Instruction Manual

Power Supply
WSE-3100
PowerStation Ghibli I

Edition 7, Oct. 2, 2023

Made in Tokyo

SupportingLifeResearch

Table of Contents

Introduction

Thank you for purchasing ATTO PowerStation Ghibli I. This instruction manual is delivered to you so that you can make full use of the instrument.

Not only those of you who use this instrument for the first time, but also those who have used it before, should read this document carefully to understand the contents. Please keep it handy all the time to make its full use.

If you have any inquiries on your purchased product or the instruction manual, please feel free to contact us (refer to the back cover).

Safety Precautions

Correct operation is prerequisite in order to use this instrument safely. Please read through this instruction manual before use, and do not use the instrument until you fully understand the contents. How to use and the safety precautions listed on this manual are specific to usage of this particular instrument only. Never use the instrument for other purposes than those listed on this manual. Any other usages of this instrument than those listed on this manual would be strictly at your own responsibility.

The first-time user is asked to receive guidance from a person with correct knowledge and understand principle and method before use. Both the fresh users and experienced users keep this manual at hand for effective use. The only way to avoid electric shock and malfunction of the unit is to operate it correctly in accordance with this manual.

Feel free to contact us for any questions about principle of electrophoresis, operation, maintenance and inspection.

Safety Notation

The following signs are used on this instruction manual for your safe use and maintenance of the instrument. Please ensure your understanding of the meaning of these signs and follow each item correctly.

Symbol	Description
Danger	This indicates that a high risk of human death or serious injury is likely occurring if handled incorrectly or by neglecting this indication.
Warning	This indicates that human death or injury is possible if handled incorrectly or by neglecting this indication.
Caution	This indicates that the risk of property damage is expected if mishandled or by neglecting this indication.
	This indicates information related to the important portion.
	This indicates some hint related to operation.
	This indicates prohibited activities.

CE Complies with the provisions of following Directives as completed equipment under evaluation of conformity based on the following harmonized standard.

Directive	Standard
Low Voltage Directive, 2014/35/EU	EN 61010-1:2010
EMC Directive, 2014/30/EU	EN 61326-1:2013
RoHS Directive, 2011/65/EU	EN IEC 63000:2018

 Indicate disposal instruction.

DO NOT throw this unit into a municipal trash bin when this has reached the end of its lifetime. To ensure utmost protection of the global environment and minimize pollution, please recycle this unit.

Use Precautions

These are precaution items to prevent fire, electrical shock, other type of accident and failure. Please be sure to follow and understand these items.

Danger

Grounding  	Never use this unit unless connecting the unit to the ground. There might be a risk of electrical shock or death. Please connect the power cable attached to this unit to the 3-pole ground outlet.
Power connection   	Please check visually if any deformation or corrosion exists on an electrode terminal or power plug, any blemish on the power cable, or any peel-off of the insulating sheath before actuating the unit. These might cause fire because of poor contact or electrical shock. In such a case, please contact us after stopping the use of the unit and unplugging the power plug from the outlet. Be sure to turn off the power switch, firmly hold the power plug itself, and unplug it without pulling the cable.
No wet hand  	Never operate the unit with wet hands. In addition, never touch the power plug or connecting terminal with wet hands. These can cause electrical shock or failure. Never use the unit in wet condition. These can cause electrical shock or failure.
Main body 	Never remove the top lid of the main body nor the rear panel. These can cause electrical shock or failure.
Fuse 	Please turn off the power switch and unplug the power cable when you replace the fuse. This can cause electrical shock.
Main body 	Never put foreign materials into the airflow orifice. This can cause an electrical shock or failure.
Maintenance 	Please quit using the unit immediately if anything abnormal happens during unit usage or if any abnormality/failure is suspected. Also, do not use the unit if you find any failure at inspection. These can cause electrical shocks or damage to the unit. Contact us if you detect any abnormality, trouble or failure.

Warning

Installation location 	Please avoid installation on places such as a wobbling table, tilted location, or heavily vibrating place. Install the unit on horizontal places with safe and hard surfaces, such as a lab bench.
Main body 	This unit is not an explosion-proof structure. Install this unit away from any places with the possibility of exposure to fire or flammable gasses.
Migration 	Never move the unit during operation. Cords may get entangled, which might cause rollover. Or, cords may be damaged, which might cause fire or electrical shock. Please make sure to turn the unit power switch OFF, and pull out the power cable and all wiring cables before migration.
Carrying 	If you carry this unit, it may cause injury or equipment damage due to falling, so hold it firmly with both hands.
Maintenance 	Please be sure to turn the unit power switch OFF and pull out the power cable before performing maintenance and cleaning. These might cause electrical shock. Please ask us for periodical maintenance, inspection and calibration so as to maintain good performance and safety of the unit.
Disassemble prohibition 	Never disassemble or modify the unit. Adjustment and repair work of the product should be done by our service staff in charge. When adjustment or repair is required, please ask our company. Any accident caused by your disassembling or modification would be outside of our responsibility.
Fuse 	Never use other fuses than those specified by this manual or items written on the rear panel. Failure to follow instructions may cause fire at the time of failure.

Seal group 	Never peel off the Warning Seal. The seals indicate dangerous areas. If any seal comes off, please contact us.
Moving Parts 	There is a risk of injury. Please do not put your hands in moving parts.

Caution

Power cable 	If the unit is used outside of Japan, please prepare a power cable complies with the standard of the country where the unit is used. Use of a non-standard power cable could cause excessive heat and/or fire. If you have any questions, inquire our sales agent or company.
Dew condensation 	When the unit is quickly moved from a low-temperature area (low- temp. room, cold outdoor, etc.,) to a high-temperature area (warm room, etc.,), there is possibility of [Condensation], i.e. moisture in the air becomes water drops. If condensation happens within the unit, some parts may short out. When the unit is moved from a low-temperature area to a high- temperature area, set the unit where there is plenty of ventilation and away from direct sunlight, and turn the unit power on AFTER the unit gets to the same temperature as the room temperature.

Notice

Seals 	Never peel off nameplate seals. These indicate important information for maintenance and control of the unit.

Other Precautions

Application

WSE-3100 PowerStation Ghibli I is the power supply dedicated to electrophoresis unit and blotting equipment. Never use the unit for other applications.

Export

Export of specific work and cargo are controlled by Foreign Exchange Laws and Cabinet Order/Ministerial Orders of Foreign Trade Control Laws and those controls are applied to this unit.

Even if the unit is not applicable to the Cabinet Order, it is required to submit documents accordingly and if it is applicable, then obtain export license from the Ministry of Economy, Trade and Industry, and then submit the license to the customs office.

When you export our product, please confirm with your supplier or our customer service department in advance.

Trademarks and Copyright

1. Overview

1.1 Purpose of Application

PowerStation Ghibli I is power supply unit for electrophoresis that can be connected to electrophoresis and blotting equipment(s).

2. Unpacking

2.1 Confirmation When Unpacking

Upon arrival of the product, please confirm whether the main body and accessories are packed correctly or if any defects exist.

In case there is any inadequacy, deficiency, etc., please inform your supplier or our company immediately.

Please perform your confirmation as above at the time of unpacking within one week upon arrival of the unit. Confirmation after more than one week may result in not receiving compensation for defects or missing articles.

2.2 Product Component

Main body

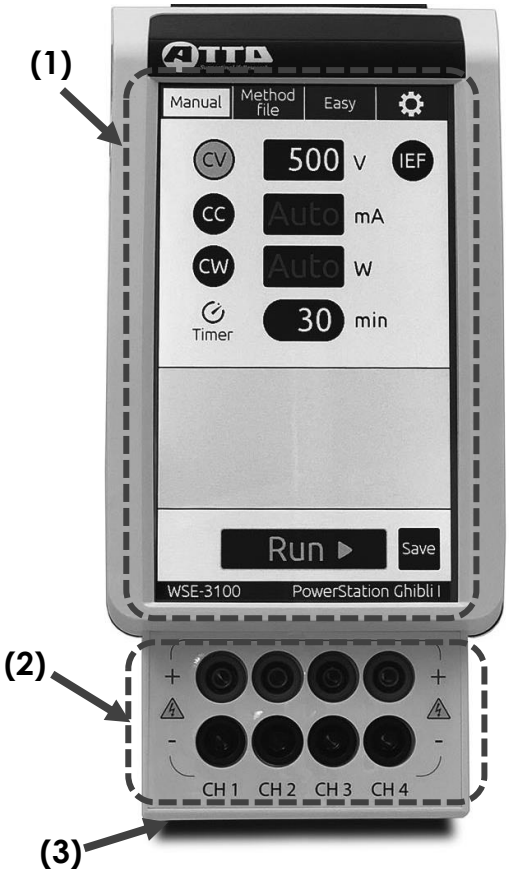
Product name	Quantity
WSE-3100 PowerStation Ghibli I	1

Accessories

Product name	Quantity
Instruction manual, WSE-3100 PowerStation Ghibli I	1
Power cable	1

3. Name and Function of Each Part

3.1 Front Panel



(1) Touch panel

Tap buttons or icons for setting output condition, operate start or stop.

Parameter value is shown on the screen during output.

(2) Output terminal

Connect lead wire of electrophoresis or blotting equipment to the output terminal. Up to 4 devices can be connected to this device.

Upper side is anode (+) terminal, red lead wire can be connected.

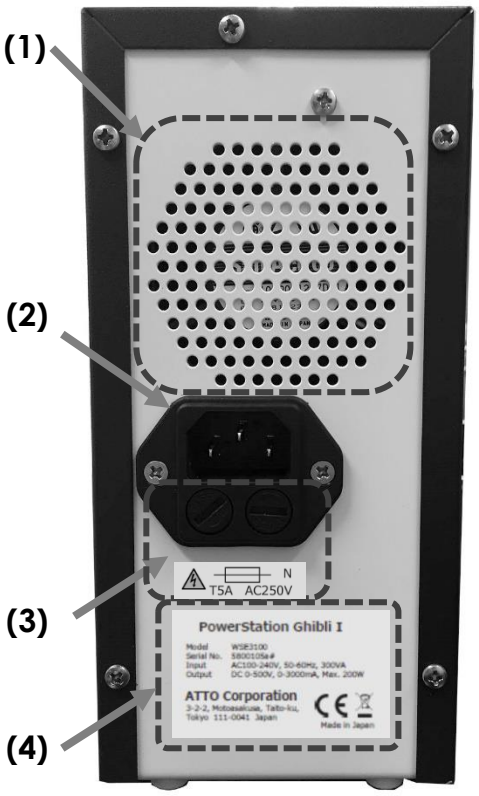
Lower side is cathode (-) terminal, black lead wire can be connected.

	Total current value of connected electrophoresis equipment cannot go over 3000mA for output, which is maximum output current of PowerStation Ghibli I. Please pay attention when connecting multiple electrophoresis equipment.

(3) Air vent

A vent opening to take in air for heat dissipation.

3.2 **Rear Panel**



(1) Exhaust vent

Exhaust air for heat dissipation.

(2) Power connector

Connect attached power cable.

(3) Fuse holder

A fuse is stored inside.

Caution

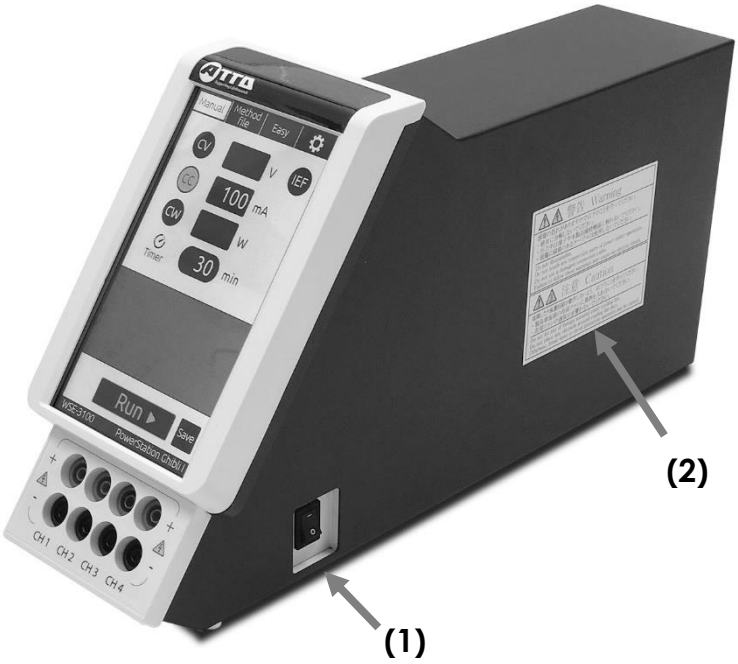
Double pole/neutral fusing

The fuse information is labeled under the holder.

(4) Nameplate

Model number, serial number, consumed power, input voltage, input frequency, company name, manufactured country of PowerStation Ghibli I are typed.

3.3 **Right Side**



(1) Power switch

Power ON and OFF for PowerStation Ghibli I.

(2) Warning seal

Warnings and precautions to handle PowerStation Ghibli I are typed.

3.4 Accessories

Instruction Manual

A booklet of instruction manual.

Power Cable

A cable to connect PowerStation Ghibli I to outlet.

3.5 Output Control and Crossover Function

Voltage, wattage or current of electrical output is controlled to be kept at a preset value. When output exceeds preset parameters, output correction is done by the power source controller inside to resume set values.

C.V Constant Voltage Control:
The output is controlled to keep constant voltage at preset value.

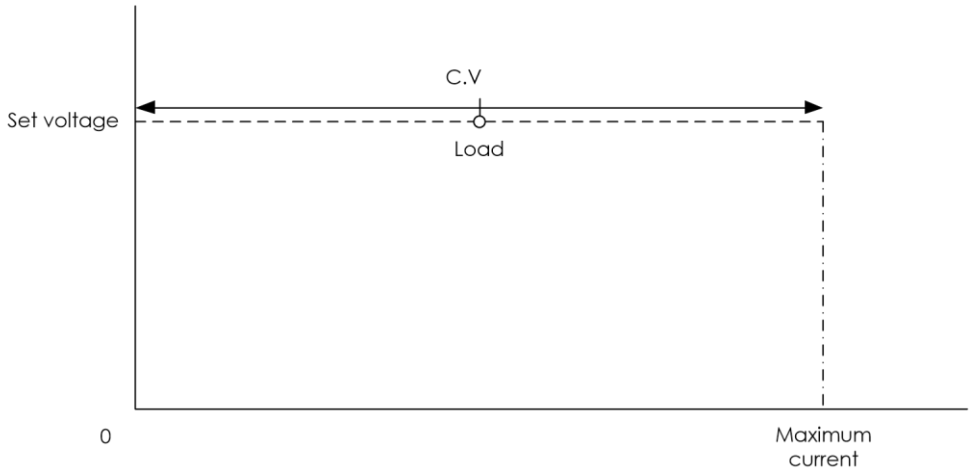
C.C Constant Current Control:
The output is controlled to keep constant current at preset value.

C.W Constant Wattage Control:
The output is controlled to keep constant wattage at preset value.

Crossover function is also activated with these controls. The crossover function is that the controlled type will be changed automatically depending on electrophoresis conditions and electrical load.

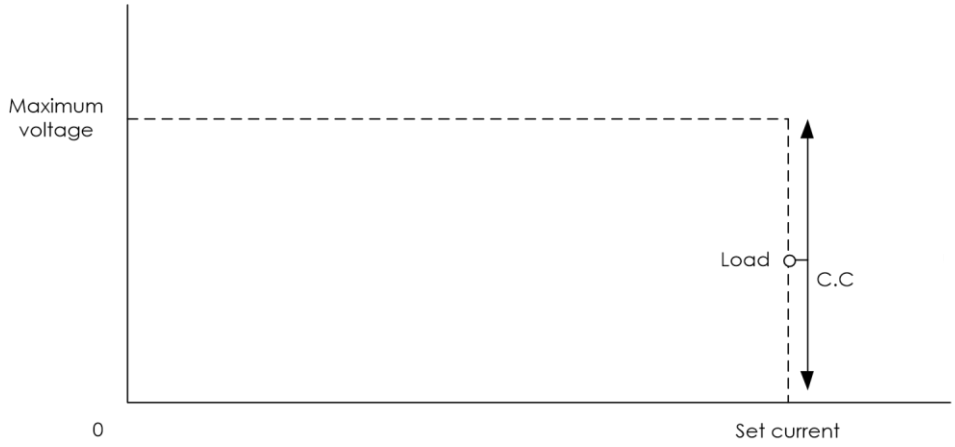
PowerStation Ghibli I controls voltage, current and wattage of output while electrophoresing samples because electrical resistance of buffer liquid varies depending on its composition. Three type of control method which PowerStation III supports are described below.

The C.V control keeps constant output of set voltage even if the load varies, when the load connected the set voltage does not exceed the maximum current (set current). The maximum current is limited by the maximum output power (200W) of power supply.

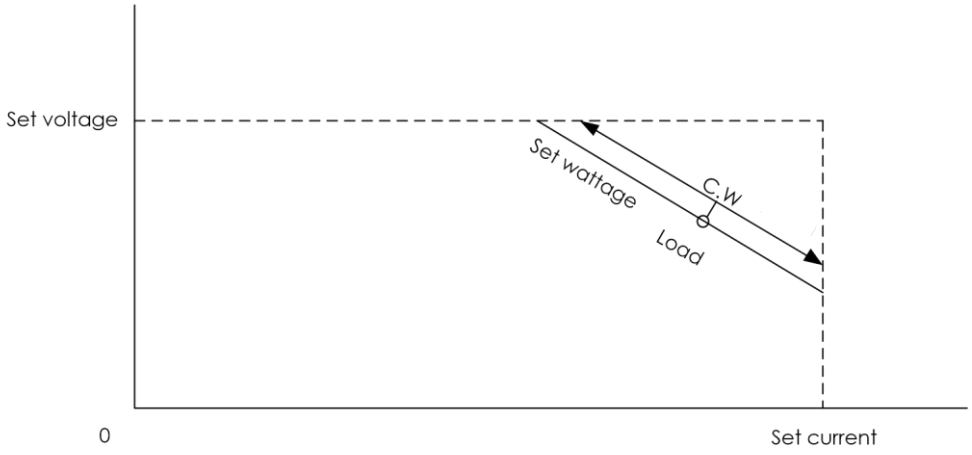


3.5 Output Control and Crossover Function

The C.C control keeps constant output of set current even if the load varies, when the load connected to the set current does not exceed the maximum voltage (set voltage). The minimum voltage is 10V.



The C.W control keeps constant output of the set power even if the load varies, when the load connected to a set power does not exceed the maximum power (200W). Power limitation comes into effect if power setting (W) becomes lower than Set Voltage [V] x (Set Current [mA] / 1000). If you want nullify power limitation, please set the value at the maximum (200W).



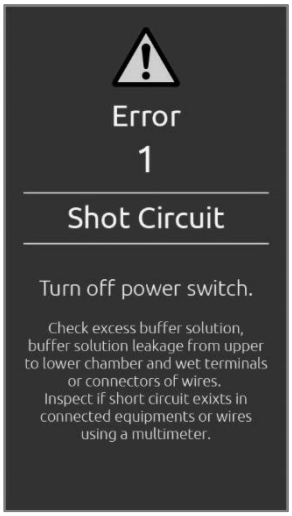
The crossover function refers to switching the corresponding function automatically if the load variation is large and the voltage and current are set at low values.

3.6 Error Display Function

When PowerStation Ghibli I detects an error, it stops output,

displays an error message and alarms.

While an error message appears, any operations other than turning off the power cannot be accepted.



11, 12, 13	Short Circuit	It is displayed when load short circuit is detected during output. Turn off the power switch. Make sure if buffer solution is excessive with the connected device, liquid leakage from upper chamber to lower chamber, terminals or lead wires are not wet. Please check with a multimeter whether connected devices or lead wires are not short-circuited.
21, 23	Sudden Load Variation	It is displayed when load suddenly fluctuates. Turn off the power switch. Check the connected devices and lead wires for breakage, poor connection, and buffer solution shortage. Please check whether run setting values are appropriate.
31, 32, 33	Open Circuit	It is displayed when open load is detected during output. Turn off the power switch. Please check disconnection, connection failure of connected devices and lead wires, buffer solution shortage, gel plate installation direction. Make sure the setting of the electrode plates, filter papers, a membrane and a gel for blotting is whether appropriate.

51	Power Failure	If power failure occurs during output, it is recorded on the error log (no error messages will be displayed).
61	Insufficient Voltage Supply	It is displayed when supply voltage to the equipment becomes 85 V or less. Turn off the power switch. Make sure supply voltage from AC is at normal value of 100 - 240 V.
71	Fan Trouble	It is displayed when cooling fan on the back of the equipment gets out of order. Turn off the power switch, then turn it on again and see whether a fan works.
81	Rising Internal Temperature	This message is displayed when temperature of heat sink inside the device rises and normal operation cannot be performed. Turn off the power switch. Make sure that the air vent at bottom of the unit is not blocked or covered with dust.
91	Rising Terminal Temperature	It is displayed when the temperature of output terminal of the equipment has risen. Turn off the power switch. Make sure the connectors of lead wires are firmly inserted, whether inside of the output terminal is not corroded or filled with trash.
A1	Over Power	It is displayed when electric current abnormally rises and electric power excessively rises. Turn off the power switch. Check connected devices and lead wires for breakage, poor connection, and buffer solution shortage.
C1, C2	Internal Error (Breakdown)	It is displayed when there is breakdown inside the equipment. Please turn off the power supply and contact us or our distributor.

4. Preparations

4.1 Installation Environment

Place of use	Indoor use only Location where direct sunlight is shut
Temperature	5 - 40 °C
Humidity	20 - 90%RH, free from condensation

Warning	Never install the unit in the atmosphere of flammable gases. This can cause explosion or fire since the unit is not of an explosion-proof structure. Install the unit in the environment where no flammable gas is contactable. Never install the unit in a corrosive gas atmosphere. This can cause conductor corrosion or bad connector contact in the product. This, in turn, may cause malfunction, trouble or fire. Never install the unit in an environment where a lot of dust and dirt exist. Dust and dirt will stick to the unit and can cause electrical shock, fire or other problems.

Caution	Never use the unit in areas where strong magnetic or electric field exists or where a lot of waveform distortion or noise exists. These might cause malfunction. Never install the unit where a direct sunlight hit, temperature suddenly varies or humidity is high. Never use it if condensation happens.

4.2 Cable Connections

Power Cable Type

A cable attached to this device is a cable usable in Japan. Please prepare power cable that is applicable to the standard of the country where used.

The power connector of PowerStation Ghibli I satisfies the following specification:

Standard	Shape
IEC 60320-C13, 250V 10A	

Power Cable Connection

Please confirm the power switch at the right-hand side of the main body is OFF before connecting the cable. The sign [o] means OFF.

Connect attached power cable to the power connector. Connect power plug to power outlet that has the ground terminal. Please insert the power plug firmly.

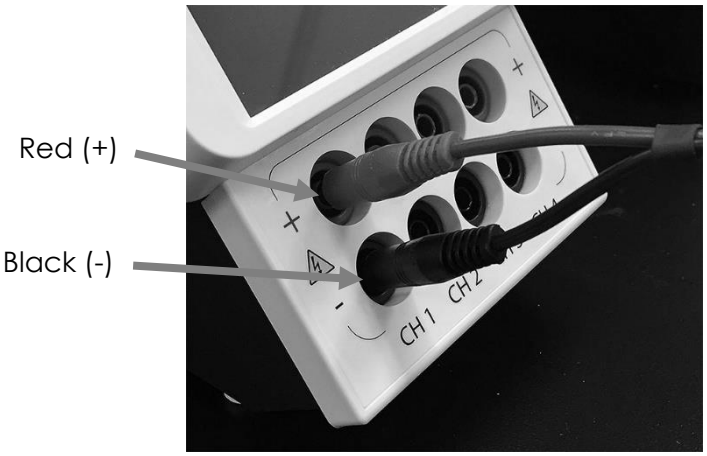
Warning	Connect to power outlet with ground terminal. Never use PowerStation Ghibli I without ground connection. This can cause electrical shock and accident.

Caution	The power cable attached to PowerStation Ghibli I is for Japanese domestic use. Please use the power cable applicable to the standard of the country where it is used.

Connections of electrophoresis lead wires

Please confirm that the power switch at right-hand side of the main body is OFF before connecting the cable. When the circle [o] is pressed, that means OFF.

Connect the + (anode) side lead wire to the red terminal on the output terminal board located on the front side of PowerStation Ghibli I and the - (cathode) side lead wire to the black terminal, respectively.



⚠ Warning	The output terminal of PowerStation Ghibli I is Φ 4 mm safety type insulation reinforced type and conforms to safety standard IEC 61010-1. Use lead wires with appropriate terminals for connection to the output terminals of this standard (lead wires and terminals supplied with ATTO electrophoresis tank and blotting equipment conform to this standard). Use of other lead wires and terminals may cause electric shock or accident, so do not use it.

⚠ Warning	Never use lead wire having blemish on insulation. This can cause electrical shock and accident.

5. Operations

5.1 Start up

Turn on the power switch located at the right-hand side of the main body. When [I] is pressed, that means ON.

After start-up screen is displayed on the front panel, setting screen of Manual mode appears on the panel.

At initial startup, language selection screen is displayed. Select English or Japanese.

*In case Japanese is selected, words or menus other than messages are displayed in English.

Power switch

5.2 Operation of Screen

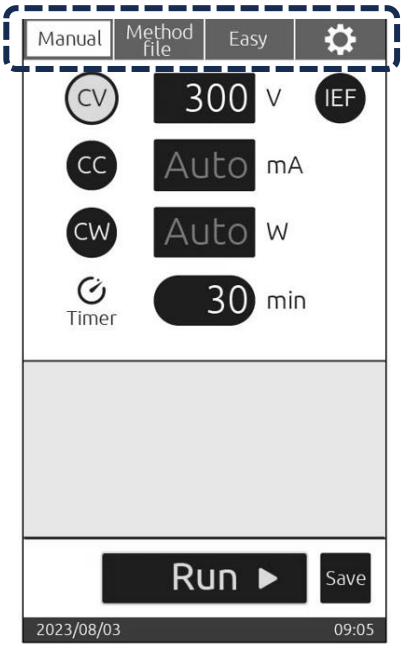
Tap the buttons on the screen with your finger to operate.

It can be operated even with your fingers with gloves, also operated with a thinner stick.

⚠ Caution	Do not tap the screen with sharp tips. The screen may get scratched.

5.3 Selecting Run Mode

Select mode from menu bar on top of the screen.



Manual mode

Users can set parameters freely using this mode to output. Entered settings can be saved as Method file.

Method file mode

Save the Run setting as a method file, select it from saved files and output. You can also set and save a program that outputs multiple steps continuously.

Easy mode

By selecting method of application on the screen, it is possible to output with setting suitable for each method without inputting parameter value.

Config 

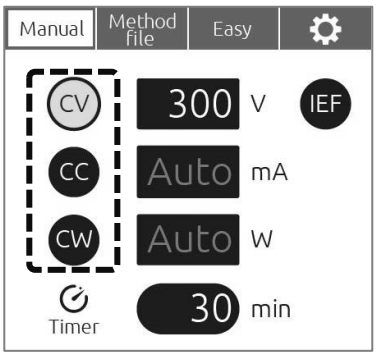
Changes various settings and displays information.

5.4 Manual Mode

User can set parameters freely using this mode. You can save entered settings as Method file (see section "Method file mode").

(1) At the beginning, the last setting is displayed. To start outputting with the settings, please proceed to (7).

To change the setting, tap the button of mode to be used from CV (constant voltage), CC (constant current), CW (constant wattage) and select it.



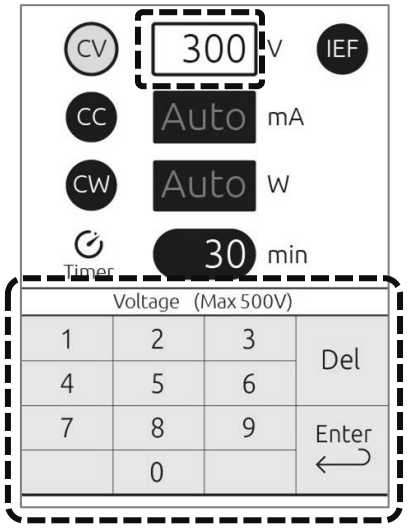
(2) To use for isoelectric focusing electrophoresis, tap[IEF] button and select IEF mode (CV - Low -current mode).

If you do isoelectric focusing electrophoresis without selecting IEF mode, open circuit error will occur in the middle and output cannot be continued.

(3) Tap numeric display of the parameter selected as constant output, and entered output value through the numeric keypad at bottom of the screen.

Setting range
Voltage: 3 – 500 V
Current: 10 – 3000 mA
Wattage: 1 – 200 W

Tap [Enter] key to confirm input value.



(4) If CV or CC is selected, other parameters are set automatically ("Auto" will be displayed). If you want to set it to an arbitrary value, tap "Auto" and enter value.

* If you set it to an arbitrary value, not to "Auto", crossover function works up to the value.

If IEF is selected, current and wattage will be fixed, cannot be changed.

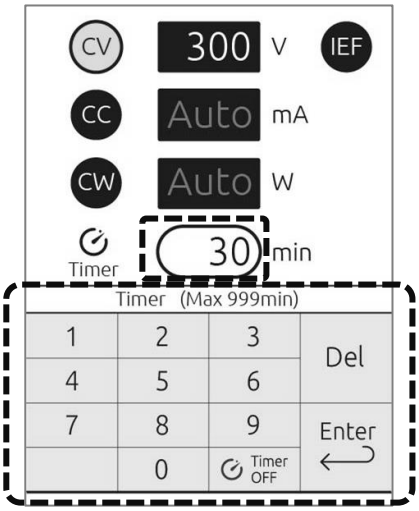
If CW is selected, tap the numeric display of voltage and current and enter each value.

(5) Set the timer. Tap the time display and insert value (unit: minute) with the numeric keys at bottom of the screen.

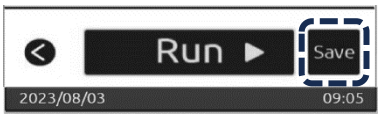
Setting range: 1 – 999 min

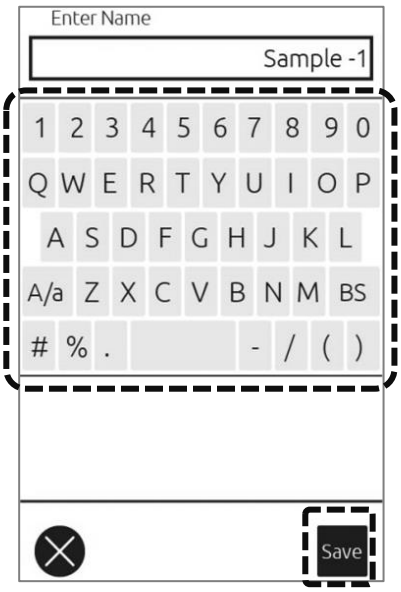
If you do not want to use the timer, tap [Timer OFF].

Tap [Enter] key to confirm input value.



(6) To save this setting as a Method file, tap [Save] button. The maximum number of files to be saved is 20. Enter file name and tap [Save] button.





(7) Tap [Run] button to start to output.

5.5 Method File Mode

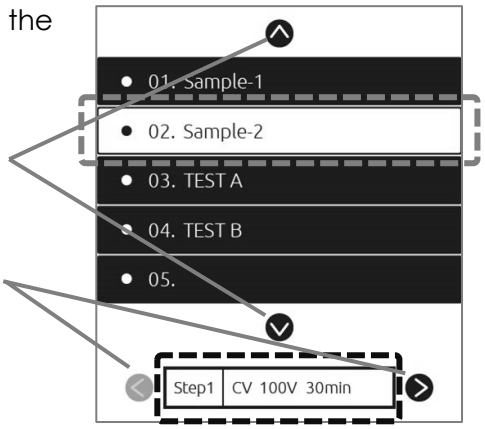
Save Run setting as a Method file, select it from saved files and output.

You can also set and save a program that outputs multiple steps continuously.

Select [Method file] from the menu bar at top of the screen.

> Use saved Method file

(1) Select a file to use from the list. The settings of the selected file are displayed below



Switch to the list of previous or next page

In case of multi-step, switch to previous or next step display.

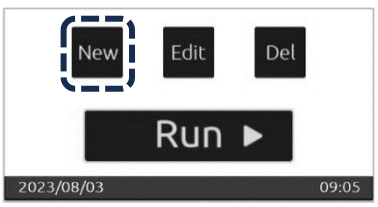
]

(2) When you tap [Run] button, output starts with selected setting.

> Create a new Method file

(1) Tap [New] button.

(2) Set output condition.



1) Tap and select from CV (constant voltage), CC (constant current), CW (constant wattage) mode button.

2) To use for isoelectric focusing electrophoresis, tap [IEF] button and select IEF mode (CV - Low - current mode).

3) Tap value display of the selected parameter to constant and enter output value with the numeric keypad at bottom of the screen.

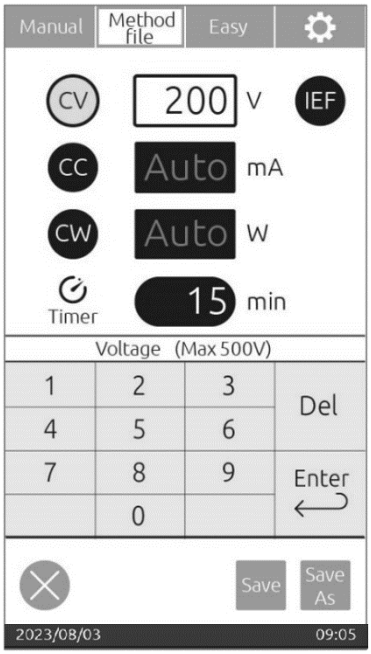
4) If CV or CC is selected, other parameters are set automatically ("Auto" will be displayed). If you want to set it to an arbitrary value, tap "Auto" and insert value.

   If IEF is selected, current and wattage will be fixed, cannot be changed.

   If CW is selected, tap the numerical display of voltage and current and enter each value.

5) Set the timer. Tap the time display and enter value (unit: minute) with the numeric keypad at the bottom of the screen.

   Tap [Enter] key to confirm input value.



(3) To save this setting as a Method file, tap [Save] button.

*The maximum number of files to be saved is 20.

Enter file name and tap [Save] button.

> Create a multiple step method file

(1) Tap [Multi Step] button.

(2) Set output in the same way as (2) in the previous section.

(3) Tap [Add Step] button to set the next step. The maximum number of steps is 9.

(4) Set next step output.

(5) After setting all steps, tap [Save] button.

Enter a file name and tap [Save] button.

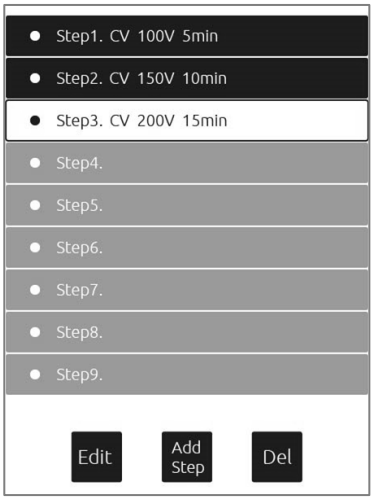
> Change method file

(1) Select a file to be changed and tap [Edit] button.

(2) In case of multi-step file, a list of steps is displayed.

Select a step you want to change and tap [Edit] button.
If you want to add a step, select a previous step and tap [Add Step] button.
If you want to delete a step, select the step and tap [Del] button.

* You can't add a step to the method file of single step. Create a new multiple method file.



(3) Tap a parameter you want to change and change settings.

(4) To overwrite, tap [Save] button.

To save as a different name, tap [Save As] button, enter file name, and tap [Save] button.

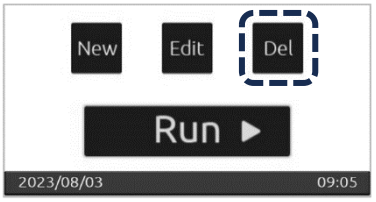
* If you want to change only the file name, tap [Save As] in the above procedure, enter a new name and delete the old name file.

> Delete method file

Select a file to delete and tap [Del] button.

A confirmation message will be displayed. To delete a file, tap [Del] button.

To cancel, tap[X] button.

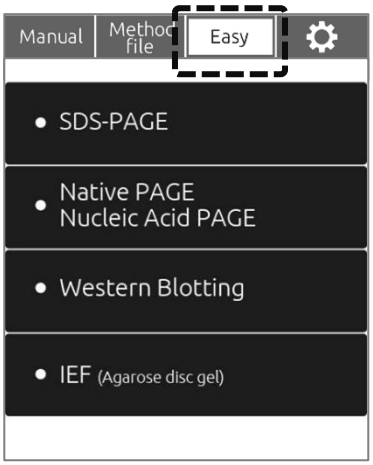


5.6 Easy Mode

By selecting a method of application on the screen, it is possible to output with suitable setting for each method without inputting parameter values.

(1) Select [Easy] from menu bar at top of the screen.

(2) Select a method you want to use.



SDS-PAGE

It is for mini-gel, ATTO wide-gel, ATTO Compact-gel. For larger gel sizes, set under manual mode.

> Standard

It is a standard method. A generation of heat can be suppressed.

> Fast

By raising voltage, shorten run time.

Native PAGE, Nucleic Acid PAGE

It is for mini-gel, ATTO wide-gel, ATTO Compact-gel. For larger gel sizes, set it under manual mode.

Western blotting

It is for Semi-dry transfer. In case of wet transfer, please set it under manual mode.

> ATTO EzFastBlot

It is a method for ATTO blotting buffer solution, EzFastBlot or EzFastBlot HMW. By raising voltage, shorten transfer time.

Please do not select this setting when using buffer solution other than ATTO EzFastBlot, EzFastBlot HMW. It will not successfully transferred.

> Standard

It is a standard method.

> ATTO QBlot kit Series (Standard), (High Speed)

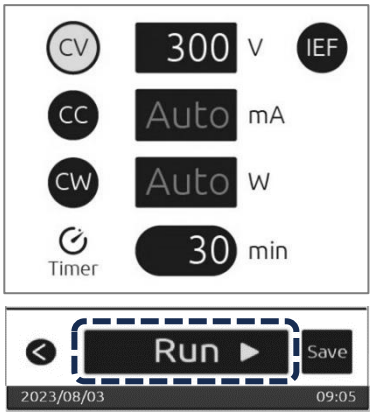
It is a method for using ATTO transfer pack, QBlot kit Series. Select from [Standard] as standard method and [High Speed] which shorten transfer time by raising voltage.

Please do not select this setting when not using ATTO QBlot kit Series. It cannot

transferred successfully.

IEF (Agarose disc)

It is for ATTO agarose disc isoelectric focusing electrophoresis. Select a gel size from [Mini] or [Compact].



(3) A setting of selected method is displayed.

On this screen, you can change settings and save it as Method file (see [Manual Mode] for setting operation).

(4) Tap [Run] button to start outputting.

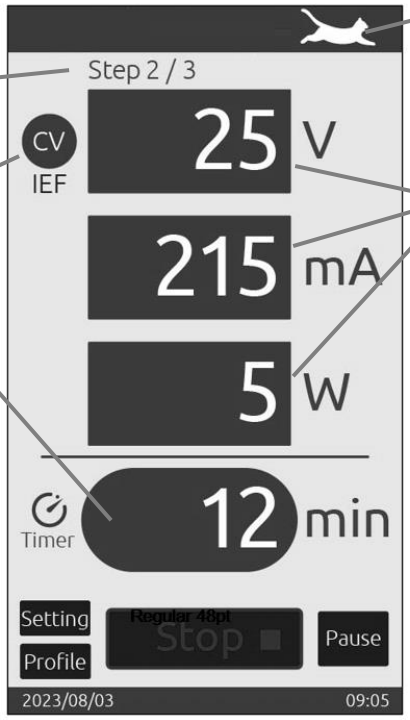
Easy mode settings table

Choice 1	Choice 2	Choice 3	Number of Gels	Setting (N: Number of gels)				
SDS-PAGE	Standard	-	-	CV	150V	Auto	Auto	60 min
	Fast	-	-	CV	300V	Auto	Auto	30 min
Native PAGE Nucleic acid PAGE	-	-	-	CV	150V	Auto	Auto	80 min
Western blotting	Standard	Mini-gel Compact gel	Max 6	CV	12V	500mAxN	Auto	30 min
		Wide gel	Max 3	CV	12V	800mAxN	Auto	30 min
	ATTO EzFastBlot	Mini-gel Compact gel	Max 6	CV	25V	500mAxN	Auto	15 min
		Wide gel	Max 3	CV	25V	800mAxN	Auto	15 min
	ATTO QBlot kit Series (Standard)	-	-	CV	12V	Auto	Auto	20min
	ATTO QBlot kit Series (High Speed)	-	-	CV	24V	Auto	Auto	10 min *
IEF (Agarose disc)	Compact	-	-	CV IEF	300V	10mA	5W	150 min
	Mini	-	-	CV IEF	300V	10mA	5W	240 min

* In the running of "ATTO QBlot kit Series (High Speed)", it may be operated as CC mode in the first 1 minute. And it is switched to CV mode.

5.7 Display and Operation on Running

When it starts output, following screen will be displayed.



During multi-step, [Current step] / [Total number of steps] is displayed.

A current status (CV, CC, CW) is displayed.

A remaining time of the timer is displayed.
If you are not using a timer, elapsed time from the beginning will be displayed.
When the time exceeds 999 minutes, the display unit switches from minute ("min") to hour ("h").

Tap top of the screen to switch icons.

Current voltage, current and power value are displayed.

Display of setting value

Tap [Setting] button to display a setting value. In case of multi-step, tap [<] or [>] button at top of the screen to display the setting of previous or next steps. After 3 seconds it returns to current output value display.

Display of run profile (graph)

Tap [Profile] button to display output value changes within time by a graph.

Pause

Tap [Pause] button to pause output.

Tap [Edit] button to change settings (CV, CC, CW cannot be changed) while pausing.

Change of timer setting

A Time on the setting screen is default value. For example, if you want to start output at timer setting of 30 minutes, pause for remaining 5 minutes, and extend it for 10 more minutes (output for 15 minutes after resuming), please set timer setting to the initial setting value (30 minutes) + the time you want to extend (+ 10 minutes) = 40 minutes. After resuming, the remaining timer will be extended for 10 minutes and be displayed "15 min".

Tap [Run] button to resume output.

Stop of Running

When countdown of the timer becomes zero, output automatically stops.

In another way to stop output, tap [Stop] button.

When output stops completely, "Finished" appears on the screen and the finish time is displayed below.

⚠ Warning	Right after it's stopped, output is not completely 0. Please do not touch lead wires, connectors, connected equipments until you see "Finished" on the screen. There remains a danger of electric shock.

Tap [Profile] button after it's stopped, the display shows run profile (graph).

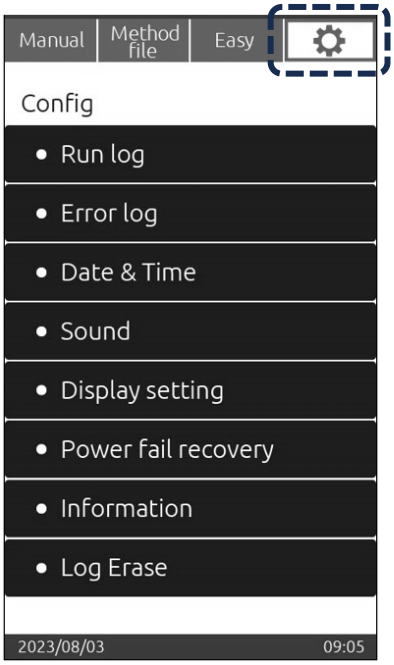
Tap [OK] button to switch to home screen (Manual mode screen).

5.8 Config

Change various settings and display information.

Select in the menu bar  at top of the screen.

Select from the displayed menu.



Run log

Details of run log selected in the list (listed by date and time in descending order) are displayed at bottom of the screen.

Display content:

Parameter value set at constant
Set time at the timer
When errors occur, "Error" notification
Start: Output value right after started
End: Output value just before termination
Max: Maximum output value
Min: Minimum output value
Run time: Actual output time
In case of using multi step, displayed at each step (can be switched by [<], [>] button).

You can display the run profile for the log up to the last 100th. Touch the [Profile] button on the log display screen.

Error log

When error log is selected on the list (listed by date and time in descending order), run setting at that time and time of error occurrence (from start of output) are displayed at bottom of the screen (in case of errors occur during output).
For details of each error, refer to "Error Display Function" section.

Date & Time

Power Station Ghibli I's built-in clock displays the date in the lower left corner and the time in the lower right corner of each screen, and records the date and time in the run log and error log. This section sets that clock.

Tap each number, and the number keys will appear, then enter the number to change it.

The format for displaying the date and time is as follows (when English is selected).
Month/Day/Year Hour : Minute AM/PM

When the battery in the built-in clock runs out, the date and time will be displayed as "-". It can be redisplayed by setting the clock ("Date & Time" setting menu), but once the power is turned off, it will reset and return to the "-" display the next time it is turned on. For battery replacement, the Power Station Ghibli I must be sent to us.

Sound

Set ON / OFF of tapping sound ("Tapping") and notification sound ("Finish") at end of output. Alarms at error occurrence and taping sound of [Run] button cannot be turned OFF for its safety.

Display setting

Language

Select a display language from Japanese and English.
If you select Japanese, only messages will be displayed in Japanese, such as cautions and errors, menus are displayed in English.

Icon

Change icons displayed at top of the screen during output.

Power fail recovery setting

In case power failure occurs during output, set function to restart output automatically after recovering.

OFF: Disables power fail recovery function.

ON (only once): Enables only once of power fail recovery function at next output, then switches to be invalid.

ON: Enables power fail recovery function.

Information

Display product name, model number, serial number, and software version of this device.

Log Erase

Delete all run logs and error logs.

6. Troubleshooting

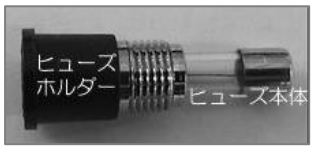
6.1 Not Working While Power is ON

(1) Make sure that power cable is correctly connected to the connector of the device and properly connected to the power outlet.

(2) Remove a fuse from a fuse holder on the back of the equipment as below and check whether a fuse is not blown out. If it is blown out, please replace that fuse.

Caution
Double pole/neutral fusing

Insert a flat head screwdriver in the recess under power connector on the back of the unit, at white circles on the left picture. Turn it counterclockwise to pull out the holder at 2 different places.



Check a fuse and it if it's blown out, please replace and attach fuse holder to the inlet.
Fuse: 5.2φ × 20 mm, 250V-5A-slow blow type x 2pcs.

6.2 Error messages appear

After reading displayed error contents, turn off the power switch and refer to the table below and take appropriate action.
Do not turn on the power switch until the cause of the error is resolved.

11, 12, 13	Short Circuit	It is displayed when load short circuit is detected during output. Turn off the power switch. Make sure if buffer solution is excessive with the connected device, liquid leakage from upper chamber to lower chamber, terminals or lead wires are not wet. Please check with a multimeter whether connected devices or lead wires are not short-circuited.
21, 23	Sudden Load Variation	It is displayed when load suddenly fluctuates. Turn off the power switch. Check the connected devices and lead wires for breakage, poor connection, and buffer solution shortage. Please check whether run setting values are appropriate.
31, 32, 33	Open Circuit	It is displayed when open load is detected during output. Turn off the power switch. Please check disconnection, connection failure of connected devices and lead wires, buffer solution shortage, gel plate installation direction. Make sure the setting of the electrode plates, filter papers, a membrane and a gel for blotting is whether appropriate.
51	Power Failure	If power failure occurs during output, it is recorded on the error log (no error messages will be displayed).
61	Insufficient Voltage Supply	It is displayed when supply voltage to the equipment becomes 85 V or less. Turn off the power switch. Make sure supply voltage from AC is at normal value of 100 - 240 V.

71	Fan Trouble	It is displayed when cooling fan on the back of the equipment gets out of order. Turn off the power switch, then turn it on again and see whether a fan works.
81	Rising Internal Temperature	This message is displayed when temperature of heat sink inside the device rises and normal operation cannot be performed. Turn off the power switch. Make sure that the air vent at bottom of the unit is not blocked or covered with dust.
91	Rising Terminal Temperature	It is displayed when the temperature of output terminal of the equipment has risen. Turn off the power switch. Make sure the connectors of lead wires are firmly inserted, whether inside of the output terminal is not corroded or filled with trash.
A1	Over Power	It is displayed when electric current abnormally rises and electric power excessively rises. Turn off the power switch. Check connected devices and lead wires for breakage, poor connection, and buffer solution shortage.
C1, C2	Internal Error (Breakdown)	It is displayed when there is breakdown inside the equipment. Please turn off the power supply and contact us or our distributor.

6.3 **Clock display is off.**

The clock display may be off by up to 1 minute per month, depending on the accuracy of the built-in clock. Check it periodically and adjust it using "Date & Time" in the settings menu.

If the clock display shows "-", the built-in clock battery is dead. The display can be redisplayed by setting "Date & Time", but once the power is turned off, the display will reset to "-" the next time the power is turned on. Contact us to replace the battery.

7. Maintenance

7.1 Cleaning

Check and clean the following dirt once a month.

⚠ Warning	Please turn off the power switch and remove the power cable before cleaning the device.

Exterior surface

If outside of the devise gets dirty, wipe gently using a soft cloth with neutral detergent diluted with water.

Touch panel LCD

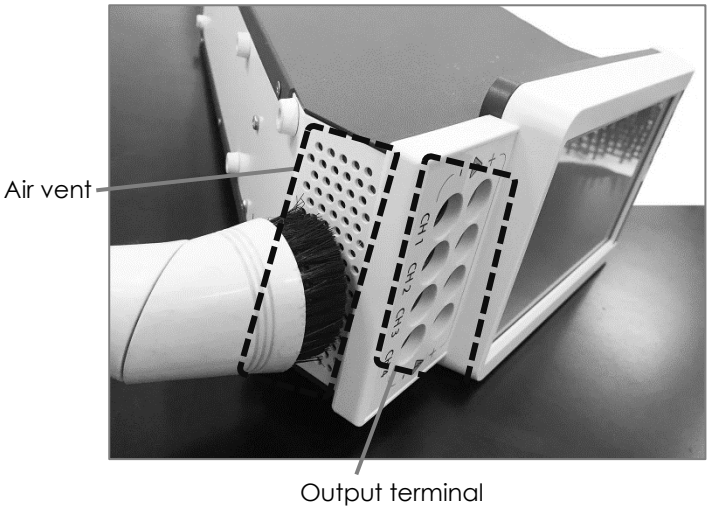
If a touch panel gets dirty, please wipe lightly with water or a paper towel containing 70% ethanol. If liquid such as water get on a device, please wipe it off immediately.

Air vent

If dirt or dust gets to front air vent at bottom of the equipment, please remove it with such as vacuum cleaner.

Output terminal

If dirt or dust gets into output terminal, please remove it with a vacuum cleaner etc.



In case water gets into an output terminal, please turn off the power switch, remove the power cable and remove the water immediately. Please do not use the device until completely dried.

Power cable

Please check that a power cable is not scratched.

7.2 Check

Periodical maintenance and inspection prevent failure and accident in advance, and provide safe operation. To remain the performance, we recommend it depending on usage and time-of-use. If abnormality is found, don't use the instrument and contact our company.

The contact information is mentioned on the back cover of this manual.

7.3 Maintenance and Repair

Our products come with a repair service period of 7 years from the date of delivery. Therefore, if you wish to have your product repaired, you will need to request it within this period. However, please note that we generally do not accept repair requests for products that have been in use for more than 7 years.

Furthermore, we store parts for discontinued products for a duration of 7 years after production has ceased. Please be aware that even within the repair service period, there may be cases where repair is not possible due to a lack of available parts.

If any abnormality or failure occurs while using the unit according to this instruction manual, or if you notice any problem during your maintenance/inspection work, please contact us after checking it according to the relevant [Troubleshooting] item.

When repair is required, please send the unit back to ATTO or our distributor, in principle. If on-site repair is requested, travel expense will be required in addition to the repair cost.

7.4 Warranty

ATTO Corporation warrants all its products subject to the terms and conditions set forth below.

1. This warranty covers all new products that are sold by ATTO Corporation (hereinafter called ATTO).
2. Expendable items are not covered by this agreement.
3. Claims under this warranty are limited to defects in material and workmanship of the products.
4. Malfunction and/or damage due to neglect, abuse, operation or repair contrary to specifications and/or instructions presented by ATTO are not warranted.
5. ATTO shall not be liable to consequential damage, labor, loss or expense directly or indirectly arising from use of the products.
6. Damage due to transit is not covered by this warranty.
7. The warranty period is one (1) calendar year from a date when the products are shipped from ATTO to an original purchaser.
8. This warranty is not applied to any defect that is reported to ATTO later than one (1) calendar month from a date of warranty termination.
9. ATTO Shall supply parts to replace faulty parts of defective products under this warranty, free of charge.
10. ATTO shall repair defective products under this warranty, which cannot be repaired at field, free of charge.
11. ATTO shall replace defective products under this warranty, which cannot be repaired, free of charge.
12. Freight charges for return and replacement shipments under this warranty are shared by ATTO and a purchaser, that is one way by either party and another way by another party.
13. Warranty period of repaired products and replacement products or parts is three (3) calendar months from a date when the said products or parts are shipped from ATTO, or a remaining term of an original warranty period of the defective products, whichever lasts longer.
14. Return of the products for credit or refund is not accepted unless otherwise agreed in writing by ATTO.

8. Specifications

8.1 Specifications

Product name, Model No.		WSE-3100, PowerStation Ghibli I
Output range	Voltage	0 - 500 V (200 W, Max)
	Current	0 - 3 A (200 W, Max)
	Wattage	0 - 200 W
Output accuracy	Voltage	151 - 500 V: ± 2 % + 4 digits 51 - 150 V: ± 3 % + 4 digits 0 - 50 V: Indicated value ± 1.5 V
	Current	301 - 3000 mA: ± 1 % + 5 digits 0 - 300 mA: Indicated value ± 3 mA
Set range	Voltage	3 - 500 V, 1 V step
	Current	10 - 3000 mA, 1 mA step
	Wattage	1 - 200 W. 1 W step
Output terminals		Four pair parallel output
Output control		Constant voltage, current or wattage with automatic crossover
Display and operation		Touch panel color LCD (pressure-sensitive, 7 inch)
Timer		1 - 999 min or continuous
Clock function		Date and time display, date and time recorded in log, 10-year battery life
Method file storing function		20 files, 9 steps/file
Alarm		When time is over or error occurs.
Other functions		Easy mode, pause of output, output profile (graph) display, run log, error log, power fail recovery
Safety features		Detection of short circuit, sudden load variation, open circuit, power failure, insufficient voltage

	supply, fan trouble, rising internal temperature, and over power
Operating conditions	5 - 40°C, 20 - 90 %RH, no condensation
Input	100 - 240 VAC, 50/60 Hz, 300 VA, Max.
Dimensions	119 mm(W) x 417 mm(D) x 224 mm(H)
Weight	6 kg

ATTO Corporation
Head Office:
3-2-2 Moto-asakusa, Taito-ku, Tokyo
111-0041, JAPAN
URL: https://www.attoeng.site/