User's Manual

Model 269913
Battery pack

1. Checking Accessories and Appearance

Verify that the supplied accessories are present in good order and in the correct quantities.

Model code

Name	Parts No.
Battery pack	269913

Accessories

The battery pack should be accompanied by the following accessories:

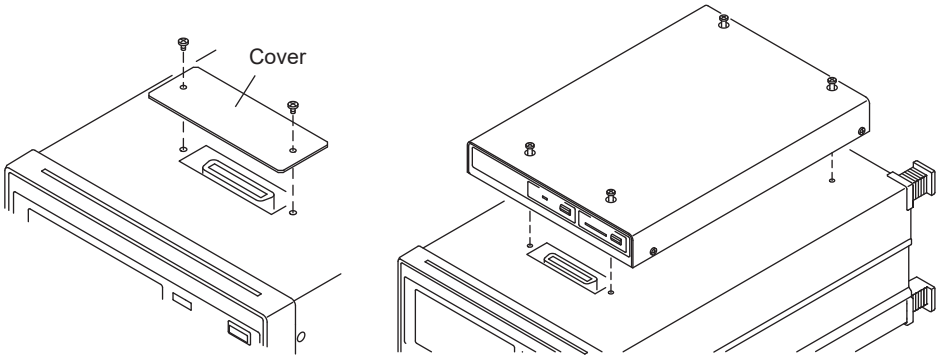
- 1 Safety seal
- 1 Instruction Manual(IM269913-01E)
- 4 Screws (M5 x 40 mm)

2. Connecting the Battery Pack to the Main Unit

WARNING

- Before attaching the battery pack to the instrument, be sure to turn OFF the POWER switch (on the front panel) then the LINE switch (on the rear panel), and remove the power cord from the AC outlet.

Remove the blank cover from the top of the instrument, plug in the connector from the battery pack into the connector on the instrument, then tighten the battery pack with the four screws (M5 x 40 mm) using a screwdriver.



Note

- When the battery pack is connected to the instrument or when the Ni-Cd batteries contained in the battery pack are replaced, make sure the following steps are performed so that the instrument can be operated from the batteries.
  With the AC power supplied, turn the LINE switch ON and OFF. If the LINE switch is already ON, turn it OFF first, then turn it ON and OFF again.
- The seal supplied with the battery pack can be affixed to the top of the pack.
- The GP-IB interface cannot be used if the instrument is operated from the battery pack.

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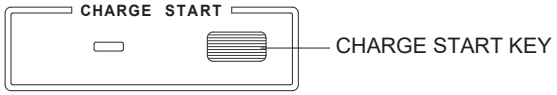
Charging the Ni-Cd Batteries

1. Turn the LINE switch ON.
2. Press the CHARGE START key to start charging. The green LED on the battery pack will blink during charging.
3. Charging continues for approximately 12 hours. This is resulted by the internal timer. After 12 hours have elapsed, charging ends automatically. This is called a □complete charge□. The LED stops blinking and remains lit. The LED stays lit until the LINE switch is turned OFF.



Note

- Before charging a battery pack, make sure that each Ni-Cd battery contained in the pack has been discharged completely. If charging is started on a battery which has not been discharged completely or on a battery for which charging has been stopped half way through, the life of the battery pack will be reduced.
- When you are going to use a new battery pack, be sure to charge it completely.
- Use AC power to charge the battery pack.

Checking the Remaining Life of the Battery Pack

When the instrument is operated from the battery pack, it is possible to check the life remaining in the battery pack.

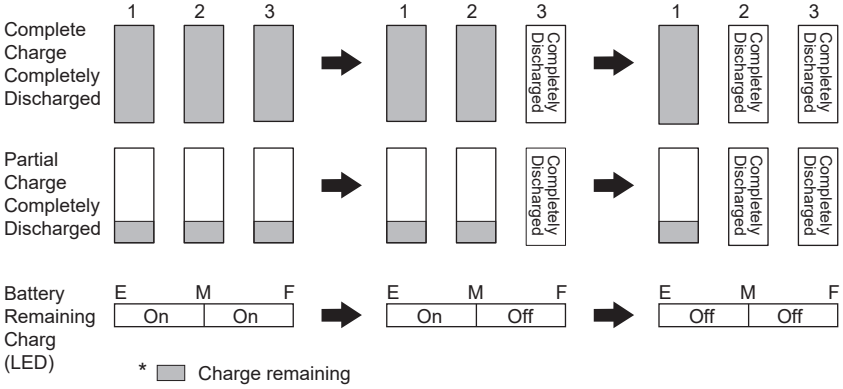
Note

- If the Ni-Cd batteries contained in the battery pack are replaced, be sure to perform the following steps.
  With the AC power supplied, turn the LINE switch ON and OFF. If the LINE switch is already ON, turn it OFF first, then turn it ON and OFF again.
  This operation will reset the remaining life indicator of the battery pack and prepare the instrument for operation with the new batteries.

Hold down the BATTERY CHECK key. The red LED lights up and the remaining life of the battery pack is indicated as follows.
Two LEDs are lit. ..... Approx. 4 to 6 hours
One LED is lit. ..... Approx. 2 to 4 hours
Both LEDs are unlit. ..... Approximately 2 hours or less. Use up the batteries (discharge them completely).

Note

- The battery pack contains three Ni-Cd batteries. The remaining life means the total remaining life of the three batteries and is described as follows. When both red LEDs go out, a ▭ mark is displayed in the upper part of the screen.



- Once ▭ mark is displayed, it will not go out even if the instrument is operated using DC power.

CAUTION

- When charging the batteries, make sure that the instrument is positioned horizontally or vertically or is placed on the stand. Make sure that there is no obstruction around the instrument, so that heat generated in the battery pack is properly dissipated.
- If the LINE switch is turned ON with the battery pack connected to the instrument, the batteries will be trickle-charged. In trickle charging, the batteries are charged until natural discharge is compensated for. If you are not going to use the instrument for a long period of time, make sure that both the POWER and LINE switches are turned OFF.
- Never over-charge the batteries for a long time, otherwise the life of the batteries will become shorter. Since gas or electrolytic solution may begin to leak from the batteries if they are charged for an excessively long time, be sure to turn the LINE switch OFF if you are not going to use the instrument after charging.

Life of a Ni-Cd Battery

The battery pack usually lasts approximately six hours when it is used continuously. However, the life of the battery pack varies depending on the operating conditions. If it is used continuously with a load current for the 24-VDC output exceeding 20 mA, the life of the battery will be drastically reduced. Refer to the table below.

DMM	24V Output	Back Lighting	Life (when used continuously)
ON	ON	ON	Approx. 6 hours
ON	OFF	OFF	Approx. 9 hours
OFF	OFF	ON	Approx. 11 hours
OFF	ON	OFF	Approx. 12 hours
OFF	OFF	OFF	Approx. 14 hours

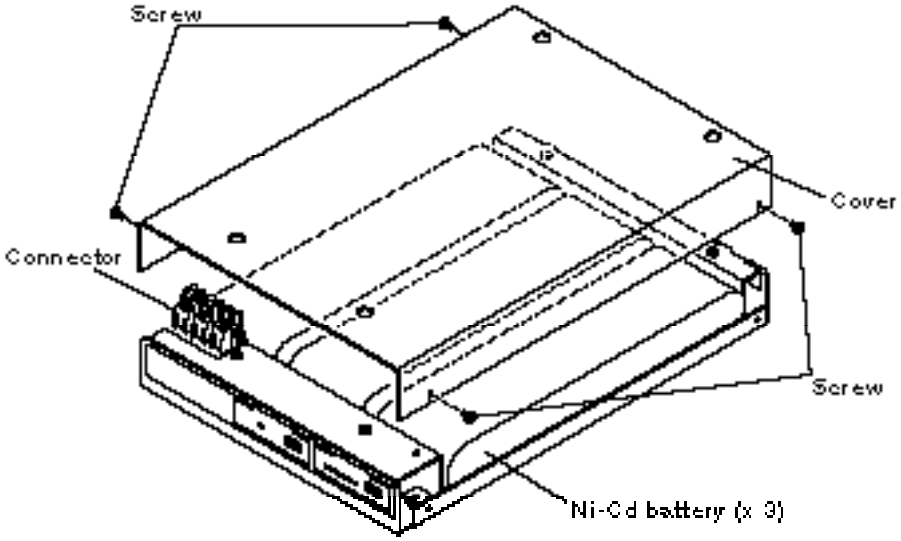
Replacing the Ni-Cd Batteries

The life of the Ni-Cd batteries is reduced if they are used repeatedly, even if they are charged completely. The battery replacement interval differs depending on operating conditions, but you should replace them approximately every two years.
Battery replacement must be performed as described on the next page.

WARNING

- Before replacing the batteries, be sure to turn OFF the POWER switch (front panel) then the LINE switch (rear panel), and remove the power cord from the AC outlet, since there is the possibility of an accident or short-circuit in the charging circuit.
- Use only Ni-Cd batteries manufactured by YOKOGAWA (type: 269914)

1. Turn OFF the POWER switch, then the LINE switch.
2. Remove the power cord from the AC outlet.
3. Remove the four screws (M3 x 5 mm) using a screwdriver as shown below.
4. Unplug the connector. Do not pull on the connector cable. All three Ni-Cd batteries must be replaced together.
5. Plug in the connector all the way, replace the blank connector cover, then tighten the four screws. When replacing the blank connector cover, take care not to trap the connector cable.



Note

- When disposing of the Ni-Cd batteries, follow the laws and ordinances of your country or region.
- Do not mix old and new batteries.