

Battery Replacement

Recommended Batteries

The required battery type and the recommended manufacturers are shown below.



CAUTION

The battery usage temperature range differs by the manufacturer. Select the battery to use while also taking note of the usage temperature range of the TS1000S.

Model	Recommended Manufacturer	TS1000S Usage Temperature Range
CR2032 Coin-type lithium primary cell	Maxell Holdings	0 °C to +50 °C
	Panasonic	
	Mitsubishi	0 °C to +45 °C
	FDK	

Safety Instructions on Handling Batteries

Lithium batteries contain combustible material such as lithium and organic solvents. Mishandling may cause heat, explosion, or ignition resulting in fire or injury. To prevent accidents, pay attention to the following cautions when handling lithium batteries.



DANGER

- The battery indicates polarity with a "+" symbol so be sure to insert the battery in the correct direction. Inserting the battery in the wrong direction may cause the battery to burst or ignite.
- The electrodes are exposed on CR2032 batteries. Do not carry or store replacement batteries together with metal objects. Short-circuiting of the electrodes may reduce battery capacity or cause batteries to burst or ignite.
- Do not disassemble, incinerate, or heat batteries.
- Never attempt to recharge batteries.



CAUTION

- Only experts are authorized to perform battery replacement.
- Be sure to discharge static electricity from your body before performing battery replacement.
- Use the recommended battery for replacement.
- Rough handling of the battery may cause fire or chemical burns.
- Do not disassemble, incinerate, or heat the battery.
- Observe local and governmental regulations when disposing of waste batteries.
- Keep batteries out of reach of children. (If swallowed, immediately consult a doctor.)
- If a battery leaks or smells, note that the leaking battery electrolyte is flammable. Keep away from heat or flame.

SRAM Area Backup Procedure

Use the V-SFT-6 editor or a storage device to make a backup copy of the data in SRAM before replacing the battery.

When Using the V-SFT-6 Editor

- 1) Connecting a cable
Connect the TS1000S unit and the computer using the transfer cable (USB cable or Ethernet cable).
 - 2) Starting the V-SFT-6 editor
Start the V-SFT-6 editor on the computer.
 - 3) Displaying the [Transfer] dialog
Click [Transfer] → [Upload]. The [Transfer] dialog is displayed.
 - 4) Selecting data to be transferred
Select [SRAM Data] for [Transfer Data].
 - 5) Starting SRAM data transfer
Click the [PC <-] button. Data transfer from the SRAM is started.
 - 6) Saving the SRAM data
When the SRAM data has been transferred, the [Save As] dialog is displayed on the computer. Save the data as a backup copy. The file extension is "*.RAM".
- * To transfer the "*.RAM" data, which was saved as a backup copy, back to the TS1000S unit, click [Transfer] → [Download] in step 3, and click the [PC ->] button in step 5.

When Using a Storage Device

For details on the procedure for making backup using a storage device (USB flash drive), refer to "7-3. Saving Backup Copies of SRAM" (page 5-23).

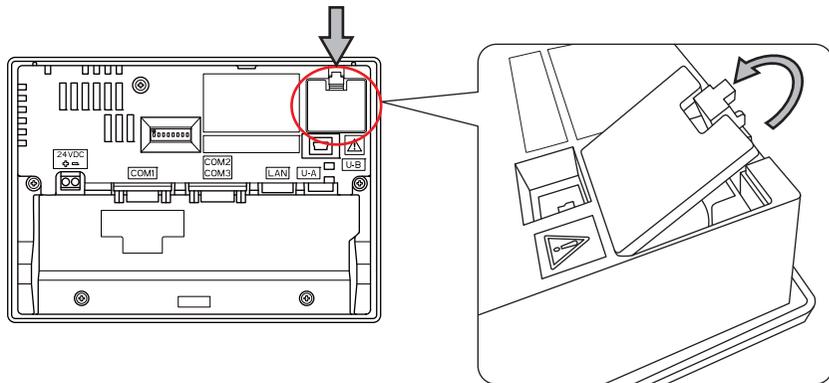
Battery Replacement Procedure



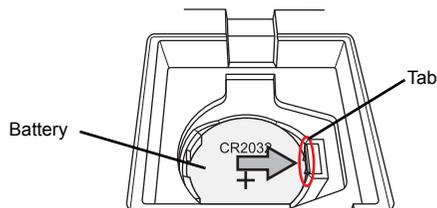
There is a risk of electric shock.
Turn off power to the TS1000S unit before performing steps 2. through 5. below.

1. Turn off power to the TS1000S unit.
2. Slide the battery holder cover in the direction of the arrow to open it, and then remove the cover.

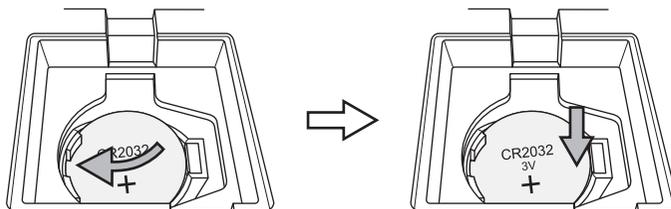
Rear view



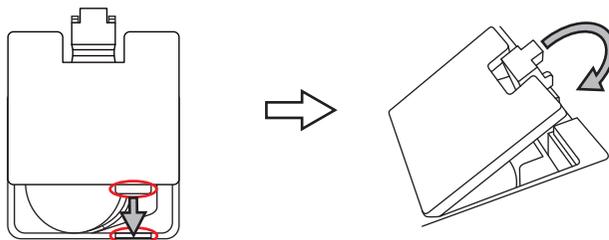
- Press the tab to the right of the battery in the direction of the arrow. The right side of the battery will come up. Take the battery out with your fingers.



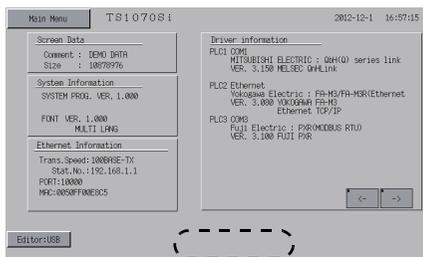
- Slide a new battery left into the battery holder with the "+" side facing upward and then press the right side of the battery until it clicks.



- Close the battery holder cover by inserting the tab on the bottom of the cover into the TS1000S unit and pressing the top of the cover until it clicks.



- Turn on the TS1000S unit and check that the "Brownout of Battery" message has disappeared from the bottom of the Main Menu screen.



- If a "*.RAM" backup file was saved, transfer it back to the TS1000S unit. When using the built-in clock, set the clock again. For details on clock correction, refer to "5-1. Date and Time Adjustment" (page 5-13).

Notes on the Battery: EU Directive 2006/66/EC

According to the EU directive 2006/66/EC effective in EU countries, the package box of the TS1000S have the marking shown below.



CAUTION

- The marking shown above is effective only in EU countries.
- The details on the marking are designated in Article 20 “Information for end-users” and ANNEX II in EU directive 2006/66/EC.
- The marking indicates that the battery should be disposed of separately from general household waste.
- If element symbols are indicated below the marking, it means that the battery contains the specified heavy metal at a concentration exceeding the control value. The concentration control values are given below.
Hg: mercury (0.0005 %), Cd: cadmium (0.002 %), Pb: lead (0.004 %)
- The EU has determined the separating program for used batteries.
Dispose of used batteries properly at your local waste-disposal/recycling center.

“Perchlorate Best Management Practices” Regulations in California State Law, U.S.

The TS1000S is an applicable product under the “Perchlorate Best Management Practices” regulations of California state law in the U.S. The package box of the TS1000S unit have the explanation shown below.

Perchlorate Material - special handling may apply.
See www.dtsc.ca.gov/hazardouswaste/perchlorate

If exporting a product with an embedded TS1000S unit that contains a lithium primary battery to California, the above explanation must be printed on the product’s package box.

Notes on Transport

Transportation of batteries containing lithium must observe the transport regulations.