

Energy Storage Module / Controller

User's Manual

**IJ1001M
IJ1001C/IJ1002C/IJ4001C**

Introduction

Thank you for choosing Sony's energy storage module/controller.

The energy storage module comprises of lithium ion rechargeable batteries with 1.2 kWh capacity, and the controller enables a central of multiple modules.

This manual provides information regarding safety precautions to prevent possible accidents and how to use the product.

Please read this manual carefully before use for safety and keep this manual handy for reference.

Main Features

Long life span

The battery can be expected to remain serviceable for more than 10 years, provided it is charged and discharged once in a day at room temperature (23 deg. C).

Higher Safety

Olivine-type lithium iron phosphate batteries with excellent thermal stability and storage characteristics are used in this product. The module also incorporates a self-monitoring function, for detection of any abnormalities in energy storage. The monitored status can be communicated to an external controller to safely control the usage state of the battery.

Quick Charge

More than 90% of the capacity can be charged in one hour.

High Scalability

Multiple energy storage modules can be connected to the controller, and voltage and capacity can be customized according to the intended use.

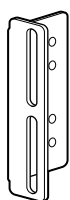
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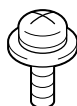
Accessories (included/sold separately)

Accessories for controller

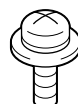
- Bracket (2)



- Screw (M4×8) (for fixing brackets) (4)

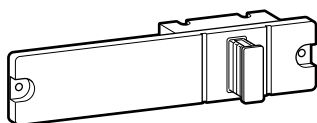


- Screw (M4×8) (for attaching bracket) (2)



Accessories for storage module

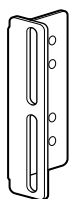
- Power connector (1)



- Screw (M3×6) (for securing power connector) (2)



- Bracket (2)

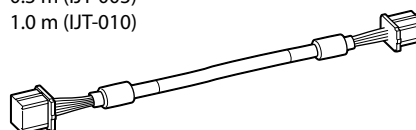


Other accessories sold separately

It is recommended to use only Sony products with the following model numbers.

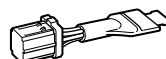
- Communication cable

0.3 m (IJT-003)
1.0 m (IJT-010)



- Termination connector

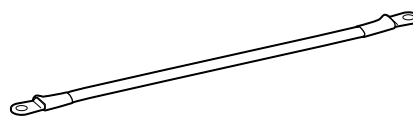
IJS-001



- Power cable

For IJ1001C/IJ4001C
0.3 m (IJD-003: Red, Black)
1.0 m (IJD-010: Red, Black)

For IJ1002C
0.3 m (IJD-103: Red, Black)
1.0 m (IJD-110: Red, Black)



Note

- If you use a power cable other than the one shown above, be sure to select a cable with suitable current rating.

Please contact Sony sales representative in case of damage or missing accessories, or when purchasing other accessories sold separately.

Safety Precautions

Sony products are designed with full consideration on safety.

However, all electrical appliances can be dangerous if used inappropriately; it can cause a fire or electric shock that leads to serious injury or death.

For your protection, please read these safety precautions completely.

Definition of Symbols

Below are symbols used in this manual and the unit.

Please read through the following definitions before reading the manual.



If you ignore these instructions, it can lead to a fire or electric shock causing serious injury or death.



If you ignore these instructions, it can lead to electric shock or other accidents causing injury or harm to nearby products.



If you do not follow the instructions below, it can lead to a fire or electric shock causing serious injury or death.

Instruction

Use designated cable

A non-designated cable use can cause electric shock. Be sure to use the cable designated in this manual.

Prohibited

Do not damage cables

If you damage a cable, it can cause a fire or electric shock.

- Do not work over or damage a cable.
- Do not place heavy objects on a cable or pull the cable.
- Do not place a heater near the cable, which may result in the cable overheating.
- Do not tuck down a cable when installing in a rack.
- When you unplug a communication cable, be sure to hold the plug and pull it.


Instruction

Connect a power cable and communication cable properly

If you connect a power cable improperly, contact resistance will increase and it may damage the parts or cause a fire.

Insert the connector of the communication cable all the way in. If it is connected improperly, the system may be deactivated.

Prohibited	<p>Do not install in a closed area</p> <p>If the module/controller is installed in a closed area with no air-conditioning, heat may build up inside the set and cause a fire.</p>
Prohibited	<p>Do not place the set in direct sunlight or near a heater</p> <p>Doing so can cause deformation, a breakdown, or a fire. Pay extra attention when you place the set near windows.</p>
Prohibited	<p>Do not install the set where excessive oil smoke, steam, moisture or dust is contained in the air</p> <p>If the set is installed in such a place, it may cause a fire or electric shock.</p>
Instruction	<p>Wear insulating gloves and protection glasses during installation and connection</p> <p>Wear insulating gloves and protection glasses during installation and connection of the set to prevent electric shock or other injuries.</p>
No wet	<p>Do not allow water and/or foreign objects inside the module</p> <p>Water or foreign objects inside the module can cause a fire or electric shock. Should this occur, however, turn off the "POWER ON/OFF" switch on the controller to shut down, and remove the power connector from the POWER CONNECTOR terminal of the module.</p>
Do not disassemble	<p>Do not open the set unnecessarily</p> <p>Opening and modifying the set can cause a fire or electric shock.</p>

<div>  Caution </div> <p>If you ignore any of the following instructions, it can cause injury or damage to nearby products.</p>	
Prohibited	<p>Do not cover the vent</p> <p>If the vent is covered, heat may build up inside the set and cause a fire.</p> <ul style="list-style-type: none"> • Do not put the set in a poorly ventilated and narrow space. • Remove any dust buildup in the vent. • Do not place the set upside down or sideways. • Do not place on a shag carpet or bed. • Do not cover the vent with a cloth, etc.
Instruction	<p>Install in a stable place</p> <p>If you install the set in an unstable place, such as an unstable rack, it may fall and cause injury. Do not install upside down or sideways. The set may drop and cause injury.</p>
Instruction	<p>Use the designated packaging materials for transportation</p> <p>If you do not use the designated packaging materials, the packaging material may be damaged by vibration during transportation and it may cause injury.</p>
Instruction	<p>Install based on the designated way of installation</p> <p>If you do not follow the designated way of installation, the set may drop due to the strength poverty and can cause injury.</p>
Instruction	<p>Fix a rack to the floor</p> <p>If a rack falls by the weight of the set, it may cause serious injury or death.</p>

No wet	Do not touch with wet hands If you touch the set with wet hands, it may cause electric shock.
Instruction	Install other equipment or accessories properly If you inadequately install other equipment or accessories sold separately they may fall and cause injury. When you install any of the following accessories, install it properly based on this manual. <ul style="list-style-type: none"> • Bracket • Power connector
Instruction	Set up cables properly If your foot is caught by a cable, the set may fall and cause injury. Connect and install cables carefully.
Instruction	Power off at a malfunction In case any malfunction happens, please turn off the POWER ON/OFF switch in order to shut down, and remove the power connector from the POWER CONNECTOR terminal of the module.
Prohibited	Do not put anything, stand or sit on the set If you put anything on the set, it may fall and cause injury. Also, if it is used as a stool, for example, it may topple and cause injury.
Instruction	Follow related laws or ordinances for disposal When you dispose of this product, do not dispose as general or household waste.
Instruction	Disposal with specified method Contact technical vendor when you discard. Do not disassemble, destroy, or disposal in the fire.



If liquid is leaking from the module, observe the following measures.

- Do not allow the liquid to come in contact with skin or clothing.
- If the liquid comes in contact with skin or clothing, wash thoroughly with plenty of water.
- If the liquid gets into the eyes or mouth, flush immediately with clean water, and immediately seek medical treatment.
- Contact customer service.

Precautions for use

Controller and Module

- Do not disassemble
- Do not modify the product (Modification may destroy the protection function inside, or cause abnormal charge/discharge, heat generation, gas eruption, or fire.)
- Refer to "Connection Method" on Page 16 and follow the procedure when you connect a cable to the product.
- In the case of a failure, or any of the abnormalities shown below, turn off the set and contact Sony customer services.
 - Abnormal sound, smell or smoke
 - Water or particles inside the product
 - The product is dropped or the cabinet is damaged
- Do not touch the rear output terminal except for installation.
- Do not throw the product into fire or heat, or otherwise expose the set to heat or naked flame.
- Do not submerge the product in liquid, or allow it to become wet.
- Do not apply strong shock, crush, or drop.
- Do not use for medical purposes.
- Do not place any foreign objects inside.
- Do not connect any devices that exceed the operating voltage and current range.

Energy Storage Module

- Charge and discharge the product according to the control signals of the controller.
- Do not hammer a nail or punch a hole in the product.
- Do not unplug the power connector from the POWER CONNECTOR terminal while power is turned on.
- Replace the module with a new one if discharge time at room temperature is noticeably short, even from fully charged.

Description of the controller

 CAUTION Mishandling by neglecting this caution and user manual can generate heat or fire or electric shock with the product and may result in serious injury or even death. Please read the instruction manual carefully and use it in accordance with the directions for safety.	
	To prevent electric shock <ul style="list-style-type: none"> • Do not disassemble or modify. • Do not allow the unit to get wet or put it in water. • Do not insert foreign materials in the unit. • Do not touch the terminals directly.
	To prevent fire <ul style="list-style-type: none"> • Do not short between the respective terminals. • Do not allow the unit to get heated.
	To prevent heating, fire, electric shock, injury <ul style="list-style-type: none"> • Do not use unspecified devices for charging. • Do not keep in places with temperatures 65°C or more. • Do not leave in unstable environments. • Do not allow the unit to get strong shocks.

Module description

 CAUTION Mishandling by neglecting this label and user instruction can cause explosion, fire, or heat generation of the product, and it may result serious bodily injury or even death. Please read the user instruction and treat in accordance with its direction for safety.	
	To Prevent Electric Shock <ul style="list-style-type: none"> • Do not disassemble or modify. • Do not get wet or put into water. • Do not touch terminals directly.
	To Prevent Fire <ul style="list-style-type: none"> • Do not short out positive and negative electrode. • Do not get heated.
	To Prevent Heating, Fire, Explosion, Electric Shock, Injury <ul style="list-style-type: none"> • Do not charge with unspecified devices or usage. • Do not leave in 65 degree C or more temperature. • Do not leave in unstable place. • Do not drive nails or get strong shock.

Function Overview

Controller

Connect multiple modules to the controller and control charge/discharge current.

Controlling charge/discharge current

Control charge/discharge by communicating with a module. Charge will stop when the charge signal output from a module becomes low.

Charge will stop when "Over Voltage" signal output from a module becomes low.

Discharge will stop when the discharge signal output from a module becomes low.

LCD Display Panel

Information from a module (charge/discharge status, voltage/current, capacity, temperature, etc.) is communicated to the controller, and appears on the display panel on the front of the controller.

Communication with Host

Information on a module and the controller can be communicated to a host via the RS232C or CAN communication terminal.

Protection against overcurrent

Provides fuse protection against overcurrent. An output control switch is also included.

Auto-power on and auto-shut down circuit

Shuts down the system automatically after a module is completely discharged. When an external charging voltage is applied, the system will be powered on automatically.

Energy Storage Module

Charge and discharge control

Charge/discharge are controlled by 3 signal lines, charge, discharge, and overvoltage.

In the following cases, the charge signal becomes low

- Maximum cell voltage exceeds specified voltage range
- Temperature exceeds specified range while charging
- Overcurrent flows while charging
- Charging completes

In the following cases, the discharge signal becomes low

- Overdischarge
- Temperature exceeds specified range while discharging
- Overcurrent flows while discharging

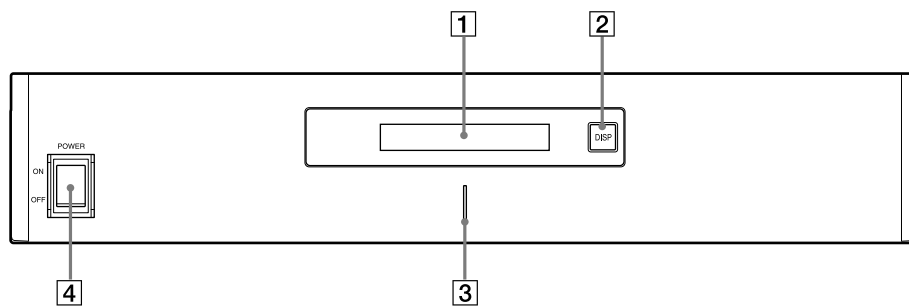
In the following cases, the over voltage signal becomes low

- Overvoltage
- Temperature exceeds specified range while charging
- Overcurrent flows while charging

Part Names and Functions

Controller

Front



1 LCD Display Panel

Displays information on the status of a module (charge/discharge, total voltage, total current, total remaining capacity, number of connected modules, remaining capacity of each module, cell block voltage/temperature etc.). For further details, please refer to "Display Panel" on page 12.

3 Indicator LED

Normal status: Green
Error status: Red (flashing)

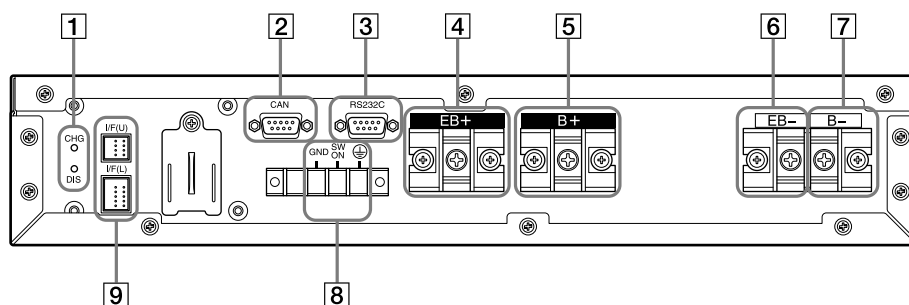
2 DISP button

Switches the displayed information on the display panel

4 POWER ON/OFF switch

Power on (operating) / off (interrupt current) the controller and modules.

Rear



1 CHG lamp/DIS lamp

CHG lamp: lights green when ready to be charged
DIS lamp: lights green when ready to be discharged

2 CAN communication terminal

Communicate with the host using CAN protocol.

3 RS232C communication terminal

Communicate with the host using RS232C protocol.

4 EB+ terminal

Connect to the + terminal of external devices.

5 B+ terminal

Connect to the B+ terminal of a module.

6 EB- terminal

Connect to the – terminal of external devices.

7 B- terminal

Connect to the B- terminal of a module.

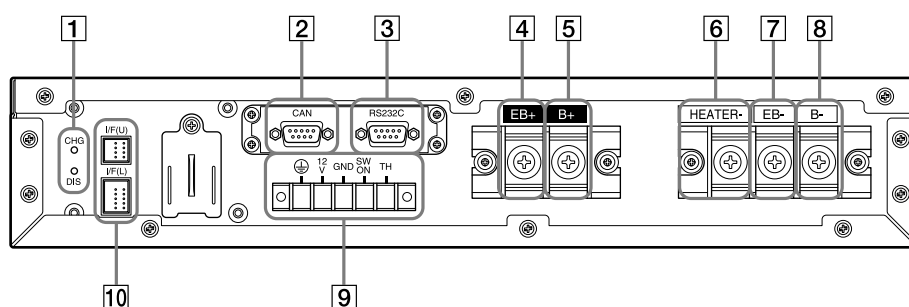
8 GND terminal, SW ON terminal, \perp terminal

Interrupts charge/discharge current from a module when a resistor (100Ω) is connected between the GND terminal and SW ON terminal.

The \perp terminal is connected to earth.

9 I/F(U) terminal / I/F(L) terminal

The I/F(U) terminal is connected to the I/F(L) terminal of a module. The I/F(L) terminal is not used.



1 CHG lamp/DIS lamp

CHG lamp: lights green when ready to be charged
DIS lamp: lights green on when ready to be discharged

2 CAN communication terminal

Communicate with the host using CAN protocol.

3 RS232C communication terminal

Communicate with the host using RS232C protocol.

4 EB+ terminal

Connect to the + terminal of external devices.

5 B+ terminal

Connect to the B+ terminal of a module.

6 HEATER- terminal

When using the optional heater, connect its – terminal to HEATER- (white), and its + terminal to EB+.

7 EB- terminal

Connect to the – terminal of external devices.

8 B- terminal

Connect to the B- terminal of a module.

9 \perp terminal, 12V terminal, GND terminal, SW ON terminal, TH terminal

The \perp terminal is connected to earth.

12V terminal connects to the 12V terminal of a thermostat.

Charge/discharge current from a module can be blocked by connecting a resistor (100Ω) between the GND terminal and SW ON terminal.

The TH terminal connects to the TH terminal of a heater unit.

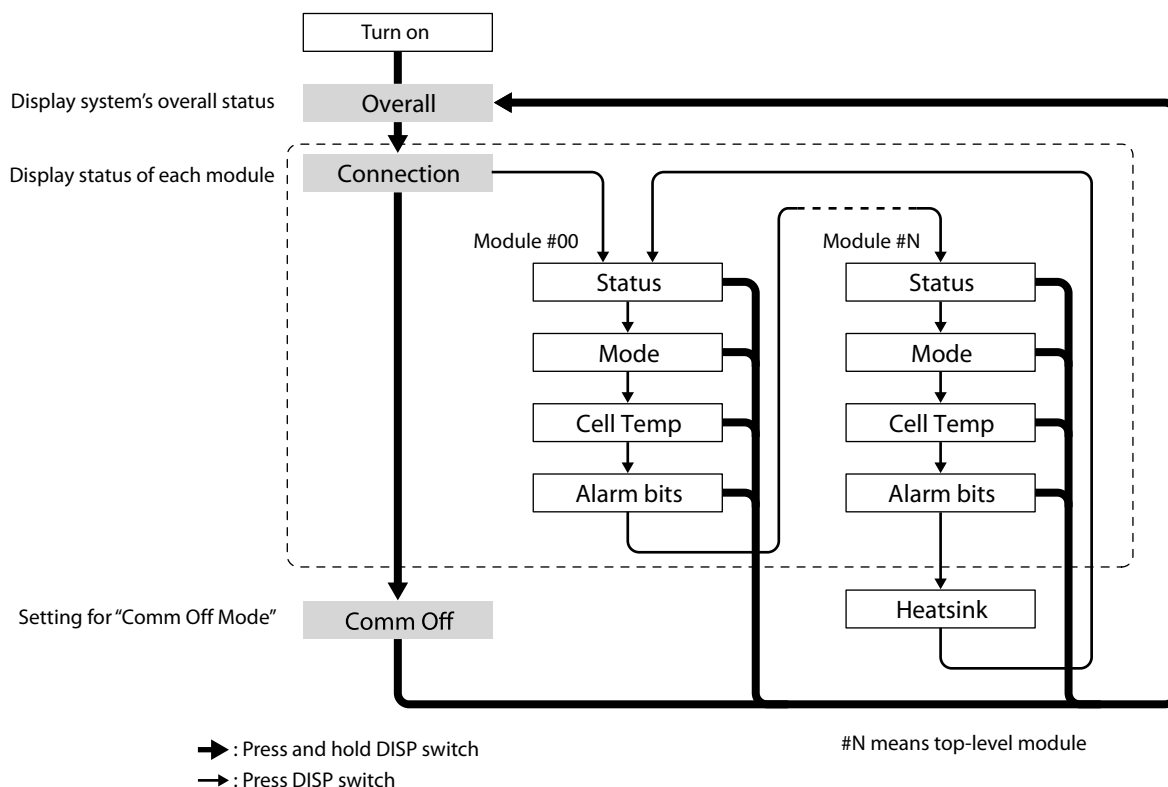
10 I/F(U) terminal / I/F(L) terminal

The I/F(U) terminal is connected to the I/F(L) terminal of a module. The I/F(L) terminal is not used.

Display Panel

Press the DISP button to display information on a panel.

Display switching-over flow

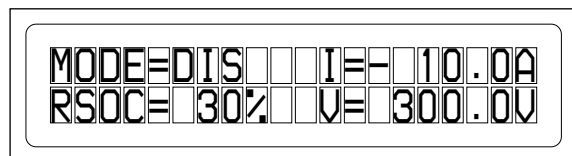


Tips

- Hold the DISP button more than 3 seconds.
- If you press and hold the DISP button during "Connection" Display, the display panel goes back to "Overall".
- "Comm Off Mode" is used for maintenance.

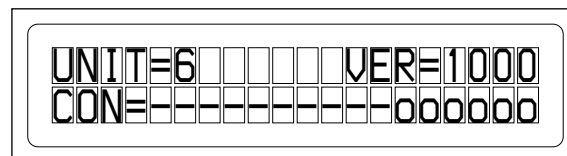
Display images

"Overall" Display



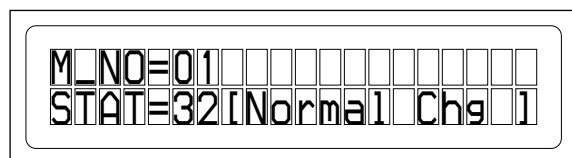
Item	Details	Display
MODE	Charge/discharge and stop status	DIS: discharge CHG: charge OFF: stop (Available only when a resistor (100Ω) is connected between the GND and SW ON terminals.)
RSOC	Remaining System Capacity	0% - 100%
I	Total system current	-999.9A - +999.9A
V	Total system voltage	0.0V - 999.9V

"Connection" Display



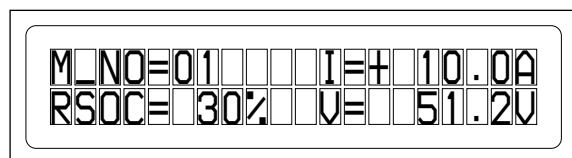
Item	Details	Display
UNIT	Number of connected module	1 - 16
VER	Version	XXXX
CON	Connected module status	Sample above indicates 6 modules (#00 - #05) are connected.

“Status” Display



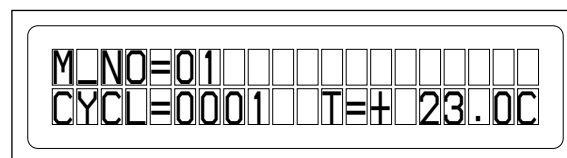
Item	Details	Display
M_NO	Number of displayed module	00 – 15
STAT	Status of module	YX (Y: Current status, X: Previous status) 0X 1X [Pre Charge]: Pre Charge 2X [Initial]: Initial 3X [Normal Chg]: Normal Charge 4X [Terminate]: Charge Terminate 5X [Normal Dis]: Normal Discharge 6X [Over Volt]: Over Voltage 7X [Over Dis]: Over Discharge 8X 9X [Over Temp C]: Over Temp Charge AX [Over Curr C]: Over Current Charge BX [Over Temp D]: Over Temp Discharge CX [Over Curr D]: Over Current Discharge DX [Unbalance]: Cell Unbalance EX [Chg Suspend]: Charge Suspend FX

“Mode, Current, SOC, Voltage” Display



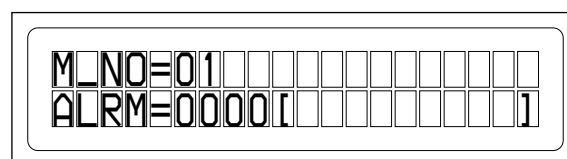
Item	Details	Display
M_NO	Number of displayed module	00 – 15
RSOC	Remaining module capacity	0% - 100%
I	Module current	-999.9A - +999.9A
V	Module voltage	0.0V – 999.9V

“Cell Temp., Cycle Count” Display



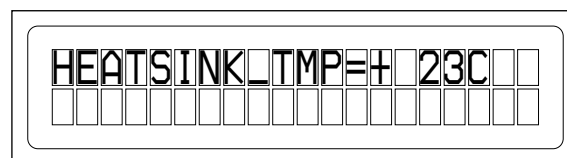
Item	Details	Display
M_NO	Number of displayed module	00 – 15
CYCL	Cycle count	0000 – 9999
T	Average temperature of all cells	-99.9C - +99.9C

“Alarm bits” Display



Item	Details	Display
M_NO	Number of displayed module	00 – 15
ALRM	Status of module	8000 [Over Volt]: Over Voltage 4000 [Terminate]: Charge Terminate 2000 [Under Vol]: Under Voltage 1000 [Over Curr]: Over Current 0800 [Over Temp]: Over Temp 0400 [0]: 0200 [Resister]: Alarm Resister 0100 [Unbalance]: Cell Unbalance Display when multiple alarms are detected Example: If both “Over Current” and “Over Temp” are detected, the following message is displayed. A higher bit level takes precedence for messages in parentheses. “ALRM=1800 [Over Curr]”

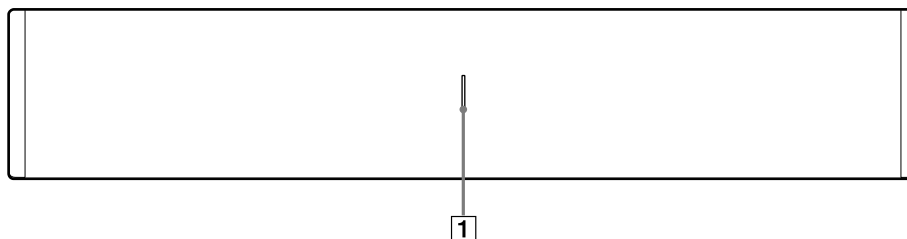
“Heatsink Temp” Display



Item	Details	Display
HEATSINK_TMP	Temperature of heatsink	-40C - +119C

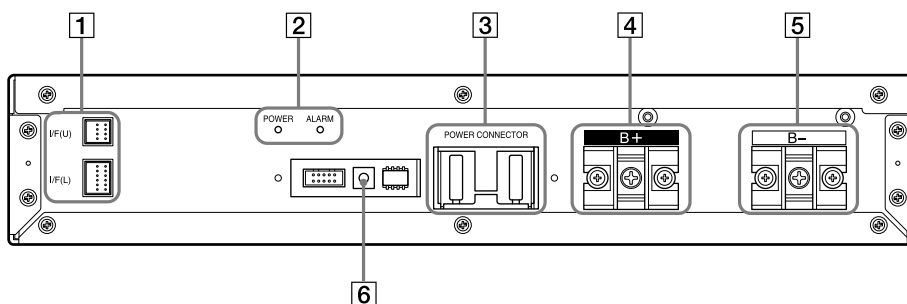
Energy Storage Module

Front



- 1** Indicator LED
 Normal Status: Green
 Error Status: Red (flashing)

Rear



- | | |
|--|--|
| <p>1 I/F(U) terminal/ I/F(L) terminal
 Connect to the controller, or other modules.</p> <p>2 POWER lamp/ ALARM lamp
 POWER lamp: Green
 ALARM lamp: Red (flashing)</p> <p>3 POWER CONNECTOR terminal
 Insert the provided power connector. Never insert the power connector until installation and connection of the set has been completed. Please refer to "Connection Method" (page 16) for details.</p> | <p>4 B+ terminal
 Connect to the controller, or other modules.</p> <p>5 B- terminal
 Connect to the controller, or other modules.</p> <p>6 Rotary Switch
 Set the address (0 to 9, A to F) of a module (page 18).</p> |
|--|--|

Installation

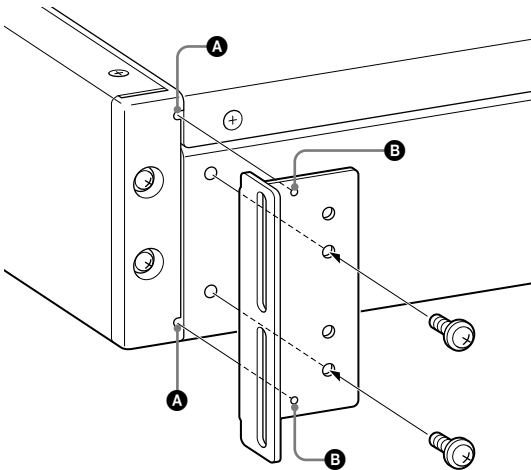
Installation Procedure

Follow the procedure below to properly install.

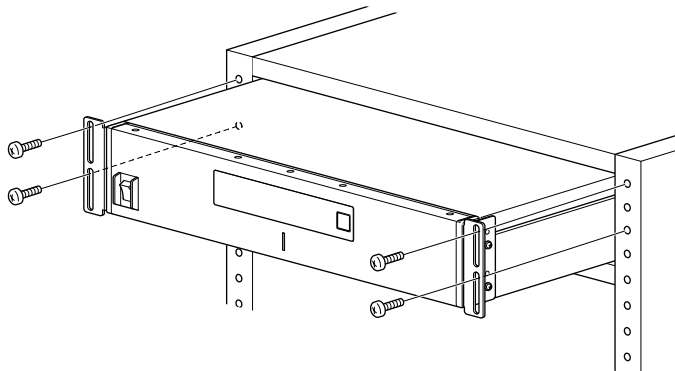
Note

- Before installing a module, make sure the power connector on the rear is unplugged, and the controller's POWER ON/OFF switch is set to OFF.

- 1 Align the convex parts of the bracket (B) with the concave parts of the module (A) and attach the bracket with screws (M4×8/tightening torque:1N·m)



- 2 Place the controller/module in the rack.
- 3 Attach the controller/module to the rack with the (bracket) screws.



Screws used for attaching to a rack are not included in the set. Please use screws attached with a rack.

Notes

- EIA standard 19-inch rack is recommended.
- Always use a rack with support plate when you install on a rack. Use one plate per product.

Connection Method

Depending on the controller type, the connection method will vary.
For details on the connection of communication cables, refer to page 18.

Note

- Make sure the power connector on the rear of the module is unplugged, and the controller's POWER ON/OFF switch is set to OFF.

IJ1001C/IJ1002C

① Parallel connection (up to 16)

The required storage capacity can be achieved without changing voltage.

IJ4001C

② Series connection (up to 7)

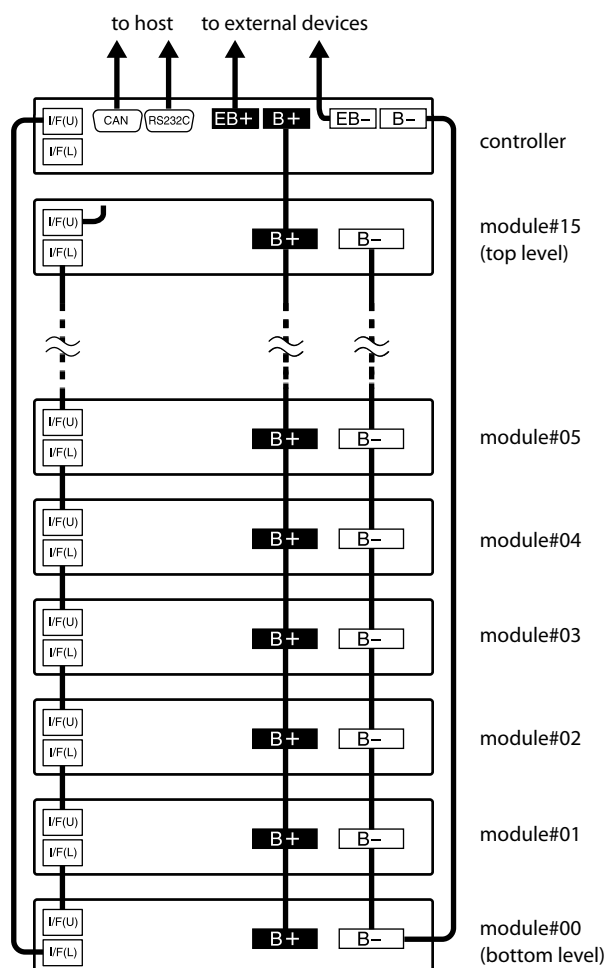
Storage capacity increases and necessary voltage can be achieved by adjusting the number of series-connected units.

③ Series and parallel connection (up to 7 series, 2 parallel)

Take advantages of both series and parallel connections.

① Parallel Connection (IJ1001C/IJ1002C)

e.g. 16 parallel connection



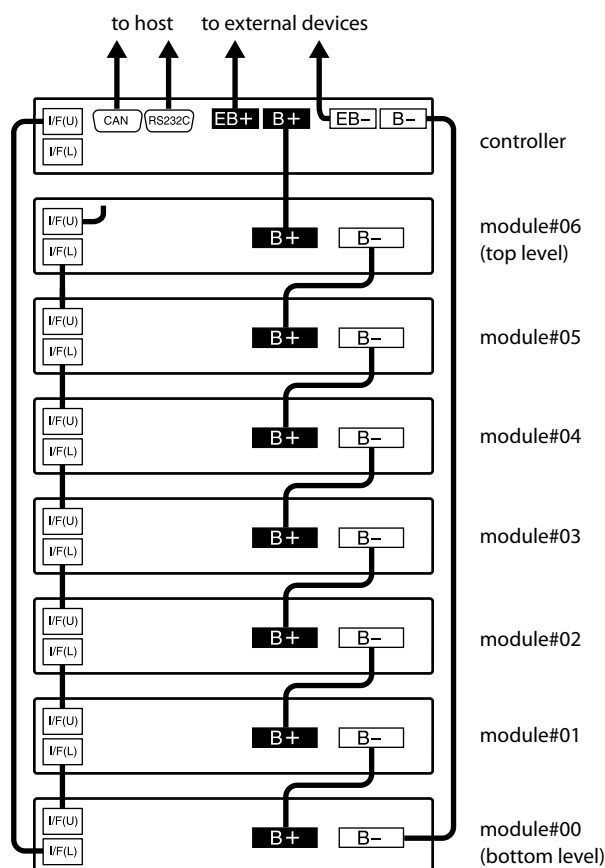
- 1 Connect the B– terminal of an upper module to the B– terminal of a lower module.
- 2 Connect the B+ terminal of an upper module to the B+ terminal of a lower module.
- 3 Connect the B– terminal of the bottom module (#00) to the B– terminal of the controller.
- 4 Connect the B+ terminal of the bottom module (#15) to the B+ terminal of the controller.
- 5 Connect the EB+ and EB– terminals of the controller to the + and – terminals of external devices (charger, inverter etc.).

Note

- Before connecting the set, all the modules' RSOC and V (voltage) settings should all be set to within 3% and 0.5 V (respectively) of each other.

② Serial Connection (IJ4001C only)

e.g. 7 series connection



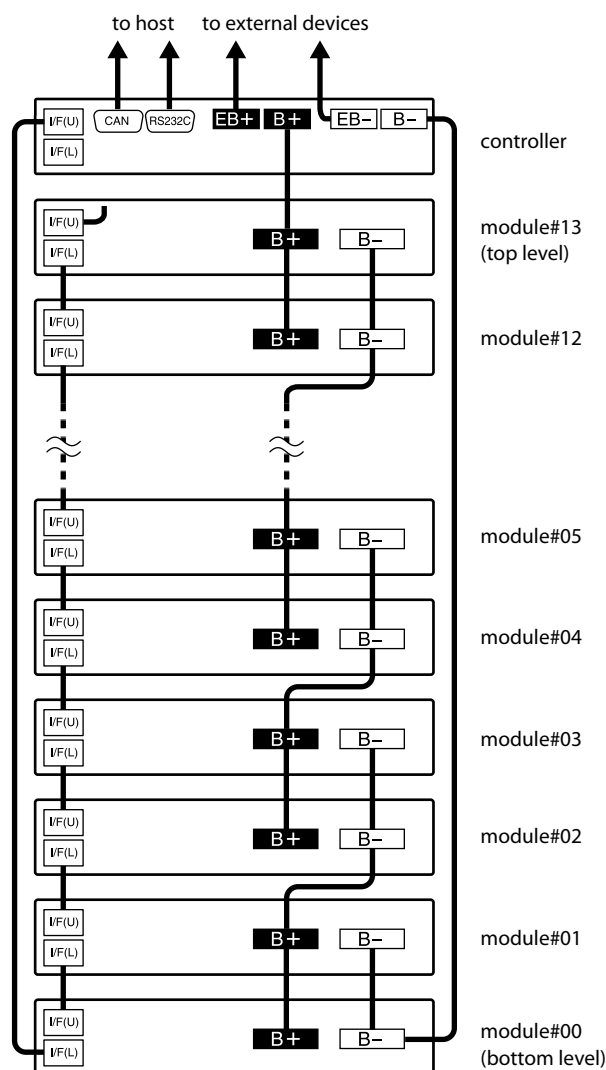
- 1 Connect the B- terminal of an upper module to the B+ terminal of a lower module.
- 2 Connect the B+ terminal of the bottom module (#00) to the B+ terminal of the controller.
- 3 Connect the B+ terminal of the top level module (#06) to the B+ terminal of the controller.
- 4 Connect the EB+ and EB- terminals of the controller to the + and - terminals of external devices (charger, inverter etc.)

Note

- Before connecting the set, all the modules' RSOC and V (voltage) settings should all be set to within 3% and 0.5 V (respectively) of each other.

③ Series and Parallel Connection (IJ4001C only)

e.g. 7 series and 2 parallel connection



- 1 Make a parallel connection with 2 modules as one pair (Connect B-, B+ terminals of a pair)
- 2 Connect the B- terminal of the lower module of a pair to the B+ of the upper module of the lower pair.
- 3 Connect the B- terminal of the bottom module (#00) to the B- terminal of the controller.
- 4 Connect the B+ terminal of the top module (#13) to the B+ terminal of the controller.
- 5 Connect the EB+ and EB- terminals of the controller to the + and - terminals of external devices (charger, inverter etc.)

Note

- Before connecting the set, all the modules' RSOC and V (voltage) settings should all be set to within 3% and 0.5 V (respectively) of each other.

Connection Procedure

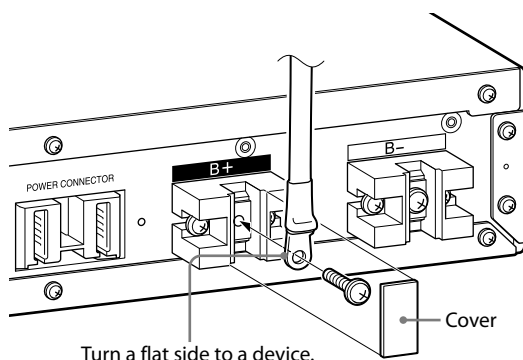
Please follow the procedure below to connect the set properly.

Notes

- Make sure the power connector on the rear of the module is unplugged, and controller's POWER ON/OFF switch is set to OFF.
- Depending on the controller types, the connection method will vary. For further details, refer to page 16.
- Wear insulating gloves and protection glasses to prevent electric shock and injury.

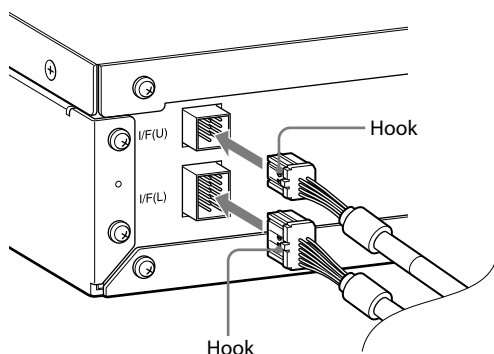
1 Connect the power cable

Connect a power cable to the EB+, EB–, B+, and B– terminal of the controller, and the B+ and B– terminals of a module, and the + and – terminals of external devices. Remove a terminal cover and a screw and attach a power cable with a screw (tightening torque: 2.5N·m). Then, replace the cover.



2 Connect the communication cable.

Connect the I/F(U) terminal of the controller to the I/F(L) terminal of the bottom module. Connect the I/F(U) terminal of a lower module to the I/F(L) terminal of the upper module. Connect the 8-pin end of the communication cable to the I/F(U) terminal, and connect the 12-pin side of the communication cable to the I/F (L) terminal.



Turn a hook left.

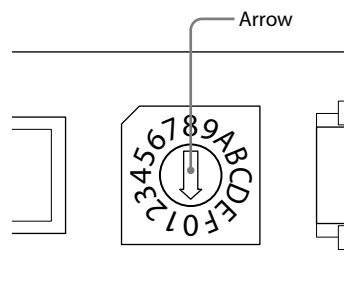
Notes

- Insert the hook firmly until it clicks.
- The I/F(L) terminal of the controller is not used.

3 Connect a termination connector to the I/F(U) terminal of the top module.

4 Set an address for each module (0-9, A-F) by the rotary switch on each module.

Rotate the (recessed) arrow in the center of the rotary switch with a precision flathead screwdriver to set an address (indicated by the arrow).



Note

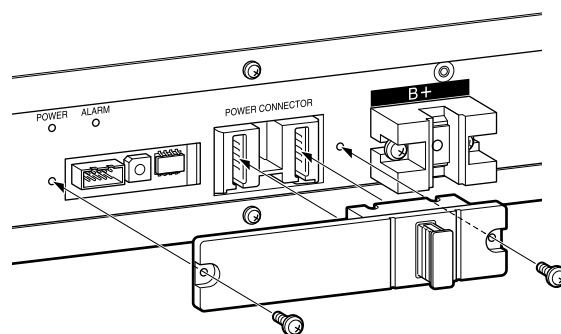
- Always set the bottom module to "0" and use then series numbers for the other modules. The top-level module needs to be the maximum number.

5 Confirm all connections.

Check all connections for any mistakes.

6 Insert a power connector in the rear of all modules and secure with a screw (M3×8/tightening torque: 0.6N·m).

Both heads of the connector must be inserted all the way in.



7 Turn on the POWER ON/OFF switch of the controller.

The controller and all modules are powered on.

Connect to a Host

You can confirm the information on the controller and modules by connecting to the CAN communication and RS232C communication terminal of the controller.

Connect to Earth

Connect the \perp terminal on the controller to earth.

Confirm the Status of the Controller and Modules

You can confirm the status of charge/discharge, remaining capacity, current/voltage value, etc., on the display panel of the controller. Press the DISP button (3 seconds) to switch display information. For further details, refer to "Display Panel" in "Part Names and Functions" on page 12.

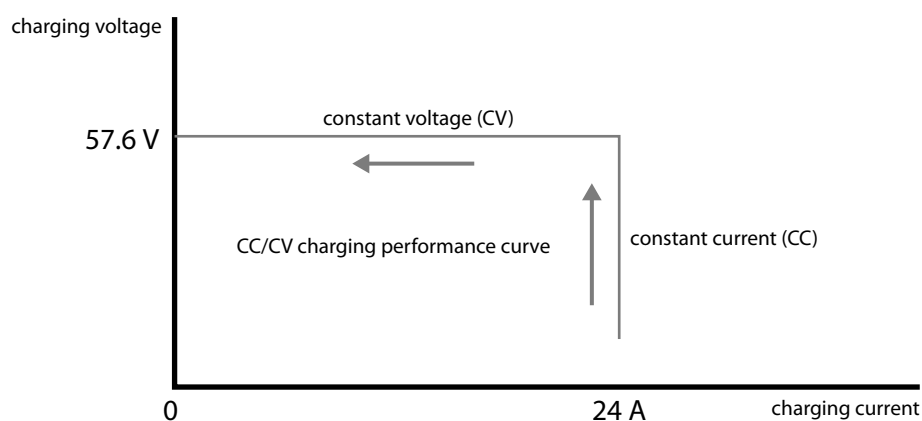
Turn off

Turn off the POWER ON/OFF switch of the controller.
The controller and all modules are turned off.

Charging

Charging voltage and current

Conduct charging by constant current and constant voltage within the specified rating of the module.



Notes

- Charge the module by setting a charging voltage of $57.6 \pm 0.8\text{V}$ and a charging current of lower than 24 A with constant current and constant voltage. (Note that the maximum current is limited by the maximum current of the controller.)
- Discharge a module at lower than 50A. (Note that the maximum current is limited by the maximum current of the controller.)
- The controller stops discharging when it reaches the minimum voltage.
- Charging current may be shut down by the controller when charging is almost finished.

Replacing Energy Storage Modules

Please read "Installation Procedure" on page 15 and "Connection Method" page 16 before you replace modules, and be sure to confirm the power connector on the rear side of the module is unplugged, and the controller's POWER ON/OFF switch is OFF.

Note

- Before connecting the set, all the modules' RSOC and V (voltage) settings should all be set to within 3% and 0.5 V (respectively) of each other.

Error Messages

When an error message is displayed on the controller, confirm the followings to handle the set properly. If a message does not disappear after following the below measures, please contact Sony customer services.

Item	Details	Display
NO MODULE	No module connection	Connect modules. If the left message appears when modules are connected, confirm that they are properly connected
OV ERROR	Over voltage error	Please discharge
DISCHARGE ERROR	Over discharge error	Please charge
COMM ERROR CON= ----- OOOX	Communication error with connected modules. Example on the left indicates the case when 1 module (#00) has a communication error, 3 modules (#01, #02, #03) are connected, and the other addresses have no connection.	Confirm the connection of communication cables

Other message

Item	Details
COMM OFF MODE	For maintenance only

Main Specifications

Controller (IJ1001C/IJ1002C/IJ4001C)

Operating Voltage Range	30 V to 60 V (IJ1001C/IJ1002C) 60 V to 420 V (IJ4001C)
Operating Current Range	0 A to 50 A (IJ1001C/IJ4001C) 0 A to 100 A (IJ1002C)
Storage Temperature	-40 °C to 65 °C
Operating Temperature	-20 °C to 60 °C
Relative Humidity	Less than 95% (non condensation)
Connection	Parallel connection (upto 16 series) (IJ1001C/IJ1002C) / Series connection (upto 7 series), Series and parallel connection (up to 7 series, 2 parallel) (IJ4001C)
Weight	Approx. 7 kg (IJ1001C) / Approx. 8 kg (IJ1002C/IJ4001C)
Dimensions	Approx. 432 mm x 80 mm x 421 mm (width x height x depth)

Energy Storage Module

Nominal Capacity	1.2 kWh, 24 Ah (32.0 V Cut Off)
Rating Capacity	1.1 kWh, 22 Ah
Nominal Voltage	51.2 V
Max Output Power	2.5 kW
Max Discharge Current	50 A
Charging Voltage	57.6 V \pm 0.8 V
Max Charging Current	24 A
Charging Time	Approx. 2.5 h
Storage Temperature	-40 °C to 65 °C
Operating Temperature	
Charge	0 °C to 45 °C
Discharge	-20 °C to 60 °C (Discharge Current \leq 24A) -20 °C to 40 °C (24 A < Discharge Current \leq 50 A)
Relative Humidity	Less than 95% (non condensation)
Weight	Approx. 17 kg
Dimensions	Approx. 432 mm x 80 mm x 421 mm (width x height x depth)

Other

Recycling of Lithium Ion Battery

Battery manufacturer are obligated to collect and recycle lithium ion batteries, as used in these energy storage modules, based on the law, "Act on the Promotion of Effective Utilization of Resources" (enforced from April 2001), issued in Japan. When disposing of the set, please recycle and observe local regulations to protect the environment.

Please contact Sony sales representative for details on recycling batteries.

Inquiries and Services

- In case of product failure (hardware) during appropriate use during the warranty period, please contact Sony customer services. We will repair free of charge.
- The following cases are exempt from warranty cover:
 - (1) Requesting repair after warranty period for failure occurring within warranty period.
 - (2) Failure/Damage due to misuse (includes when proper handling based on the Users' Manual, Caution Label on product, etc., is neglected).
 - (3) Failure caused by other devices or damage by inappropriate repair or modification.
 - (4) Failure/Damage caused by relocation, transportation, dropping, etc., after purchase.
 - (5) Failure/Damage from fire, earthquake, wind, flood, thunder, or other natural disaster, public hazard, salt damage, abnormal voltage, etc.
- Please contact Sony sales representative for inquiries and warranty on the product