

On-Line Uninterruptible Power Supply

miniUPS ALS-Series

Instruction Manual

ALS-1.5K

ALS-1.5KH

ALS-2K

ALS-2KH

ALS-3K

ALS-3KH

YAMABISHI Corporation

ATTENTION TO SAFETY

Thank you for purchasing our ALS-Series UPS.

Before operating this system, you should first thoroughly read this manual.




After it is read, keep it to the place where the people handled can see it soon.

Symbol Marks and Signal Words




This instruction manual and the indication with a product have contents for using safely to prevent damage harm property damage.

Be sure to follow this instruction manual.

The three Signal Words below describe what will happen in the unlikely event of mistake being made during handling or operation.

 WARNING	If this device is improperly used, people may be severely injured or killed.
 CAUTION	If this device is improperly used, people may suffer light to medium injures or material damage may occur.
 NOTE	Extra notes or precautions are added to operating procedures and explanations.

The contents which should be followed are explained by the symbol of the bottom.

	This symbol indicates WARNING
	This symbol indicates prohibited item.
	This symbol indicates the items which it must surely have done.

ATTENTION TO SAFETY

Be sure to follow the below.

WARNING

Do not use for the medical machine and traffic system.



Do not use it for the use such as a medical machine concerned with the life, traffic system with the possibility to give it a serious influence from the public society and others.

CAUTION

Be sure to do the matter that it is written in this instruction manual.



Use in the condition and environment that this instruction manual mentions

Prohibition from reconstructing, dismounting and arranging



Do not reconstruct, dismount and arrange, as burning or injuring you.

Prohibition from using in-vehicle.



This item isn't for using in-vehicle that a vibration is always added. It may cause a fire, and dangerous due to the vibration

NOTE

A guarantee is only in the Japanese country.







Our company isn't responsible to the duty which occurred by the use abroad.

SAFETY USE




Be sure to follow it because it has the possibility to cause the trouble of the device and a fire when you don't follow the following items.

About this device

 CAUTION	
	<p>Special knowledge and technology are necessary for the maintenance. Don't remove a cover.</p> <p>There is a part where a high voltage occurs in the device, and very dangerous. Even if an input cable isn't connected, electricity is supplied to UPS by a battery.</p>
	<p>Don't use to a hair drier, an electric heater and the laser printer.</p>
	<p>Be away from fire.</p> <p>Avoid putting UPS under high temperature place.</p> <p>Don't use it except for a plug to conform.</p> <p>Please keep unobstructed air in the exhaust holes of UPS.</p> <p>Power socket should be close to the UPS.</p> <p>Don't put any liquid or object in the inside of the UPS.</p>

We suggest regular maintenance to make it use this device for long time.

About Battery

 CAUTION	
	<p>Battery exists the danger of high voltage and current.</p> <p>Don't try to open or damage battery casing. It might hurt human eyes or skin by slopping electrolyte of battery because it is a kind of strongly toxicity.</p> <p>To change or maintain the battery set are very serious matters that need to be done by technicians. Anyone can't be allowed to change or maintain the batteries of the UPS</p>
	<p>Replace a battery within five years.</p>

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INTRODUCTION

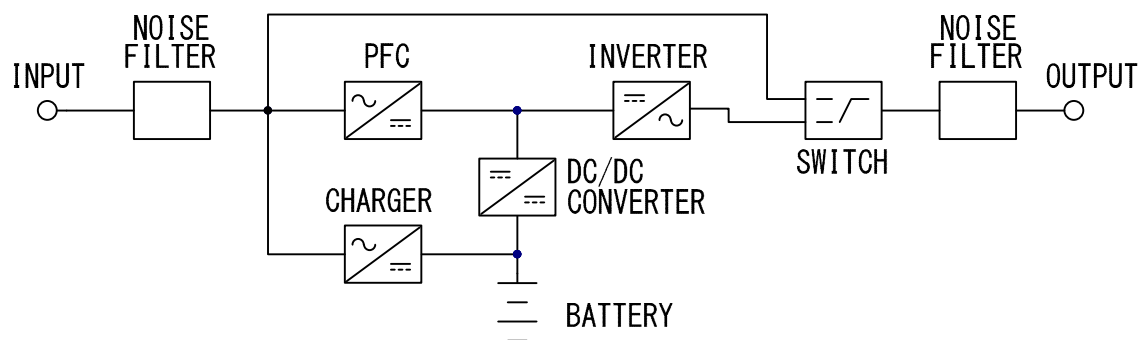
ALS series UPS is an advanced true On-Line uninterruptible power system produces reliable and pure sine wave power to users' equipment, ranging from sensitive medical instruments, computers, telecommunication systems to industrial automatic equipment.

The On-Line design enables the system to adjust and filter power fluctuations continuously and automatically under power normal condition.

During power failure, it can provide immediate back-up power from the batteries without any interruption.

When overload or UPS malfunction, the system will automatically transfer to bypass mode and continue supplying output equipment with utility power, when overload situation releases, it will transfer back to inverter mode automatically, while malfunction can be released by restarting the UPS.

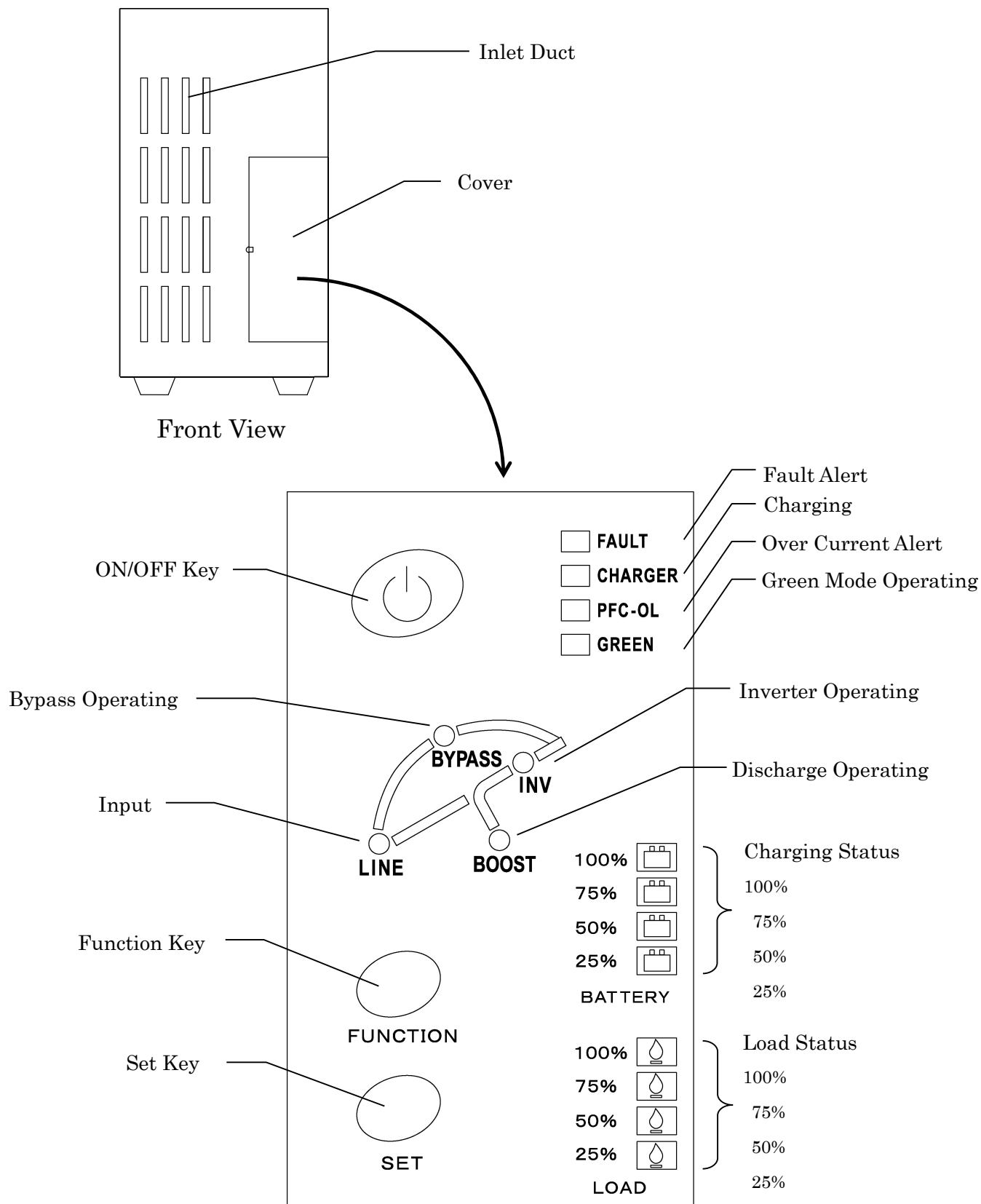
All the transferences are achieved within 4 ms without interruption.



ALS-Series Block Diagram

The name of each department of the device

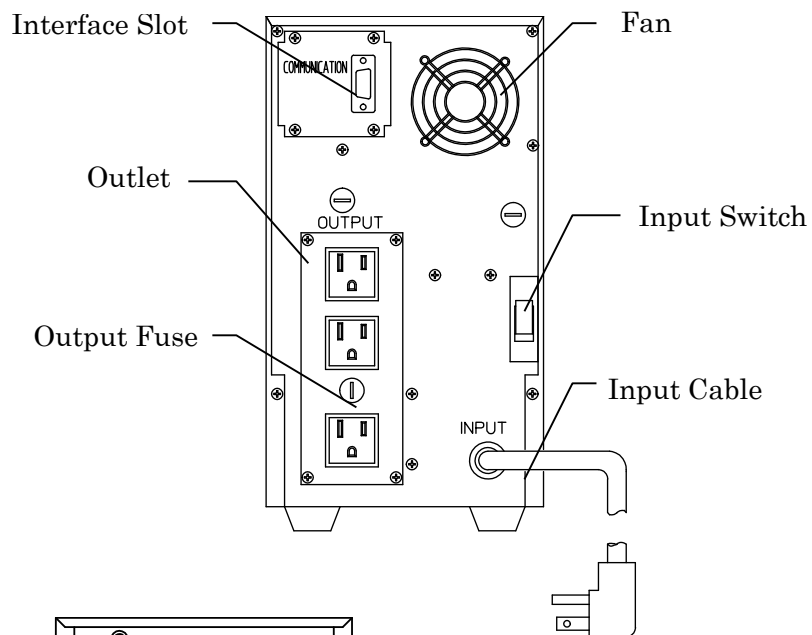
①Front Panel



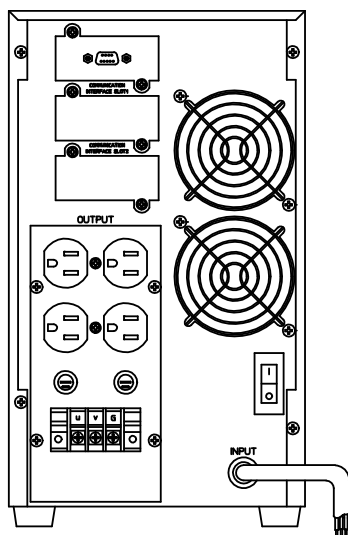
Front Panel

The name of each department of the device

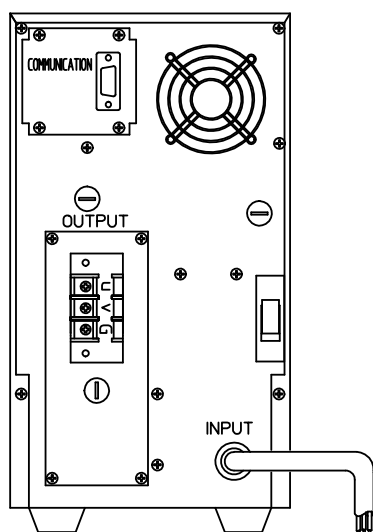
② Back View



ALS-1.5K



ALS-2K
ALS-3K



ALS-1.5KH
ALS-2KH
ALS-3KH

INSTALLATION

■ About the place of installation

Installation under the following condition causes the trouble of this device.

NOTE

The place of high-temperature and humidity
(over 0~40°C over 0~95%RH)

- Installation in the place of the range of a surrounding
Temperature 10-25°C is recommended to keep a battery
life long.



Near the machine like display and so on which a magnetic
influence is often taken.

The place to have salt and corrosion gas.

The place to have a vibration, shock.

The place where powdered dust is abundant.

■ About the installation place.

Keep the following strictly for the safety.

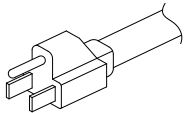
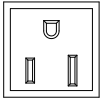
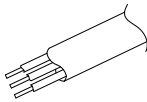
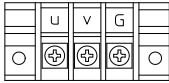
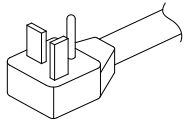
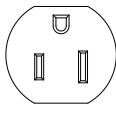

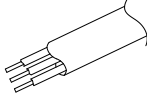

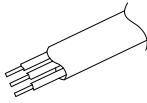

NOTE



Secure the space of more than the front 10cm and more than
the rear 20cm because this device is cooled by a fan.

WIRING

Do wiring referring to the following table.

Model	Input	Output	Breaker
ALS-1.5K	 NEMA-15P Cable 1.31 mm ² (15A)(1.7m)	 NEMA 5-15R(15A)×3peace	Over 20A
ALS-1.5KH	 Cable 0.75 mm ² (10A)(1.7m) HOT : Black or Brown COOL : White or Blue Earth : Green	 Terminal M4	Over 10A
ALS-2K	 NEMA 5-20P Cable 3.31mm ² (20A)(1.7m)	 NEMA 5-15R(15A)×4peace	Over 30A
		 Terminal M4	
ALS-2KH	 Cable 0.75 mm ² (10A)(1.7m) HOT : Black or Brown COOL : White or Blue Earth : Green	 Terminal M4	Over 15A
ALS-3KH	 Cable 1.5 mm ² (16A)(1.7m) HOT : Black or Brown COOL : White or Blue Earth : Green	 Terminal M4	Over 20A

SETTING

1. Start-up and Shut-down

Start-up

Turn on a switch in the rear.

After an alarm rang and bypass operation was done for about ten seconds, inverter operation (It usually drives.) is done.

Shut-down

Push the ON/OFF key of the front panel about one second, and change to the bypass operation.

Turn off the rear switch.

An alarm rings, and a device stops in about ten seconds.

SETUP

2. Special Setting

In the special setting, the setting of output voltage and green mode (saving energy mode) can be set .

2-1 The setting of output voltage

It can be set up by special setting as the following table.
(The method of setting can be shown P11~16)

ALS-△△KH	200V	220V	230V	240V
ALS-△△K	100V	110V	115V	120V

2-2 The setting of Green Mode.

The green mode is the saving energy mode that bypass operation is done at the time of the low load.

(The method of setting can be shown P17)

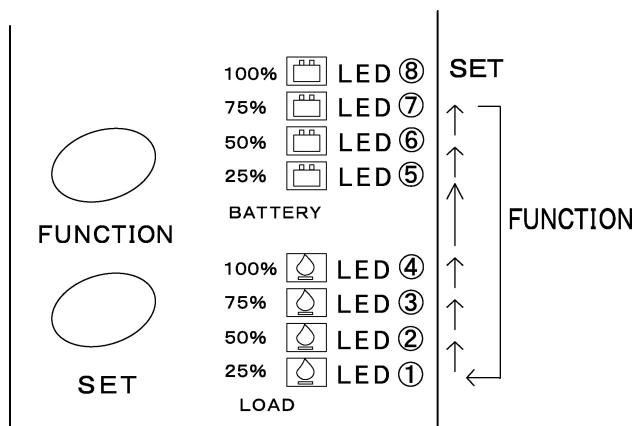
ALS-1.5K / -1.5KH	ALS-2K / -2KH	ALS-3K / -3KH
30W or less	60W or less	90W or less



Be careful enough of the setup because a backup by the battery isn't completed when AC line is failed during green mode operation.

■The method of Special Setting.

Push a FUNCTION key and a SET key in the bottom left of the front panel for **more than one second at the same time**.



- Every time a FUNCTION key is pushed, LED ① - ⑦ are turned on in turn.
- Every time a SET key is pushed, LED ⑧ repeats lighting, lights-out.
- The setting, confirmation of the output voltage can be done with a combination of the lighting, lights-out with LED①②and⑧, and the setting, confirmation of the green mode can be done with the combination of the lighting, lights-out with LED ④and ⑧.

OPERATION

3. The method of special setting

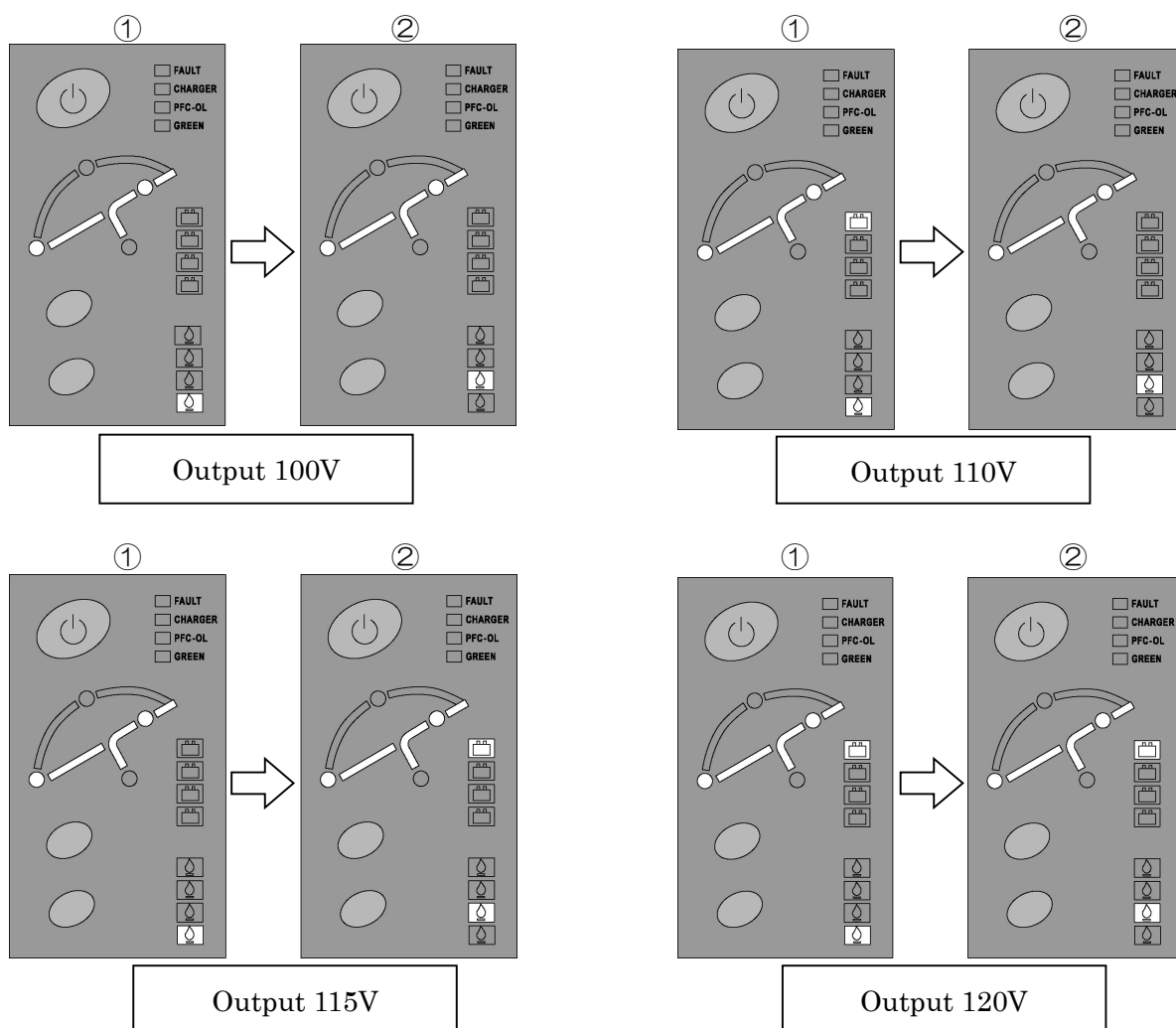
LED repeats lighting, lights-out by the operation of the FUNCTION key and the SET key.

The setting, confirmation of the output voltage and green mode can be done with a combination of the LED lighting, lights-out by each model of the bottom figure.

3Change each setting of an output voltage to the indication of ② after you make it the LED indication of ①. Be careful because it can't be set up in the voltage when this process is mistaken.

3-1 Lighting Figure

① ALS-1.5K



■ Be sure to carry out the following process after you finish a setup.

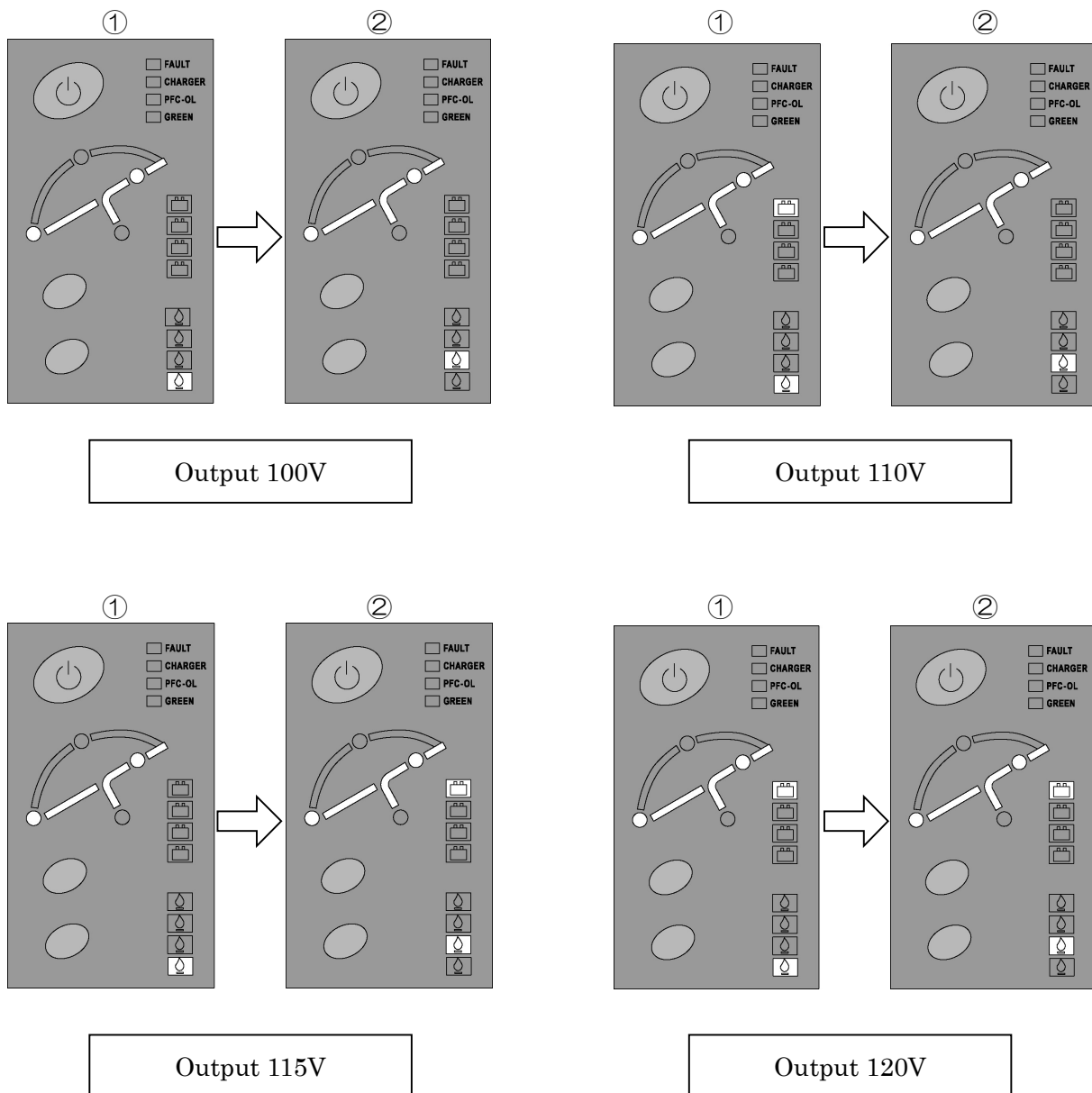
Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.



A setup is reflected by the restart of the device.

OPERATION

② ALS-2K



■ Be sure to carry out the following process after you finish a setup.

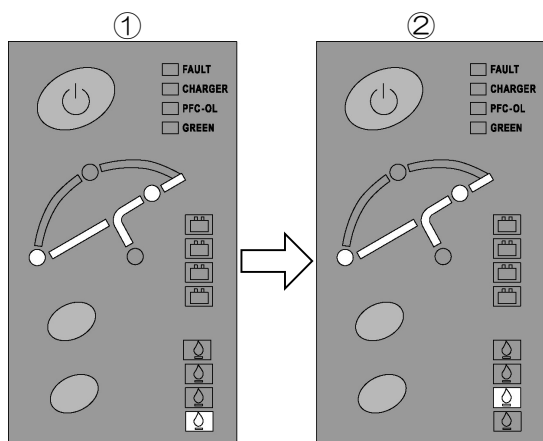
Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.



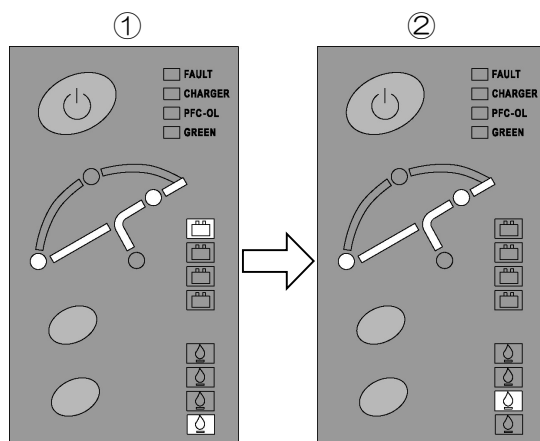
A setup is reflected by the restart of the device.

OPERATION

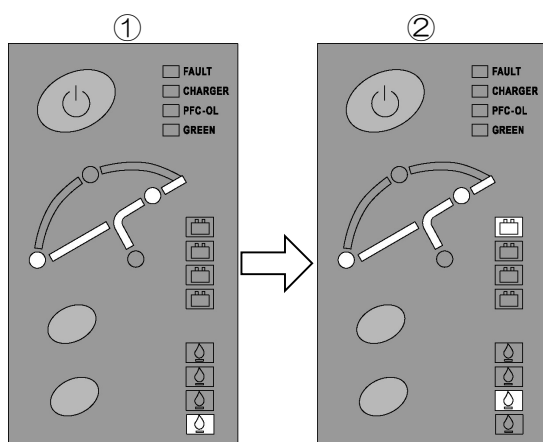
③ ALS-3K



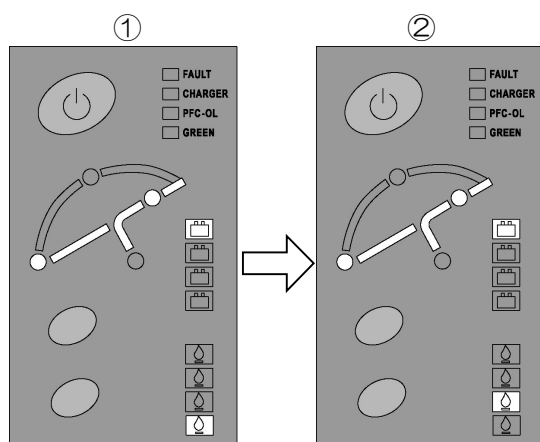
Output 100V



Output 110V



Output 115V



Output 120V

■ Be sure to carry out the following process after you finish a setup.

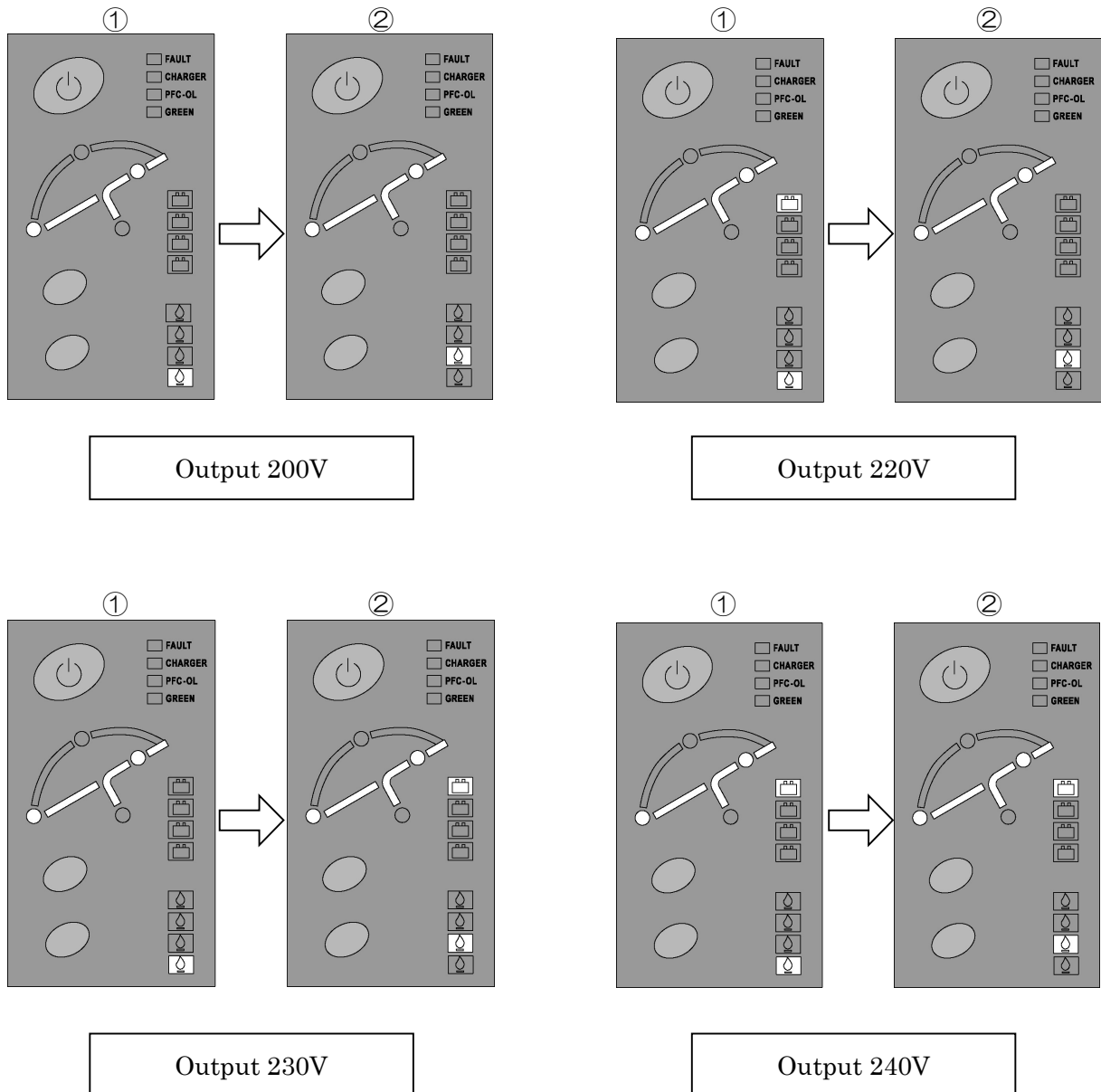
Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.



A setup is reflected by the restart of the device.

OPERATION

④ ALS-1.5KH



■ Be sure to carry out the following process after you finish a setup.

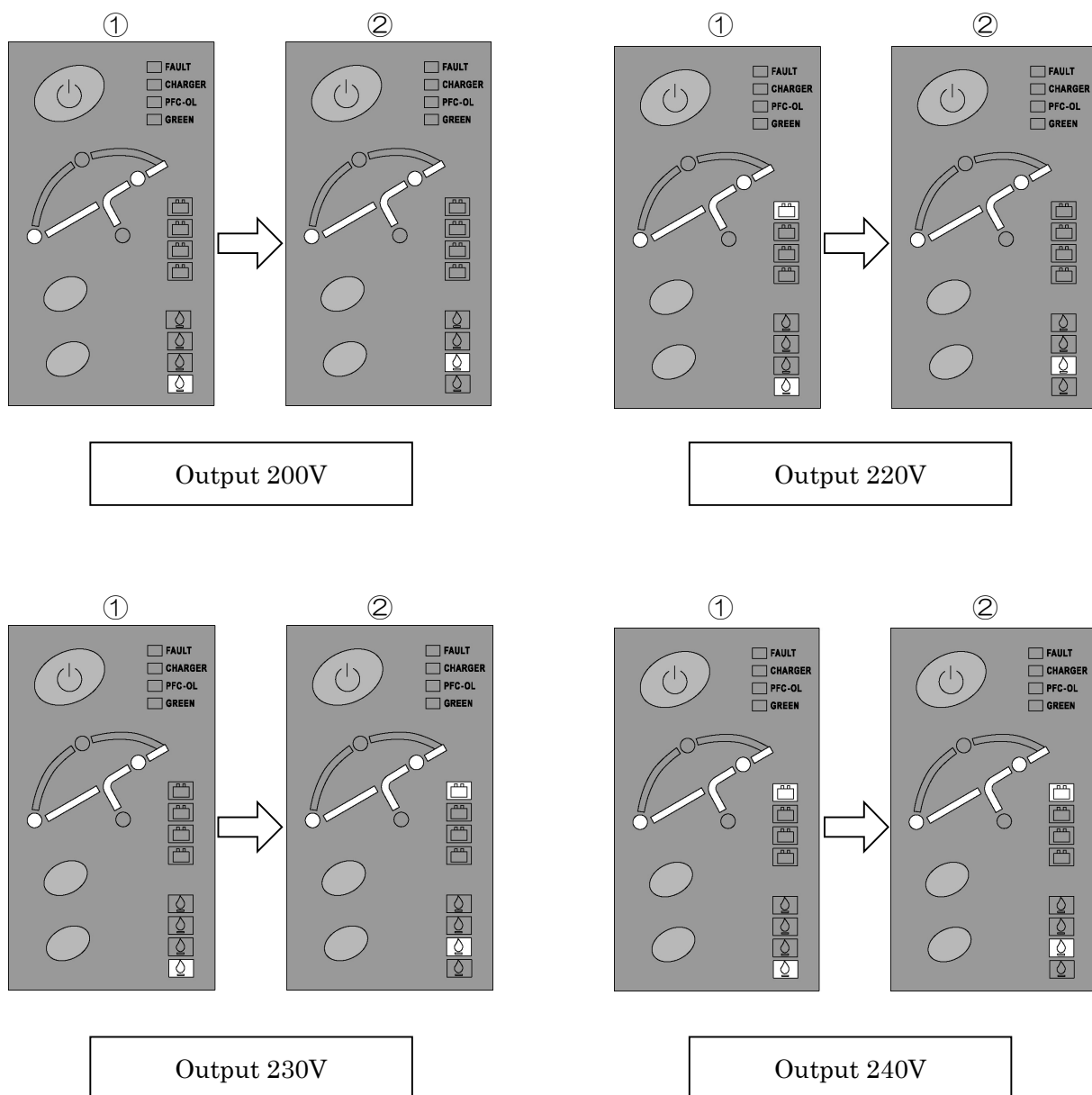
Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.



A setup is reflected by the restart of the device.

OPERATION

⑤ ALS-2KH



■ Be sure to carry out the following process after you finish a setup.

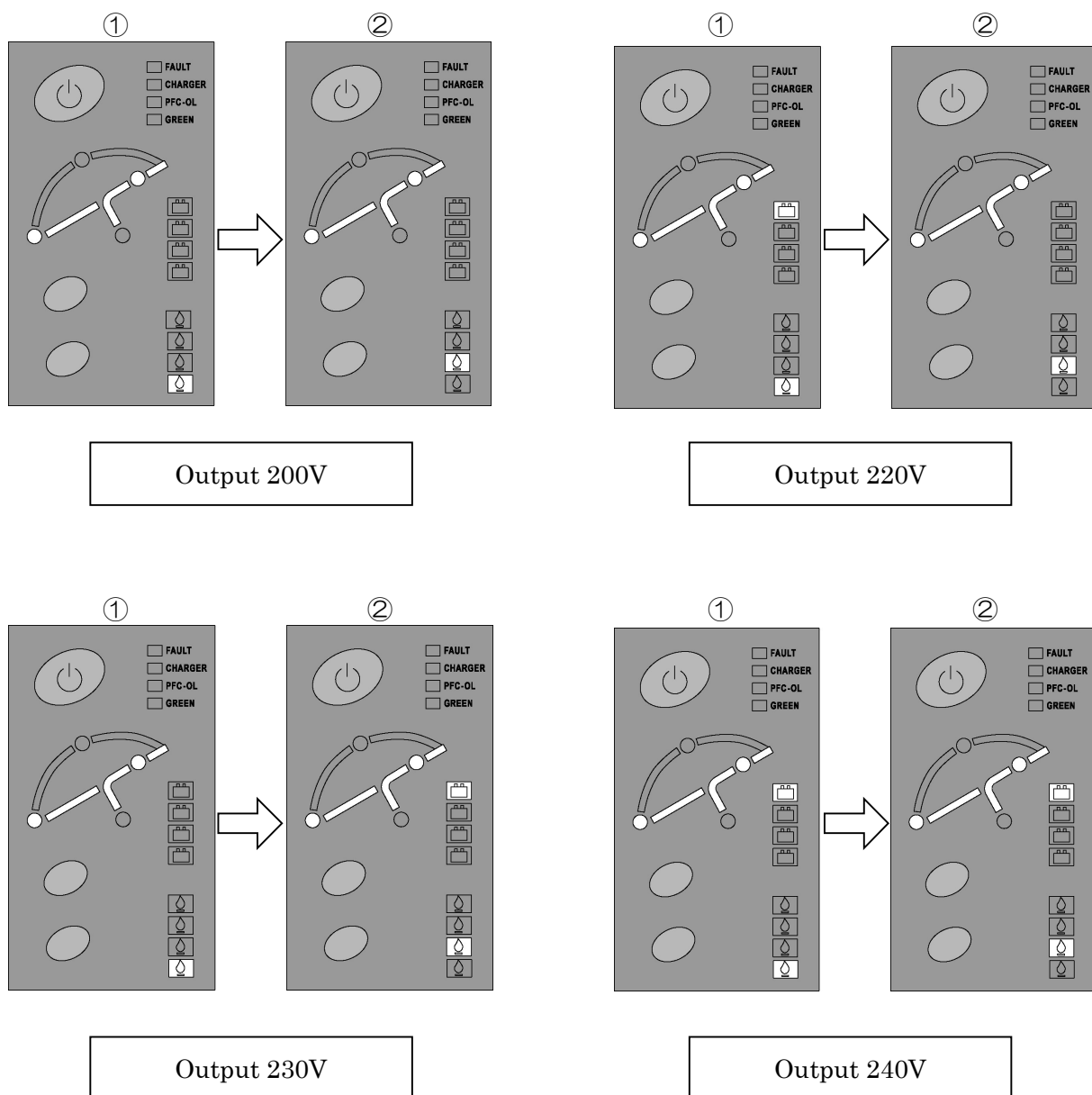
Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.



A setup is reflected by the restart of the device.

OPERATION

⑥ ALS-3KH



■ Be sure to carry out the following process after you finish a setup.

Push a FUNCTION key and a SET key in the bottom left of the front panel at the same time. Cancel the special setup mode surely, and drop a power supply for a while, and restart after you finish setting of output voltage. How to restart is to see the term of “Start-up”, “Shut-down” in nine-page. It is the completion of the setup with this.

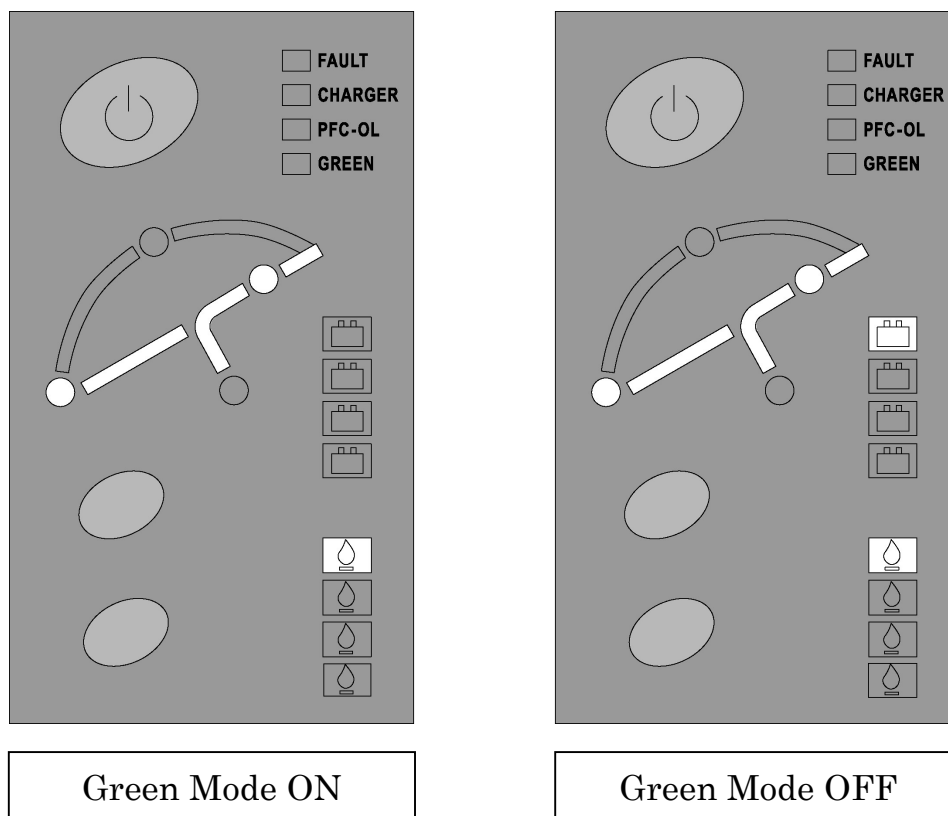


A setup is reflected by the restart of the device.

OPERATION

3-2 Status of LED lighting at Setting of Green Mode

For ALS Series



Be sure to carry out the following process after you finish a setup.
A FUNCTION key and a SET key in the bottom left of the front panel
are pushed at the same time.
It is not necessary to restart.

OPERATION

4. Functions

4-1 Self-Diagnosis of Battery

Push a FUNCTION key about two seconds at the inverter operating.

Self-diagnosis of Battery is done.

If there is no wrong point, after ten seconds it is returned to the inverter operating.

If there are a few amounts of battery, an alarm rings, and it is returned to the inverter operating soon.

4-2 Turn to Bypass

Push an ON/ off key at the inverter operating, it is returned to bypass operating.

Push an ON/ off key at the bypass operating, it is returned to inverter operating.

It isn't returned to the inverter operating at the over-electric current time and so on.

Keep the interval of twenty seconds and more when you return it to inverter operating after switching for the bypass mode

OPERATION

4-3 Interface connection

The product has the communication interface "RS232" that let computer shut down when blackout occurs.

* You need UPSilon2000 and cable of the attachment.

OS compatibilities: Windows 7/8/10

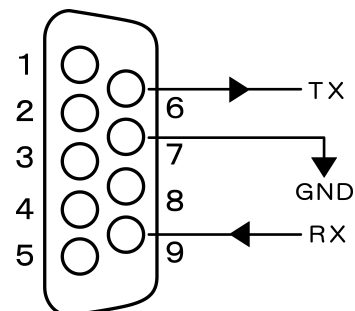
* The product doesn't react the UPS service from Windows

① Please set RS232C as below.

Baud Rates	2400bps
Data Length	8bits
Stop Bit	1 bit
Parity	None

② Arrangement of DB9 connector and RS232C pin

Pin No.	Function	I / O
9	RS232RX	Input
6	RS232TX	Output
7	GROUND	



TROUBLE SHOOTING

Problem	Causes	Solutions
UPS no reaction while AC is connected	Fuse at rear panel blown	Replace fuse
	No AC input	Check AC power
	UPS fault	Call for service
	Battery damaged	Call service to replace batteries
UPS no reaction while AC is connected, yet DC starts after pushing power on/off switch	Fuse at rear panel blown	Replace fuse
	No AC input	Check AC power
	UPS fault	Call for service
UPS goes into DC mode connected to AC	AC voltage or frequency abnormal	Check AC power
	UPS AC detecting circuit fails	Call for service
UPS still in bypass mode after de-green mode function	UPS still in POWER OFF status	Press power on/off key, Buzzer sound once and the UPS Become normal
Keys on front panel don't work	UPS is proceeding controlling process	Wait for a while to operate the UPS
	Key damaged	Call for service
Press FUNCTION key in AC mode, but the UPS goes back to AC mode within less than 10 seconds	Internal battery deteriorated	Call service to replace batteries
Fault LED lit	UPS abnormal	Call for service
	Output load abnormal or short circuited	Check load
Battery cannot provide normal back up power when there is no AC input	Internal battery deteriorated	Call service to replace batteries
	Batteries not fully charged	Charge the battery
	Battery charger damaged	Replace charger and charge the battery if necessary

TROUBLE SHOOTING

Problem	Causes	Solutions
Line LED flickers	AC grounding wire abnormal	Check grounding wire with assistance of power engineering service
After AC connected to UPS, alarm sounds short and fast beeps and UPS shut down	AC abnormal	Check AC power
After starting the UPS, alarm sounds short beeps continuously, then the UPS shuts down	AC noise or environment noise	Check AC or battery wires
	UPS PCB abnormal	Call for service
Five short beep continuously	Internal over temperature	Check the ventilation
	Fan fail	Call service to replace the fan
Four short beep continuously	PFC over load protect in action due to low AC input	Check input AC power or release
LINE LED did not lit on after connect AC input and BOOST, INV LED lit on with three short beep continuously	AC input is abnormal due to input voltage and UPS goes into DC mode	Disconnect input AC power and check
	Input switch not turn on	Turn on the input switch

SPECIFICATION

Model			1.5K	1.5KH	2K	2KH	3KH
Specification							
Output	UPS Type		On-Line Type				
	Capacity		1500VA/1050W		2000VA/1400W		3000VA/2100W
	Phase		Single Phase 2 Wire				
	Voltage (V)		100	200	100	200	200
			110	220	110	220	220
			115	230	115	230	230
			120	240	120	240	240
	Voltage Accuracy		Within 2%				
	Transient Response		Within 8% (0 ⇔ 100% Load Step)				
	Wave Form		Pure Sine Wave				
	Overload Capacity		110% 100Sec. 150% 2Sec				
	Crest Factor		3 : 1				
	Wave Distortion		Within 3% (Linear Load)				
	Frequency		50/60Hz Auto Tracking				
	Frequency Accuracy		Within 0.3%				
	Transfer Time		ZERO for Line Fails or Reverse : 4mSec. Transfer to Bypass or Reverse				
	Green Mode		30W or less		60W or less		90W or less
	Power factor		0.7				
	Backup Time		6min.				
	Recharge Time (90%)		8hours				
	Battery		Sealed Lead-Acid battery				
Input	Phase		Single Phase 2 Wire				
	Voltage (V)		85~135	170~265	85~135	170~265	170~265
	Frequency		50/60Hz				
	Power factor		98%TYP				
Efficiency			85%TYP		90%TYP		
Interface			RS-232C (Standard)				
Option			Alarm Signal Card etc.				
Condition	Heating Value (Kcal/H)		118.8	126	132.2	144	194.4
	Ambient Temperature		0~40 degrees C				
	Ambient Humidity		0~95%RH				
	Audible Noise		45dB				
Mechanical	Dimension (mm)	W	154		194		194
		D	455		455		485
		H	280		335		335
	Weight (kg)		19		30.5		38

If there are unknown point or maintenance required, please contact us below.

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