

**BATTERY UNIT FOR**  
**INSTANTANEOUS POWER FAILURE**  
**(For EDX-100A and EDX-200A)**  
**EDB-41B**  
**INSTRUCTION MANUAL**

Thank you for purchasing KYOWA's product EDB-41B BATTERY UNIT FOR INSTANTANEOUS POWER FAILURE (For EDX-100A and EDX-200A).

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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This Instruction Manual describes in detail EDB-41B Battery Unit for Instantaneous Power Failure (hereinafter referred to as the EDB-41B) for EDX-100A and EDX-200A.

**STANDARD ACCESSORIES**

The following accessories are enclosed with the EDB-41B.  
When you open the package, do not forget to check the attached items are correctly prepared.

|                                    |   |
|------------------------------------|---|
| EDB-41B Connection Cable .....     | 1 |
| Instruction Manual .....           | 1 |
| Warranty & Inspection Report ..... | 1 |
| Hexagonal Spacer M4×24 .....       | 4 |

## SAFETY PRECAUTIONS

The EDB-41B is designed according to detailed descriptions mentioned in “10. SPECIFICATIONS” of this Instruction Manual. Do not use the EDB-41B in manners or in environment other than described in this Instruction Manual. Or, failure of the EDB-41B may result and may cause fire, burn injury, serious injury, loss of sight, etc. due to electric shock hazard, abnormal heat, ignition, or explosion.

### PRIOR TO USE

For safe use of the EDB-41B, do not forget to read the “Safety Precautions” prior to use.

Kyowa Electronic Instruments Co., Ltd. assumes no liability for any damages resulting from user's failure to comply with the safety precautions.

### SAFETY SYMBOLS

For safety operation of the EDB-41B, the following “**WARNING**” and “**CAUTION**” symbols are used in “Safety Precautions” of this Instruction Manual as well as on the EDB-41B.

|                                                                                                   |                                                                                                          |
|---------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|  <b>WARNING</b>  | Improper operation of the system may result in death or severe injury of the operator.                   |
|  <b>CAUTION</b> | Improper operation of the system may result in injury of the operator and physical damage of the system. |

|  <b>WARNING</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"><li>● <b>Power Supply</b><br/>To prevent a fire hazard, before connecting the power supply cable, do not forget to check whether power supply voltage currently used is conforming power supply voltage of the power line. With the EDX-100A (10 to 18 VDC) or with the EDX-200A (10 to 36 VDC), always operate the EDB-41B with power supply voltage range 11 to 18 VDC. Do not input voltage larger than 18 V. In addition, when using an AC adapter, check power supply voltage of the AC outlet before connecting the AC adapter.</li><li>● <b>Avoid Using in Environment with Inflammable Gas, etc.</b><br/>To prevent a risk of fire hazard or explosion, do not use the EDB-41B in environment with inflammable gas, vapor or dust.</li><li>● <b>If Any Trouble Occurs</b><br/>To prevent a fire hazard, if smoke is emitted from the EDB-41B, immediately turn OFF the EDX-100A, disconnect the DC power supply cable or AC adapter and stop using the EDB-41B</li><li>● <b>Descriptions on Connectors</b><br/>Read the following items and take special care when connecting the EDX-100A to EDB-41B connectors.<br/>1) [DC IN] connector<br/>Connect the EDB-41B [DC IN] connector to the EDX-100A or to the EDX-200A with the accessory DC power cable (P-76) or AC adapter (Optional).<br/>Power supply voltage range: 11 to 18 VDC<br/>Do not connect other cables.<br/>2) [DC OUT] connector<br/>Connect the accessory EDB-41B connection cable between the EDB-41B [DC OUT] connector to the EDX-100A [DC IN] connector or to the EDX-200A [DC IN] connector. Do</li></ul> |

not connect other cables.

- **Power supply voltage range**

Always operate the EDB-41B with power supply voltage range 11 to 18 VDC. Do not input voltage larger than 18 V. Even if you are using along with the EDX-200A (10 to 36 VDC). Or, accident may occur and the EDB-41B may be damaged.

- **Disassembly and remodeling prohibited**

Never disassemble and/or remodel the EDB-41B. Contact KYOWA or our representative for built-in battery replacement.



## CAUTION

- **Use the EDB-41B in the specified operating temperature range 0 to 50°C**

Use at temperatures exceeding the specified range may lower the performance and cause trouble. If use under direct sunlight or in a cold place is inevitable, prepare a sunshade or take proper measures to keep it warm.

- **Use the EDB-41B in the specified operating humidity range 20 to 90% RH or less.**

Use in a humid place exceeding the specified range or where it is exposed to splashing water may lower the performance and cause trouble.

- **Immediately stop the EDB-41B if operating environment changes abruptly.**

Leave the EDB-41B as it is until it becomes adaptable to the environment.

Abrupt change in ambient temperature due to transportation, etc. may cause dew condensation resulting to lower the performance and cause trouble.

- **Do not use the EDB-41B in environment with excessive vibration or impact.**

- Vibration resistance: 29.41 m/s<sup>2</sup>(3G), 5 to 55 Hz (When operated)

- 49.03 m/s<sup>2</sup>(5G), 5 to 55 Hz (When not operated)

- Impact resistance: 196.1 m/s<sup>2</sup>(20G)/11ms

Use the EDB-41B under the environment with vibration and impact within the specified range. If continuous vibration or large impact is applied, performance of the product may be deteriorated and cause trouble.

- **Do not use the EDB-41B in strong electromagnetic field.**

Use the EDB-41B in a magnetic field environment where the PC may be used.

If the EDB-41B is used near devices generating strong magnetic field such as a telemetry system, microwave oven, electric furnace, etc., performance of the product may be deteriorated and erroneous operation and trouble may result.

- **Do not pull cords and cables.**

Install cords and cables with a certain allowance so that no unreasonable force is applied to the connections.

Pulling or applying unreasonable force may cause trouble or interrupt the measurement.

- **Charge or refresh the EDB-41B battery in the specified temperature range 0 to 30°C.**

Always charge or refresh (complete discharge and then rapid charge) the battery within the specified temperature range. Or, fully charging or refreshing the battery may not be available. In addition, deterioration of the built-in battery performance may be quickened.

- **Recycling or disposing of the EDB-41B built-in battery should be conforming to restrictions.**

EDB-41B built-in battery is a Nickel-Metal Hydride (Ni-MH) battery. For recycling or disposing of the used battery, follow instructions according to related restrictions. Or contact KYOWA or our representative.

- **Do not record data during refreshing.**

- **When not using the EDB-41B for more than 1 week, fully charge before storage.**

If the EDB-41B is not used for a long period of time, it is naturally discharged gradually over

time. Natural discharge of the battery accelerates as the ambient temperature becomes higher. As the natural discharge of the battery proceeds, the battery becomes to be in complete discharge state. Then, battery recharging becomes disabled and replacing the battery is required. In addition, when storing the EDB-41B for a long period of time, since the amount of natural discharge of the battery and deterioration speed are proportional to the temperature, it is recommended to store the EDB-41B in the temperature range -20 to 30°C that is less appropriate for the inner material of the battery to deteriorate.

## **LIMITED LIFE PARTS AND PREVENTIVE MAINTENANCE**

The EDB-41B consists of various electronic components and those components, if not all, have a useful life.

Using them exceeding the years specified according to each part type (useful life) may affect the characteristics of the EDB-41B, resulting in a malfunction or a failure.

You need to replace parts with a regular preventive maintenance schedule.

Limited life parts used with the EDB-41B are as follows.

- Aluminum electrolytic capacitor

The signal-noise ratio will lower due to capacity low or smoke will be emitted due to liquid leak, resulting in a malfunction of the EDB-41B.

- Mechanical relay

Contact points of a relay will deteriorate and weld together. Power will be not provided from the built-in battery when the external power supply fails.

- Built-in battery (Ni-MH battery)

A built-in battery will gradually lose their capacity to hold a charge. Power will be not provided from the built-in battery when the external power supply fails.

To operate the EDB-41B normally, finding a sign of the EDB-41B failure early by daily/periodic inspections and taking the corrective action are required. For inspection, contact KYOWA or our representatives.

\* Limited life parts used with the EDB-41B are aluminum electrolytic capacitors, mechanical relays and built-in battery.

\* All components do age and will fail.

## **EDB-41B REPLACEMENT BEFORE THE END OF SERVICE LIFE**

Preventive maintenance and replacement parts are a cost-effective way of keeping the performance and extending the service life of the EDB-41B. Regardless of the replacement parts, the EDB-41B itself gradually deteriorates with age. Before the expected service life is reached, consider replacing the EDB-41B with a new one or the latest series as preventive maintenance.

# NOTATIONS USED IN THE INSTRUCTION MANUAL

## Informational Notes

Certain notations are used as necessary to attract your attention to information that requires special care when handling the EDB-41B, and to information provided for reference purposes.

## Examples of Notations

**NOTE**

Essential precautions required when handling the EDB-41B.

**MEMO**

Reference items required when handling the EDB-41B.

## 1. OUTLINE OF THE PRODUCT

The EDB-41B is a unit that is designed to supply battery power to the EDX-100A and EDX-200A UNIVERSAL RECORDER (hereinafter referred to as the EDX) when instantaneous power failure occurred. The EDB-41B is handy and easy to carry by installing to and combining with the EDX.

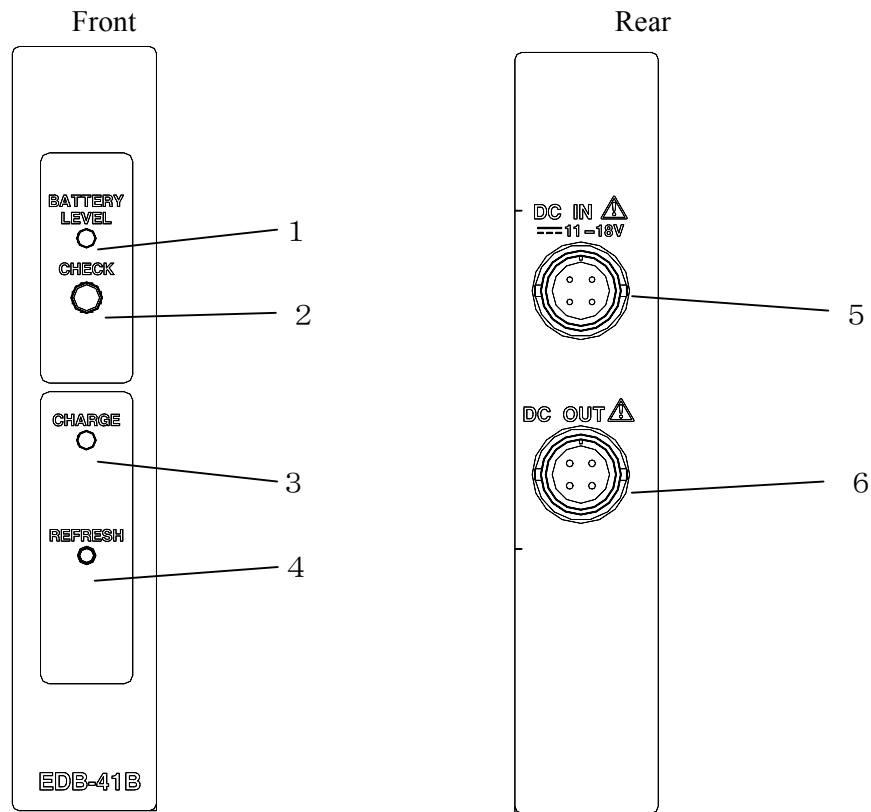
When using the external DC power supply of which power failure is likely to happen, by using the EDB-41B, if power failure occurred halfway of data recording, the EDX operation switches to battery operation and alarm buzzer sound is continuously issued. In addition, instantaneous power failure of the AC power supply can also be solved by using an AC adaptor.

The built-in battery is automatically charged by connecting the power supply. Moreover, even while charging the battery, the EDX can monitor and record data.

### Features

- Compatible with both AC and DC power supply
- Provided with automatic charge function and refresh function of the built-in battery.
- Alarm buzzer sound is issued during instantaneous power failure in the external power supply.
- Simplified check function is provided to check remaining capacity of the built-in battery.
- Easy mounting to and demounting from the EDX.

## 2. PARTS NAMES AND MAIN FUNCTIONS



- 1) [BATTERY LEVEL] LED .....Displays remaining capacity of the built-in battery.  
(See Table 1.)
- 2) [CHECK] Button .....Checks remaining capacity of the built-in battery.  
(See Table 1.)  
While pressing the [CHECK] button, the [BATTERY LEVEL] LED lights up.
- 3) [CHARGE] LED .....Displays charge/discharge state of the built-in battery. (See Table 2.)
- 4) [REFRESH] Button .....Press the [REFRESH] button to start refreshing the built-in battery.
- 5) [DC IN] Connector .....Connects the external DC power supply (11 to 18 VDC) to the EDB-41B [DC IN] connector with a DC power cable (P-57) or EDX AC adapter.
- 6) [DC OUT] Connector .....Outputs power supply of the external power supply unit connected to the [DC IN] connector. During instantaneous power failure, power supplied from the built-in battery unit is outputted. The EDB-41B [DC OUT] connector is connected to the EDX [DC IN] connector with the EDB-41B connection cable.

### MEMO

While discharging the battery ([CHARGE] LED lights up orange) by pressing the [REFRESH] button and if instantaneous power failure occurred in the [DC IN] connected power supply, refresh operation stops. Check the [DC IN] connected power supply and Press the [REFRESH] button once again.

**Table 1 Description of [BATTERY LEVEL] LED**

| 2) <b>CHECK</b> button | 1) [BATTERY LEVEL] LED | Status and Function                                                                                                                                           |
|------------------------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ON                     | OFF                    | <ul style="list-style-type: none"> <li>Remaining capacity of the built-in battery voltage is completely depressed. Immediately charge the battery.</li> </ul> |
|                        | ON green               | <ul style="list-style-type: none"> <li>Remaining capacity of the built-in battery is 100% to approximately 10%.</li> </ul>                                    |
|                        | ON red                 | <ul style="list-style-type: none"> <li>Remaining capacity of the built-in battery is less than 10%. Immediately charge the battery.</li> </ul>                |

**Table 2 Description of [CHARGE] LED**

| 3) [CHARGE] LED                        | Status and Function                                                                                      |                                                                                                          |
|----------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Lights up green                        | <ul style="list-style-type: none"> <li>Charging: Charging the built-in battery.</li> </ul>               |                                                                                                          |
| OFF                                    | <ul style="list-style-type: none"> <li>Charging completed: Built-in battery is fully charged.</li> </ul> |                                                                                                          |
| ON orange<br>↓<br>ON green<br>↓<br>OFF | Refreshing                                                                                               | <ul style="list-style-type: none"> <li>Discharging: Discharging the built-in battery.</li> </ul>         |
|                                        |                                                                                                          | <ul style="list-style-type: none"> <li>Charging: Charging the built-in battery.</li> </ul>               |
|                                        |                                                                                                          | <ul style="list-style-type: none"> <li>Charging completed: Built-in battery is fully charged.</li> </ul> |

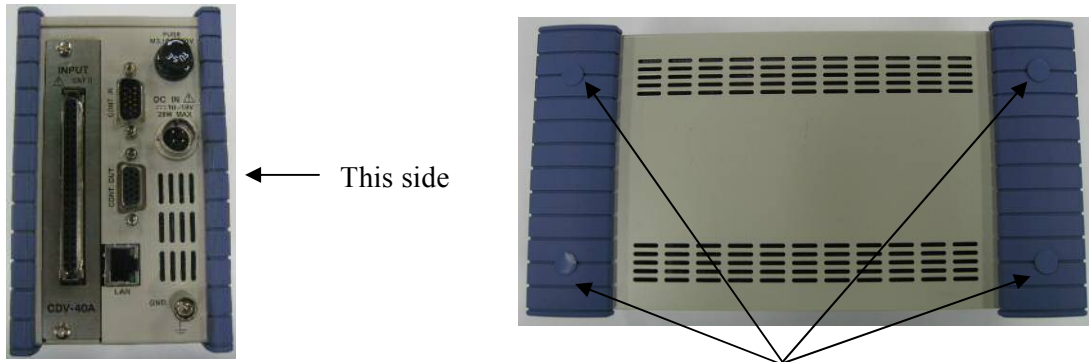
\* When refreshing the built-in battery, connect the external power supply (11 to 18 VDC) to the EDB-41B [DC IN] connector with a DC power cable (P-76) and press the **REFRESH** button.

### 3. INSTALLING THE EDB-41B

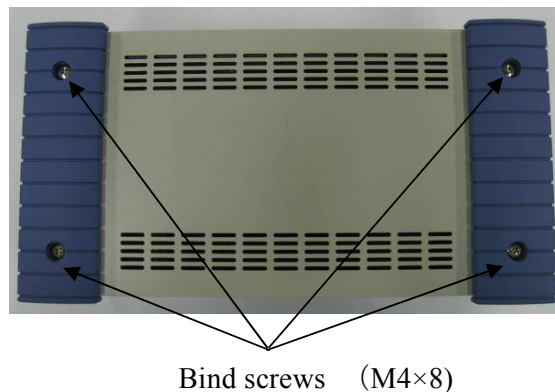
#### 3-1 MOUNTING EDB-41B TO THE EDX-100A

Before mounting/demounting the EDB-41B to the EDX, do not forget to turn OFF the EDX-100A and operate the following procedures.

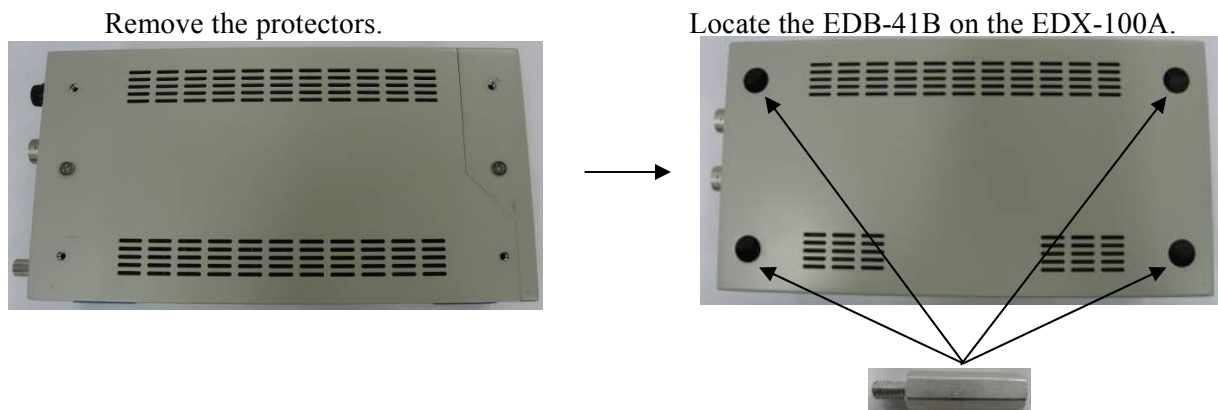
- 1) Remove 4 rubber pads for hiding protector screw holes on the [DC IN] connector side of the EDX-100A.



- 2) Remove 4 bind screws (M4×8) of the protector on the [DC IN] connector side of the EDX-100A.



- 3) Remove the EDX-100A protectors, locate the EDB-41B on the EDX-100A, and fix the EDB-41B with 4 hexagonal spacers M4×24 (Accessory) using an M4 nut driver.



#### NOTE

When fixing the EDB-41B with the hexagonal spacers, take special care not to drop the hexagonal spacers inside the EDB-41B. Or, internal circuit may short-circuit resulting to damage the EDB-41B.

- 4) After mounting the removed protectors to both sides of the EDB-41B with 4 bind screws (item 2), mount the rubber pads for hiding screw holes.



#### MEMO

Use the M4 nut driver (socket driver), etc. for fastening the hexagonal spacers.  
M4 nut driver: Opposite side 7 mm (Box diameter: 12 mm or less)

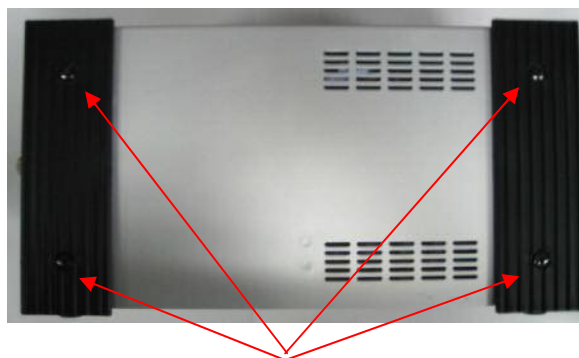
### 3-2 MOUNTING EDB-41B TO THE EDX-200A

Before mounting/demounting the EDB-41B to the EDX, do not forget to turn OFF the EDX-200A and operate the following procedures.

- 1) Remove 4 bind screws (M4×5) of the protector on the [DC IN] connector side of the EDX-200A.

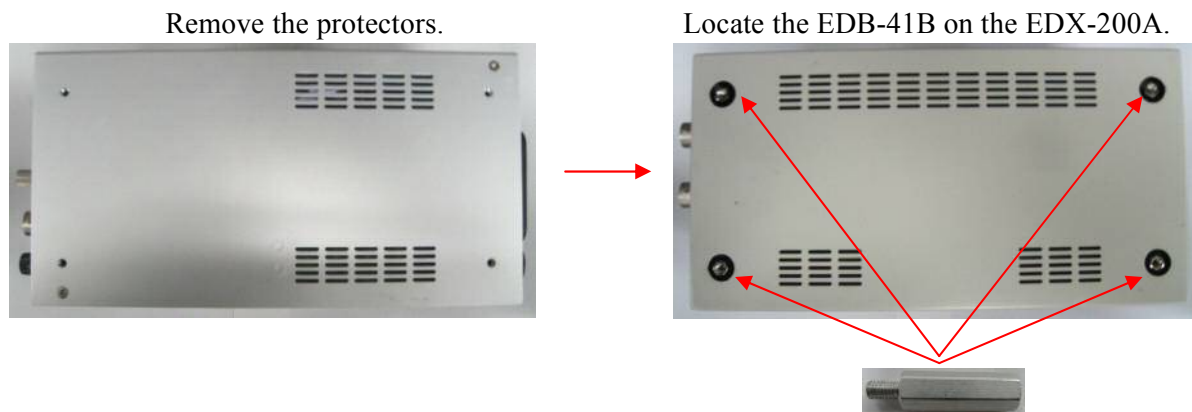


← This side



Bind screws (M4×5)

- 2) Remove the EDX-200A protectors, locate the EDB-41B on the EDX-200A, and fix the EDB-41B with 4 hexagonal spacers M4×24 (Accessory) using an M4 nut driver.



**NOTE**

Fix the EDB-41B with accessory hexagonal spacers.

When fixing the EDB-41B with the hexagonal spacers, take special care not to drop the hexagonal spacers inside the EDB-41B. Or, internal circuit may short-circuit resulting to damage the EDB-41B.

- 3) After mounting the removed protectors to both sides of the EDB-41B with 4 bind screws (item 1), mount the rubber pads for hiding screw holes.

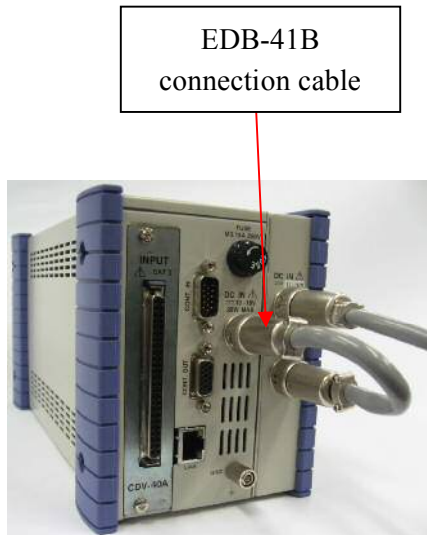


**MEMO**

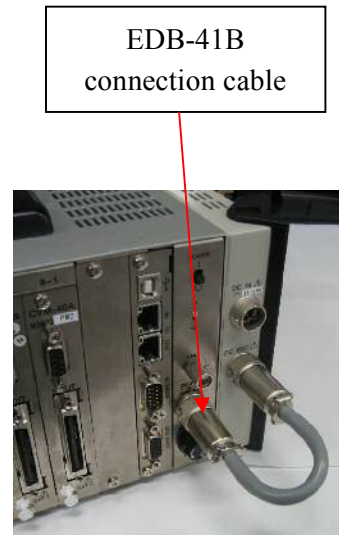
Use the M4 nut driver (socket driver), etc. for fastening the hexagonal spacers.  
M4 nut driver: Opposite side 7 mm (Box diameter: 12 mm or less)

### 3-3 CABLE CONNECTION

- 1) Connect EDB-41B connection cable (Accessory) to EDB-41B [DC OUT] connector and [DC IN] connector of the EDX.



EDX-100A



EDX-200A

- 2) Connect the external power supply (11 to 18 VDC) to the EDB-41B [DC IN] connector.
- 3) Hold down the **CHECK** button of the EDB-41B to check remaining capacity of the built-in battery. (See Table 1 in “2. PARTS NAMES AND MAIN FUNCTIONS.”) If the battery remaining capacity has decreased, charge the battery.
- 4) Then, only when instantaneous power failure occurred in the external DC power supply, power is supplied from the EDB-41B built-in battery.

#### NOTE

When connecting the EDB-41B connection cable (Accessory), take care not to connect the [DC OUT] and [DC IN] connectors of the EDB-41B. Always connect the EDB-41B connection cable to the



Rough standard of continuous operation available time when the new battery pack is already fully charged.

With operating temperature approximately 25°C

|                                                   |                          |
|---------------------------------------------------|--------------------------|
| Using 1 CDV-40B card (8 CHs) to EDX-100A-1 (H):   | Approximately 30 minutes |
| Using 2 CDV-40B cards (16 CHs) to EDX-100A-2 (H): | Approximately 15 minutes |
| Using 4 CDV-40B cards (32 CHs) to EDX-100A-4 (H): | Approximately 5 minutes  |
| Using 2 CDV-40B cards (32 CHs) to EDX-200A-2H:    | Approximately 15 minutes |
| Using 4 CDV-40B cards (32CHs) to EDX-200A-4H:     | Approximately 5 minutes  |

**NOTE**

Note that the above mentioned time is given as a rough standard.

- Operating time comparatively varies with conditioners other than CDV-40B card.
- Operating time varies with operating temperature. When the operating temperature range is other than from 15 to 35°C, since the battery capacity may become shorter, the operating time is shortened.
- If memory effect occurred (See MEMO in “6. METHOD FOR REFRESHING BATTERY.”), the operating time becomes shorter. Problem of memory effect can be solved by refreshing the battery 1 or 2 times. (See “6. METHOD FOR REFRESHING BATTERY.”)
- As deterioration of the built-in battery proceeds, the operating times becomes shortened. If the operating time is still short after refreshing, replacing the battery is required. At this time, contact KYOWA or our representative for replacement.

**NOTE**

When instantaneous power failure occurred during monitoring or recording data, conditioner waveform (data) may be affected by interfering noise caused by repetition of power failure occurrence, depressed power supply voltage level when the power failed, period of power failure time, etc.

## 4. HOW TO USE EDB-41B

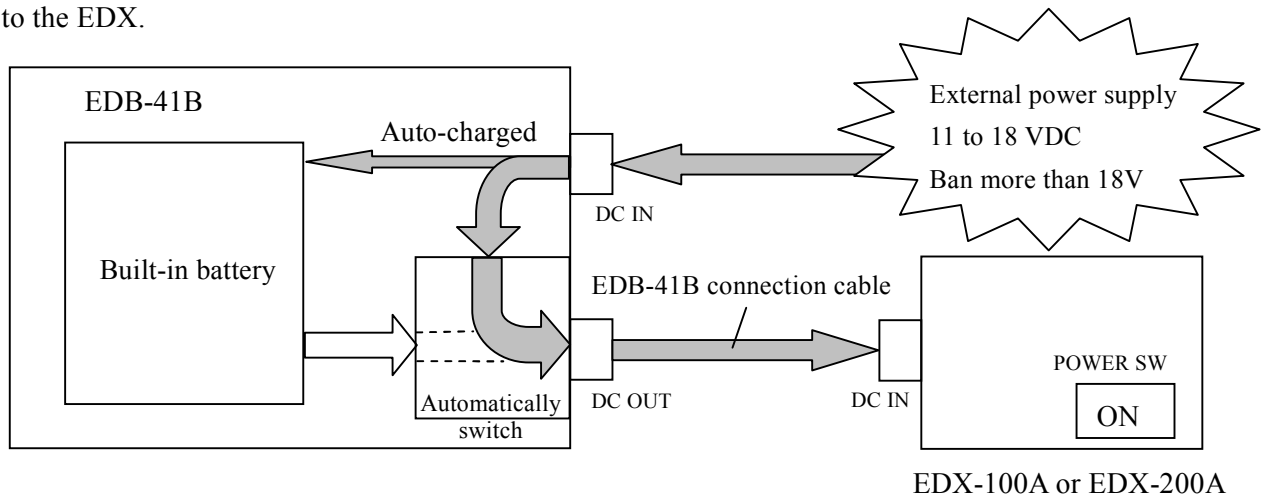
### 4-1 OUTLINE OF HOW TO USE EDB-41B

Install the EDB-41B to the EDX, connect the external power supply (External DC power supply or AC adapter) to the EDB-41B [DC IN] connector, and turn ON/OFF the EDX.

Battery is automatically charged or when instantaneous power failure occurred in external power supply, power is automatically supplied from the EDB-41B.

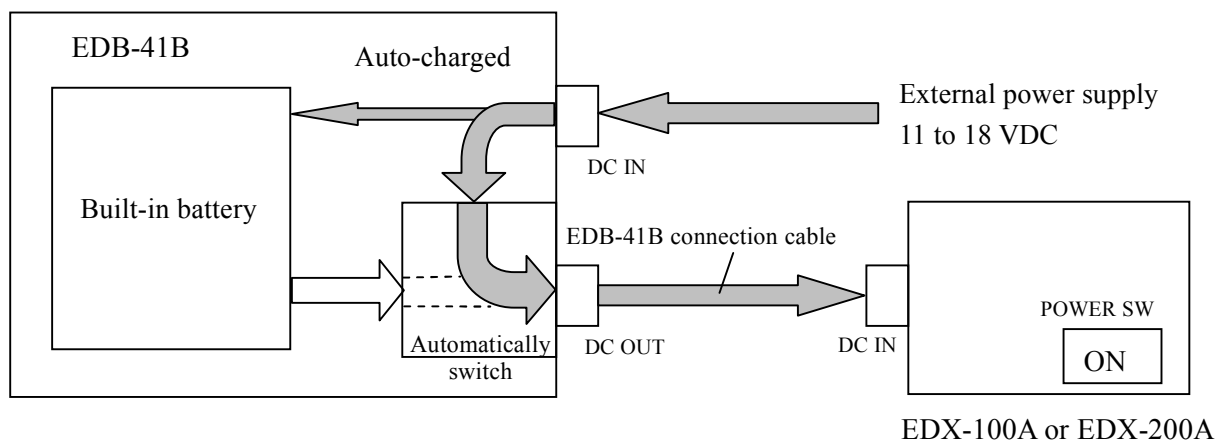
### 4-2 CONNECTING TO EXTERNAL POWER SUPPLY

When the EDB-41B is operated with the external power supply, the built-in battery is automatically charged. (Power supply voltage range: 11 to 18 VDC) Then, power is supplied from the external power supply to the EDX.



### 4-3 POWER ON EDX-100A or EDX-200A

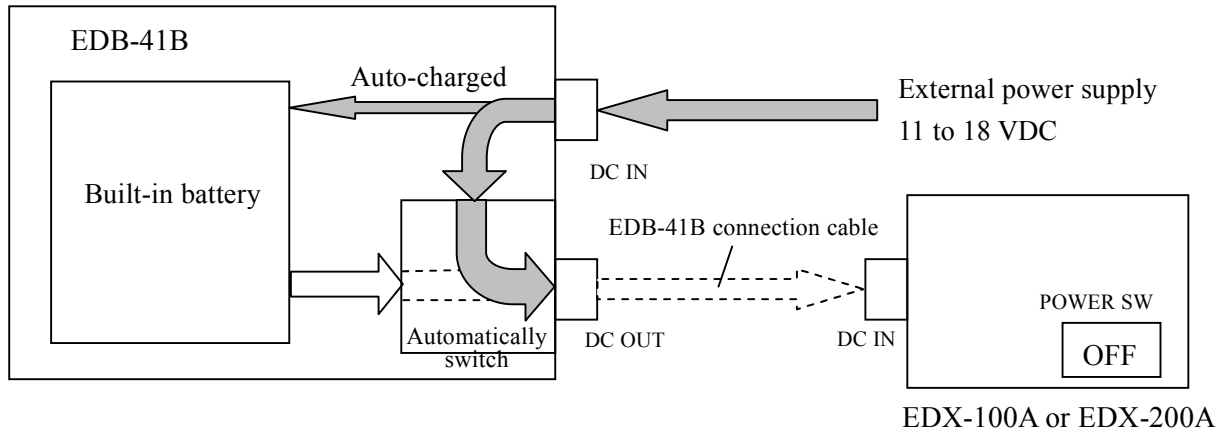
When power is supplied from the external power supply, turn ON the EDX to activate the EDX.



#### 4-4 POWER OFF EDX-100A or EDX-200A

When the EDX is not monitoring or recording data, turn OFF the EDX.

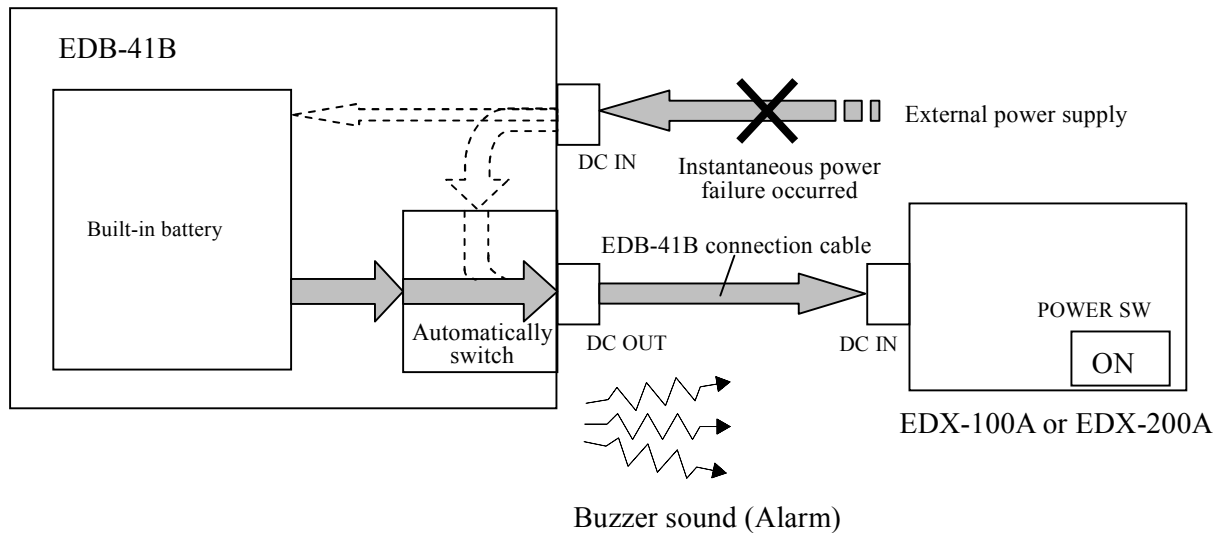
As long as the external power supply is connected, the built-in battery is automatically charged until it is fully charged, unless you turn off the EDX.



#### 4-5 EDB-41B OPERATION WHEN POWER FAILURE OCCURRED

When instantaneous power failure occurred in the external power supply, power is instantly supplied from the built-in battery.

While the EDX is operated with a built-in battery, alarm buzzer is continuously issued.



## 5. HOW TO CHARGE THE BUILT-IN BATTERY

This Chapter describes how to charge the built-in battery.

Connect the external DC power supply (Power supply voltage range: 11 to 18 VDC) to the EDB-41B [DC IN] connector. Then, charging the built-in battery automatically starts ([CHARGE] LED: ON green) and automatically stops when the built-in battery is fully charged ([CHARGE] LED: OFF).



### NOTE

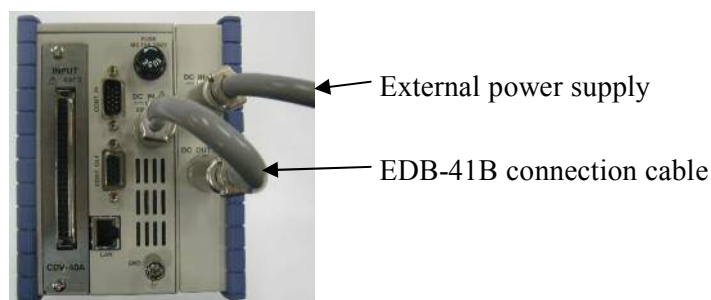
- Charge the battery with a temperature range 0 to 30°C. When the operating temperature is exceedingly high, battery charge may not start due to the battery temperature monitoring function. If battery charge is conducted exterior of the above temperature range and if the battery is fully charged, since the battery charge is finished on halfway and it is not fully charged to 100% capacity. In addition, deterioration of the service life of the built-in battery itself may be quickened
- With the EDX-100A (10 to 18 VDC) or with the EDX-200A (10 to 36 VDC), always operate the EDB-41B with power supply voltage range 11 to 18 VDC. Be sure to keep the voltage range. Or, accident may occur and the EDB-41B may be damaged.
- When using the EDB-41B, always fully charge the battery before measurement.

## 6. HOW TO REFRESH THE BUILT-IN BATTERY

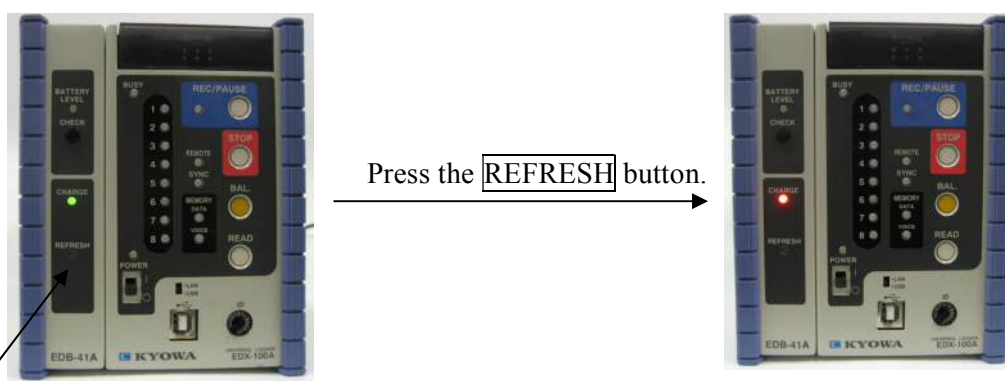
This Chapter describes how to refresh the built-in battery.

Since a Nickel-Metal Hydride (Ni-MH) battery is used in the EDB-41B, memory effect occurs. To avoid the memory effect, it is recommended to periodically refresh (fully discharge and then fully charge) the battery once in a month.

- Connect the external power supply (Power supply voltage range: 11 to 18 VDC) to the EDB-41B [DC IN] connector. Battery refresh is also available with no EDB-41B connection cable connected.



- When the battery is automatically charged ([CHARGE] LED: ON green), press the **REFRESH** button. Then, the battery is forcibly discharged ([CHARGE] LED: ON orange)



**REFRESH** button

- When the battery capacity becomes empty, it automatically starts charging. ([CHARGE] LED: ON green)
- When the battery capacity becomes fully charged, it automatically stops charging. ([CHARGE] LED: OFF)

Time required for refresh operation largely varies with remaining capacity of the built-in battery. Since forced discharge is conducted with enough time until the battery is completely discharged, the refresh period shall be as follows according to the remaining capacity.

Suppose operating temperature is approximately 25°C

When remaining capacity of the built-in battery is almost depressed: 2.7 to 3.5 hours

When remaining capacity of the built-in battery is left: 5.7 to 6.5 hours

### NOTE

When the battery refresh period is short, conduct battery refresh several times. If it is still short, replacing the battery is required. Contact KYOWA or our representative for replacement.

#### MEMO

Memory Effect is a phenomenon effect that causes to lose the capacity of the battery if a battery is additionally charged before it is completely discharged. Especially, if the battery discharged is stopped every time at the same point with its remaining capacity, the capacity of the battery becomes remarkably depressed. This phenomenon is a temporary state. The battery capacity can be restored by deep discharging (complete discharge) and then fully charging the battery once or twice. One cycle of the battery refresh is in the following steps; deep discharge (complete discharge) → charge → fully charge (complete charge).

If the battery drains quickly even after refreshing several times, replacing the built-in battery is required.

At this time, contact KYOWA or our representative.

#### NOTE

- Refresh the battery with a temperature range 0 to 30°C. When the operating temperature is exceedingly high, battery charge may not start according to battery temperature monitoring function. If battery charge is completed exterior of the above temperature range, since battery charging is finished halfway, it is not charged up to 100% of its capacity. In addition, deterioration of the built-in battery becomes faster.
- With the EDX-100A (10 to 18 VDC) or with the EDX-200A (10 to 36 VDC), always operate the EDB-41B with power supply voltage range 11 to 18 VDC. Be sure to keep the voltage range. Or, accident may occur and the EDB-41B may be damaged.

## 7. TROUBLESHOOTING

In the event the EDB-41B does not operate as expected or in a stable manner, you should trace the factor(s) that may be contributing to such a condition before concluding that the EDB-41B has failed. Items to be checked and remedies for various phenomena are described in the following table. If the problem persists even after taking corrective actions, contact KYOWA or our representative.

If the EDB-41B is damaged or caused by usage other than as specified in this Instruction Manual, or if the user has disassembled or modified the EDB-41B, Kyowa Electronic Instruments Co., Ltd. may not be able to offer repair service.

**Troubleshooting for the EDB-41B**

| Phenomenon                                                         | Check Items and/or Countermeasures                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EDX would not start up with the external DC power supply.          | <ul style="list-style-type: none"> <li>Is the external DC power supply applied with specified voltage?<br/>Check the voltage with a tester.</li> <li>Is the DC power supply cable securely connected?</li> <li>Check whether or not the DC fuse of the EDX is meltdown. Spare fuse of the DC power supply is attached to the EDX. If the fuse is meltdown, remove the cause of the problem before replacing the fuse.</li> </ul>                                                                                                                                      |
| EDX [POWER] LED does not light up green.                           | <ul style="list-style-type: none"> <li>The EDX starts up with the applied DC power supply voltage approximately more than 11 volts. Check whether the external DC power supply voltage has the specified voltage.</li> </ul>                                                                                                                                                                                                                                                                                                                                          |
| Battery charge is not activated even if connecting to the EDB-41B. | <ul style="list-style-type: none"> <li>Does the external DC power supply have 11 to 18 volts?</li> <li>Is AC adaptor securely connected?</li> <li>Is the EDB-41B is used at ambient temperature 0 to 30°C?</li> <li>Is the battery completely discharged?<br/>At this time, charging the battery may take a certain period of time.</li> </ul>                                                                                                                                                                                                                        |
| No refresh operation is activated.                                 | <ul style="list-style-type: none"> <li>Does the external DC power supply have 11 to 18 volts?</li> <li>Since service life of the EDB-41B built-in battery is short or over discharged, replacing the battery is required.<br/>At this time, contact KYOWA or our representative.</li> <li>Is the battery completely discharged?<br/>At this time, refreshing the battery may take a certain period of time.</li> <li>If the built-in battery is a new one, damage in the EDB-41B may be considered.<br/>At this time, contact KYOWA or our representative.</li> </ul> |

## 8. MAINTENANCE

This Chapter is related to detailed items for maintenance of the EDB-41B.

Recommended maintenance is described in the following table.

Table 8-1 Maintenance and frequency

| Item                            | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Frequency       |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Charging the built-in battery   | If the EDB-41B is not used for more than 1 week, fully charge the built-in battery before storage. Even if it is not used, the built-in battery is naturally discharged gradually over time. Therefore, if it is stored for a long period of time without charging, the battery voltage is depressed due to natural discharge and if the battery voltage becomes too low, charging may not be available. If charging is not available, replacing the battery is required. At this time, contact KYOWA or our representative. | Once in a month |
| Refreshing the built-in battery | Built-in battery of the EDB-41B is Nickel-Metal Hydride (Ni-MH) battery. Capacity of the battery is depressed by memory effect of the Nickel-Metal Hydride (Ni-MH) battery. To solve the problem of decreasing battery capacity due to the memory effect, refresh the battery.                                                                                                                                                                                                                                               | Once in a month |
| Replacing the built-in battery  | It is required to periodically replace the EDB-41B built-in battery with a new one. In addition, after purchase or even within 1 year after purchase, depending on frequency in use or operating temperature (ambient Temperature), the battery becomes deteriorated. If battery charge period is exceedingly short or charging becomes disabled or battery capacity is not restored even after been charged, replacing the battery is required. At this time, contact KYOWA or our representative.                          | Once in a year  |

Table 8-2 Replacement of limited life parts

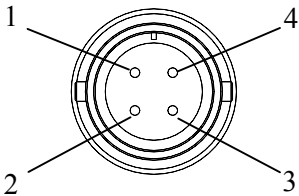
| Item                             | Content                                                                                                                                                                                                                                                                                                                                                              | Frequency             |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Mechanical relay                 | Service life, depends on the frequency of use and ambient temperature, is approximately 5 years. If power is not provided from the built-in battery when the external power supply fails or if the EDB-41B does not turn on, the mechanical relay should be replaced. Must be returned to KYOWA for replacements.                                                    | Once in every 5 years |
| Built-in Battery (Ni-MH battery) | Service life, depends on the frequency of use and ambient temperature, is approximately 1 year. If power is not provided from the built-in battery when the external power supply fails, if the built-in battery is not charging, or if the built-in battery is not refreshing, the built-in battery should be replaced. Must be returned to KYOWA for replacements. | Once in a year        |

The replacement frequency of limited-life parts is about five years, assuming eight hours of use, 365 days a year. The above figure is only a rough indication. We do not promise or guarantee that the EDB-41B is error-free or will be repaired at no additional cost in the above period. To operate the EDB-41B normally, finding a sign of the EDB-41B failure early by daily/periodic inspections and taking the corrective action are required. Particularly if the EDB-41B is used continuously for long periods of time, early replacement of parts is required for the purposes of safety and stable operation. The EDB-41B is not designed for continuous operation of 24 hours. We do not guarantee the continuous operation of the EDB-41B and shall not be responsible for any failure of the EDB-41B to perform within the warranty period.

# 9. CONNECTOR PIN ASSIGNMENT

## 9-1 DC IN CONNECTOR (4 PIN MALE)

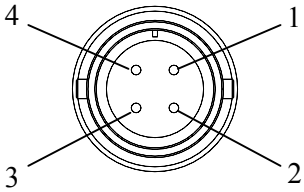
| Pin No. | Name   |
|---------|--------|
| 1       | + side |
| 2       | + side |
| 3       | - side |
| 4       | - side |



Model name: RM12BRD-4PH  
Manufacturer: HIROSE

## 9-2 DC OUT CONNECTOR (4 PIN FEMALE)

| Pin No. | Name   |
|---------|--------|
| 1       | + side |
| 2       | + side |
| 3       | - side |
| 4       | - side |



Model Name: RM12BRD-4S  
Manufacturer: HIROSE

## 10. SPECIFICATIONS

|                                   |                                                                                                                              |                                      |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|
| Name .....                        | Battery Unit for Instantaneous Power Failure                                                                                 |                                      |
| Model Name .....                  | EDB-41B                                                                                                                      |                                      |
| Applicable EDX                    | EDX-100A-1(H), EDX-100A-2(H), EDX-100A-4(H), EDX-200A-2H, EDX-200A-4H                                                        |                                      |
| Built-in Battery .....            | Battery type:                                                                                                                | Nickel-Metal Hydride (Ni-MH) battery |
|                                   | Nominal capacity:                                                                                                            | 730 mAh                              |
|                                   | Nominal voltage:                                                                                                             | 12 V                                 |
| External Power Supply Input ..... | 11 to 18 VDC                                                                                                                 |                                      |
|                                   | [DC IN] connector type: RM12BRD-4PH (HIROSE made)                                                                            |                                      |
|                                   | DC power supply, AC adapter (Optional) for EDX-100A, or AC adapter (Optional) for EDX-200A is used                           |                                      |
| Power Supply Output .....         | When operated on external power supply:                                                                                      |                                      |
|                                   | Voltage of the external power supply                                                                                         |                                      |
|                                   | When operated on the EDB-41B (During instantaneous power failure):                                                           |                                      |
|                                   | Approximately 11 to 15 V                                                                                                     |                                      |
|                                   | [DC OUT] connector type: RM12BRD-4S (HIROSE made)                                                                            |                                      |
| Charging Method .....             | Automatically starts charging the battery by connecting the external power supply. (Battery charging period: Max. 3.5 hours) |                                      |
|                                   | Starts discharging by pressing the <b>REFRESH</b> button.                                                                    |                                      |
|                                   | (Refresh period: Max. 6.5 hours)                                                                                             |                                      |
| Indicator .....                   | [BATTERY LEVEL] LED (With <b>CHECK</b> button turned ON.)                                                                    |                                      |
|                                   | Remaining capacity of the built-in battery is 10% or more:                                                                   |                                      |
|                                   | Lights up green                                                                                                              |                                      |
|                                   | Remaining capacity of the built-in battery is 10% or less:                                                                   |                                      |
|                                   | Lights up red                                                                                                                |                                      |
|                                   | [CHARGE] LED                                                                                                                 |                                      |
|                                   | During charging                                                                                                              | ON green                             |
|                                   | During discharging                                                                                                           | ON orange                            |
|                                   | Charging complete                                                                                                            | OFF                                  |
| Buzzer .....                      | During instantaneous power supply, alarm buzzer is issued.                                                                   |                                      |
| Operating Temperature Range ..... | 0 to 50°C (However, when charging and refreshing: 0 to 30°C)                                                                 |                                      |

Operating Humidity Range .....20 to 90% RH (Noncondensing)

Storage Temperature Range .....-20 to 50°C

Vibration Resistance ..... $\pm 29.42 \text{ m/S}^2$  (3G), 5 to 55 Hz (When operated)  
..... $\pm 49.03 \text{ m/S}^2$  (5G), 5 to 55 Hz (When not operated)

Impact Resistance ..... $196.10 \text{ m/S}^2$  (20 G), 11 msec

External Dimensions .....25 (W) × 132.5 (H) × 255 (D)

Weight .....Approximately 500 g

Backup time (Reference) .....Approx. 30 minutes

When 1 CDV-40B card (8 CHs) is installed to the  
EDX-100A-1(H) and full loaded

Approx. 15 minutes

When 2 CDV-40B cards (16 CHs) are installed to the  
EDX-100A-2(H) and full loaded

Approx. 5 minutes

When 4 CDV-40B cards (32 CHs) are installed to the  
EDX-100A-4(H) and full loaded

Approx. 15 minutes

When 2 CDV-40B cards (16 CHs) are installed to the  
EDX-200A-2H and full loaded

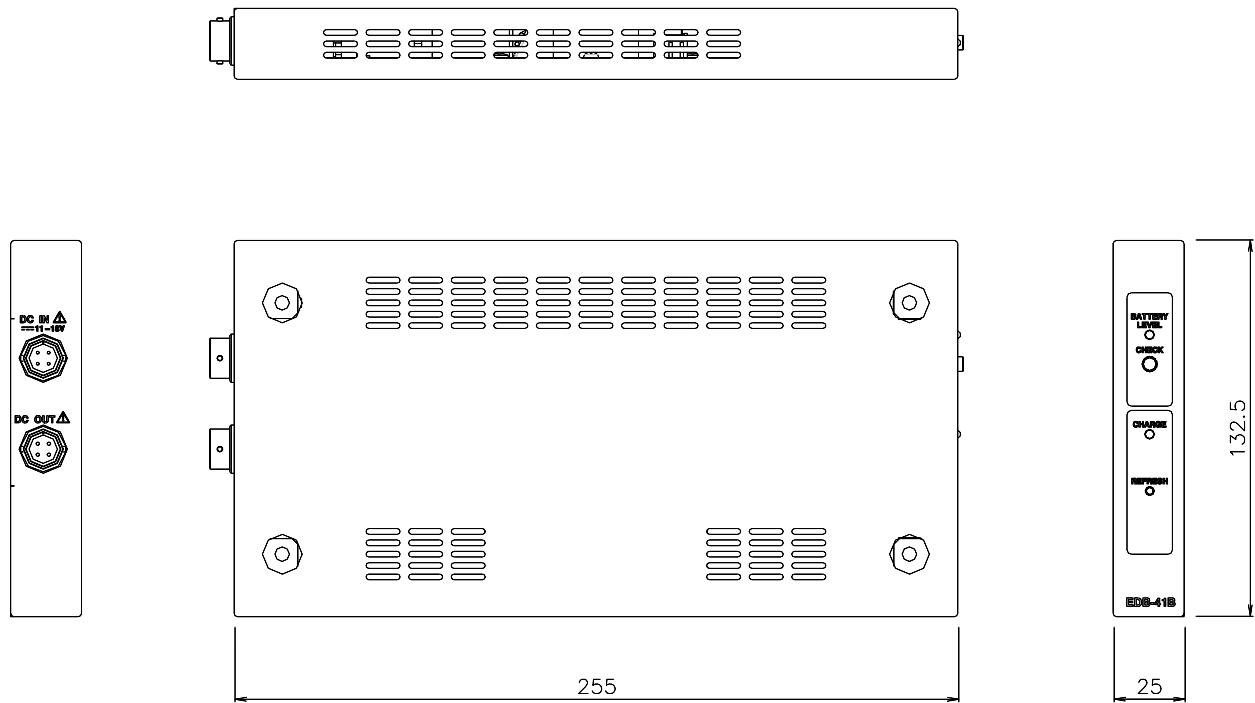
Approx. 5 minutes

When 4 CDV-40B cards (32 CHs) are installed to the  
EDX-200A-4H and full loaded

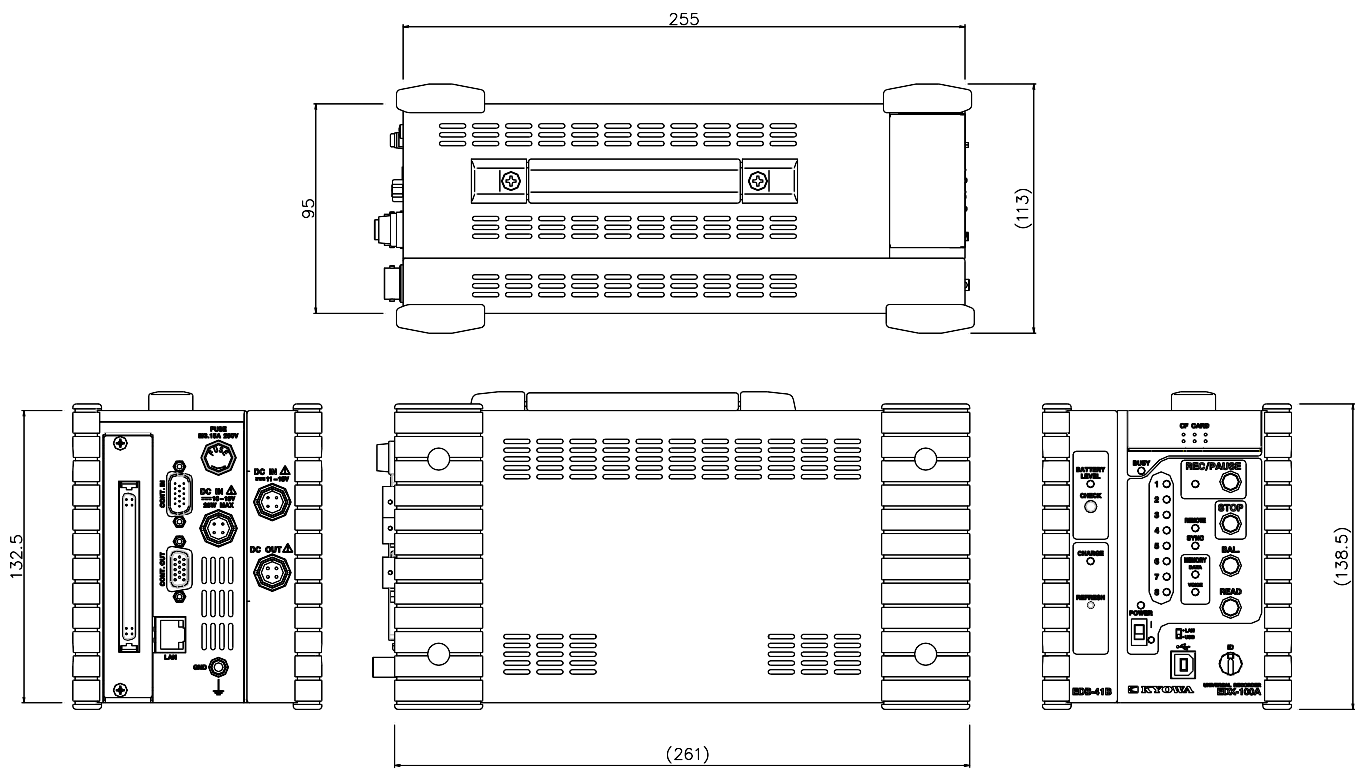
\* When built-in battery is fully charged and ambient  
temperature is 20 to 30°C

11. OUTSIDE DRAWING

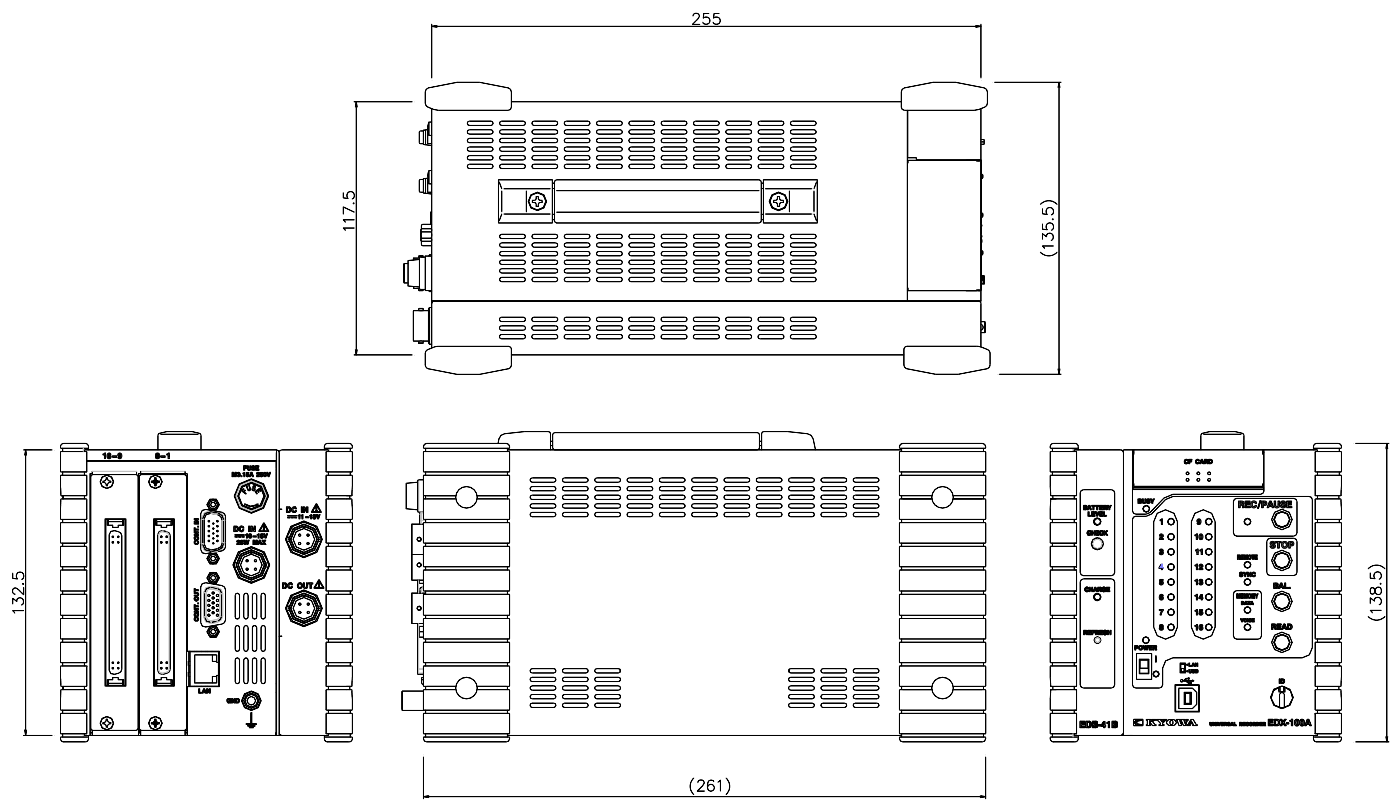
11-1 EDB-41B BATTERY UNIT FOR INSTANTANEOUS POWER FAILURE



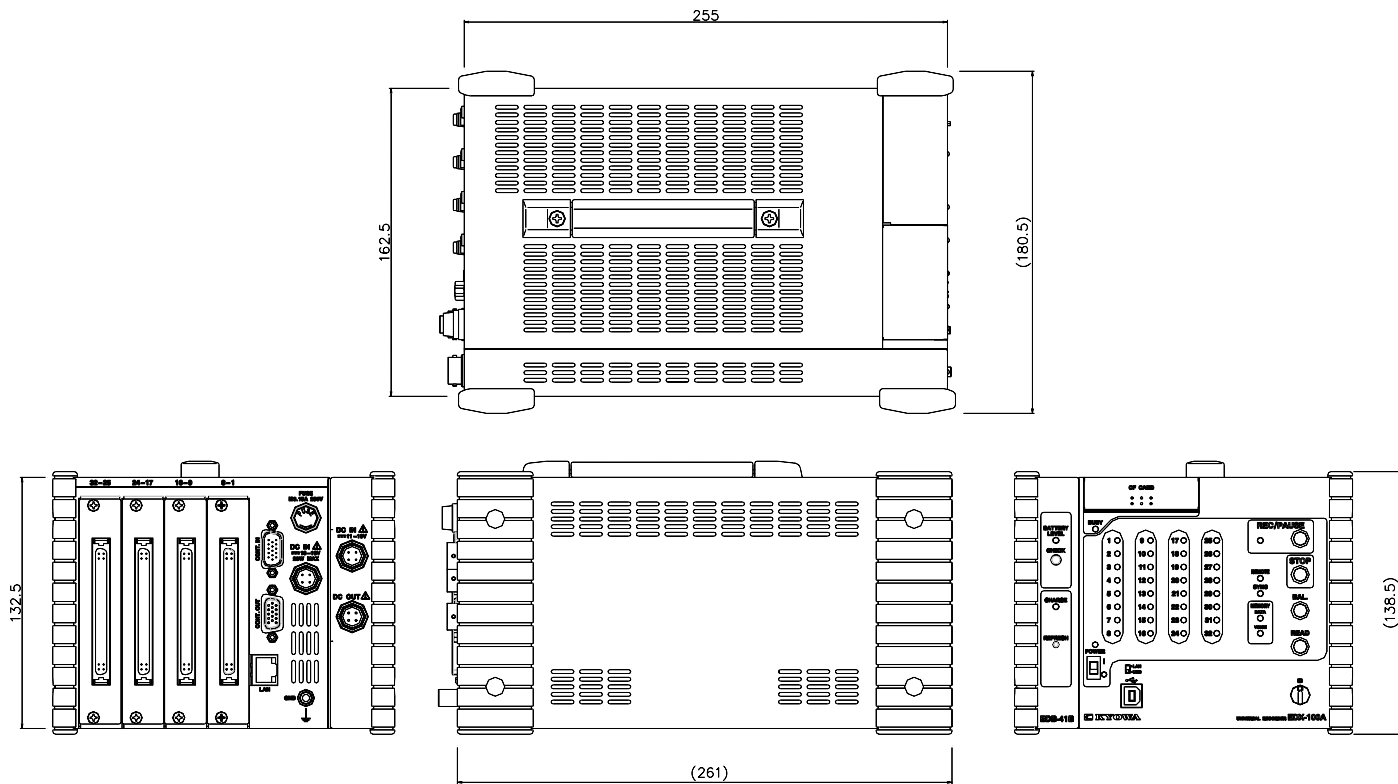
11-2 WHEN INSTALLING EDB-41B ON EDX-100A-1H



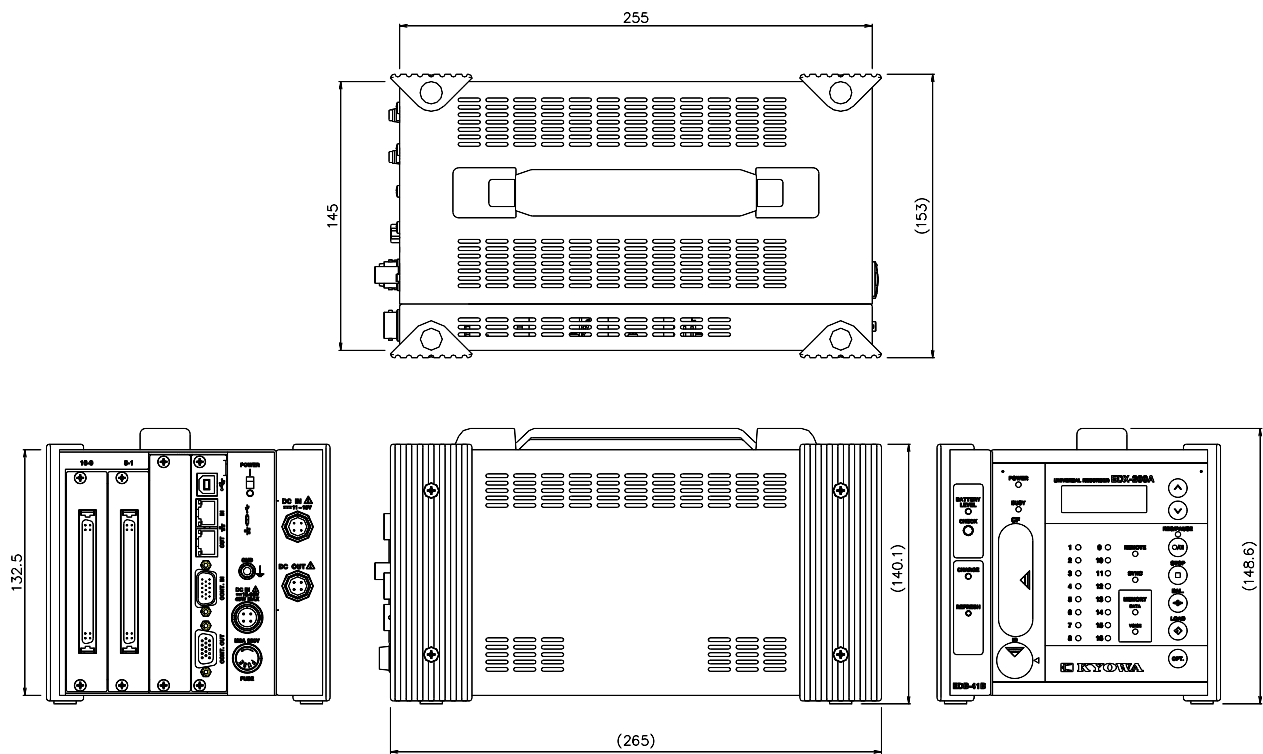
11-3 WHEN INSTALLING EDB-41B ON EDX-100A-2H



11-4 WHEN INSTALLING EDB-41B ON EDX-100A-4H



11-5 WHEN INSTALLING EDB-41B ON EDX-200A-2H



11-6 WHEN INSTALLING EDB-41B ON EDX-200A-4H

