration of hardwares can be load on the NTB-500A/C. Loads the NTB-500A/C version.
Automated conversion of file formats	After the measurements is completed, the DCS-100A automatically converts the file formats (CSV format, XLS format, XLSX format and RPCIII format)
Arbitrary units	Arbitrary 3 units can be registered.

<Measuring conditions of the NTB-500A/C>

Sampling frequency	1 Hz to 1k Hz (1/2/5 system) *The sampling frequency is limited by the number of channels to be measured and total cable length
Data file size	Up to the storage capacity.
Measure Mode	Manual, Manual (Set Record Data), Interval, Analog Trigger
Manual measurement	Records data from REC to STOP or from REC to the number of data points specified for recording.
Interval measurement	Automatic recording according to the pre-set starting time and recording interval Maximum 5 steps can be registered by using the interval table.
Trigger measurement	Recording starts and stops according to the pre-set trigger conditions. (Absolute trigger: trigger reference value is fixed.)
Common trigger conditions	
End trigger	Settable
Delay	Maximum 262,144 data/channel for both start and end The delay time varies with the number of channels to be measured
Analog trigger conditions	
Trigger channel	Any 1 channel
Trigger level	A physical quantity
Trigger slope	Positive or Negative