

NETWORK TERMINAL BOX
CONTROL SOFTWARE
NTB-10A
INSTRUCTION MANUAL
(FOR SOFTWARE)

Thank you for purchasing KYOWA's product NTB-10A Network Terminal Box Control Software (hereinafter referred to as the NTB-10A).

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.

This Manual only describes Software operation of the NTB-10A.

For Hardware operation, refer to the "NTB-100A series Network Terminal Box Instruction Manual" and "NTB-201A Network Terminal Box Instruction Manual."

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The contents of the Instruction Manual are subjected to change without prior notice.

CONTENTS

NOTATIONS USED IN THE INSTRUCTION MANUAL	1
ESSENTIAL PRECAUTIONS FOR USING NTB-10A	1
1. OUTLINE OF NTB-10A SERIES	2
1-1 SYSTEM CONFIGURATION	2
1-1-1 Operating Environment	2
2 INSTALLING AND UNINSTALLING NTB-10A	3
2-1 INSTALLING NTB-10A	3
2-2 CONNECTING USB-CAN CONVERTER TO PC	8
2-3 CHECKING AFTER CONNECTION	8
2-4 UNINSTALLING NTB-10A	9
3. UNINSTALLING USB-CAN CONVERTER DRIVER	10
4. MEASURING OUTLINE	11
4-1 INITIAL STATUS OF NTB-10A	11
4-2 HOW TO MEASURE STRAIN	13
4-3 HOW TO CONDUCT RELATIVE (RELATIVE VALUE) MEASUREMENT	15
4-4 HOW TO MEASURE PHYSICAL QUANTITY	18
5. WINDOW DISPLAYS AND DESCRIPTIONS	20
5-1 STARTUP WINDOW	20
5-1-1 Main Window	20
5-1-2 Menu Bar Configuration	21
5-2 ENVIRONMENT SETTING	24
5-2-1 How to Display Set Environment Window	24
5-2-2 Description of Set Environment Window	25
5-3 CH CONDITION	27
5-3-1 How to Display Set CH Condition Window	27
5-3-2 Description of Set CH Condition Window	28
5-4 MEASURING MODE	31
5-4-1 How to Display Set Meas Data Window	31
5-4-2 Description of Set Meas Data Window	32
5-5 TEDS	34
5-5-1 How to Display TEDS Info. Window	34
5-5-2 Description of TEDS Info. Window	35
5-6 INTERVAL	37
5-6-1 How to Display Set Interval Condition Window	37
5-6-2 Description of Set Interval Condition Window	38
5-7 TRIGGER CONDITIONS	40
5-7-1 How to display Set Trigger Condition window	40
5-7-2 Description of Set Trigger Condition Window	41
6. COMMUNICATION	45
6-1 CHECKING EXSISTANCE OF NTB SERIES	45
6-1-1 When Displaying Connection Number of NTB Communication Check	45
6-1-2 When Not Displaying Connection Number of NTB Communication Check	46
6-2 HOW TO RECOGNIZE USB-CAN CONVERTER	48

6-3 CHANGING CH MODE OF NTB SERIES	50
6-4 CHECKING BURNOUT (NTB-201A ONLY)	51
6-5 LOADING THE TERMINAL TEMPERATURE OF THE NTB-201A (NTB-201A ONLY).....	52
6-6 SETTING COMMUNICATION CHECK BEFORE STARTING THE MEASUREMENT	53
7. MEASURING CONDITIONS	54
7-1 SETTING TARGET CH.....	54
7-2 RELATIVE (RELATIVE VALUE) MEASUREMENT	55
7-3 CONVERTING MEASURED DATA FROM STRAIN TO PHYSICAL QUANTITY	57
7-4 SETTING UNIT THAT NTB-10A DOES NOT HAVE	61
7-5 BEFORE MEASURING TEMPERATURE MEASURING DATA.....	65
7-6 SETTING NAME TO CH	66
7-7 PRINTING MEASURING CONDITION.....	67
8. DATA FILE.....	69
8-1 CHANGING SET SAVE FOLDER OF MEASURED DATA	69
8-2 CHANGING DATA FILE NAME	70
8-3 SETTING FILE TITLE	71
8-4 DIVIDING MEASURED DATA FILE AT EVERY INTERVAL TIME	72
8-5 SETTING FILE FORMATS.....	73
8-6 OPENING DATA FILE FOLDER	74
9. MEASUREMENT.....	75
9-1 EXECUTING MONITOR MEASUREMENT.....	75
9-2 CONDUCTING RECORDING ONCE (MEAS ONCE).....	77
9-3 RECORDING DATA UNTIL NTB-10A IS STOPPED (SEQUENTIAL MEAS).....	79
9-4 RECORDING DATA AT REGULAR INTERVAL (INTERVAL MEAS).....	81
9-5 STROKE CHANGE MEASUREMENT	87
9-6 START RECORDING WITH THE PRESET CONDITIONS (TRIGGER MEASUREMENT)	90
9-6-1 Trigger Measurement in Relative Value Mode	90
9-6-2 Trigger Measurement in Absolute Value Mode.....	95
10. LOADING AND WRITING TEDS INFORMATION (NTB-100A SERIES ONLY).....	99
10-1 LOADING TEDS INFORMATION THAT IS CONNECTED TO NTB-100A SERIES	99
10-2 WRITING CH NAME TO TEDS SENSOR THAT IS CONNECTED TO NTB-100A SERIES	102
11. NUMERIC WINDOW	104
11-1 HOW TO ALWAYS DISPLAY LATEST DATA TO NUMERIC WINDOW	104
11-2 HOW TO CLEAR DISPLAYING DATA	105
11-3 SAVING DATA ON NUMERIC WINDOW	107
11-4 SHOW OR HIDE HEADER SECTIONS ON NUMERIC WINDOW	110
12. GRAPH	111
12-1 GRAPH CONDITION SETTING DIALOG AND DESCRIPTION	111
12-1-1 How to Display Y-TIME Graph.....	111
12-1-2 How to Display BAR Graph.....	112
12-1-3 How to Display Numeric Window	113
12-1-4 How to Display X-Y Graph	114
12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).....	115
12-1-6 Description of Graph Condition Setting Dialog of Y-TIME Graph.....	116
12-1-7 Description of Graph Condition Setting Dialog of BAR Graph	120
12-1-8 Description of Condition Setting Dialog.....	122
12-1-9 Description of X-Y Graph Condition Setting Window.....	124
12-2 COMMON OPERATION TO ALL GRAPHS	127

12-2-1 Setting Target CH	127
12-2-2 Automatic Setting of Display CH.....	129
12-2-3 Clearing Display CH	130
12-2-4 Changing Graph Display	131
12-2-5 Changing Background Color or Grid Line Color of Graph	132
12-3 Y-TIME GRAPH	134
12-3-1 Changing Number of Grid Dividing Line	134
12-3-2 Setting Display Time (beginning) and Display Time (end) of X Axis	135
12-3-3 Auto Scrolling Data.....	136
12-3-4 Set Full Scale Value of Y Axis.....	137
12-3-5 Auto Scale of Y Axis.....	138
12-3-6 Show or Hide CH Number, CH Name, and Unit to Graph.....	139
12-4 BAR GRAPH.....	140
12-4-1 Changing Number of Grid Dividing Line of Y Axis	140
12-4-2 Setting Full Scale Value of Y Axis.....	141
12-4-3 Auto Scale of Y Axis	142
12-4-4 Peak Line Color of BAR Graph	143
12-4-5 Show or Hide Disp Peak Hold(P)	145
12-4-6 Clearing Peak Hold	146
12-5 NUMERIC DISPLAY.....	147
12-5-1 Changing Font Size and Font Color	147
12-6 X-Y GRAPH.....	149
12-6-1 Changing the Number of Divisions in Grids	149
12-6-2 Setting Full Scale Values of X Axis and Y axis.....	150
12-6-3 Setting Auto Scale Values of X Axis and Y Axis	151
12-6-4 Show or Hide CH No., CH Name, Unit, and Data on Graph.....	152
13. DISPLAY	153
13-1 SHOW OR HIDE WINDOW FLAME.....	153
13-2 SHOW OR HIDE MEAS OPERATION PANEL	154
13-3 OPENING TRIGGER INFO WINDOW	155
13-3-1 Trigger Info Window (Relative Value).....	156
14. ERROR MESSAGE AND TROUBLE SHOOTING	158
15. SPECIFICATIONS	160
15-1 SPECIFICATIONS OF SOFTWARE	160
■ APPENDIX.....	161
■ Box No. setting	163
■ Termination resistance setting	164

NOTATIONS USED IN THE INSTRUCTION MANUAL

Certain notations are used as necessary to attract your attention to information that requires special care when handling the NTB-100A series, and to information provided for reference purposes.

Examples of Notations

NOTE

Essential precautions required when handling the NTB-10A.

MEMO

Reference items required when handling the NTB-10A.

ESSENTIAL PRECAUTIONS FOR USING NTB-10A

NOTE

Do not set your PC to the following state. Or, the NTB-10A may not properly operate.

- Screen saver is set to activate.
- Power consumption functions including System standby are set to activate.
- Application software such as virus check software, etc. is set to activate on the way.
- Font size is set to other than standard (Small).

MEMO

Set the font size by the following.

- For Windows XP
Right-click the desktop and select **Properties** from the pop-up menu.
Select **Design** tab and set the **Font Size** to **Standard**.
- For Windows Vista
Right-click the desktop and select **Personalize** from the pop-up menu.
Select **Adjust font size (DPI)** on the left side under Tasks.
Select the specified scale.
- For Windows 7
Right-click the desktop and select **Personalize** from the pop-up menu.
On Personalization screen, click the option called **Display**.
On Display setting screen, click the **Smaller – 100% (default)**.

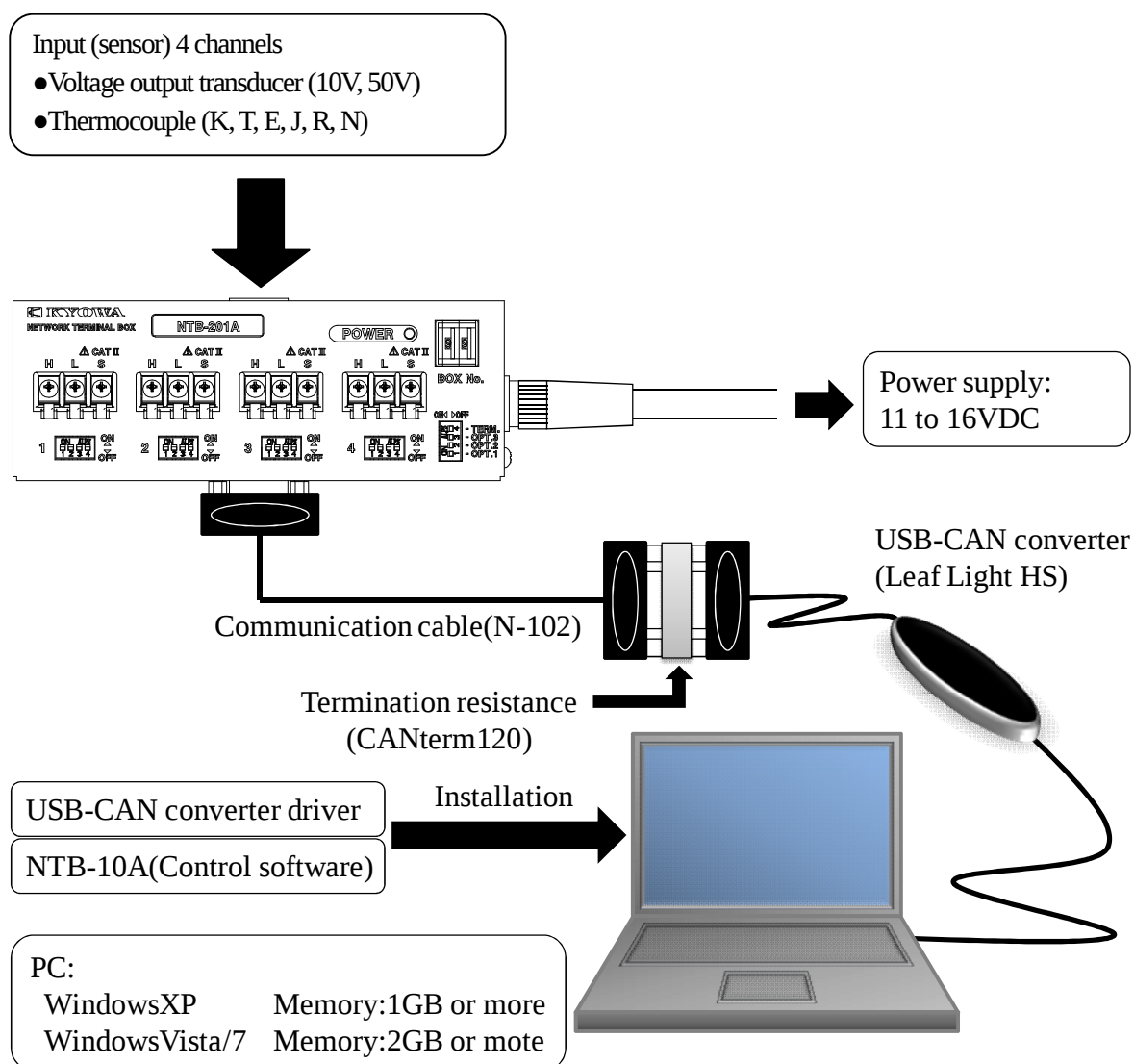
1. OUTLINE OF NTB-10A SERIES

The NTB-10A is software to control the NTB series Network Terminal Box (hereinafter referred to as the NTB-100A series) and display a graph or Numeric Display of the measured data on the PC. Capable of loading a data file such as EXCEL since the data file is saved with a CSV format.

1-1 SYSTEM CONFIGURATION

1-1-1 Operating Environment

CPU	Pentium 4 2 GHz or more
OS	Microsoft Windows XP (32-bit version) Japanese and English versions Microsoft Windows Vista (32-bit version) Japanese and English versions Microsoft Windows 7 (32-bit version) Japanese and English versions
Memory	1 GB or more For Microsoft Windows Vista and 7: 2 GB or more
Hard disk	Residual capacity: 30 Mbyte or more (not including the recording data file size)
Display	Resolution: 1024 × 768 dots or more Colors: Full color or more
Y cable	N-103 (for distributed arrangement)
Communication cable	N-102 (1 m) Note: When requiring the cable other than 1-m long, contact KYOWA or our representatives.
Termination resistance	CANterm120 (Vector Japan Co., Ltd.)
USB-CAN converter	Leaf Light HS (Kvaser Inc.)



2 INSTALLING AND UNINSTALLING NTB-10A

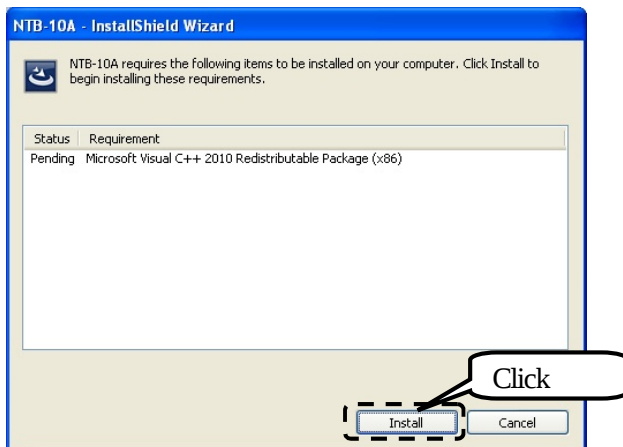
2-1 INSTALLING NTB-10A

NOTE

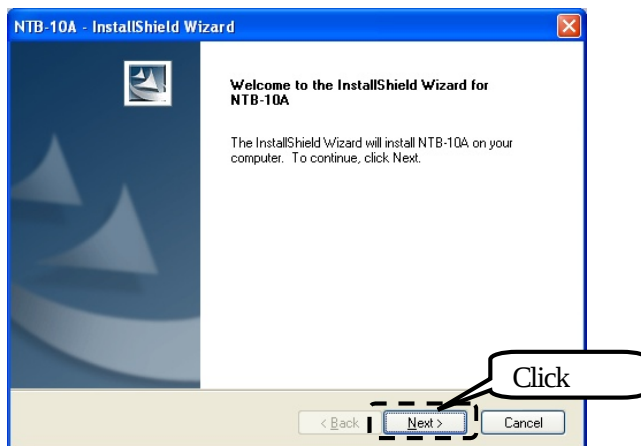
Do not connect the USB-CAN converter to the PC yet.

* Be sure to install the driver of the USB-CAN converter.

- 1) Set the accessory CD-ROM of the USB-CAN converter (Leaf Light HS of the Kverser Inc.) to the CD drive.
- 2) The following setup window appears.
If the setup window does not appear, execute **autorun.exe** in the CD-ROM.
- 3) Click **Install** button.



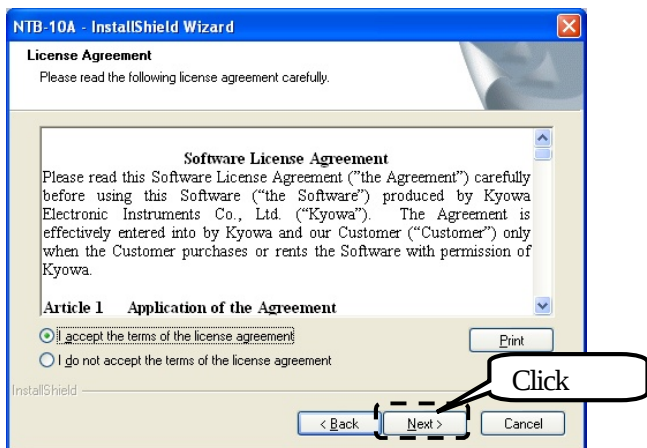
- 4) Click **Next** button.



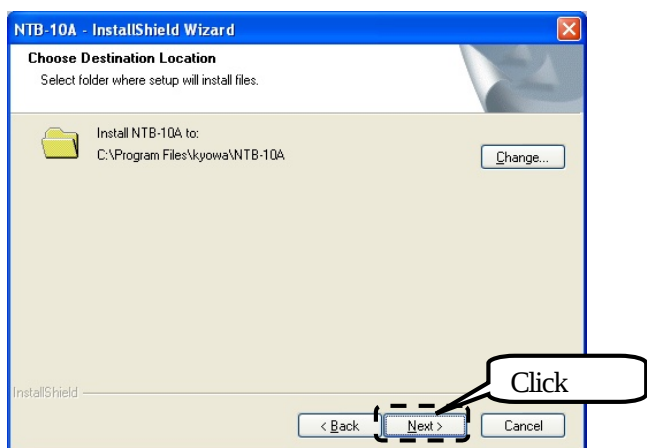
- 5) Check **I accept the terms of the license agreement.**



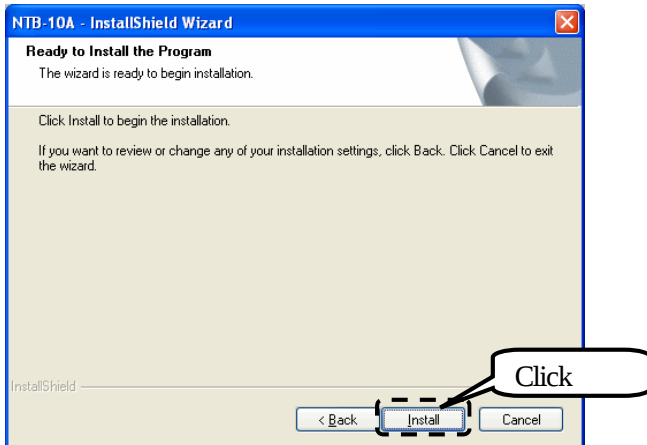
- 6) Click **NEXT >** button.



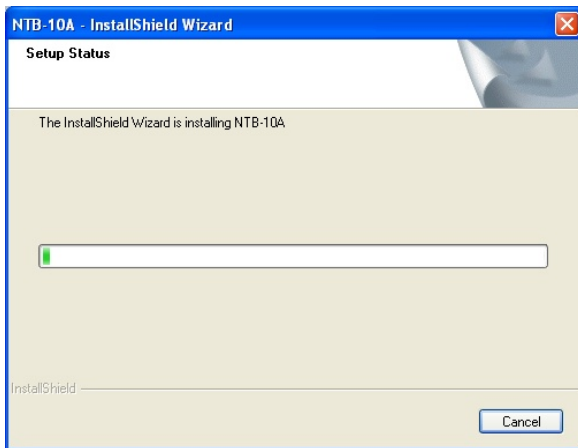
- 7) Click **NEXT >** button.



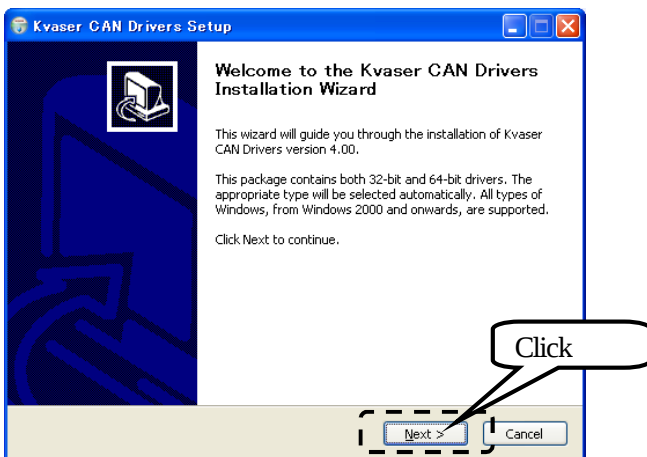
8) Click **Install** button.



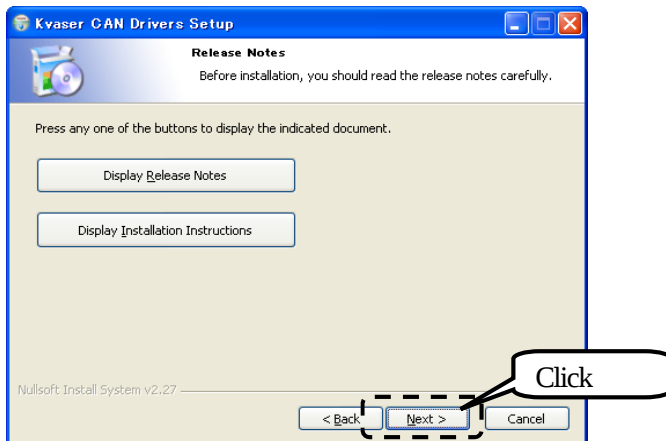
9) Installation is progressing.



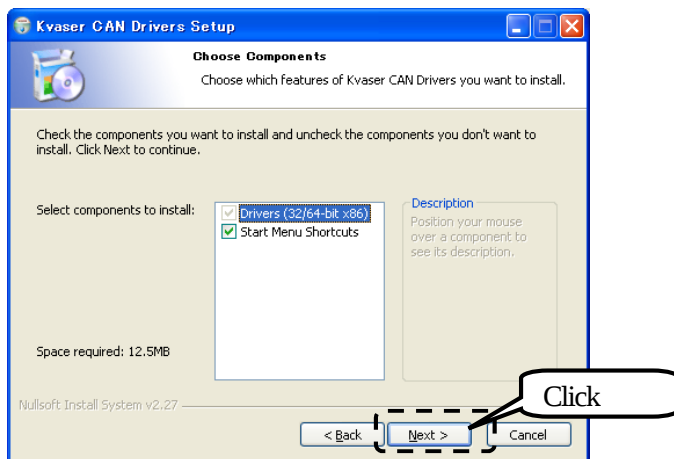
10) Click **NEXT >** button.



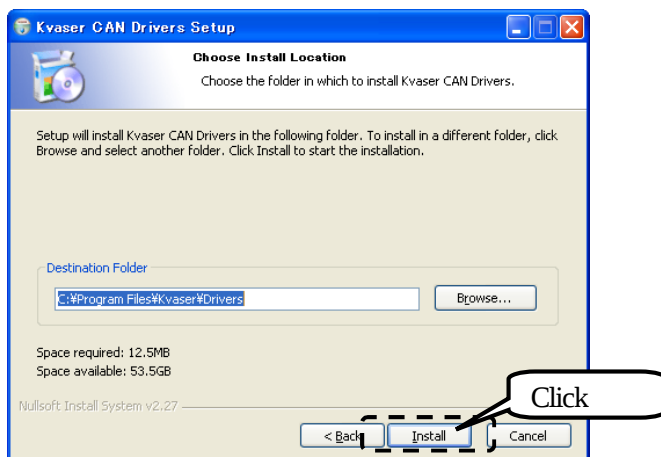
11) Click the **NEXT >** button.



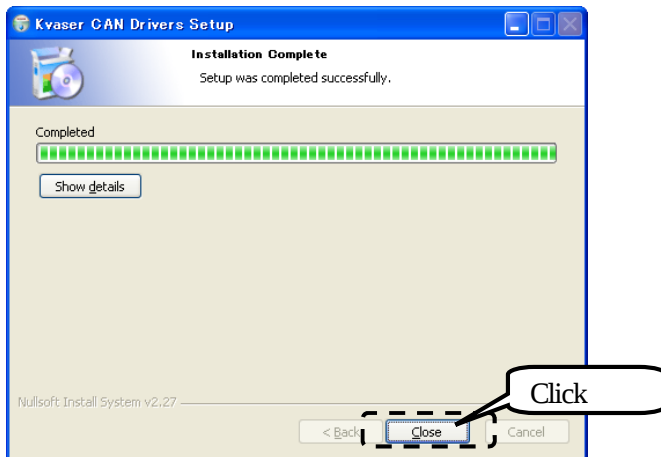
12) Click the **NEXT >** button.



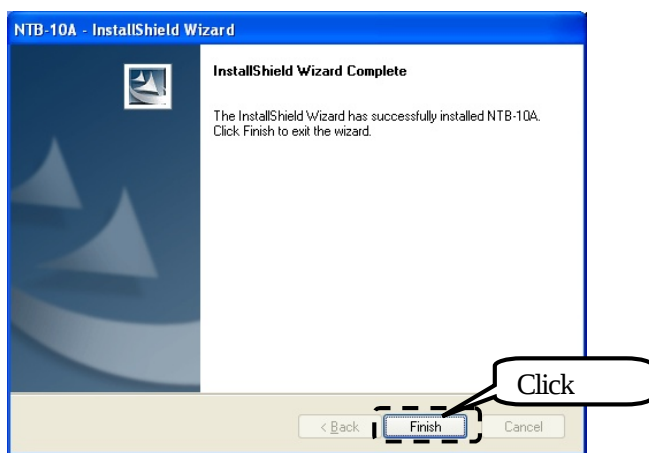
13) Click **Install** button.



- 14) Click **Close** button for completing the driver installation.



- 15) Click on the **Finish** button to complete the installation.



2-2 CONNECTING USB-CAN CONVERTER TO PC

Connect the USB-CAN converter to the USB port to automatically start the installation.

*For the Windows XP, follow the following procedures.

For the Windows Vista, the installation is automatically completed. Go “2-3 CHECKING AFTER CONNECTION.”

- For the Windows XP

When **Found New hardware Wizard** window appears, select as follows.

- 1) No, not this time. (For the Windows XP and SP2 only)
- 2) Click **Install the software automatically (Recommended).**
- 3) Click **NEXT >** button.
- 4) Click **Finish** button.

2-3 CHECKING AFTER CONNECTION

This section describes how to check that the USB-CAN converter is correctly recognized.

- 1) Open device manager.

- For the Windows 7:
Click **Start** and then click **Control Panel**.
Click **Device Manager**.
If the **User Account Control** dialog box appears, confirm that the action it displays is what you want, and then click **Continue**.
- For the Windows Vista:
Click **Start** and right click **Computer** to display **Property**.
Click the displayed **Property**.
Click **Device Manager**.
When **User Account Control** window appears, click **Continue** button.
- For the Windows XP:
Click **Start** and right click **My Computer**.
Click **Hardware** tab.
Click the **Device Manager**.

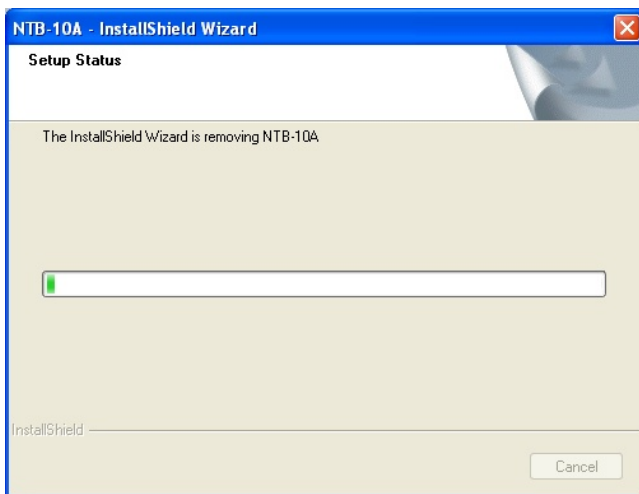
- 2) After checking, close the **Device Manager** window.

2-4 UNINSTALLING NTB-10A

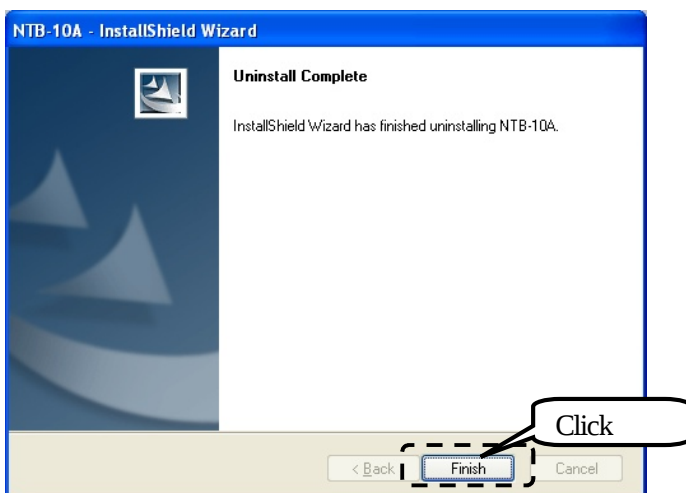
- 1) Click the **Start** button - **Control Panel**.
- 2) Click **Add or Remove programs**.
Add or Remove programs window appears. Click **NTB-10A** - **Delete** button.
- 3) Click **Yes** button.



- 4) Uninstalling window.



- 5) Click **Finish** button to finish uninstallation.



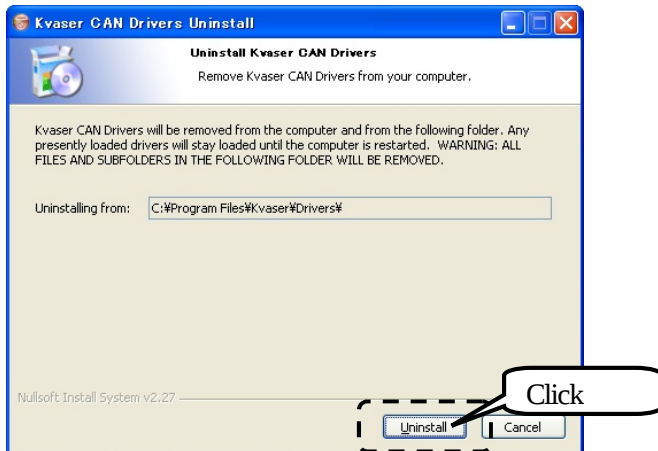
NOTE

When the NTB-10A is uninstalled, the driver of the USB-CAN converter will remain installed on the system unless it is uninstalled.

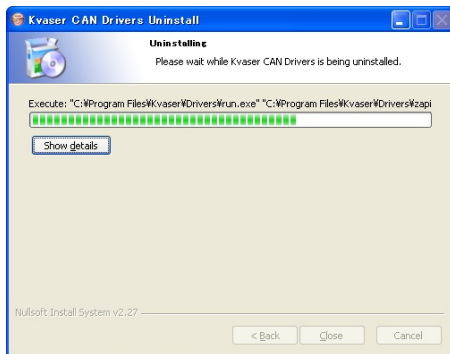
To uninstall the driver of the USB-CAN converter, refer to “3. UNINSTALLING USB-CAN CONVERTER DRIVER.”

3. UNINSTALLING USB-CAN CONVERTER DRIVER

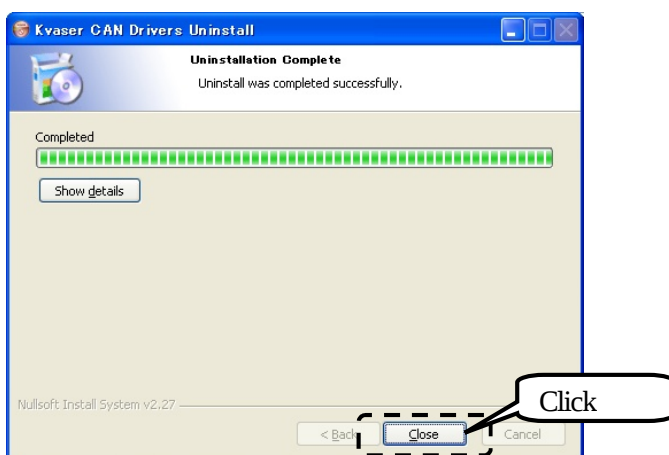
- 1) Click the **Start** button - **Control Panel**.
- 2) Click **Add or Remove programs**.
Add or Remove programs window appears. Click **Kvaser CAN Drivers** - **Delete** button.
- 3) Click **Uninstall** button.



- 4) Uninstalling window.



- 5) After completing the uninstallation, **Close** button becomes valid. Click the **Close** button to finish the uninstallation.



4. MEASURING OUTLINE

4-1 INITIAL STATUS OF NTB-10A

CH condition, data file, measuring mode, and interval condition are set as follows in initial status.

- CH condition

Setting Content	Status
Meas ON	Measure (ON)
CAL Coefficient ON	CAL coefficient calculation OFF (OFF)
Relative ON	Relative measurement OFF (OFF)
CAL Coefficient	1.00000
Dec. Digits	0 (*****) (Integer)
Unit	um/m
Offset	0.00000
Ref Resist (Ohm)	100.00 (ohm)
Zero Value	0

MEMO

- What is Relative (relative value) measurement?
- Put a checkmark (turn ON) in the “**Relative ON**” column to obtain a measured value with a ZERO value deducted.
- For using a strain gage or strain gage transducer, before a measurement, be sure to measure an initial unbalance value of sensors in no load state and deduct the initial unbalance value to obtain a measured value.
In the NTB-10A, an operation that measures the initial unbalance value is called a ZERO measurement.
In addition, the measured value of the ZERO measurement is called a ZERO value.
For using the CAL Coefficient function, be sure to put a checkmark (turn ON) in the “**Relative ON**” column and set the measured value after the ZERO measurement.
- * The ZERO value is equivalent to an initial unbalance value of a strain measurement.
Capable of obtaining the ZERO value in arbitrary timing.
- * The Relative measurement is also available for voltage and thermocouples.

- Data file

Setting Content	Status
Set Save Folder :WindowsXP	C:\Documents and Settings\User Name\My Documents\NTB10A
Set Save Folder :Windows Vista, :Windows7	C:\Users\User Name\Documents\NTB10A\
Data File Name	UNTITLE
Divide The File	Not Divide The File
File format	DATE/TIME
Data No	0

- Meas mode

Setting Content	Status
Meas Mode	Meas Once

- Interval condition

Setting Content	Status
Rec Num	1
Set Interval Start Time	Nothing
Interval Time	1 minute
Repeat	10
Status	End

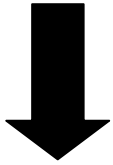
- Trigger condition

Setting Content	Status
Rec Num	1
Trigger Mode	Absolute Value
Slope	Pos.
Logical operation	OR
Repeat	10
Status	End

4-2 HOW TO MEASURE STRAIN

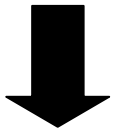
- This section describes how to control the NTB series.

Connect the NTB series.



- 1) Connect the NTB series.
For the connection method, refer to “NTB-100A series Instruction Manual for Hardware” and “NTB-201A Instruction Manual for Hardware.”

Start up the NTB-10A.

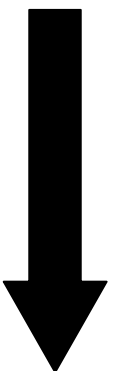


Environment setting (Connection check of the NTB)



- 1) Click **File(F)** – **Environment(E)** or click  icon from the tool bar to open a **Set Environment** window.
- 2) Check that a **Connection number** is displayed.
If the **Connection number** is not displayed, check that the USB-CAN converter is connected and click  button.
- 3) Click  button.
- 4) The communication check result appears in NTB information.
If the check result does not appear, check that the NTB and USB-CAN converter are correctly connected.
- 5) Click  button.

Set CH condition.



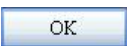
- 1) Click **Set(S)** – **Set CH Condition(C)** or click  icon from the tool bar to open the **Set Environment** window.
- 2) Put a checkmark in the “Meas ON” column.
- 3) Click  button.

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Measuring mode (Setting save file and measuring method)

- 1) Click **Set(S)** – **Set Meas Mode(M)** or click  icon from the tool bar to open a **Set Meas Mode** window.
- 2) For changing the **Set Save Folder**, click  button to set the Set Save Folder.
- 3) Set **Meas Mode**, **Data File Name**, **File Title**, **Divide The File**, and **Data Number**.
- 4) Click  button.

Measure

- 1) Click **Measurement(M)** – **MONITOR(M)** or click  button on the Meas Operation Panel.
 - 2) Communication check between the PC and NTB-100A series is conducted and the MONITOR measurement starts.
 - 3) Click **Measurement(M)** – **REC(R)** or click  button on the Meas Operation Panel.
 - 4) Recording based on the **Meas Mode** starts.
 - 5) Click **Measurement(M)** – **STOP(S)** or click  button on the Meas Operation Panel for the MONITOR measurement.
- The NTB-10A changes in due order from the recording – MONITOR measurement – stopp by clicking the **STOP(S)** or **STOP** button. Click the **STOP(S)** or **STOP** button twice to stop the recording.

Check data

- 1) Click **File(F)** – **Open Data File Folder(D)** or click  icon from the tool bar.
- 2) **Data File Folder** window appears.
Check that the saved data file exists or not.

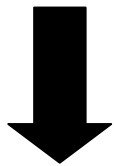
4-3 HOW TO CONDUCT RELATIVE (RELATIVE VALUE) MEASUREMENT

This section describes how to set a measured value with the ZERO value deducted.

MEMO

- What is Relative (relative value) measurement?
- Put a checkmark (turn ON) in the “**Relative ON**” column to obtain a measured value with a ZERO value deducted.
- For using a strain gage or strain gage transducer, before a measurement, be sure to measure an initial unbalance value of sensors in no load state and deduct the initial unbalance value to obtain a measured value.
In the NTB-10A, an operation that measures the initial unbalance value is called a ZERO measurement.
In addition, the measured value of the ZERO measurement is called a ZERO value.
For using the CAL Coefficient function, be sure to put a checkmark (turn ON) in the “**Relative ON**” column and set the measured value after the ZERO measurement.
- * The ZERO value is equivalent to an initial unbalance value of a strain measurement.
Capable of obtaining the ZERO value in arbitrary timing.
- * The Relative measurement is also available for voltage and thermocouples.

Connect the NTB series.



Connect the NTB series.

For the connection method, refer to the “NTB-100A series Instruction Manual for hardware” and “NTB-201A Instruction Manual for hardware.”

Start up the NTB-10A series.



Environment setting (Connection check of the NTB series)



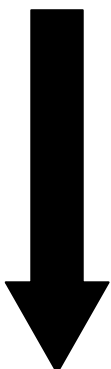
- 1) Click **File(F)** – **Environment(E)** or click  icon from the tool bar to open a **Set Environment** window.
- 2) Check that the **Connection number** is displayed.
If the **Connection number** is not displayed, check that the USB-CAN converter is connected and click  button.
- 3) Click  button.
- 4) The communication check result appears in NTB information.
If the check result does not appear, check that the NTB and USB-CAN converter are correctly connected.
- 5) Click  button.

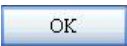
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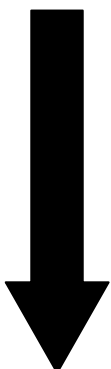


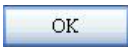
Set CH condition.



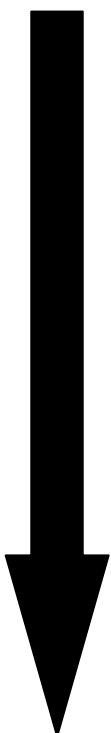
- 1) Click **Set(S)** – **Set CH Condition(C)** or click  icon from the tool bar to open the **Set CH Condition** window.
- 2) Put a checkmark in the “**Meas ON**” and “**Relative ON**” column.
- 3) Put a checkmark in the “**CAL Coefficient ON**” column and set the **CAL Coefficient**, **Dec. Digits**, **Unit**, **Offset** and **CH Name**.
- 4) Click  button.

Measuring mode (Setting save file and measuring method)



- 1) Click **Set(S)** – **Set Meas Mode(M)** or click  icon from the tool bar to open the **Set Meas Mode** window.
- 2) For changing the **Set Save Folder**, click  button and set the target Set Save Folder.
- 3) Set **Meas Mode**, **Data File Name**, **File Title**, **Divide The File**, and **Data Number**.
- 4) Click  button.

Measure



- 1) Click **Measurement(M)** – **MONITOR(M)** or click  button on the Meas Operation Panel.
 - 2) Communication check between the PC and NTB-100A series is conducted and the MONITOR measurement starts.
 - 3) Click **Measurement(M)** – **REC(R)** or click  button on the Meas Operation Panel.
 - 4) Recording based on the **Meas Mode** starts.
 - 5) Click **Measurement(M)** – **STOP(S)** or click  button on the Meas Operation Panel for the MONITOR measurement.
- The NTB-10A changes in due order from the recording – MONITOR measurement – stop by clicking the **STOP(S)** or **STOP** button. Click the **STOP(S)** or **STOP** button twice to stop the recording.

(Next page)

(Previous page)



Check data

- 1) Click **File(F)** – **Open Data File Folder(D)** or click  icon from the tool bar.
- 2) **Data File Folder** window appears.
Check that the saved data file exists or not.

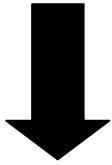
NOTE

- For a temperature measuring data that is obtained from a transducer with temperature measuring function (4G/T), the ZERO value cannot be deducted.

4-4 HOW TO MEASURE PHYSICAL QUANTITY

- This section describes how to measure physical quantity.

Connect the NTB series.



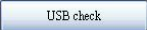
- 1) Connect the NTB series.
For the connection method, refer to “NTB-100A series Instruction Manual for hardware” and “NTB-201A Instruction Manual for hardware.”

Start up the NTB-10A.



Environment setting (Connection check of the NTB)



- 1) Click **File(F)** – **Environment(E)** or click  icon from the tool bar to open a **Set Environment** window.
- 2) Check that the **Connection number** is displayed.
If the **Connection number** is not displayed, check that the USB-CAN converter is connected and click  button.
- 3) Click  button.
- 4) The communication check result appears in NTB information.
If the check result does not appear, check that the NTB and USB-CAN converter are correctly connected.
- 5) Click  button.

Set CH condition.



- 1) Click **Set(S)** – **Set CH Condition(C)** or click  icon from the tool bar to open a **Set Environment** window.
- 2) Put a checkmark in the “**Meas ON**” and “**CAL coefficient ON**” columns and set **CAL coefficient**.
- 3) Set **Dec. Digits**, **Unit**, **Offset** and **CH Name**.
- 4) Click  button.

(Next page)

(Previous page)



Measuring mode (Setting save file and measuring method)



- 1) Click **Set(S)** – **Set Meas Mode(M)** or click  icon from the tool bar to open a **Set Meas Mode** window.
- 2) For changing the **Set Save Folder**, click  button and set the target Set Save Folder.
- 3) Set **Meas Mode**, **Data File Name**, **File Title**, **Divide The File**, and **Data Number**.
- 4) Click  button.

Measure



- 1) Click **Measurement(M)** – **MONITOR(M)** or click  button on the Meas Operation Panel.
- 2) Communication check between the PC and NTB-100A series is conducted and the MONITOR measurement starts.
- 3) Click **Measurement(M)** – **REC(R)** or click  button on the Meas Operation Panel.
- 4) Recording based on the **Meas Mode** starts.
- 5) Click **Measurement(M)** – **STOP(S)** or click  button on the Meas Operation Panel for the MONITOR measurement.
 - The NTB-10A changes in due order from the recording – MONITOR measurement – stop by clicking the **STOP(S)** or **STOP** button. Click the **STOP(S)** or **STOP** button twice to stop the recording.

Check data

- 1) Click **File(F)** – **Open Data File Folder(D)** or click  icon from the tool bar.
- 2) **Data File Folder** window appears.
Check that the saved data file exists or not.

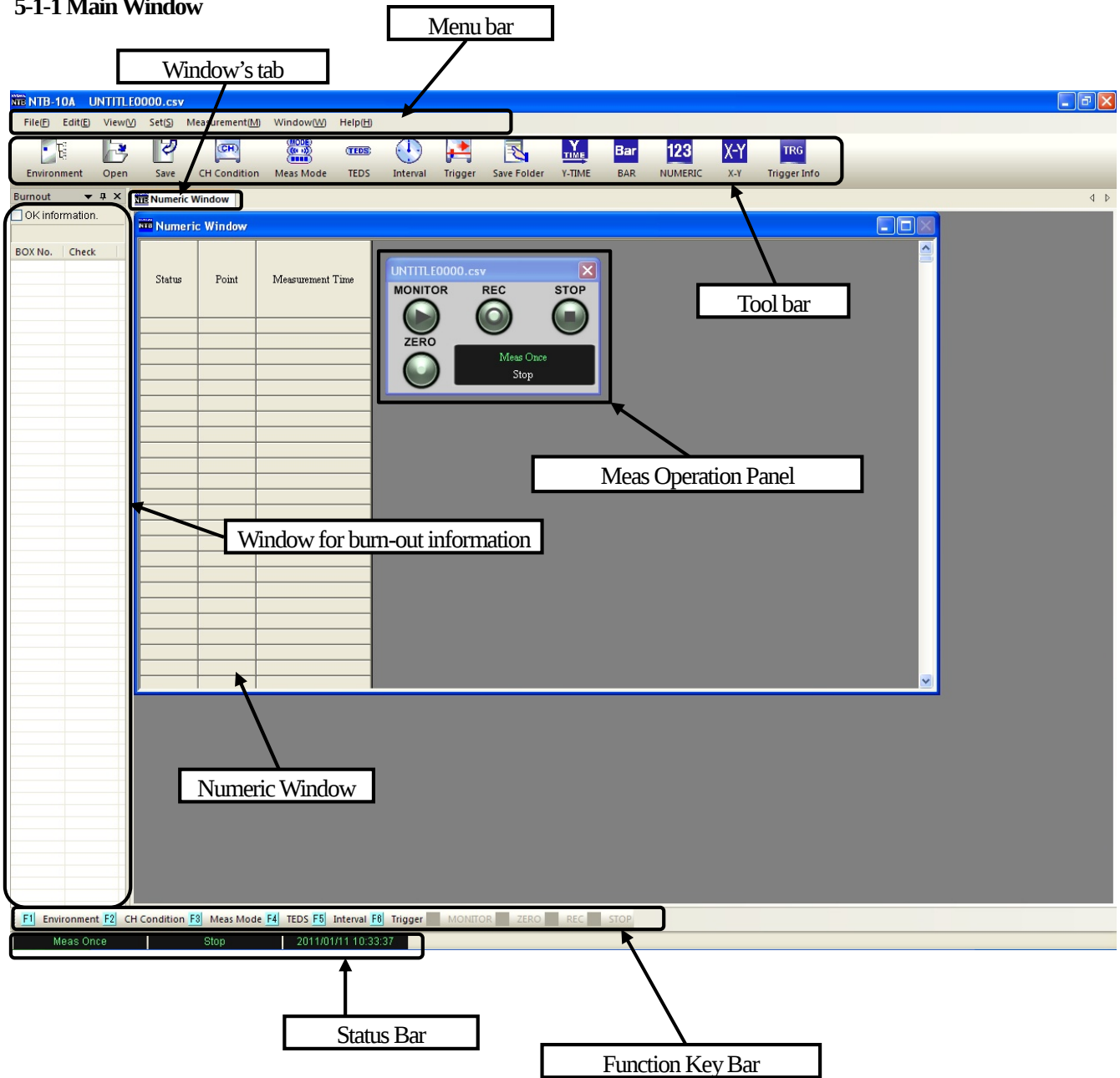
NOTE

- A temperature measuring data that is obtained from the transducer with temperature measuring function (4G/T) cannot be converted to the physical quantity.

5. WINDOW DISPLAYS AND DESCRIPTIONS

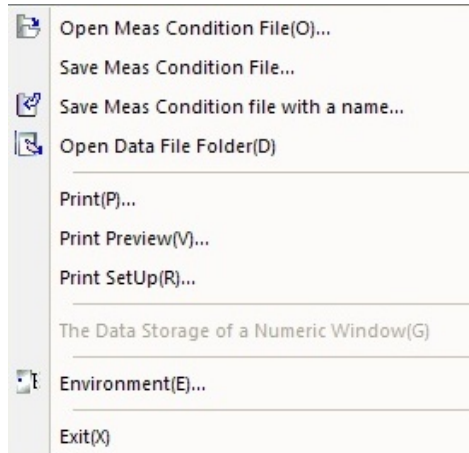
5-1 STARTUP WINDOW

5-1-1 Main Window



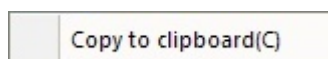
5-1-2 Menu Bar Configuration

■ File(F)



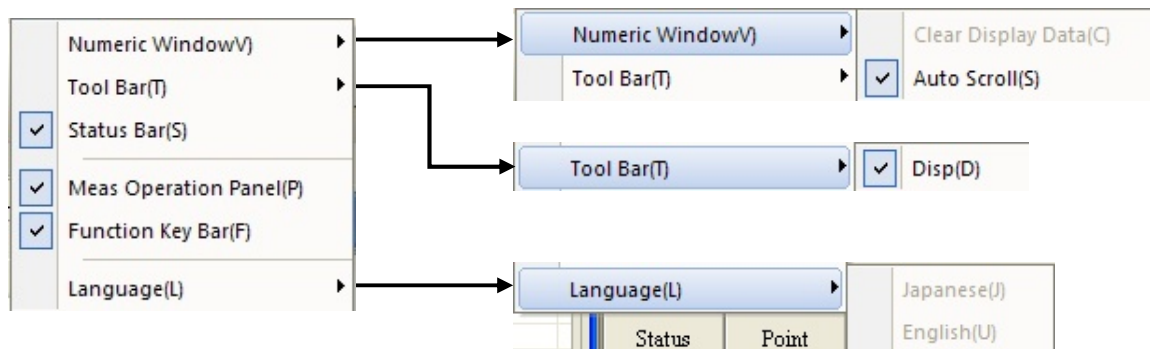
Item	Content
Open Meas Condition File(O)	Open the Meas Condition File for setting.
Save Meas Condition File...	Overwrite the Meas Condition File.
Save Meas Condition File with a name...	Save the Meas Condition File with a new name.
Open Data File Folder(D)	Open the Data File Folder.
Print...(P)...	Print
Print Preview(V)...	Print Preview a graph.
Print SetUp(R)...	Set a printer.
The Data Storage of a Numeric Window(G)	Save the data on the Numeric Window in the CSV file.
Environment(E)...	Open the Set Environment window.
Exit(X)	Exit the NTB-10A.

■ Edit (E)



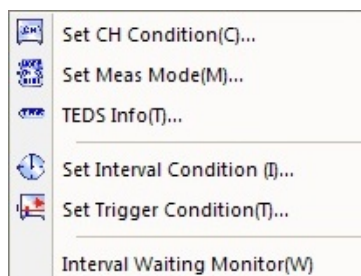
Item	Content
Copy to clipboard(C)	Copy the active (selected) window on the clipboard. * You cannot copy the Numeric Window on the clipboard.

■ View (V)



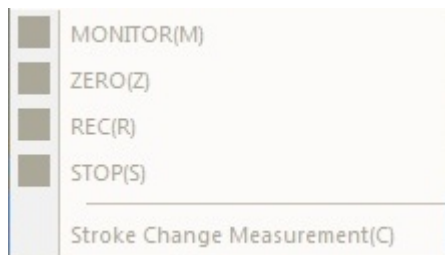
Item	Content
Numeric Window(V)	
→ Clear Display Data(C)	Clear a display data on a graph or numeric window.
→ Auto Scroll(S)	Always display the latest data of a numeric window.
Tool Bar(T)	
→ Disp(D)	Show or hide the tool bar.
Status Bar(S)	Show or hide the status bar.
Meas Operation Panel(P)	Show or hide the Meas Operation Panel.
Function Key Bar(F)	Show or hide the function key bar.

■ Set(S)



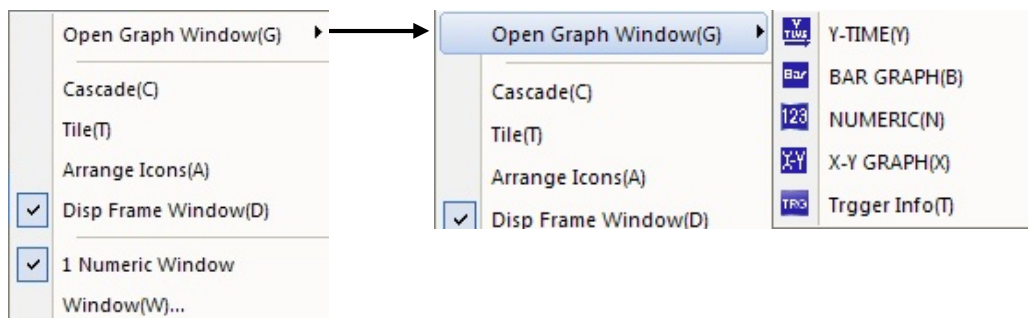
Item	Content
Set CH Condition(C)	Display Set CH Condition window.
Set Meas Mode(M)...	Display Set Meas Data window.
TEDS Info(T)...	Display TEDS Info. window.
Set Interval Condition(I)...	Display Set Interval Condition window.
Set Trigger Condition(T)...	Display Set Trigger Condition window.
Interval Waiting Monitor(W)	If you start the Interval measurement with the checkmark, Monitor measurement is performed during waiting for Interval measurement.

■ Measurement(M)



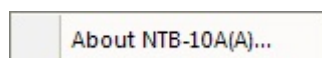
Item	Content
MONITOR(M)	Start MONITOR measurement.
ZERO(Z)	Start ZERO measurement.
REC(R)	Start recording.
STOP(S)	Stop MONITOR measurement or recording.
Stroke Change Measurement(C)	Start Stroke Change Measurement.

■ Window(W)



Item	Content
Open Graph Window(G)	
→ Y-TIME(Y)	Create a Y-TIME Graph window.
→ Bar Graph(B)	Create a Bar Graph window.
→ Numeric(N)	Create a Numeric Window .
→ X-Y Graph(X)	Create a X-Y Graph window.
→ Trigger Info(T)	Create a Trigger Info window.
Cascade(C)	Cascade Numeric and Graph windows.
Tile(T)	Tile Numeric Window and Graph window.
Arrange Icons(A)	Arrange icons.
Disp Frame Window(D)	Show or hide a Frame window.
Numeric Window	Numeric window is displaying.

■ Help(H)



Item	Content
About NTB-10A(A)...	Display version information of the NTB-10A.

5-2 ENVIRONMENT SETTING

5-2-1 How to Display Set Environment Window

This section describes following 2 methods for displaying the **Set Environment** window.

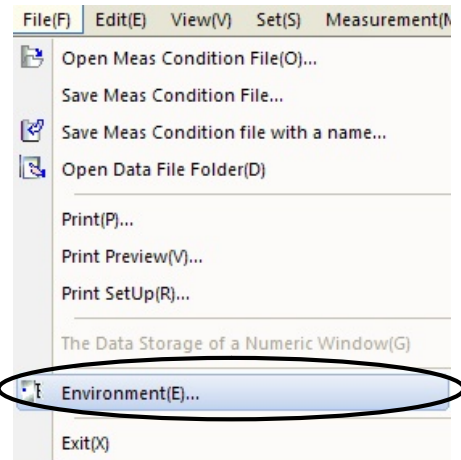
- 1) From the tool bar
- 2) From the menu

1) From the tool bar

Click “**Environment**” icon on the tool bar.

2) From the menu

Click **File(F)** – **Environment(E)**.



Click

Set Environment window appears.

Refer to “5-2-2-1 NTB comm check.”

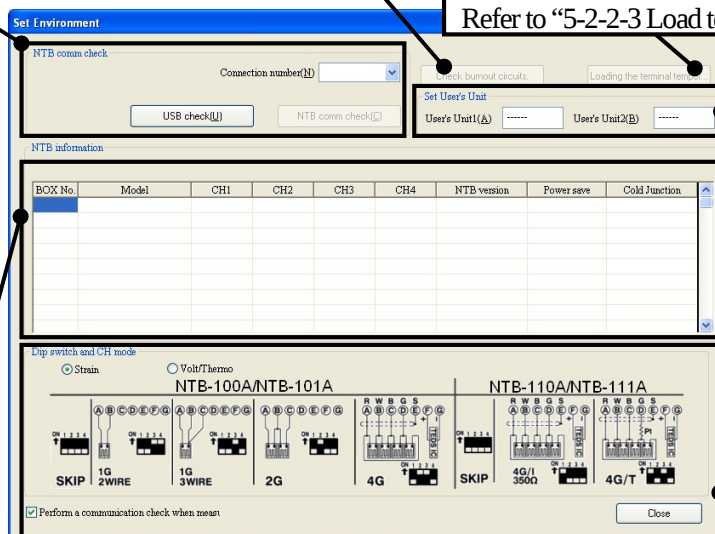
Refer to “5-2-2-2 Check burnout.”

Refer to “5-2-2-3 Load terminal temperature.”

Refer to
“5-2-2-4 Set User’s Unit.”

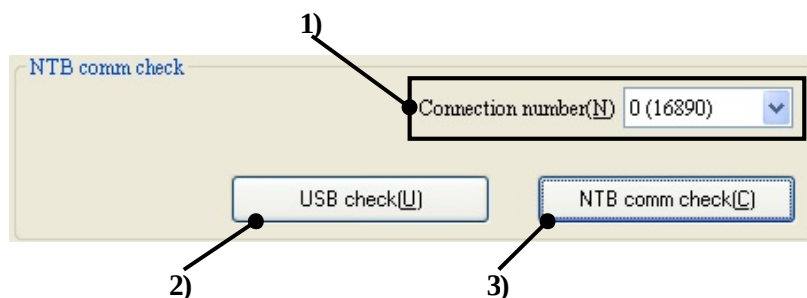
Refer to “5-2-2-5 NTB information.”

Refer to “5-2-2-6 DIP switch and CH mode.”



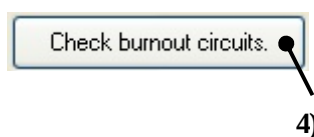
5-2-2 Description of Set Environment Window

5-2-2-1 NTB comm check



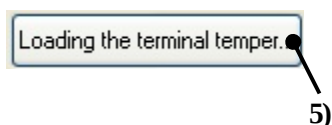
1) Connection number	Connection number of the USB-CAN converter. For deciding a destination of the USB-CAN converter.
2) USB check	For updating a number of the USB-CAN converter that is connecting to the PC. After disconnect and connect the USB-CAN converter, click the USB check button.
3) NTB comm. check	For the communication check between the PC and NTB series that is connected to the USB-CAN converter.

5-2-2-2 Check burnout



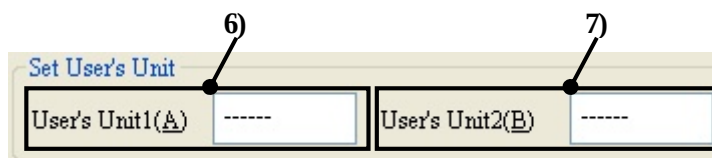
4) Check burnout circuits	For checking the thermocouples that is connected to the NTB-201A.
---------------------------	---

5-2-2-3 Load terminal temperature



5) Loading the terminal temperature	Load and display the terminal temperature of the NTB-201A.
-------------------------------------	--

5-2-2-4 Set User's Unit



6) User's Unit 1	Unit that user can define originally (7 characters)
7) User's Unit 2	Unit that user can define originally (7 characters)

5-2-2-5 NTB information

[illegible]

8)	BOX No.	Box No. that is confirmed by the communication check.
9)	Model	Model of the NTB series
10)	CH1~CH4	CH mode from CH1 to CH4.
11)	NTB version	Version of the NTB series
12)	Power save	Status of NTB's powersave mode
13)	Cold Junction	Current setting cold junction compensation (NTB-201A only) Internal: Internal cold junction compensation External: External cold junction compensation

5-2-2-6 Dip switch and CH mode

5-2-2-6 Dip switch and CH mode

Dip switch and CH mode

Strain Volt/Thermo

NTB-100A/NTB-101A

NTB-110A/NTB-111A

SKIP 1G 2WIRE 1G 3WIRE 2G 4G

SKIP 4G/I 350Ω 4G/T

Perform a communication check when meas

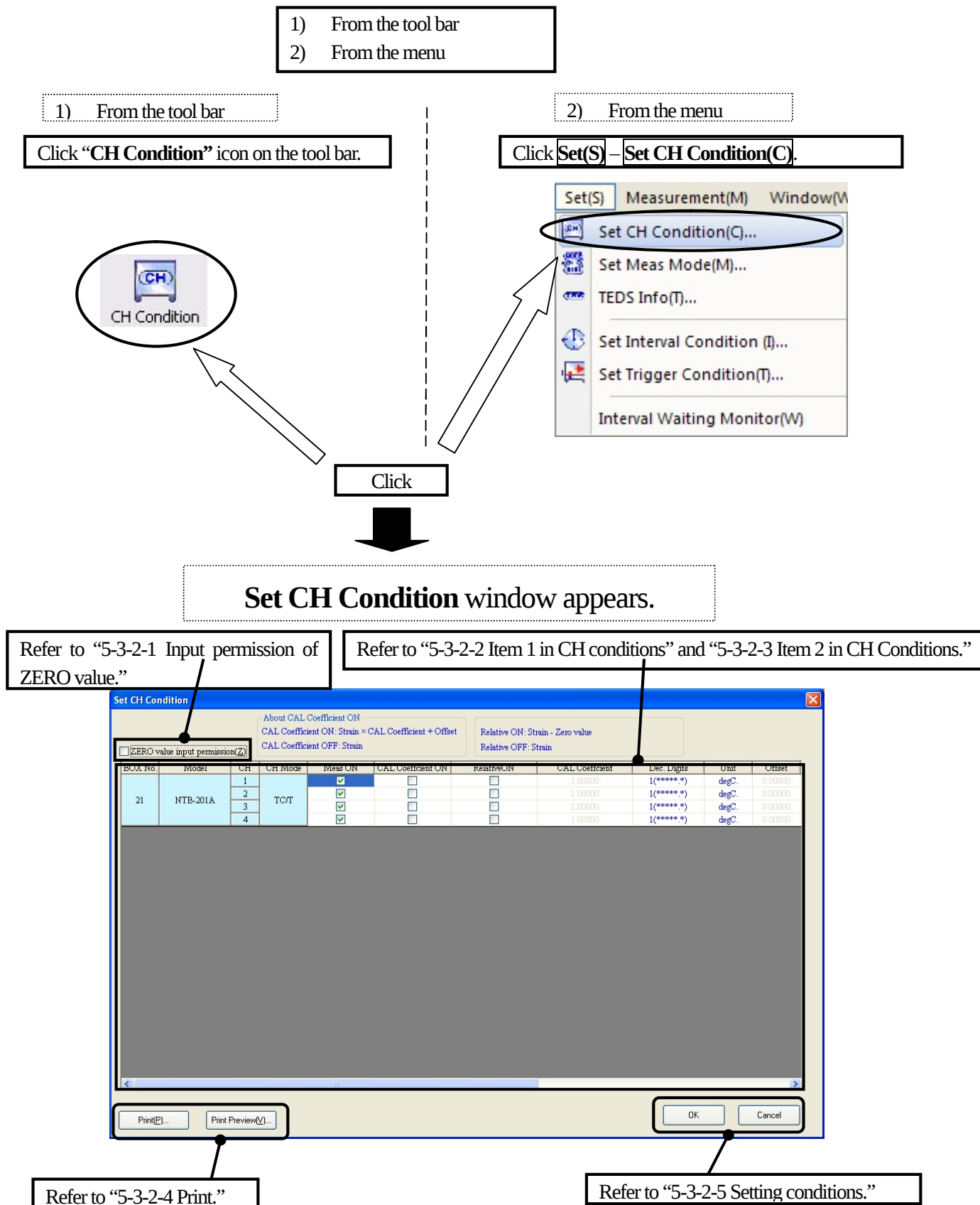
Close

14)	Connections	Select the DIP switches and connections for strain or for volt/thermo.
15)	DIP switch and CH mode	DIP switches and connections of the NTB series. Capable of checking the setting of the DIP switches before changing the CH mode.
16)	Perform a communication check when meas	Check whether the NTB series exists when starting the measurement.
17)	Close	Close the Set Environment window. Communication checked content is reflected to the CH condition and Numeric Window .

5-3 CH CONDITION

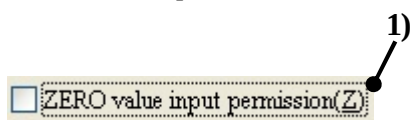
5-3-1 How to Display Set CH Condition Window

This section describes following 2 methods for displaying the **Set CH Condition** window.



5-3-2 Description of Set CH Condition Window

5-3-2-1 Zero Value Input Permission



1) ZERO value input permission	For editing the ZERO value. Setting range is -999999 to 999999.
--------------------------------	--

5-3-2-2 Item 1 in CH Conditions

2)	3)	4)	5)	6)	7)	8)	9)
BOX No.	Model	CH	CH Mode	Meas ON	CAL Coefficient ON	Relative ON	CAL Coefficient
21	NTB-201A	1	TC/T	☒	☐	☐	1.00000
		2		☒	☐	☐	1.00000
		3		☒	☐	☐	1.00000
		4		☒	☐	☐	1.00000

2) BOX No.	Box No. of the connecting NTB series
3) Model	Model of the connecting NTB series
4) CH	CH number of the NTB series
5) CH Mode	Current CH mode of the NTB series For changing, change the DIP switch of the NTB series and click the NTB comm. check button in the Set Environment window.
6) Meas ON	Measurement ☒ → Perform measurement. ☐ → Not perform measurement.
7) CAL Coefficient ON	CAL coefficient calculation ☒ → Perform CAL coefficient calculation. ☐ → Not perform CAL coefficient calculation.
8) Relative ON	Relative measurement ☐ → Perform Relative measurement. ☒ → Not perform Relative measurement.
9) CAL Coefficient	Multiplied to the data when performing CAL coefficient calculation. Setting range is -999999 to 999999.

5-3-2-3 Item 2 in CH Conditions

BOX No.	Model	CH	CH Mode	10) Dec. Digits	11) Unit	12) Offset	13) Ref Resist(Ohm)	14) CH Name	15) ZERO Value
21	NTB-201A	1	TC/T	1(*****.)	degC.	0.00000	100.00		0.00000
		2		1(*****.)	degC.	0.00000	100.00		0.00000
		3		1(*****.)	degC.	0.00000	100.00		0.00000
		4		1(*****.)	degC.	0.00000	100.00		0.00000

10) Dec. Digits	For setting the decimal digits of a data. <table border="1"> <thead> <tr> <th>Setting Item</th><th>Display Range</th></tr> </thead> <tbody> <tr> <td>0(*****.)</td><td>-999999 to -1, 0 to 999999</td></tr> <tr> <td>1(*****.)</td><td>-99999.9 to -0.1, 0.0 to 99999.9</td></tr> <tr> <td>2(*****.)</td><td>-9999.99 to -0.01, 0.00 to 9999.99</td></tr> <tr> <td>3(*****.)</td><td>-999.999 to -0.001, 0.000 to 999.999</td></tr> <tr> <td>4(**.****)</td><td>-99.9999 to -0.0001, 0.0000 to 99.9999</td></tr> <tr> <td>5(*.*****)</td><td>-9.99999 to -0.00001, 0.00000 to 9.99999</td></tr> </tbody> </table>	Setting Item	Display Range	0(*****.)	-999999 to -1, 0 to 999999	1(*****.)	-99999.9 to -0.1, 0.0 to 99999.9	2(*****.)	-9999.99 to -0.01, 0.00 to 9999.99	3(*****.)	-999.999 to -0.001, 0.000 to 999.999	4(**.****)	-99.9999 to -0.0001, 0.0000 to 99.9999	5(*.*****)	-9.99999 to -0.00001, 0.00000 to 9.99999
Setting Item	Display Range														
0(*****.)	-999999 to -1, 0 to 999999														
1(*****.)	-99999.9 to -0.1, 0.0 to 99999.9														
2(*****.)	-9999.99 to -0.01, 0.00 to 9999.99														
3(*****.)	-999.999 to -0.001, 0.000 to 999.999														
4(**.****)	-99.9999 to -0.0001, 0.0000 to 99.9999														
5(*.*****)	-9.99999 to -0.00001, 0.00000 to 9.99999														
11) Unit	Unit for CAL coefficient calculation Press a Space key or double-click a mouse left button to display the Set User's Unit dialog and select the target unit.														
12) Offset	Added to the data when performing CAL coefficient calculation. Setting range is -999999 to 999999.														
13) Ref Resist	For using a KYOWA Civil Engineering Transducer with Temperature Measuring Function, input a resistance value at 0°C of the target sensor. Resistance value should from 80.00 to 125.00 ohm.														
14) CH Name	Input the desired CH Name to the target measuring CH (28 characters).														
15) ZERO Value	Deducted from the measured data when the Relative ON column is checked. For updating, conduct ZERO measurement during the MONITOR measurement. Capable of setting the ZERO Value if the box next to the ZERO value input permission has a checkmark.														

5-3-2-4 Print



16)	Print...	Print CH conditions (2) to (15).
17)	Print Preview...	Print preview the CH conditions (2) to (15) and print them.

5-3-2-5 Setting Conditions



18)	OK	Valid a changed CH condition and close the Set CH Condition window.
19)	Cancel	Cancel a changed CH condition and close the Set CH Condition window.

5-4 MEASURING MODE

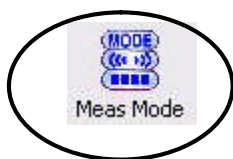
5-4-1 How to Display Set Meas Data Window

This section describes following 2 methods for displaying the **Set Meas Data** window.

- 1) From the tool bar
- 2) From the menu

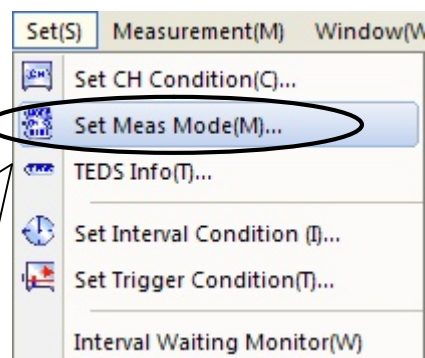
1) From the tool bar

Click "Meas Mode" icon on the tool bar.



2) From the menu

Click **Set(S) – Set Meas Mode (M)**.



Click

Set Meas Data window appears.

Refer to "5-4-2-1 Set Save Folder."

Refer to "5-4-2-2 Set Meas Mode and Files."

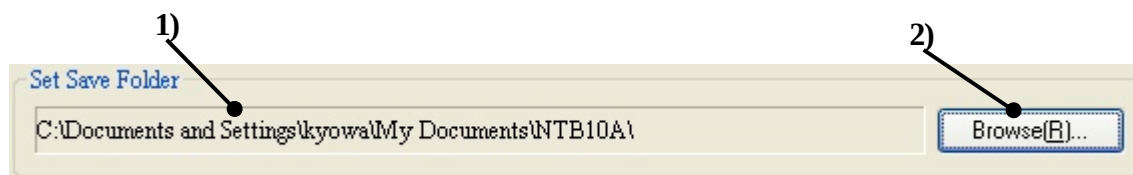
A screenshot of the "Set Meas Data" dialog box. It has a blue title bar and a white background. The "Set Save Folder" section shows a text box with the path "C:\Documents and Settings\kyowa\My Documents\NTB10A\" and a "Browse(B)..." button. The "Meas Mode" section has a "Meas Mode" dropdown set to "Meas Once", a "Rec Num(R)" spinner set to "0" with a range of "(0-99999)", and a note: "When the Rec Num is set to '0,' the NTB-10A keep recording the data until the STOP button is pressed." The "Data File Name(N)" section has a text box with "UNTITLE", a "File Title(T)" text box, a "Divide The File(D)" dropdown set to "Not Divide The File", and a "File format(F)" dropdown set to "DATE/TIME". The "Meas Data File" section has a text box with "UNTITLE0000.csv". The "Data No" section has a spinner set to "0". At the bottom are "OK" and "Cancel" buttons.

Refer to "5-4-2-3 Meas Data File."

Refer to "5-4-2-4 Setting Conditions."

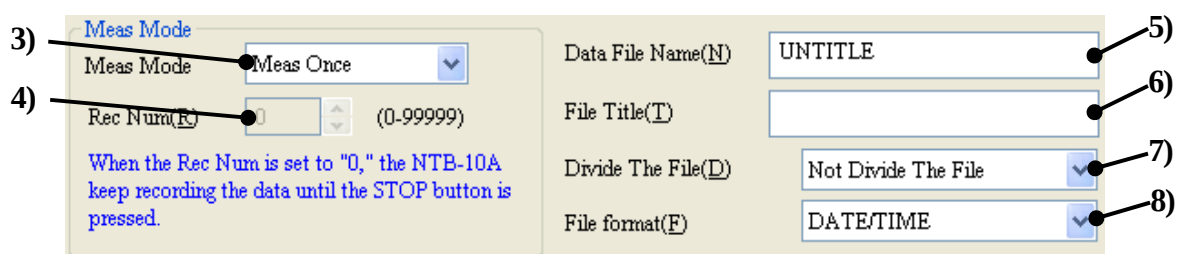
5-4-2 Description of Set Meas Data Window

5-4-2-1 Set Save Folder



1) Set Save Folder	Set Save Folder of the current data file For changing, click the 2) Browse... button.
2) Browse...	Browse for Folder dialog box appears. For changing the Set Save Folder .

5-4-2-2 Set Meas Mode and Files



3) Meas Mode	Set the measuring mode from the following.	
	Meas Mode	Description
	Meas Once	Records a measured data once.
	Sequential Meas	Records a measured data until the STOP(S) or STOP button is clicked.
	Interval Meas	Records a measured data at intervals.
4) Rec Num	Triggrer Meas	The NTB-10A records data based on the trigger conditions.
	Set the number of recorded data when the Sequential Meas is selected in the item 3).	
	5) Data File Name	
	Data file name (20 characters)	
	6) File Title	
7) Divide the File	Appears in the "Title" in the measured data file (20 characters).	
	File dividing function	
	For dividing a measured data file at a regular interval.	
	See as follows.	
	Function	Description
	Not Divide The File	Not divide the file.
	Divide Every Hour	Divide the file at every hour.
	Divide Every Day	Divide the file at every day.

8) File format	File Format	Description of file format
	DATE / TIME	Date is described separately from Time as follows. Y M D / H M S
	DATE + TIME	Date and time are described as follows. Y M D H M S
	DIAdem format	Created in the DIAdem script format.

5-4-2-3 Meas Data File

9) Meas Data File	A target data file name is created by combining the Data File Name, Data file number, and the selected dividing function. See as follows. [Example] Data File Name = UNTITLE, Data file number = 2	
	Not Divide The File	Data file number (4-digit) UNTITLE0002.csv File name
	Divide Every Hour	Data file number (4-digit) UNTITLE0002_2009072813 File name Y/M/D/H
	Divide Every Day	Data file number (4-digit) UNTITLE0002_20090728 File name Date
10) Data File Number	Data file number that is attached to the data file (4-digit)	

5-4-2-4 Setting Conditions

11)	OK	Valid a changed CH condition and close the Set Meas Data window.
12)	Cancel	Cancel a changed CH condition and close the Set Meas Data window.

5-5 TEDS

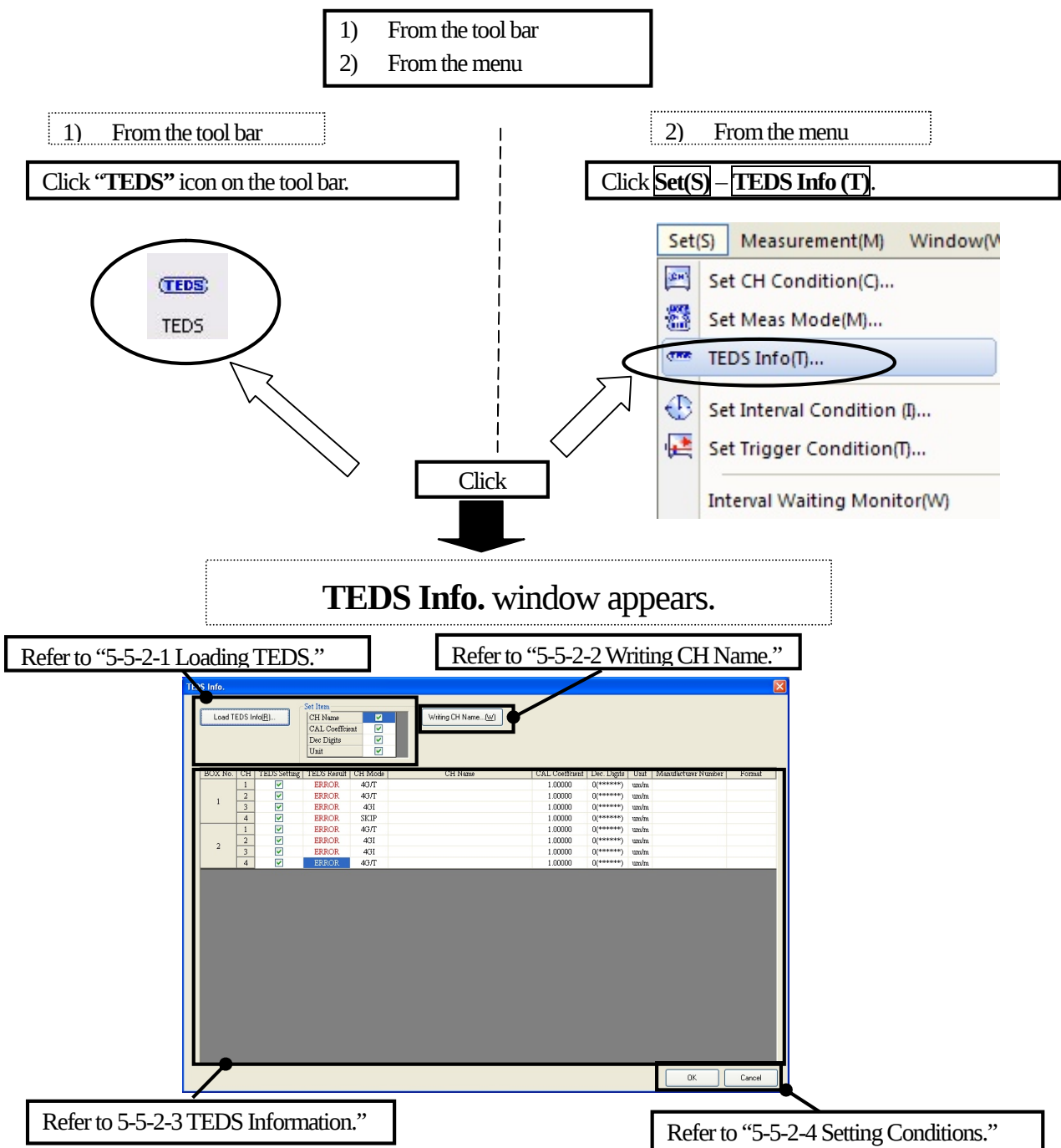
TEDS is an acronym for Transducer Electronic Datasheet. It is a table of parameters that identify the transducer and are held in the transducer on an EEprom for interrogation by external electronics.

Management of TEDS-compatible sensor is simple since the CH Name can be written to the sensor. In addition, measurement accuracy is improved without manual data entry since the TEDS-compatible instrument can read the TEDS information.

※ Only the NTB-100A series is TEDS compliant.

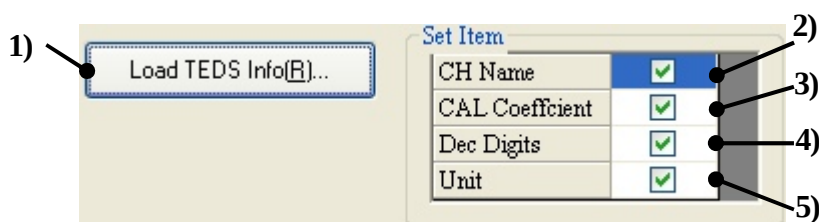
5-5-1 How to Display TEDS Info. Window

This section describes following 2 methods for displaying the **TEDS Info. window**.



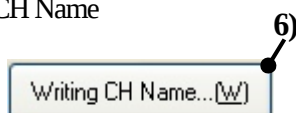
5-5-2 Description of TEDS Info. Window

5-5-2-1 Loading TEDS



1) Load TEDS Info...	For loading information from the TEDS that is connecting to the NTB-100A series.
2) CH Name	If the CH Name checkbox is checked (☒) the loaded content of the TEDS is set to the CH Name of the CH condition.
3) CAL Coefficient	If the CAL Coefficient checkbox is checked (☒) the loaded content of the TEDS is set to the CAL Coefficient of the CH condition.
4) Dec. Digits	If the Dec. Digits checkbox is checked (☒) the loaded content of the TEDS is set to the Dec. Digits of the CH condition.
5) Unit	If the Unit checkbox is checked (☒), the loaded content of the TEDS is set to the Unit of the CH condition.

5-5-2-2 Writing CH Name



6) Writing CH Name...	Write CH Name to the TEDS of the target CH. (For the TEDS Setting ☒ only.)
------------------------------	---

5-5-2-3 TEDS Information

BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer Number	Format
1	1	☒	ERROR	4G/T		1.00000	0(*****)	urn/m		
	2	☒	ERROR	4G/T		1.00000	0(*****)	urn/m		
	3	☒	ERROR	4GI		1.00000	0(*****)	urn/m		
	4	☒	ERROR	SKIP		1.00000	0(*****)	urn/m		
2	1	☒	ERROR	4G/T		1.00000	0(*****)	urn/m		
	2	☒	ERROR	4GI		1.00000	0(*****)	urn/m		
	3	☒	ERROR	4GI		1.00000	0(*****)	urn/m		
	4	☒	ERROR	4G/T		1.00000	0(*****)	urn/m		

7) BOX No.	BOX No. of the connecting NTB-100A series
8) CH	CH number of the NTB-100A series
9) TEDS Setting	Set whether to or not to load and write the TEDS information. ☒ → Load and write the TEDS information. ☐ → Not load and write the TEDS information.
10) TEDS Result	“OK” or “Error” appears as the result of the TEDS information loading and writing..
11) CH Mode	Loaded result from the TEDS information
12) CH Name	CH Name of the TEDS information. ● After loading: Loaded CH Name from the TEDS information ● Before writing: Target CH Name
13) CAL Coefficient	Loaded result from the TEDS information.
14) Dec. Digits	Loaded result from the TEDS information.
15) Unit	Loaded result from the TEDS information.
16) Manufacture	KYOWA made sensor : “KYOWA” Other brand sensor: “Number”

5-5-2-4 Setting Conditions

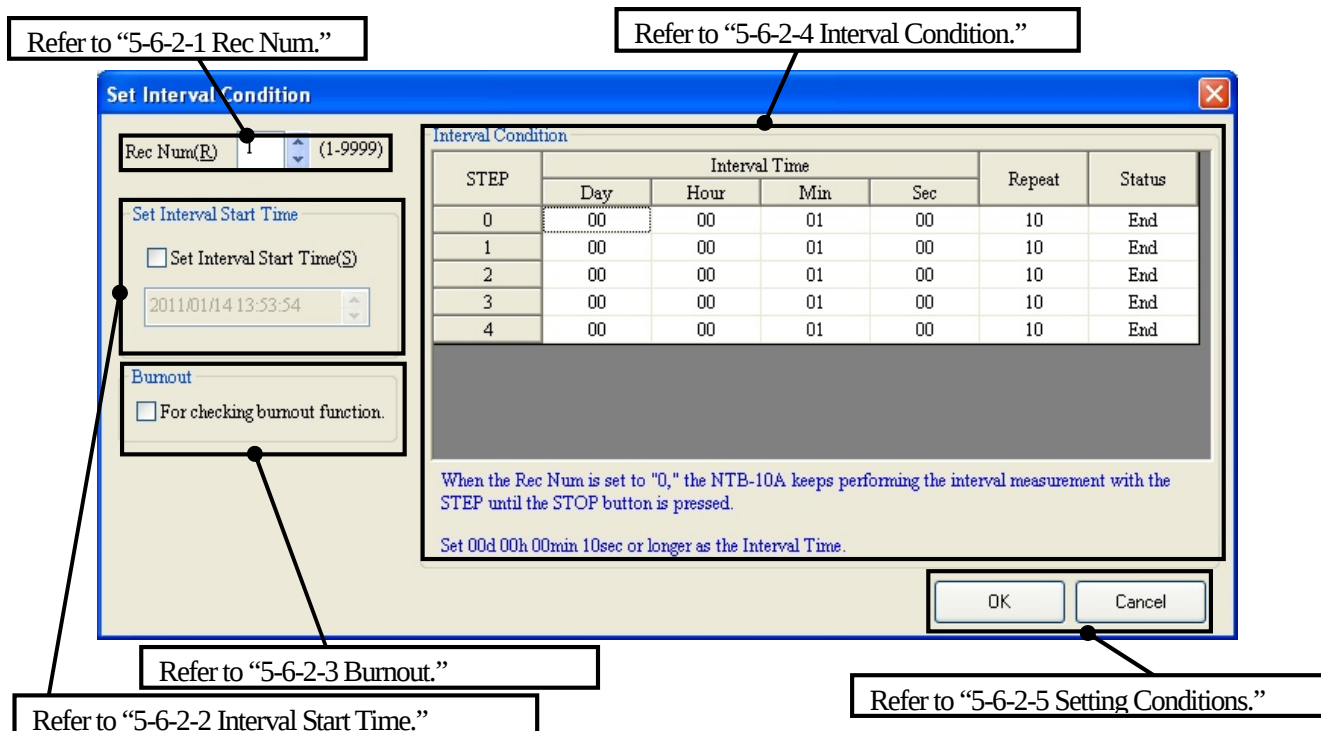
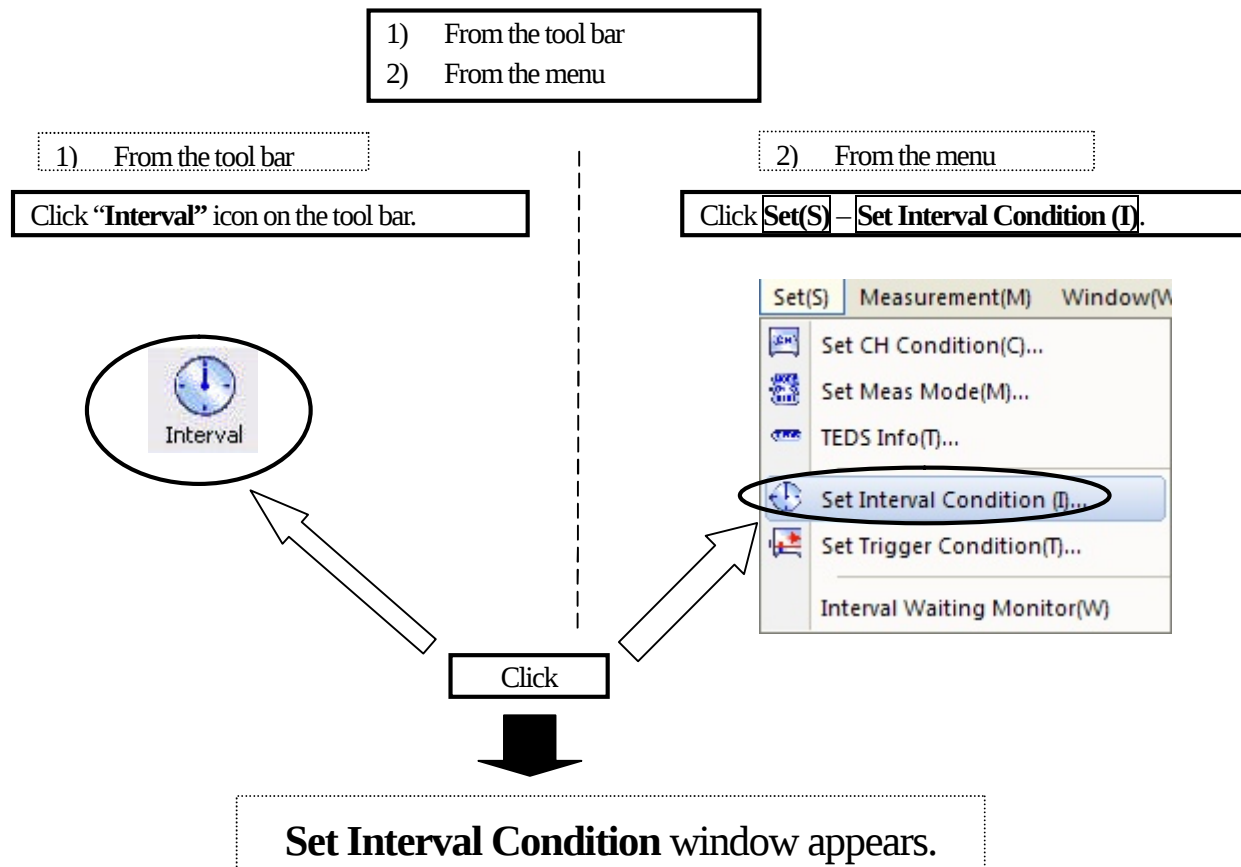


17)	OK	Confirm the setting and close the TEDS Info. window.
18)	Cancel	Cancel the loaded information and close the TEDS Info. window.

5-6 INTERVAL

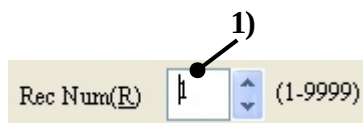
5-6-1 How to Display Set Interval Condition Window

This section describes following 2 methods for displaying the **Set Interval Condition** window.



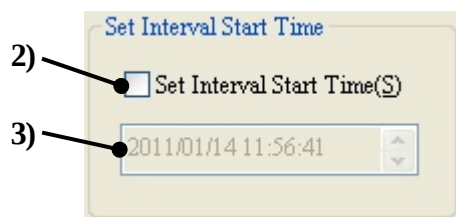
5-6-2 Description of Set Interval Condition Window

5-6-2-1 Rec Num



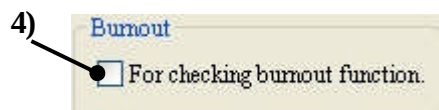
1) Rec Num	Specify the number of the measured data within 1 interval measurement.
------------	--

5-6-2-2 Interval Start Time



2) Set Interval Start Time	For setting Interval start time. ☒ → Start recording at the set time in 3). ☐ → Immediately start a measurement after clicking the REC(R) or REC button.
3) Set Interval Start Time	Interval start time If the REC(R) or REC button is clicked, record will not start until the Interval Start Time comes.

5-6-2-3 Burnout



4) For checking burnout function	Perform burnout check function if the NTB-10A is 30 seconds before the measurement and is waiting for the Interval measurement. *Burnout check function is not available during waiting for the Interval measurement with monitoring state.
----------------------------------	---

5-6-2-4 Interval condition

Interval Condition

STEP	Interval Time				Repeat	Status
	Day	Hour	Min	Sec		
0	00	00	01	00	10	End
1	00	00	01	00	10	End
2	00	00	01	00	10	End
3	00	00	01	00	10	End
4	00	00	01	00	10	End

When the Rec Num is set to "0," the NTB-10A keeps performing the interval measurement with the STEP until the STOP button is pressed.

Set 00d 00h 00min 10sec or longer as the Interval Time.

5) STEP	Interval step number.								
6) Day	Interval (Day)								
7) Hour	Interval (Hour)								
8) Min	Interval (Min)								
9) Sec	Interval (Sec)								
10) Repeat	The number of the repeat times of the step. Setting range is 0 to 9999. If 0 is set, the Interval measurement is repeated endlessly with the setting STEP until the STOP key is pressed.								
11) Status	Interval step Following items can be set. <table border="1"> <thead> <tr> <th>Content</th><th>Description</th></tr> </thead> <tbody> <tr> <td>STEP 0 to 4</td><td>Go to the preset step.</td></tr> <tr> <td>Continue</td><td> Go to the next step. When the current step is STEP 1, go to STEP 2. STEP 1 → STEP 2 </td></tr> <tr> <td>End</td><td>Interval measurement ends.</td></tr> </tbody> </table>	Content	Description	STEP 0 to 4	Go to the preset step.	Continue	Go to the next step. When the current step is STEP 1, go to STEP 2. STEP 1 → STEP 2	End	Interval measurement ends.
Content	Description								
STEP 0 to 4	Go to the preset step.								
Continue	Go to the next step. When the current step is STEP 1, go to STEP 2. STEP 1 → STEP 2								
End	Interval measurement ends.								

5-6-2-5 Setting Conditions

12) OK 13) Cancel

12)	OK	Valid a changed condition and close the Set Interval Condition window.
13)	Cancel	Cancel a changed condition and close the Set Interval Condition window.

5-7 TRIGGER CONDITIONS

5-7-1 How to display Set Trigger Condition window

This section describes following 2 methods for displaying the **Set Trigger Condition** window.

- 1) From the tool bar
- 2) From the menu

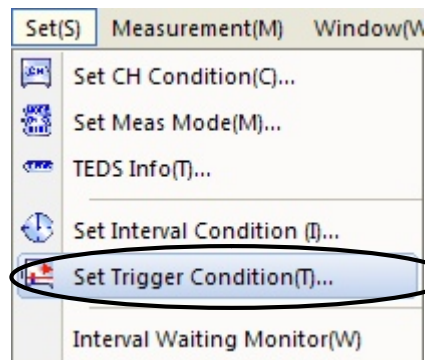
1) From the tool bar

Click “**Trigger**” icon on the tool bar.



2) From the menu

Click **Set(S)** – **Set Trigger Condition (T)**.



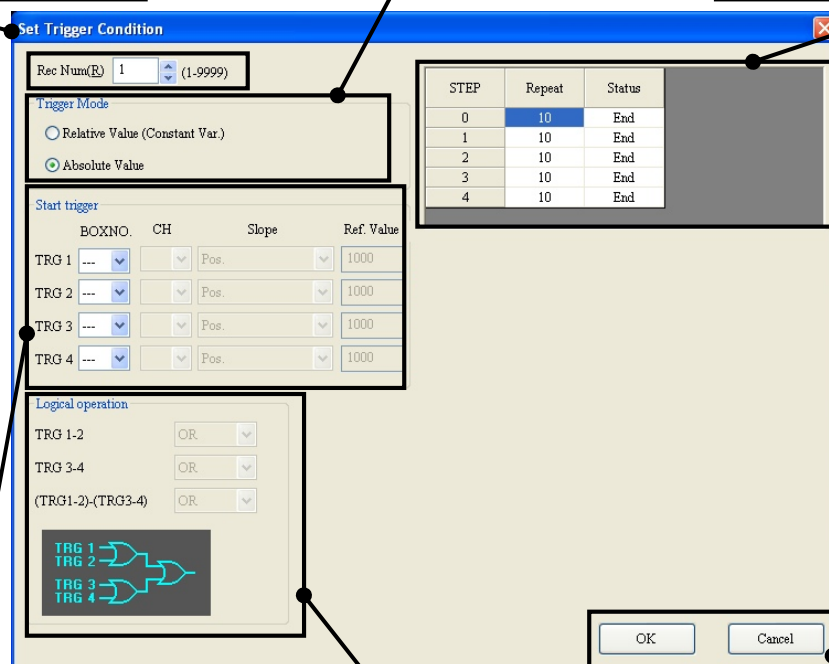
Click

Set Trigger Condition window appears.

Refer to
“5-7-2-1 Recording Numbers.”

Refer to “5-7-2-2 Trigger Mode.”

Refer to
“5-7-2-5 Trigger Condition.”

A screenshot of the "Set Trigger Condition" window. It has a title bar with a close button. The window contains several sections: "Rec Num(R)" with a dropdown set to 1; "Trigger Mode" with radio buttons for "Relative Value (Constant Var.)" and "Absolute Value"; "Start trigger" with a table for TRG 1 to TRG 4; "Logical operation" with radio buttons for TRG 1-2, TRG 3-4, and (TRG1-2)-(TRG3-4); and a diagram showing TRG 1, TRG 2, TRG 3, and TRG 4 connected by arrows. At the bottom right are "OK" and "Cancel" buttons.

STEP	Repeat	Status
0	10	End
1	10	End
2	10	End
3	10	End
4	10	End

Refer to “5-7-2-3 Start Trigger.”

Refer to “5-7-2-4 Logical Operation.”

Refer to “5-7-2-6 Setting Conditions.”

5-7-2 Description of Set Trigger Condition Window

5-7-2-1 Recording Numbers

1)

Rec Num(R) 1 (1-9999)

1)	Rec Num	Set the number of measured data to be recorded per Trigger measurement.
----	----------------	---

5-7-2-2 Trigger Mode

2) 3)

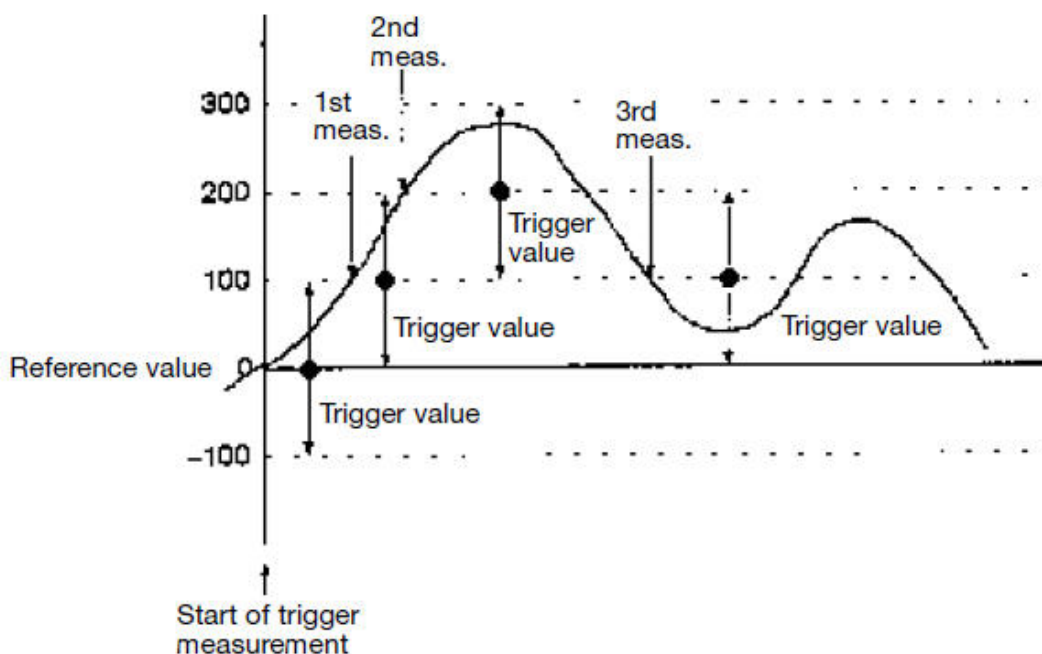
Trigger Mode

☐ Relative Value (Constant Var.)

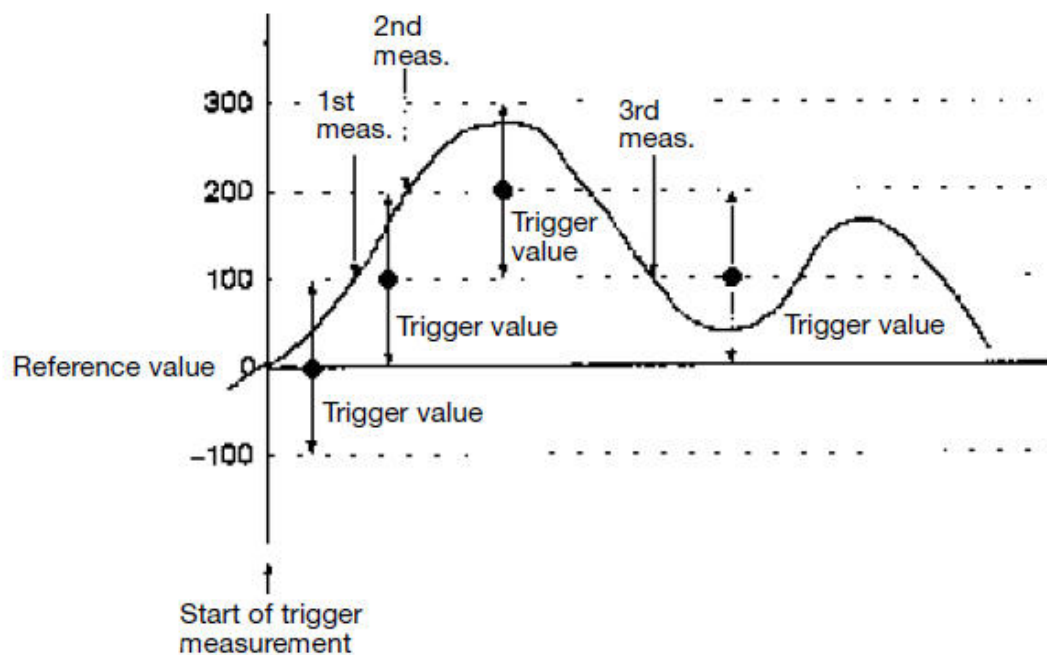
☒ Absolute Value

2)	Relative Value	Start recording with the trigger value that is set as the reference value. After the recording, the Trigger recording is performed by using the following 2 values. (Reference value + Trigger value that is set in the STEP) (Reference value – Trigger value that is set in the STEP)
3)	Absolute Value	Start the Trigger recording with the setting trigger value.

- Example of measurement with the Relative Value mode (Reference value: 0, Trigger value: 100)



- Example of the measurement with the Absolute Value mode (Trigger value: 100)

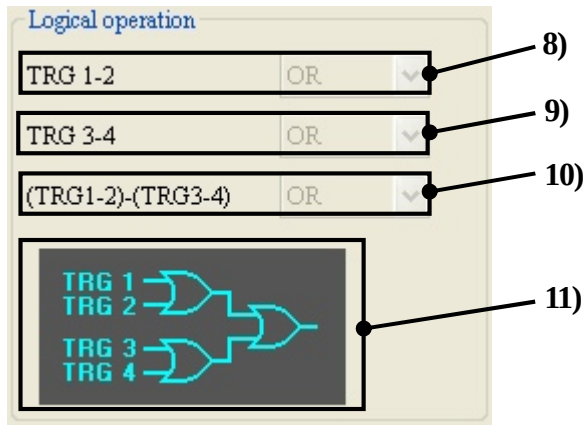


5-7-2-3 Start trigger

BOXNO	CH	Slope	Ref. Value
TRG 1		Pos.	1000
TRG 2		Pos.	1000
TRG 3		Pos.	1000
TRG 4		Pos.	1000

4)	TRG1 to 4 (BOX No.)	Set box numbers used for setting the start trigger.
5)	TRG1 to 4 (CH)	Set the same CH No. with the above.
6)	TRG1 to 4 (Slope)	Set slope of the start trigger. Valid for the absolute value mode only. Positive: Record data when the measured data becomes larger than the preset trigger value. Negative: Record data when the measured data becomes smaller than the preset trigger value.. Both: Record data when the measured data becomes larger and smaller than the preset trigger value.
7)	TRG1 to 4 (Ref. Value)	Set the reference value of the start trigger. Valid for the Relative value mode only.

5-7-2-4 Logical operation



8)	TRG1-2	Logical operation between the TRG1 and TRG2. "OR" or "AND" is available.
9)	TRG3-4	Logical operation between the TRG3 and TRG4. "OR" or "AND" is available.
10)	(TRG1-2)-(TRG3-4)	Logical operation between the (TRG1-2) and (TRG3-4). "OR" or "AND" is available.
11)	Logic circuit	Current setting logical operation is described with the schematic symbols.

5-7-2-5 Trigger Condition

STEP	Trig value		Repeat	Status
	TRG1	TRG2		
0	1000	1000	10	End
1	1000	1000	10	End
2	1000	1000	10	End
3	1000	1000	10	End
4	1000	1000	10	End

12)	STEP	Logical operation between the TRG1 and TRG2. “OR” or “AND” is available.								
13)	TRG1	Logical operation between the TRG3 and TRG4. “OR” or “AND” is available.								
14)	TRG2	Logical operation between the (TRG1-2) and (TRG3-4). “OR” or “AND” is available.								
15)	Repeat	The number of repeated steps. If 0 is selected, current step is repeated infinity.								
16)	Status	Trigger Step								
		Following items are available.								
		STEP0 is always start STEP.								
		<table><tr><th>Contents</th><th>Descriptions</th></tr><tr><td>STEP0 to 4</td><td>Jump to the setting STEP.</td></tr><tr><td>Continue</td><td>Move to the next step. When the current status is STEP1, it moves to STEP2. STEP1  STEP2</td></tr><tr><td>End</td><td>End the Trigger measurement.</td></tr></table>	Contents	Descriptions	STEP0 to 4	Jump to the setting STEP.	Continue	Move to the next step. When the current status is STEP1, it moves to STEP2. STEP1  STEP2	End	End the Trigger measurement.
		Contents	Descriptions							
STEP0 to 4	Jump to the setting STEP.									
Continue	Move to the next step. When the current status is STEP1, it moves to STEP2. STEP1  STEP2									
End	End the Trigger measurement.									

5-7-2-6 Setting Conditions



17)	OK	Valid a changed condition and close the Set Trigger Condition window.
18)	Cancel	Cancel a changed condition and close the Set Trigger Condition window.

6. COMMUNICATION

6-1 CHECKING EXSISTANCE OF NTB SERIES

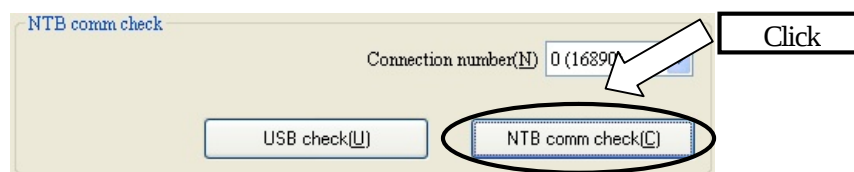
Load the information of the connecting NTB series by communicating with the NTB series.

This section describes the communication check methods with and without the **Connection number**.

6-1-1 When Displaying Connection Number of NTB Communication Check

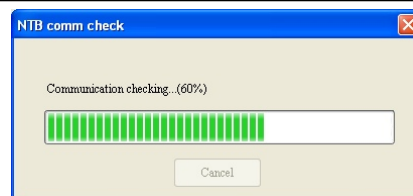
- 1) Display **Set Environment** window.

Display the **Set Environment** window. For how to display the **Set Environment** window, refer to “5-2-s1 How to Display Set Environment Window.” Click **NTB comm check(C)** button.



It takes time for communication checking.

- 2) Communication checking...



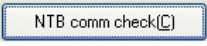
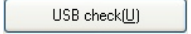
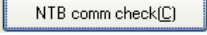
It takes about 5 seconds for communication check.

- 3) Communication result

BOX No.	Model	CH1	CH2	CH3	CH4	NTB version	Power save	Cold Junction
1	NTB-111A-350	4G/T	4G/T	4GI	SKIP	89.98	OFF	
2	NTB-111A-350	4G/T	4GI	4GI	4G/T	89.98	OFF	
3	NTB-201A	10V	10V	10V	10V	99.42	OFF	Internal

Information of the NTB series that is confirmed by the communication check appears.

6-1-2 When Not Displaying Connection Number of NTB Communication Check

When the  button is invalid, the USB-CAN converter may not be connected to the PC. Connect the PC and USB-CAN converter and click the  button. After the USB-CAN converter is confirmed,  button becomes valid.

- 1) Display **Set Environment** window.

Display the **Set Environment** window. For how to display the **Set Environment** window, refer to “5-2-1 How to Display Set Environment Window.”

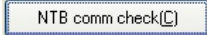
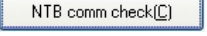


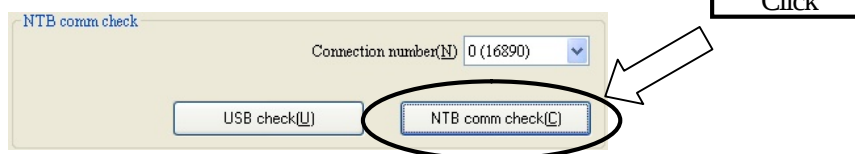
- 2) USB check

Connect the USB-CAN converter to the PC and click the  button.



- 3) NTB communication check

After recognizing the USB-CAN converter correctly,  button becomes valid. Click the  button.

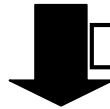
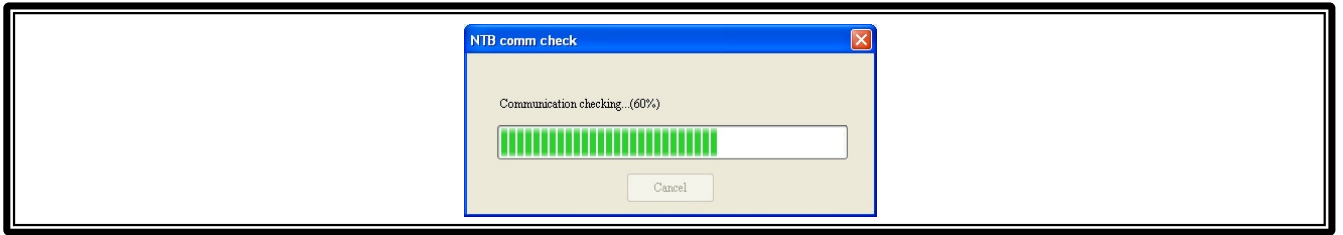


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(Previous page)



4) Communication checking...



It takes about 5 seconds for communication check.

5) Communication check result appears.

BOX No.	Model	CH1	CH2	CH3	CH4	NTB version	Power save	Cold Junction
1	NTB-111A-350	4G/T	4G/T	4GI	SKIP	89.98	OFF	
2	NTB-111A-350	4G/T	4GI	4GI	4G/T	89.98	OFF	
3	NTB-201A	10V	10V	10V	10V	99.42	OFF	Internal

NTB information that is confirmed by the communication check appears.

6-2 HOW TO RECOGNIZE USB-CAN CONVERTER

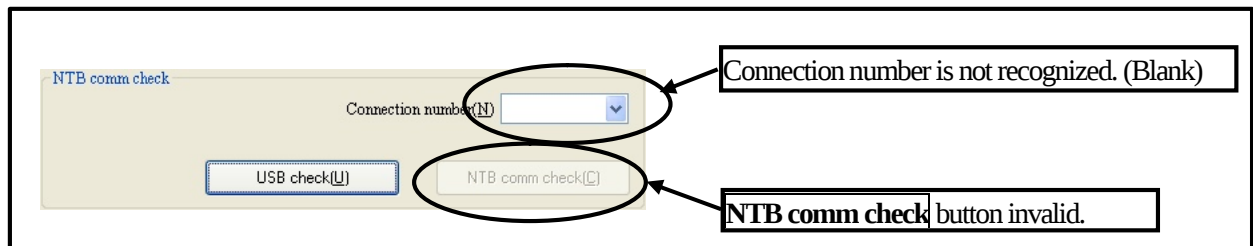
If the **Connection number** is not displaying in the **Set Environment** window, the USB-CAN converter may not connected to the PC or the driver of the converter may not installed.

- 1) Display **Set Environment** window.

Display the **Set Environment** window.

For details, refer to “5-2-1 How to Display Set Environment Window.”

Not recognizing state.



- 2) Check the driver installation.

Check that the driver is correctly installed in Device Manager.

For details, refer to “2-3 Checking After Connection.”

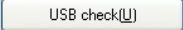
- 3) Install the driver of the USB-CAN converter.

If the driver of the USB-CAN converter is not installed, click the following exe described in the CD-R of the NTB-10A.

DRIVERS/KVASER/kvaser_drivers_w2k_xp.exe

Connect the USB-CAN converter to the USB port on the PC.

- 4) USB check

Click  button.

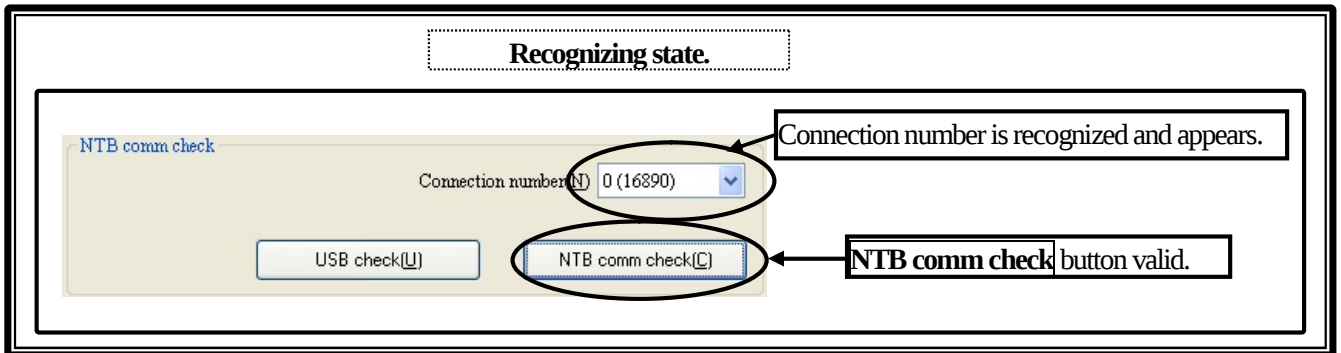


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- 5) **NTB comm check** button becomes valid.



6-3 CHANGING CH MODE OF NTB SERIES

This section describes how to change CH mode of the NTB series.
CH mode is set as follows.

[Example]

CH1 = 1G120 ohm → 4G

- 1) Display **Set Environment** window.

Display the **Set Environment** window. For how to display the **Set Environment** window, refer to “5-2-1 How to Display Set Environment Window.”

NTB information

Before changing the CH mode

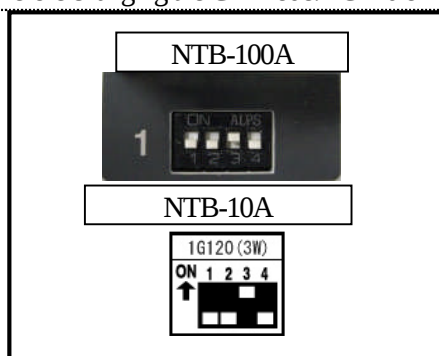
BOX No.	Model	CH1	CH2	CH3	CH4	NTB version	Power save	Cold Junction
4	NTB-100A-120	1G120Ohm	1G120Ohm	1G120Ohm	1G120Ohm	89.98	OFF	

Change 1G120 Ohm to 4G.

- 2) Change DIP switch for changing CH mode of the NTB series.

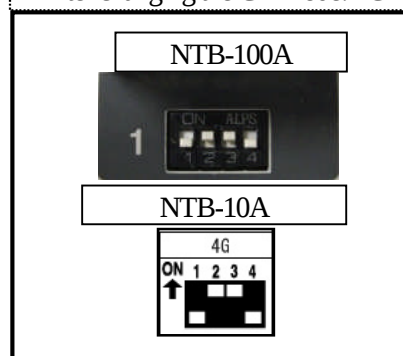
For details, refer to the diagrams of DIP switches and CH modes on the NTB-10 or “Instruction Manual of the NTB-100A series for Hardware” and “Instruction Manual of the NTB-201A for Hardware.”

Before changing the CH mode: 1G120 ohm



Change CH mode

After changing the CH mode: 4G



- 3) NTB communication check

Click **NTB comm check(C)** button.

- 4) NTB communication check result

NTB information

“1G120 Ohm” is changed to the “4G”

BOX No.	Model	CH1	CH2	CH3	CH4	NTB version	Power save	Cold Junction
4	NTB-100A-120	4G	1G120Ohm	1G120Ohm	1G120Ohm	89.98	OFF	

6-4 CHECKING BURNOUT (NTB-201A ONLY)

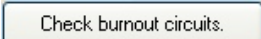
The burnout check is a function used for checking whether thermocouples connecting to the NTB-201A are disconnected.

1) Display the **Set Environment** window.

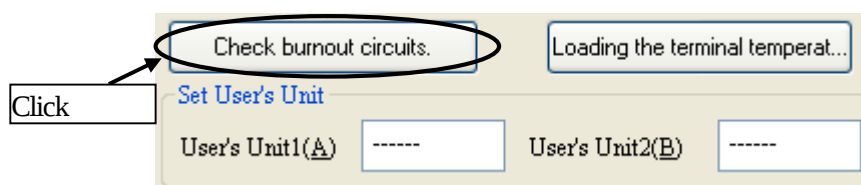
For details, refer to “5-2-1 How to Display Set Environment Window.”



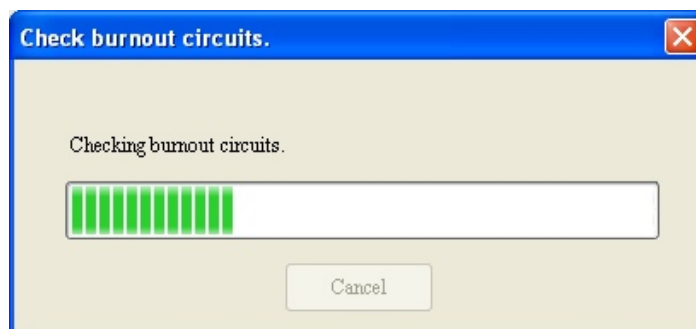
2) Start checking the burnout circuits.

Click  button.

The burnout check function is valid only when the CH mode of the NTB-201A is the thermocouple.



3) Checking burnout circuits.



4) Results of burnout checking function appears.



OK ⇒ The target thermocouple is correctly connected.
NG ⇒ The target thermocouple is disconnecting.
***⇒ Since the CH mode is not thermocouple, the burnout checking function cannot be performed.

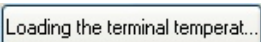
6-5 LOADING THE TERMINAL TEMPERATURE OF THE NTB-201A (NTB-201A ONLY)

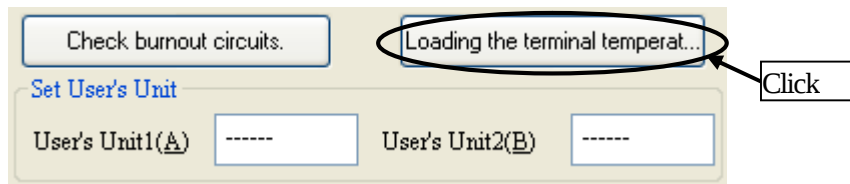
1) Display the **Set Environment** window.

For details, refer to “5-2-1 How to Display Set Environment Window.”

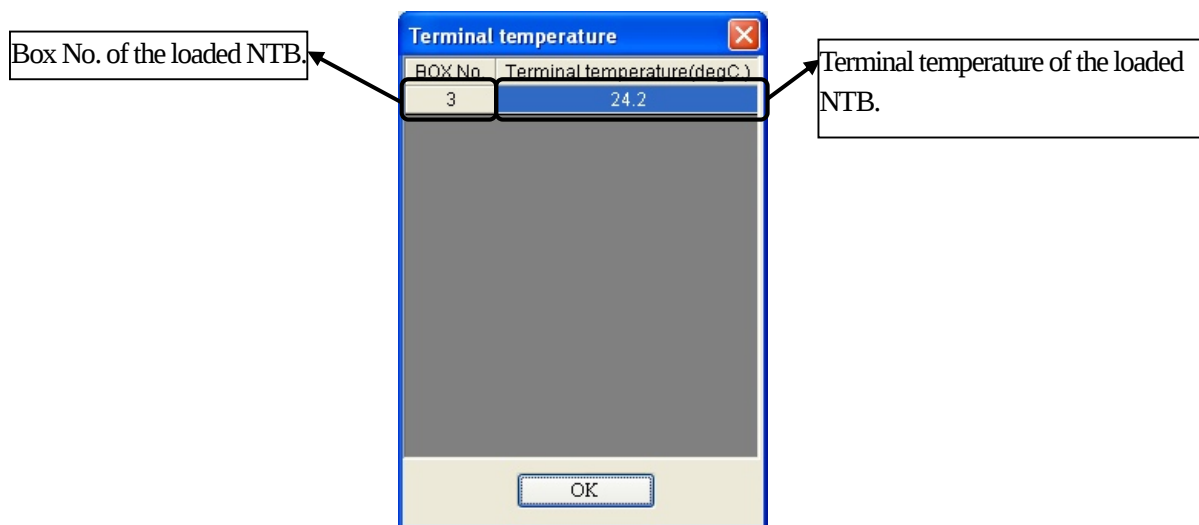


2) Start loading the terminal temperature.

Click  button.



3) The loaded terminal temperature appears.



6-6 SETTING COMMUNICATION CHECK BEFORE STARTING THE MEASUREMENT

In the default setting, if you execute the MONITOR measurement or recording data, the NTB-10A performs the communication check before the measurement.

This section describes how to cancel the communication check before starting the measurement.

1) Display the **Set Environment** window.

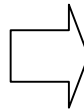
For details, refer to “5-2-1 How to Display Set Environment Window.”



2) Change the setting.

Release the checkmark in the box next to the Perform a communication check when measurement starts.

☒ Perform a communication check when measurement starts.(P)

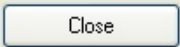


☐ Perform a communication check when measurement starts.(P)

Release the checkmark.



3) Close the **Set Environment** window.

Click  button.

7. MEASURING CONDITIONS

7-1 SETTING TARGET CH

This section describes how to set the target CH (hereinafter referred to as the Meas ON) and not target CH (hereinafter referred to as the Meas OFF).

Set the following item in the **Set CH Condition** window.

Set CH Condition window
● Meas ON

Following differences exist between the Meas ON and Meas OFF.

Difference of Meas ON/OFF

Content	Meas ON ☒	Meas OFF ☐
The measured data is remained in the CSV file.	☐	☒
The measured data is displayed in numeric window	☐	☒
The measured data is displayed in graph	☐	☒

[Example]

Meas ON and OFF are set as follows.

- CH1 and CH2: Meas ON
- CH3 and CH4: Meas OFF

1) Display **Set CH Condition** window.

Display the **Set CH Condition** window. For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”

BOX No.	Model	CH	CH Mode	Meas ON
4	NTB-100A-120	1	1G120Ohm	☒
		2		☒
		3		☒
		4		☒

All CHs are checked in initial state.



2) Remove a checkmark of the target box.

Remove checkmarks from the target CH3 and CH4 boxes of the **Meas ON** column.

Click left mouse button, press **Space** key or **Enter** key for changing.

Before			
CH	CH Mode	Meas ON	
1	1G120Ohm	☒	
2		☒	
3		☒	
4		☒	

Click the left mouse button, press the **Space** key or **ENTER** key.

After			
CH	CH Mode	Meas ON	
1	1G120Ohm	☒	
2		☒	
3		☐	
4		☐	

CH1 and CH2: ON

CH3 and CH4: OFF

7-2 RELATIVE (RELATIVE VALUE) MEASUREMENT

Turn ON the Relative measurement to obtain a measured value with a ZERO value deducted.

For using a strain gage or strain gage transducer, before the measurement, be sure to measure an initial unbalance value of sensors in no load state and deduct the initial unbalance value to obtain a measured value.

In the NTB-10A, an operation that measures an initial unbalance value is called a ZERO measurement.

In addition, the measured value of the ZERO measurement is called a ZERO value.

For turning ON the **CAL Coefficient ON**, be sure to turn ON the **Relative ON** and set a measured value after the ZERO measurement.

*You can perform this ZERO measurement with voltage and thermocouples.

Set the following item.

Set CH Condition window
● RelativeON

[Example]

Conduct Relative (relative value) measurement.

- 1) Display **Set CH Condition** window.

Display the **Set CH Condition** window. For how to display the **Set CH Condition** window, refer to “5-3-1

How to Display Set CH Condition Window.”

CH1-4	RelativeON	ZERO Value
	☐	0.00000
	☐	0.00000
	☐	0.00000
	☐	0.00000

Initial state

- 2) Put a checkmark to the **RelativeON** column.

Before changing

RelativeON
☐
☐
☐
☐

Click left mouse button, press **Space** key or click right mouse button and **Check ON**.

→

After changing

RelativeON
☒
☒
☒
☒

Put checkmarks to all CHs.

(Next page)

(Previous page)



- 3) After completing the setting, close the **Set CH Condition** window.

Click  button on the **Set CH Condition** window.

BOX No.04			
CH01	CH02	CH03	CH04
4G	4G	4G	4G
um/m	um/m	um/m	um/m
REL	REL	REL	REL

After setting the Relative (relative value) measurement, "REL" appears.



- 4) Start MONITOR measurement.

Starts the MONITOR measurement.

For how to start the MONITOR measurement, refer to "9-1 EXECUTING MONITOR MEASUREMENT."



- 5) Conduct ZERO measurement.

Conduct ZERO measurement to obtain an initial unbalance value and reflect it to the measured data.

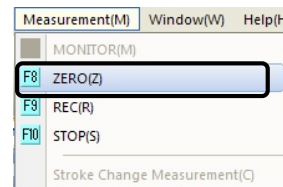
The ZERO measurement can be conducted with 2 methods.

Capable of conducting the ZERO measurement during the MONITOR measurement.

- 1) Click **ZERO** button on the Meas Operation Panel.

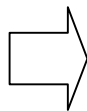


- 2) Select **Measurement(M) - ZERO(Z)**.



Before measuring the ZERO value

BOX No.04			
CH01	CH02	CH03	CH04
4G	4G	4G	4G
um/m	um/m	um/m	um/m
REL	REL	REL	REL
-3489	-3546	-3559	-3552
-3548	-3552	-3554	-3545
-3546	-3549	-3550	-3539



After measuring the ZERO value

BOX No.04			
CH01	CH02	CH03	CH04
4G	4G	4G	4G
um/m	um/m	um/m	um/m
REL	REL	REL	REL
-3489	-3546	-3559	-3552
-3548	-3552	-3554	-3545
-3546	-3549	-3550	-3539
0	0	0	0

Value with the ZERO value deducted appears.

7-3 CONVERTING MEASURED DATA FROM STRAIN TO PHYSICAL QUANTITY

A measured data is output as strain in initial measuring condition.

This section describes how to convert the strain value to the physical quantity. Following 5 items are required for setting.

- Physical quantity = Measured data (strain) × CAL Coefficient + Offset (engineering unit)

Set CH Condition window
• CAL Coefficient ON • CAL Coefficient • Offset • Dec. Digits • Unit

[Example]

Convert the measured data (strain) of CH1 to physical quantity.

- 1) Display **Set CH Condition** window.

Display the **Set CH Condition** window. For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”

Initial state

If a box of the **CAL Coefficient ON** is not checked, the **Dec. Digits** are set automatically based on the **CH Mode**.

- 2) Put a checkmark to the target cell of the **CAL Coefficient ON** column.

For calibration coefficient calculation, put a checkmark to the CH1 in the “**CAL Coefficient ON**” column. After putting the checkmark to the cell, the data is output with the following expression.

Before changing

After changing

Click left mouse button, press **Space** key or click right mouse button and **Check ON**.

Put a checkmark.

(Next page)

(Previous page)



3) Set CAL Coefficient.

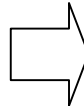
Set CAL Coefficient. The CAL Coefficient is an engineering value conversion coefficient that is used for converting the strain to the physical quantity.

For a KYOWA made sensor, input a CAL Coefficient that is written in a Test Data Sheet.

- Physical quantity = Measured data (strain) × CAL Coefficient + Offset (engineering unit)

Before changing

CAL Coefficient
1.00000
1.00000
1.00000
1.00000



After changing

CAL Coefficient
0.21645
1.00000
1.00000
1.00000

Click left mouse button or press the **Space** key.

Input "0.21645" as the **CAL Coefficient**.



4) Set Offset.

Set Offset.

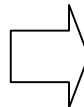
The offset is used for translation a value for constant amount only.

For not requiring, set "0."

- Physical quantity = Measured data (strain) × CAL Coefficient + Offset (engineering unit)

Before changing

Offset
0.00000
0.00000
0.00000
0.00000



After changing

Offset
100.000
0.00000
0.00000
0.00000

Click left mouse button or press the **Space** key.

Input "100" as **Offset**.

NOTE

Be sure to set **Offset** in physical quantity since the Offset is added as it is.



(Next page)

(Previous page)

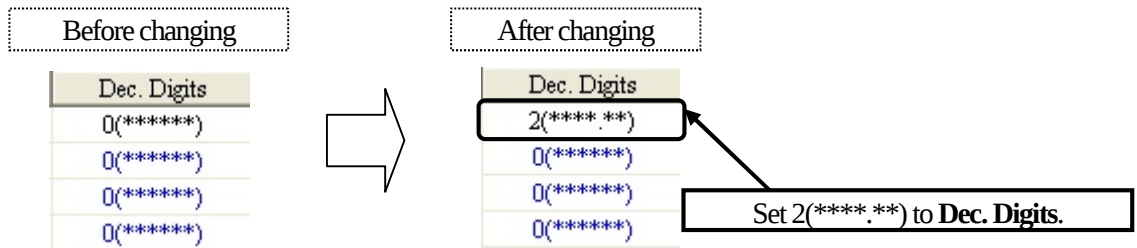


5) Set Dec. Digits.

Set Dec. Digits. Setting range is as follows.

Dec. Digits	Setting Range
0(*****)	-999999 to -1, 1 to 999999
1(*****.)	-99999.9 to -0.1, 0.1 to 99999.9
2(****.*)	-9999.99 to -0.01, 0.01 to 9999.99
3(***.***)	-999.999 to -0.001, 0.001 to 999.999
4(**.****)	-99.9999 to -0.0001, 0.0001 to 99.9999
5(*.*****)	-9.99999 to -0.00001, 0.00001 to 9.99999

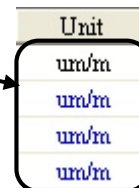
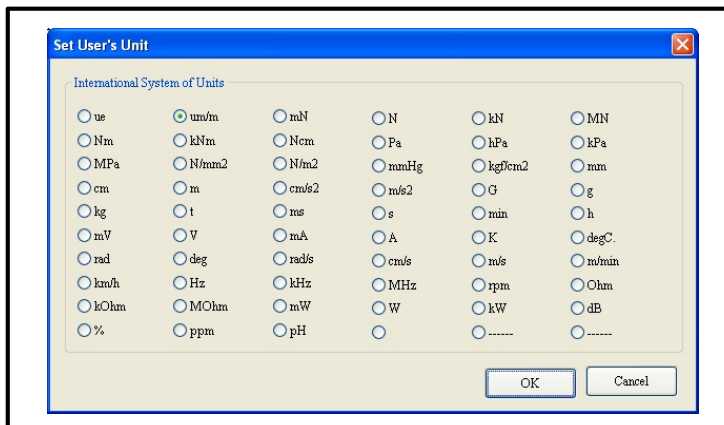
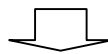
Set 2(****.*) as Dec. Digits of CH1.



6) Set Unit.

Press **Space** key or double click the mouse in CH1 in the "Unit" column.

Press **Space** key or double click the mouse.



Set User's Unit dialog appears.



(Next page)

(Previous page)

7) Select Unit.

Click the target unit - button.

Click

☒ N
☐ Pa
☐ mmHg
☐ m/s²
☐ s
☐ A
☐ cm/s
☐ MHz
☐ W
☐

8) Check the changed content in the **Set CH Condition** window.

Check that the setting contents from item 2) to 7) are set in the **Set CH Condition** window.
Click button.

9) Setting ends.

This is the end of the setting for converting the CH1 data from strain to physical quantity.

Click button. **“COEF”** appears in the numeric window.

COEF : CAL Coefficient ON valid.

CAL coefficient calculation OFF

BOX No.04			
CH01	CH02	CH03	CH04
4G	4G	4G	4G
um/m	um/m	um/m	um/m
966	-1003	-751	-901
967	-1078	-811	-774

CAL coefficient calculation ON

BOX No.04			
CH01	CH02	CH03	CH04
4G	4G	4G	4G
N	um/m	um/m	um/m
COEFF			
309.31	-1029	-773	-781
309.31	-1141	-834	-753

COEF appears.

NOTE

Put a checkmark in the **“CAL Coefficient ON”** column to valid the CAL coefficient calibration function.

7-4 SETING UNIT THAT NTB-10A DOES NOT HAVE

User can set up to 2 original units (hereinafter referred to as the User's unit) in the NTB-10A.

This section describes how to set the User's unit. Set the following items.

Set CH Condition window
• CAL Coefficient ON
• Unit

Set Environment window
• User's Unit1
• User's Unit2

[Example]

This section describes how to set User's unit and how to reflect it to the data file or measured data.

- 1) Display **Set Environment** window.

Display the **Set Environment** window. For how to display the **Set Environment** window, refer to “5-2-1 How to Display Set Environment Window.”

Set User's Unit

User's Unit1(A) User's Unit2(B)

← Initial state



- 2) Set User's Unit.

Set **Strain** to User's Unit 1 and set **KYOWA** to User's Unit 2.

Before setting

Set User's Unit

User's Unit1(A) User's Unit2(B)



After setting

Set User's Unit

User's Unit1(A) User's Unit2(B)



(Next page)

(Previous page)



3) Display **Set CH Condition** window.

Click  button to close the **Set Environment** window. Display **Set CH Condition** window.
For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”

CAL Coefficient ON		Unit
CH1~4	☐	um/m
	☐	um/m
	☐	um/m
	☐	um/m

Initial state



4) Put a checkmark in the “**CAL Coefficient ON**” column.

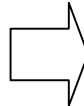
For CAL coefficient calculation, put a checkmark to the CH1 in the “**CAL Coefficient ON**” column.
After putting the checkmark to the **CAL Coefficient ON**, the data is output with the following expression.

- Physical quantity = Measured data (strain) × CAL Coefficient + Offset (engineering unit)

Before changing

CAL Coefficient ON
☐
☐
☐
☐

Click left mouse button or press **Space** key.



After changing

CAL Coefficient ON
☒
☐
☐
☐

A checkmark appears.



(Next page)

NOTE

Put a checkmark in the “**CAL Coefficient ON**” column to valid the CAL coefficient calibration function.

(Previous page)



5) Display **Set User's Unit** dialog.

Press **Space** key or double click the mouse button at the target cell of the **Unit** to display the **Set User's Unit** dialog.

Press **Space** key or double click the mouse.

CH	Unit
1	um/m
2	um/m
3	um/m
4	um/m

Set User's Unit dialog

Set User's Unit

International System of Units

☐ ue ☒ um/m ☐ mN ☐ N ☐ kN ☐ MN

☐ Nm ☐ kNm ☐ Ncm ☐ 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

☐ rad ☐ deg

☐ km/h ☐ Hz ☐ kHz ☐ MHz ☐ rpm ☐ Ohm

☐ kOhm ☐ MOhm ☐ mW ☐ W ☐ kW ☐ dB

☐ % ☐ ppm ☐ pH ☐ ----- ☐ -----

User's Units that are set in the **Set Environment** window appear.

OK Cancel



6) Select the target unit.

Click **Strain** that is set as the User's Unit and click **OK** button.

Click

☒ Strain ☐ KYOWA

Click

OK



(Next page)

(Previous page)



- 7) Check the changing in the **Set CH Condition** window.

Check that the **Strain** is set in the “Unit” column in the CH condition and click  button.

Unit
Strain
um/m
um/m
um/m

Strain is displaying.



- 8) Setting ends.

Numeric Window							
				BOX No.01			
Status	Point	Measurement time		CH01	CH02	CH03	CH04
				Strain	um/m	um/m	um/m
				COEF			

Strain appears.

7-5 BEFORE MEASURING TEMPERATURE MEASURING DATA

For using KYOWA Civil Engineering Transducer with Temperature Measuring Function, input a resistance value at 0 °C of the target sensor.

Set CH Condition window
● Ref Resist(Ohm)

- 1) Display **Set CH Condition** window.

Display **Set CH Condition** window.

For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”

If the **Ref Resist(Ohm)** column in the **Set CH Condition** window is displayed in pale color, check that the CH mode is 4G/T.

If the CH mode is not 4G/T, change the CH mode to the 4G/T by seeing “6-3 CHANGING CH MODE OF NTB-100A SERIES.”

CH mode is not 4G/T.

Ref Resist(Ohm)
100.00
100.00
100.00
100.00

CH1~4

CH mode is 4G/T.

Ref Resist(Ohm)
100.00
100.00
100.00
100.00

CH1~4



- 2) Set **Ref Resist (Ohm)**.

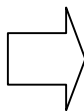
Set **Ref Resist(Ohm)** in the Test Data Sheet.

Set “100.20” ohm as an example.

*If you do not know the reference resistance value , input 100.00.

Ref Resist(Ohm)
100.00
100.00
100.00
100.00

Press **Space** key or double click the mouse left button.



Ref Resist(Ohm)
100.20
100.00
100.00
100.00

Input value with key board.



- 3) Setting completes.

Click **OK** button in the **Set CH Condition** window for completing the arrangement before measuring temperature measuring data.

7-6 SETTING NAME TO CH

Capable of putting a name (hereinafter referred to as the CH Name) to the target CH within 28 characters.
The CH Name appears on the data file, graph, and numeric window and can be written to the KYOWA made TEDS sensor.

Set CH Condition window
● CH Name

[Example]

Set CH Name of the CH1.

- 1) Display **Set CH Condition** window.

Display **Set CH Condition** window.

For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”

CH	CH Name
1	
2	
3	
4	

Initial state



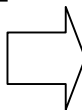
- 2) Input **CH Name**.

Double click the **Space** key or mouse left button in the CH1 in the “CH Name” column to change the CH Name edit mode.

Input “TEST” by using a keyboard.

Double click the **Space** key or mouse left button at the CH1 box in the “CH Name” column.

CH Name



CH Name
TEST

Input “TEST.”



- 3) Setting completes.

Click **OK** button to valid the CH Name setting.

CH Name appears on the numeric window.

CH Name appears.	
	BOX No.01
	CH01
	CH02
	CH03
	CH04
	TEST
	um/m
	um/m
	um/m
	um/m

7-7 PRINTING MEASURING CONDITION

Capable of printing measuring condition of the **Set CH Condition** window.
This section describes how to print the measuring condition.

- 1) Display **Set CH Condition** window.

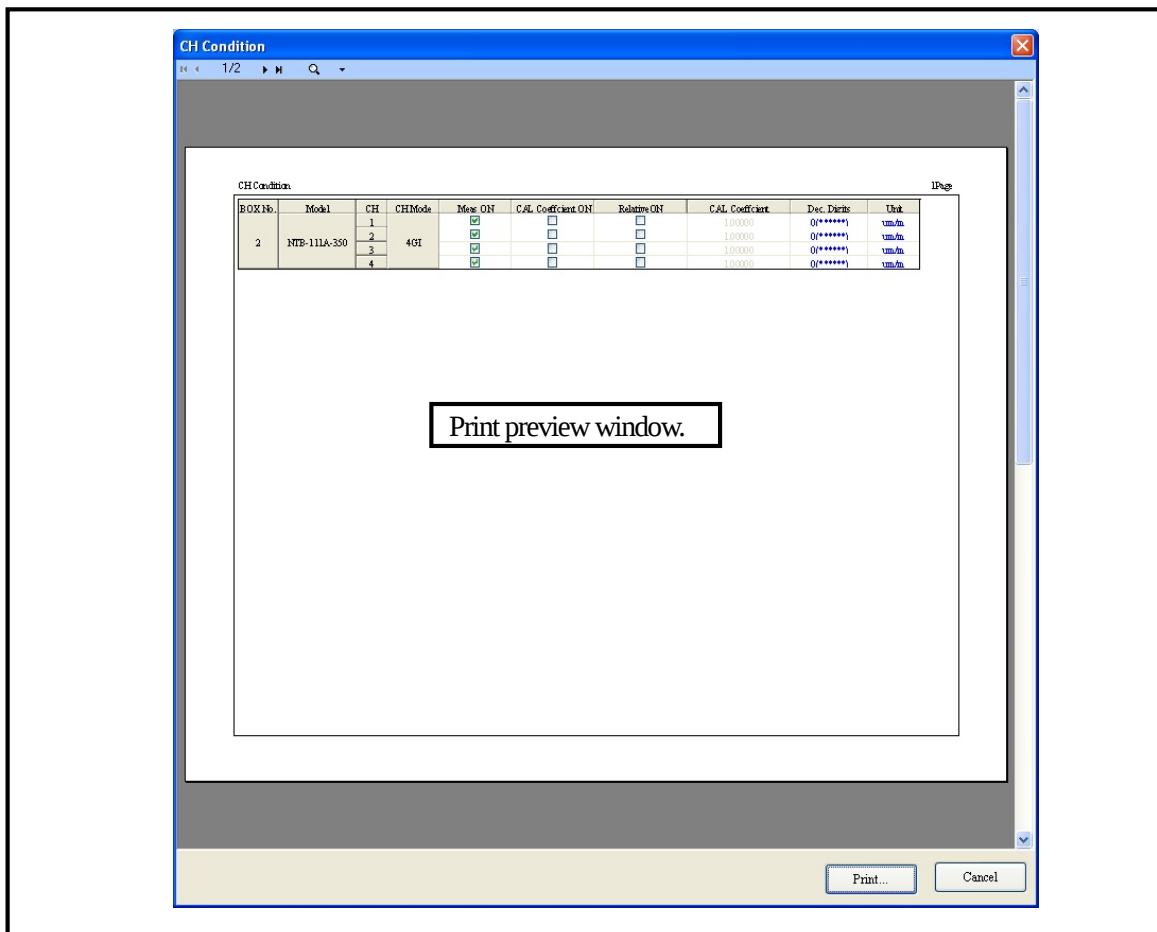
Display **Set CH Condition** window.

For how to display the **Set CH Condition** window, refer to “5-3-1 How to Display Set CH Condition Window.”



- 2) Display print preview window.

Click **Print Preview(Y)...** button to display the following print preview window.



(Next page)

(Previous page)



3) Print

Click  button on the print preview window.

Print dialog appears. Set the target setting and conduct printing.

MEMO

- Capable of printing Y-TIME graph, BAR Graph, Numeric Window, X-Y Graph, and Trigger Info windows.
- Numeric window cannot be printed.

8. DATA FILE

8-1 CHANGING SET SAVE FOLDER OF MEASURED DATA

This section describes how to change the Set Save Folder of the measured data file.

- 1) Display **Set Meas Data** window.

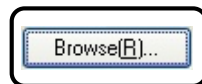
Display **Set Meas Data** window.

For how to display the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

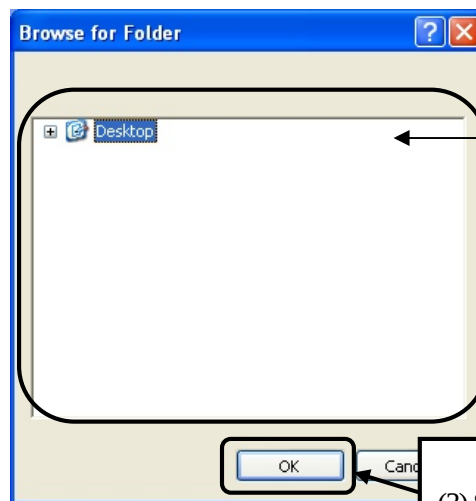
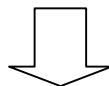


- 2) Select the target Set Save Folder in the **Browse for Folder** dialog.

Click button and select the target folder from the **Browse for Folder** dialog.



(1) Click **Browse...** button.



(2) Select the target folder in the **Browse for Folder** dialog.

(3) Select the target folder and click button.



- 3) Setting completes.

Click button on the **Set Meas Data** window to valid the changed content.

8-2 CHANGING DATA FILE NAME

This section describes how to change the **Meas Data File** of the measured data file.

[Example]

Change the Meas Data File to “TEST0005.csv”.

- 1) Display **Set Meas Data** window.

Display **Set Meas Data** window.

For how to display the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

- 2) Change **Data File Name** and data file No.

The **Meas Data File** is created by combining the Data File Name, data file No. and the selected dividing function.
For the **Data File Name**, refer to “5-4-2 Description of Set Meas Data Window.”

Before changing

Meas Mode: Meas Once
Rec Num(R): 0 (0-99999)
When the Rec Num is set to "0," the NTE-10A keep recording the data until the STOP button is pressed.

Data File Name(N): UNTITLE
File Title(T):
Divide The File(D): Not Divide The File
File format(F): DATE/TIME

Meas Data File: UNTITLE0000.csv
Data No: 0

After changing

Meas Mode: Meas Once
Rec Num(R): 0 (0-99999)

Data File Name(N): TEST
File Title(T):
Divide The File(D): Not Divide The File
File format(F): DATE/TIME

Meas Data File: TEST0005.csv
Data No: 5

The **Meas Data File** is changed since the Data File Name and file No. are changed.

- 3) Setting completes.

Click **OK** button on the **Set Meas Data** window to valid the changed content.

8-3 SETTING FILE TITLE

Set "Title" in the measured data file to display what measurement is conducted.

[Example]

Input "TEST" to the measured data file as a title.

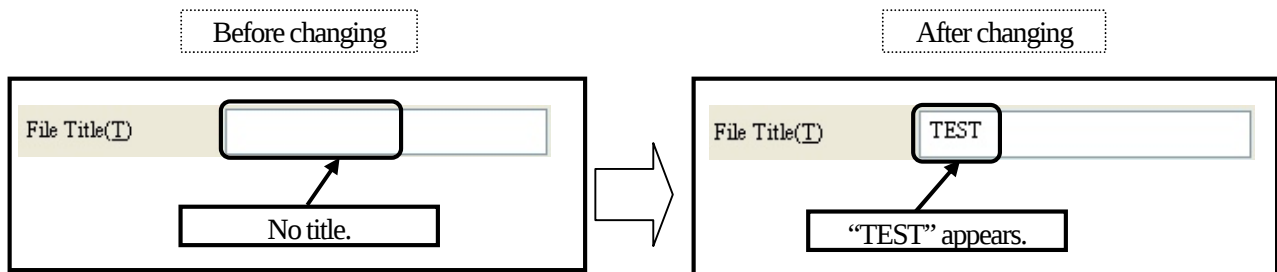
- 1) Display **Set Meas Data** window.

Display **Set Meas Data** window.

For how to display the **Set Meas Data** window, refer to "5-4-1 How to Display Set Meas Data Window."

- 2) Set **File Title**.

Set **File Title**.



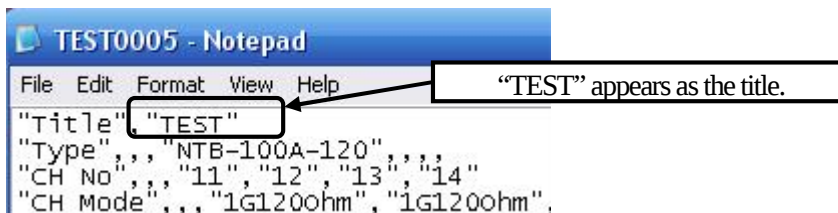
- 3) Setting completes.

Click button on the **Set Meas Data** window to valid the changed content.

- 4) Check "Title" of the measured data file.

Record data and create the measured data file.

"TEST" appears as the "Title" in the measured data file.



8-4 DIVIDING MEASURED DATA FILE AT EVERY INTERVAL TIME

The NTB-10A has a dividing function of the measured data file. Be sure to select the dividing method from the following.

Dividing Method	Content
Not Divide The File	Not divide the measured data file.
Divide Every Hour	Divide the measured data file every hour.
Divide Every Day	Divide the measured data file every day.

[Example]

Select “**Divide Every Hour**” as the file dividing function.

- 1) Display **Set Meas Data** window.

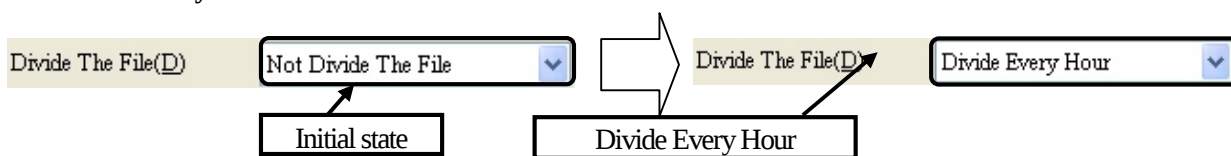
Display **Set Meas Data** window.

For how to display the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

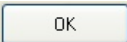


- 2) Select file dividing function.

Select **Divide Every Hour**.



- 3) Setting completes.

Click  button on the **Set Meas Data** window to valid the changed content.

8-5 SETTING FILE FORMATS

Capable of selecting file formats of the measured data from the following 3 when using the NTB-10A.

Items	Descriptions
DATE/TIME	Date is described separately from Time as follows. Y M D/H M S
DATE + TIME	Date and time are described as follows. Y M D H M S
DIAdem format	Saved in the file format that can be read with the DIAdem. Extension is “.ntb”. To load the DIAdem format file with DIAdem, you should add plugin software for the NTB to the DIAdem.

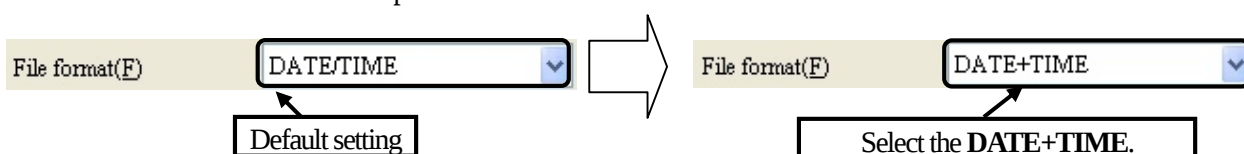
Example: Select **DATE + TIME** as the file format.

1) Display the **Set Environment** window.

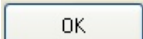
For details, refer to “5-2-1 How to Display Set Environment window.”

2) Set the file format.

Select the **DATE + TIME** as an example.



3) Setting completes.

Click  button on the **Set Environment** window.

8-6 OPENING DATA FILE FOLDER

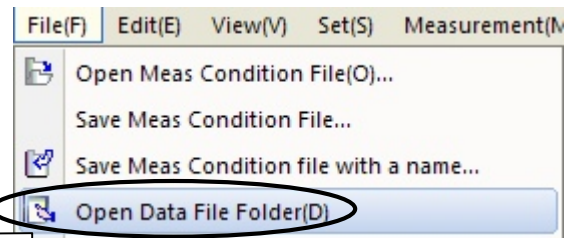
This section describes following 2 methods for opening the saved data file folder of the measured data file.

- 1) From the tool bar
- 2) From the menu

1) Click “**Save Folder**” icon on the tool bar.



2) Click **File(F)** – **Open Data File Folder(D)**.



Select

NOTE

- Do not open the file that is currently recording the data. Or, error occurs.
- For opening the currently recording file, be sure to stop the measurement before opening the file.

9. MEASUREMENT

The NTB-10A has the following 5 measuring methods.

Measuring Method	Description
MONITOR measurement.	Starts measurement without saving the recorded data.
Meas Once	Records 1 data to a CSV file.
Sequential Meas	Records data until the STOP(S) or STOP button is clicked and saves the data to the CSV file.
Interval Meas	Records data at regular interval and saves the data to the CSV file.
Trigger Meas	Saves data in the CSV file when satisfying the trigger conditions during recording.

This chapter describes how to set each measuring method.

9-1 EXECUTING MONITOR MEASUREMENT

MONITOR measurement obtains data at regular intervals without saving the data to the file.

Capable of checking the measuring data with the NTB series on the window.

This section describes how to start MONITOR measurement.

- 1) Conduct communication check.

Conduct communication check to check that the NTB series is connected more than 1 unit.
For communication check method, refer to “6-1 CHECKING EXSISTANCE OF NTB SERIES.”

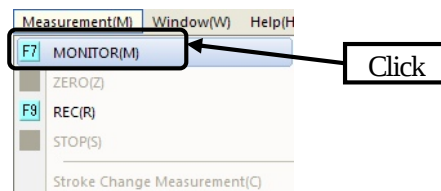


- 2) Conduct MONITOR measurement.

There are 3 methods for conducting the MONITOR measurement from the menu.

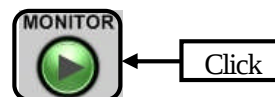
- (1) From the menu

Click **Measurement(M)** – **MONITOR(M)** on the menu.



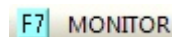
- (2) From the Meas Operation Panel

Click **MONITOR** button on the Meas Operation Panel.



- (3) From the function key

Press **F7** key on your key board.



(Next page)

(Previous page)



3) Monitoring state.

“<Monitoring>” appears on the status bar and the measured data appears on the Numeric Window.



<Monitoring> appears on the status bar.

Data appears.

Status	Point	Measurement Time	BOX No.03			
			CH01	CH02	CH03	CH04
			4GI	4GI	4GI	4GI
			um/m	um/m	um/m	um/m
	1	2011/01/17 16:24:04	0	0	0	0
	2	2011/01/17 16:24:06	0	0	0	0
	3	2011/01/17 16:24:08	0	0	0	0

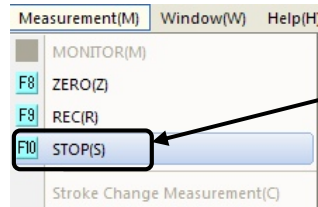


4) Stop the MONITOR measurement.

There are 3 methods to stop the MONITOR measurement.

(1) From the menu

Click **Measurement(M)** – **STOP(S)** on the menu.



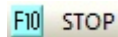
(2) From the Meas Operation Panel

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key

Press the **F10** key on your key board.



MEMO

- If the NTB-10A is not recognizing the NTB series, the MONITOR measurement cannot be started. Be sure to conduct the communication check.

MONITOR measurement valid



MONITOR measurement invalid



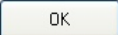
9-2 CONDUCTING RECORDING ONCE (MEAS ONCE)

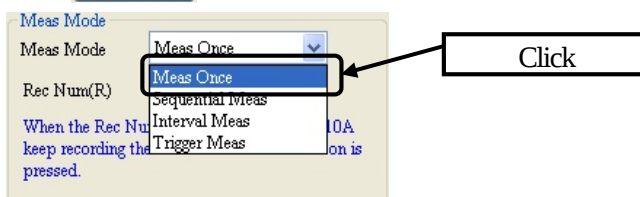
This section describes how to conduct **Meas Once**. If the **Meas Once** is selected, the NTB-10A records 1 data during the MONITOR measurement, saves the data to the file and go back to the MONITOR measurement. After conducting the **Meas Once** again, new 1 data is added to the same file.

- 1) Select **Meas Once** from the Meas Mode.

Select **Meas Once**.

For how to open the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

Select **Meas Once** from the Meas Mode and click  button.



- 2) Set the NTB-10A to the monitoring state.

Set the NTB-10A to monitoring state.

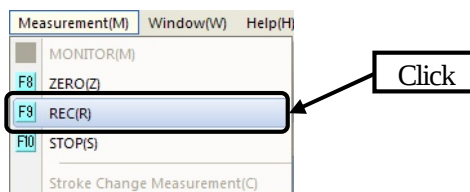
For details, refer to “9-1 CONDUCTING MONITOR MEASUREMENT.”

- 3) Conducting recording.

There are 3 methods for recording.

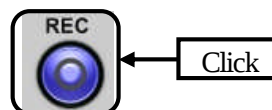
- (1) From the menu

Click **Measurement(M)** – **REC (R)** of the menu.



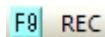
- (2) From the Meas Operation Panel

Click the **REC** button on the Meas Operation Panel.



- (3) From the function key

Press the **F9** key of your key board.



(Next page)

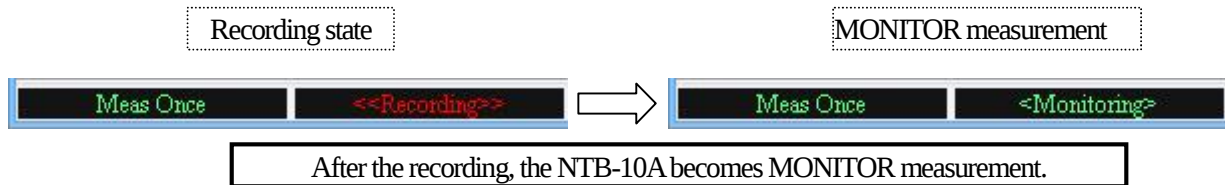
(Previous page)



4) Recording state.

The NTB-10A becomes recording state. After recording 1 data, the NTB-10A go backs to the MONITOR measurement since the “**Meas Once**” is selected.

If the **REC(R)** or **REC** button is clicked, the NTB-10A becomes recording state and records 1 data. The measured data is added to the file.

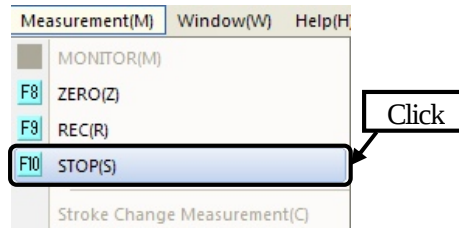


5) Stop

While in the MONITOR measurement, conduct STOP operation to stop the NTB-10A. There are 3 methods to stop the recording.

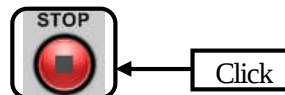
(1) From the menu

Click **Measurement(M)** – **STOP(S)** of the menu.



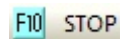
(2) From the Meas Operation Panel

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key

Press the **F10** key on your key board.



6) Check data.

For checking the measured file, display **Set Save Folder** (refer to “8-6 OPENING SET SAVE FOLDER”) and open the saved file for checking.

9-3 RECORDING DATA UNTIL NTB-10A IS STOPPED (SEQUENTIAL MEAS)

This section describes how to conduct the Sequential Meas.

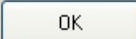
If the **Sequential Meas** is selected and recording is conducted during the MONITOR measurement, the NTB-10A keep recording the data to the file.

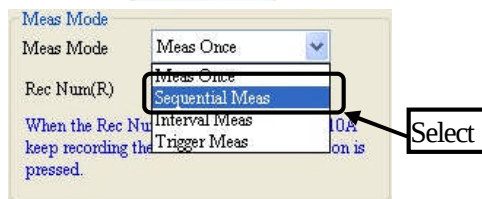
The sequential measurement records data until the **STOP** button is pressed or until finish recording the number of preset data.

- 1) Select **Sequential Meas** from the Meas Mode.

Select **Sequential Meas**.

For how to open the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

Select **Sequential Meas** from the Meas Mode and click  button.



- 2) Conduct MONITOR measurement.

Set the NTB-10A to MONITOR measurement.

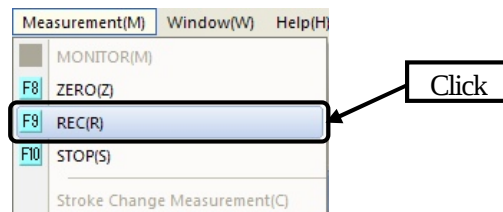
For how to conduct MONITOR measurement, refer to “9-1 EXECUTING MONITOR MEASUREMENT.”

- 3) Conduct recording.

There are 3 methods for conducting recording.

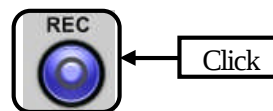
- (1) From the menu

Click **Measurement(M)** – **REC (R)** of the menu.



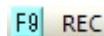
- (2) From the Meas Operation Panel

Click the **REC** button on the Meas Operation Panel.



- (3) From the function key

Press the **F9** key of your keyboard.



(Next page)

(Previous page)



4) Recording state.

For the Sequential Meas, the NTB-10A keeps recording until the **STOP(S)** or **STOP** button is clicked.

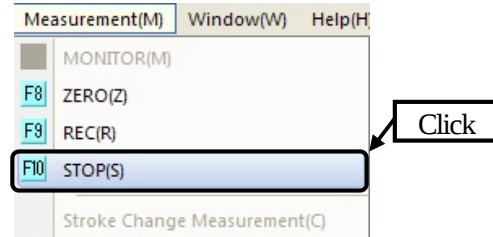


5) From the recording state to MONITOR measurement.

While in the recording state, conduct STOP operation to stop the NTB-10A. There are 3 methods to stop the recording.

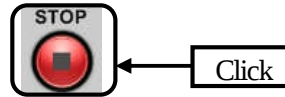
(1) From the menu

Click **Measurement(M)** – **STOP(S)** of the menu.



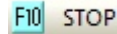
(2) From the Meas Operation Panel

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key

Press the **F10** key on your key board.



6) From the MONITOR measurement to stop.

If the **REC(R)** or **REC** button is clicked without clicking the **STOP(S)** or **STOP** button during the monitoring state, new data is added to the data file that is recorded in item 4) without creating a new data file.



7) Check data.

For checking the measured file, display **Set Save Folder** (refer to “8-6 OPENING SET SAVE FOLDER”) and open the saved file for checking.

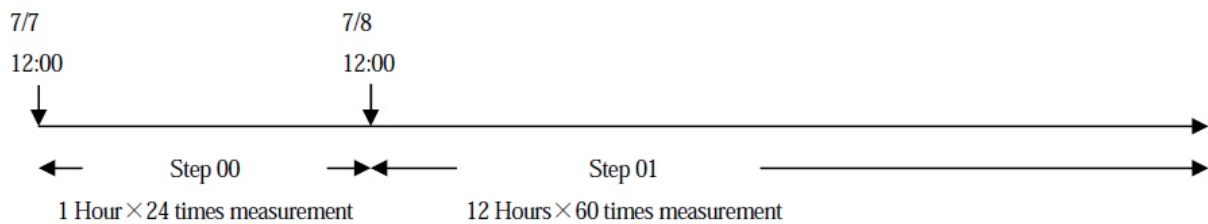
9-4 RECORDING DATA AT REGULAR INTERVAL (INTERVAL MEAS)

The Interval Meas automatically measures data by setting a **Set Interval Start Time** and **Interval Time**.

[Example]

Starts the interval measurement at 12:00:00 July 7, 2009. Measure data for 24 times at every 1 hour and after that, measure data for 60 times at every 12 hours. For the measurement timing, see as follows.

Repeat times in 1 interval measurement is 10 data. The following setting is based on this example.



- 1) Display **Set Interval Condition** window.

Display **Set Interval Condition** window.

For how to display the **Set Interval Condition** window, refer to “5-6-1 How to Display Set interval Condition Window.”

- 2) Set **Rec Num**.

Set the number of measuring times in 1 interval measurement. Set “1.”

Rec Num(R) 1 (1-9999) Set 1.

- 3) Set interval start time.

(1) Put a checkmark beside **Set Interval Start Time**.

(2) Set 2009/07/07/12:00:00 as start time.

Set Interval Start Time

☒ Set Interval Start Time(S)

2009/07/07 12:00:00

(1) Put a checkmark.

(2) Set 2009/07/07 12:00:00.

(Next page)

(Previous page)



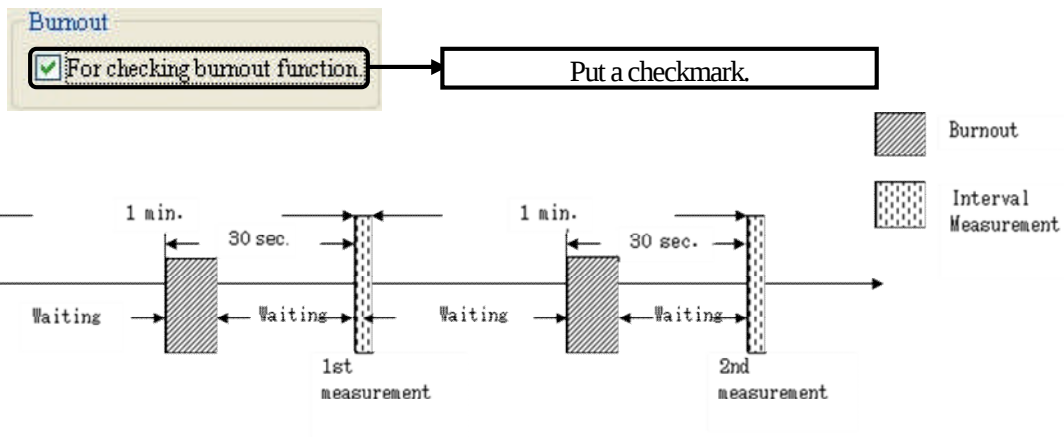
4) Set the burnout check function to be performed during measurement.

If you check the box next to the **For checking burnout function**, the burnout check function is performed every 30 seconds or longer interval.

Capable of checking disconnection of thermocouples during measurement by performing the burnout check function.

This function is for measuring thermocouples with the NTB-201A only.

No check is performed if there is no thermocouple to be checked.



5) Set **Interval Time**.

(1) Set interval time of STEP 0 to 01 hour.

(2) Set interval time of STEP 1 to 12 hours.

STEP	Interval Time				Repeat	Status
	Day	Hour	Min	Sec		
0	00	01	00	00	10	End
1	00	12	00	00	10	End
2	00	00	01	00	10	End
3	00	00	01	00	10	End
4	00	00	01	00		

(1) Set interval time of STEP 0 to 01 hour.

(2) Set interval time of STEP 1 to 12 hours.



(Next page)

(Previous page)



6) Set **Repeat**.

(1) Set repeat times of the STEP 0 to 24.

(2) Set repeat times of the STEP 1 to 60.

(1) Set repeat times of the STEP 0 to 24.

STEP	Interval Time				Repeat	Status
	Day	Hour	Min	Sec		
0	00	01	00	00	24	End
1	00	12	00	00	60	End
2	00	00	01	00	10	End
3	00	00	01	00	10	End
4	00	00	01	00	10	End

(2) Set repeat times of the STEP 1 to 60.



7) Set **Status**.

(1) Set status of the STEP 0 to STEP1.

(2) Set status of the STEP 1 to End.

(1) Set STEP1 as status.

STEP	Interval Time				Repeat	Status
	Day	Hour	Min	Sec		
0	00	01	00	00	24	Step1
1	00	12	00	00	60	End
2	00	00	01	00	10	End
3	00	00	01	00	10	End
4	00	00	01	00		

(2) Set End as status.



8) Setting completes.

Click button to valid the setting.



(Next page)

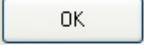
(Previous page)

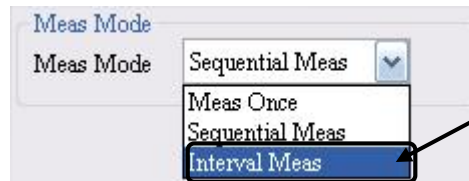


- 9) Change the measuring mode to **Interval Meas.**

Change the measuring mode to **Interval Meas.**

For opening the **Set Meas Data** window, refer to “5-4-1 How to Display Set Meas Data Window.”

Select **Interval Meas** and click  button.



Select the **Interval Meas**.



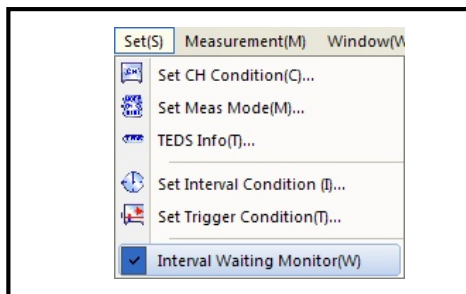
- 10) Put a checkmark next to the **Interval Waiting Monitor (W)**.

Put a checkmark next to the **Interval Waiting Monitor (W)**.

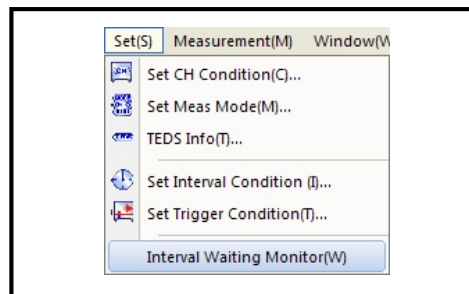
If you put a checkmark next to the **Interval Waiting Monitor (W)**, the currently measured data appears on **Numeric Window** and **Graph Window** during waiting for the interval state.

Click **Set (S)** – **Interval Waiting Monitor (W)** and put/release a checkmark.

Interval Waiting Monitor ON



Interval Waiting Monitor OFF



- 11) Set the NTB-10A to the **MONITOR** measurement.

Set the NTB-10A to **MONITOR** measurement.

For how to conduct **MONITOR** measurement, refer to “9-1 CONDUCTING MONITOR MEASUREMENT.”



(Next page)

(Previous page)

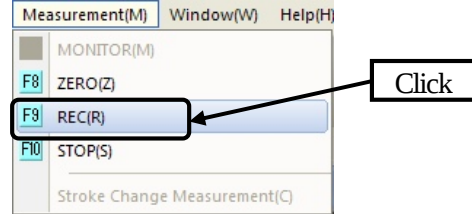


12) Conduct recording.

There are 3 methods for conducting recording. If the **REC(R)** or **REC** button is clicked, the NTB-10A becomes “Wait For Interval” state.

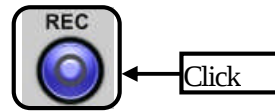
(1) From the menu

Click **Measurement(M)** – **REC (R)** of the menu.



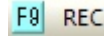
(2) From the Meas Operation Panel

Click the **REC** button on the Meas Operation Panel.



(3) From the function key

Press the **F9** key of your key board.

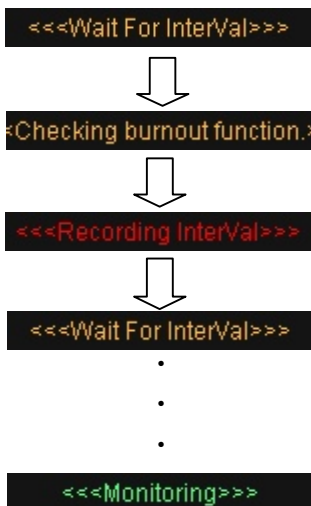


13) Interval measuring.

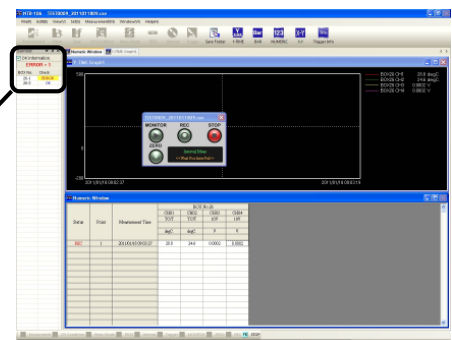
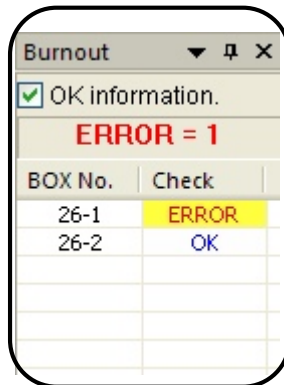
During the Interval Meas, the data is recorded with repeatedly conducting the “Wait For Interval” and “Recording Interval.”

After the preset repeat number is finished, the NTB-10A becomes MONITOR measurement.

Status of the NTB-10A



Burnout results of the NTB-10A appears.



(Next page)

(Previous page)

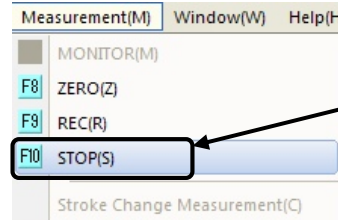


14) Stop MONITOR measurement.

While in the MONITOR measurement, conduct STOP operation to stop the NTB-10A. There are 3 methods to stop the interval measurement.

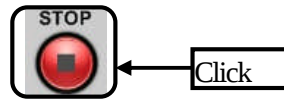
(1) From the menu.

Click **Measurement(M)** – **REC(R)** of the menu.



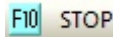
(2) From the Meas Operation Panel.

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key.

Press the **F10** key of your key board.



15) Check data.

For checking the measured file, display **Set Save Folder** (refer to “8-6OPENING SET SAVE FOLDER”) and open the saved file for checking.

9-5 STROKE CHANGE MEASUREMENT

MEMO

What is “stroke change” ?

Stroke change means manually changing the offset value in the following situation.

- When using a manual indicator at the start of measurement and replacing automatic indicator during the measurement.
- When measuring displacement along one direction and requiring to move the reference point during the measurement.

Example: For measuring displacement of 100 mm with a displacement sensor of 10 mm.

The stroke change measurement can change offset value automatically.

Calculated new offset value obtained from the stroke change measurement is added to the offset value on the **Set CH Condition** window.

This section describes the stroke change measurement.

1) Display **Set CH Condition** window.

Display the **Set CH Condition** window.

For details, refer to “5-3-1 How to Display Set CH Condition Window.”

2) Check the **Meas ON** column and **CAL Coefficient ON** column.

Check that the target CH has checkmarks in both **Meas ON** and **CAL Coefficient ON** boxes.

Or, the stroke change measurement is not performed.

CH	CH Mode	Meas ON	CAL Coefficient ON
1	4GI	☒	☒
2		☒	☒
3		☒	☐
4		☒	☒

Check boxes of 2 column to see if there are checkmarks.

The stroke change measurement is not performed since CH3 has no checkmark.

Offset value before the stroke change measurement

Offset
0.00000
0.00000
0.00000
0.00000

CH1-CH {

3) Close the **Set CH Condition** window.

Click button for closing the window.

(Next page)

(Previous page)



4) Execute the stroke change measurement.

Click **Measurement (M)** – **Stroke Change Measurement (C)**.

Stroke Change Measurement

Stroke Change Measurement window

Click

BOX No.	CH	Stroke Change execution ON	CH Name	Current MEAS value	Unit	MEAS Val Before Move	MEAS Val After Move	Stroke Change value
1	2	☐		1	um/in			
1	2	☐		0	um/in			
4		☐		0	um/in			

Meas Val Before Move(B) Meas Val After Move(A) Stroke Change execution(S) OK Cancel



5) Put checkmarks in boxes of the **Stroke Change execution ON** column.

Put checkmarks in boxes of the target channels.

Stroke Change execution ON

Click the left mouse button, press the **Space** key or click the right mouse button – **Check ON**.

Stroke Change execution ON



6) Obtain measured values before executing the stroke change function.

Click **Meas Val Before Move(P)** button for obtaining values before executing the stroke change function.

Stroke Change Measurement

Put a checkmark to the target CH.
The calculated stroke change value is added to the offset.

BOX No.	CH	Stroke Change execution ON	CH Name	Channel MEAS value	Unit	Meas Val Before Move	MEAS Val After Move	Stroke Change value
1	2	☒		1300	um/in	1300		
1	2	☒		0	um/in	0		
4		☒		2	um/in	2		

Click

Meas Val Before Move(B) Meas Val After Move(A) Stroke Change execution(S) OK Cancel

Measured data before the stroke change function appears.



(Next page)

(Previous page)



7) Obtain measured values after executing the stroke change function.

Click **Meas Val After Move(A)** button for obtaining values after executing the stroke change function.

Measured data after the stroke change function appears.

BOX No.	CH	Stroke Change execution ON	CH Name	Current MEAS value	Unit	MEAS Val Before Move	MEAS Val After Move	Stroke Change value
1	1	☒		-11	mm/m	1360	-11	
	2	☒		0	mm/m	0	0	
	4	☒		2	mm/m	2	2	

Buttons: Meas Val Before Move(B), Meas Val After Move(A), Stroke Change execution(S), OK, Cancel.



8) Execute the stroke change function.

Press the **Stroke Change execution(S)** button for obtaining new offset values.

New offset values are calculated from the measured data before the stroke function and measured data after the stroke change function.

New offset values appear.

BOX No.	CH	Stroke Change execution ON	CH Name	Current MEAS value	Unit	MEAS Val Before Move	MEAS Val After Move	Stroke Change value
1	1	☒		-11	mm/m	1360	-11	
	2	☒		0	mm/m	0	0	
	4	☒		2	mm/m	2	2	

Buttons: Meas Val Before Move(B), Meas Val After Move(A), Stroke Change execution(S), OK, Cancel.



9) Add new offset values.

Click **OK** button.

New offset values are added to the Offset value column.

Offset value after the stroke change measurement

BOX No.	CH	盛り替え実行ON	CH名称	現在の測定値	単位	移動前測定データ	移動後測定データ	盛り替え値
1	1	☒		0	mm/m	1360	0	1371.00
	2	☒		0	mm/m	0	0	0.00000
	4	☒		0	mm/m	2	2	0.00000

Buttons: 移動前の測定値取得(B), 移動後の測定値取得(A), 盛り替え実行(S), OK, キャンセル.

CH1-CH4 { Offset: 1371.00, 0.00000, 0.00000, 0.00000 }

9-6 START RECORDING WITH THE PRESET CONDITIONS (TRIGGER MEASUREMENT)

Trigger measurement automatically starts recording when satisfying the preset trigger conditions.
The NTB-10A has two types of Trigger measurement modes.

Mode	Descriptions
Relative value mode	Start recording with the trigger value that is set as the reference value. After the recording, the Trigger recording is performed by using the following 2 values. (Reference value + Trigger value that is set in the STEP) (Reference value – Trigger value that is set in the STEP)
Absolute value mode	Start the trigger recording with the preset trigger value.

9-6-1 Trigger Measurement in Relative Value Mode

Example: We describe the trigger measurement in relative value mode based on the following conditions.

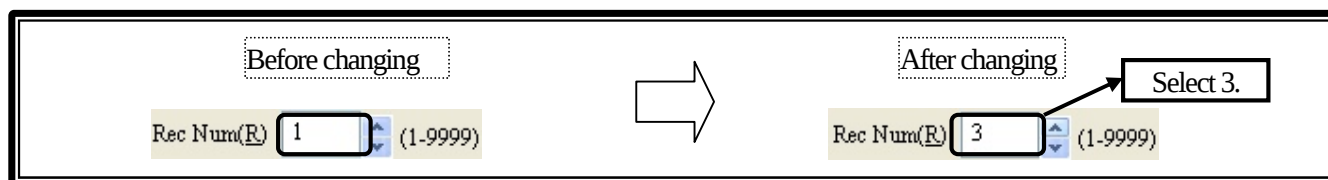
Items	Setting Values
The number of recording	3
Trigger Mode	Relative value
Start Trigger	Set BOX No. = 1, CH = 1, and Reference value = 0.
Logical Operation	TRG1-2 = OR
STEP Setting	STEP0 Trigger value = 1000, Repeat = 2, Status = Continue STEP1 Trigger value= 500, Repeat = 1, Status = End

1) Display **Set Trigger Condition** window.

Display **Set Trigger Condition** window.
For details, refer to “5-7-1 How to display Set Trigger Condition window.”



2) Set the number of recording.



(Next page)

(Previous page)



3) Select **Relative Value (Constant Var.)** as the Trigger Mode.

Trigger Mode

☒ Relative Value (Constant Var.)

☐ Absolute Value

Select Relative Value.



4) Set BOX No. and CH.

Before setting

Start trigger

	BOXNO.	CH	Slope	Ref. Value
TRG 1	---	---	Pos.	1000
TRG 2	---	---	Pos.	1000
TRG 3	---	---	Pos.	1000
TRG 4	---	---	Pos.	1000

After setting

Start trigger

	BOXNO.	CH	Slope	Ref. Value
TRG 1	1	2	Pos.	0
TRG 2	---	---	Pos.	1000
TRG 3	---	---	Pos.	1000
TRG 4	---	---	Pos.	1000

BOX No. = 1
CH = 1

Ref. Value = 0.



5) Set logical operations.

Logical operation

TRG 1-2

TRG 3-4

(TRG1-2)-(TRG3-4)

Select OR.



(Next page)

(Previous page)

6) Set STEP.

Before changing

STEP	Trig value TRG1	Repeat	Status
0	1000	10	End
1	1000	10	End
2	1000	10	End
3	1000	10	End
4	1000	10	End

→

After changing

TRG1 = 1000, Repeat = 2, Status = Continue

STEP	Trig value TRG1	Repeat	Status
0	1000	2	Continue
1	500	1	End
2	1000	10	End
3	1000	10	End
4	1000	10	End

TRG1 = 500, Repeat = 1, Status = End

7) Setting completes.

Click button to valid the setting.

8) Change the Meas Mode to the **Trigger Meas**.

Change the Meas Mode to the **Trigger Meas**.

For details, refer to “5-4-1 How to Display Set Meas Data Window.”

Click the **Trigger Meas** in the Meas Mode and click the button.

Meas Mode

Meas Mode

Rec Num(R)

When the Rec Num is pressed, keep recording the data.

Meas Once

Meas Once

Sequential Meas

Interval Meas

Trigger Meas

Click the **Trigger Meas**.

9) Open the **Trigger Info** window.

For details, refer to “13-3 OPENING TRIGGER INFO WINDOW.”

(Next page)

(Previous page)



10) Make the NTB-10A in MONITOR measurement status.

Make the NTB-10A in MONITOR measurement status.

For details, refer to “9-1 EXECUTING MONITOR MEASUREMENT.”

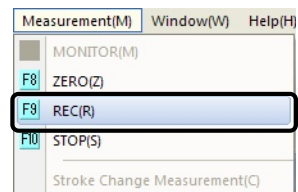


11) Conduct recording.

There are 3 methods for recording. After conducting, the NTB-10A becomes waiting for trigger status.

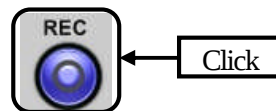
(1) From the menu

Click **Measurement(M)** – **REC (R)** of the menu.



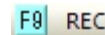
(2) From the Meas Operation Panel

Click the REC button on the Meas Operation Panel.



(3) From the function key

Press the F9 key of your key board.



(Next page)

(Previous page)



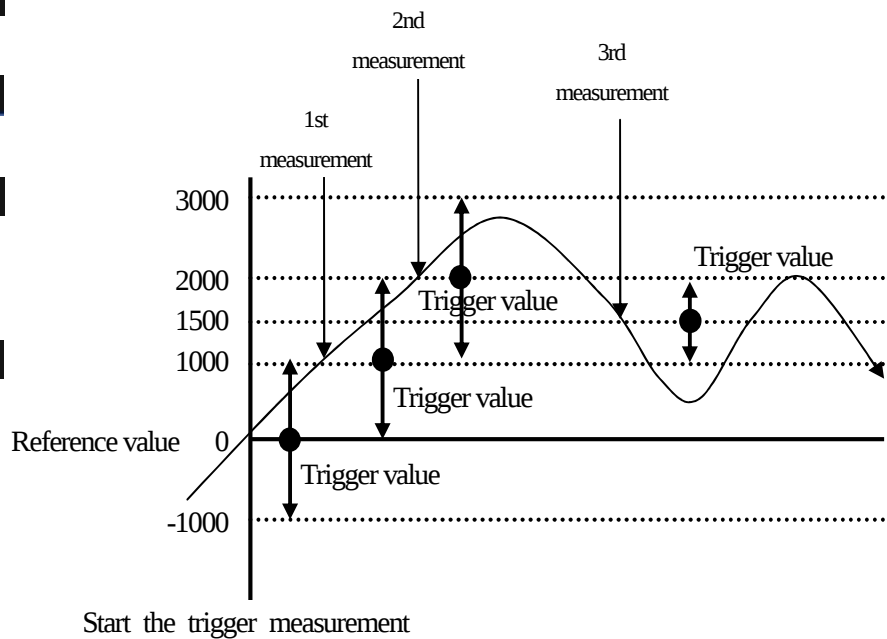
12) Trigger measuring the data.

The trigger measurement alternately repeats <Waiting for Trigger> status and <Trigger recording>.
After the preset number of trigger measurement finishes, the NTB-10A becomes MONITOR status.

NTB-10A status



Example of trigger measurement based on the preset conditions



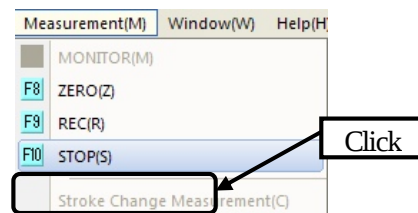
13) Stop monitoring.

Stops the monitoring status.

There are 3 methods.

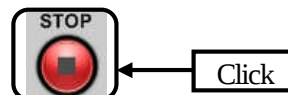
(1) From the menu

Click the **Measurement(M)** – **STOP(S)** of the menu.



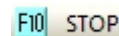
(2) From the Meas Operation Panel

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key

Press the **F10** key of your key board.



(Next page)

(Previous page)



14) Checking data.

For checking the measured data, open the saved data file folder (refer to “8-6 OPENING SET SAVE FOLDER”).

9-6-2 Trigger Measurement in Absolute Value Mode

Example: We describe the trigger measurement in absolute value mode based on the following conditions.

Items	Setting Values
The number of recording	3
Trigger Mode	Absolute value
Start Trigger	BOX No. = 1, CH = 1, and Slope = Positive
Logical Operation	TRG1-2 = OR
STEP Setting	STEP0 Trigger value = 1000, Repeat = 2, Status = Continue STEP1 Trigger value = 500, Repeat = 1, Status = End

1) Display **Set Trigger Condition** window.

Display **Set Trigger Condition** window.

For details, refer to “5-7-1 How to display Set Trigger Condition window.”



2) Set the number of recording.

Before changing Rec Num(R) 1 (1-9999)		After changing Rec Num(R) 3 (1-9999) Select 3.
--	--	--



3) Select Absolute Value as the Trigger Mode.

Select Absolute Value. Trigger Mode ☐ Relative Value (Constant Var.) ☒ Absolute Value



(Next page)

(Previous page)

4) Set BOX No. and CH.

Before setting

Start trigger	BOXNO.	CH	Slope	Ref. Value
TRG 1	---	---	Pos.	1000
TRG 2	---	---	Pos.	1000
TRG 3	---	---	Pos.	1000
TRG 4	---	---	Pos.	1000

→

After setting

Start trigger	BOXNO.	CH	Slope	Ref. Value
TRG 1	1	1	Pos.	1000
TRG 2	---	---	Pos.	1000
TRG 3	---	---	Pos.	1000
TRG 4	---	---	Pos.	1000

BOX No. = 1
CH = 1

Slope = Positive

5) Set logical operations.

Logical operation

TRG 1-2	OR
TRG 3-4	OR
(TRG1-2)-(TRG3-4)	OR

Select OR.

6) Set trigger conditions.

Before changing

STEP	Trig value TRG1	Repeat	Status
0	1000	10	End
1	1000	10	End
2	1000	10	End
3	1000	10	End
4	1000	10	End

→

After changing

STEP	Trig value TRG1	Repeat	Status
0	1000	2	Continue
1	500	1	End
2	1000	10	End
3	1000	10	End
4	1000	10	End

TRG1 = 1000, Repeat = 2, Status = Continue

TRG1 = 500, Repeat = 1, Status = End

7) Setting completes.

Click button to valid the settings.

(Next page)

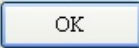
(Previous page)

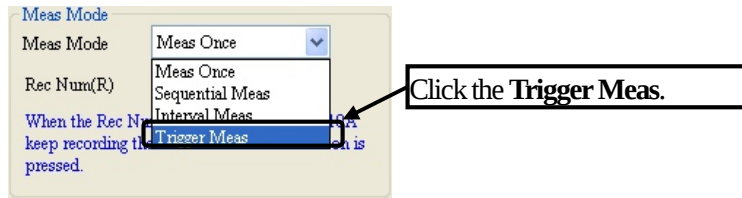


8) Change the Meas Mode to the **Trigger Meas**.

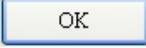
Change the Meas Mode to the **Trigger Meas**.

For details, refer to “5-4-1 How to Display Set Meas Data Window.”

Click the **Trigger Meas** in the Meas Mode and click the  button



9) Setting completes.

Click  button to valid the setting.



10) Make the NTB-10A in MONITOR measurement status.

Make the NTB-10A in MONITOR measurement status.

For details, refer to “9-1 EXECUTING MONITOR MEASUREMENT.”

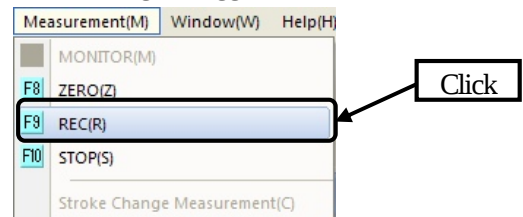


11) Conduct recording.

There are 3 methods for recording. After conducting, the NTB-10A becomes waiting for trigger status.

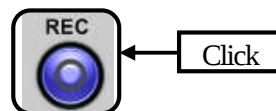
(1) From the menu

Click **Measurement(M)** – **REC(R)** of the menu.



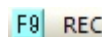
(2) From the Meas Operation Panel.

Click the **REC** button on the Meas Operation Panel.



(3) From the function key

Press the **F9** key of your keyboard.



(Next page)

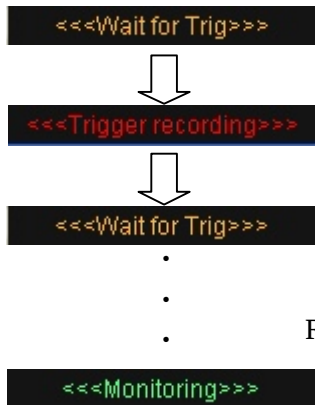
(Previous page)



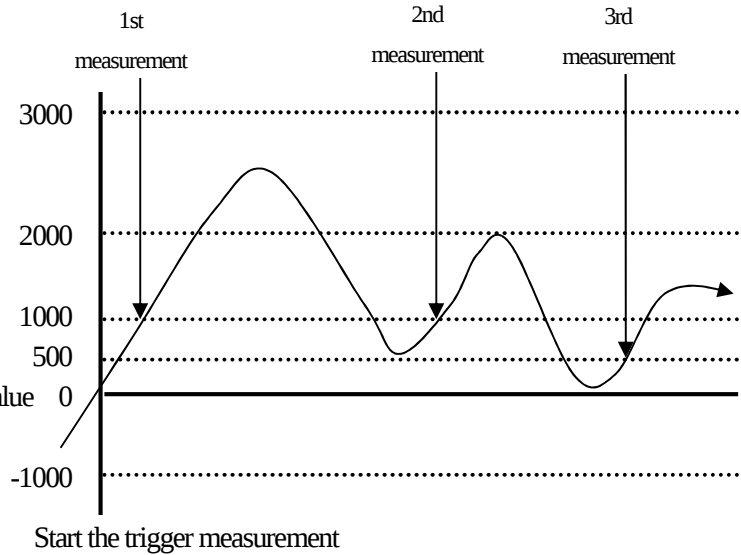
12) Trigger measuring the data.

The trigger measurement alternately repeats <Waiting for Trigger> status and <Trigger recording> status. After the preset number of trigger measurement finishes, the NTB-10A becomes MONITOR status.

NTB-10A status



Example of trigger measurement based on the preset conditions

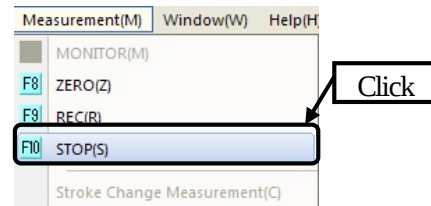


13) Stop monitoring.

Stops the monitoring status.

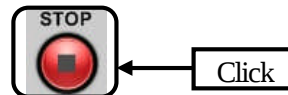
(1) From the menu

Click the **Measurement(M)** – **STOP(S)** of the menu.



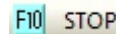
(2) From the Meas Operation Panel

Click the **STOP** button on the Meas Operation Panel.



(3) From the function key

Press the **F10** key of your keyboard.



14) Checking data.

For checking the measured data, open the saved data file folder (refer to “8-6 OPENING SET SAVE FOLDER”).

10. LOADING AND WRITING TEDS INFORMATION (NTB-100A SERIES ONLY)

After loading the information from the TEDS sensor that is connected to the NTB-100A series, the NTB-10A can write a **CH Name** to the TEDS sensor.

10-1 LOADING TEDS INFORMATION THAT IS CONNECTED TO NTB-100A SERIES

This section describes how to load the information of the TEDS sensor that is connected to the NTB-100A series and how to reflect the information to the CH condition.

TEDS Info. window
● Set Item

1) Display **TEDS Info.** window.

Display **TEDS Info.** window. For how to display the **TEDS Info.** window, refer to “5-6-1 How to Display Teds Info Window.”

BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer I
1	1	☒	ERROR	4G		1.00000	0(*****)	urn/m	
	2	☒	ERROR	4G		1.00000	0(*****)	urn/m	
	3	☒	ERROR	4G		1.00000	0(*****)	urn/m	
	4	☒	ERROR	4G		1.00000	0(*****)	urn/m	



2) Set **Set Item**.

Put a checkmark to the target item for setting the loaded TEDS information to the CH condition.

Set Item

CH Name	☒
CAL Coefficient	☒
Dec Digits	☒
Unit	☒

Put a checkmark to the target item.



3) Load TEDS information.

Click  button. (It takes time for loading.)



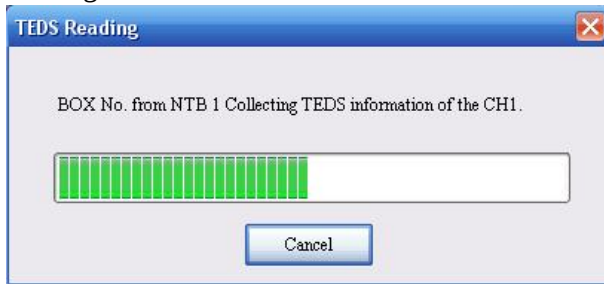
(Next page)

(Previous page)



4) Loading TEDS information.

Wait until the loading of the TEDS information finishes.



5) Loading finishes.

If the TEDS information is correctly loaded, "OK" appears in the target cell of the **TEDS Result**.

Loaded result.										
BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer I	
1	1	☒	OK	4G		2.38962	0(*****)	m/s2	KYOWA	
	2	☒	ERROR	4G		1.00000	0(*****)	um/m		
	3	☒	ERROR	4G		1.00000	0(*****)	um/m		
	4	☒	ERROR	4G		1.00000	0(*****)	um/m		



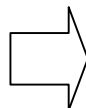
6) Display detailed information of the TEDS.

Display the detailed information of the loaded TEDS information.

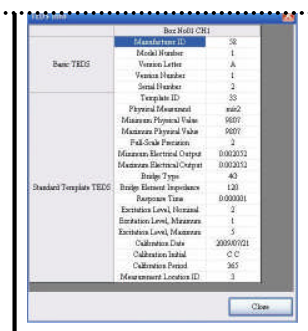
Capable of reflecting the content of the loaded TEDS information without displaying the detailed information as follows.

When "OK" appears, press **Space** key or double click the mouse at the cell.

BOX No.	CH	TEDS Setting	TEDS Result
1	1	☒	OK
	2	☒	ERROR
	3	☒	ERROR
	4	☒	ERROR



Detailed information of TEDS



(Next page)

(Previous page)

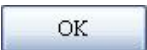


7) Close the detailed window of the TEDS information.

Click the  button to close the detailed window of the TEDS information.



8) Setting completes.

Click the  button to close the TEDS Info. window.

NOTE

- For using the TEDS function, be sure to use the KYOWA made TEDS sensor.
- When using other manufacture made sensor, information cannot be load correctly.
- When using KYOWA made sensor, information may not be load correctly.

10-2 WRITING CH NAME TO TEDS SENSOR THAT IS CONNECTED TO NTB-100A SERIES

This section describes how to write **CH Name** to the TEDS sensor that is connected to the NTB-100A series.

[Example]

Write “TEST” as the CH Name to the TEDS sensor of the CH1.

- 1) Display **TEDS Info.** window.

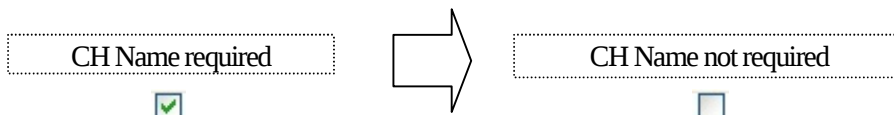
Display **TEDS Info.** window. For how to display the **TEDS Info.** window, refer to “5-6-1 How to Display Teds Info Window.”

BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer I
1	1	☒	OK	4G		2.38962	0(*****)	m/s2	KYOWA
	2	☒	ERROR	4G		1.00000	0(*****)	um/m	
	3	☒	ERROR	4G		1.00000	0(*****)	um/m	
	4	☒	ERROR	4G		1.00000	0(*****)	um/m	



- 2) Put a checkmark to the target CH of the **TEDS Setting**.

Put a checkmark for writing the target CH Name to the TEDS.



- 3) Set **CH Name**.

Set “TEST” as **CH Name** of the CH1.

BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer I
1	1	☒	OK	4G	TEST	2.38962	0(*****)	m/s2	KYOWA
	2	☐	ERROR	4G		1.00000	0(*****)	um/m	
	3	☐	ERROR	4G		1.00000	0(*****)	um/m	
	4	☐	ERROR	4G		1.00000	0(*****)	um/m	



- 4) Write **CH Name** to the TEDS sensor.

Click  button. (It takes about 10 seconds for writing.)



(Next page)

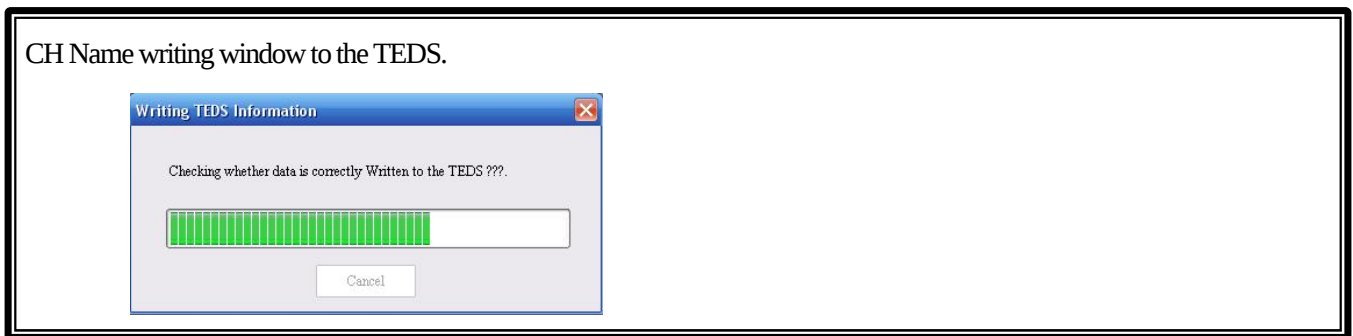
(Previous page)



5) Confirmation for writing the **CH Name** appears.



6) Writing CH Name.



7) Writing CH Name to the TEDS sensor completes.

“OK” appears to the TEDS Result.

Wrote result of TEDS.

BOX No.	CH	TEDS Setting	TEDS Result	CH Mode	CH Name	CAL Coefficient	Dec. Digits	Unit	Manufacturer I
1	1	☒	OK	4G	TEST	2.38962	0(*****)	m/s2	KYOWA
	2	☐	ERROR	4G		1.00000	0(*****)	um/m	
	3	☐	ERROR	4G		1.00000	0(*****)	um/m	
	4	☐	ERROR	4G		1.00000	0(*****)	um/m	

NOTE

- For using the TEDS function, be sure to use the KYOWA made TEDS sensor.
- When using other manufacture made sensor, information cannot be load correctly.
- When using KYOWA made sensor, information may not be load correctly.

11. NUMERIC WINDOW

11-1 HOW TO ALWAYS DISPLAY LATEST DATA TO NUMERIC WINDOW

This section describes how to scroll the display of the Numeric Window automatically.

If an **Auto Scroll(S)** is checked, the latest data is always displayed.

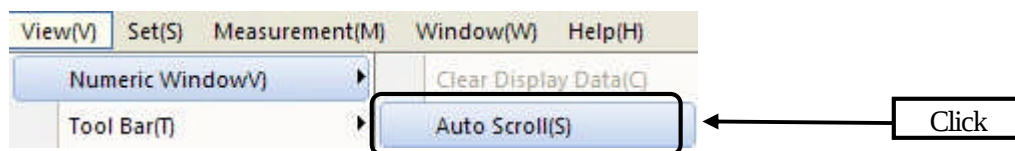
Auto Scroll OFF state and Auto Scroll ON state are described as follows.



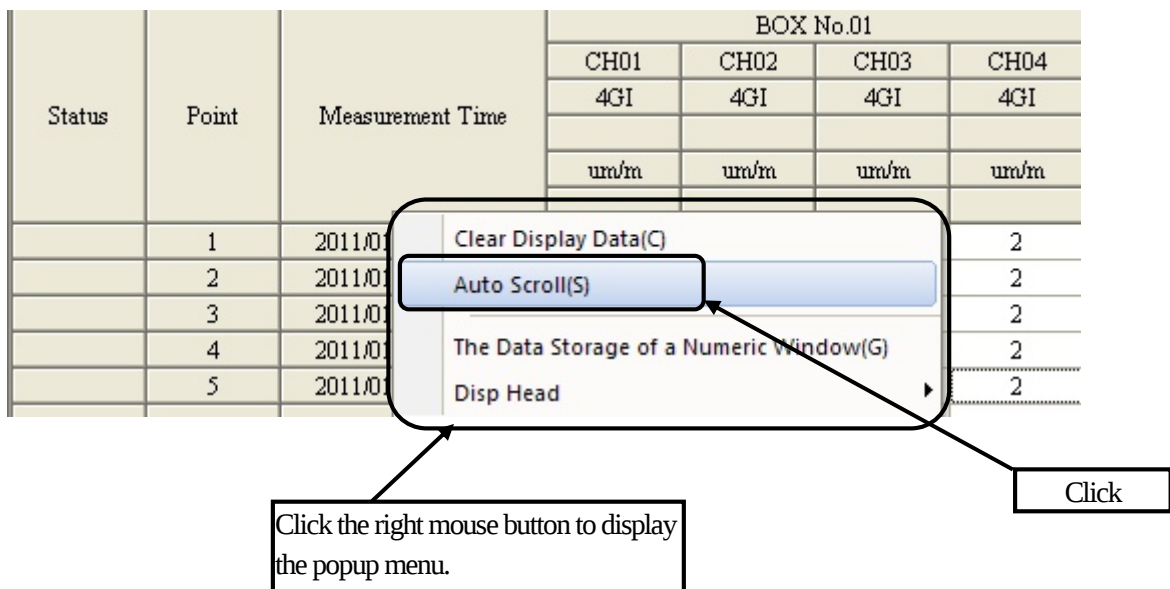
Following 2 methods are described for switching the **Auto Scroll(S)** ON/OFF.

- (1) From the menu.
- (2) From the Numeric Window

1) Click **View(V)** – **Numeric Window(V)** – **Auto Scroll(S)** of the menu.



2) Click the right mouse button – **Auto Scroll(S)** on the Numeric Window.



11-2 HOW TO CLEAR DISPLAYING DATA

This section describes how to clear the measured data that is displaying on the Numeric Window at arbitrary timing. Following 2 methods are described for clearing the displaying data.

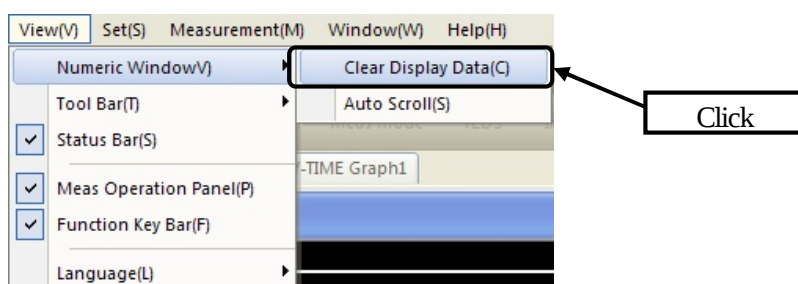
- 1) From the menu.
- 2) From the Numeric Window.

1) Clear the displaying data.

Clear the displaying data from the menu or Numeric Window.

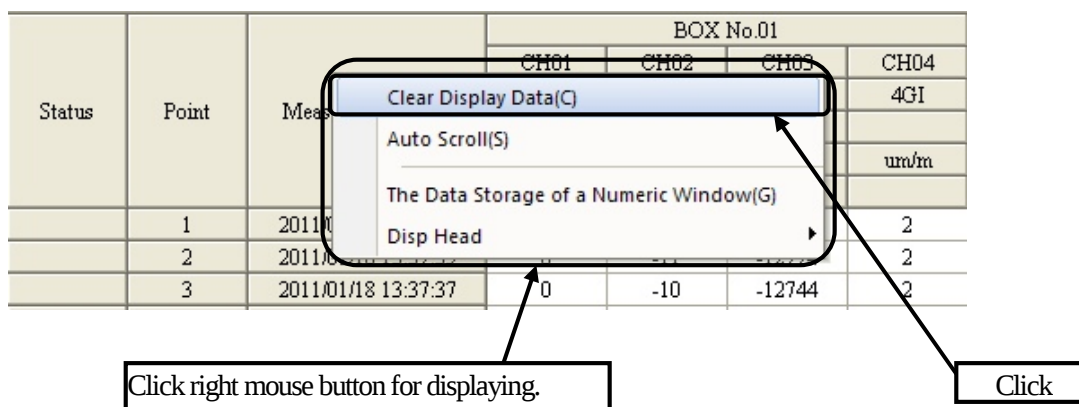
(1) From the menu

Click **View(V)** – **Numeric Window (V)** – **Clear Display Data (C)** of the menu.



(2) From the Numeric Window

Click the right mouse button – **Clear Display Data(C)** on the Numeric Window.



(Next page)

NOTE

After clicking the **Clear Display Data(C)**, the data on the graph is also cleared.

(Previous page)



- 2) The data of the Numeric Window is cleared.

Status	Point	Measurement Time	BOX No.01			
			CH01	CH02	CH03	CH04
			4GI	4GI	4GI	4GI
			um/m	um/m	um/m	um/m

Data is cleared.

11-3 SAVING DATA ON NUMERIC WINDOW

Capable of saving the measured data that is displayed on Numeric window in CSV file after the measurement.
There are 2 methods for saving data on the Numeric window.

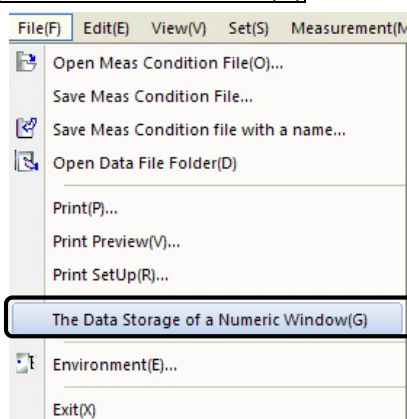
- 1) From the menu.
- 2) From the Numeric Window.

1) Save the data on Numeric window.

Save the data on Numeric window from the menu or from Numeric window.

(1) From the menu

Click **File(F)** – **The Data Storage of a Numeric Window(G)** on the menu.



(2) From the Numeric Window.

			BOX No.01			
			CH01	CH02	CH03	CH04
Status	Point	Measurement Time	Clear Display Data(C) Auto Scroll(S) The Data Storage of a Numeric Window(G) Disp Head			
	1	2011/01/18 13:42:40				
	2	2011/01/18 13:42:40	0	-11	-12774	2
	3	2011/01/18 13:42:42	0	-11	-12738	2
	4	2011/01/18 13:42:44	0	-11	-12751	2

Click right mouse button for displaying.

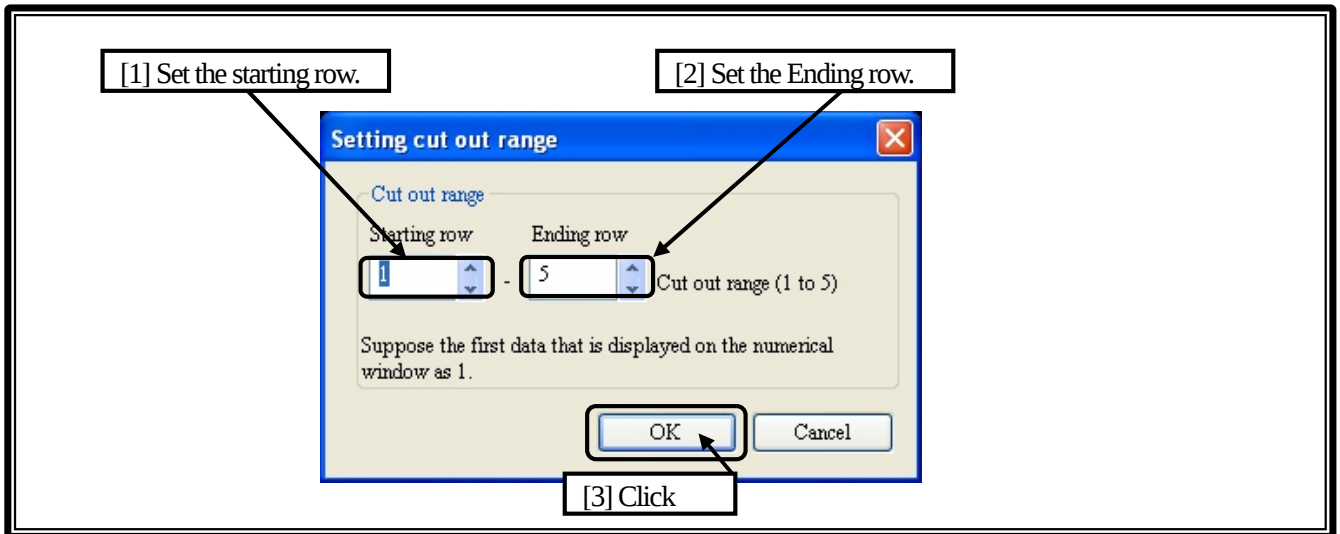


(Next page)

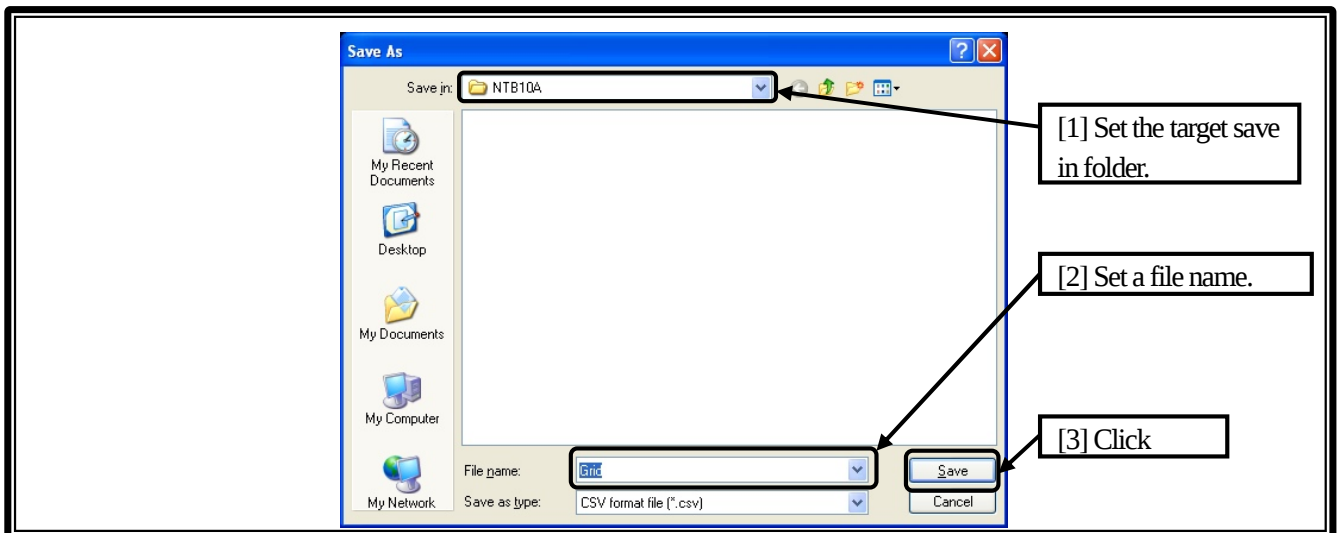
(Previous page)



2) Set the cut out range of the target data.



3) Set the target **Save in** folder and click the **Save** button.

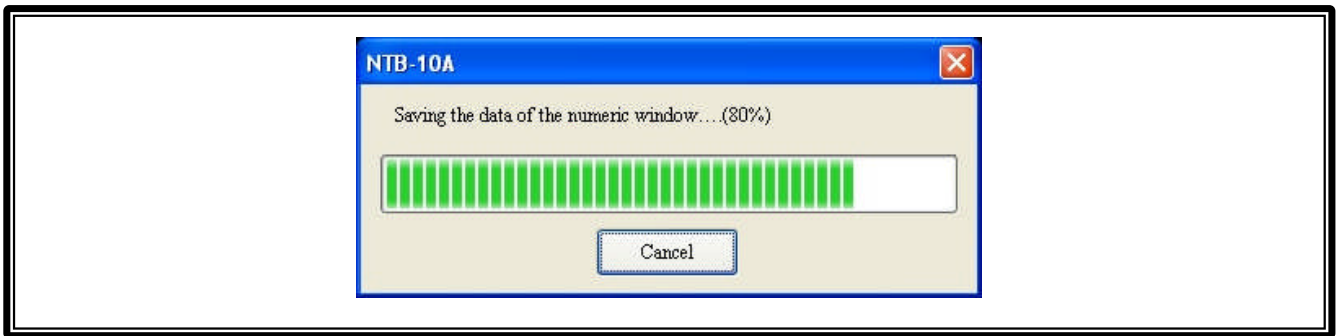


(Next page)

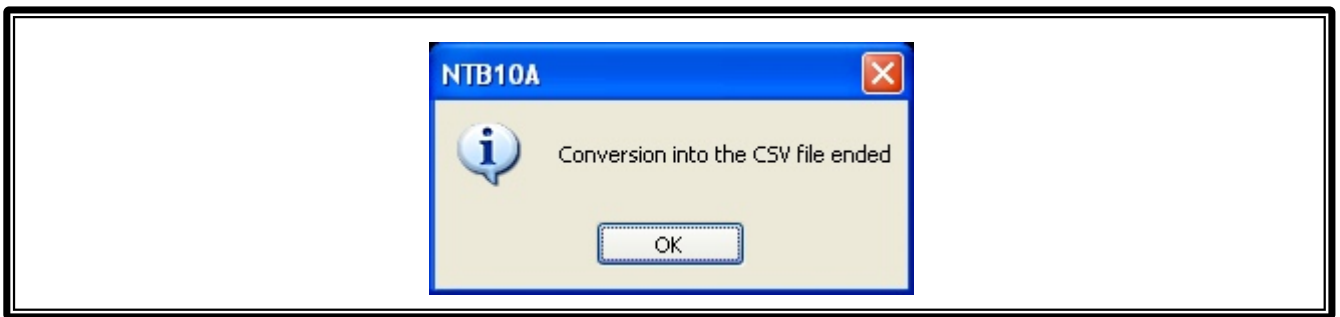
(Previous page)



4) The data is now saving.



5) Succeeded in saving.



MEMO

- The number of saving available data is MAX. 20,000 data.
- The data is saved with the current file format in Meas Mode.

11-4 SHOW OR HIDE HEADER SECTIONS ON NUMERIC WINDOW

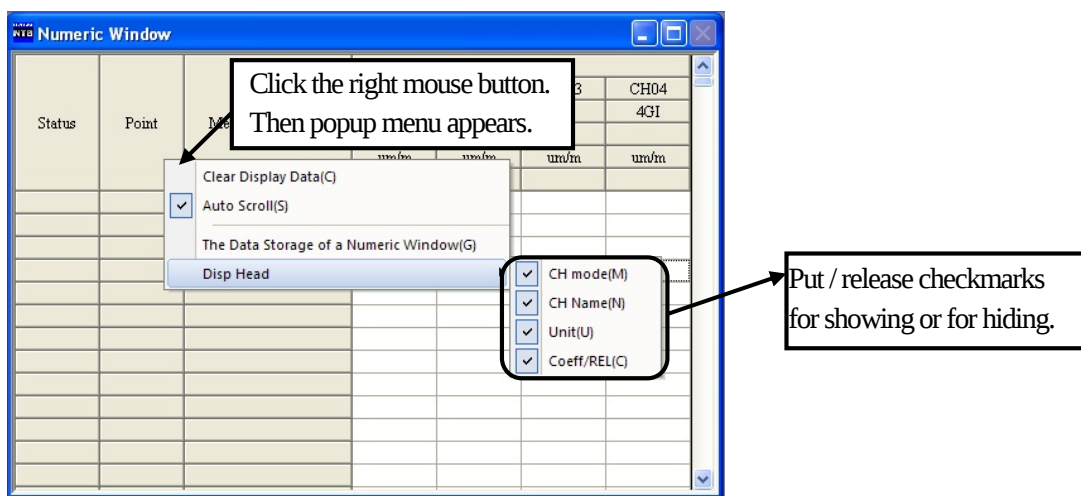
Capable of showing / hiding the following header sections on Numeric window.

CH Mode (M)
CH Name (N)
Unit (U)
Coef. / REL (C)

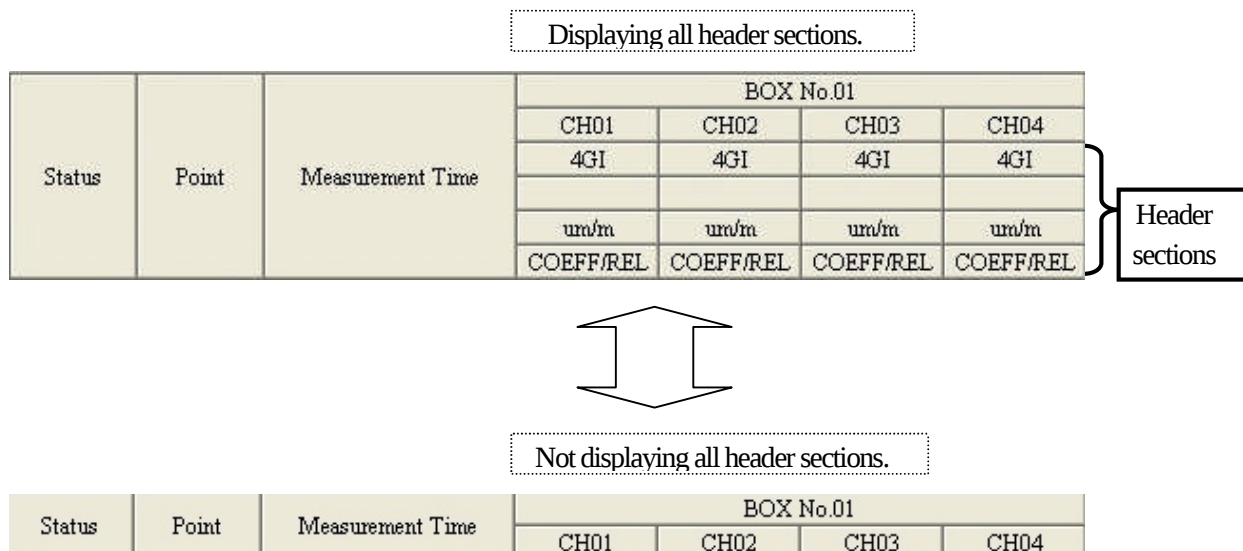
1) Start from Numeric window.

Click the right mouse button on Numeric window.

Put a cursor on **Disp Head** and put / release checkmarks for showing or hiding.



2) Header sections are showed or hidden.



12. GRAPH

12-1 GRAPH CONDITION SETTING DIALOG AND DESCRIPTION

12-1-1 How to Display Y-TIME Graph

This section describes following 2 methods for displaying Y-TIME graph.

- 1) From the tool bar
- 2) From the menu

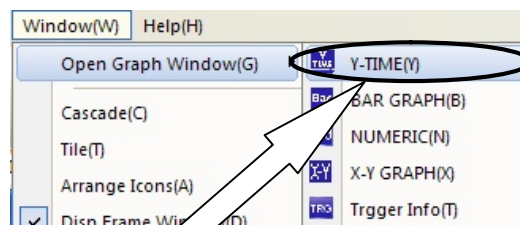
1) From the tool bar

Click “Y-TIME” icon on the toolbar.

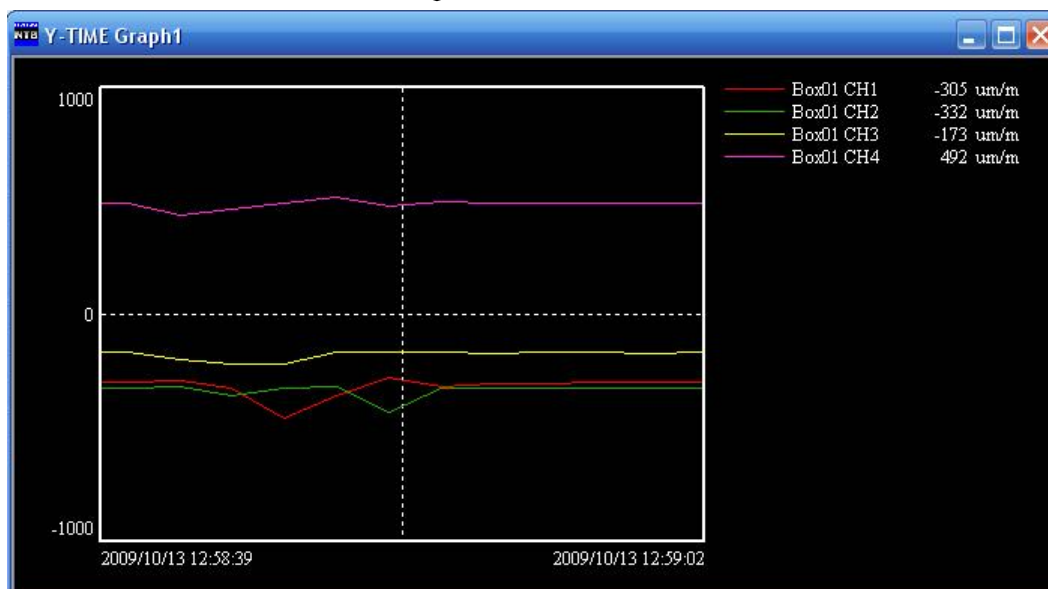


2) From the menu

Click **Window(W)** – **Open Graph Window(G)** – **Y-Time(Y)** of the menu.



Click



12-1-2 How to Display BAR Graph

This section describes following 2 methods for displaying BAR graph.

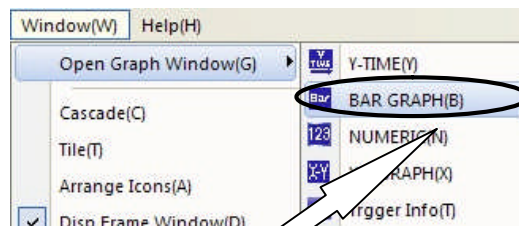
- 1) From the tool bar
- 2) From the menu

1) From the tool bar

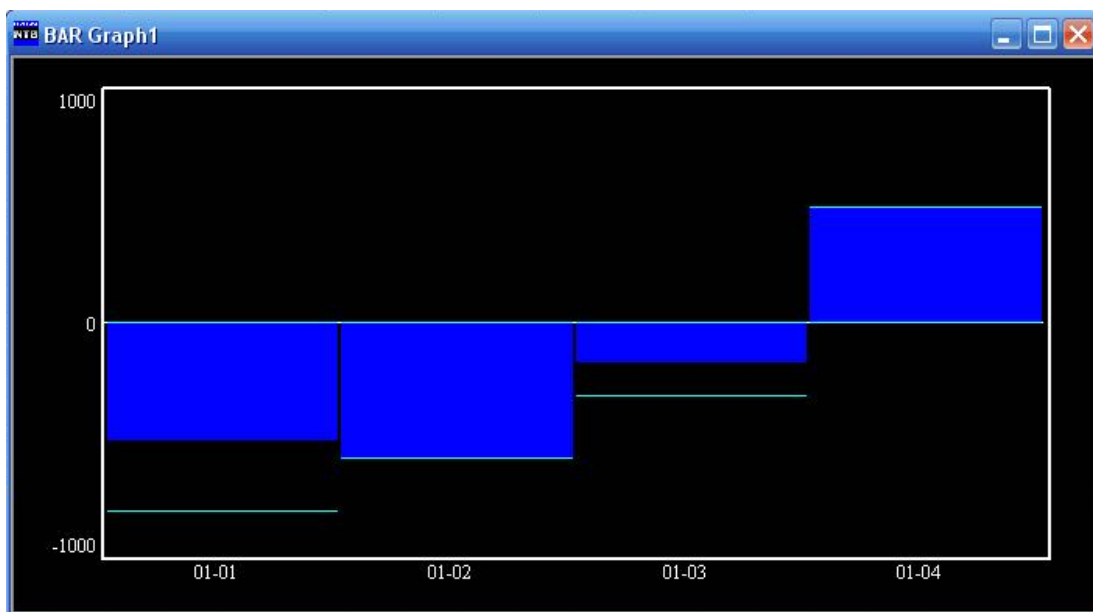
Click “BAR” icon of the tool bar.

2) From the menu

Click **Window(W)** – **Open Graph Window(G)** – **Bar Graph(B)** of the menu.



Click



12-1-3 How to Display Numeric Window

This section describes following 2 methods for displaying Numeric Window.

- 1) From the tool bar
- 2) From the menu

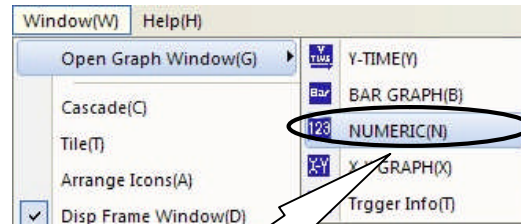
1) From the tool bar

Click “NUMERIC” icon of the tool bar.

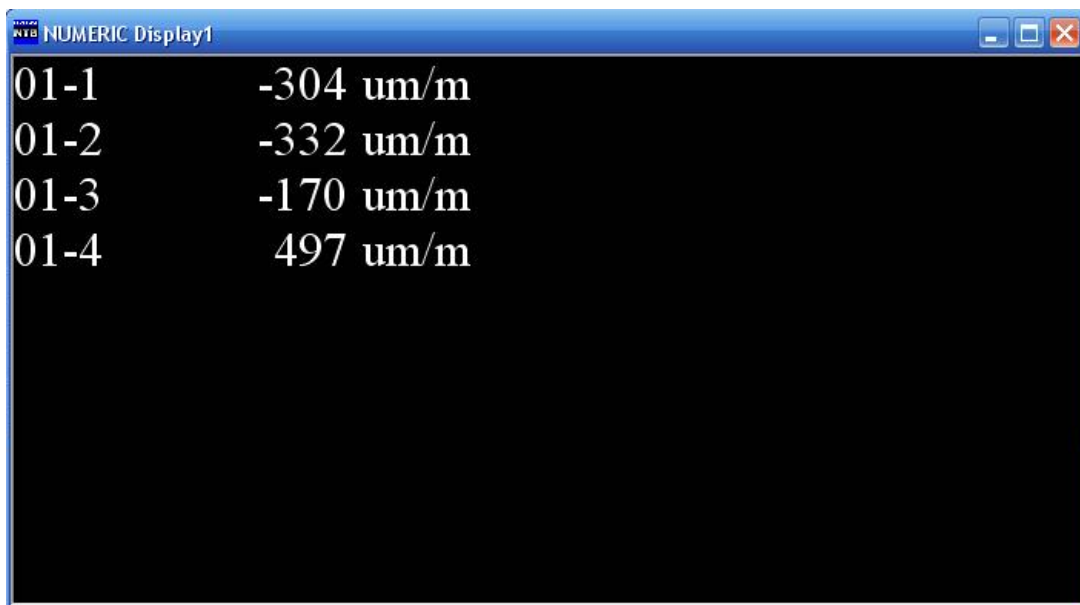


2) From the menu

Click **Window(W)** – **Open Graph Window(W)** – **Numeric(N)** of the menu.



Click



12-1-4 How to Display X-Y Graph

This section describes following 2 methods for displaying Numeric Window.

1) From the tool bar

2) From the menu

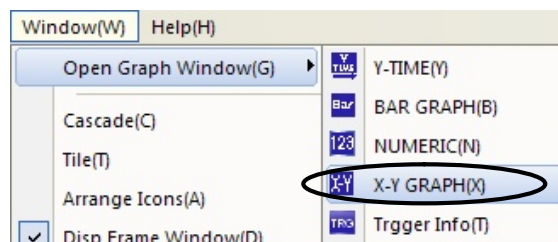
1) From the tool bar

Click “X-Y” icon of the tool bar.

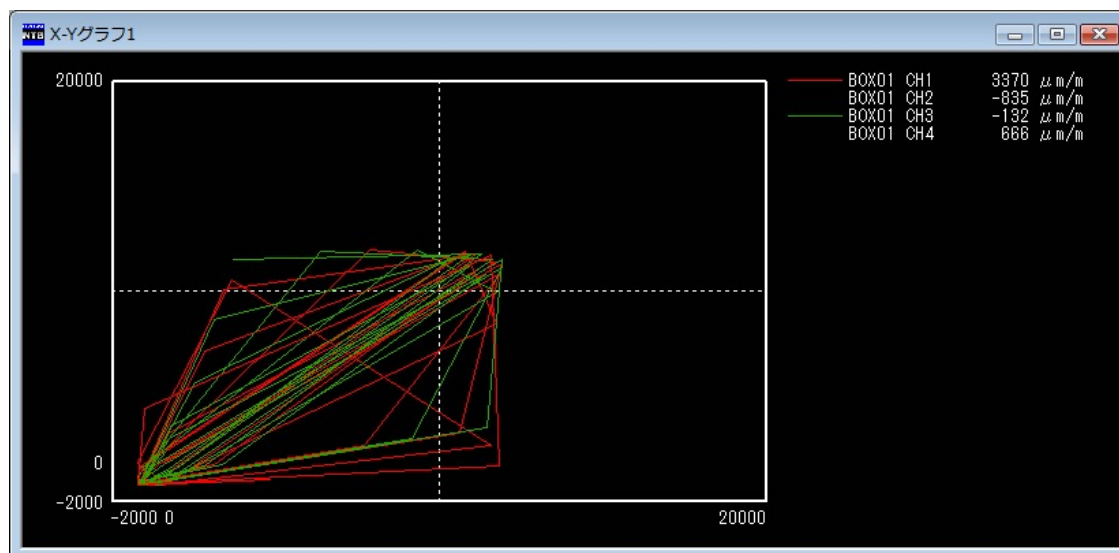


2) From the menu

Click **Window(W)** – **Open Graph Window(W)** – **X-Y GRAPH(N)** of the menu.



Click

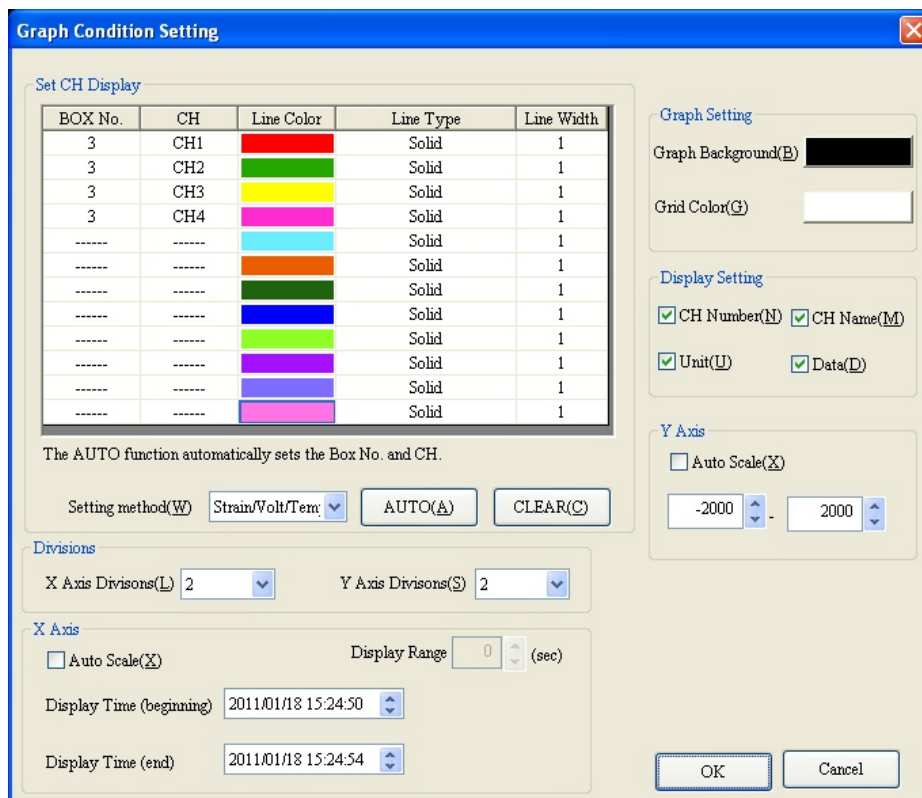
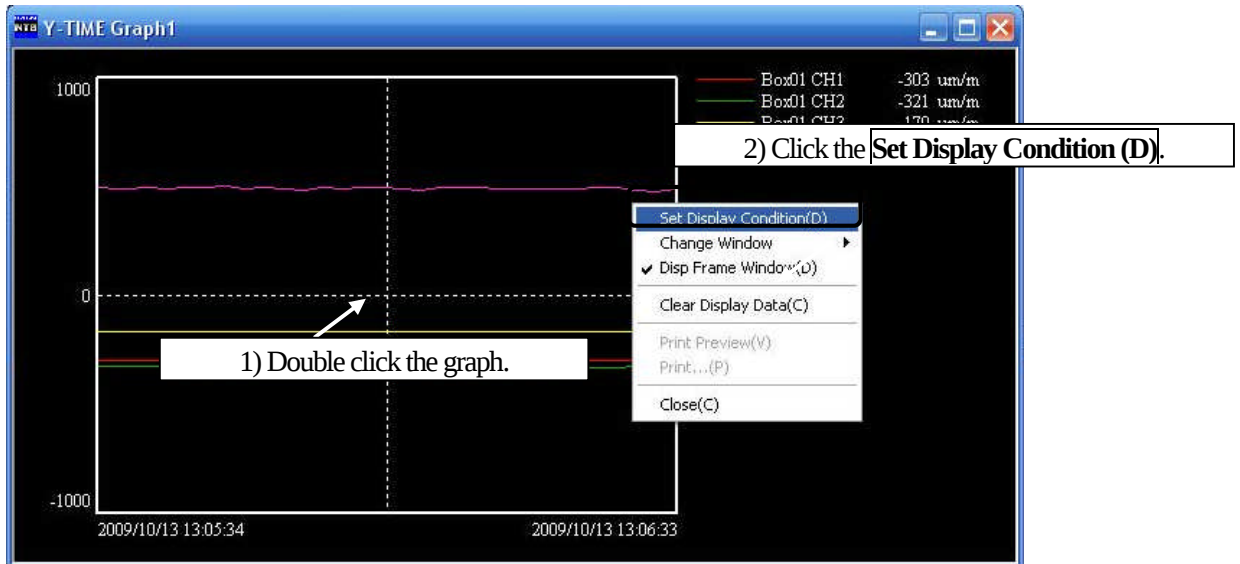


12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs)

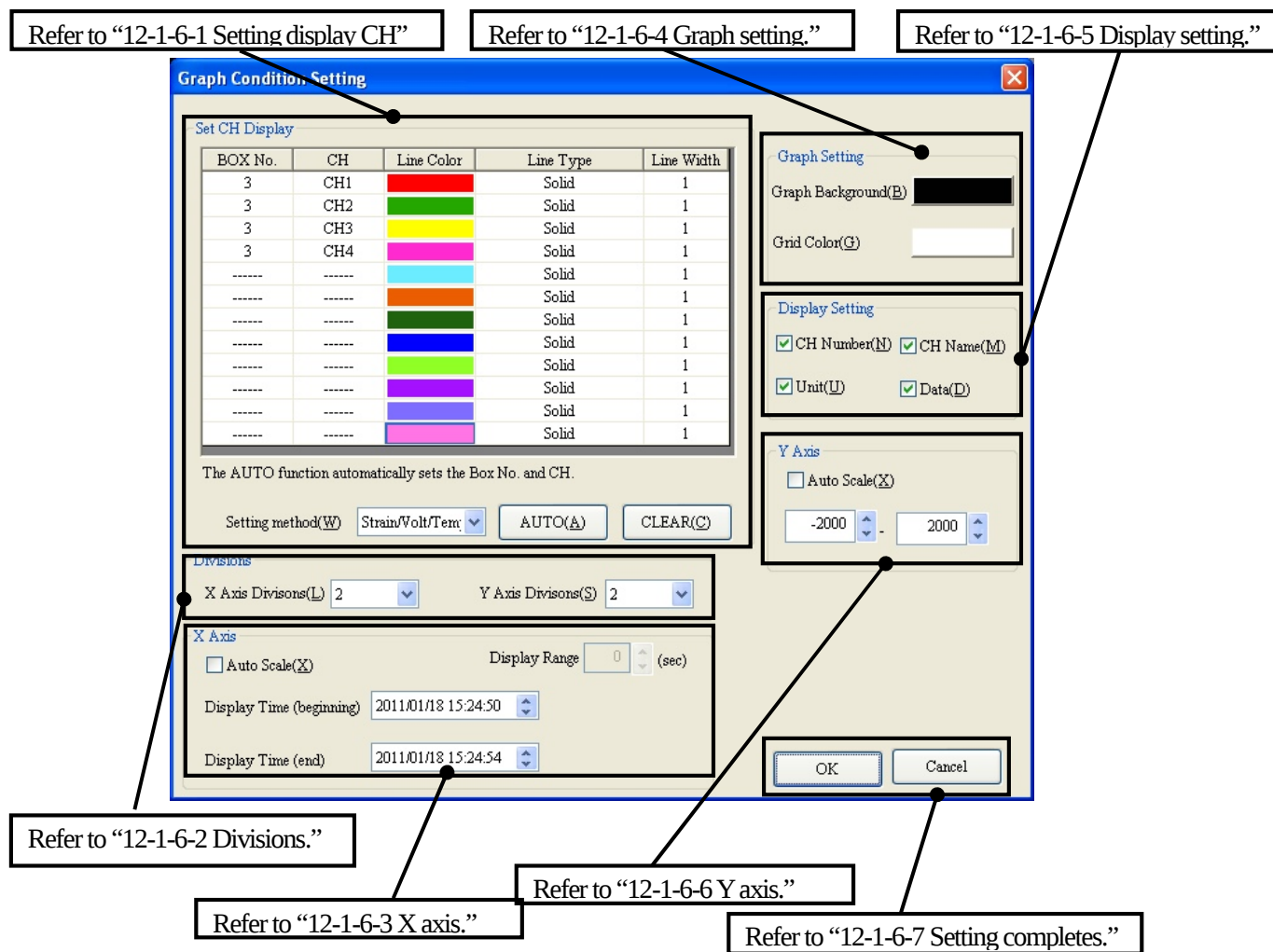
Capable of displaying the **Graph Condition Setting** dialog at any time.

This section describes following 2 methods for displaying the Graph Condition Setting dialog.

- 1) Double click the mouse left button on the graph.
- 2) Click the right mouse button on the graph – **Set Display Condition(D)** from the displayed popup menu.



12-1-6 Description of Graph Condition Setting Dialog of Y-TIME Graph



12-1-6-1 Setting display CH

BOX No.	CH	Line Color	Line Type	Line Width
3	CH1	Red	Solid	1
3	CH2	Green	Solid	1
3	CH3	Yellow	Solid	1
3	CH4	Magenta	Solid	1
----	----	Cyan	Solid	1
----	----	Orange	Solid	1
----	----	Dark Green	Solid	1
----	----	Blue	Solid	1
----	----	Light Green	Solid	1
----	----	Purple	Solid	1
----	----	Light Purple	Solid	1
----	----	Pink	Solid	1

The AUTO function automatically sets the Box No. and CH.

Setting method(W) Strain/Volt/Tem AUTO(A) CLEAR(C)

Item	Content
1) BOX No.	Target BOX No.
2) CH	Target CH
3) Line Color	Color of graph line
4) Line Type	Type of graph line
5) Line Width	Width of graph line (Other than solid line: 1 fixed)
6) Setting method	For sorting data when pressing the AUTO(A) button. For details, refer to “12-2-2 Automatic Setting of Display CH.”
7) AUTO	For displaying the currently recognizing CH of the NTB-100A series to the Set CH Display table. (In ascending order by BOX No.)
8) CLEAR	Clear the currently displaying CH on the Set CH Display table.

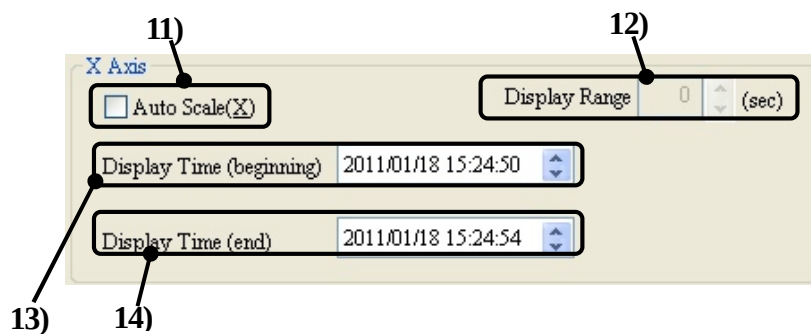
12-1-6-2 Divisions

Divisions

X Axis Divisions(L) 2 Y Axis Divisions(S) 2

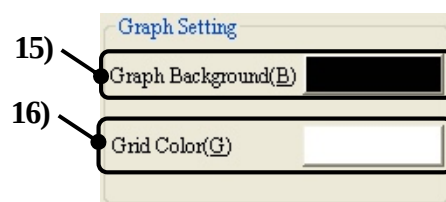
Item	Content
9) X Axis Division	Dividing number of the X Axis grid line
10) Y Axis Division	Dividing number of the Y Axis grid line

12-1-6-3 X axis



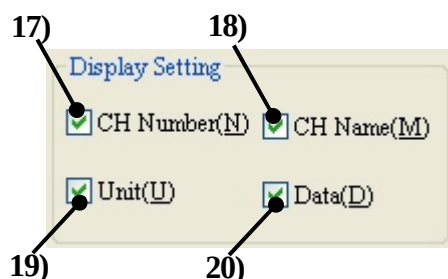
Item	Content
11) Auto Scale	Automatically scrolls the data within the Display Range . However, graph is plotted with the number of the maintained data. (MAX 10,000 data)
12) Display Range	Set the display range of X axis. When 0 is selected, a graph is plotted with all data (MAX 10,000 data).
13) Display Time (beginning)	Display time (beginning) when the X Axis Auto Scale is not checked.
14) Display Time (end)	Display time (end) when the X Axis Auto Scale is not checked.

12-1-6-4 Graph setting



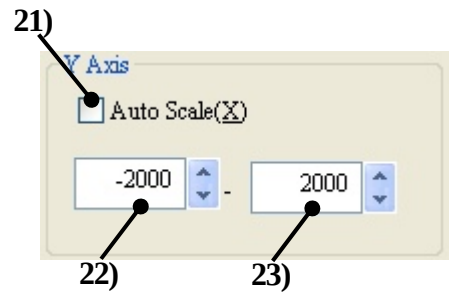
Item	Content
15) Graph Background	Background color of the graph
16) Grid Color	Grid color of the graph

12-1-6-5 Display setting



Item	Content
17) CH Number	Display CH Number on the graph
18) CH Name	Display CH Name on the graph
19) Unit	Display unit on the graph
20) Data	Display data on the Y-TIME graph

12-1-6-6 Y axis



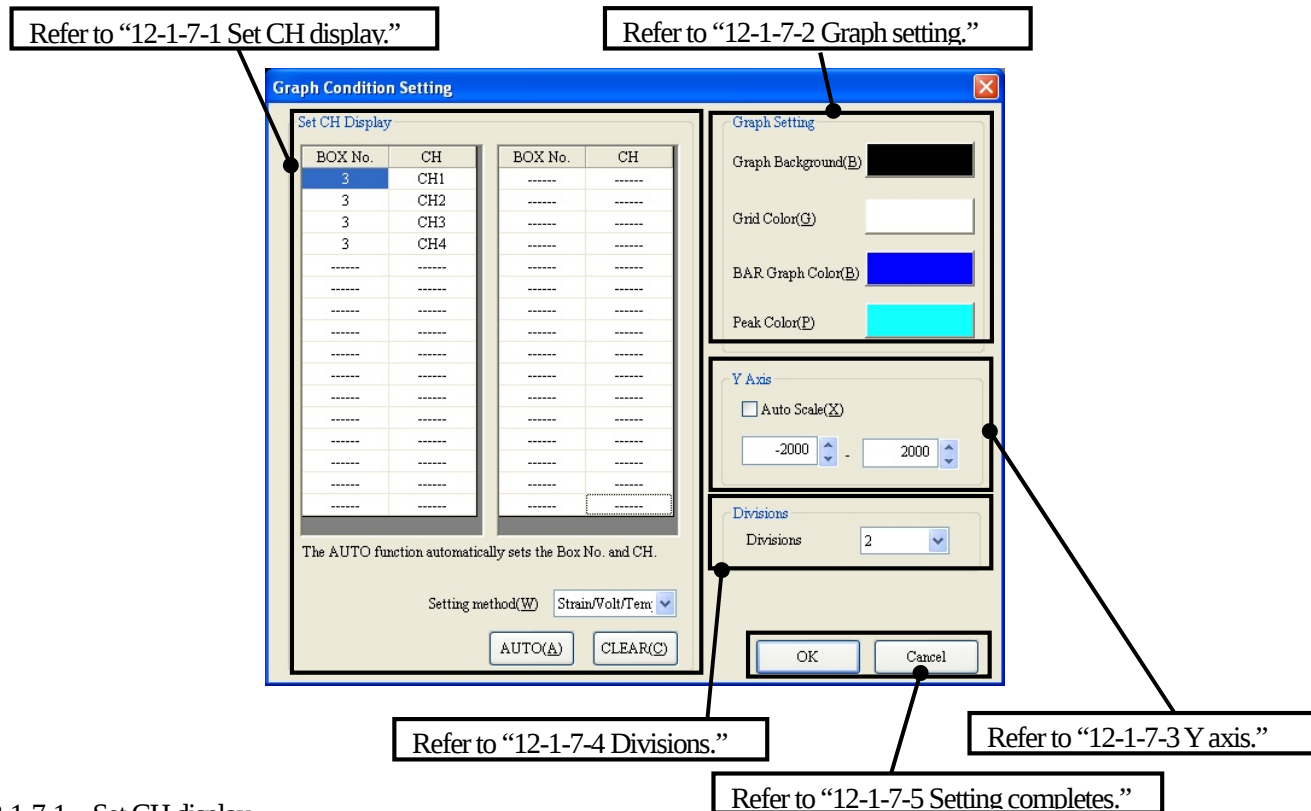
Item	Content
21) Auto Scale	Automatically sets the scale range of the Y axis.
22) Y axis range (MIN)	Y axis range (MIN) when the Y Axis Auto Scale is not checked.
23) Y axis range(MAX)	Y axis range (MAX) when the Y axis Auto Scale is not checked.

12-1-6-7 Setting completes

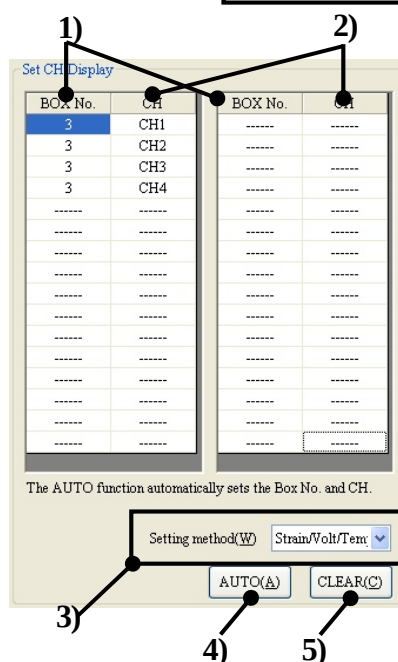


Item	Content
24) OK button	Valid the setting and close the Graph Condition Setting dialog.
25) Cancel button	Cancel the setting and close the Graph Condition Setting dialog.

12-1-7 Description of Graph Condition Setting Dialog of BAR Graph

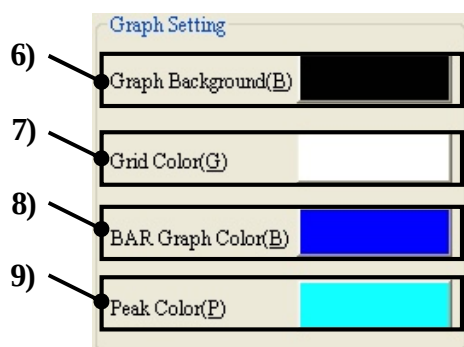


12-1-7-1 Set CH display



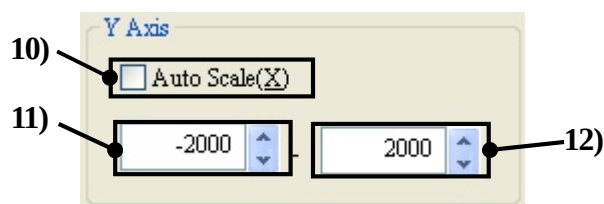
Item	Content
1) BOX No.	Target BOX No.
2) CH	Target CH
3) Setting method	For sorting data when pressing the AUTO(A) button. For details, refer to "12-2-2 Automatic Setting of Display CH."
4) AUTO	For displaying the currently recognizing CH of the NTB-100A series to the Set CH Display table. (In ascending order by BOX No.)
5) CLEAR	Clear the currently displaying CH on the Set CH Display table.

12-1-7-2 Graph setting



Item	Content
6) Graph Background	Background color of the graph
7) Grid Color	Grid line color
8) BAR graph color	BAR graph color
9) Peak Color	Peak value (MAX and MIN) colors of the BAR graph

12-1-7-3 Y axis



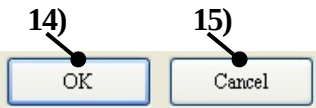
Item	Content
10) Auto Scale	The number of the divisions of the Y axis grid line.
11) Y axis range (MIN)	Y axis range (MIN) when the Y Axis Auto Scale is not checked.
12) Y axis range (MAX)	Y axis range (MAX) when the Y axis Auto Scale is not checked.

12-1-7-4 Divisions



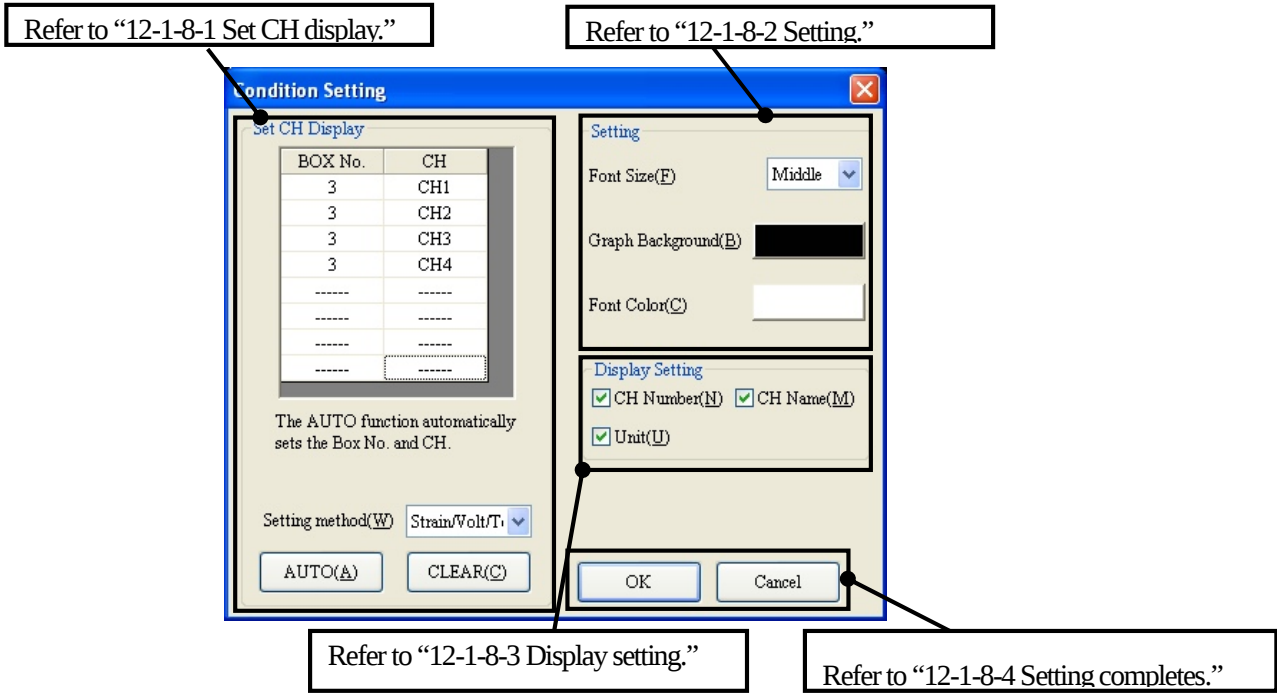
Item	Content
12) Divisions	For setting the number of divisions of axis.

12-1-7-5 Setting completes

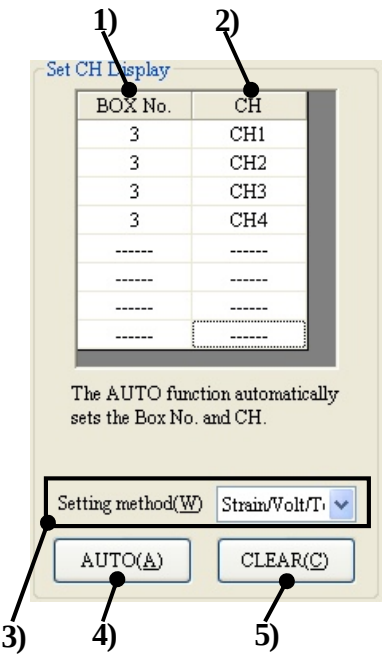


Item	Content
14) OK button	Valid the setting and close the Graph Condition Setting dialog.
15) Cancel button	Cancel the setting and close the Graph Condition Setting dialog.

12-1-8 Description of Condition Setting Dialog

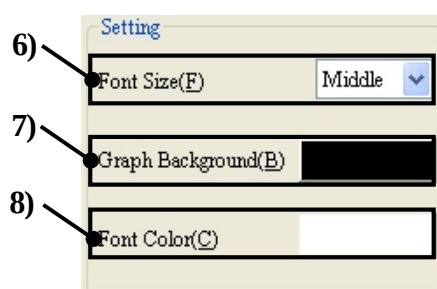


12-1-8-1 Set CH display



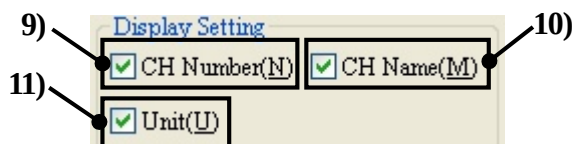
Item	Content
1) BOX No.	Target BOX No.
2) CH	Target CH
3) Setting method	For sorting data when pressing the AUTO(A) button. For details, refer to “12-2-2 Automatic Setting of Display CH.”
4) AUTO	For displaying the currently recognizing CH of the NTB-100A series to the Set CH Display table. (In ascending order by BOX No.)
5) CLEAR	Clear the currently displaying CH on the Set CH Display table.

12-1-8-2 Setting



Item	Content
6) Font Size	Font size (Large, Middle, Small)
7) Graph Background	Background color of the grid
8) Font Color	Font color for displaying numeric value

12-1-8-3 Display setting



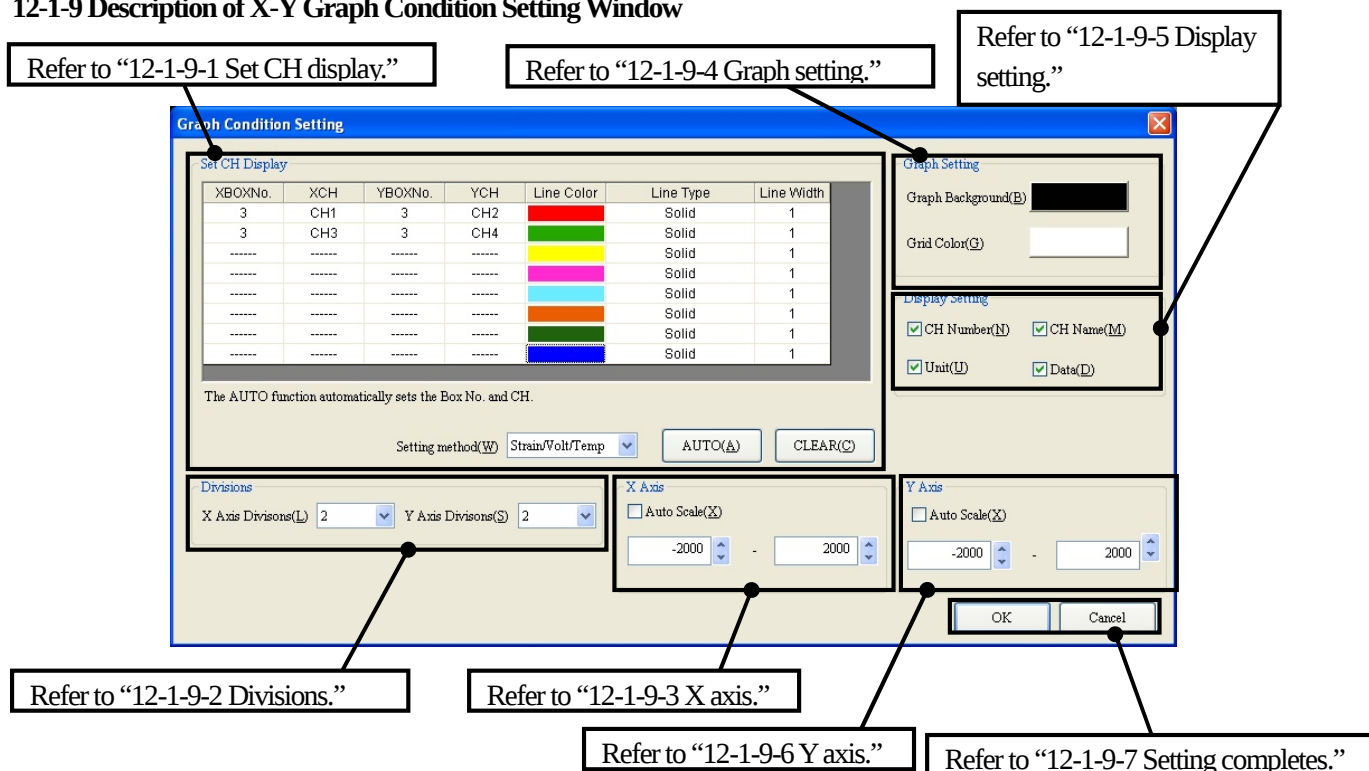
Item	Content
9) CH Number	Displays CH numbers with the checkmark.
10) CH Name	Displays CH names with the checkmark.
11) Unit	Displays units with the checkmark.

12-1-8-4 Setting completes

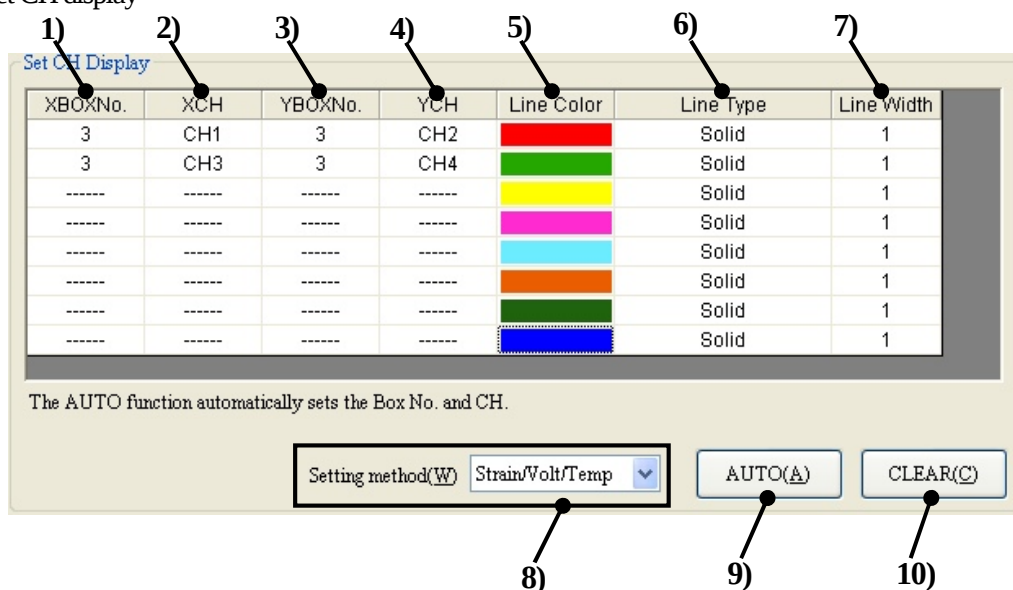


Item	Content
12) OK button	Valid the setting and close the Condition Setting dialog.
13) Cancel button	Cancel the setting and close the Condition Setting dialog.

12-1-9 Description of X-Y Graph Condition Setting Window



12-1-9-1 Set CH display



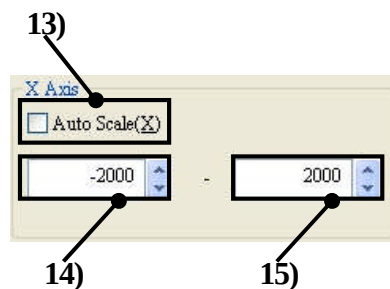
Item	Content
1) XBOX No.	Box numbers of the X axis to be displayed on graph.
2) XCH	CH numbers of the X axis to be displayed on graph.
3) YBOX No.	Box numbers of the Y axis to be displayed on graph.
4) YCH	CH numbers of the Y axis to be displayed on graph.
5) Line Color	Color of graph line
6) Line Type	Type of graph line
7) Line Width	Width of graph line (Other than solid line: 1 fixed)
8) Setting method	For sorting data when pressing the AUTO(A) button. For details, refer to "12-2-2 Automatic Setting of Display CH."
9) AUTO button	For displaying the currently recognizing CH of the NTB-100A series to the Set CH Display table. (In ascending order by BOX No.)
10) CLEAR button	Clear the currently displaying CH on the Set CH Display table.

12-1-9-2 Divisions



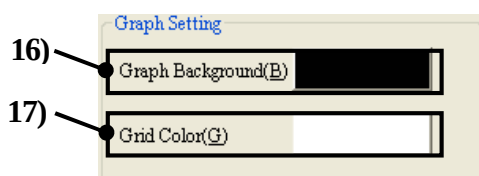
Item	Content
11) X Axis Division	Dividing number of the X Axis grid line
12) Y Axis Division	Dividing number of the Y Axis grid line

12-1-9-3 X axis



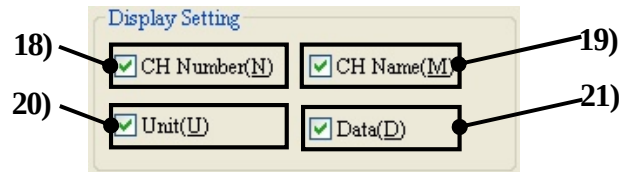
Item	Content
13) Auto Scale	Automatically sets the scale range of the X axis.
14) X axis range (MIN)	X axis range (MIN) when the X axis Auto Scale is not checked.
15) X axis range (MAX)	X axis range (MAX) when the X axis Auto Scale is not checked.

12-1-9-4 Graph setting



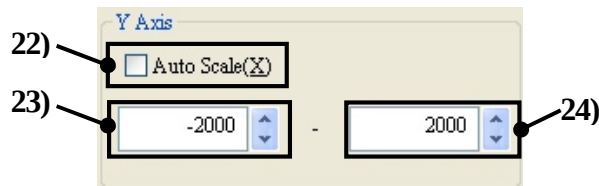
Item	Content
16) Graph Background	Background color of the graph
17) Grid Color	Grid line color

12-1-9-5 Display setting



Item	Content
18) CH Number	Display CH Number on the graph
19) CH Name	Display CH Name on the graph
20) Unit	Display unit on the graph
21) Data	Display data on the Y-TIME graph

12-1-9-6 Y axis



Item	Content
22) Auto Scale	Automatically sets the scale range of the Y axis.
23) Y axis range (MIN)	Y axis range (MIN) when the Y Axis Auto Scale is not checked.
24) Y axis range(MAX)	Y axis range (MAX) when the Y axis Auto Scale is not checked.

12-1-9-7 Setting completes



Item	Content
25) OK button	Valid the setting and close the Condition Setting dialog.
26) Cancel button	Cancel the setting and close the Condition Setting dialog.

12-2 COMMON OPERATION TO ALL GRAPHS

12-2-1 Setting Target CH

This chapter describes how to set the target CH.

[Example]

Currently connecting NTB series is set as BOX No. = 1. Display a CH3 of the BOX No. 1 on a graph.

- 1) Display **Graph Condition Setting** window.

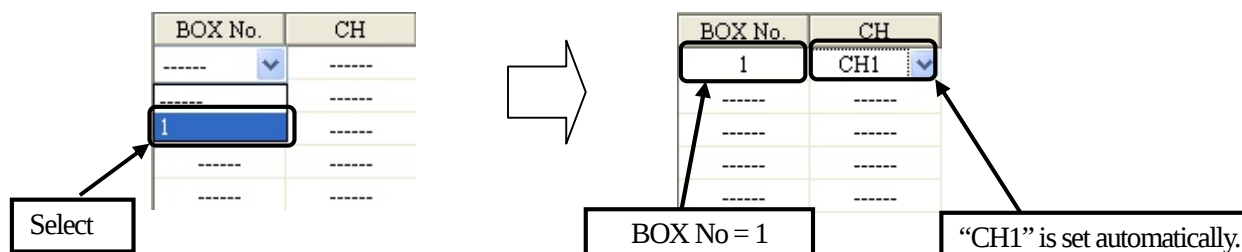
Display **Graph Condition Setting** window.

For how to display **Graph Condition Setting** window, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”

- 2) Set **BOX No.**

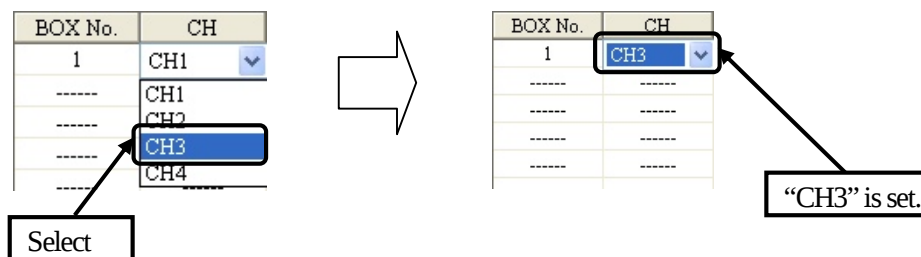
Set **BOX No.** in the **Set CH Display** table.

Click the mouse left button on the **BOX No.** column to display the usable BOX No. with dropdown list.



- 3) Set **CH.**

Select **CH3** for CH.



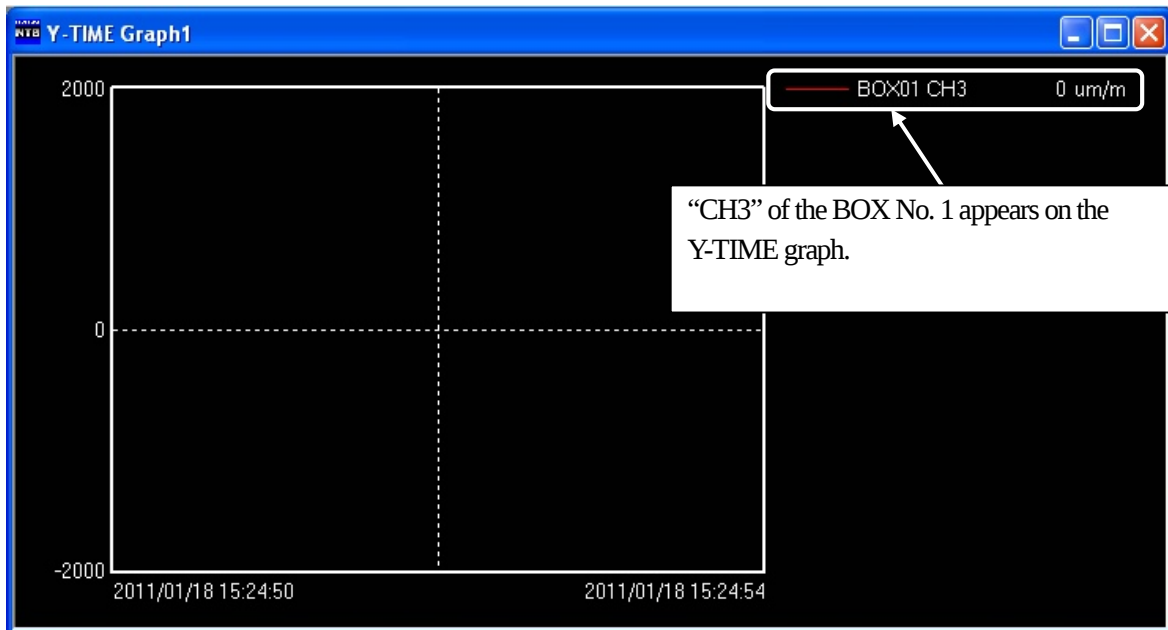
(Next page)

(Previous page)



4) Setting completes.

Click button to valid the changed setting content.



MEMO

BOX No. that was confirmed in **“6-1 CHECKING EXISTANCE OF NTB SERIES”** can be displayed.

12-2-2 Automatic Setting of Display CH

If the **AUTO** button is clicked, the settable CH appears in ascending order by BOX No.

- 1) Display **Graph Condition Setting** window.

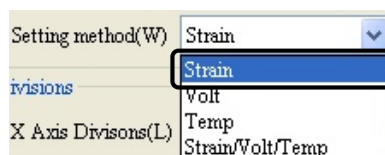
Display **Graph Condition Setting** window.

For how to display **Graph Condition Setting** window, refer to “12-1-5How to Display Graph Condition Setting Dialog (Common to all graphs).”

- 2) Select the sorting method of CH conditions.

Select the target from Strain, Volt, Temp, and Strain/Volt/Temp.

When you select the **Strain**, target channels (based on the **CH Mode**) appear from small Box No.



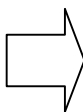
Click the **Strain**.

- 3) Sort data automatically.

Click **AUTO(A)** button.

Before clicking

BOX No.	CH
----	----
----	----
----	----
----	----
----	----



After clicking

BOX No.	CH
1	CH1
1	CH2
1	CH3
1	CH4
----	----

CH is automatically set.

- 4) Setting completes.

Click the **OK** button to valid the changed setting content.

12-2-3 Clearing Display CH

If the **CLEAR** button is clicked, the currently displaying CH disappears.

- 1) Display **Graph Condition Setting** window.

Display **Graph Condition Setting** window.

For how to display **Graph Condition Setting** window, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”

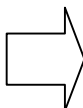


- 2) Click **CLEAR** button.

Click **CLEAR** button.

Before clicking.

BOX No.	CH
1	CH1
1	CH2
1	CH3
1	CH4
----	----



After clicking.

BOX No.	CH
----	----
----	----
----	----
----	----
----	----

All BOX No. and CH are cleared.



- 3) Setting completes.

Click the **OK** button to valid the changed setting content.

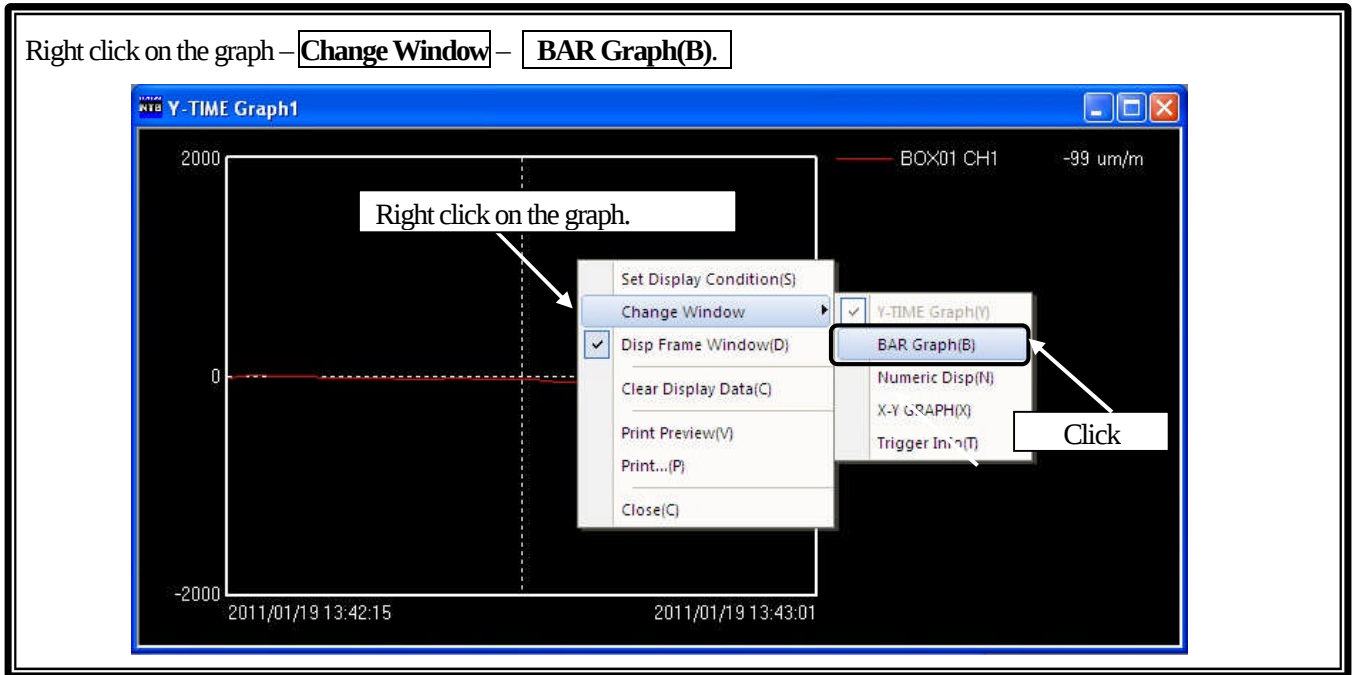
12-2-4 Changing Graph Display

This section describes how to change Y-TIME graph to BAR graph or Numeric Display.

[Example]

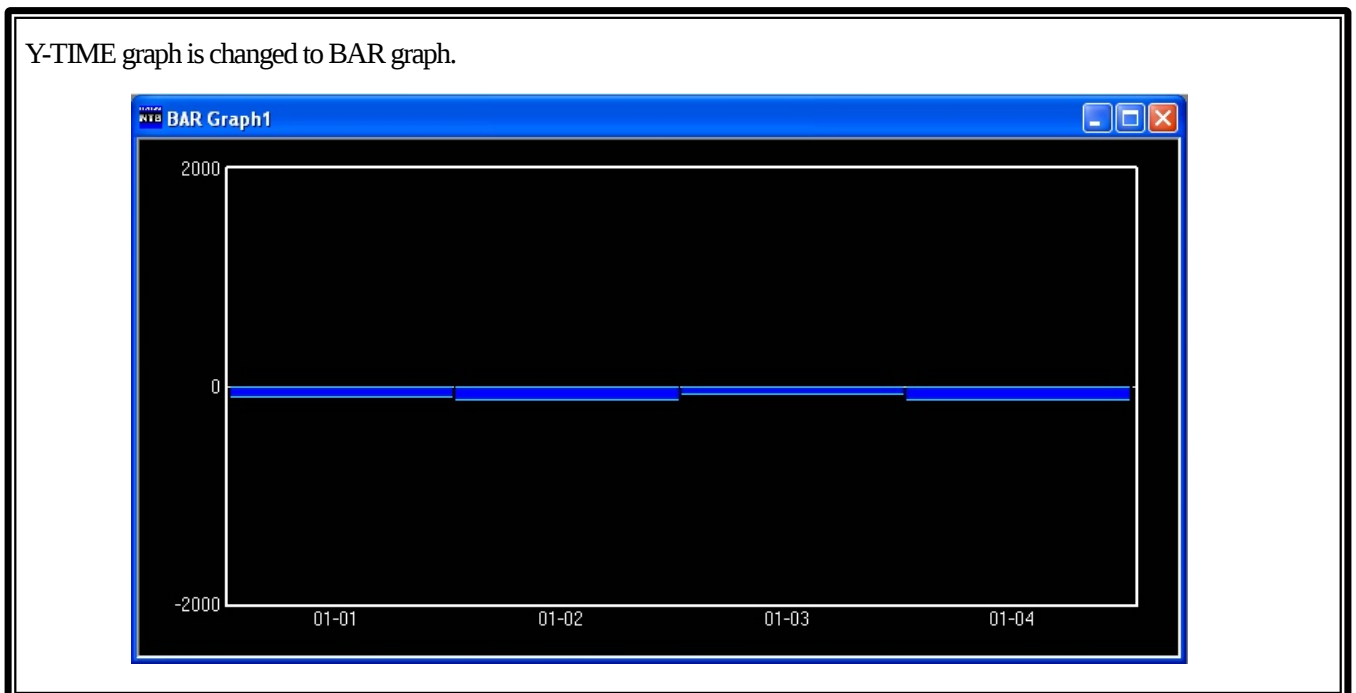
Y-TIME graph is changed to BAR graph.

- 1) Start from Y-TIME graph.



- 2) Y-TIME graph is changed to BAR graph.

Y-TIME graph is changed to BAR graph.



12-2-5 Changing Background Color or Grid Line Color of Graph

This section describes how to change background color or grid line color of the graph.
For Y-TIME and BAR graphs only.

[Example]

Set the background color of the graph to “White” and grid line color to “Black.”

- 1) Display **Graph Condition Setting** dialog.

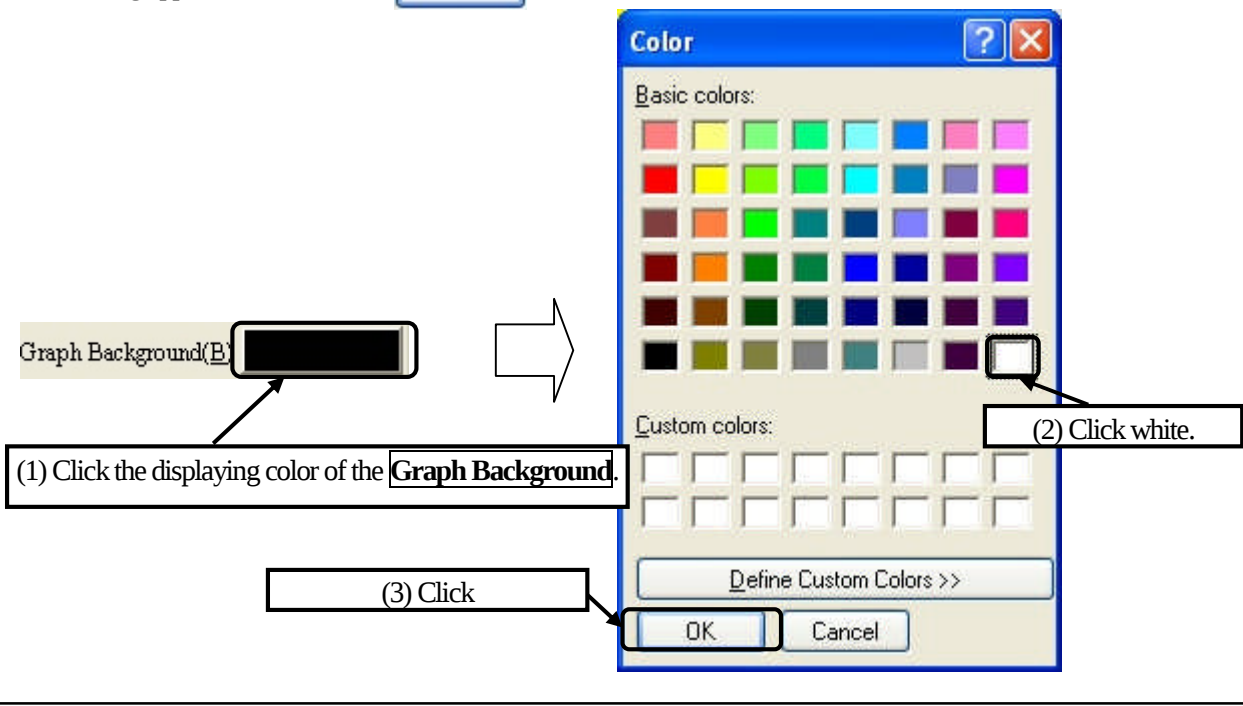
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”

- 2) Select background color of the graph.

Click the displaying color of the **Graph Background**.

Color dialog appears. Click white – button.



(Next page)

(Previous page)



3) Select grid line color.

Click the displaying color of the **Grid Color**.
Color dialog appears. Click black - button.

Grid Color(G)

(1) Click the displaying color of the **Grid Color**.

(2) Click black.

(3) Click



4) Setting completes.

The background color and grid line color of the graph are changed.
Click button to valid the changed setting content.

Graph Background(B)

Grid Color(G)

Changed to white.

Changed to black.

12-3 Y-TIME GRAPH

12-3-1 Changing Number of Grid Dividing Line

This section describes how to set the number of grid dividing line of Y-TIME graph.
For Y-TIME graph, the number of grid dividing line of X axis and Y axis can be set.

[Example]

Set the number of grid dividing line of X axis and Y axis to 4 respectively.

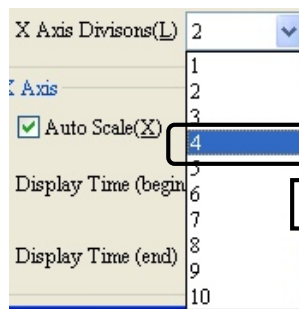
- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”

- 2) Set **X Axis Divisions**.

Set **X Axis Divisions** to 4.



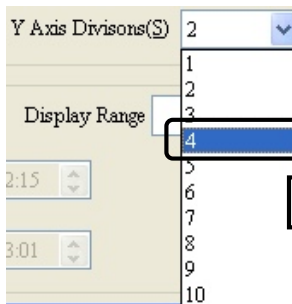
Select “4”.

X Axis Divisions(L) 4

“4” is set as X Axis Divisions.

- 3) Set **Y Axis Divisions**.

Set **Y Axis Divisions** to 4.

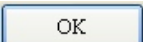


Select “4”.

Y Axis Divisions(S) 4

“4” is set as X Axis Divisions.

- 4) Setting completes.

Click the  button to valid the changed setting content.

12-3-2 Setting Display Time (beginning) and Display Time (end) of X Axis

Set arbitrary time to **Display Time (beginning)** and **Display Time (end)**.

[Example]

Set “2009/10/01 13:00:00 to 2009/10/01 14:00:00” as the setting range.

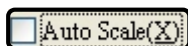
- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”

- 2) Remove a checkmark of the **Auto Scale**.

Remove checkmark of the **Auto Scale** of X Axis.



Remove a checkmark.

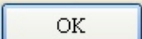
- 3) Set **Display Time (beginning)** and **Display Time (end)**.

Set **Display Time (beginning)** and **Display Time (end)**.

Display Time (beginning) 2010/12/03 00:00:00

Display Time (end) 2010/12/03 01:00:00

- 4) Setting completes.

Click the  button to valid the changed setting content.

MEMO

If the **Display Time (beginning)** is before the first data, the **Display Time (beginning)** is forcibly changed to the time that the first data was obtained.

12-3-3 Auto Scrolling Data

There are 2 methods for auto scrolling the data.

Select either “Within display range” or “First data to latest data” as you like.

Scrolling Method	Content
Within display range	Scrolls the data within the Display Range .
First data to latest data	If “0” is specified for the Display Range , data is scrolled from the first data to latest data.

[Example]

Set the specified time range to 10 minutes.

- 1) Display **Graph Condition Setting** dialog.

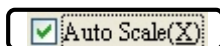
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Put a checkmark to the **Auto Scale** of the X Axis.

Put a checkmark to the **Auto Scale** of the X Axis.



Put a checkmark.



- 3) Set **Display Range**.

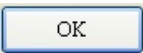
Set 600 (10 minutes) as **Display Range**.



Set “600.”



- 4) Setting completes.

Click the  button to valid the changed setting content.

MEMO

The number of maintaining data is MAX 10000 data.

When scrolling from the first data to latest data that contains more than 10000 data, the latest 10000 data is displayed. (Y Axis: time)

12-3-4 Set Full Scale Value of Y Axis

This section describes how to set full scale value.

[Example]

Set the full scale value of the Y axis from -5000 (MIN) to 5000 (MAX).

- 1) Display **Graph Condition Setting** dialog.

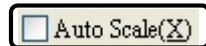
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Remove checkmark of the **Auto Scale** of the Y Axis.

Remove checkmark of the **Auto Scale** of the Y Axis.



Remove a checkmark.



- 3) Set the full scale value of the Y axis.

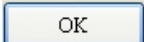
Set the full scale value of the Y axis from -5000 (MIN) to 5000 (MAX).



Set -5000 to 5000.



- 3) Setting completes.

Click the  button to valid the changed setting content.

12-3-5 Auto Scale of Y Axis

This section describes how to set the display range of the Y axis automatically.

If the **Auto Scale** is checked, the full scale of the Y axis is always and automatically set based on the latest measured information.

- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Put a checkmark to the **Auto Scale** of the Y Axis.

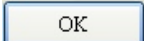
Put a checkmark to the **Auto Scale** of the Y Axis.



Put a checkmark.



- 3) Setting completes.

Click the  button to valid the changed setting content.

12-3-6 Show or Hide CH Number, CH Name, and Unit to Graph

This section describes how to show or hide the CH Number, CH Name and Unit to the Y-TIME graph.

- 1) Display **Graph Condition Setting** dialog.

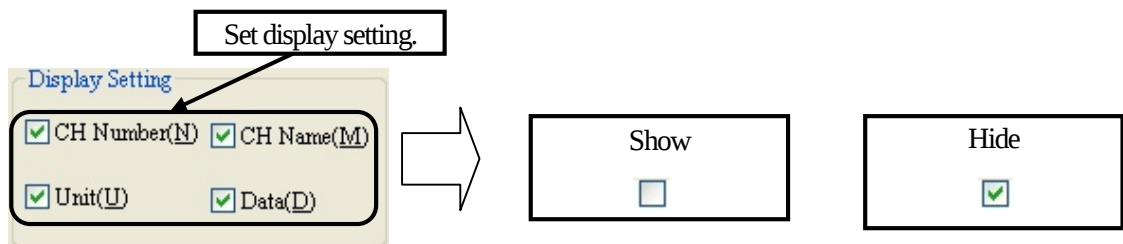
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



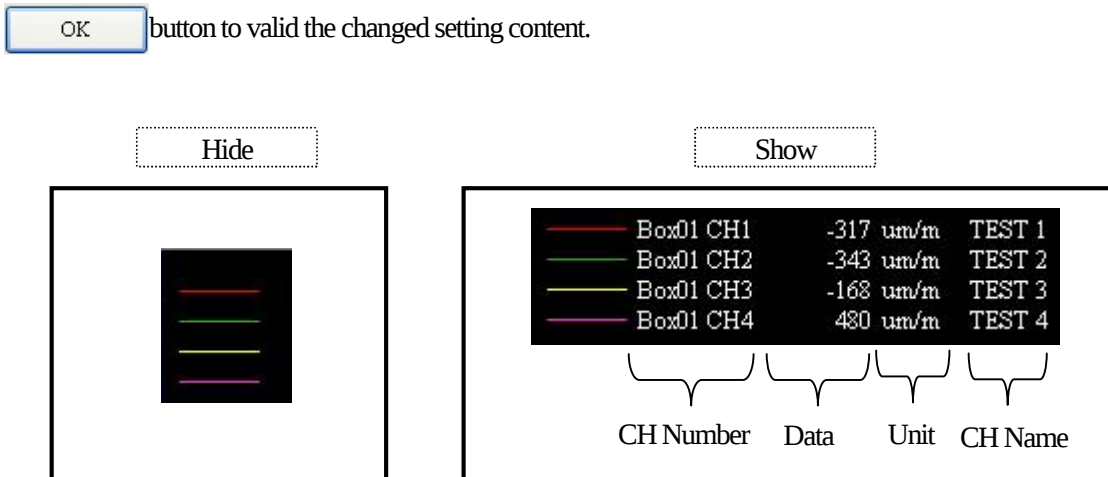
- 2) Set show or hide the **CH Number, CH Name and Unit**.

Put a checkmark or release a checkmark to the check boxes of the CH Number, CH Name, and Unit of the Display Setting.



- 3) Setting completes.

Click the **OK** button to valid the changed setting content.



12-4 BAR GRAPH

12-4-1 Changing Number of Grid Dividing Line of Y Axis

This section describes how to change the number of Y axis grid dividing line of BAR graph.

[Example]

Set “4” as the **Divisions**.

- 1) Display **Graph Condition Setting** dialog.

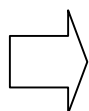
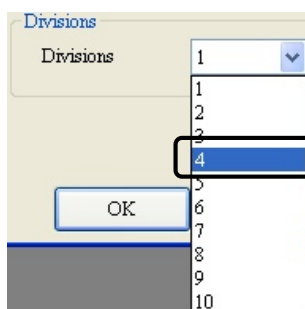
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Set **Divisions**.

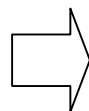
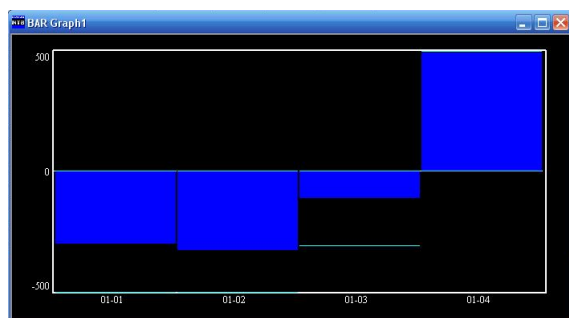
Select “4” as **Divisions**.



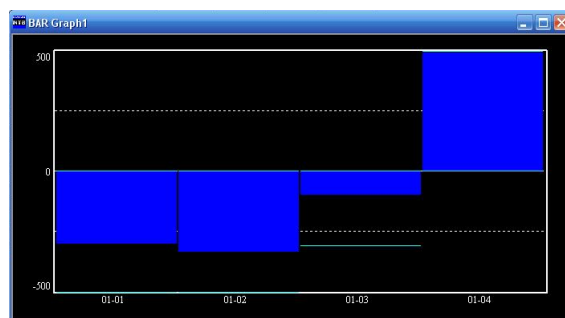
- 3) Setting completes.

Click the **OK** button to validate the changed setting content.

Before changing.



After changing.



12-4-2 Setting Full Scale Value of Y Axis

This section describes how to set the full scale value of the Y axis.

[Example]

Set the full scale value of the Y axis from -5000 (MIN) to 5000 (MAX).

- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Release a checkmark of the **Auto Scale** of the Y Axis.

Release a checkmark of the **Auto Scale** of the Y Axis.



Release a checkmark.



- 3) Set full scale value of the Y axis.

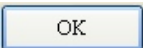
Set the full scale value of the Y axis from -5000 (MIN) to 5000 (MAX).



Set -5000 to 5000.



- 4) Setting completes.

Click the  button to valid the changed setting content.

12-4-3 Auto Scale of Y Axis

This section describes how to set the display range of the Y Axis automatically.

If the **Auto Scale** is checked, the full scale value of the Y Axis is always and automatically set based on the latest measured information.

- 1) Display **Graph Condition Setting** dialog.

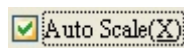
Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-5 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Put a checkmark to the **Auto Scale** of the Y Axis.

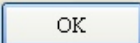
Put a checkmark to the **Auto Scale** of the Y Axis.



Put a checkmark.



- 3) Setting completes.

Click the  button to valid the changed setting content.

12-4-4 Peak Line Color of BAR Graph

This section describes how to set the peak line color of the BAR graph.
Set an easy to see color.

[Example]

Set the BAR graph color as “Green” and peak line color as “Red.”

- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

For how to display the dialog, refer to “12-1-4 How to Display Graph Condition Setting Dialog (Common to all graphs).”



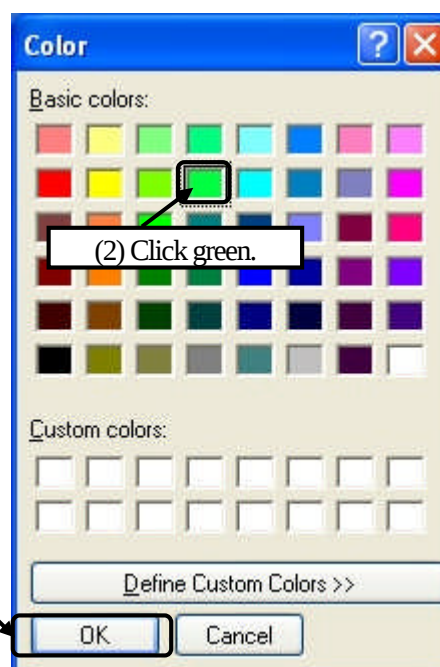
- 2) Select BAR graph color.

Click the current displaying color of the **BAR Graph Color**.
A **Color** dialog appears. Click green and **OK** button.

BAR Graph Color(B)

(1) Click the background color of the graph.

(3) Click the **OK** button.



(Next page)

(Previous page)



3) Select peak line color.

Click the current displaying peak line color.

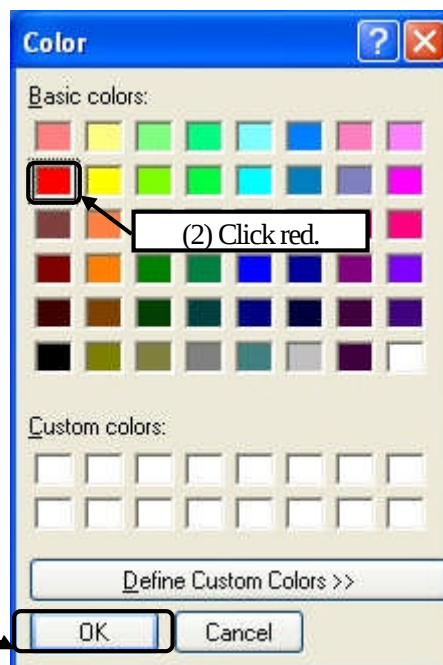
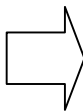
A **Color** dialog appears. Click red and button.

Peak Color(P)



(1) Click peak line color.

(3) Click the button.



4) Setting completes.

The background color and grid line color of the graph are changed.

Click the button to valid the changed setting content.

BAR Graph Color(B)



Changed to the selected color.

Peak Color(P)



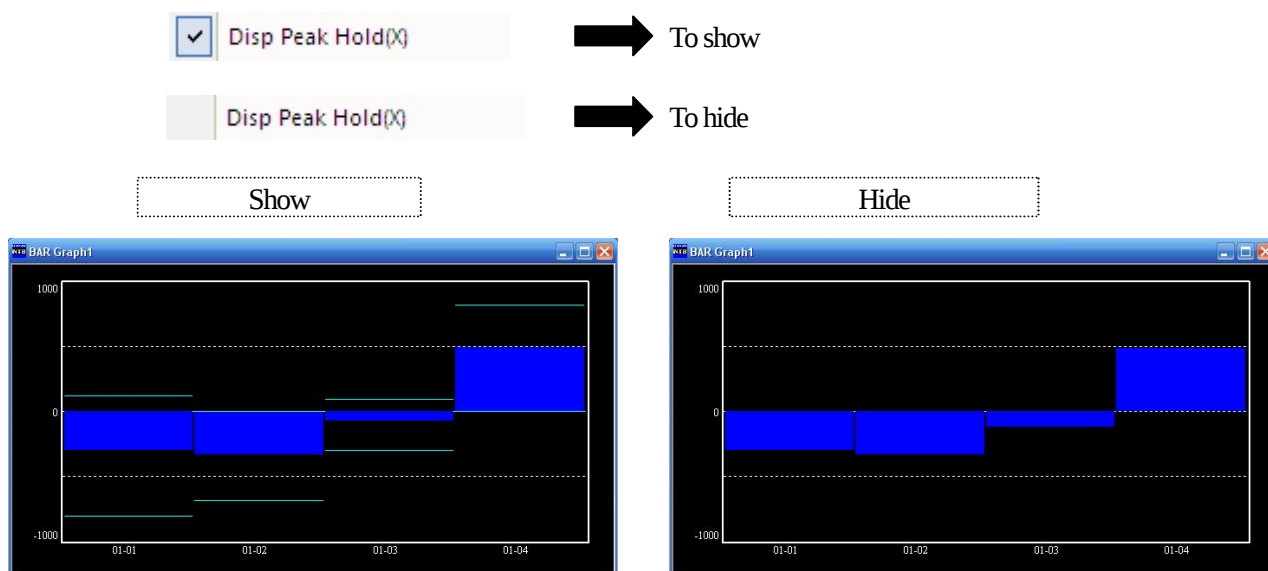
Changed to the selected color.

12-4-5 Show or Hide Disp Peak Hold(P)

The peak hold is a function to display MAX and MIN data of the measured data.

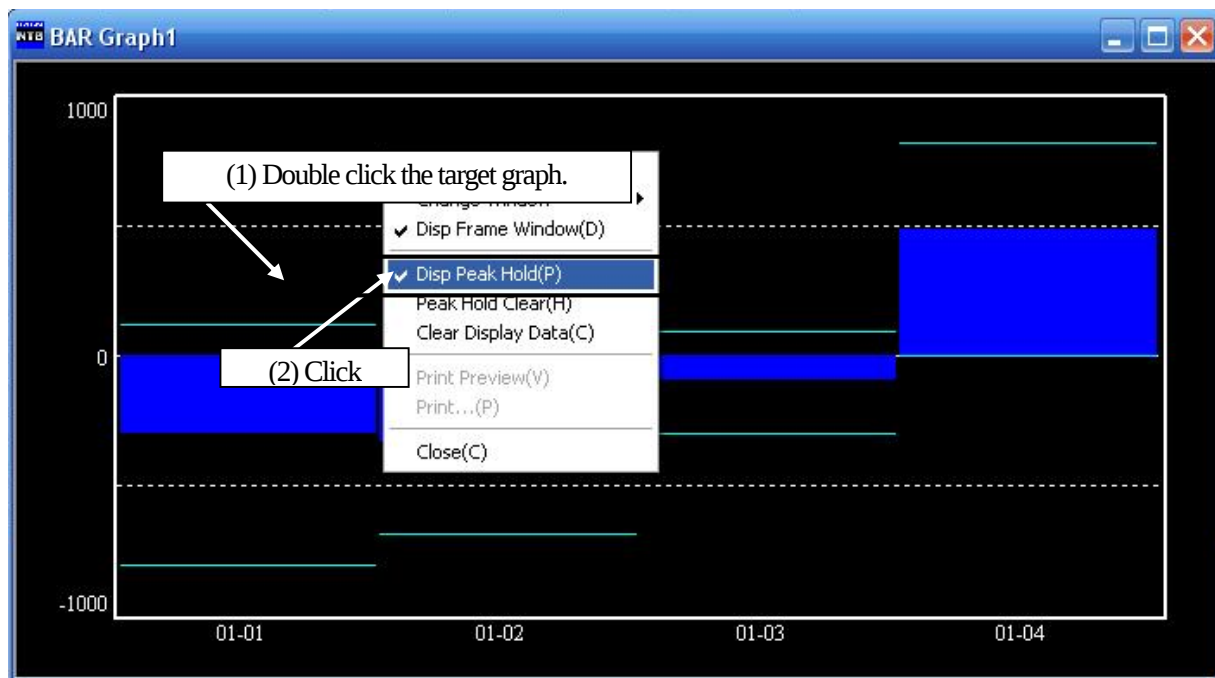
This section describes how to show or hide the peak hold.

The peak hold status is as follows.



■ How to show or hide the peak hold.

Double click the target BAR graph. Or click the right mouse button to display the following popup menu and click the **Disp Peak Hold(P)** to show or hide.



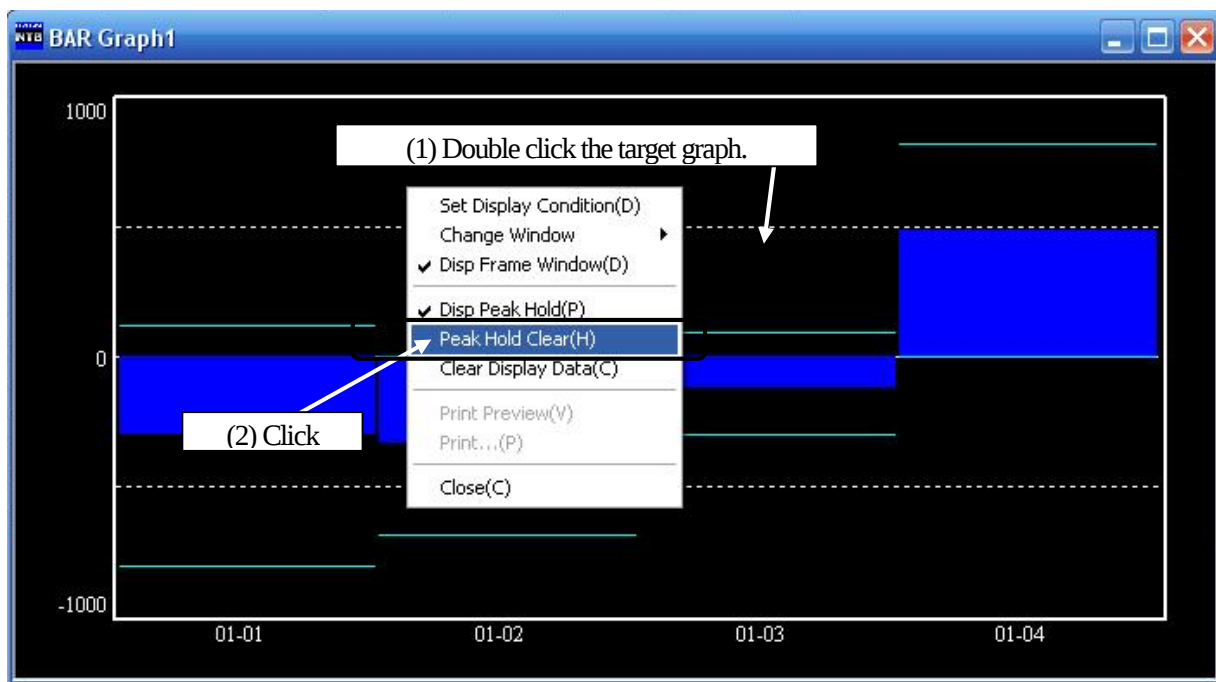
12-4-6 Clearing Peak Hold

This section describes how to clear the peak hold.

After conducting the clear during the measurement, the peak hold value appears next to the cleared data value.

- How to clear the peak hold.

Double click the target BAR graph. Or click the right mouse button to display the following pop up menu and click the **Peak Hold Clear(H)** for clearing.



12-5 NUMERIC DISPLAY

12-5-1 Changing Font Size and Font Color

This section describes how to change the font size and font color of the Numeric Display.

[Example]

Set “Red” as font color and “LARGE” as font size.

- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

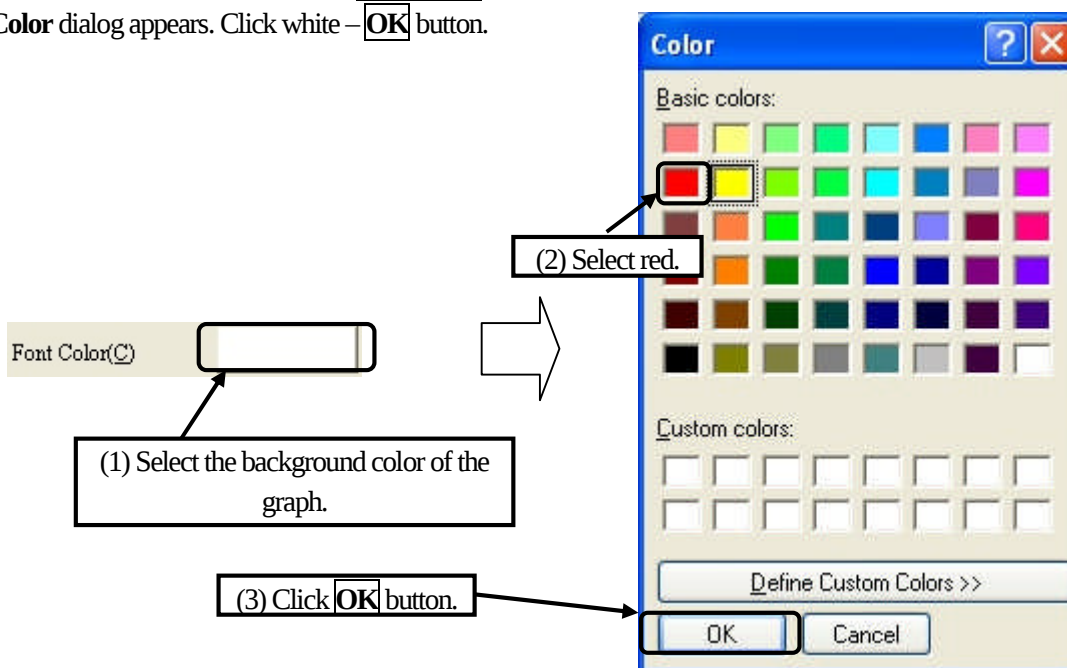
For how to display the dialog, refer to “12-1-4 How to Display Graph Condition Setting Dialog (Common to all graphs).”



- 2) Select **Font Color**.

Click the current displaying color of the **Font Color**.

The **Color** dialog appears. Click white – **OK** button.



(Next page)

(Previous page)



3) Select **Font Size**.

Change the **Font Size** from the **Middle** to **Large**.



4) Setting completes.

Click the button to valid the changed setting content.

Before changing

01-1	-299 um/m
01-2	-331 um/m
01-3	-66 um/m
01-4	492 um/m

After changing

01-1	-298 um/m
01-2	-331 um/m
01-3	-65 um/m
01-4	494 um/m

12-6 X-Y GRAPH

12-6-1 Changing the Number of Divisions in Grids

This section describes how to set the number of divisions in grids on X-Y graph.
Capable of setting the number of divisions in grids on X-Y graph.

Example: Set the number of divisions on X axis and Y axis to 4 each.

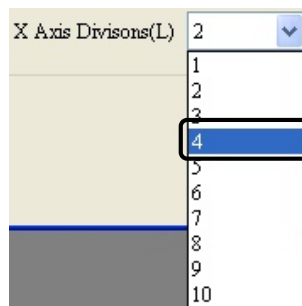
- 1) Display **Graph Condition Setting** dialog.

Display **Graph Condition Setting** dialog.

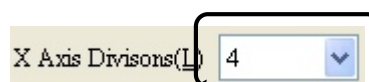
For details, refer to “12-1-5 How to Display Graph Condition Setting window (common to all graphs).”

- 2) Set the X Axis Divisions(L).

Select the X Axis Divisions(L) to 4.



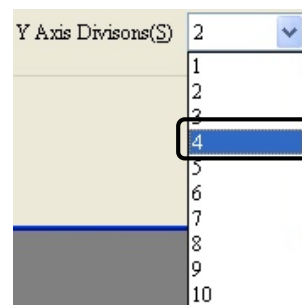
Select 4.



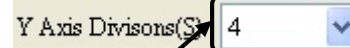
X Axis Divisions(L) becomes 4.

- 3) Set the Y Axis Divisions(S).

Select the Y Axis Divisions(S) to 4.

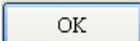


Select 4.



Y Axis Divisions(S) becomes 4.

- 4) Setting completes.

Click the  button to valid the changed setting content.

12-6-2 Setting Full Scale Values of X Axis and Y axis

This section describes how to set full scale values of X axis and Y axis.

Example: Set -10000 to 10000 as full scale values of X axis and Y axis.

- 1) Display **Graph Condition Setting** dialog.

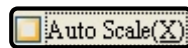
Display **Graph Condition Setting** dialog.

For details, refer to “12-1-5 How to Display Graph Condition Setting window (common to all graphs).”



- 2) Release checkmarks in boxes next to the **Auto Scale(X)** and **Auto Scale(Y)**.

Release checkmarks in boxes next to the **Auto Scale(X)** and **Auto Scale(Y)**.

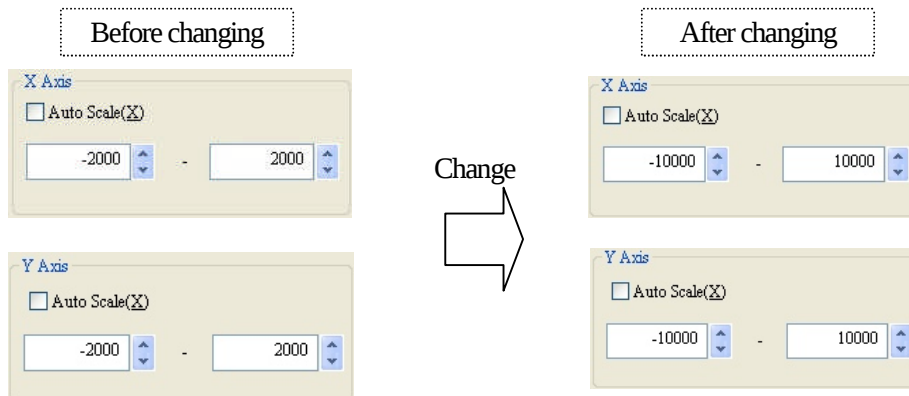


Release a checkmark.



- 3) Set scale values of X axis and Y axis.

Set scale values of X axis and Y axis.



- 4) Setting completes.

Click the **OK** button to valid the changed setting content.

12-6-3 Setting Auto Scale Values of X Axis and Y Axis

This section describes how to set full scale values of X axis and Y axis automatically.

Full scale values of X axis and Y axis are automatically set based on the latest measured data.

- 1) Display **Graph Condition Setting** dialog.

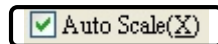
Display **Graph Condition Setting** dialog.

For details, refer to “12-1-5 How to Display Graph Condition Setting window (common to all graphs).”



- 2) Put checkmarks in boxes next to the **Auto Scale(X)** and **Auto Scale(Y)**.

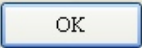
Put checkmarks in boxes next to the **Auto Scale(X)** and **Auto Scale(Y)**.



Put a checkmark.



- 3) Setting completes.

Click the  button to valid the changed setting content.

12-6-4 Show or Hide CH No., CH Name, Unit, and Data on Graph

This section describes how to show or hide CH No., CH name, Unit, and data on X-Y graph.

- 1) Display **Graph Condition Setting** dialog.

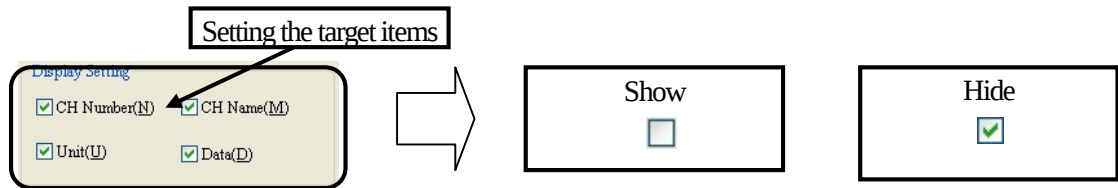
Display **Graph Condition Setting** dialog.

For details, refer to “12-1-5 How to Display Graph Condition Setting window (common to all graphs).”



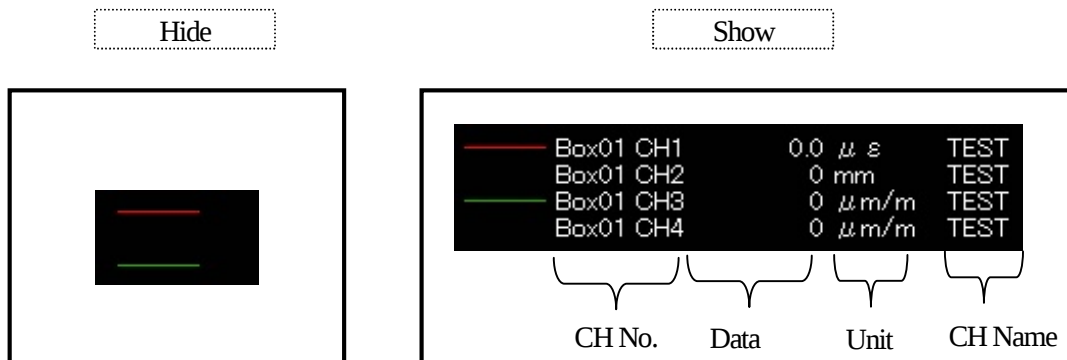
- 2) Show or hide CH No., CH name, Unit, and data

Put or release a checkmark in a box next to the target items – CH Number(N), CH Name(M), Unit(U), and Data(D).



- 3) Setting completes.

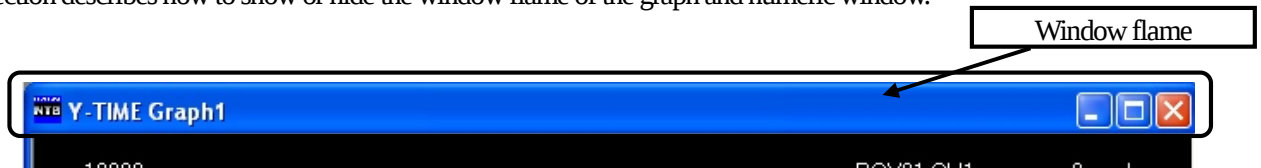
Click the **OK** button to valid the changed setting content.



13. DISPLAY

13-1 SHOW OR HIDE WINDOW FLAME

This section describes how to show or hide the window flame of the graph and numeric window.



Following 2 methods are described to show or hide the window flame.

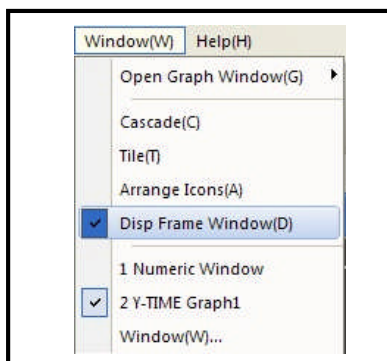
- 1) From the menu
- 2) From the popup menu of graphs.

■ How to show or hide the window flame.

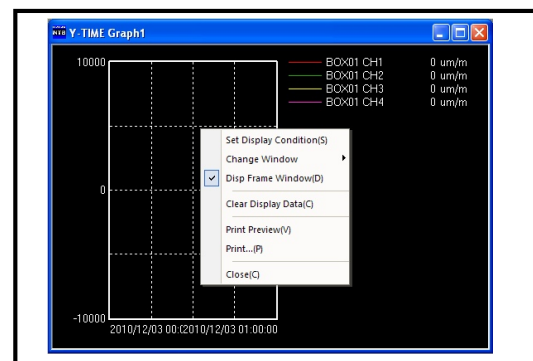
Show or hide the window flame.



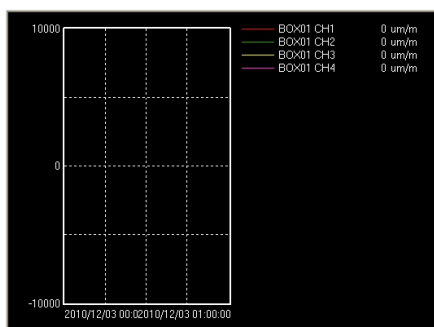
(1) From the menu.



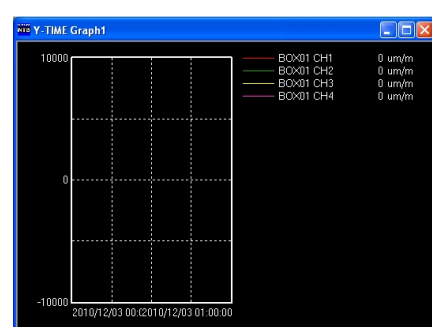
(2) From the Y-TIME graph.



Without frame



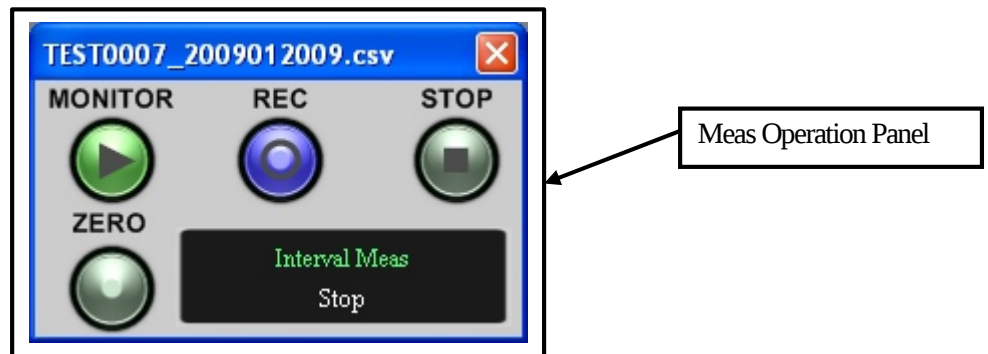
With frame



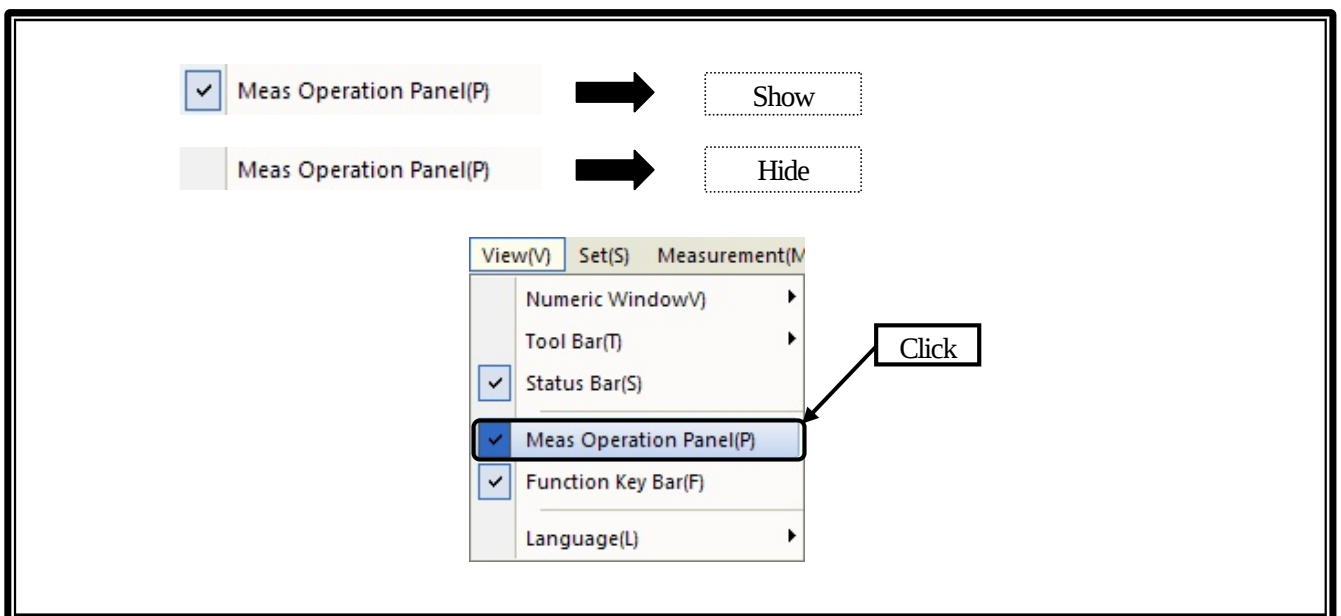
13-2 SHOW OR HIDE MEAS OPERATION PANEL

This section describes how to show or hide the Meas Operation Panel.

To show or hide the Meas Operation Panel is conducted from the menu.

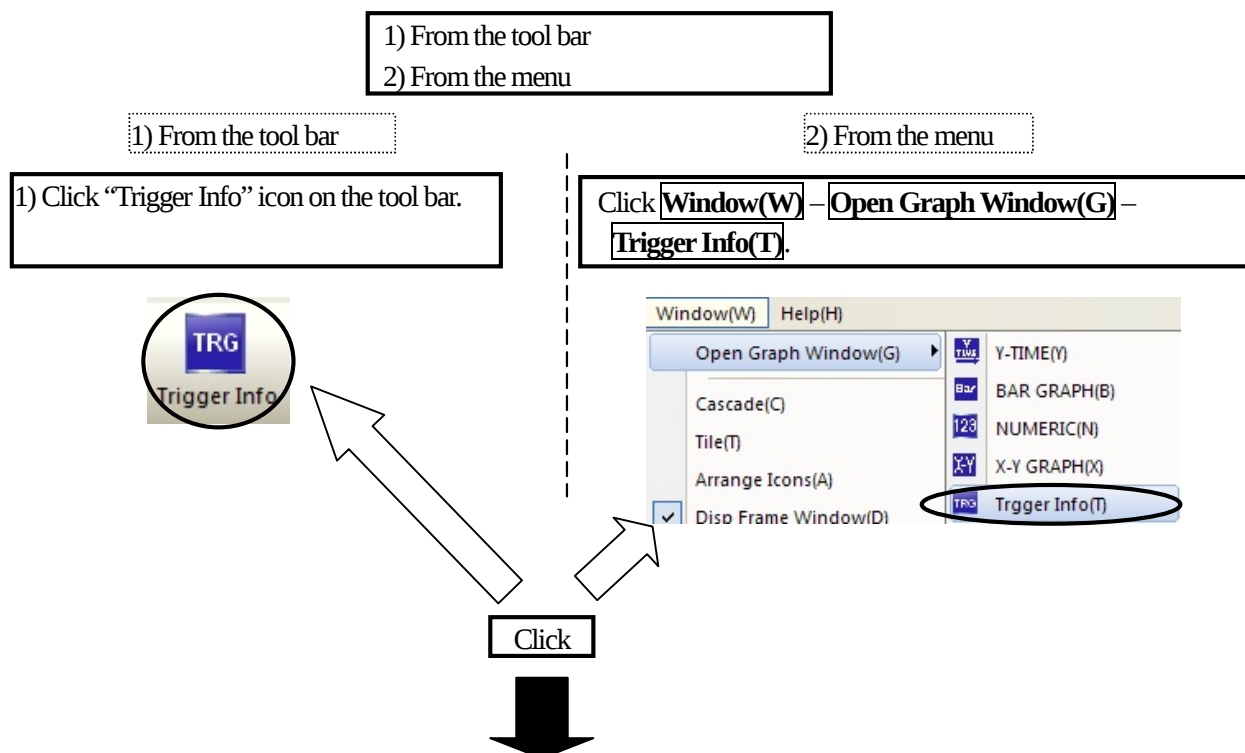


- How to show or hide the Meas Operation Panel.



13-3 OPENING TRIGGER INFO WINDOW

This section describes following 2 methods for opening the **Trigger Info** window.



Trigger Information2						
	BOX NO.	CH	Trigger	MEAS value	Slope	Status
TRG 1	1	1	1000	0	Pos.	OFF
(TRG 1 OR 2)				OFF		
(TRG 1 OR 2) OR (TRG 3 OR 4)				OFF		

13-3-1 Trigger Info Window (Relative Value)

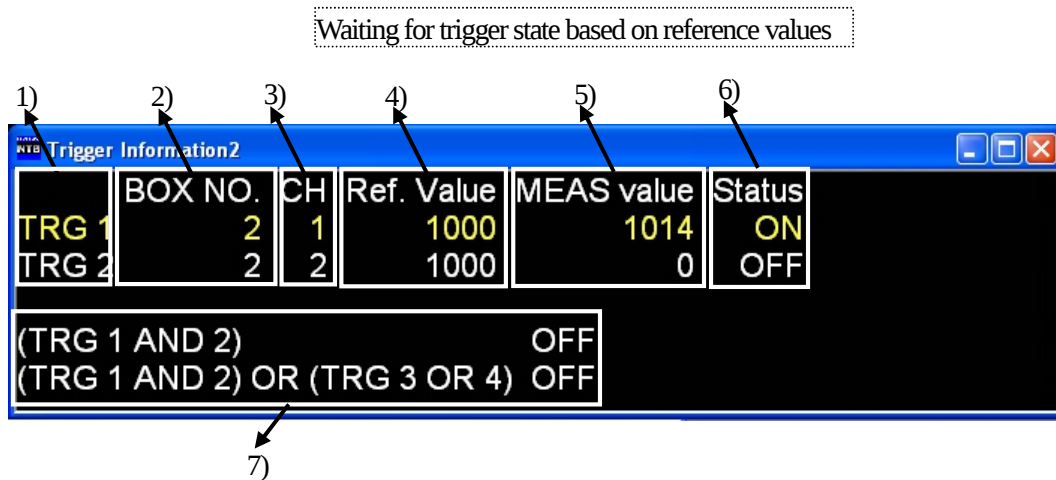
Trigger Info window displays the current trigger status.

The waiting for trigger state based on relative values has 2 status; waiting for trigger state based on reference values and waiting for trigger state based on relative values.

1) Waiting for trigger state based on reference values

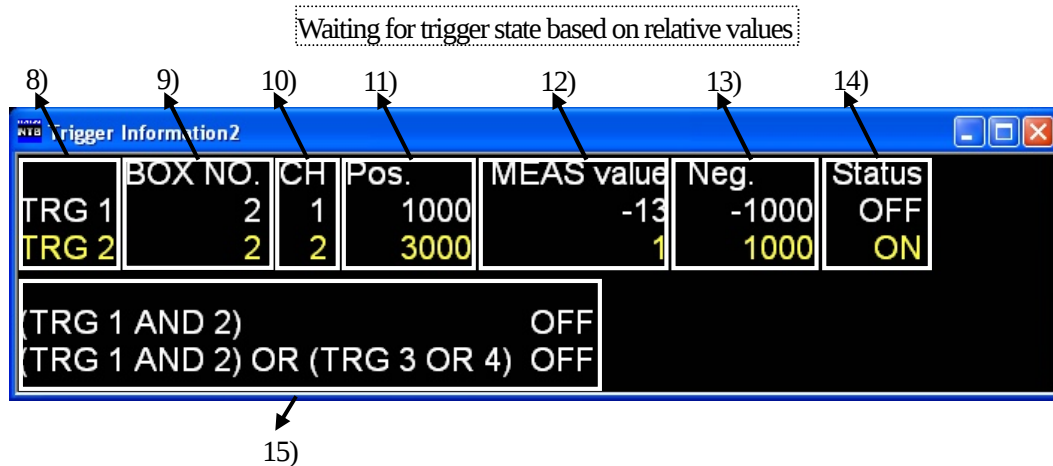
After starting the Trigger measurement, waiting for trigger state is performed based on reference values.

Then, waiting for trigger state is performed based on relative values.



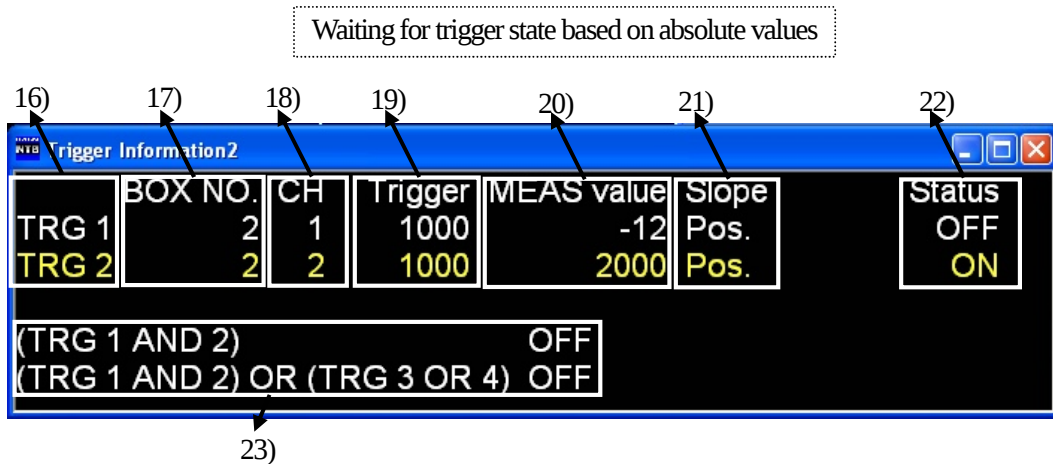
1) TRG	Current setting start trigger numbers.
2) BOX No.	Setting BOX numbers of start trigger
3) CH	Setting channels of start trigger
4) Ref.. Value	Reference value to be triggered Trigger recording starts if measured values cross the reference value from below to above and from above to below.
5) MEAS value	Measured values of trigger channels
6) Status	ON ⇒ Satisfying the trigger conditions. OFF ⇒ Not satisfying the trigger conditions.
7) Logical Operation	Logical operations from TRG1 to 4

2) Waiting for trigger state based on relative values



8) TRG	Current setting start trigger numbers.
9) BOX No.	Setting BOX numbers of start trigger
10) CH	Setting channels of start trigger
11) Pos.	Positive trigger values
12) MEAS value	Measured values of trigger channels
13) Neg.	Negative trigger values
14) Status	ON ⇒ Satisfying the trigger conditions. OFF ⇒ Not satisfying the trigger conditions.
15) Logical Operation	Logical operations from TRG1 to 4

13-4-2 Trigger Info Window (Absolute Value)



16) TRG	Current setting start trigger numbers.
17) BOX No.	Setting BOX numbers of start trigger
18) CH	Setting channels of start trigger
19) Trigger	Measured value to be triggered
20) MEAS value	Measured values of trigger channels
21) Slope	Starting method of trigger recording
22) Status	ON ⇒ Satisfying the trigger conditions. OFF ⇒ Not satisfying the trigger conditions.
23) Logical Operation	Logical operations from TRG1 to 4

14. ERROR MESSAGE AND TROUBLE SHOOTING

Error Message	Trouble Shooting
1) Failed to send the data. Check whether the USB-CAN converter or NTB-100A series is connected.	Is USB-CAN converter correctly connected to the PC? → Check the connection and securely connect it.
2) Failed to receive the data. Check whether the USB-CAN converter or NTB-100A series is connected.	Is USB-CAN converter is correctly connected to the PC? → Check the connection and securely connect it.
3) The NTB series cannot be identified. Check whether the series is connected.	- Is the termination resistance correctly set? → For single: Set the termination resistance ("TERM.") switch to ON. For multiple: Set the endmost termination resistance ("TERM.") switch of the connecting NTB series to ON. *For the termination resistance, see "APPENDIX Termination resistance setting." - Is the "OPT. 2" switch is set to ON? → Set the "OPT. 2" switch to OFF. - Is NTB series correctly connected? → Check the connection and securely connect it. - Is the "BOX No." set to 00? → Set the "BOX No." other than 00.
4) Box No. smaller than nn is repeated. nn: Overlapping Box No. appears.	→ Set the "BOX No." so as not to overlap.
5) Failed to collect continuous data.	The PC failed to obtain the data. → Check that the other software is activating. → Check that the operating environment is satisfying.
6) A file of this name already exists.	→ Change the target file name. → Click Browse... button on the Set Meas Data window for changing the set save folder.
7) Failed to create the file.	→ Check that the destination is write-protect drive or unavailable. → Click Browse... button on the Set Meas Data window for changing the set save folder.
8) Failed to write the measuring data file.	→ The target file may be opened with another software. Do not open the file while measuring.
9) Failed to open the file. The measurement was stopped.	→ The target file may be opened with another software. Do not open the file while measuring.

Error Message		Trouble Shooting	
10)	The measurement was not able to begin because the capacity preservation ahead had decreased.	Appears when the residual capacity of the destination is 10 Mbyte or less. → Change the destination with enough residual capacity.	
11)	It cannot confirm preserving ahead.	Set save folder may not exist. → Click Browse... button on the Set Meas Data window for changing the set save folder.	
12)	The interval is set less than 10 seconds. Set the interval 10 seconds or more.	→ Set the interval 10 seconds or longer.	
13)	Interval Start Time is set before the current time. Check the interval start time.	→ Set the Interval Start Time after the current time.	

15. SPECIFICATIONS

15-1 SPECIFICATIONS OF SOFTWARE

■ Function of measuring executing parts

- Number of measuring units NTB-100A series: 1 to 99 (The number of MAX CHs is 396.)
- Measuring function Relative (relative value) measurement: Measure data with an initial unbalance value deducted.
ZERO measurement: Measure initial unbalance value.
- Number of measuring times 0 to 9999 (0 is infinite)
- CH condition Meas channel ON / OFF, CAL coefficient calculation ON / OFF, Relative measurement ON / OFF, CAL coefficient, Offset, Unit, Dec. digits, Ref resist (Ref), CH Name (28 characters)
- Meas condition file Load and save
- Meas operation MONITOR Meas: Measure ZERO value during MONITOR measurement
INTERVAL Meas, Trigger Meas, File dividing function of the measured data:
Not divide, every hour, every day.
- Interval meas Interval Start Time, Interval Time, Burn out check function of NTB-201A
Repeat 0 to 9999 (0 is infinite)
The number of interval measuring steps: 5
- Trigger meas Trigger mode measurement: Relative value and absolute value
Start trigger CH (MAX 4 channels)
Slope (Positive, Negative, Both)
Reference value (in engineering value)
Logical operation of trigger measurement: OR and AND
Trigger value setting (TRG1 to 4)
Repeats: 0 to 9999 (0 is infinite)
The number of trigger measurement steps: 5 steps
- Numeric display function of measured data The number of available Numeric Display: 1
Display switching function: List only.
Numeric display: Arbitrary 1 CH to MAX 8 CHs.
Font size (Large, Middle, Small)
- Graph display function of measured data Graph type: Y-YIME, BAR graph (with peak hold function), X-Y graph
With the auto scale function during the measurement.
- Measured data saving function The measured data is saved with the CSV format.
- Print function Numeric value and graph.
- TEDS compatible Load the information of the TEDS sensor and automatically set it to the CH condition, CH Name writable to the TEDS information (KYOWA sensor only, within 28 characters)
- Meas operation panel Equipped.
- Destination setting of the recorded data. Saved in the hard disk of the PC.

■ Function of environment setting parts

- NTB device checking Comm check function of the NTB, loading the model and CH mode of the NTB
- User's unit Up to 2 units.

The NTB-10A can create the following 3 measured data formats.

1) DATE / TIME

(1)<<Head>>	Header section (conditions) (1-1): Recorded device name of the measured data (1-2): File version of data file
(2)Title	File title
(3)MeasMode	Measured mode Measure the data once: Meas Once Measure the data sequentially: Sequential Meas Interval measurement: Interval Meas
(4)BOX Type	Model of the connecting NTB series For the NTB-201A, current cold junction compensation is also described. NTB-201A(Int): Internal cold junction compensation NTB-201A(Ext): External cold junction compensation
(5)CH No.	BOX No. and CH No. CH011 ⇒ BOX No. = 01, CH = 1 CH024 ⇒ BOX No. = 02, CH = 4

(6) CH Mode	CH mode when obtaining data
(7) Zero Value	ZERO value that is obtained with the ZERO measurement Subtracted from the measured data when the item (14) REL is ON.
(8) Ref Resist(Ohm)	Reference resistance value
(9) Coeff	Calibration coefficient for converting physical quantity Multiplied when the COEF of the item (13) is ON.
(10) Offset	Offset value for converting physical quantity Added when the COEF of the item (13) is ON.
(11) Unit	Unit
(12) CH Name	CH name
(13) COEFF(ON/OFF)	Calibration coefficient calculation ON ⇒ Performed the calibration coefficient calculation. OFF ⇒ Not performed the calibration coefficient calculation.
(14) REL (ON/OFF)	Relative measurement ON ⇒ Subtracted the ZERO value from data value. OFF ⇒ Not subtracted the ZERO value from data value.
(15) <<Data>>	Data section
(16) Data No	The number of recorded data Assigned from 1 in order of recording
(17) Day	Measured date (year, month, and day)
(18) Time	Measured time (hour, minute, and second)
(19) Data	Measured data Calculated value based on the item (13) COEFF(ON/OFF) and item (14) REL(ON/OFF)

2) DATE + TIME

Items in the (17) and (18) are not separated with comma (,).

3) DIAdem format

No double quotation marks exist in all items.

DIAdem format is same with the 2) DATE+TIME.

■ Box No. setting

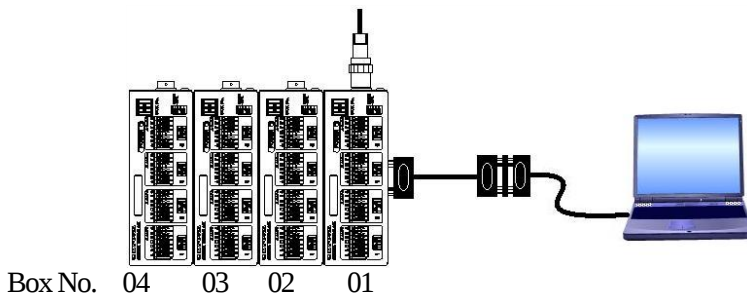
Before setting the BOX No., disconnect the power.

Set the “BOX No.” on the top panel of the NTB series.

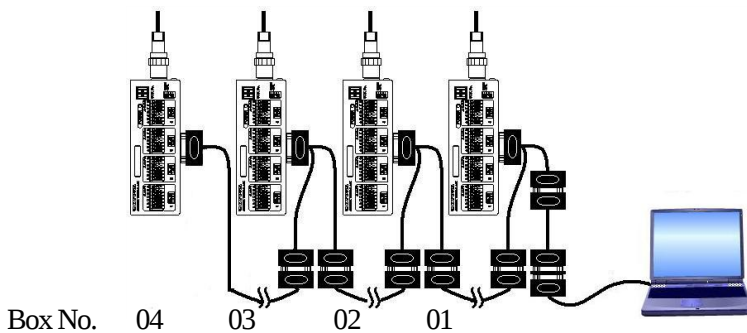
The measuring CH number is specified by the BOX No. and CH No.

From “1” to “4” on the top panel of the NTB series units are corresponding to the actual CHs in the following table.

1) For coupling (with the PC)



2) For distributed arrangement (with the PC)



Box No.	CH No.	Actual CH No	Box No.	CH No.	Actual CH No.
01	1	CH1 of the Box No. 01	03	1	CH1 of the Box No. 03
	2	CH2 of the Box No. 01		2	CH2 of the Box No. 03
	3	CH3 of the Box No. 01		3	CH3 of the Box No. 03
	4	CH4 of the Box No. 01		4	CH4 of the Box No. 03
02	1	CH1 of the Box No. 02	04	1	CH1 of the Box No. 04
	2	CH2 of the Box No. 02		2	CH2 of the Box No. 04
	3	CH3 of the Box No. 02		3	CH3 of the Box No. 04
	4	CH4 of the Box No. 02		4	CH4 of the Box No. 04

NOTE

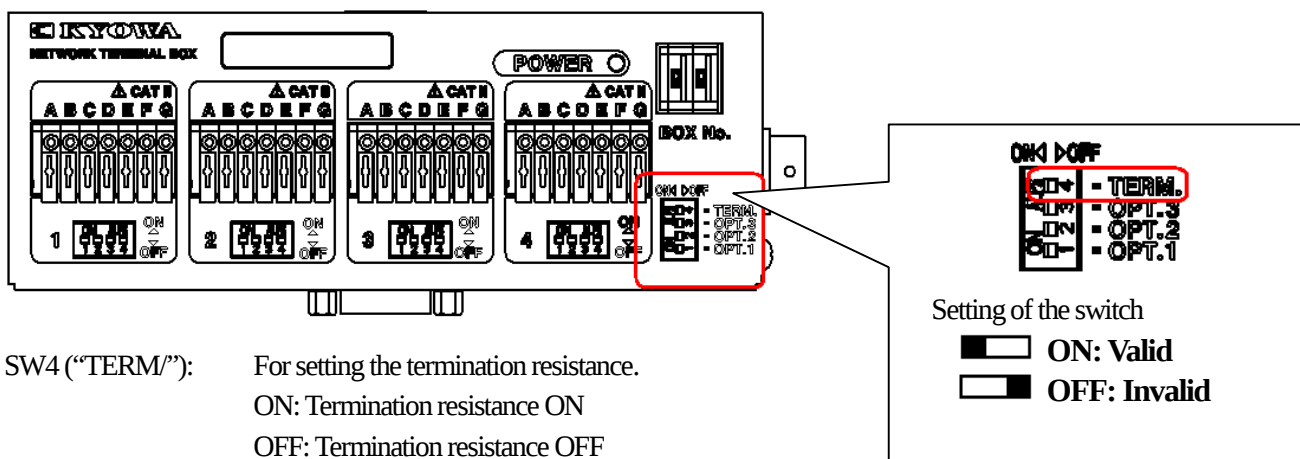
- When turning ON the NTB series, the Box No. is read. Therefore, set the Box No. before turning ON the NTB series. After that, turn ON the power.
- Setting range of the Box No. is 01 to 99. Do not set 00.
- Set the Box No. so as not to overlap.

■ Termination resistance setting

Before setting the termination resistance, disconnect the power.

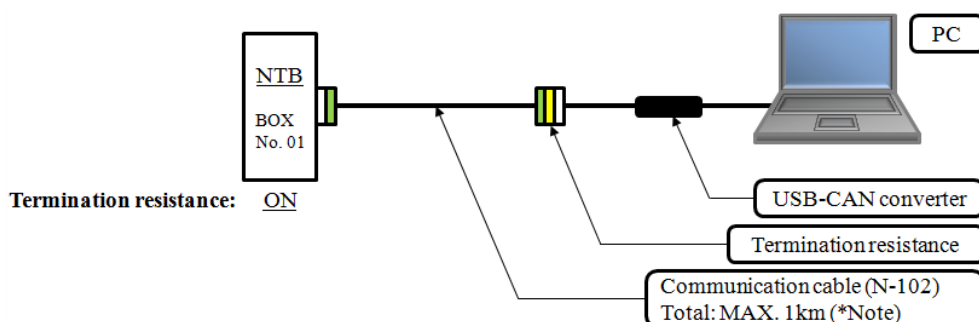
It is required to set the termination resistance.

- When using one NTB series: Set the termination resistance (“TERM.”) switch of the “DIP switch for option” to ON.
- When using 2 or more NTB series units: Set the termination resistance (“TERM.”) switches of both sides of the connecting units to ON.

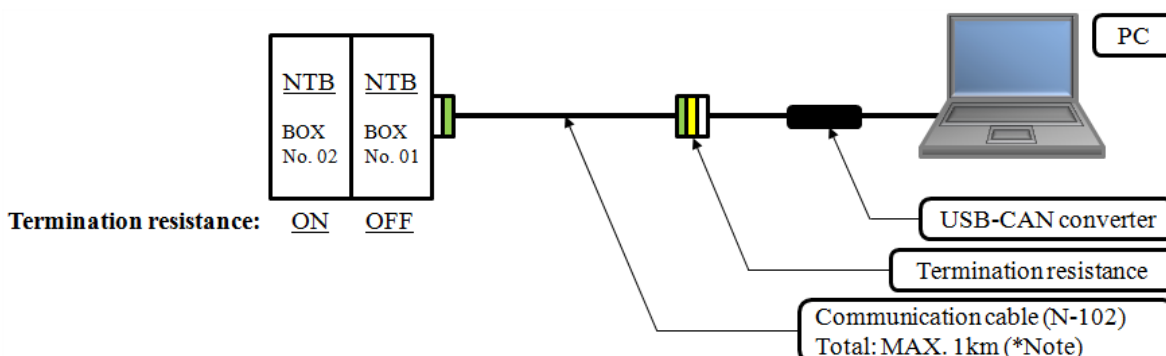


- SW4 (“TERM.”): For setting the termination resistance.
 ON: Termination resistance ON
 OFF: Termination resistance OFF
- SW3 (“OPT. 3”): For setting the power saving function.
- SW2 (“OPT. 2”): For setting the measuring function of the KYOWA’s EDX series.
- SW1 (“OPT. 1”): For extension. (OFF only)

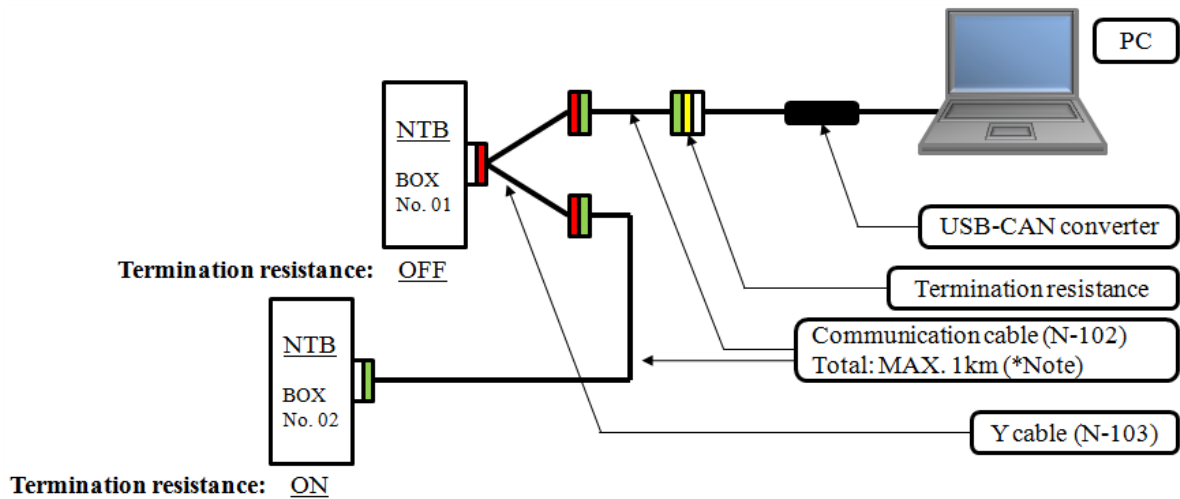
- For connecting one NTB series (When using the PC)



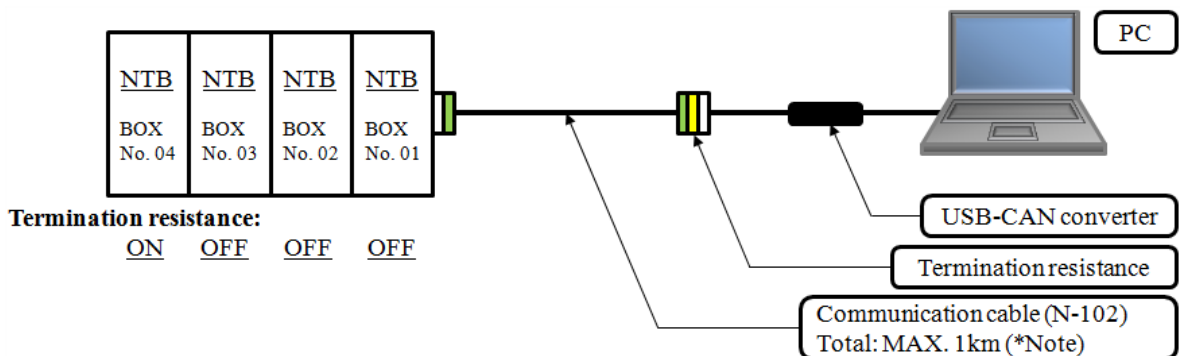
- For coupling 2 NTB series units (When using the PC)



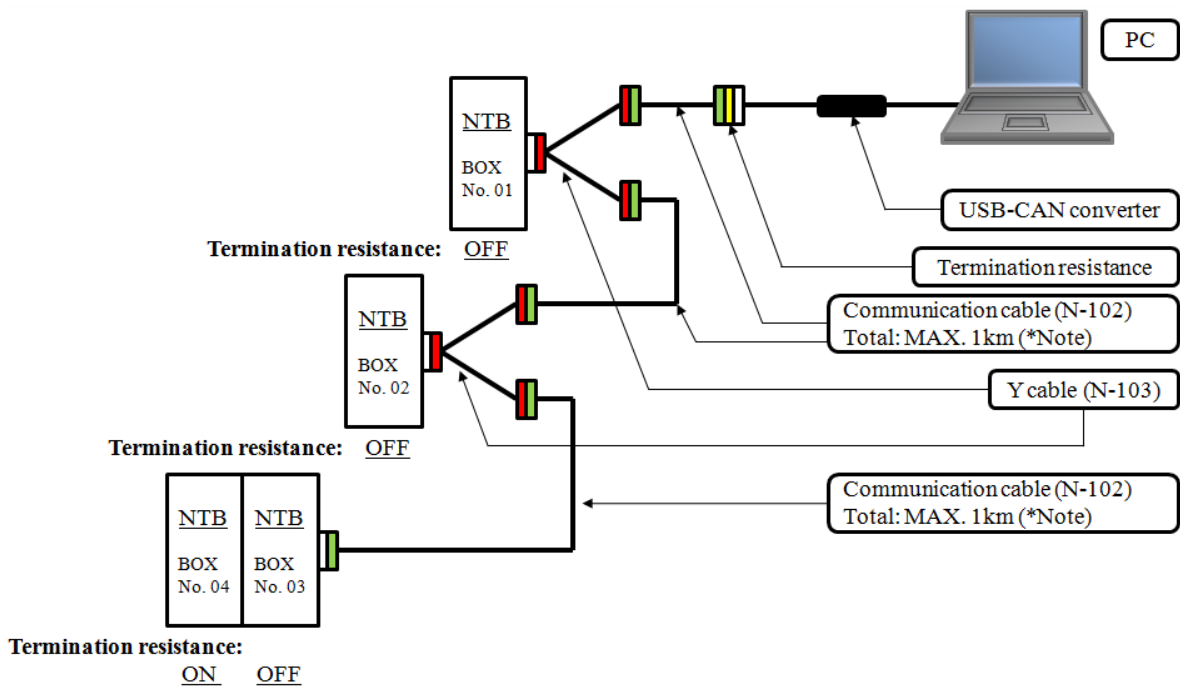
- For distributing 2 NTB series units (When using the PC)



- For coupling 4 NTB-100A series units (When using the PC)



- For distributing 4 NTB-100A series units (When using the PC)



■ What is termination resistance?

It is required to terminate at both ends of the pair signal lines (CAN_H and CAN_L).

That is because the CAN bus allows two-way communication.

In a standard 9-pin D-sub connector, a CAN_L: pin2 and CAN_H: pin7.

The terminator on the cable should match with the nominal impedance of the cable.

Since the ISO 11898 requires a cable with nominal impedance 120 ohm, the resistor of the 120 ohm should be used for the terminal.

When installing multiple devices on the cable, the devices on the both end of the cable require terminator.

Example of the termination method is described in the following.

