

Simplified Instruction Manual MEMORY RECORDER/ANALYZER

EDX-3000A

For details, refer to the Instruction
Manuals for Hardware and for
Software in the attached CD-R.



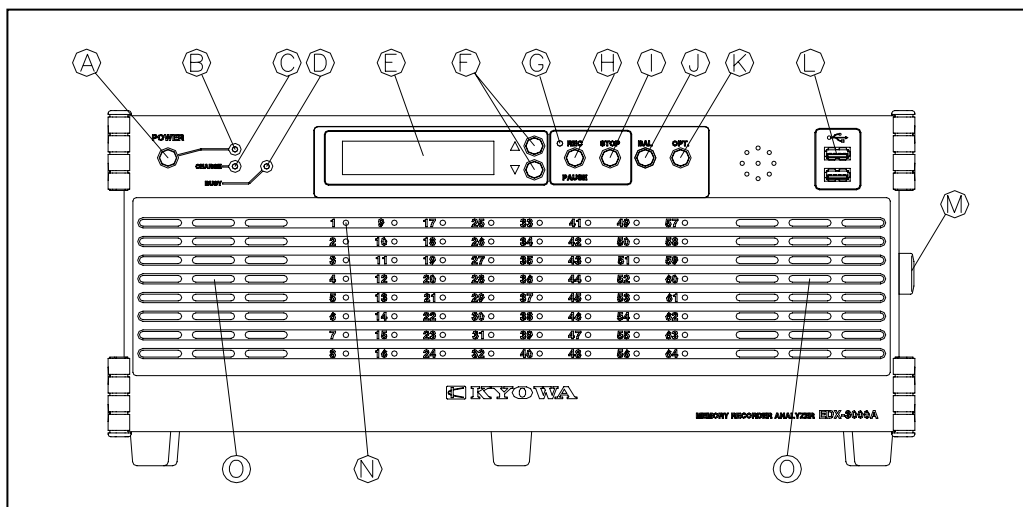
Safety Precautions

- Use the EDX-3000A in the specified operating temperature range of 0 to 40 °C.
Use at temperatures exceeding the specified range may lower the performance and cause troubles.
If use under direct sunlight or in a cold place is inevitable, prepare a sunscreen or take proper measures to keep it warm.
- Use the EDX-3000A in the specified operating humidity of 20 to 80%RH.
Use in a humidity place exceeding the specified range or whether it is exposed to splashing water may lower the performance and cause troubles.
- Do not use the EDX-3000A immediately after the change in the environment.
Leave the EDX-3000A as it is to acclimate to the environment.
Abrupt change in ambient temperature due to transportation, etc. may cause dew condensation, which may result in lower performance and troubles.
- When mounting the EDX-3000A on the vehicle, always set it on the car seat and securely fix it a band and the like. Do not directly mount it on the vehicle chassis. Or unexpected vibration or impact may be applied to the EDX-3000A. At this time, set it on a vibration isolation table to reduce the applied vibration and impact.
- Do not use the EDX-3000A in strong electromagnetic fields.
Use the EDX-3000A in an environment where magnetic field is acceptable to the PC.
- Do not use the EDX-3000A under poor conditions.
EDX-3000A-H (E), EDX-3000A-S (E): 100 VAC to 240 VAC, 50/60 Hz
EDX-3000A-H (E)-DC, EDX-3000A-S (E)-DC: 19 VDC to 32 VDC
The power supply used for the EDX-3000A should not experience an instantaneous power failure and be free from noise.
- Do not turn ON the power switch immediately after turning it OFF.
After turning OFF the power switch, wait until the power supply is shut OFF automatically before turning ON the power switch again. Do not disconnect the power plug from the AC outlet or DC power supply. Or, internal hard disk in the memory recorder/analyzer may be destroyed and the system may not startup again.
- Do not pull cables.
Lay cables with a certain allowance so that any unreasonable force may not be applied to the connections.
Pulling or unreasonable force may cause troubles or interrupt the measurement.
- Take proper precautions when using a USB memory or USB device (mouse and keyboard) in an environment with vibration.
Do not take measurement while the USB memory or USB device remains inserted in a vibrating environment, which may cause a system failure.
- Do not seal ventilation holes provided for a fan located at the back and two fans located at the front.
If there is not enough space to radiate heat, temperature in the EDX-3000A may increase to lower the performance and cause troubles.
- The internal battery against instantaneous power failure is Ni-MH battery. Recycle or discard your battery in a responsible manner or contact KYOWA or our representatives.
- Charge the internal battery within the temperature range 0 to 30°C. Or, the battery may not fully charge. In addition, the internal battery will deteriorate quickly.
- If the EDX-3000A is to be stored for an extended period, the internal battery should first be fully charged. The battery discharges little by little naturally over time even if you didn't use it. If you store the battery with small remaining capacity, the storage can accelerate battery self-discharge and lead to the overdischarging. The battery can no longer be used and have to be replaced if it have been over discharged. In addition, if the EDX-3000A is to be stored for an extended period, The self-discharge rate and deterioration rate of the battery are closely related to the storage temperature. It is recommended to store the battery at 25°C or lower temperature.

1. CONTROLS AND INDICATORS

1-1 FRONT

The following figure is front views of upright display screens.



A: POWER switch

POWER switch

Turn ON the MAIN POWER switch on the rear panel and press the “POWER” switch for 2 seconds or longer to turn ON the EDX-3000A.

If you press the “POWER” switch for 2 seconds or longer with the EDX-3000A power ON state, the internal setting information is stored first and the EDX-3000A is turned OFF.

MEMO

A short buzzer sound rings two times when the power supply is turned ON. Moreover, a long buzzer sound rings three times when the power supply is turned OFF, and POWER LED blinks green.

NOTE

When the internal battery against the instantaneous power failure is fully discharged, do not disconnect the power plug from the power outlet when the POWER switch is ON or during shut down. Failure to observe these precautions may destroy the internal hard disk and prevent the EDX-3000A from starting again.

B: POWER LED

Lights up in green during turning ON the power. The POWER LED lights out during OFF the power.

The POWER LED blinks in red when the input voltage of the DC power supply is 21 V or low.

See table 1-1.

C: CHARGE LED

Lights up in green while charging the internal battery. After the internal battery is fully charged, the CHARGE LED lights up for 0.1 second of every 10 seconds (hereinafter referred to as the flashing).

In addition, the CHARGE LED blinks in red and orange alternately during discharging (during power failure) the internal battery.

See table 1-1.

D: BUSY LED

Lights up in green while accessing the internal hard disk. See table 1-1.

E: LCD indicator

Small LCD that displays the status of the EDX-3000A.

F: LCD display changing switch

Can change the information of the EDX-3000A that is displayed on the LCD.

G: REC/PAUSE LED

Lights up in green during monitoring, in red during recording and blinks in red

during pausing, trigger waiting, and during interval waiting.

See table 1-2.

H: REC/PAUSE switch

Starts or stops the recording.

I: STOP switch

Stops the monitoring or recording.

J: BAL. switch

Press the BAL. switch for 1 second or longer to conduct balance.

K: OPT. switch

Can set the function of the “OPT. switch” with the EDX-3000A Control Software.

L: USB connector

USB 2.0 connector

M: Handle

Handle

N: CH LED

Indicates the status of channels. See table 1-2

O: Front fan

Ventilating suction fan on the front panel.

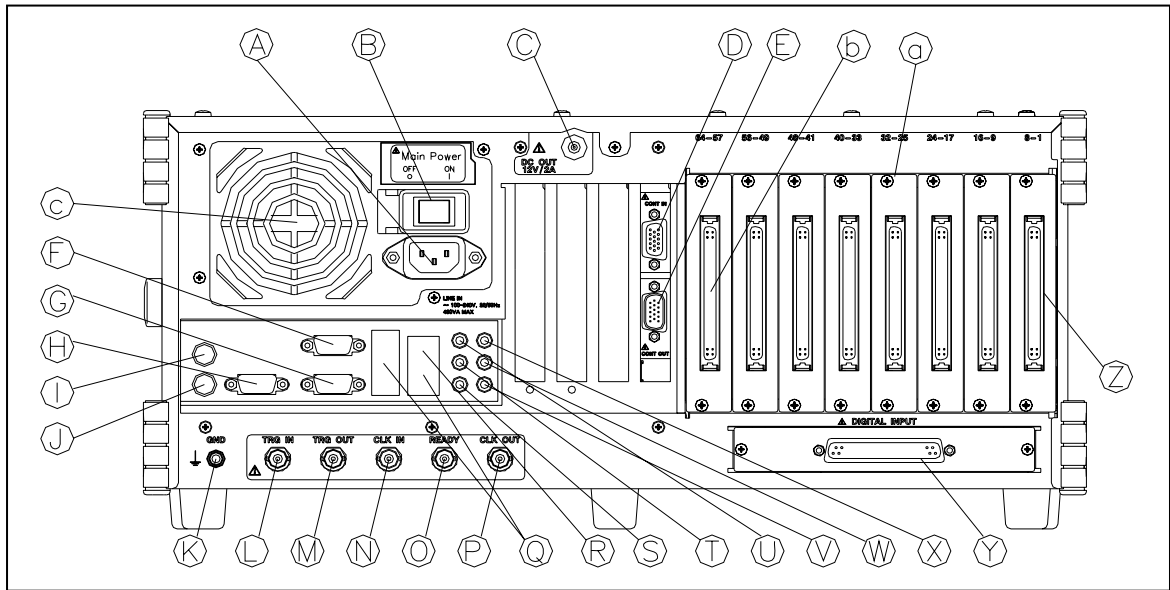
Table 1-1 LEDs status part 1

LED Status		B : POWER LED	C : CHARGE LED	D : BUSY LED
Green	ON	Power ON state	Charging the internal battery.	Accessing to the internal hard disk.
	Blinks	Power OFF is being prepared.	The internal battery is fully charged. (Lights up for 0.1 second approx. every 10 seconds)	
Orange	ON			
	Blinks			
Red	ON			
	Blinks	The input of the DC power supply is about 21V or less (Note. Only at the DC power supply)		
Red and Orange alternately ON			Discharging the internal battery. (During power failure)	

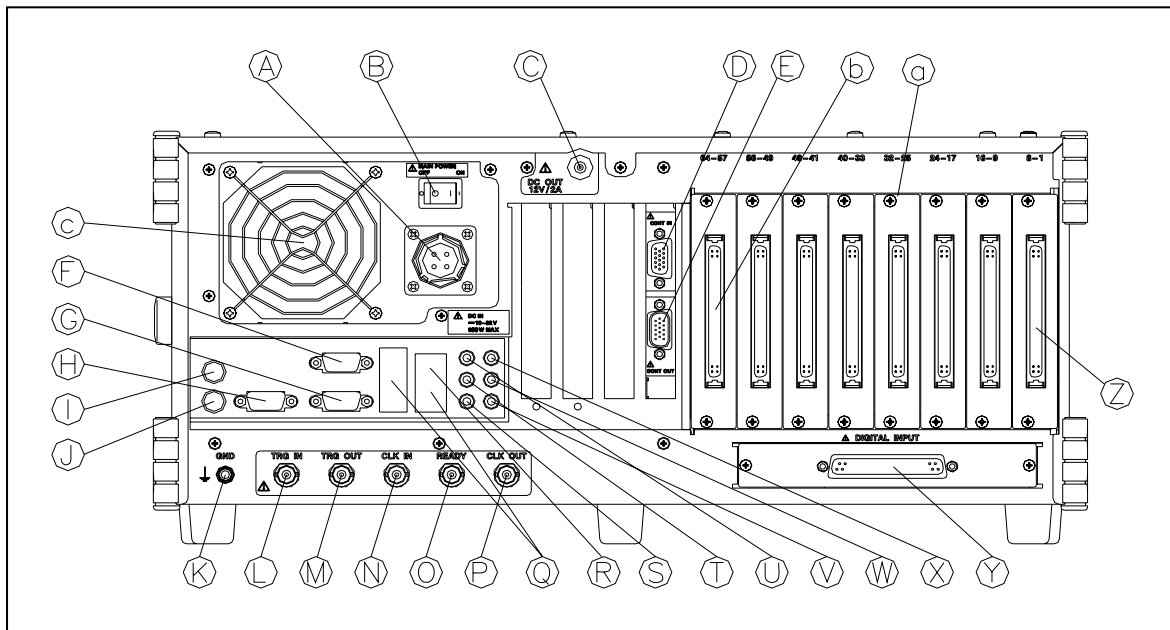
Table 1-2 LEDs status part 2

LED Status		G: REC/PAUSE LED	N: CH LED
Green	ON		Normal (Measurement OK)
	Blinks	Monitoring	Calibration output in progress
Orange	ON		Balancing in progress
	Blinks		Balancing not successful
Red	ON	Recording	Sensor input overflow detected
	Blinks	Pausing Trigger waiting Interval waiting	The sensor input overflow exceeding the specified range has been solved and the signal within the specified range is currently entered.
OFF			Measurement OFF Conditioner card not installed

1-2 REAR



< With AC power supply >



< With DC power supply >

A: <With AC power supply>

AC inlet socket

This AC power supply connector should be connected to the AC power outlet by the AC power cable supplied with the EDX-3000A.

< With DC power supply >

DC power supply connector

This DC power supply connector should be connected to the DC power (19 to 32 VDC) by the DC power cable supplied with the EDX-3000A.

B: MAIN POWER switch

The power is turned ON when this MAIN POWER switch is pressed to the [] side.

NOTE

Do not lay the MAIN POWER switch to [○] side with the EDX-3000A ON or during shut down. Failure to observe these precautions may destroy the internal hard disk and prevent the EDX-3000A from starting again.

C: Power connector for 15-inch display

Dedicated power supply connector for the optional 15-inch display (EMON-30A). Can output 12 VDC (MAX. 2A).

NOTE

The above connector is power supply output connector. Do not input the power supply or signal mistakenly. Or, the connected device and the EDX-3000A cause system failure.

D: CONT IN connector

Used for a dedicated remote control unit or for synchronized operation of multiple systems.

E: CONT OUT connector

Used for synchronized operation of multiple systems.

F: COM2 connector

Serial communication port

G: VGA connector

Used for connecting the external display.

H: COM1 connector

Serial communication port

I: PS/2 mouse connector

Mouse connector

J: Keyboard connector

Used for connecting the external keyboard.

K: GND terminal

Always ground the GND terminal of the EDX-3000A.

MEMO

The GND terminal is connected to the casing and the common of the internal circuit.

L: TRG IN connector

For the external trigger measurement.

Starts recording by inputting the trigger signal. (H: 2.0 to 5.0 V, L: 0 to 0.8 V)

M: TRG OUT connector

Outputs trigger signal when triggered. (H: 5 V, L: 0 V)

N: CLK IN connector

Used for operating the EDX-3000A with the external clock signal. (H: 2.0 to 5 V, L: 0 to 0.8 V)

O: READY connector

Outputs LOW level signal when recording and other than that, outputs HIGH level signal. (H: 5 V, L: 0 V)

P: CLK OUT connector

Sampling clock is divided and output. (H: 5 V, L: 0 V)

Q: USB connector

USB2.0 connector

R: LAN connector

LAN connector

S: Side surround connector (Gray)

Do not use.

T: Read sound connector (Black)

Do not use.

U: Center woofer connector (Orange)

Do not use.

V: Micro-phone connector (Pink)

Do not use.

W: Front speaker connector (Green)

For an external speaker. Active speaker is available.

X: Line connector (Blue)

Do not use.

Y: DIGITAL INPUT connector	Digital input connector. 32 bit with TTL level input is available. (H: 2.0 to 5.0 V, L: 0 to 0.8 V)
Z: 1-CH to 8-CH conditioner slots	Conditioner slots for channels 1 to 8.
a: 25-CH to 32-CH conditioner slots	Conditioner slots for channels 25 to 32.
b: 57-CH to 64-CH conditioner slots	Conditioner slots for channels 57 to 64.
c: Rear fan	Ventilating exhaust fan on the rear panel.

MEMO

The channel No. is determined by the position where the conditioner is inserted.
The channel numbers are assigned from right to left as seen from the rear.

NOTE

Do not seal ventilation holes at the rear and front.
If there is not enough space to radiate heat, temperature in the EDX-3000A may increase to lower the performance and cause troubles.

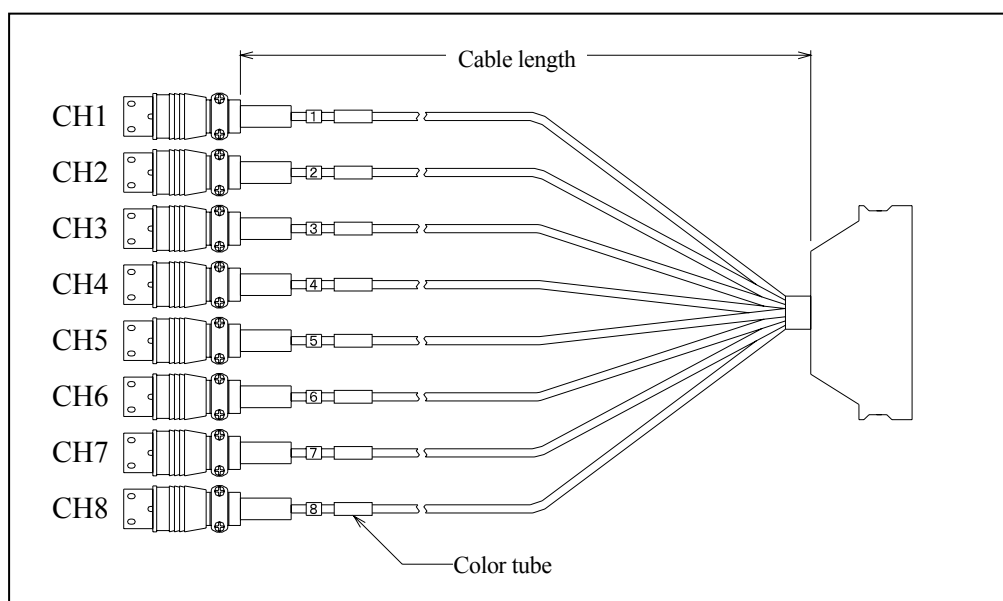
2. CONNECTING SENSOR

This section explains how to connect sensors to the CDV-40B/A Strain/voltage measurement card (hereinafter referred to as the CDV-40B/A).

Use dedicated input cables (optional) for connecting sensors to the CDV-40B/A. The applicable input cables are shown in the following table.

Item	Model	Cable length	Color of heat shrinkable tube	Item	Model	Cable length	Color of heat shrinkable tube
Input cable	U-40	50 cm	None	Input cable	U-46	50 cm	Blue
	U-41		Brown		U-47		Purple
	U-42		Red		U-48		Gray
	U-43		Orange				
	U-44		Yellow		U-38	1.5 m	None
	U-45		Green		U-39	1.0 m	None

Input cable

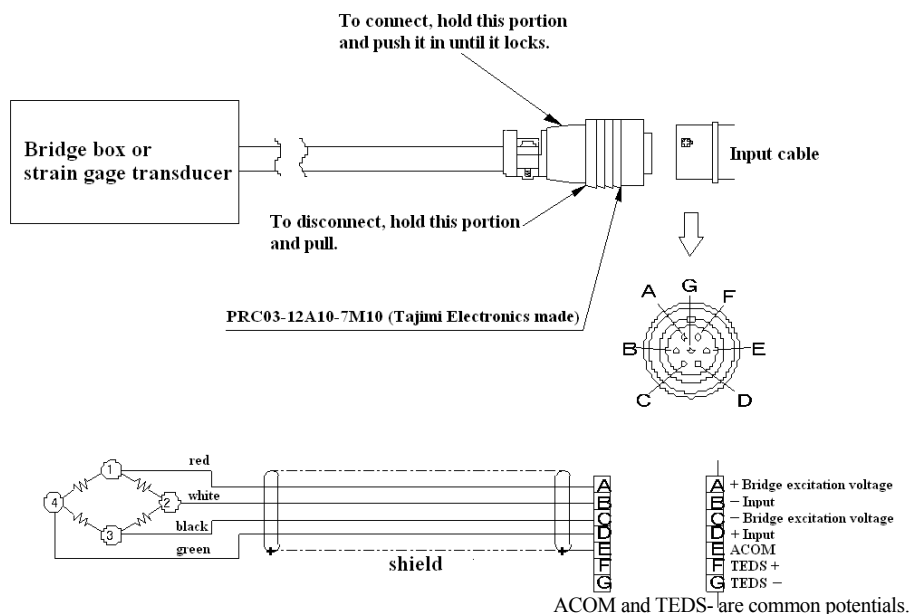


The CDV-40B/A can measure strain and voltage. The input cable should be connected as described below.

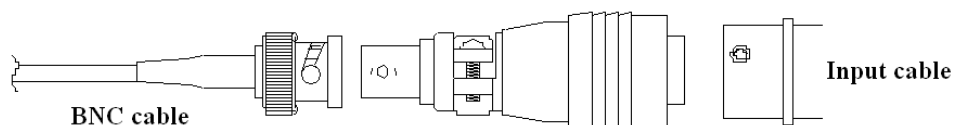
1) When using a strain gage or strain gage transducer

When measuring the output of the strain gage or strain gage transducer, connect the bridge box or strain gage transducer as shown in the figure at right.

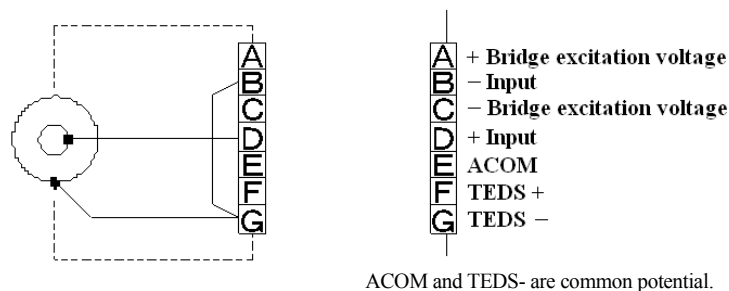
Before recording the data, select the strain mode and monitor the noise. If excessive noise is measured, ground the ground terminal of the bridge box or connect it to the GND terminal of the EDX-3000A, whichever results in less noise.



2) When applying an input voltage



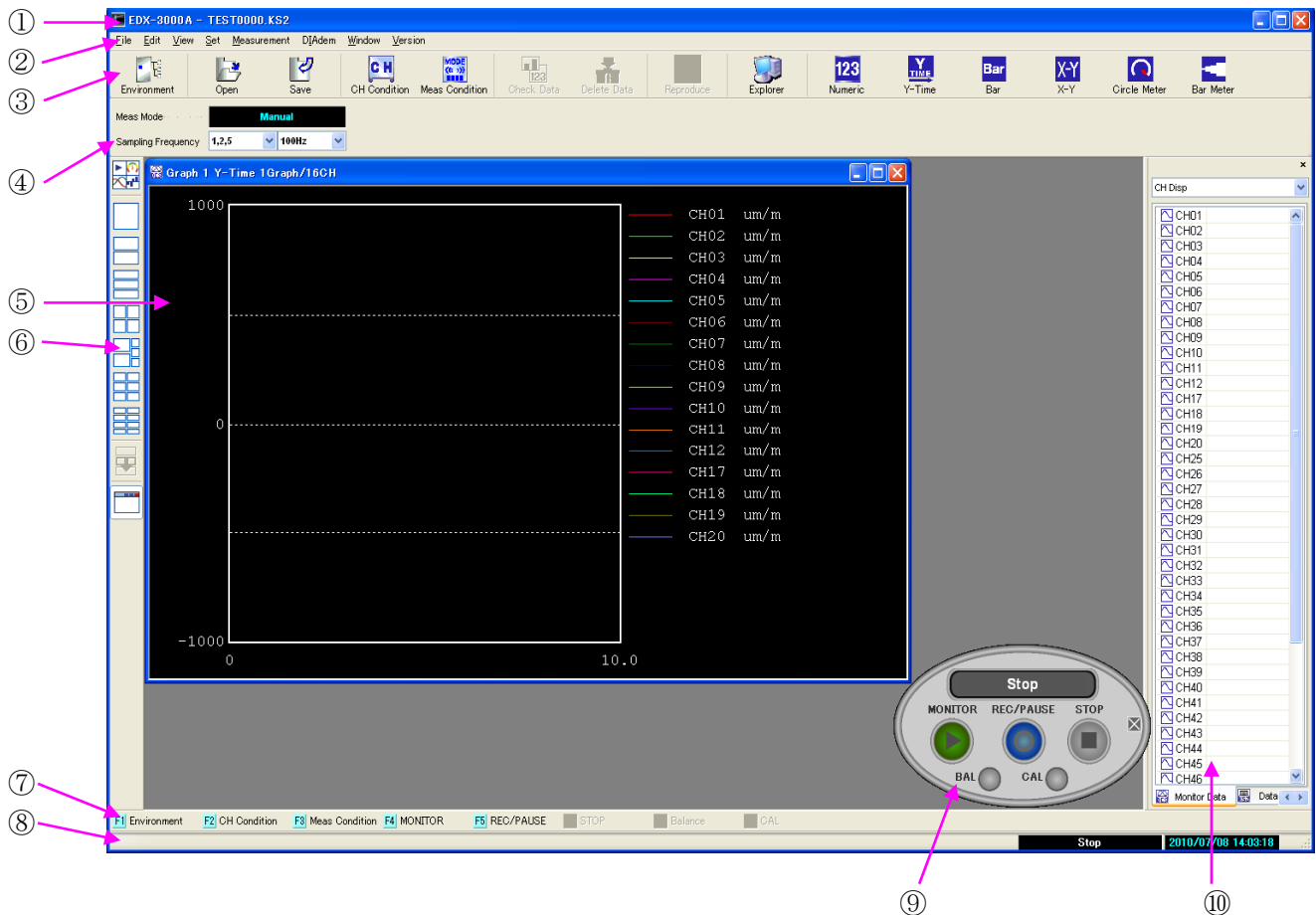
Input conversion adapter: FV-1A (Option)



When measuring the voltage, connect an input conversion adapter (optional: FV-1A) to a quick fitting connector by using the BNC connector. Select the voltage mode to perform monitoring. For excessive noise, connect the negative side of the voltage signal source to the GND terminal of the EDX-3000A.

3. MAIN MENU

Power ON the EDX-3000A and the main menu appears.



① Main Title Bar

Displays model, setting of synchronous operation, data file name, and file title.

② Menu Bar

Provided with pull-down menus.

③ Tool Bar

Icons of various menu bar functions are displayed.

You can add, remove, and sort icons arbitrary.

④ Meas Mode Bar

Displays current Meas mode, sampling frequency, the number of recorded data, and recording time.

⑤ Window

Data is numerically displayed or is displayed on a graph.

⑥ Window Display Bar

For sorting windows and for showing or hiding the title bar of the window.

⑦ Function Key Bar

Displays the registered tool bar buttons on the function key.

You can add or remove the registered function keys arbitrary.

⑧ Status Bar

Displays measuring state, recording state and the current time.

⑨ Meas Operation Panel

Measures the data by using buttons on the Meas Operation Panel with a feeling like using a remote controller.

⑩ CH Display Bar

Displays the current measuring channels or data checking channels.
You can set the target CH on the display by dragging the target CH.

4. SIMPLIFIED OPERATIONS FROM POWER ON TO MEASUREMENT

This Chapter describes simplified operations of the EDX-3000A.

Start the EDX-3000A

Connect sensors.

- 1) Connect a sensor to a conditioner card on the rear panel of the EDX-3000A.

Environment setting

(For setting data file destination and device configurations.)

- 2) Click the **File** – **Environment...** or **Environment** icon from the toolbar and open the **Set Environment** dialog box.
- 3) Click the “**Record**” tab and click the **Select folder...** button in the **Save** column and set the destination data folder.
- 4) Click the “**Configuration**” tab and set items in the **Control mode** and **Synchronous operation**.
- 5) Close the **Set Environment** dialog box.

Setting channel conditions

(For setting analog channels and digital channels.)

- 6) Click the **Set** – **Set CH Condition...** or **CH Condition** icon from the toolbar and open the **Set CH Condition** dialog box.
- 7) Click the “**Analog CH**” tab and set the channel conditions such as Measurement ON/OFF, Mode, Range, CAL Coef, Offset, unit, etc.
- 8) Click the “**Digital CH**” tab and set Measurement ON/OFF of the digital channels.
- 9) Close the **Set CH Condition** dialog box.

Setting measuring conditions

(For setting real-time procession, measuring mode, sampling frequency, the number of recording data, and data file.)

- 10) Click the **Set** – **Set Meas Condition...** or **Meas Condition** icon from the toolbar and open the **Set Meas Mode Condition** dialog box.
- 11) Click the **Real-Time Process** tab from the list and set real-time processions ON/OFF.
- 12) Click the **Meas Mode** tab from the list and set measuring mode, sampling frequency, and the number of recoding data.
- 13) Click the **Data File** tab from the list and set file name and file title.
- 14) Close the **Set Meas Mode Condition** dialog box.

Displaying windows

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

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Measuring

- 16) Click the **MONITOR** button on the Meas Operation Panel. The measurement starts and the EDX-3000A becomes monitoring and the data is displayed on the window.
- 17) Click the **REC/PAUSE** button and the data recording starts according to the Meas Mode.
- 18) Click the **STOP** button or after finishing recording the data for the preset number, the EDX-3000A gets back to monitoring state.
- 19) While the EDX-3000A is in monitoring state, click the **STOP** button again. The EDX-3000A stops measuring and stops.

Checking data

- 20) Click the **Measurement** – **Latest Recorded Data File** or click the **Check Data** icon from the toolbar to display the data checking dialog box.
- 21) For unnecessary data, click the **Measurement** – **Latest Recorded Data File** or click the **Delete Data** from the tool bar for deleting.
For measuring the data again, click the **MONITOR** button. (See item 16).)

Reproducing data

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

Exiting the EDX-3000A

5. LIST OF SETTING ITEMS OF CONDITIONER CARDS

The mode, range low pass filter, high pass filter, and CAL range of every conditioner card are displayed as follows.

Card	Mode	Range	Low pass filter	High pass filter	CAL range
CDV-40B/A CDV-40B/A-F	Strain	500 $\mu\text{m/m}$ 1 $\text{k}\mu\text{m/m}$ 2 $\text{k}\mu\text{m/m}$ 5 $\text{k}\mu\text{m/m}$ 10 $\text{k}\mu\text{m/m}$ 20 $\text{k}\mu\text{m/m}$ 50 $\text{k}\mu\text{m/m}$ OFF	FLAT 10 kHz 3 kHz 1 kHz 300 Hz 100 Hz 30 Hz 10 Hz AUTO *	OFF 0.2 Hz 1 Hz	100% 50% SHUNT
	Voltage	0.1V 0.2V 0.5V 1.0V 2.0V 5.0V 10.0V OFF	* CDV-40B/A-F only		100% 50%
CFV-40A	ZC/S ZC/N TTL	50 Hz 100 Hz 500 Hz 1 kHz 2 kHz 5 kHz 10 kHz 20 kHz OFF	None	OFF ON	100% 50%
CTA-40A	K (ON) K (OFF)	240 °C 480 °C 1230 °C OFF	None	None	100% 50% CHECK
	T (ON) T (OFF)	210 °C 400 °C OFF			
CCA-40A CCA-40A-F	Voltage Reserve	20 mV 50 mV 100 mV 200 mV 500 mV 1000 mV 2000 mV 5000 mV OFF	FLAT 10 kHz 3 kHz 1 kHz 300 Hz AUTO * * CCA-40A-F only	None	DC100% DC50% AC100% AC50%
DPM-42A DPM-42A-F	BV (2.0 V)	200 $\mu\text{m/m}$ 500 $\mu\text{m/m}$ 1 $\text{k}\mu\text{m/m}$ 2 $\text{k}\mu\text{m/m}$ 5 $\text{k}\mu\text{m/m}$ 10 $\text{k}\mu\text{m/m}$ 20 $\text{k}\mu\text{m/m}$ OFF	FLAT 1 kHz 300 Hz 100 Hz 30 Hz 10 Hz AUTO *	None	100% 50% SHUNT
	BV (0.5 V)	1 $\text{k}\mu\text{m/m}$ 2 $\text{k}\mu\text{m/m}$ 5 $\text{k}\mu\text{m/m}$ 10 $\text{k}\mu\text{m/m}$ 20 $\text{k}\mu\text{m/m}$ 50 $\text{k}\mu\text{m/m}$ OFF	* DPM-42A-F only		