

DYNAMIC DATA RECORDING SOFTWARE**DCS-100A****INSTRUCTION MANUAL****(For EDS-400A Operation)**

Thank you for purchasing KYOWA's product DCS-100A DYNAMIC DATA RECORDING SOFTWARE (For EDS-400A Operation).

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

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

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NOTATIONS USED IN THE INSTRUCTION MANUAL

For your convenience, the following notes and memos are stated in this Instruction Manual to attract customer's attention to informative reference items when using the DCS-100A Dynamic Data Recording Software (hereinafter referred to as the DCS-100A) for operating the EDS-400A Compact Recorder (hereinafter referred to as the EDS).

Example:

NOTE

Describes essential instructions for handling the DCS-100A.

MEMO

Describes reference information for handling the DCS-100A.

ESSENTIAL PRECAUTIONS FOR USING THE DCS-100A

NOTE

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

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

NOTE

Communication between the EDS and PC is conducted via communication port '21,' '1010,' '30400,' and '34381.' When conducting communication through router, firewall, etc., check whether or not the above communication port is connected.

Set the router, firewall, etc. after confirming the Network Administrator.

NOTE

Take care that **MEAS** LED light up state of the EDS is not the same when using the accessory Control Software of the standard model and when using the DCS-100A.

- When using the standard accessory Control Software
ON: The EDS is recording data
- When using the DCS-100A
ON: The EDS is monitoring and recording data

NOTE

When LAN communication is unsatisfactory, check the network setting contents. If it is normal, conduct the following operations. This unsatisfactory state may generate especially when the IP address is changed, etc.

- Turn OFF the EDS and then, turn ON once again.
- Restart up the PC Windows.

NOTE

While controlling the EDS with the DCS-100A, do not operate the EDS switch.

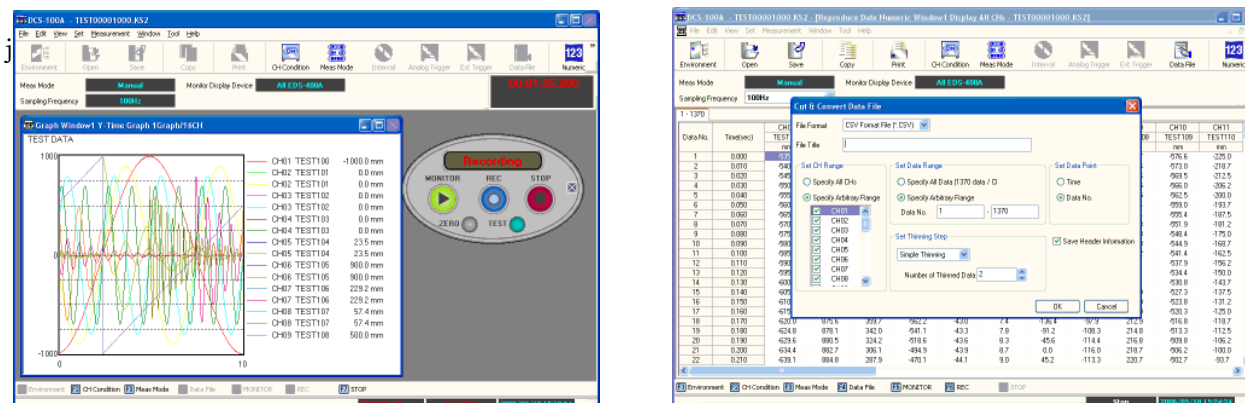
Or, the DCS-100A may be forcibly terminated while setting Meas conditions, recording data, collecting data, etc.

NOTE

When controlling the EDS with the DCS-100A, the DCS-100A may be forcibly terminated for some reasons such as PC's deficiency in performance (memory short). At this time, the EDS is in the process of data recording. When the DCS-100A is restarted once again and measurement is started, if a state unable to STOP recording is generated, it is required to turn ON/OFF the EDS.

1. OUTLINE

This Instruction Manual describes method for controlling the EDS with the DCS-100A. For operations of the DCS-100A commonly used for controlling dynamic meters, see separate volume of DCS-100A DYNAMIC DATA RECORDING SOFTWARE INSTRUCTION MANUAL (For Common Operation).



The EDS is capable of online measurement through the PC and LAN interface. In addition, the EDS is equipped with CF card to operate stand alone offline measurement without using the PC.

In the online measurement, a data file folder (data file saving destination) is set to **EDS-400A CF card** or **PC hard disk**. When the **EDS-400A CF card** is selected, data file is automatically collected to the PC from the EDS CF card after the measurement.

For the **PC hard disk**, the CF card is not necessary and the data file is directly saved in the PC's hard disk.

According to the preset folder for saving the data file, sampling frequency, MEAS mode, etc. vary as described in the following table.

Items	EDS-400A CF card	PC hard disk
Sampling frequency	1 to 100 kHz (Varies with the number of MEAS channels.)	1 to 10 kHz
Data file capacity	Maximum 2 GB (The number of recorded data varies with the number of MEAS channels.)	Residual capacity of PC hard disk
MEAS mode		
Manual	Without PAUSE function	With PAUSE function
Analog trigger trigger delay	Without end trigger Maximum 2000 data	With end trigger Maximum 32000 data (Varies with the number of MEAS Channels.)
External trigger	Yes	No
Interval	No	Yes

This Instruction Manual describes various items for operating the EDS such as basic operation flow, setting of environment for network connection, settings of various CH and Meas conditions, online and offline mode measurements.

2. BASIC OPERATION FLOW

This Chapter describes basic procedures for operating the DCS-100A from setting conditions to measurement by controlling the EDS.

- (1) Connect the EDS to the PC with a LAN cable and turn ON the EDS.
- (2) Start up the DCS-100A.

Set Environment (Set Network & Data File Folder)

See “3. SETTING ENVIRONMENT.”

- (3) Point to **File** on the menu bar and select **Environment** menu or select the **Environment** icon from the toolbar to open the **Environment** screen
- (4) Select **EDS-400A** from the list box of **Control Device** in item **Set Connection**.
- (5) Press the **Set Connection Configuration** button to open the **Set Connection Configuration** screen.
Set the **Number of PC connected Units** and **Connection Configuration** of network conditions.
- (6) After setting the connection configuration, set network conditions for every EDS on the **Set Connection Configuration** screen.
Press the **Save Network Condition File** button to save the network conditions into the CF card as a network condition file.
- (7) Directly load the network condition file from the CF card to the EDS to set the EDS network conditions.
- (8) After setting network conditions of the entire EDS units, press the **Check Communication** button on the **Environment** screen to check the connection whether or not normal communication is available between the PC and the entire EDS units.
- (9) Set a data file folder (data file save destination) on **Set Data File** screen. According to the selected data file, put a check mark when it requires to automatically collect the data or automatically convert the acquired data into CSV format file. Then, close the **Environment** screen.

Set CH Condition

See “4. SETTING CH CONDITION.”

- (10) Point to **Set** on the menu bar and select **Set CH Condition** menu or select the **Set CH Condition** icon from the toolbar to open the **Set CH Condition** screen.
Set various CH conditions such as Meas mode, range CAL coefficient, offset, unit, etc. for every CH of the EDS on the **Set CH Condition** screen.
Then, close the **Set CH Condition** screen.

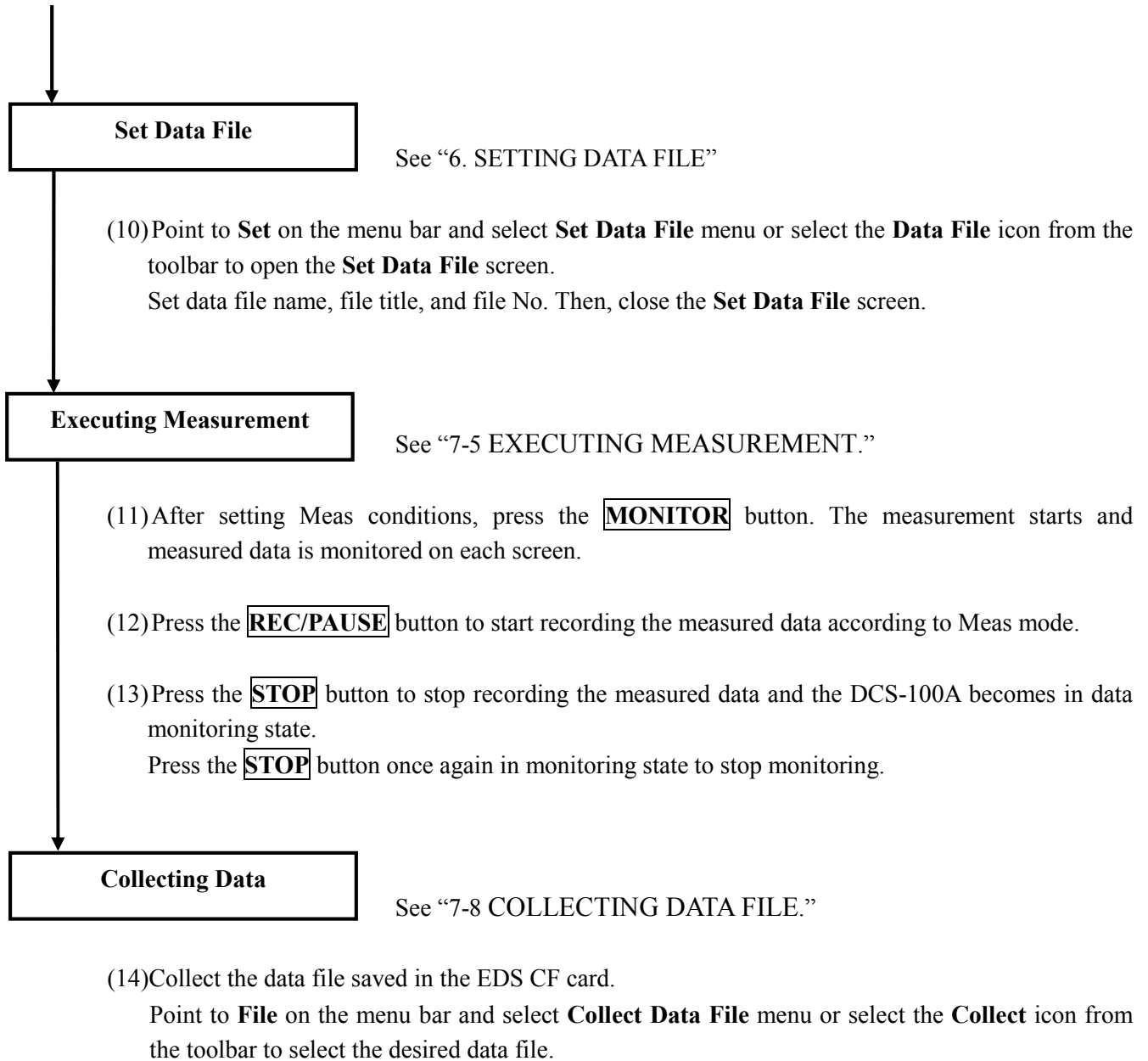
Set Meas Mode

See “5. SETTING MEASURING MODE CONDITION.”

- (11) Point to **Set** on the menu bar and select **Set Meas Mode** menu or select the **Meas Mode** icon from the toolbar to open the **Set Meas Mode** screen.
Set Meas mode and sampling frequency. Then, close the **Set Meas Mode** screen.

(To be continued)

(Continued)



3. SETTING ENVIRONMENT

3-1 SETTING CONNECTED DEVICE CONFIGURATION

Input the number of connected EDS units, names of the connected devices, IP address, default gateway to set connection configuration.

The DCS-100A is capable of controlling up to 8 EDS units with ID Nos. set from 0 to 7.

The DCS-100A recognizes the CHs of the EDS units with the ID Nos. as described in the following table.

For hardware connection, refer to EDS-400A Instruction Manual for Hardware.

ID No.	CH No.
0	1 to 4
1	5 to 8
2	9 to 12
3	13 to 16
4	17 to 20
5	21 to 24
6	25 to 28
7	29 to 32

Open the **Environment** screen by either of the following to set connection configuration.

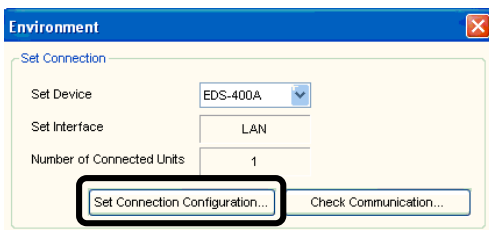
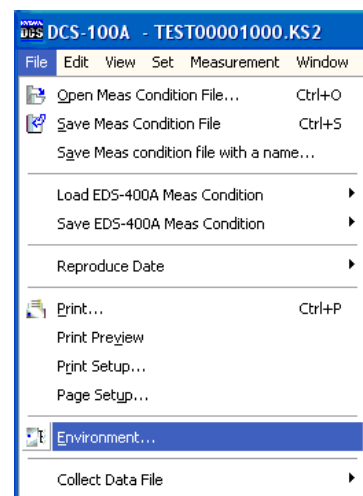
- Point to **File** on the menu bar and select **Environment**.
- Select the **Environment** icon from the toolbar.

■ Operation Method

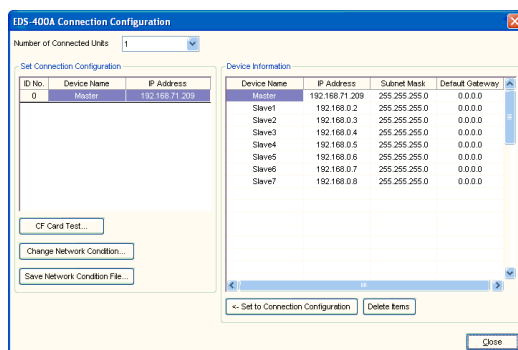
(1) Select **EDS-400A** from the **Control Device** list on

the **Set Connection** window

(2) Press the **Set Connection Configuration** button.



(3) The **Set Connection Configuration** screen appears.



- (4) Select the number of connected EDS units from the list box.

EDS-400A Connection Configuration

Number of Connected Units: 1

Set Connection Configuration

ID No.	Device Name	IP Address
0	Master	192.168.0.1

- (5) To change the network conditions, change required item of the **Device Information** column.

EDS-400A Connection Configuration

Number of Connected Units: 1

Set Connection Configuration

ID No.	Device Name	IP Address
0	Master	192.168.0.1

Device Information

Device Name	IP Address	Subnet Mask	Default Gateway
Master	192.168.71.200	255.255.255.0	0.0.0.0

Select and double-click the desired item or press the **SPACE** key to be in input available state.

Input the desired network conditions and press the **ENTER** key to determine the changed setting.

In addition, right-click on the item top to display the following menu. Then, the selected item can be copied or pasted to other lines.

IP Address	Subnet Mask
192.168.0.1	255.255.255.0
192.168.0.2	255.255.255.0
192.168.0.3	255.255.255.0
192.168.0.4	255.255.255.0
192.168.0.5	255.255.255.0

Copy

Paste

- (6) Press the **Set Connection Configuration** button to display the changed contents on the **Set Connection Configuration** screen.

EDS-400A Connection Configuration

Number of Connected Units: 1

Set Connection Configuration

ID No.	Device Name	IP Address
0	Master	192.168.0.1

Device Information

Device Name	IP Address	Subnet Mask	Default Gateway
Master	192.168.71.200	255.255.255.0	0.0.0.0
Slave1	192.168.0.2	255.255.255.0	0.0.0.0
Slave2	192.168.0.3	255.255.255.0	0.0.0.0
Slave3	192.168.0.4	255.255.255.0	0.0.0.0
Slave4	192.168.0.5	255.255.255.0	0.0.0.0
Slave5	192.168.0.6	255.255.255.0	0.0.0.0
Slave6	192.168.0.7	255.255.255.0	0.0.0.0
Slave7	192.168.0.8	255.255.255.0	0.0.0.0

CF Card Test...

Change Network Condition...

Save Network Condition File...

<- Set to Connection Configuration Delete Items

Close



EDS-400A Connection Configuration

Number of Connected Units: 1

Set Connection Configuration

ID No.	Device Name	IP Address
0	Master	192.168.71.200

Device Information

Device Name	IP Address	Subnet Mask	Default Gateway
Master	192.168.71.200	255.255.255.0	0.0.0.0

- (7) When multiple EDS units are used, conduct procedures from item (2). Lastly, press the **Close** button to close the **Set Connection Configuration** screen.

3-2 SETTING NETWORK CONDITION

Network conditions of the EDS are set in online mode using LAN interface as well as in offline mode using CF card.

3-2-1 Setting Network in Online Mode

3-2-1-1 Setting Network on the PC Side

To carry out communication between the PC and EDS, it is required to set a network on the PC side in advance. Method of conducting communication with factory default network conditions of the EDS is described.

■ Network condition on the EDS (Factory default setting)

IP Address	192.168. 0. 1
Subnet Mask	255.255.255.0
Default Gateway	0. 0. 0. 0

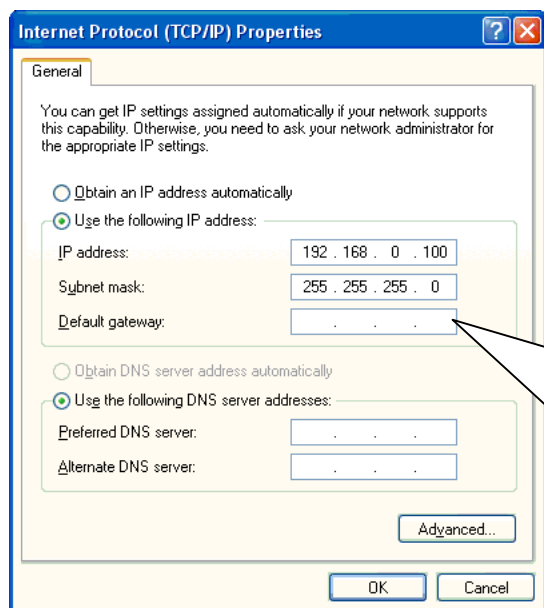
■ Network condition on the PC side

IP Address	192.168. 0. 100
Subnet Mask	255.255.255.0
Default Gateway	0. 0. 0. 0

In addition, if the PC is already connected to a different network, confirm the Network Administrator and set the network.

■ Operation Method (For WindowsXP)

- (1) Point to Windows **Start** and select **My Computer**.
- (2) Right-click the **My Network Places** on the **My Computer** screen left side and select **Properties**.
- (3) Right-click the **Local Area Connection** from the **Network Connection** screen and select **Properties**.
- (4) Select **Internet Protocol (TCP/ITP) Properties** from the **Local Area Connection Properties** screen and press the **Properties** button.
- (5) Input required conditions on the **Internet Protocol (TCP/IP) Properties** screen as follows.



IP address: 192.168.0.100
Subnet mask: 255.255.255.0

Press the **Delete** key to erase the numeric on the default gateway.
(‘0’ is not entered.)

- (6) Press the **OK** button on the **Local Area Connection Properties** screen to close the screen.
- (7) Reboot the PC.

NOTE

IP address on the PC side

Factory default IP address of the EDS is '192. 168. 0. 1.'

At this time, set the PC's IP address with the same address up to '192. 168. 0.'

Set the rest of the IP address to any numbers from 2 to 254 by considering not to have overlapping IP addresses of the EDS. In the example, it is set to '100.'

3-2-1-2 Changing Network Condition

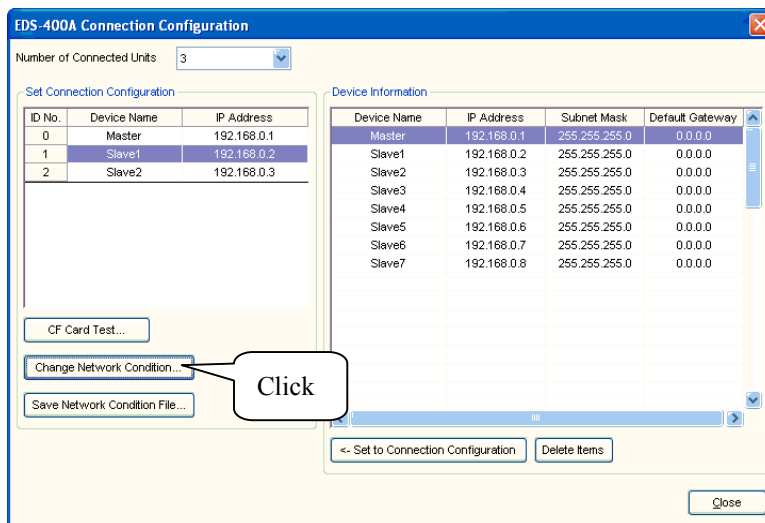
Network condition of the EDS is changed in online mode for every unit.

NOTE

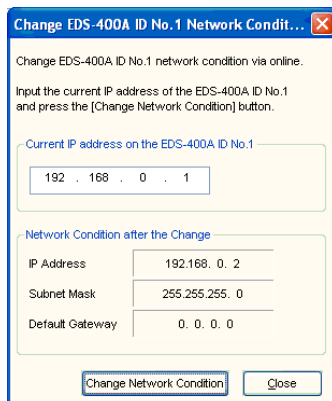
When using multiple EDS units, it is required to change the IP address to avoid overlapping the IP addresses. Factory default IP address of the EDS is '192. 168. 0. 1'

■ Operation Method

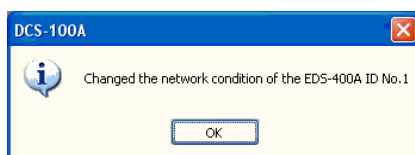
- (1) The **Set Connection Configuration** screen appears by pressing the **Set Connection Configuration** button on the **Environment** screen. Set network condition
- (2) Click the target EDS on the item **Connection Configuration** on the **Set Connection Configuration** screen.



- (3) Press the **Change Network Condition** button.
- (4) Then, the following **Change network condition** screen appears.



- (5) Press the **Change Network Condition** button to send the current network condition to the EDS.
- (6) The following message appears to confirm the changed result. Press the **OK** button.



- (7) Lastly, press the **Close** button on the **Change network condition** screen to close the screen.
To change network conditions of multiple EDS units, conduct instructions from item (1).
- (8) Then, set network on the PC side.
For details, see "3-2-1-1 Setting Network on the PC Side."

3-2-2 Setting Network in Offline Mode

3-2-2-1 Saving Network Condition File

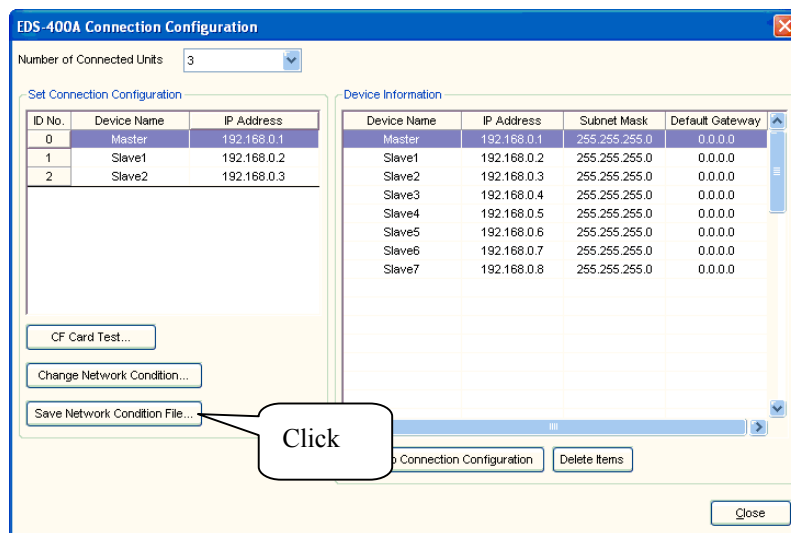
Network condition of the EDS is changed in offline mode for every unit.

By directly loading a file stored with network conditions to the EDS via CF card, EDS's network conditions are changed.

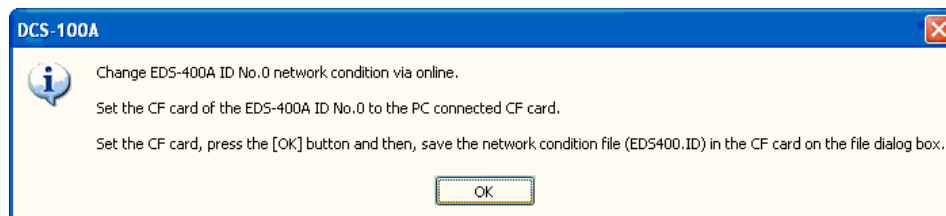
■ Operation Method

- (1) Press the **Set Connection Configuration** button on the **Environment** screen. The **Set Connection Configuration** screen appears.

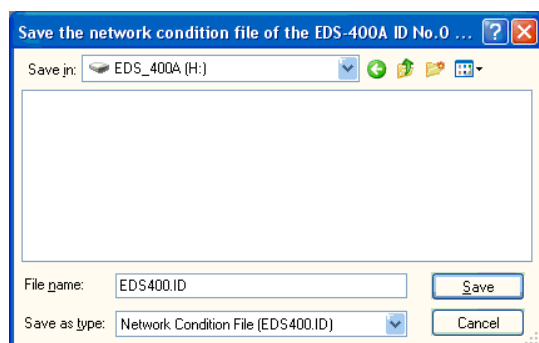
Click the target EDS on the item **Connection Configuration** on the **Set Connection Configuration** screen.



- (2) Click the **Save Network Condition File** button.
- (3) The following message appears. Set the CF card of the target device to PC connected CF card drive.



- (4) **Save As** screen appears. Select the PC CF card drive and press the **Save** button.



MEMO

Network condition file name shall be "EDS400.ID" (Changing the name is not allowed.)

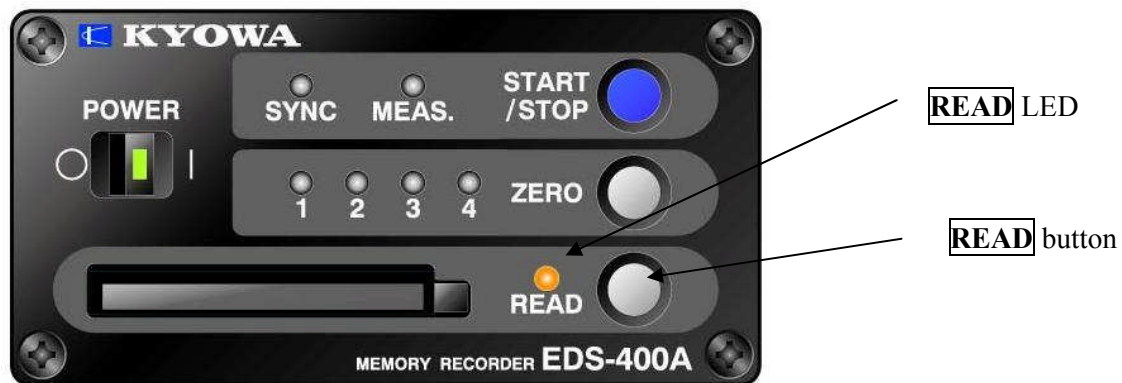
3-2-2-2 Loading Network Condition File

Network condition file is loaded from the EDS CF card and changed.

This function is used when the EDS is used in environment in which changing the network condition from the PC to EDS is not available in online mode.

■ Operation Method

- (1) Turn OFF the EDS and insert the CF card having the network condition file.
- (2) While holding down the EDS **READ** button, turn ON the EDS and continuously hold down the **READ** button until it flickers orange.
- (3) Turn OFF the EDS and turn ON once again. Then, the network condition is changed.

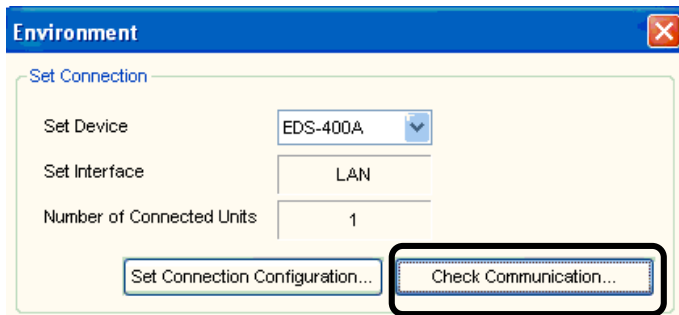


NOTE

When loading the network condition file, take care and correctly set the CF card with the target network condition to the desired EDS.

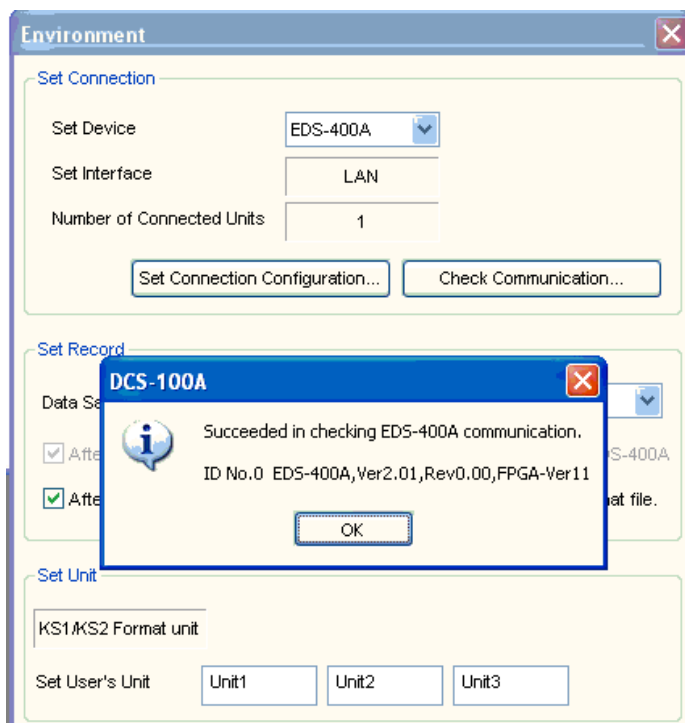
3-3 CHECKING COMMUNICATION

Conduct connection test to check whether or not normal communication is available between the PC and EDS.

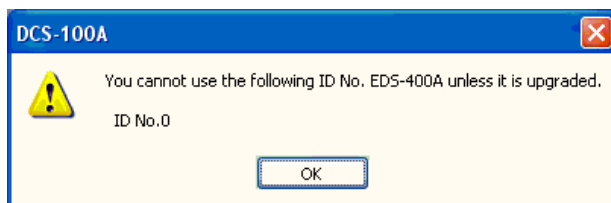


■ Operation Method

- (1) Press the **Check Communication** button on the **Environment** screen.
- (2) The following check result appears.



If the following message appears, it is required to update the EDS Firmware.
For details, see “9-6 UPDATING THE FIRMWARE.”



3-4 SETTING RECORD

A data file folder as well as data file related items after the measurement are set on the item **Set Record** on the **Environment** screen.

The screenshot shows the 'Environment' dialog box with four sections: 'Set Connection', 'Set Record', 'Set Unit', and 'Set Numeric Display'. The 'Set Record' section is highlighted with a black rounded rectangle. It contains a 'Data Save Folder' dropdown menu set to 'EDS-400A CF card', and two checked checkboxes: 'After the measurement, data is automatically collected file from the EDS-400A' and 'After the measurement, data is automatically converted into CSV format file.' The 'Set Connection' section shows 'Set Device' as 'EDS-400A', 'Set Interface' as 'LAN', and 'Number of Connected Units' as '1'. The 'Set Unit' section shows 'KS1/KS2 Format unit' and three 'Set User's Unit' buttons labeled 'Unit1', 'Unit2', and 'Unit3'. The 'Set Numeric Display' section shows 'Number of numeric range digits' set to '8'. At the bottom are 'OK' and 'Cancel' buttons.

■ Operation Method

- (1) Select **Data Save Folder** in the item **Set Record** on the **Environment** screen.
Select either **PC Hard Disk** or **EDS-400A CF Card** for saving the recorded data.
- (2) After the measurement, when it is required to automatically collect data to PC specified folder from the EDS, put a check mark. (Enabled only when **EDS-400A CF Card** is selected.)
In addition, when it is required to automatically CSV convert the recorded data and save it in PC specified folder, put a check mark.
- (3) Press the **OK** button to determine the setting contents.

NOTE

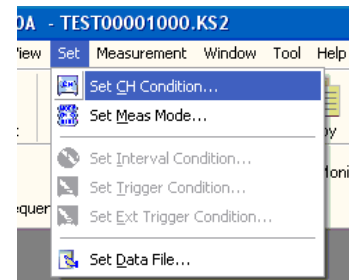
- When the **EDS-400A CF Card** is selected
Data file size that can be recorded into the EDS CF card is maximum 2 GByte.
- When the **PC Hard Disk** is selected
Maximum data file size that can be recorded in the PC is up to the PC's hard disk capacity.

4. SETTING CH CONDITION

This Chapter describes methods for setting various CH conditions such as CH mode, range, CAL coefficient, offset, unit, etc. for every channel of the EDS.

Open the **Set CH Condition** screen by the following and set Meas condition for every channel.

- Point to **Set** and select **Set CH Condition** menu.
- Select the **CH Condition** icon from the toolbar.



ID No.	Device Name	CH	Measurement	Mode	Range	Low Pass Filter	Zero	CAL Coefficient	Offset	Unit	CH Name
0	Master	01	☒	Strain	1kum/m	FLAT	☒	1.0000	0.0000	mm	TEST100
		02	☒	Strain	1kum/m	FLAT	☒	1.0000	0.0000	mm	TEST101
		03	☒	Strain	1kum/m	FLAT	☒	1.0000	0.0000	mm	TEST102
		04	☒	Strain	1kum/m	FLAT	☒	1.0000	0.0000	mm	TEST103

Buttons: Print, Change Setting Items..., OK, Cancel, Apply

- (1) **Print** button Prints out Set CH condition screen.
- (2) **OK** button Determines the set contents and closes the Set CH Condition screen.
- (3) **Cancel** button Cancels the set contents and closes the Set CH Condition screen.
- (4) **Apply** button Determines the current set contents.
- (5) **Change Setting Items** button Setting items on the screen are added, removed, or sorted.

■ Change Setting Items

Press the **Change Setting Items** button to display the following screen.

Setting items displayed on the **Set CH Condition** screen are added, removed, or sorted.

Change Setting Items

Available Items: Meas Range, Test Signal, Rated Capacity, Rated Output, Deci Digits

Current Items: ID No., Device Name, CH, Measurement, Mode, Range, Low Pass Filter, Zero, CAL Coefficient, Offset

Buttons: Add >, < Remove, Close, Reset, Up, Down

- (1) **Add >** button Item currently not on the screen is added to the Set CH Condition screen.
- (2) **< Remove** button Item currently displayed on the screen is removed from the Set CH Condition screen.
- (3) **Close** button Determines the setting item and closes the screen.
- (4) **Reset** button Resets the item to the default state.
- (5) **Up/Down** button Sorts the current setting items.
Select the desired item and press the **Up** or **Down** button.

■ Operation Example

Description is made with an example when an item **Test Signal** is added to the **Set CH Condition** screen.

- (1) Select the **Test Signal** in the **Available Items** and press the **Add >** button.
- (2) The selected **Test Signal** moves to the **Current Items**. Press the **Up** or **Down** button to sort it to the appropriate place and press the **Close** button.

■ Setting Items

(1) Measurement ON/OFF(Essential)

Set the measurement target CH.

Put a check mark in the measurement target CH box.

Measurement
☒
☒
☒
☒

(2) Mode (Essentials)

Set the Meas mode.

Select the relevant item from the list box.

Mode
Strain
Strain
Voltage
Strain

■ Selection

Strain
Voltage

(3) Range

Set the measuring range.

Select the relevant item from the list box.

Range
1k μ m/m
1k μ m/m
2k μ m/m
5k μ m/m
10k μ m/m
20k μ m/m

■ Selection

Mode	Strain	1 k μ m/m
		2 k μ m/m
		5 k μ m/m
		10 k μ m/m
		20 k μ m/m
	Voltage	1 V
		2 V
		5 V
		10 V
		20 V

In addition, since the Range is coupled with Meas Range item on the Available Items, when selecting and setting the Meas Range, the Range on the Current Items is automatically set.

(4) Low Pass Filter

Set cutoff frequency of the low pass filter.

Select the relevant item from the list box.

Low Pass Filter
FLAT
FLAT
2kHz
200Hz
20Hz

■ Selection

FLAT
2 kHz
200 Hz
20 Hz

(5) Zero ON/OFF

Put a check mark in the Zero box of the target CH for zero processing.

When it is in “Strain” mode, strain bridge zero balance is adjusted.

When it is in “Voltage” mode, the current input voltage is shifted to 0 V.

Zero
☒
☒
☒
☒

(6) CAL Coefficient

Set CAL coefficient to be multiplied to the measured data.

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

Setting range: -1×10^8 to -1×10^{-8} , 1×10^{-8} to 1×10^8

Double-click the desired CH item or press the **[SPACE]** key to be in numeric input available state. Input the desired numeric value.

Since the CAL Coefficient is coupled with Rated Capacity and Rated Output of the Available Items, when selecting and setting the CAL coefficient on the Rated Capacity or Rated Output item, the CAL Coefficient on the Current Items is automatically calculated.

CAL Coefficient
1.0000
1.0000
1.0000
1.0000

(7) Offset

Set offset value in engineering value (A value multiplied by the CAL coefficient). Set the offset value when it requires to parallel move the measured value at a certain amount.

Initial value of the offset is '0.'

Double-click the target CH and input the desired value.

Setting range: -1×10^8 to -1×10^{-8} , 0, 1×10^{-8} to 1×10^8

Double-click the desired CH item or press the **[SPACE]** key to be in numeric input available state. Input the desired numeric value.

Since the Offset is coupled with Meas Range of the Available Items, when changing the Offset, the Meas Range is automatically changed.

Offset
0.0000
0.0000
0.0000
0.0000

(8) Unit (Arbitrarily set)

Set engineering value unit according to input sensors.

Double click the target CH or press the **[SPACE]** key to display the Set Unit screen. Select the relevant unit from the unit list.

■ Selection

μm/m	ε	mV	V	mA	A
mm	cm	m	°C	° F	gf/cm2
kgf/mm2	kgf/cm2	kgf/m2	mmHg	kPa	MPa
g	kg	ton	gf	kgf	tonf
N	kgf · mm	kgf · cm	kgf · m	Nm	OHM
kOHM	MOHM	%	dB	ppm	cm/s
m/s	m/min	km/h	Hz	kHz	MHz
°	deg	rad	kN	kNm	kW
rpm	cm/s2	m/s2	G	daN	mile/h
*100kpa	deg/s	msec	sec	min	hour
User's unit	User's unit	User's unit			

MEMO

If the relevant unit is not on the unit list, users can register up to 3 original units (User's unit). At this time, set the user's unit on the Environment screen in advance.

(9) CH Name (Arbitrarily set)

Input the CH name comment strings within 40 characters.

Double-click the desired CH or press the **SPACE** key to be in input available state. Input desired comment character strings.

CH Name
TEST100
TEST101

(10)Deci Digits (Arbitrarily set)

Set the number of digits below decimal point of numeric value display.

On selecting the **Auto**, the numeric having 5 numbers with no sign is automatically displayed.

Example) -100.123 → -100.12
5001.57 → 5001.6

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

In addition, in the default state, the **Deci Digits** is not displayed on the **Set CH Condition** screen. At this time, add the item with the **Change Setting Items** button.

Deci Digits
Auto
Auto
0 {xxxxxxxx}
1 {xxxxxxxx }
2 {xxxxxxxx }
3 {xxxxxxxx }
4 {xxxxxxxx }
5 {xxxxxxxx }
6 {xxx xxxxx }
7 {x . xxxxxx }
8 {x . xxxxxx }

(11)Rated Output

Set the Rated Output of sensors together with the Rated Capacity.

Obtain CAL Coefficient by calculating the Rated Output and Rated Capacity. However, not necessary to set the rated output if the CAL coefficient is directly entered.

Double-click the desired CH or press the **SPACE** key to be in input available state. Input desired numeric value.

For strain measurement, input the rated output in the unit of mV/V.

In addition, in the default state, the **Rated Output** is not displayed on the **Set CH Condition** screen.

At this time, add the item Rated Output with the **Change Setting Items** button.

Rated Output
0.50000
0.50000mV/V
0.50000mV/V
0.50000mV/V

(12)Rated Capacity

Set the Rated Capacity of sensors together with the Rated Output.

Obtain CAL Coefficient by calculating the Rated Output and Rated Capacity. However, not necessary to set the rated output if the CAL coefficient is directly entered.

Double-click the desired CH or press the **SPACE** key to be in input available state. Input desired numeric value.

In addition, in the default state, the **Rated Capacity** is not displayed on the **Set CH Condition** screen.

At this time, add the item Rated Capacity with the **Change Setting Items** button.

Rated Capacity
1000.0
1000.0mm
1000.0mm
1000.0mm

(13) Meas Range

Set measuring range.

Numeric value of the measuring range is in engineering value obtained by multiplying the measured value by CAL coefficient and offset value.

Select the relevant item from the list box.

Meas Range
-1000.0 - 1000.0 mm
-1000.0 - 1000.0 mm
-2000.0 - 2000.0 mm
-5000.0 - 5000.0 mm
-10000 - 10000 mm
-20000 - 20000 mm

In addition, since the Meas Range is coupled with the Range of the Current Items, when selecting the Meas Range, the Range of the Current Items is automatically changed.

In addition, in the default state, the **Meas Range** is not displayed on the **Set CH Condition** screen. At this time, add the item Meas Range with the **Change Setting Items** button.

(14) Test Signal ON/OFF

Put a check mark in a CH box that outputs the Test signal (+50A% output of setting range).

Test Signal
☒
☒
☒
☒

In addition, in the default state, the **Test Signal** is not displayed on the **Set CH Condition** screen.

At this time, add the item Test Signal with the **Change Setting Items** button.

■ Copy and Paste

- Drag the setting item of the copy source CH and right-click.

CH	Measurement	Mode	Range	Low Pass Filter	Zero	CAL Coefficient
01	☒	Strain	2 μ m/m	2kHz	☒	1.0000
02	☒	Strain	1 μ m/m	FLAT		1.0000
03	☒	Strain	1 μ m/m	FLAT		1.0000
04	☒	Strain	1 μ m/m	FLAT	☒	1.0000

- Select the Copy from the menu and then, copy contents of the setting item of the copy source
- Drag the CH range of the paste destination and right-click.

CH	Measurement	Mode	Range	Low Pass Filter	Zero	CAL Co
01	☒	Strain	2 μ m/m	2kHz	☒	1.0
02	☒	Strain	1 μ m/m	FLAT	☒	1.0
03	☒	Strain	1 μ m/m	FLAT		1.0
04	☒	Strain	1 μ m/m	FLAT		1.0

- Select the Paste from the menu to paste the desired data.

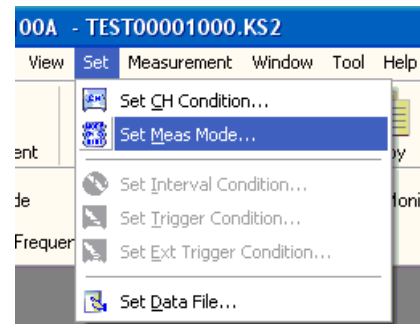
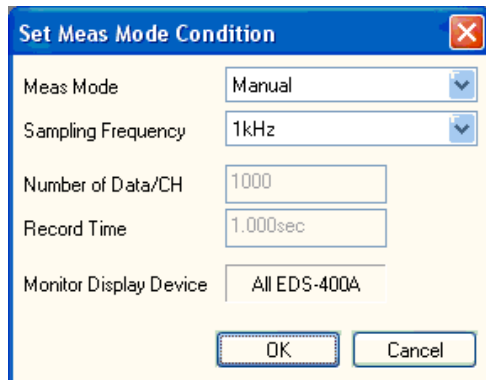
CH	Measurement	Mode	Range	Low Pass Filter	Zero
01	☒	Strain	2 μ m/m	2kHz	☒
02	☒	Strain	2 μ m/m	2kHz	☒
03	☒	Strain	2 μ m/m	2kHz	☒
04	☒	Strain	2 μ m/m	2kHz	☒

5. SETTING MEASURING MODE CONDITION

This Chapter describes settings of Meas mode and sampling frequency.

Open the **Set Meas Mode Condition** screen by the following.

- Point to **Set** and select **Set Meas Mode** menu.
- Select **Meas Mode** icon from the toolbar.



■ Operation Method

(1) Select the desired **Meas Mode**.

Manual

Manual (Set the number of recorded data.)

Interval (Enabled when **PC Hard Disk** is selected.)

Analog trigger

External trigger (Enabled when **EDS-400A CF Card** is selected.)

For details, see “7 ONLINE MEASUREMENT.”

(2) Select the relevant sampling frequency from the list box.

The sampling frequency is set in common for all CHs.

■ Selection

1 Hz, 2 Hz, 5 Hz,
10 Hz, 20 Hz, 50 Hz
100 Hz, 200 Hz, 500 Hz,
1 kHz, 2 kHz, 5 kHz,
10 kHz, 20 kHz, 50 kHz (*1),
100 kHz (*2)

(*1) Selectable when the number of measurement target CHs is less than 2 CHs.

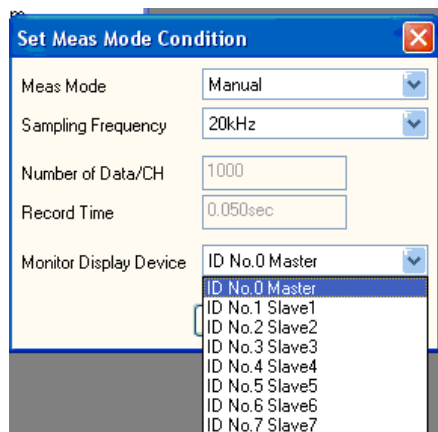
(*2) Selectable when the number of measurement target CHs is 1 CH.

When the data file save destination is set to **PC Hard Disk**, set the sampling frequency to maximum 10 kHz.

- (3) When selecting the Meas mode other than the **Manual** mode, input the **Number of Data** or **Record Time**. Since the **Number of Data** and **Record Time** are coupled with each other, you can set the either of the two.

Number of Data/CH	1000
Record Time	1.000sec

- (4) When connecting multiple EDS units, if the sampling frequency is set to more than 20 kHz, CH of '1' EDS is monitored. Select '1' target EDS for monitor display device.



Set Meas Mode Condition

Meas Mode: Manual

Sampling Frequency: 20kHz

Number of Data/CH: 1000

Record Time: 0.050sec

Monitor Display Device: ID No.0 Master

- ID No.0 Master
- ID No.1 Slave1
- ID No.2 Slave2
- ID No.3 Slave3
- ID No.4 Slave4
- ID No.5 Slave5
- ID No.6 Slave6
- ID No.7 Slave7

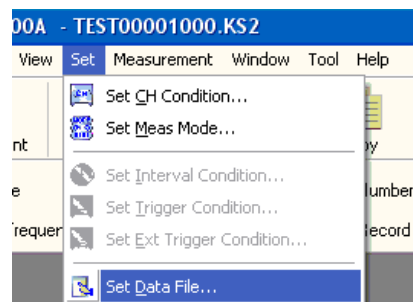
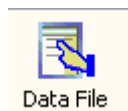
- (5) Press the **OK** button to determine the Meas mode condition.

6. SETTING DATA FILE

This Chapter describes setting of Save Folder (save destination), File Name, File Title, etc.

Open the **Set Data File** screen by either of the following.

- Point to **Set** on the menu bar and select **Set Data File** menu.
- Select **Data File** icon from the toolbar.



■ Operation Method

(1) Select the **Data Save Folder** of the data file.

Press the **Browse** button to display **Set Data File** screen. Click the relevant folder, select the desired folder and press the **OK** button to close the **Set Data File** screen.

(2) Set the file name within 10 characters. Default is 'TEST.'

(3) Arbitrarily set a file title within 40 characters.

(4) Set the file No. (Enabled when **PC Hard Disk** is selected.)

(5) Press the **OK** button to determine the setting contents.

6-1 DATA FILE NAME

The data file name can be determined by selecting the **Data Save Folder** on the **Environment** screen as described in the following.

The file name in this section is enclosed with squares for convenience.

■ When save destination folder is selected to “EDS-400A CF Card”

Meas Mode	Data File Name
Manual	TEST 00 001 000. ks2
Manual (Set the number of recorded data)	(1) (2) (3)
Analog trigger	TEST 00 001 001 . ks2
External trigger	(1) (2) (3) (4)

(1) File Name File name

(2) ID No 2-digit ID No. (00 to 07)

(3) File No Check data file in the EDS CF card and put a number that does not duplicate with the other data file.

If no data file exists, default is set to 001.

The file No. increments one after another for every time the recording is started.

(4) Repeat times The number of repeat times. Default is set to 001.

■ When save destination folder is set to “PC Hard Disk”

Meas Mode	Data File Name
Manual	TEST 001 . ks2
Manual (Set the number of recorded data)	(1) (2)
Interval	TEST 001 001 . ks2
Analog trigger	(1) (2) (3)

(1) File Name File name

(2) File No..... File No. previously set on the **Set Meas Data File** screen.

The file No. increments one after another for every recording time. Default is set to 000.

(3) Repeat Times..... The number of repeat times. Default is set to 001.

7. ONLINE MEASUREMENT

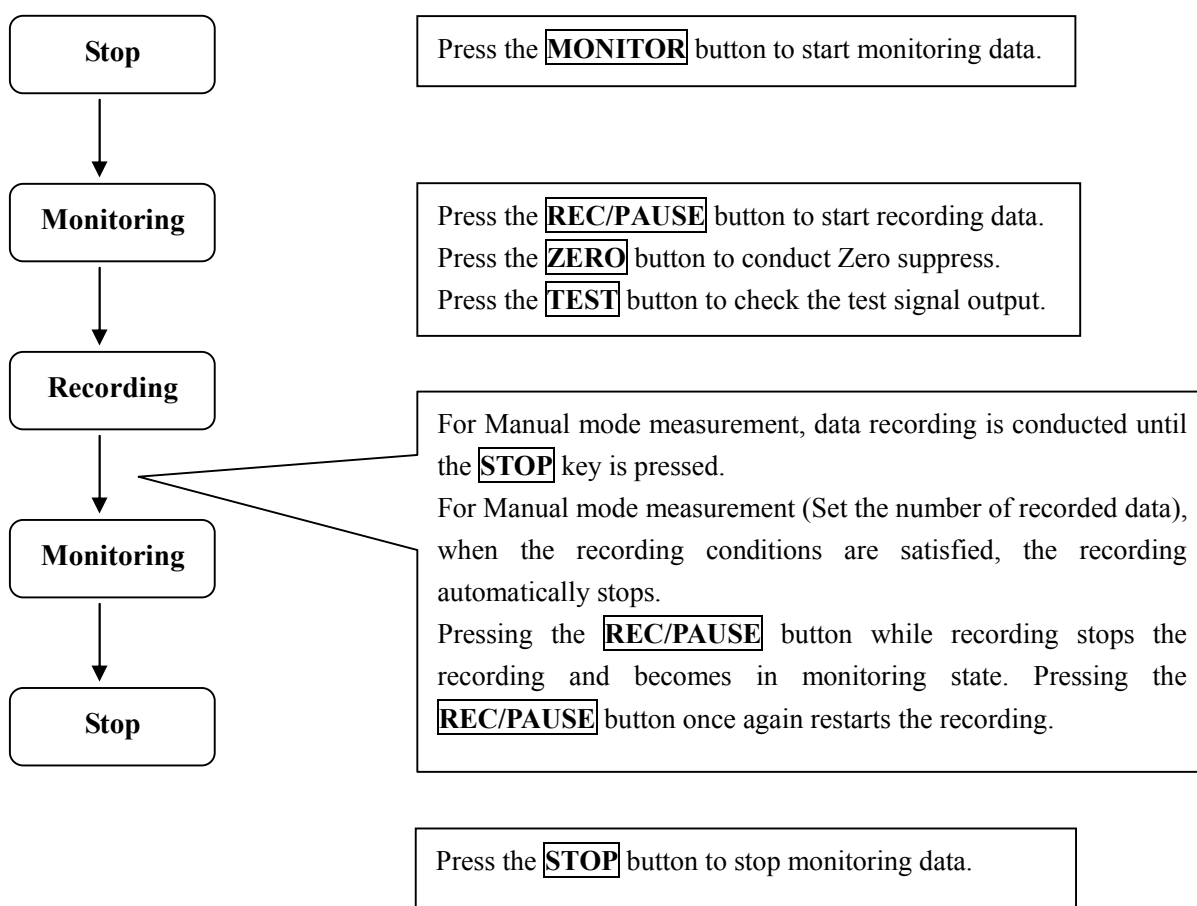
7-1 MANUAL MEASUREMENT

This section describes measurement flow when Meas mode is set to Manual or Manual (Set the number of recorded data).

The Manual mode measurement starts by manually pressing the **REC/PAUSE** button. Thereafter, press the **STOP** button to stop recording the measured data and to be in monitoring state.

In addition, the Manual mode measurement (Set the number of recording times) is capable of setting recording time and the number of recorded data. Manually press the **REC/PAUSE** button to start recording the measured data. After satisfying the Meas conditions, the EDS automatically stops recoding data and becomes in monitoring state.

If the save destination is set to EDS-400A CF Card, the PAUSE function is disabled.

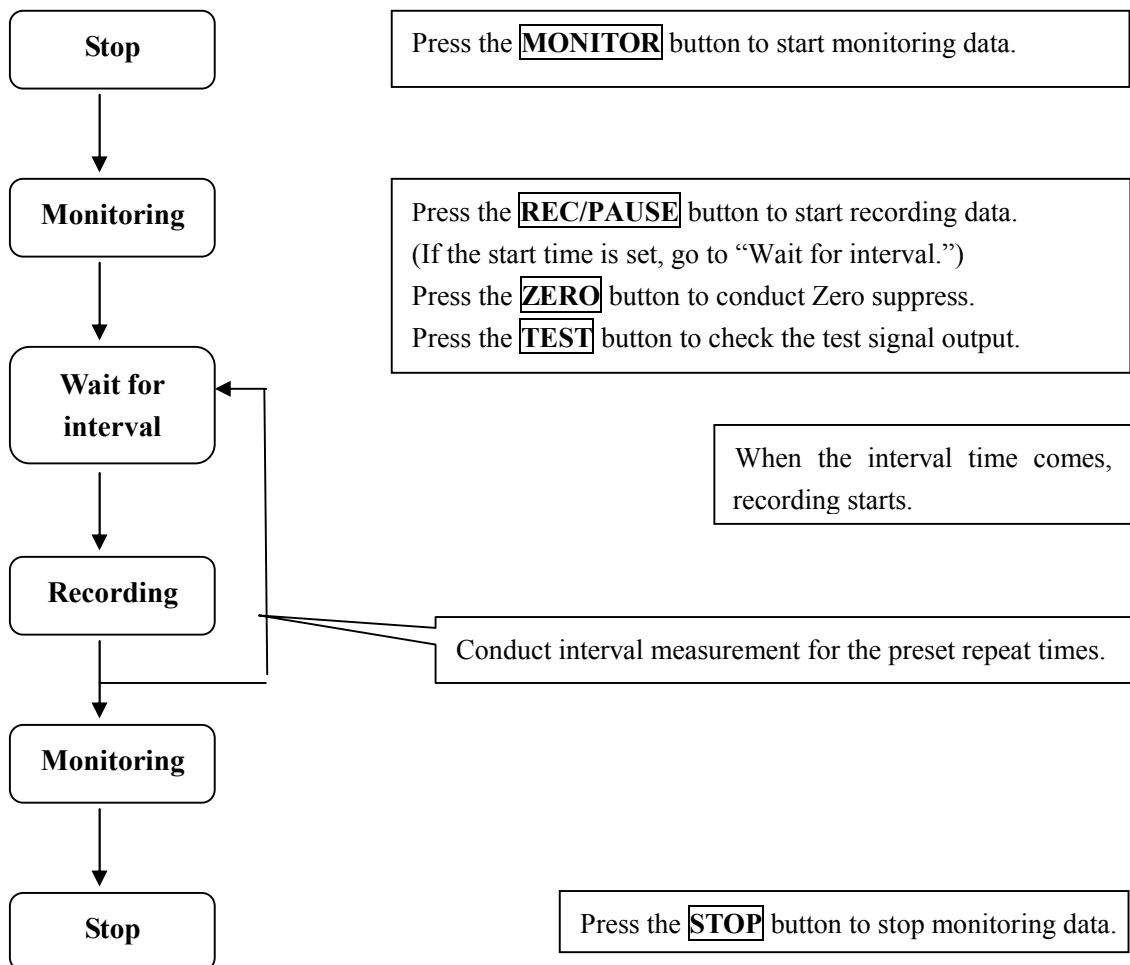
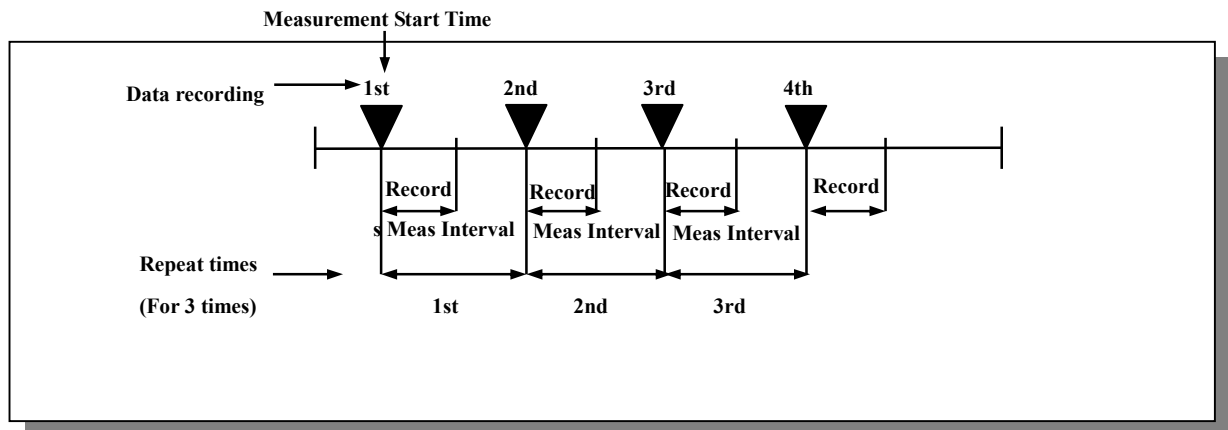


7-2 INTERVAL MEASUREMENT

Interval mode measurement is enabled when save destination is set to PC Hard Disk.

This section describes a measurement flow when Meas mode is set to Interval mode.

The Interval mode measurement automatically records data at preset set time intervals. After finishing the interval measurement, the EDS becomes in monitoring state.

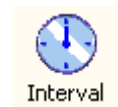
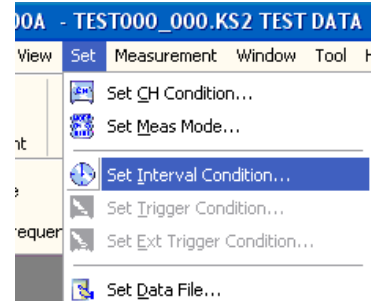
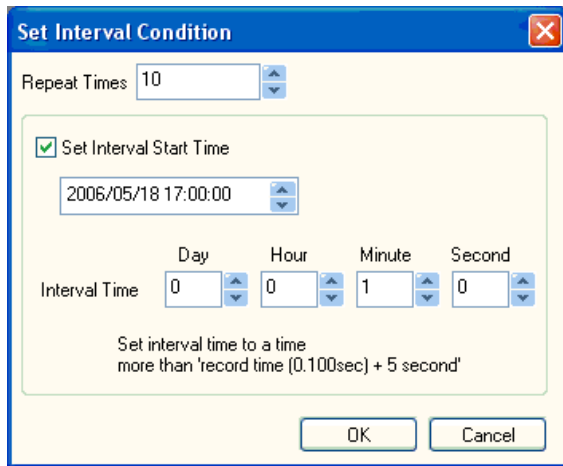


7-2-1 Setting Interval Measurement Conditions

Set various conditions for interval measurement such as repeat times, start time, interval time.

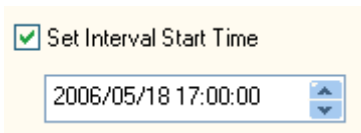
Open the **Set Interval Condition** screen by the following.

- Point to **Set** on the menu bar and select **Set Interval Condition** menu.
- Select **Interval** icon from the toolbar.



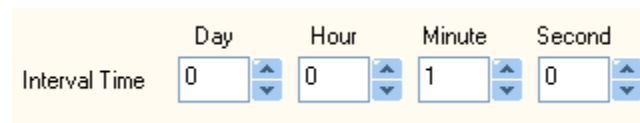
■ Operation Method

- (1) Select the **Repeat Times**. Setting range is from 1 to 999.
- (2) To set the interval start date and time, put a check mark in the **Set Interval Start Time** box and set the date.



- (3) Set the interval time.

Directly input or set the interval time by pressing the spin buttons.



NOTE

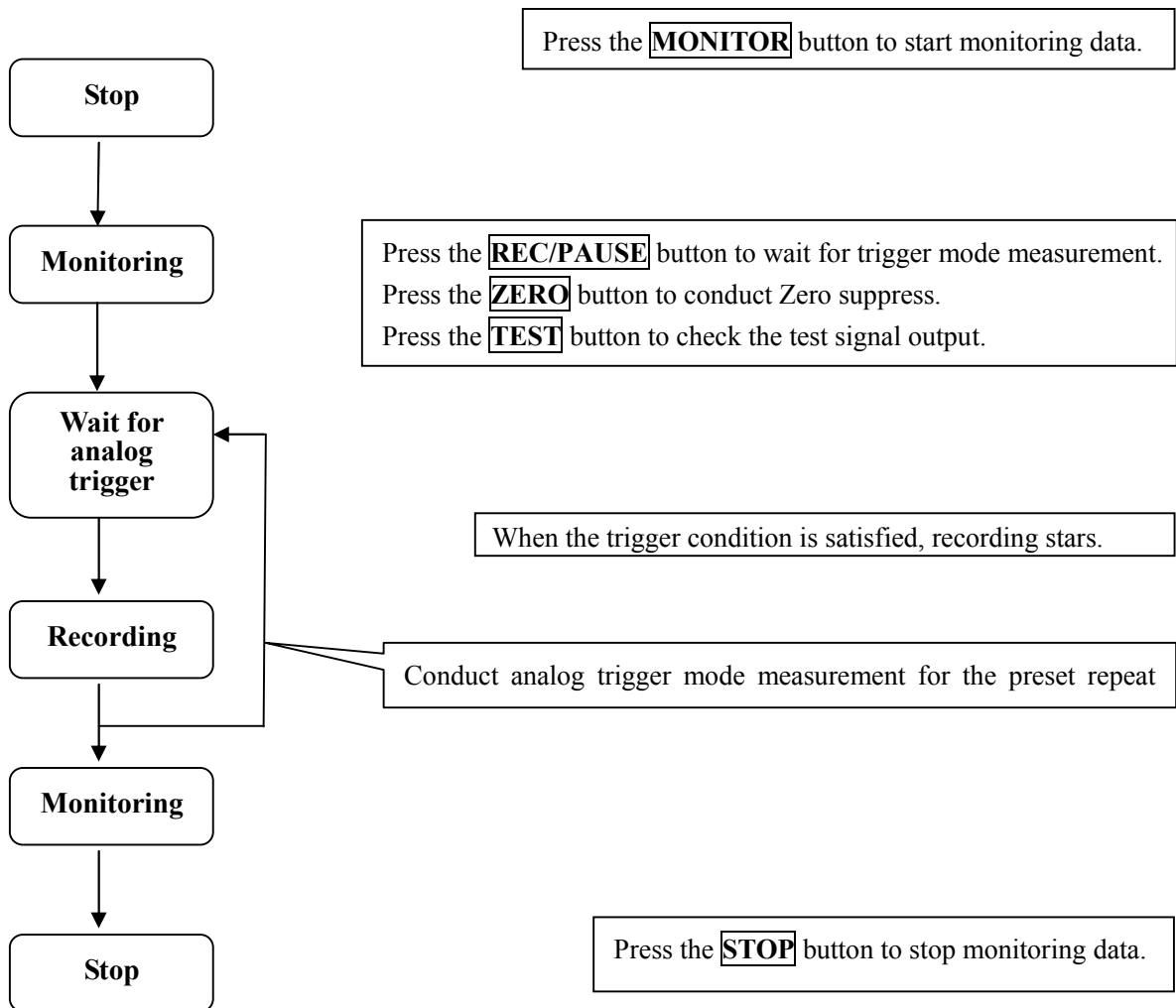
- Set the interval time to a time 'Recording time + 5 sec or more.'
- If no interval start time is set, the date when the **REC/START** button pressed shall be the start time.
- If the **REC/PAUSE** button is pressed after passing the interval start time, interval time and repeat times are automatically calculated from the current time and if the repeat times is left, the interval measurement is continued.
If the interval measurement is already terminated, the message notifying the current state appears.

- (4) Press the **OK** button to determine the set conditions.

7-3 ANALOG TRIGGER MEASUREMENT

This section describes the measurement flow when Meas mode is set to Analog Trigger mode.

The Analog trigger mode measurement automatically starts recording data when measured value of the analog CH satisfies the trigger conditions and records data for the preset number of repeat times (recording time). After finishing the analog trigger measurement, the EDS becomes in monitoring state.

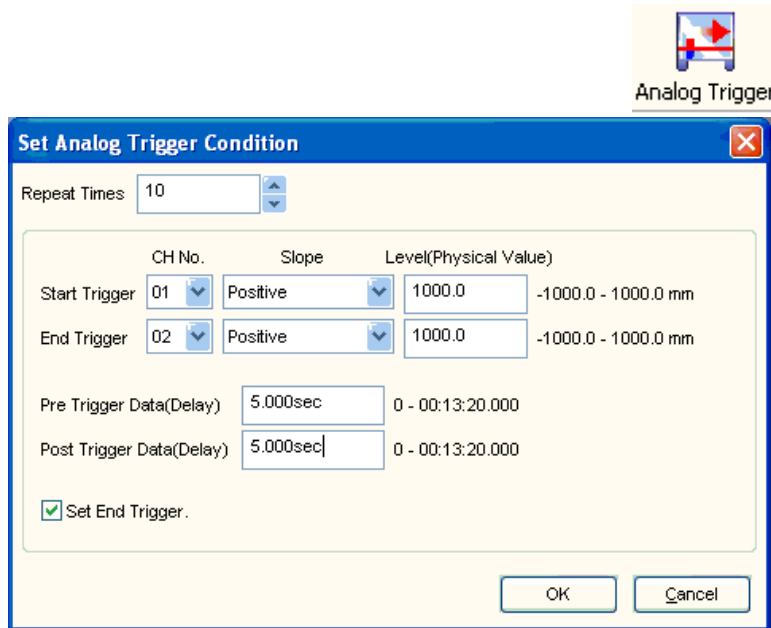
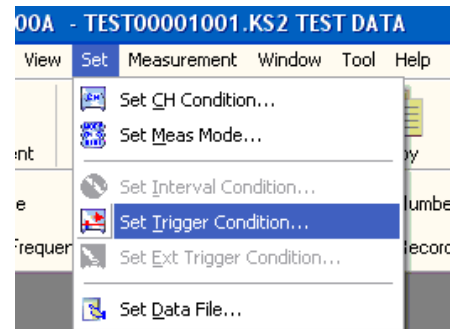


7-3-1 Setting Analog Trigger Measurement Conditions

Set various conditions for analog trigger mode measurement such as repeat times, trigger conditions, etc.

Open the **Set Analog Trigger Condition** screen by either of the following.

- Point to **Set** and select **Set Trigger Condition** menu.
- Select **Analog Trigger** icon from the toolbar.



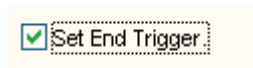
■ Operation Method

- (1) Set the **Repeat Times**. Setting range is from 1 to 999.

Directly input or set the repeat times by pressing the spin buttons.

- (2) To set the end trigger, put a check mark in the **Set End Trigger** box.

The **End Trigger** is enabled when the save destination is set to **PC Hard Disk**.



- (3) Select trigger channel Nos. that starts and ends recording data from the list box.
- (4) Set **Slope**. Set how to cross the data on the slope for the trigger level.

Select the relevant item from the list box.

For details, see “7-3-2 Trigger Slope.”

■ Selection

Positive
Negative
Positive/Negative

- (5) Input **Level**. The level value is a measured value to be triggered.
Input an engineering value within a value relevant to engineering value of the setting range (Setting range × CAL coefficient + Offset).
- (6) To record the Pre-data before recording, input **Prev Trigger data Delay** with time. (Unit: sec)
To record Post data after recording, input **Post Trigger Data Delay** with time. (Unit: sec)
- (7) Press the **OK** button to determine the set conditions.

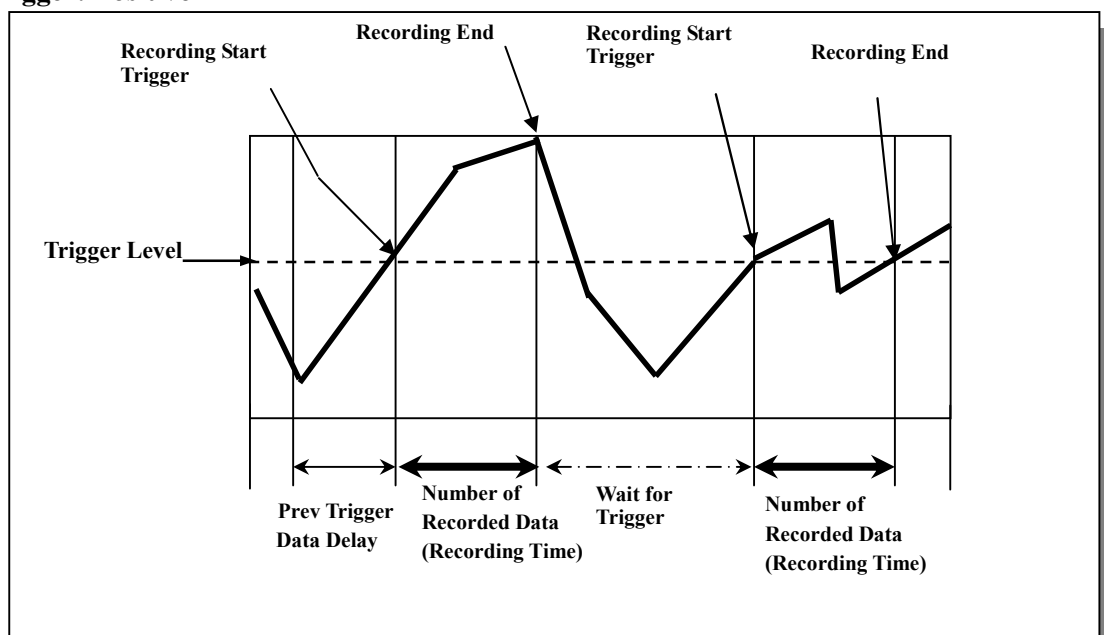
7-3-2 Trigger Slope

In analog trigger mode measurement, data recording starts from the following position according to Trigger Slope and Trigger Level and records data for the preset number of times.

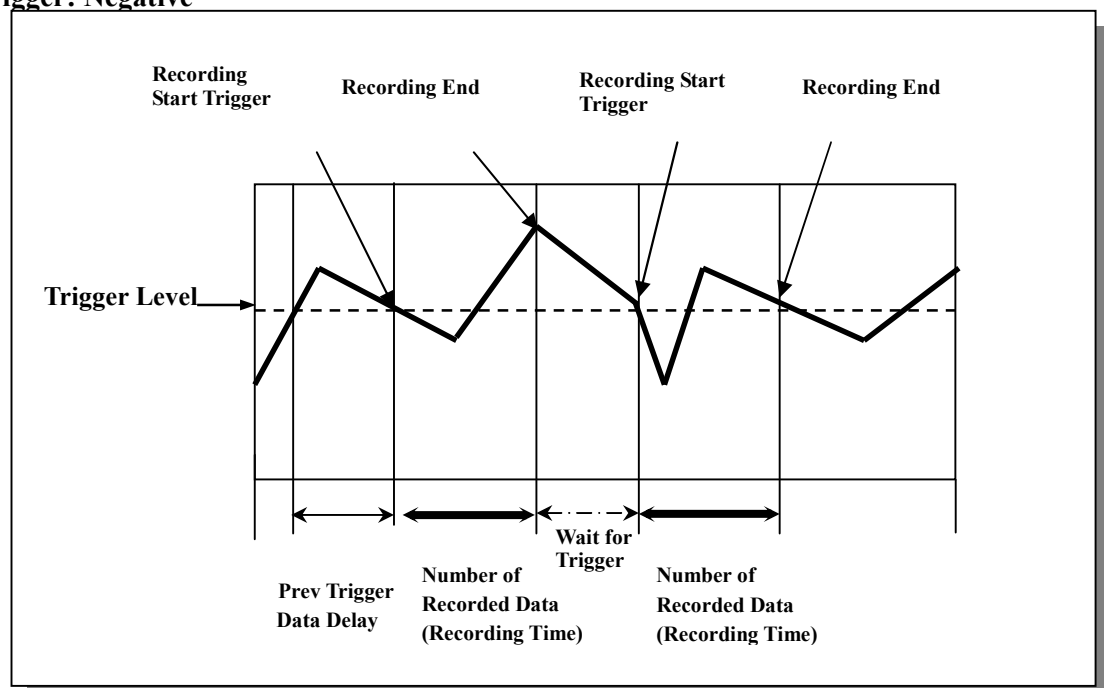
Trigger slope are classified into the following 3 types.

Positive	Triggered when the measured value of the trigger CH crosses the trigger level upward.
Negative	Triggered when the measured value of the trigger CH crosses the trigger level downward.
Positive/Negative	Triggered when the measured value is positive/negative.

■ Start Trigger: Positive

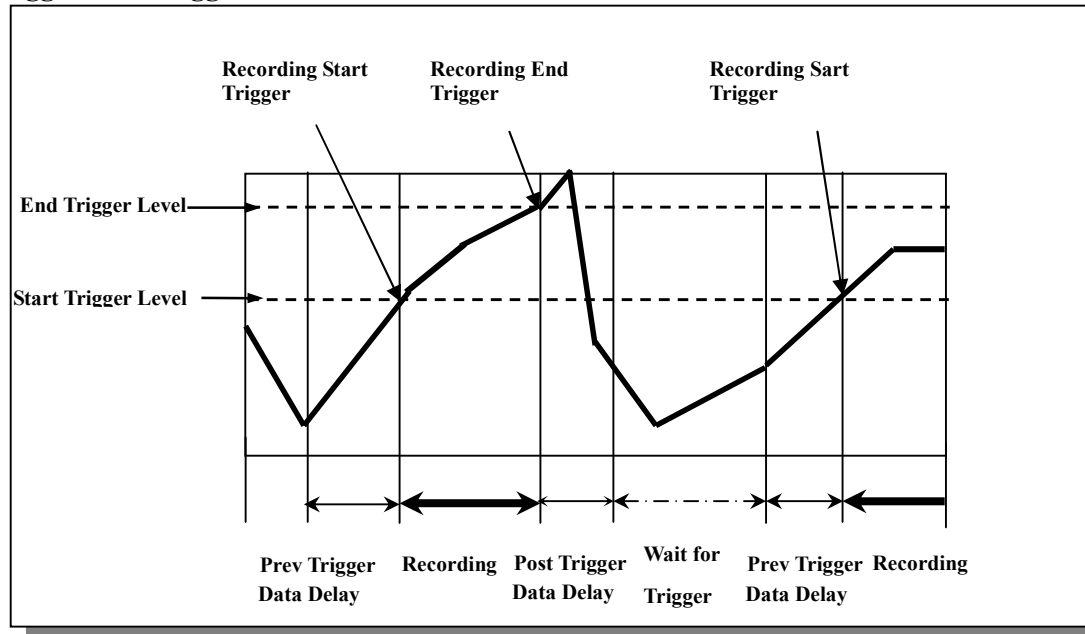


■ End Trigger: Negative

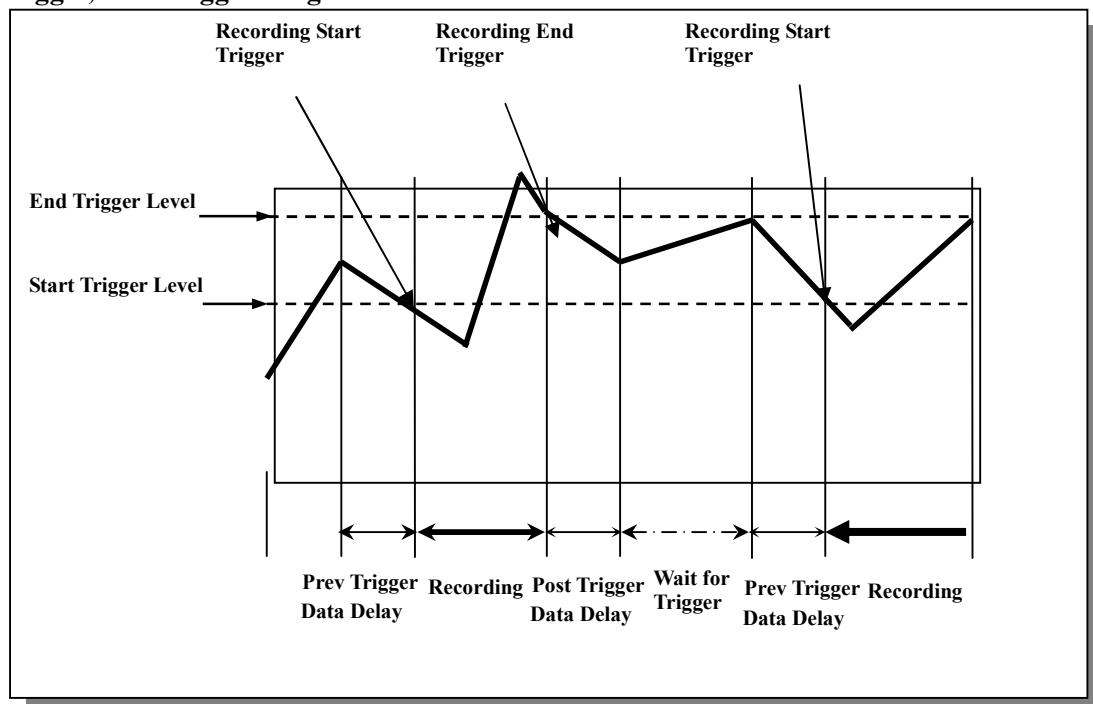


Example of trigger slope with end trigger. The end trigger is enabled when data saving destination is set to **PC Hard Disk**.

■ Start Trigger, End Trigger: Positive



■ Start Trigger, End Trigger: Negative

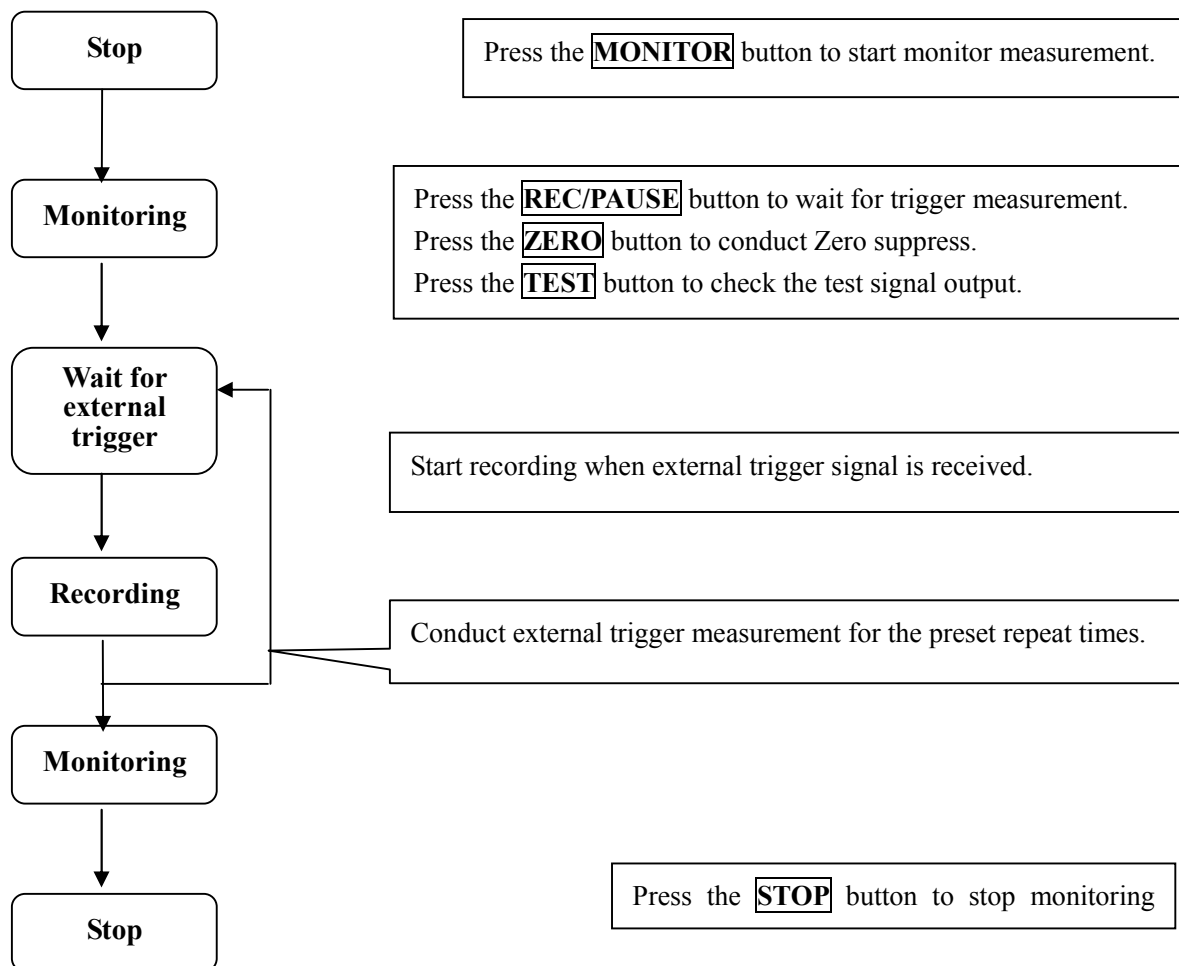


7-4 EXTERNAL TRIGGER MEASUREMENT

This section describes a measurement flow when Meas mode is set to External Trigger.

The external trigger mode measurement starts recording data when external trigger signal is received as trigger conditions. For how to connect the external trigger signal, see EDS-400A Instruction Manual for Hardware.

The external trigger measurement is enabled when data saving destination is set to EDS-400A CF card.

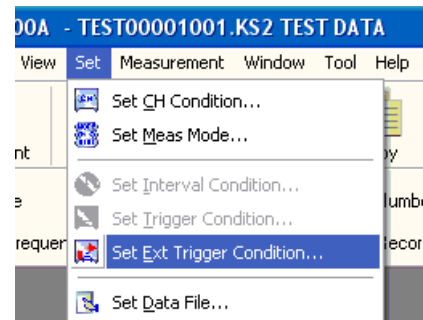
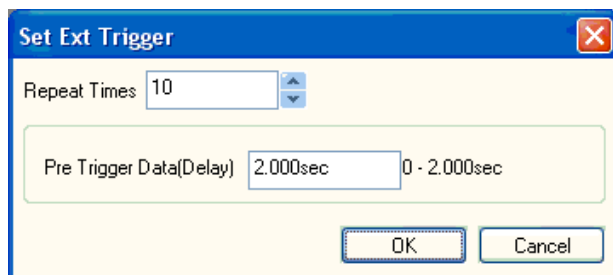


7-4-1 Setting External Trigger Condition

Set various conditions for external trigger mode measurement such as repeat times and delay.

Open the **Set Ext Trigger Condition** screen by either of the following.

- Point to **Set** and select **Set Ext Trigger Condition** menu.
- Select **Ext Trigger** icon from the toolbar.



■ Operation Method

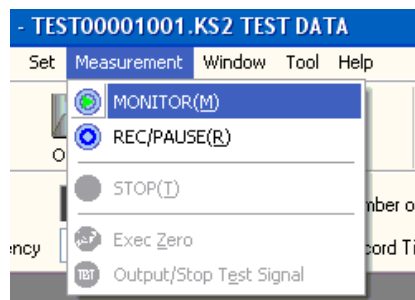
- (1) Set the **Repeat Times** on the **Set Ext Trigger** screen. Setting range is from 1 to 999.
Directly input or set the repeat times by pressing the spin buttons.
- (2) To record data before triggered, input a recording time (sec) on the **Prev Trigger Data (Delay)** box on the **Set Ext Trigger** screen.
- (3) Press the **OK** button to determine the set condition.

7-5 EXECUTING MEASUREMENT

While conducting monitor measurement, measured data is recorded according to the preset Meas mode conditions.

Conduct measurement related operations by any of the following.

- Select desired menu from the **Measurement** menu.
- Select desired icon from the toolbar.



- Operate the DCS-100A from the “Meas Operation Panel.”

If the “Meas Operation Panel” is not displayed, point to **View** and select **Meas Operation Panel** menu.

■ Meas Operation Panel



(1) Display stateDisplays the measurement state.

Stop	Measurement stop
Monitoring	In the process of monitor measurement
Recording	Recording data
Stopping record	Pausing recording with the PAUSE button pressed.
Wait for Intvl	Interval measurement condition is not satisfied
Wait for Anlg Trg	Analog trigger measurement condition is not satisfied.
Wait for Ext Trg	External trigger measurement condition is not satisfied.

(2) **✕** buttonCloses the Meas Operation Panel.

(3) **MONITOR** buttonStarts monitor measurement.

(4) **REC/PAUSE** buttonStarts recording data. (Enabled when the data saving destination is set to PC Hard Disk.

(5) **STOP** buttonStops recording/monitoring data.

(6) **ZERO** buttonConducts Zero suppress and displays the results.

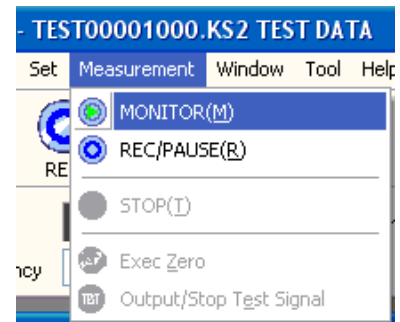
(7) **TEST** buttonOutputs/stops the test signal.

7-5-1 Manual Mode Measurement

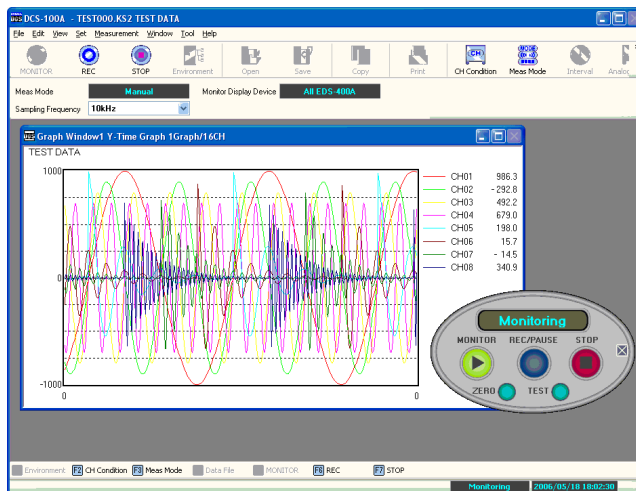
■ Operation Method

(1) Starts monitor mode measurement by any of the following.

- Point to **Measurement** on the menu bar and select **MONITOR** menu.
- Select **MONITOR** icon from the toolbar.

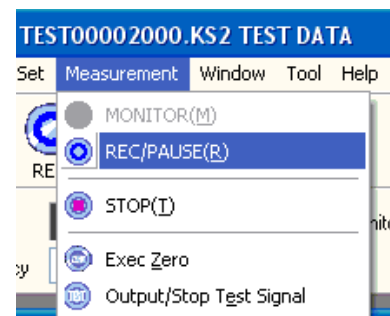


- Press the **MONITOR** button on the Meas Operation Panel.



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

- Point to **Measurement** and select **REC/PAUSE** menu.
- Select REC icon from the toolbar.



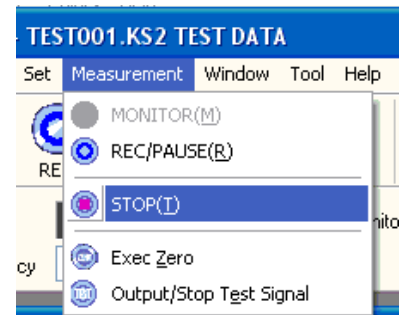
- Press the **REC/PAUSE** button on the Meas Operation Panel.



- Press the **REC/PAUSE** button once again to stop recording and becomes in monitoring state. (The **PAUSE** button is enabled when the data save destination is set to **PC Hard Disk**.)
- Select the **REC/PAUSE** button to re-start the data recording.

(3) Ends recording data by any of the following.

- Point to **Measurement** and select **STOP** menu.
- Select the **STOP** icon from the toolbar.
- Press the **STOP** button on the Meas Operation Panel.



When the Meas mode is set to **Manual (Set the number of recorded data)**, after satisfying the recording conditions, the DCS-100A automatically ends data recording.

(4) Ends monitoring data by any of the following.

- Point to **Measurement** and select **STOP** menu.
- Select the **STOP** icon from the toolbar.
- Press the **STOP** button on the Meas Operation Panel.

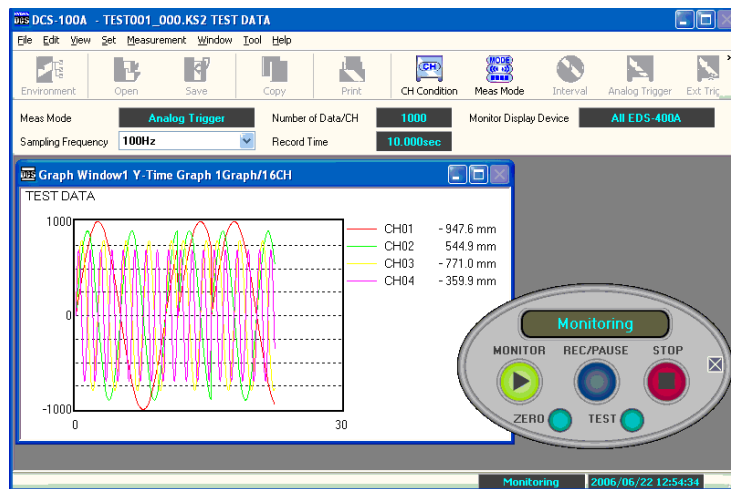
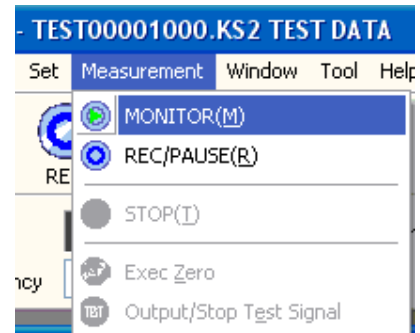
7-5-2 Interval/Analog Trigger/ External Trigger Measurement

(1) Starts monitor mode measurement by any of the following.

- Point to **Measurement** and select **MONITOR** menu.
- Select **MONITOR** icon from the toolbar.



- Press the **MONITOR** button on the Meas Operation Panel.

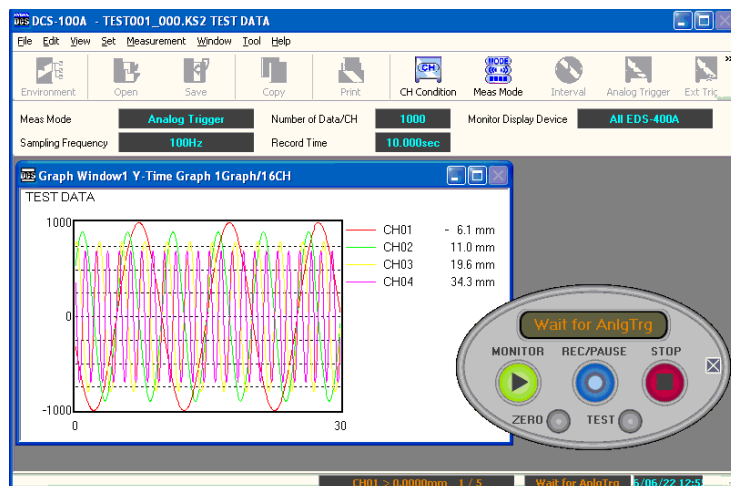
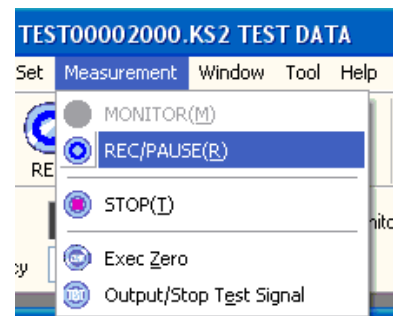


(2) Obtain a state for waiting for various conditions by either of the following.

- Point to **Measurement** and select **REC** menu.
- Select the **REC** icon from the toolbar.



- Press the **REC** button on the Meas Operation Panel.



<Interval mode measurement>

On the status bar, interval measurement start date, measurement repeat times, and measurement state are displayed



<Analog trigger mode measurement>

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

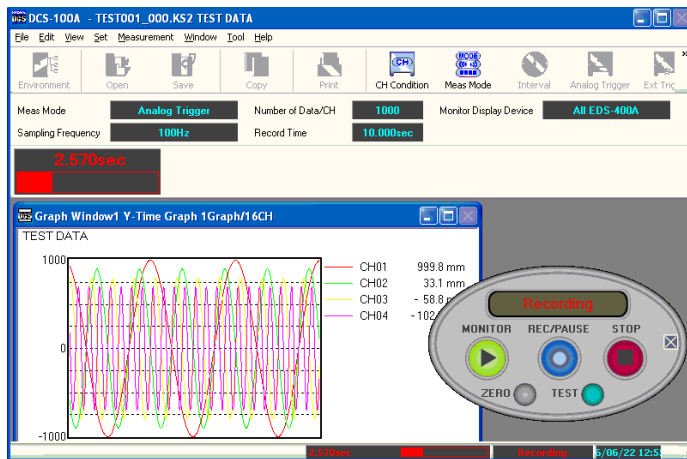


<External trigger mode measurement>

On the status bar, external trigger signal, measurement repeat times and measurement state is displayed



(3) After satisfying various conditions, data recording is started.



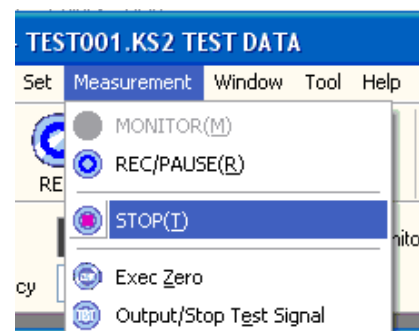
On the status bar, recording progress is displayed.



(4) After conducting the measurement for the preset repeat times, the DCS-100A becomes in monitoring state.

(5) Lastly, end the monitoring by any of the following.

- Point to **Measurement** and select **STOP** menu.
- Select the **STOP** icon from the toolbar.



- Press the **STOP** button on the Meas Operation Panel.

7-6 EXECUTING ZERO SUPPRESS

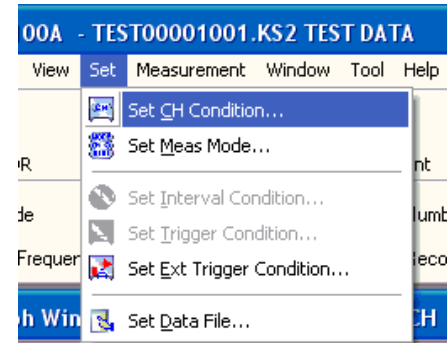
Conduct zero suppress while monitoring data. Zero suppress is a function that balances zero value for strain input and for voltage input, the zero suppress shifts the entered voltage to 0 V. However, this function is disabled when recording data.

■ Operation Method

(1) Set target CH for activating the zero suppress function.

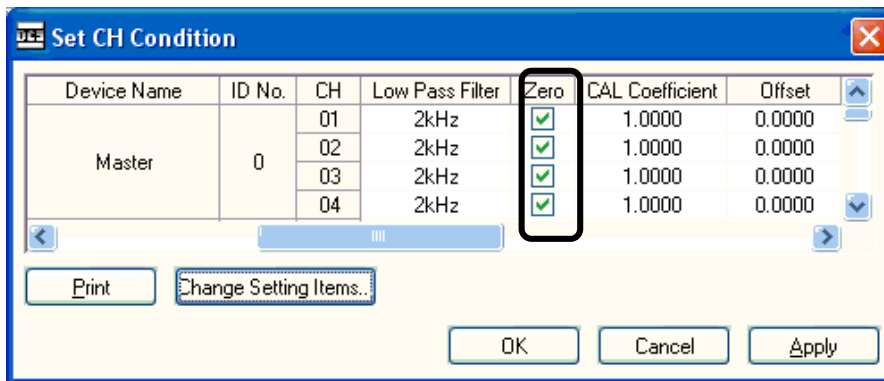
Open the Set CH Condition screen by either of the following.

- Point to **Measurement** and select **Set CH Condition** menu.
- Select **CH Condition** icon from the toolbar.



Put a check mark in the **Zero** box of the target CH.

For how to set the CH condition, see “4. SETTING CH CONDITION.”



(2) Start monitoring data.

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

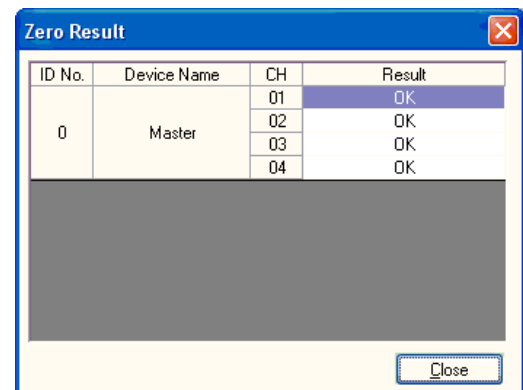
(3) Execute the zero suppress.

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

(4) The following zero suppress results are displayed.

Press the **OK** button to close the **Zero Result** screen and to re-start monitoring data.

OK	Normal
NG	Faulty
OFF	Not targeted

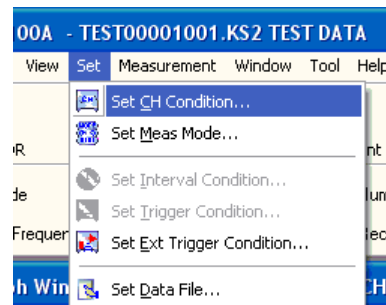


7-7 OUTPUTTING TEST SIGNAL

Test signal of 'Measuring range + 50%' is outputted during the measurement.

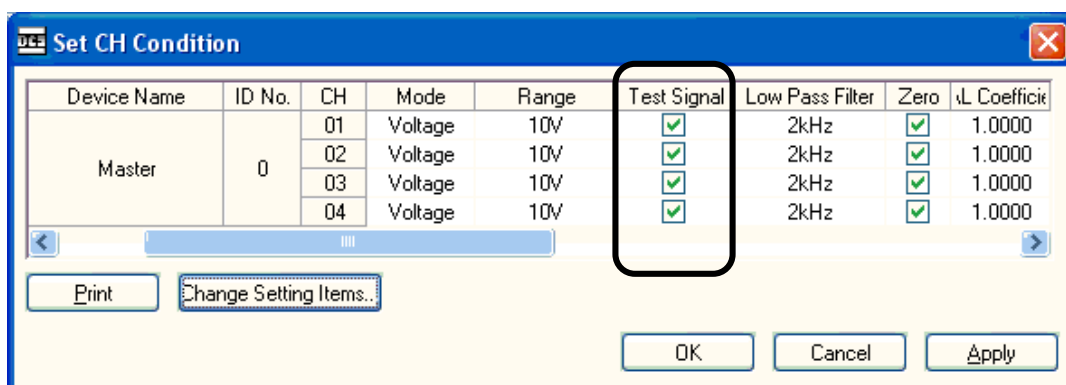
■ Operation Method

- (1) Set target CH for outputting test signal.
- (2) Open the **Set CH Condition** screen by either of the following.
 - Point to **Set** on the menu bar and select **Set CH Condition** menu.
 - Select **CH Condition** icon from the toolbar.



Put a check mark in the **Test Signal** box of the target CH.

For how to set the CH condition, see "4 SETTING CH CONDITION."



- (2) Start monitoring data.
Click the **MONITOR** button on the Meas Operation Panel.
- (3) Output the test signal
Click the **TEST** button on the Meas Operation Panel.

Signal output state is displayed on the status bar.



- (4) Stop the test signal.
Click the **TEST** button on the Meas Operation Panel to stop outputting the test signal.

MEMO

Switching ON/OFF of the test signal is allowed during recording data.

7-8 COLLECTING DATA FILE

This section describes how to collect a data files saved in the EDS CF card.

The data file is collected from EDS CF card and from PC CF card drive.

For collecting the data file from the PC CF card drive, see 8-2COLLECTING DATA FROM PC CONNECTED CF CARD.”

In addition, on the **Environment** screen, if **After the measurement, data is automatically collect from the EDS-400A** box is checked, since data is automatically collected to the save destination folder, the following operations are not required.

7-8-1 Selecting Data File

When selecting the desired data file, a common operation is provided as to put a check mark in the target file box.

■ Selecting 1 file

- Select and click the check box of the target file **Name**.

Name	
☐	TEST00001000.KS2
☐	TEST00002000.KS2
☐	TEST00003000.KS2
☐	TEST00004000.KS2
☐	TEST00005000.KS2

- Right-click the target file and select **Check** from the pop-up menu.

	Name	Size
☐	TEST00001000.KS2	196990 byte
☐	TEST00002000.KS2	259222 byte
☐	TEST00003000.KS2	204950 byte
☐	TEST00004000.KS2	143646 byte
☐	TEST00005000.KS2	146606 byte

■ Selecting All files

- Click any of the characters among **Name**, **Size**, and **Date & Time** to invert all the files. Select **Check** from the pop-up menu.

Collect EDS-400A CF card data file		
	Name	Size
☐	TEST00001000.KS2	196990 byte
☐	TEST00002000.KS2	259222 byte
☐	TEST00003000.KS2	204950 byte
☐	TEST00004000.KS2	143646 byte
☐	TEST00005000.KS2	146606 byte

- Press the **Select All** button. Then, all the file are checked.

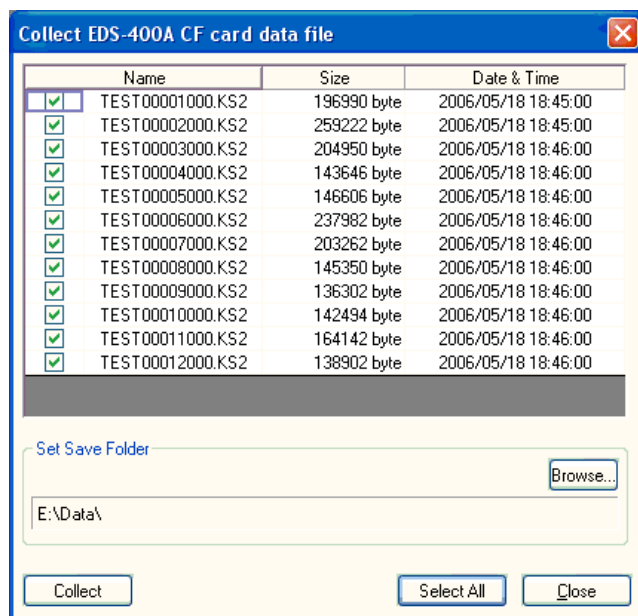
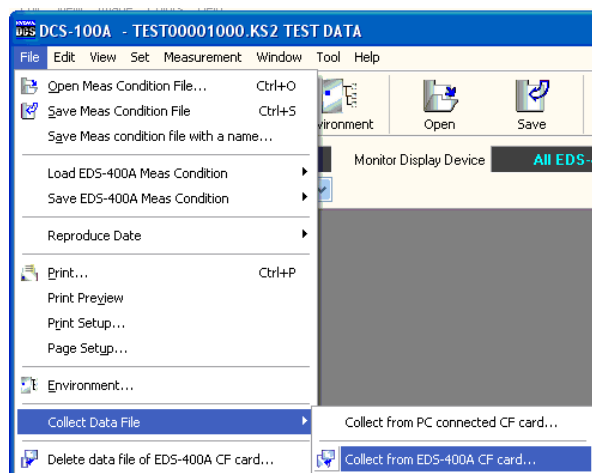
Collect EDS-400A CF card data file		
	Name	Size
☒	TEST00001000.KS2	196990 byte
☒	TEST00002000.KS2	259222 byte
☒	TEST00003000.KS2	204950 byte
☒	TEST00004000.KS2	143646 byte
☒	TEST00005000.KS2	146606 byte
☒	TEST00006000.KS2	237982 byte
☒	TEST00007000.KS2	203262 byte
☒	TEST00008000.KS2	145350 byte
☒	TEST00009000.KS2	136302 byte
☒	TEST00010000.KS2	142494 byte
☒	TEST00011000.KS2	164142 byte
☒	TEST00012000.KS2	138902 byte

7-8-2 Collecting Data from EDS-400A CF CARD

Method of collecting data from the EDS CF card is described.

When data is recorded by connecting multiple EDS units, data is combined and collected into 1 data file.

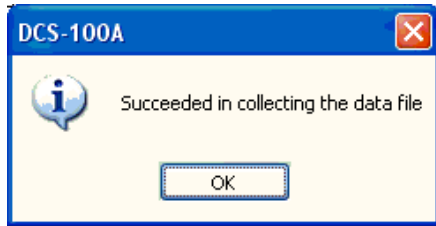
Point to **File** on the menu bar and select menus in due order from **Collect Data File** and **Collect from EDS-400A CF Card**.



- (1) NameData file name
Put a check mark in the target file box for collecting data.
- (2) SizeData file size
- (3) Date & TimeDate and time of the data file
- (4) Set Save FolderSet save folder destination for saving collected data file
- (5) **Collect** buttonCollect check marked CF card data file to PC save destination folder.
- (6) **Select All** buttonChecks all data files in the CF card to be collect target files.
- (7) **Close** buttonCloses the Collect Data File screen.

■ Operation Method

- (1) Put a check mark on the data collecting target file. Press the data file folder with the **Browse** button, and press the **Collect** button. For how to put a check mark, see “7-8-1 Selecting Data File.”
- (2) After collecting data, the following message appears. Press the **OK** button to close the message.



- (3) Press the **Close** button to close the **Collect Meas Data** screen of the EDS CF card.

8. OFFLINE MEASUREMENT

8-1 SAVING & LOADING MEAS CONDITION

8-1-1 Saving Data in PC Connected CF Card

The current Meas conditions are saved into the PC connected CF card as EDS dedicated Meas conditions file. For offline mode measurement, the following steps are required.

Insert the EDS CF card into the card slot and set the required Meas conditions.

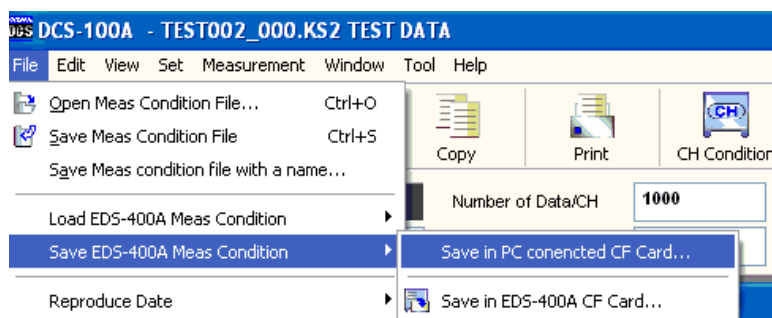
The file name shall be 'Condition.ks2.'

In addition, if the measurement is conducted with the same conditions, the same Meas conditions can be set at a time by loading the file the next time.

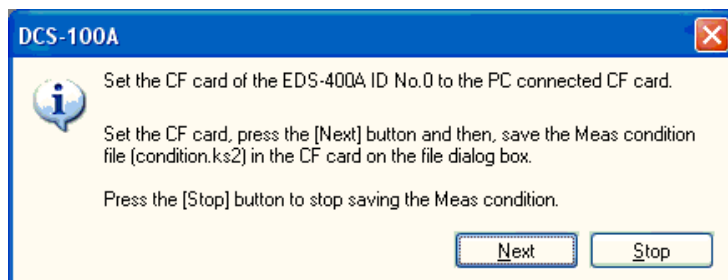
The above Meas conditions include CH condition, Meas condition, and data file condition.

■ Operation Method

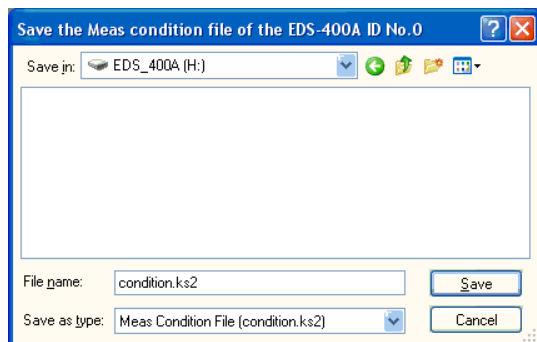
- (1) Point to **File** on the menu bar and select menus in due order from **Save EDS-400A Meas Condition** and **PC Connected CF Card**.



- (2) The following message appears. Set the CF card into the PC's CF card drive and press the **Next** button.



- (3) The following **Save the Meas Condition file** dialog box appears. Select the PC's CF card drive and press the **OK** button to save the data. When connecting multiple EDS units, conduct procedures from item (2) for every connected EDS.



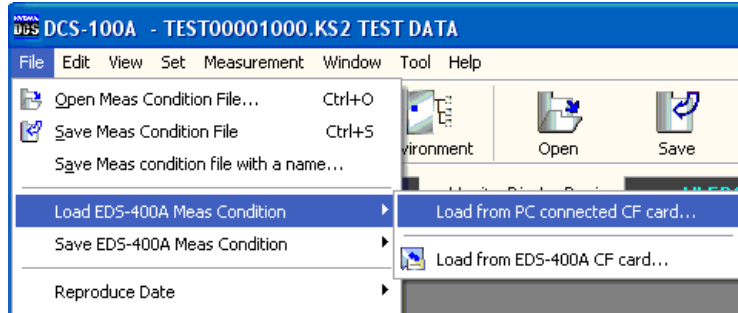
- (4) Input the CF card with Meas condition file to EDS card slot and set Meas conditions. For details, see EDS-400A Instruction Manual for Hardware

8-1-2 Loading Meas Condition File from PC Connected CF Card

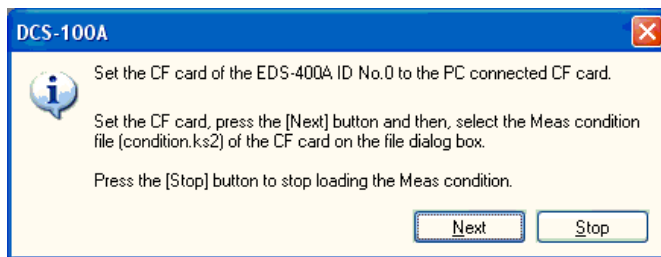
Meas condition file is loaded from the PC CF card drive.

■ Operation Method

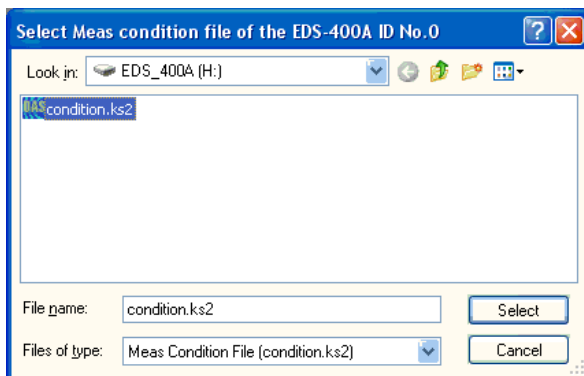
- (1) Point to **File** on the menu bar and select menus in due order from **Load EDS-400A Meas Condition** and **Load From PC Connected CF Card**.



- (2) Set the CF card to the PC CF card drive and press the **Next** button.

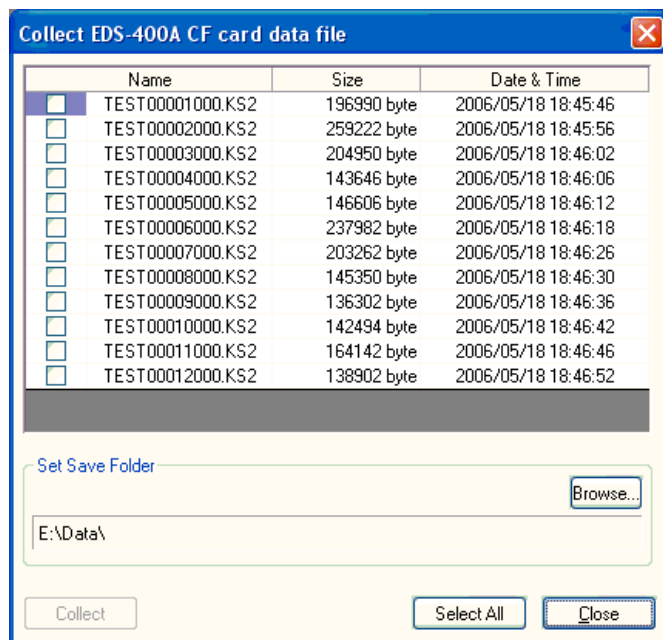


- (3) Selection dialog is displayed on the **Select Meas Condition File** screen. Select '**condition.ks2**' and press the **Select** button to load the Meas condition file.



8-2 COLLECTING DATA FROM PC CONNECTED CF CARD

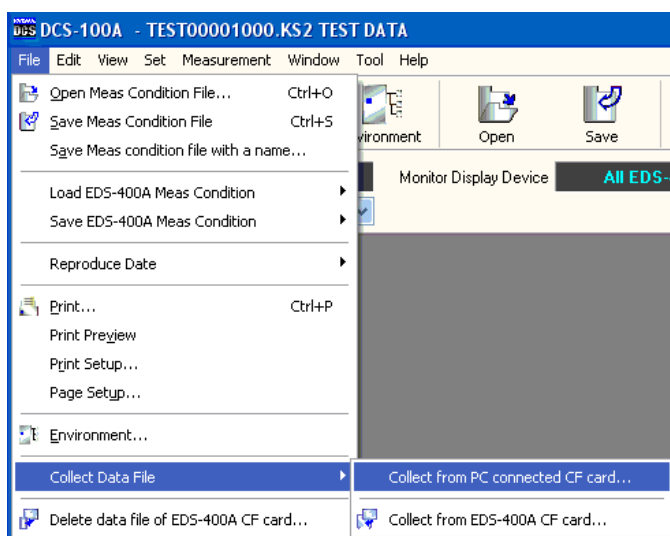
Data is collected from the PC connected CF card.



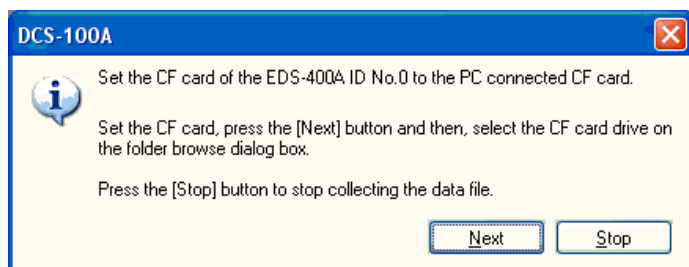
- (1) NameData file name
Put a check mark in the target file box for collecting data.
- (2) SizeData file size
- (3) Date & TimeDate and time of the data file
- (4) Set Save FolderSet save folder destination for saving collected data file
- (5) **Collect** buttonCollect check marked CF card data file to PC save destination folder.
- (6) **Select All** buttonChecks all data files in the CF card to be collect target files.
- (7) **Close** buttonClose the Collect Data File screen.

■ Operation Method

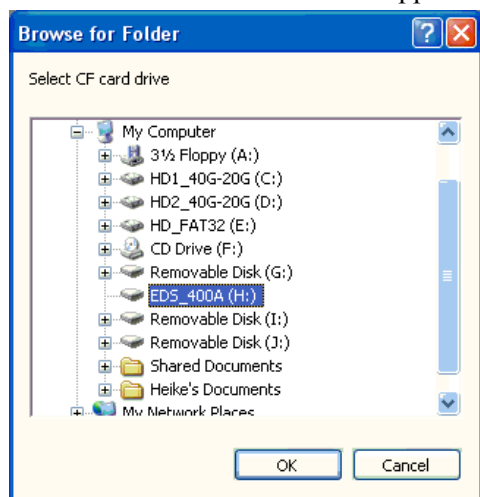
- (1) Point to **File** and select menus in due order from **Collect Data File**, and **Collect from PC Connected CF Card**.



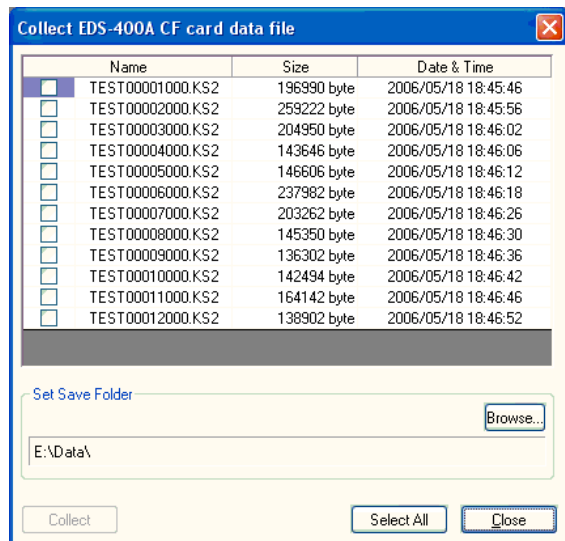
- (2) Set the CF card into the PC's CF card drive and press the **Next** button.



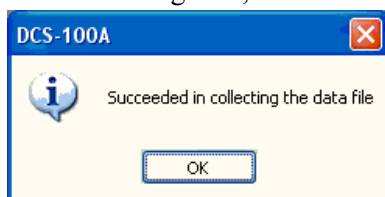
- (3) The **Browse for Folder** screen appears. Select the desired CF card drive and press the **OK** button.



- (4) **Collect EDS-400A CF Card data file** screen appears.



- (5) Put a check mark in the target file box, click the **Browse** button and set a save folder of the data file, and press the **Collect** button. For how to put a check mark, see “7-8-1 Selecting Data File.”
- (6) After collecting data, the following message appears. Press the **OK** button to close the message.



8-3 SUPPLEMENTARY EXPLANATION FOR SETTING MEAS CONDITION OF OFFLINE MEASUREMENT

To carry out stand-alone off line measurement by the EDS, it is required to set various Meas conditions such as CH condition, Meas mode, data file name, etc. to the EDS from the DCS-100A.

There are 2 ways to set Meas conditions. One is to set the Meas conditions in the CF card that is loaded in the EDS via LAN interface. The other is, by saving Meas conditions into a CF card media itself that is loaded in the PC removable disk. And then, loading the CF card with the Meas Conditions to the EDS.

Here, supplementary explanation shall be made on setting and measurement using the CF card media itself.
(Network setting of LAN interface is not required.)

- (1) On the Environment menu, set multiple connected EDS units. See “3-1 SETTING CONNECTED DEVICE CONFIGURATION.”

In addition, select **EDS-400A CF Card** from item **Set Record** on the **Environment** screen.

- (2) Set data file name on the **Set Data File** screen. See “6. SETTING DATA FILE.”
- (3) Set various CH conditions including Meas mode, etc. as same as conditions set for online measurement.
Save Meas condition to PC loaded CF card.
See “8-1-1 Saving Data in PC Connected CF Card.”
- (4) Extract the CF card, load it to the EDS to set the Meas conditions.
- (5) Stand-alone offline measurement is carried out solely by the EDS and the recording data file is saved into the CF card.
- (6) Extract the EDS CF card and load it into the PC card slot.
- (7) For how to collect data, see “8-2 COLLECTING DATA FROM PC CONNECTED CF CARD.”

In addition, for method of setting Meas conditions through LAN interface, see “9-3-1 Saving Data in EDS-400A CF Card.”

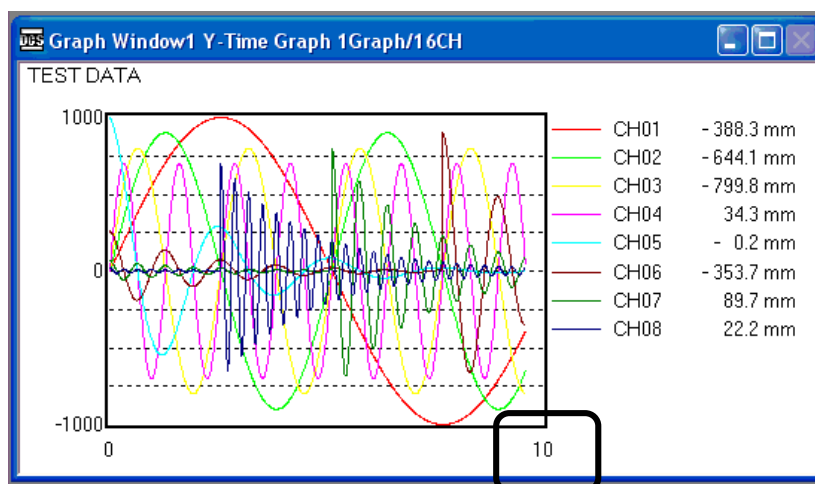
9. OTHERS

9-1 SETTING SCALE VALUE

When displaying a Y-Time graph screen, the maximum value of the X axis varies with sampling frequency. For sampling frequency of more than 20 kHz, a maximum of 5000 data can be displayed and for less than 20 kHz, up to 50000 data.

In addition, for how to set the scale value, see a separate volume of DCS-100A DYNAMIC DATA RECORDING SOFTWARE INSTRUCTION MANUAL (For Common Operation).

Sampling Frequency	Set Value (sec)
100 kHz	0.05
50 kHz	0.1
20 kHz	0.25
10 kHz	5
5 kHz	10
2 kHz	25
1 kHz	50
•	•
•	•
•	•
5 Hz	10000
2 Hz	25000
1 Hz	50000



9-2 SAVING AND LOADING MEAS CONDITION FILE

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

9-2-1 Saving Meas Condition File with a Name

The current Meas condition is saved into the PC as a DCS-100A dedicated Meas condition file.

Extension of the Meas condition file shall be 'E4H.'

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

The Meas conditions include currently monitoring graph display condition besides CH condition, Meas condition, and data file condition.

NOTE

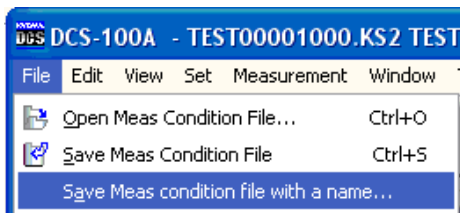
This Meas condition file is dedicated for the DCS-100A.

Save the Meas conditions of offline mode measurement by EDS dedicated Save Meas condition menu.

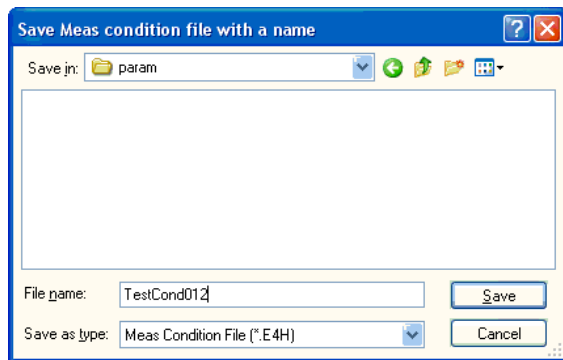
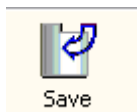
■ Operation Method

Open the **Save Meas Condition File with a name** screen by either of the following.

- Point to **File** on the menu bar and select **Save Meas condition file with a name** menu.



- Select the **Save** icon from the toolbar.



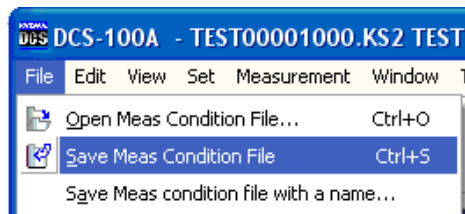
Select the (save folder destination), input a file name and press the **Save** button.

9-2-2 Saving Meas Condition File

The current Meas condition is saved to the DCS-100A dedicated Meas condition file (Extension: E4H).

■ Operation Method

- Point to **File** on the menu bar and select **Save Meas Condition File** menu.



If the current Meas condition is not yet saved, the **Save Meas Condition file with a name** screen appears.
See “9-2-1 Saving Meas Condition File with a Name.”

9-2-3 Opening Meas Condition File

Previously saved DCS-100A dedicated Meas condition file (Extension: E4H) is loaded.

■ Operation Method

The Meas Condition File screen is opened by the following 3 method.

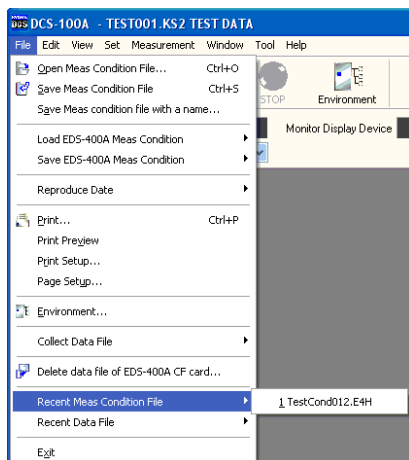
- Point to **File** on the menu bar and select **Open Meas Condition File** menu.



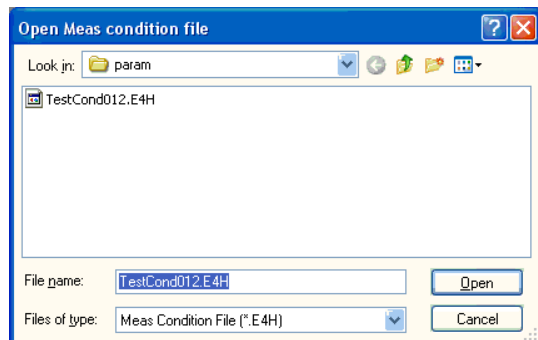
- Click the **Open** icon from the toolbar.



- If the desired file is a recent file, point to **File** and select from **Recent Meas Condition File** menu.



Next, select the file name and press the **Open** button.



9-3 SAVING & LOADING MEAS CONDITIONS OF ONLINE MEASUREMENT

9-3-1 Saving Data in EDS-400A CF Card

The current Meas conditions are saved as EDS dedicated Meas condition file into the EDS CF card.
The file name shall be 'Condition.ks2.'

It is a Meas condition file for carrying out offline measurement by the EDS.

The Meas conditions include CH condition, Meas condition, and data file condition.

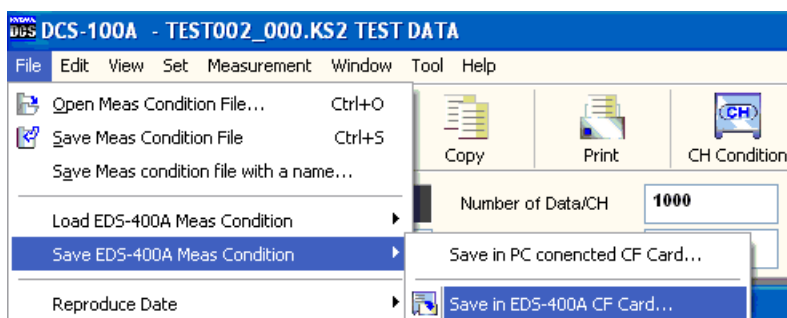
NOTE

This Meas condition file is dedicated for the EDS.

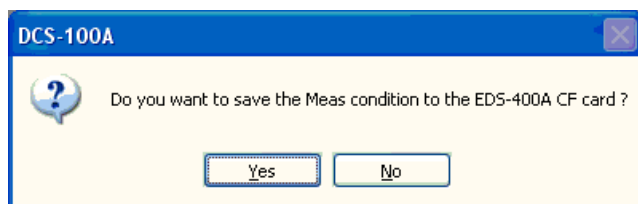
Therefore, if any Meas conditions not conforming to EDS specifications are set, they are automatically saved as manually set conditions. To carry out the offline mode measurement, see "9-2-1 Saving Meas Condition File with a Name" and save the Meas Condition file.

■ Operation Method

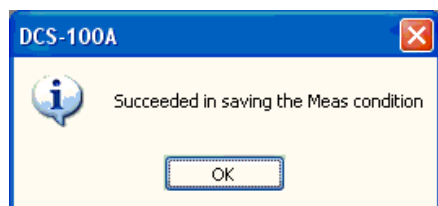
- (1) Point to **File** and select menus in due order from **Save EDS-400A Meas Condition** and **EDS-400A CF Card**.



- (2) Set the CF card in the EDS and press the **Yes** button to conduct the save operation.



- (3) The following message appears. Press the **OK** button.

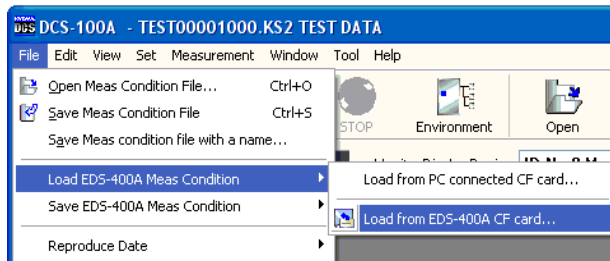


9-3-2 Loading from EDS CF Card

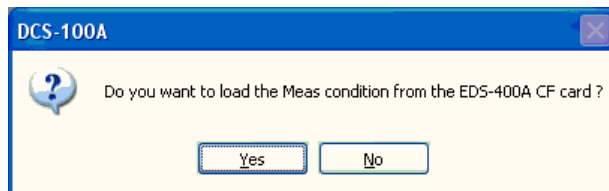
Meas condition file is loaded from the EDS CF card.

■ Operation Method

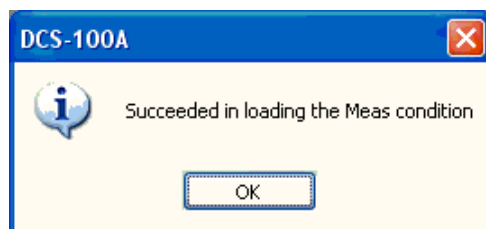
- (1) Point to **File** on the menu bar and select menus in due order from **Load EDS-400A Meas Condition** and **Load from EDS-400A CF Card**.



- (2) Set the CF card in the EDS and press the **Yes** button.



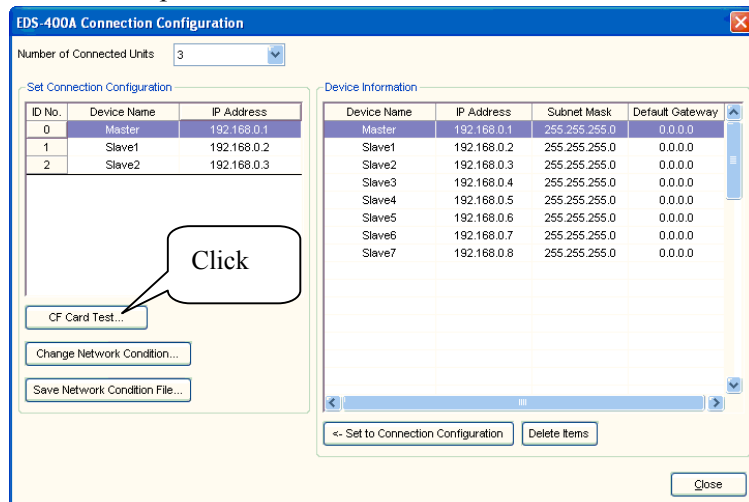
- (3) When loading the Meas condition file is terminated, the loaded result message appears. Press the **OK** button to close the message screen.



9-4 TESTING CF CARD

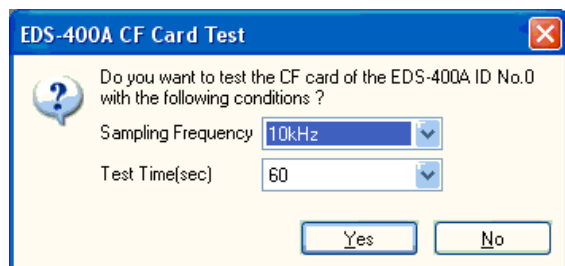
CF card test is carried out for the CF card loaded in the selected EDS.

In the test, a pseudo data file is created with the same conditions for testing the CF card.

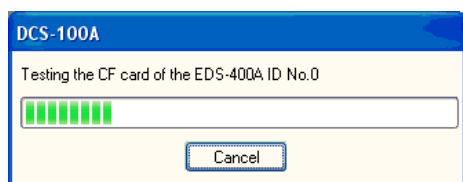


■ Operation Method

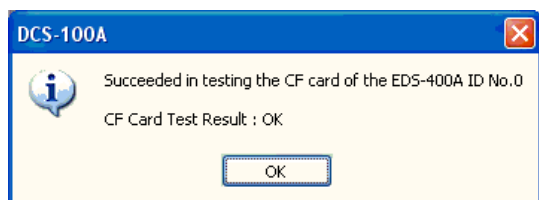
- (1) Point to **File** on the menu bar and select **Environment** menu. Click **Set Connection Configuration** button. Select and click the test target device on the **Set Connection Configuration** screen.
- (2) Press the **CF Card Test** button.
- (3) Select the desired **Sampling Frequency** and **Test Time** and then, press the **Yes** button.



- (4) A progress bar is displayed.



- (5) The test result message appears. If it is OK, then the CF card is normal.



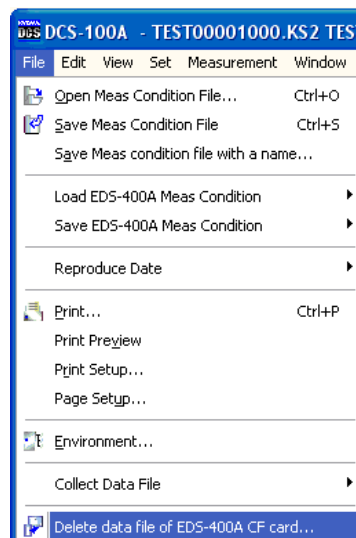
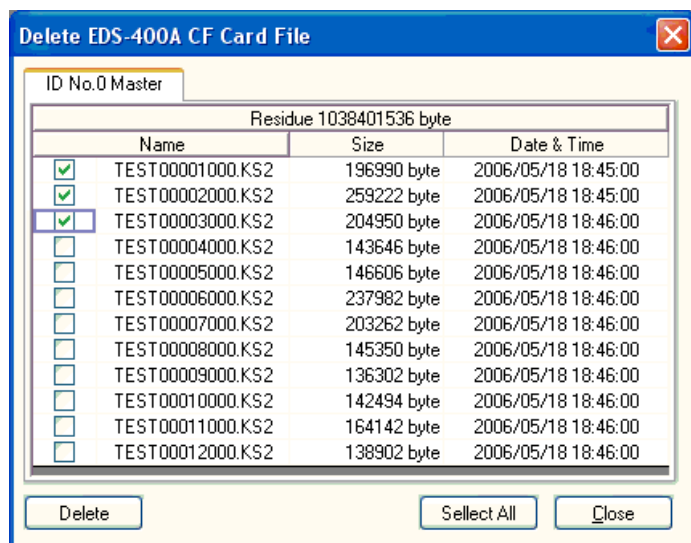
NOTE

If the test resulted in 'NG,' replace the CF card with the one compatible with 45× or more writing speed. Or, saving data during the measurement may not be ready.

9-5 DELETING DATA FILE IN THE EDS-400A CF CARD

This section describes how to delete a data file saved in the EDS CF card.

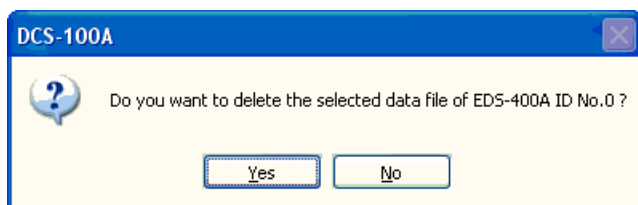
Point to **File** on the menu bar and select **Delete EDS-400A CF Card File** menu.



- (1) ID No. PageData file in the CF card is displayed for every number of connected EDS units.
- (2) Residue, Number of FilesResidual capacity of the CF card and the number of files.
- (3) NameData file name
Put a check mark to be a delete target file.
- (4) SizeSize of the data file
- (5) Date & TimeDate and time of the data file
- (6) **Delete** buttonDelete the checked data file in the CF card.
- (7) **Select All** buttonCheck all the data file in the CF card to be delete target files.
- (8) **Close** buttonClose the data file list screen in the CF card.

■ Operation Method

- (1) Open the delete target ID No. page.
- (2) Put a check mark in the target file name box for deleting data and press the **Delete** button.
For how to put a check mark, see “7-8-1 Selecting Data File.”
- (3) The following message appears to confirm the deletion of the desired file. If it is OK, Press the **Yes** button to delete the desired file.



9-6 UPDATING THE FIRMWARE

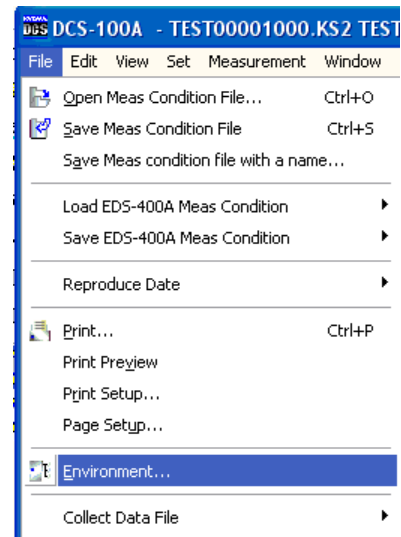
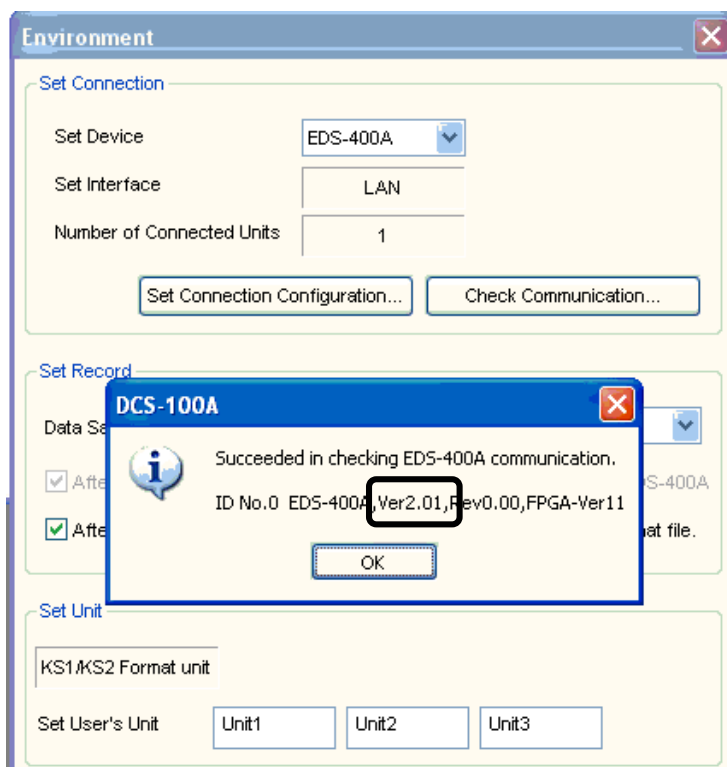
This section is related to method of updating the EDS firmware.
If the firmware version is 2.0 or more, no need to update.

9-6-1 Checking Firmware Version

■ Operation Method

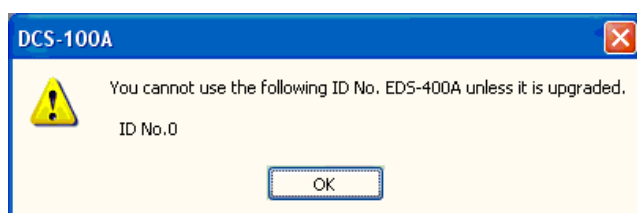
- (1) Open the **Environment** screen by the following.
 - Point to **File** and select **Environment** menu.
 - Select the **Environment** icon from the toolbar.

- (2) Press the **Check Communication** button.



- (3) The above message appears to display the communication check result.
Firmware version is enclosed with a black frame.

In addition, if the following message appears, proceed to the next section “9-6-2 Updating Firmware Version” to update the firmware version.



9-6-2 Updating Firmware Version

Updating the firmware version is described.

Updating the firmware version is conducted with factory default network conditions.

■ Network Condition on EDS Side (Factory default)

IP Address	192.168.0. 1
Subnet Mask	255.255.255.0
Default Gateway	0. 0.0.0

■ Operation Method

- (1) Select menus in due order from **US - EDS-400A - Firm** in the CD-R and check the following files are in the CD-R.

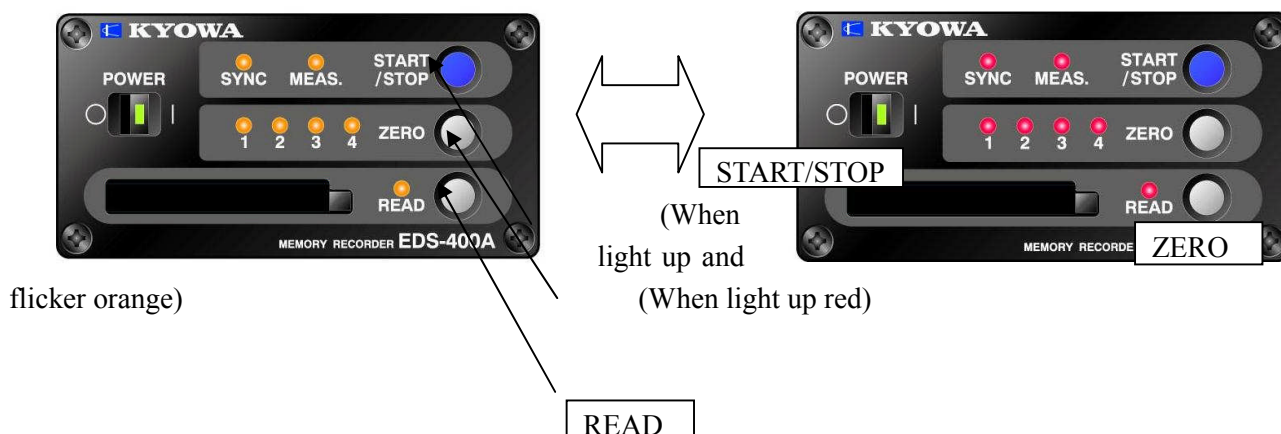
eds400.mot (Hardware SH)
FlashWriter.exe (Hardware SH Rewritable software)
FlashWriter.ini (Hardware SH Rewritable 'ini' file)

- (2) Set network condition of the PC to the following.
For details, see "3-2-1 Setting Network in Online Mode."

■ Network Condition on PC Side

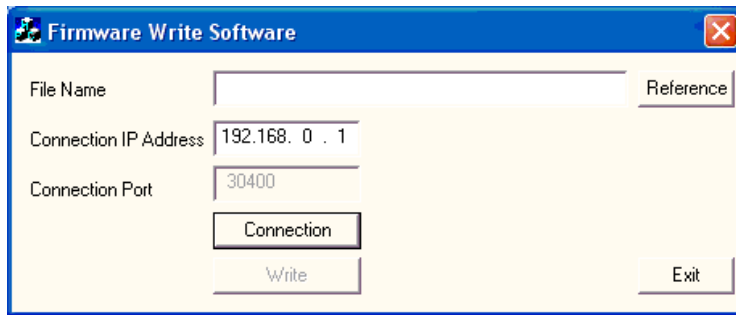
IP Address	192.168.0. 100
Subnet Mask	255.255.255.0
Default Gateway	0. 0. 0. 0

- (3) Connect the PC and EDS with a LAN cable to reboot the PC.
- (4) Set the EDS to hardware (SH) rewriting mode in the following procedures.
 - 1) While pressing and holding down all the buttons, **START/STOP**, **ZERO**, and **READ** buttons on the EDS front panel, turn ON the EDS. Press and hold down the above 3 buttons switch for 5 seconds. At this time, check all the LEDs on the front panel light up orange and light up red after 5 seconds.
 - 2) When the LEDs turn red, release the buttons and check all the LEDs flicker orange.
If the LEDs would not flicker orange or flicker before turning red, the buttons may have been released within 5 seconds after the power ON. Conduct the procedures from item (1) once again.

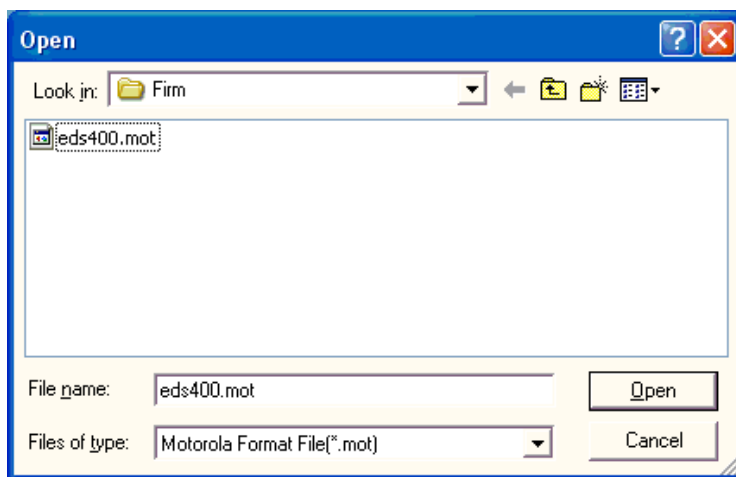


(5) Write hardware (SH) in the EDS.

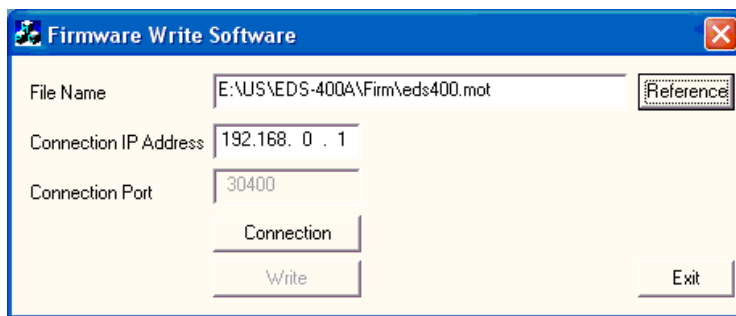
Select menus in due order from **US – EDS-400A – Firm** in the CD-R and execute the **FlashWriter.exe**.



(6) Press the **Reference** button and select **eds400.mot** and press the **Open** button.



(7) Press the **Connection** button.

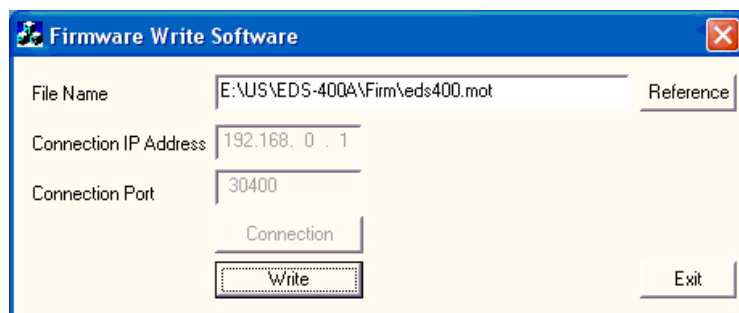


NOTE

If **Unconnected** message appears, communication between the EDS and PC is faulty. Check the following items and press the **Connection** button once again.

- Is the PC side network setting correct?
Is the IP address set to '192.168.0.100'?
- After conducting the operation 1) of the item (4), did all the LEDs light up red?

- (8) Press the **Write** button to update the firmware.

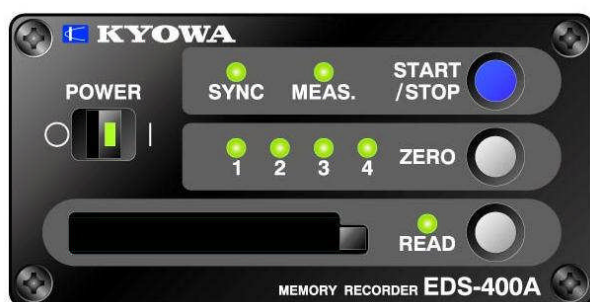


When the EDS is in writing state, “Wait a while” message appears and the EDS LEDs light up one after another.

NOTE

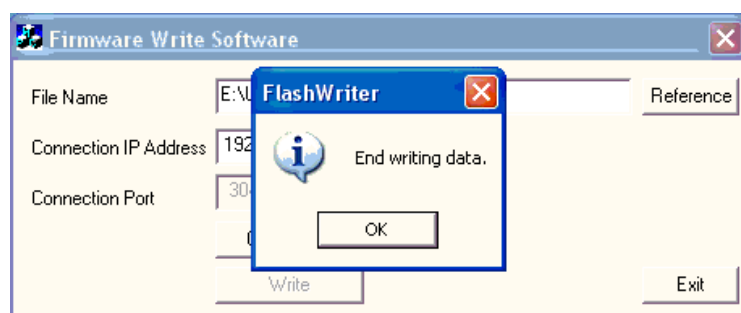
While writing data, do not disconnect the LAN cable or turn OFF the EDS.

- (9) After properly updating the firmware version, the following message appears.
All the EDS LED flicker green.



(When LEDs flicker green)

Press the **OK** button to close the message and press the **Exit** button to exit the **Firmware Write Software**.



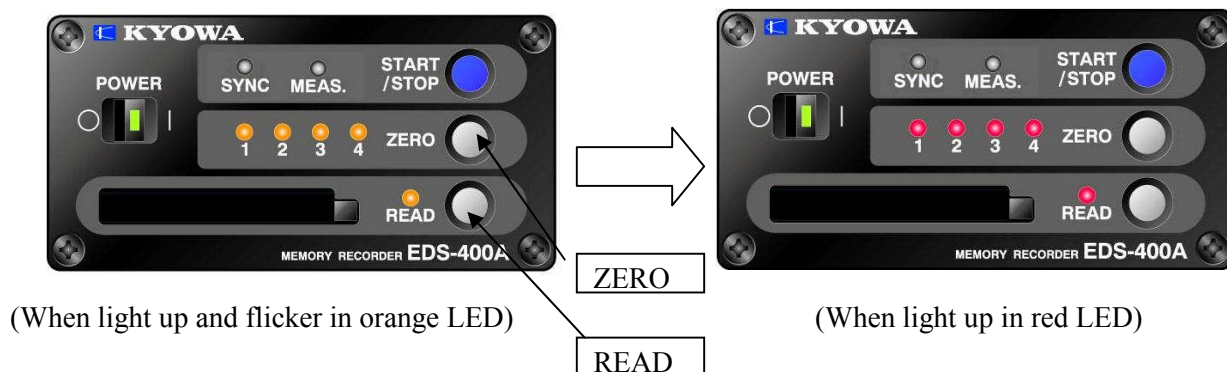
NOTE

When abnormal state occurred in the process of firmware writing operation, a message appears on the PC to notifying the abnormal state. Check whether or not the selected firmware file is correct, LAN cable is correctly connected, etc. and then, carry out the procedures from item (2).

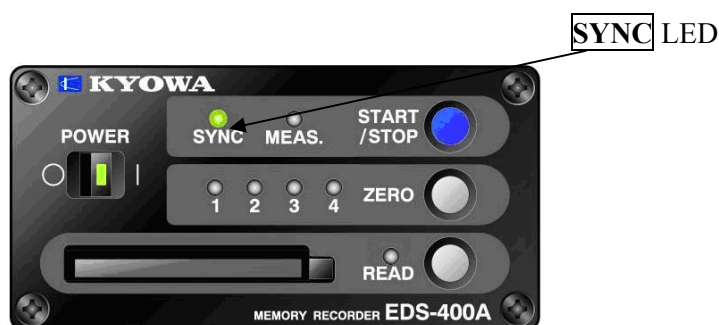
(10) Turn OFF the EDS

(11) Initialize setting contents of the EDS with the following procedures.

- 1) While pressing and holding down the **ZERO** and **READ** buttons on the EDS front panel, turn ON the EDS. Press and hold down the **ZERO** and **READ** buttons for 5 seconds. At this time check all the LEDs on the front panel light up orange and then, light up red after 5 seconds.



- 2) When the LEDs turn red, release the buttons and check the SYNC LED light up green and all the other LEDs light out.
Now, the EDS settings are initialized.



(12) Lastly, startup the DCS-100A, press the **Check Communication** button and check the firmware version is updated to the latest version.

MEMO

Updating the firmware version initializes all the network conditions.

To change the IP address, after the item (12) select Change Network Condition on the Environment screen.

NOTE

To operate the firmware updated EDS with the standard accessory Control Software EDS-40A, the EDS-40A version should be more than Ver. 1.5.0. If it is old, re-install the EDS-40A with setup program installed in DCS-100A install CD-R (by selecting menus in due order from US – EDS-400A - EDS-40A).

9-7 FUNCTIONAL COMPARISON BETWEEN EDS-40A AND DCS-100A

The EDS is controlled by 2 software items, that is EDS-40A and DCS-100A.

This section describes functions comparing the 2 software

Function	EDS-40A	DCS-100A
Meas Mode	Manual measurement Analog trigger measurement External trigger measurement	Manual measurement Interval measurement Analog trigger measurement External trigger measurement
Graph Types	Time series graph (Max 8 CHs) Bar graph (Max 8 CHs)	Time series graph (Max 16 CHs) Bar graph (Max 32 CHs) X-Y graph (Max 8 CHs) Circle meter Bar meter
Saving Data	Saves data in memory Collects data in real-time (*1)	Saves data in PC hard disk (*1) Saves data in EDS CF card (Automatically collecting data available)
Data Reproduction Function	Graphically displays recording file Converts data into CSV format file	Graphically and numerically display recording file Cutout Converts data into CSV and XLS format files
Others		Registers DAS-100A and DIAdem software

(*1) When sampling frequency is 10 kHz or less

10. SPECIFICATIONS

The DCS-100A is a Software that, by controlling the EDS from the PC, is designed to set various Meas conditions, record data, display data on graphs, convert files, etc. Communication between the EDS and PC is carried out by LAN interface.

- Number of Control Available EDS Units
 - 8 EDS units (Data is recorded by synchronized operation)
- Setting CH Conditions Meas CH, Meas mode (Strain/Voltage), range, zero suppress ON/OFF, CAL coefficient, offset, unit, CH name, Meas range, rated capacity, rated output, and the number of numeric range digits (Any display items can be selected)
- Setting Meas Conditions
 - [Meas condition when saving recording data to EDS CF card]
 - Sampling frequency 1 to 100 Hz (Varies with the number of MEAS CHs.)
 - Data file size Max 2 Gbyte (The number of data varies with the number of Meas CHs)
 - Meas mode Manual, analog trigger, and external trigger modes
 - Manual measurement Records data from REC to Stop or by specifying the number of recorded data from REC to the specified number of data.
 - Trigger measurement conditions
 - Prev trigger data delay Max 2000 data
(Prev trigger delay time varies with sampling frequency)
 - End trigger Setting not available
 - Analog trigger measurement conditions
 - Trigger CH 1 to 4
 - Trigger level Set in engineering value
 - Trigger slope Up, Down, and Up/Down
 - [Meas conditions when saving recording data to PC hard disk]
 - Sampling frequency 1 to 10 kHz
 - Data file size Recording data is available up to hard disk residual capacity.
 - Meas mode Manual, interval, and analog trigger modes
 - Manual measurement Records data from REC to Stop or by specifying the number of recorded data from REC to the specified number of data
Pausing recording is available during recording data with the **PAUSE** button.
 - Interval measurement Automatically records data by setting recording start time and recording intervals.
 - Analog trigger measurement condition
 - Prev trigger data delay Max 32000 data
(Prev/Post trigger data delay time varies with the number of MEAS CHs and sampling frequency.)
 - End trigger Settable
 - Trigger CH Arbitrary Meas CH
 - Trigger level Set in engineering value

Trigger slope Up, Down, and Up/Down

- Setting conditions Set conditions from PC to EDS via LAN
- Monitor Graphically and numerically displays monitor data.
Executes zero suppress, outputs test signal, saves conditions to CF card.
- File operation Deletes data file in the EDS CF card.
- Collecting data Collects data in the EDS CF card from PC via LAN
Collects data by loading the CF card in the PC card slot.
- Setting environment
 - Setting IP address Set IP address from the PC to the EDS via LAN
Saves the IP address setting file to the CF card
 - Setting the number of connected EDS units, checking communication, and loading EDS version