

**2-year
Warranty**

forza[®]
POWER TECHNOLOGIES



User manual

Uninterruptible Power Supply System

FDC-103K / FDC-203K-I

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1. Introduction

Thank you for purchasing the Forza **FDC-103K** and **FDC -203K-I** Online UPS. To enjoy all the features and benefits of this unit, please read and follow all installation and operation instructions thoroughly before unpacking, installing or operating this device. After you have read this manual, keep it in a safe place for future reference.

The information contained in this manual covers the 3000VA uninterruptible power system, its basic functions, operating procedures, options available and troubleshooting guide. It also includes information on how to ship, store, handle, and install the equipment.

1-1. Transportation

- Make sure to transport the UPS system only in the original package to protect it against shock and impact.

1-2. Preliminary steps

- Water condensation may occur if the UPS is unpacked in a very cold environment and then moved to a warmer location.
- The UPS must be thoroughly dry before being installed. Failure to do so may increase the risk of electric shock.
- Do not install the UPS system near water or in moist environments.
- Do not install the UPS system where it would be exposed to direct sunlight or near a heater or heating vent.
- Do not block ventilation holes in the UPS housing.

1-3. Initial setup

- Do not connect appliances or equipment that may overload the UPS system (such as a laser printer) to the output sockets.
- Place cables in such a way that no one can step on or trip over them.
- Do not connect domestic appliances, such as hair dryers, to the UPS output sockets.
- Connect the UPS system only to an earthed shockproof outlet which must be easily accessible and close to the UPS system.
- Please only use certified electrical cables for input and output connections.
- During the installation of this equipment, make sure that the sum of the leakage currents of the UPS and the connected loads shall not exceed 3.5 mA.

CAUTION: The unit is heavy. Lifting the unit requires a minimum of two people.

1-4. Important safety instructions

- Do not disconnect the mains cable on the UPS system or the building wiring outlet (shockproof socket outlet) at any time, since this would cancel the protective earth of the UPS system and of all connected loads.
- Connect the UPS only to a grounded socket that meets electrical safety guidelines.
- Locate the UPS near a wall socket. Do not use an extension cord between the UPS and the socket.
- In the event of an emergency, press the OFF/Enter button and disconnect the power cord from the AC mains to properly disable the UPS.
- Do not allow any kind of liquid or foreign object to enter this UPS unit. Do not place beverages or any other containers with liquid on or nearby the unit.
- The UPS can be operated by any individual with no previous experience

1-5. Maintenance, service and faults

- The voltage used by this UPS may be hazardous. The unit contains no user serviceable parts; do not attempt to disassemble the unit. Only qualified service technicians can perform maintenance on the unit. Failure to adhere to this could cause personal injury or equipment malfunction and void the warranty.
- **Caution:** - risk of electric shock. Even after the unit is disconnected from the mains, components inside the UPS system are still connected to the battery packs which are potentially dangerous.
- Before carrying out any kind of service and/or maintenance, disconnect the batteries and verify that no current is present and no hazardous voltage exists in the terminals of high capacity capacitors, such as BUS-capacitors. Servicing of batteries should be performed or supervised by experts who possess the knowledge to closely follow all required precautions.
- To avoid electrical shock, turn off the unit and unplug it from the AC power source before servicing the battery.
- **Caution:** potentially hazardous voltages from the battery can still be present even after disconnecting the UPS from the AC mains. Therefore, the positive and negative terminals of the battery shall be disconnected prior to performing any maintenance or repair inside the unit.

- A battery can present the risk of short-circuit current and electrical shock. The following precautions should be taken:
 - Remove wristwatches, rings and other metal objects.
 - Use only tools with insulated grips and handles.
 - Wear rubber gloves and boots.
 - Do not lay tools or metal parts on top of batteries.
 - Disconnect charging source prior to connecting or disconnecting battery terminals.
 - Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance.
- When replacing the battery, make sure to use the same type and number of sealed lead-acid batteries specified.
- Do not dispose of batteries in a fire. Batteries may explode if exposed to high temperatures.
- Never try to open a battery. The cell contains a toxic electrolyte which is harmful to the skin and eyes.
- Replace the fuse only with the same type and amperage in order to avoid fire hazards.
- Do not dismantle the UPS system.

2. OPERATION

2-1. Unpacking and inspection

Remove the UPS from its package and make sure that all the following items are included:

- One UPS unit
- One monitoring software CD (ForzaTracker)
- One USB cable
- One 16A IEC C19 to 5-15P (220V only)
- One 16A IEC C19 to CEI 23-50 (220V only)
- One 16A C19 to IRAM 20736 (220V only)
- Two IEC C14 to 5-15R cable (220V only)
- One user manual
- Warranty certificate

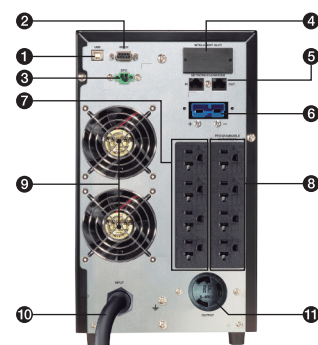
Carefully inspect the UPS to check for any damages that may have occurred during shipping. Should any evidence of damage be found or if some parts are missing, do not turn the UPS on; you must immediately notify the carrier or dealer where you purchased the unit.

2-2. UPS diagram

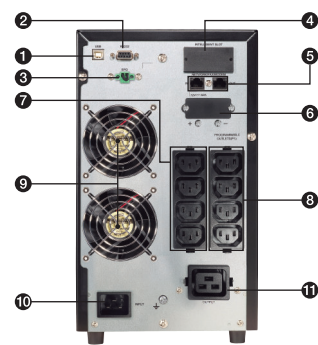
Front view



Rear panel view



FDC-103K

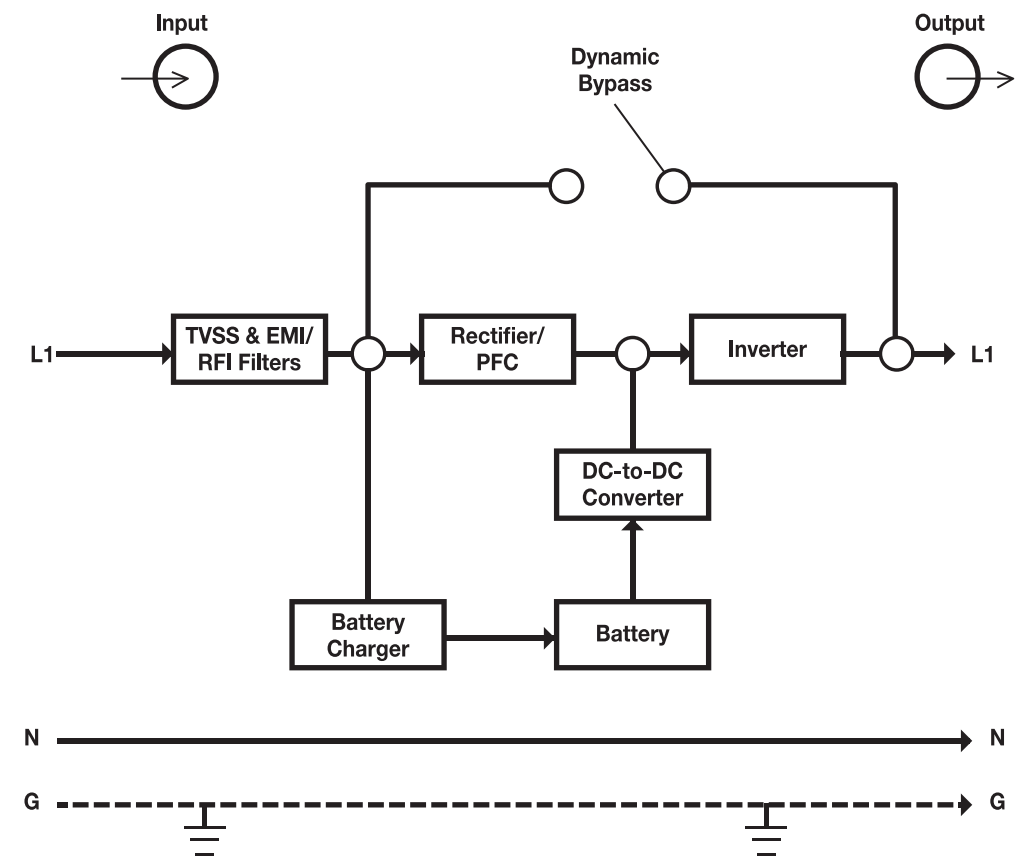


FDC-203K-I

1. USB communication port
2. RS-232 communication port
3. Emergency power off (EPO) connector
4. SNMP intelligent slot
5. Network/fax/modem surge protection
6. External battery connection
7. Programmable outlets for non-critical loads
8. Dedicated outlets for critical loads
9. Cooling fans
10. AC input
11. Additional outlet (L5-30R or IEC C19 for a Power Distribution Unit (PDU))

2-2.1 Operating principle

The operating principle of the UPS is shown as below:



The UPS is composed of mains input, TVSS and EMI/RFI filters, rectifier/PFC, inverter, battery charger, DC-to-DC converter, battery, dynamic bypass and UPS output.

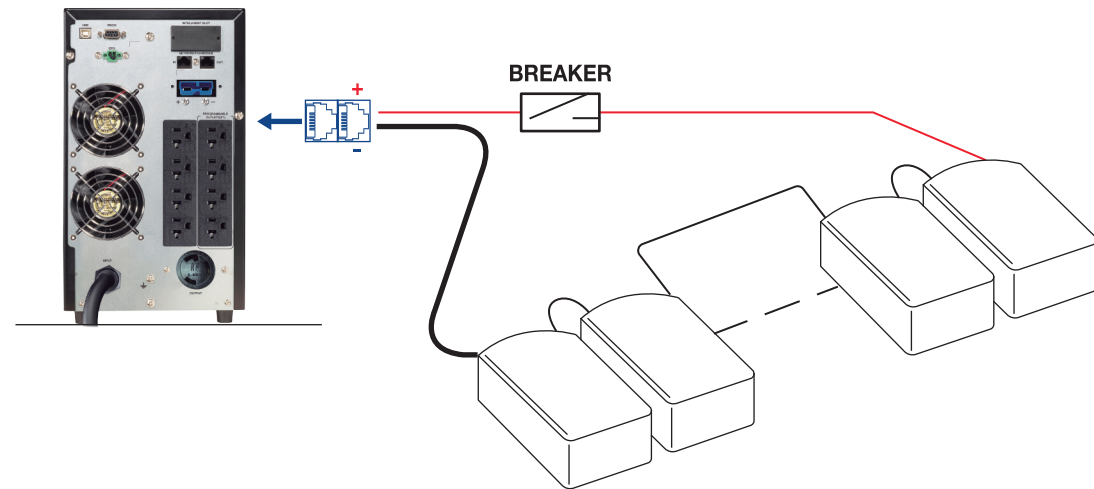
2.3 Installation procedure

Choose location

Install the UPS unit in any protected environment that provides adequate airflow around the unit, and free from excessive dust, corrosive fumes and conductive contaminants. Do not operate your UPS in an environment where the ambient temperature or humidity is high. For best performance, keep the indoor temperature between 0° C and 45° C. Place the UPS unit at least 20 cm away from monitors to avoid interference.

2-4. UPS connections

2.4.1 Connection to an external battery pack



Make sure to follow the correct polarity when connecting external battery packs. Connect the positive pole of the battery pack to the positive pole of the external battery terminal in the UPS, and negative pole of the battery pack to negative pole of the external battery terminal of the unit.

Reverse polarity may cause an internal fault. It is recommended to add one breaker between the positive pole of battery pack and the positive pole of external battery connector in UPS to prevent damaging the batteries.

The required specification of the breaker is: voltage $\geq 1.25 \times$ battery voltage/set; current $\geq 50A$

Choose the battery size and quantity based on the backup time requirement and the UPS specifications. To extend battery life, the operating temperature range should be between 15°C and 25°C.

2-4.2 UPS input connection

Plug the UPS into a two-pole, three-wire, grounded receptacle only. Avoid using extension cords.

- For 200/208/220/230/240VAC models: The power cord is supplied in the UPS package.
- For 100/110/115/120/127VAC models: The power cord is attached to the UPS. The input plug is a NEMA L5-30P for 3K model.

Note: Verify if the site wiring fault indicator lights up in LCD panel. It will be illuminated when the UPS is plugged into an improperly wired utility power outlet (Refer to the troubleshooting section). Also check if there is a circuit breaker against overcurrent and short circuit between the mains and AC input of the UPS.

- The recommended protection value is 16 amperes for the 200/208/220/230/240VAC 3K model.
- The recommended protection value is 30 amperes for the 100/110/115/120/127VAC 3K model.

2-4.3 UPS output connection

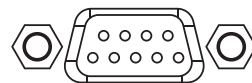
For socket-type outputs, there are two kinds of outputs: programmable outlets and general outlets for mission critical loads. During power failure, you may extend the backup time to critical devices by setting shorter backup times for non-critical devices.

Communication ports

USB port



RS-232 port



Intelligent slot



The UPS is equipped with an intelligent slot perfect for either SNMP or AS400 card. When installing either SNMP or AS400 card in the UPS, it will provide advanced communication and monitoring options.

Note: The USB port and RS-232 port cannot be used at the same time.

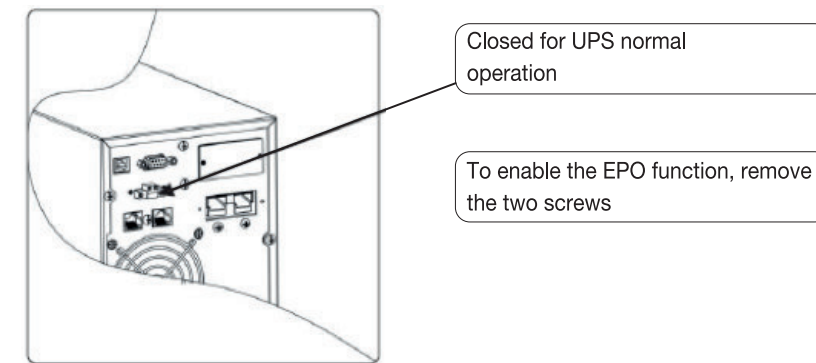
Network/fax/phone port



- Connect a single line modem/phone/fax cable into the network surge-protection “IN” jack on the rear panel of the UPS.
- Connect a network cable from the OUT jack on the rear of the UPS to a port on a PC or network device such as a router.

2-4.4 Disabling and enabling the EPO function

Keep pins 1 and 2 closed for UPS normal operation. To activate EPO feature, remove the wire between pin 1 and 2.



2.5 Turning on the UPS

Press the **ON/Mute** button on the front panel for two seconds to power on the UPS.

Note: The battery charges fully during the first five hours of normal operation. Do not expect full battery run capability during this initial charge period.

2.6 ForzaTracker monitoring software

ForzaTracker is a new generation of UPS monitoring software, which provides user-friendly interface to monitor and control your UPS system. This unique software provides safe auto-shutdown for multi-computer systems during power failures. With this software, users can monitor and control any UPS on the same LAN no matter how far they might be from the UPS.

Installation procedure for Windows users:

1. Use the supplied CD or go to the website: <http://www.forzaups.com/us/driver-downloads/>.
2. After clicking the software icon, choose the required operation system.
3. Follow the on-screen instructions to install the software.
4. When you finished downloading all required files, enter the serial No (installation password): **5242-87f6-64re-di8d-986u** to install the software (include the hyphens).
5. In order to access as Administrator, input the password: 111296.
6. When your computer restarts, the management software will appear as a light blue round icon located in the system tray, near the clock.

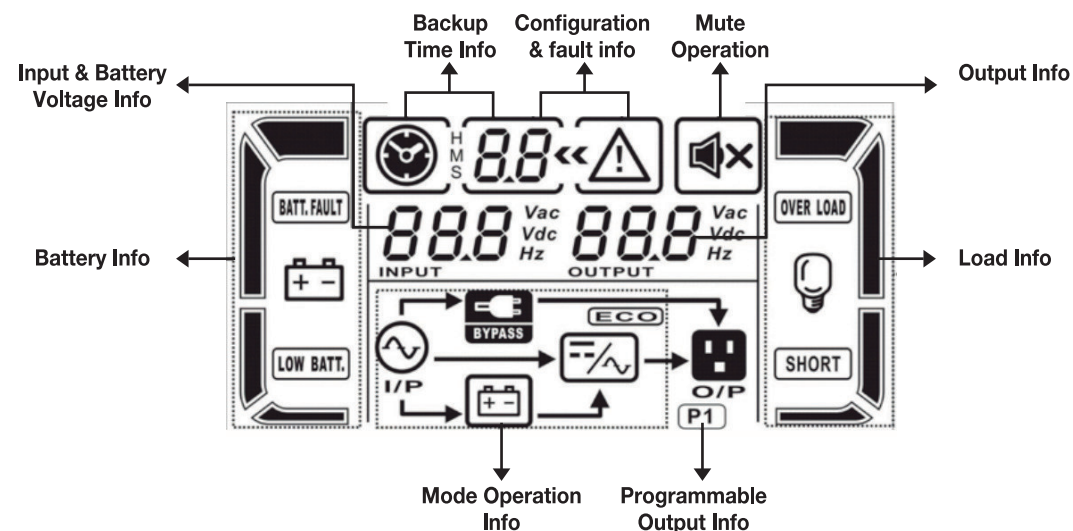
Note: For Mac and Linux users, please refer to the ForzaTracker user guide found in our website.

3. Advanced operation

3-1. Description of buttons and functions

Button	Function
ON/Mute button	<ul style="list-style-type: none"> • Turn on the UPS: Press and hold the ON/Mute button for at least 2 seconds to turn on the UPS. • Mute the alarm: When the UPS is on battery mode, press and hold this button for at least 5 seconds to disable or enable the alarm system. This command would not apply when warnings or errors occur. • Up key: Press this button to display previous selection in the UPS configuration menu. • Switch to UPS self-test mode: Press and hold ON/Mute button for 3 seconds to perform the self-test in AC mode, ECO mode, or converter mode.
OFF/Enter button	<ul style="list-style-type: none"> • Turn off the UPS: Press and hold this button for at least 2 seconds to turn off the UPS in battery mode. The UPS will remain in standby mode under normal power conditions or transfer to Bypass mode provided it has been enabled previously by pressing this button. • Confirm selection key: Press this button to confirm the selection in the UPS configuration menu.
Select button	<ul style="list-style-type: none"> • Switch LCD message: Press this button to change the LCD message for input voltage, input frequency, input current, battery voltage, battery current, battery capacity, ambient temperature, output voltage, output frequency, load current and load percent. • Setting mode: Press and hold this button for 3 seconds to enter the UPS configuration menu while UPS is in standby or bypass mode. • Down key: Press this button to display the next selection in the UPS configuration menu.
ON/Mute + Select button	<ul style="list-style-type: none"> • Switch to bypass mode: When the utility power is normal, press ON/Mute and Select buttons simultaneously for 3 seconds to transfer the UPS to bypass mode. This action will be ineffective if the input voltage is not within an acceptable range. • Exit setting mode or return to the upper menu: When the UPS is on setting mode, press the ON/Mute and Select buttons simultaneously for 0.2 seconds to return to the upper menu. If it is already in top menu, press these two buttons at the same time to exit the setting mode

3-2. LED indicators and LCD panel



LCD panel:

Display	Function
Backup time information	
	Provides a digital indication of the battery discharge time. H: hours M: minutes S: seconds
Fault information	
	Indicates that a warning or fault has occurred.
	Displays the fault codes, listed in detail in the sections below
Mute operation	
	Indicates that the UPS alarm has been disabled.
Output & battery voltage information	
	Provides an indication of the output voltage, frequency or battery voltage. VAC: output voltage VDC: battery voltage Hz: frequency
Load information	
	Indicates the load level at 0-25%, 26-50%, 51-75%, and 76-100%
	Overload indication.
	Indicates the load or the output is short-circuited.
Mode operation information	
	Indicates that the UPS is connected to the mains.
	Indicates the battery is in working status.
	Indicates the bypass circuit is in working status.
	Indicates the ECO mode is enabled.
	Indicates the inverter circuit is working.
	Indicates the output connector is working properly.
Battery information	
	Indicates the battery is charged at 0-25%, 26-50%, 51-75%, and 76-100% of its capacity.
	Indicates the battery is not connected.
	Low battery and low voltage indicator.
Input and battery voltage information	
	Indicates the input voltage or frequency, or battery voltage. VAC: input voltage VDC: battery voltage Hz: input frequency

3-3. Audible alarm

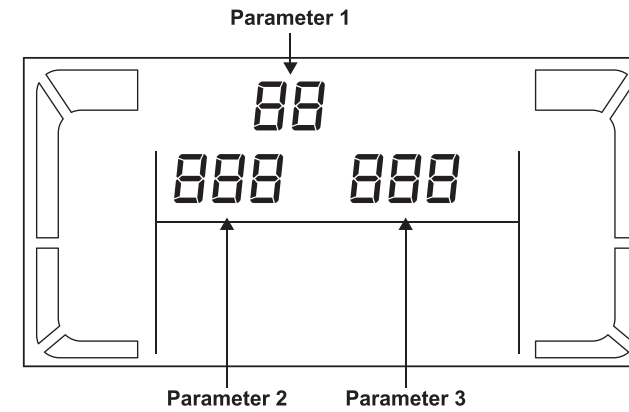
Battery mode	Sounds every 5 seconds
Low battery	Sounds every 2 seconds
Overload	Sounds every second
Fault	Continuous sound
Bypass mode	Sounds every 10 seconds

3-4. Abbreviations on the LCD display

Abbreviation	Display content	Meaning
ENA	ENA	Enable
DIS	DIS	Disable
ESC	ESC	Escape
HLS	HLS	High loss
LLS	LLS	Low loss
BAT	BAT	Battery
BAH	BAH	Battery AH
CHA	CHA	Charger current
CBV	CBV	Charger boost voltage
CFV	CFV	Charger float voltage
EPO	EPO	EPO
AO	AO	Enable when opened
AC	AC	Enable when closed
OIT	OIT	Output isolation transformer
EAT	EAT	Estimated runtime
RAT	RAT	Remaining runtime
CF	CF	Converter
ON	ON	ON
SD	SD	Shut down
OI	OI	Input current exceeds allowable limit
EP	EP	EPO
TP	TP	Temperature
CH	CH	Charger
FU	FU	Bypass frequency unstable
BR	BR	Replace battery
EE	EE	EEPROM error

3-5. UPS parameter settings

Three parameters need to be configured in order to set up the UPS. Please refer to the following diagram.



Parameter 1: it is used for the different configuration options. There are 19 programs to set up. Refer to the table below.
Parameter 2 and parameter 3: they represent the setting options or values of each program.

01: Output voltage settings

Interface	Setting
	<p>Parameter 3: Output voltage For 200/208/220/230/240VAC models, you may choose the following output voltage: 208: The output voltage is 208VAC 220: The output voltage is 220VAC 230: The output voltage is 230VAC 240: The output voltage is 240VAC For 100/110/115/120/127VAC models, you may choose the following output voltage: 100: The output voltage is 100VAC 110: The output voltage is 110VAC 115: The output voltage is 115VAC 120: The output voltage is 120VAC 127: The output voltage is 127VAC</p>

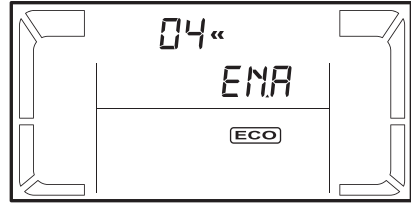
02: Enable/disable the frequency converter mode

Interface	Setting
	<p>Parameter 2: use it to turn the converter mode on and off. You may choose one of the following options: CF ENA: the converter mode is enabled CF DIS: the converter mode is disabled (default).</p>

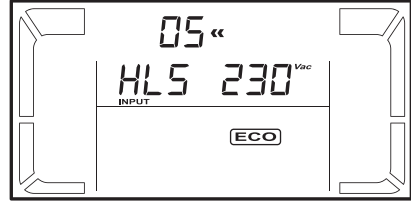
03: Output frequency setting

Interface	Setting
	<p>Parameter 2: Output frequency To set the initial frequency on battery mode, choose any of the following options : BAT 50: The output frequency is set to 50Hz. BAT 60: The output frequency is set to 60Hz. If the converter mode has been enabled, the following options will be available: CF 50: The output frequency is set to 50Hz. CF 60: The output frequency is set to 60Hz.</p>

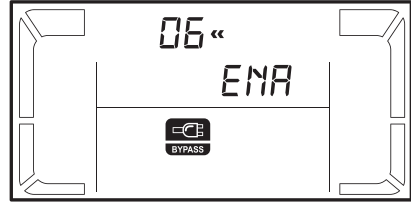
04: ECO mode enable/disable

Interface	Setting
	<p>Parameter 2: activates or cancels the UPS operation in ECO mode. You may choose one the following two options: ENA: the ECO feature is enabled DIS: the ECO feature is disabled (default)</p>

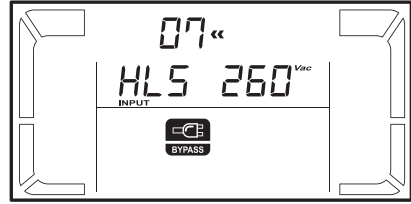
05: ECO voltage range setting

Interface	Setting
	<p>Parameter 2: use this menu to set the acceptable high voltage point and low voltage point for the ECO mode by pressing Up or Down. HLS: High loss voltage in ECO mode in parameter 2. For 200/208/220/230/240 VAC models, the setting in parameter 3 ranges from +7V to +24V of the nominal voltage. (Default: +12V) For 100/110/115/120/127 VAC models, the setting in parameter 3 ranges from +3V to +12V of the nominal voltage. (Default: +6V) LLS: Low loss voltage in ECO mode in parameter 2. For 200/208/220/230/240 VAC models, the setting in parameter 3 ranges from -7V to -24V of the nominal voltage. (Default: -12V) For 100/110/115/120/127 VAC models, the setting in parameter 3 ranges from -3V to -12V of the nominal voltage. (Default: -6V)</p>

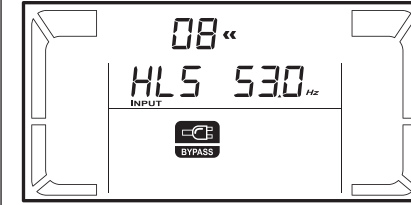
06: Enable/disable the bypass when UPS is off

Interface	Setting
	<p>Parameter 2: it activates or cancels the bypass function. You may choose one of the following two options: ENA: Bypass enabled DIS: Bypass disabled (Default)</p>

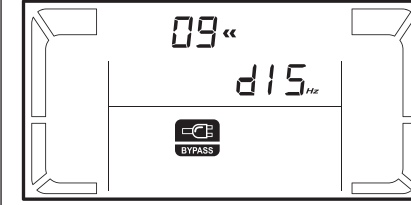
07: Bypass voltage range setting

Interface	Setting
	<p>Parameter 2: press the UP or Down key to set the acceptable high and low voltage values for Bypass operation. HLS: high voltage setting in bypass mode For 200/208/220/230/240 VAC models: 230-264: high voltage setting in parameter 3 ranges from 230VAC to 264VAC. (Default: 264VAC) For 100/110/115/120/127 VAC models: 120-140: high voltage setting in parameter 3 ranges from 120VAC to 140VAC. (Default: 132VAC). LLS: low voltage setting in bypass mode For 200/208/220/230/240 VAC models: 170-220: voltage setting in parameter 3 ranges from 170VAC to 220VAC. (Default: 170VAC) For 100/110/115/120/127 VAC models: 85-115: voltage setting in parameter 3 ranges from 85VAC to 115VAC. (Default: 85VAC)</p>

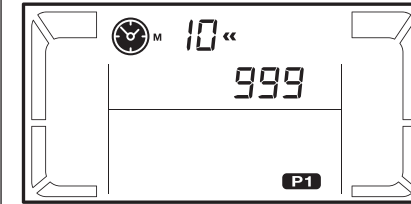
08: Bypass frequency range setting

Interface	Setting
	<p>Parameter 2: press the UP or Down key to set the acceptable high and low frequency values for bypass operation. HLS: high frequency setting in bypass mode For 50Hz output frequency models: 51-55Hz: sets the frequency high loss point from 51Hz to 55Hz. (Default: 53.0Hz) For 60Hz output frequency models: 61-65Hz: sets the frequency high loss point from 61Hz to 65Hz. (Default: 63.0Hz) LLS: low frequency setting in bypass mode For 50Hz output frequency models: 45-49Hz: sets the frequency low loss point from 45Hz to 49Hz. (Default: 47.0Hz) For 60Hz output frequency models: 55-59Hz: sets the frequency low loss point from 55Hz to 59Hz. (Default: 57.0Hz)</p>

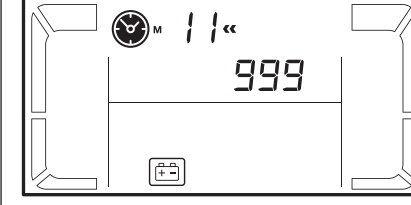
09: Enable/disable programmable outlets

Interface	Setting
	<p>Parameter 2: activates or cancels the programmable outlet feature. ENA: Programmable outlets enabled DIS: Programmable outlets disabled (Default)</p>

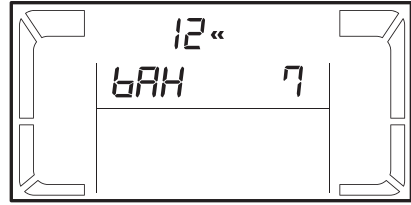
10: Backup time for programmable outlets

Interface	Setting
	<p>Parameter 2: sets the backup time limit for the programmable outlets. 0-999: use this setting to define the programmable outlets backup time in minutes, from 0-999, in order to connect non-critical devices on battery mode. (Default: 999)</p>

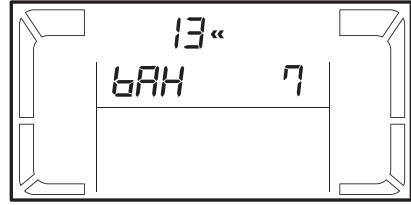
11: Backup time limit for general outlets

Interface	Setting
	<p>Parameter 2: use this setting to configure the backup time for general-purpose outlets on battery mode. 0-999: sets the backup time in minutes, from 0-999. DIS: disables the runtime timer, in which case backup time will depend on battery capacity. (Default) Note: When setting this parameter to "0", the backup time will only last 10 seconds</p>

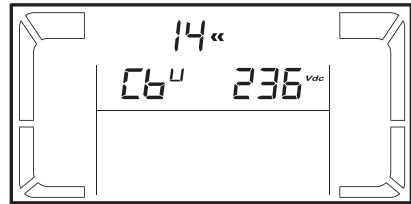
12: Battery total Ah setting

Interface	Setting
	<p>Parameter 2: use this setting to configure the total battery capacity in Ah for the UPS system.</p> <p>7-999: sets the battery total capacity from 7-999 in Ah. Please set the correct battery total capacity if an external battery bank is connected.</p>

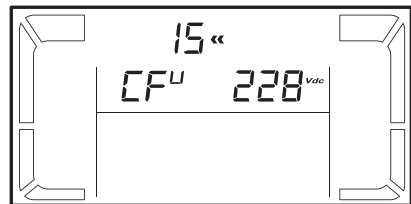
13: Maximum charger current setting

Interface	Setting														
	<p>Parameter 2: use this setting to set up the charger current to be applied.</p> <p>For low voltage models with 24/36/48VDC 1/2/4/6/8: sets the charger maximum current to 1/2/4/6/8 amperes. (Default: 2A)</p> <p>For high voltage models with 24/36/48VDC 1/2/4/6/8/10/12: sets the charger maximum current to 1/2/4/6/8/10/12 amperes. (Default: 2A)</p> <p>For low voltage and high voltage models with 72VDC 1/2/4/6/8: sets the charger maximum current to 1/2/4/6/8 amperes. (Default: 2A)</p> <p>Note: The appropriate charger current should be set based on the capacity of the battery used. The recommended charging rate of 0.1C~0.3C according to battery capacity is included in the table below:</p> <table border="1"> <thead> <tr> <th>Battery capacity(Ah)</th> <th>Total charging current (A)</th> </tr> </thead> <tbody> <tr> <td>7~20</td> <td>2</td> </tr> <tr> <td>20~40</td> <td>4</td> </tr> <tr> <td>40~60</td> <td>6</td> </tr> <tr> <td>60~80</td> <td>8</td> </tr> <tr> <td>80~100</td> <td>10</td> </tr> <tr> <td>100~150</td> <td>12</td> </tr> </tbody> </table>	Battery capacity(Ah)	Total charging current (A)	7~20	2	20~40	4	40~60	6	60~80	8	80~100	10	100~150	12
Battery capacity(Ah)	Total charging current (A)														
7~20	2														
20~40	4														
40~60	6														
60~80	8														
80~100	10														
100~150	12														

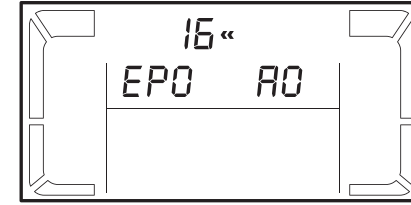
14: Charger boost voltage setting

Interface	Setting
	<p>Parameter 2: use this setting to configure the boost voltage level.</p> <p>2.25-2.40: sets the charger boost voltage from 2.25 to 2.40 V/cell. (Default is set at 2.36V/cell)</p>

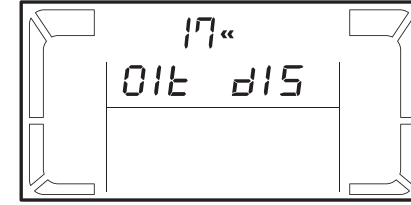
15: Charger float voltage setting

Interface	Setting
	<p>Parameter 2: use this setting to configure the float voltage level.</p> <p>2.20-2.33: sets the charger float voltage from 2.20 V/cell to 2.33V/cell. (Default is set at 2.28V/cell)</p>

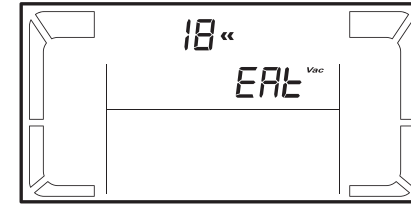
16: EPO relay setting

Interface	Setting
	<p>Parameter 2: use this setting to configure the EPO circuit control.</p> <p>AO: Active Open (default). When AO is selected as the normal configuration, it will enable the EPO function when Pin 1 and Pin 2 are opened.</p> <p>AC: Active Close. When AC is selected as the normal configuration, it will enable the EPO function when Pin 1 and Pin 2 are closed.</p>

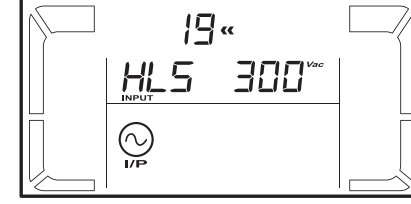
17: External output isolation transformer

Interface	Setting
	<p>Parameter 2: it allows or disallows the connection of an external output isolation transformer.</p> <p>ENA: if selected, the UPS will be allowed to connect to an external output isolation transformer.</p> <p>DIS: if selected, the UPS will be denied to connect to an external output isolation transformer. (Default)</p>

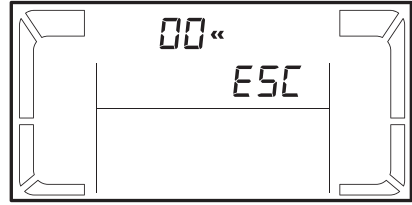
18: Runtime display setting

Interface	Setting
	<p>Parameter 2: use this setting to configure the runtime on the display</p> <p>EAT: if EAT is selected, it will show the estimated runtime on the screen. (Default)</p> <p>RAT: if RAT is selected, it will show the runtime accumulated up to this point.</p>

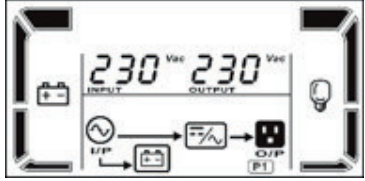


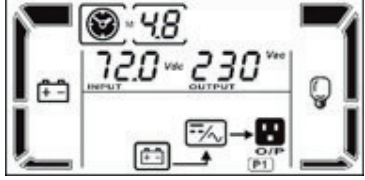


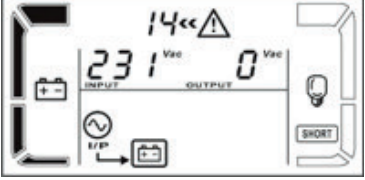
19: Acceptable input voltage range setting

Interface	Setting
	<p>Parameter 2: press the UP or Down keys to set the acceptable high-voltage and low-voltage points for the input.</p> <p>HLS: Input high-voltage point</p> <p>For 200/208/220/230/240 VAC models: 280/290/300: sets the high-voltage point in parameter 2. (Default: 300VAC)</p> <p>For 100/110/115/120/127 VAC models: 140/145/150: sets the high-voltage point in parameter 2. (Default: 150VAC)</p> <p>LLS: Bypass low-voltage point</p> <p>For 200/208/220/230/240 VAC models: 110/120/130/140/150/160: sets the low-voltage point in parameter 2. (Default: 110VAC)</p> <p>For 100/110/115/120/127 VAC models: 55/60/65/70/75/80: sets the low-voltage point in parameter 2. (Default: 55VAC)</p>

00: Exit setting

Interface	Setting
	Exits the configuration mode.

3-6. Operating mode/Status description

Operating mode	Description	LCD display
Online mode	When the input voltage is within the acceptable range, UPS will provide pure and stable AC power to output. The UPS will also charge the battery in AC online mode.	
ECO mode	Energy saving mode: When the input voltage is within the voltage regulation range, the UPS will bypass voltage to the loads for energy saving. The UPS will also charge the battery while in ECO mode.	
Frequency converter mode	When the input frequency is within 40 Hz and 70 Hz, the UPS can be set at a constant output value of 50 Hz or 60 Hz. The UPS will still charge battery while in this mode.	
Battery mode	When the input voltage exceeds the acceptable range or during a power failure, the UPS will start supplying power from the battery while the alarm will beep every 5 seconds	
Bypass mode	When input is within acceptable voltage range but the UPS is overloaded, the UPS will transfer to bypass mode or it can be manually changed to bypass mode using the front panel controls. The alarm will sound once every 10 seconds in this case.	
Standby mode	The UPS is powered off and there is no power supplied to the loads; batteries, however, can still be charged.	
Fault mode	When a fault occurs, the ERROR icon and the fault code is displayed on the screen.	

3-7. Fault codes

Fault event	Fault code	Icon	Fault event	Fault code	Icon
Bus start failure	01	x	Battery voltage too high	27	BATT. FAULT
Bus over	02	x	Battery voltage too low	28	BATT. FAULT
Bus under	03	x	Charger output short circuit	2A	x
Inverter soft start failure	11	x	Over temperature	41	x
High inverter voltage	12	x	Overload	43	OVER LOAD
Low inverter voltage	13	x	Charger failure	45	x
Inverter output short circuited	14	SHORT	Input current above acceptable limits	49	x







3-8. Warning indicators

Warning	Icon (blinking)	Code	Alarm
Low battery	! LOW BATT.		Beeps once every 2 seconds
Overload	! OVER LOAD		Beeps once every 2 seconds
Excessive input current	!	01	Beeps twice every 10 seconds
Battery is not connected	! [BATT. FAULT]		Beeps once every 2 seconds
Overcharge	! []		Beeps once every 2 seconds
Site wiring fault	! [WIRING]		Beeps once every 2 seconds
EPO enable	!	EP	Beeps once every 2 seconds
Over temperature	!	EP	Beeps once every 2 seconds
Charger failure	!	CH	Beeps once every 2 seconds
Battery fault	! BATT. FAULT		Beeps once every 2 seconds. (In this case, the UPS turns off to remind users there is something wrong with the batteries)
Bypass voltage out of range	! BYPASS		Beeps once every 2 seconds
Unstable bypass frequency	!	FU	Beeps once every 2 seconds
Battery replacement	!	BR	Beeps once every 2 seconds
EEPROM error	!	EE	Beeps once every 2 seconds

NOTE: The **Site wiring fault** function can be enabled/disabled via software.

4. Troubleshooting

If the UPS system does not operate correctly, use the table below to troubleshoot the problem.

Symptom	Possible cause	Solution
Even though the mains supply is normal, and there are no status indicators or alarms.	The AC input power is not properly connected.	Check to make sure the power cord is firmly connected to an AC wall socket.
	The AC input is connected to the UPS outlet.	Plug the power cord to a wall socket.
The  icon and the warning code EP blink on the LCD display and the alarm starts beeping once every 2 seconds.	EPO function is enabled.	Set the circuit in closed position to disable EPO function.
The  and  icons blink on the LCD display and the alarm starts beeping once every 2 seconds.	Line and neutral conductors of UPS input are reversed.	Rotate mains power socket by 180° and then connect to the UPS system.
The  and  icons blink on the LCD display and the alarm starts beeping once every 2 seconds.	The external or internal battery is incorrectly connected.	Check if all batteries are properly connected.
Fault code 27 along with the BATT.FAULT icon become illuminated on the LCD display and the alarm starts beeping continuously.	Battery voltage is too high or the charger failed.	Please contact the dealer or service center.
Fault code 28 along with the BATT.FAULT icon become illuminated on the LCD display and the alarm starts beeping continuously.	Battery voltage is too low or the charger failed.	Please contact the dealer or service center.
The  and OVER LOAD icons blink on the LCD display and the alarm starts beeping continuously.	UPS is overloaded	Remove excess loads from UPS output.
	UPS is overloaded. Devices connected to the UPS are fed directly by the electrical network via the Bypass.	Remove excess loads from UPS output.
	After repetitive overloads, the UPS is locked in the Bypass mode. Connected devices are fed directly by the mains.	Remove excess loads from UPS output first. Then shut down the UPS and restart it.
Fault code 49 becomes illuminated and the alarm starts beeping continuously.	Input current is above the acceptable limits.	Remove excess loads from the UPS output.
Fault code 43 becomes illuminated along with the OVER LOAD icon on the LCD display, and the alarm starts beeping continuously.	The UPS shuts down automatically upon detecting an overload on the UPS output.	Remove excess loads from the UPS output and restart the unit once again.
Fault code 14 becomes illuminated along with the SHORT icon on the LCD display, and the alarm starts beeping continuously.	The UPS shuts down automatically upon detecting a short circuit on the UPS output.	Check output wiring and if connected devices are short-circuited.

Fault codes 01, 02, 03, 11, 12, 13 and 41 become illuminated on the LCD display, and the alarm starts beeping continuously.	A UPS internal fault has occurred. There are two possible causes: 1. Power is continued to be supplied to the load, but is done directly from the AC grid via a bypass 2. Power is no longer supplied to the load.	Please contact the dealer or service center
Battery backup time is shorter than its nominal value.	Batteries are not fully charged	Charge the batteries for at least 5 hours and then check their capacity. If the problem still persists, consult your dealer.
	Defective batteries	Contact your dealer for a replacement.
Fault code 2A appears on the LCD display while the alarm beeps continuously.	Short circuit detected on the charger output	Check to make sure that the wiring of the external battery pack connected is not shorted.
Fault code 45 appears on the LCD display while the alarm beeps continuously.	There is no output voltage from the charger and the battery voltage is below 10V/PC.	Please contact the dealer or service center.

5. Maintenance and storage

Maintenance

The UPS system contains no user-serviceable parts. If the battery service life (3~5 years at 25°C ambient temperature) has been exceeded, the batteries must be replaced. In this case, please contact your dealer or service center.



Batteries must not be discarded as regular household waste! As part of the company's eco-friendly approach, we encourage you to follow all applicable local waste regulations to dispose of your used devices and batteries properly.

Storage

Charge the UPS for at least 5 hours before storing the unit. Cover the UPS, and place it upright in a cool, dry location. During storage, recharge the battery in accordance with the following table

Storage temperature	Recharge frequency	Runtime
-25°C - 40°C	Every 3 months	1-2 hours
-40°C - 45°C	Every 2 months	1-2 hours

6. Technical specifications

MPN	FDC103K	FDC203K-I
General		
Capacity	3000VA/3000W	
Topology	Double conversion	
Input		
Nominal voltage	100-127VAC	200-240VAC
Voltage range (low line transfer)	87VAC / 77VAC / 67VAC / 62VAC ± 3% (based on load percentage 100%-80% / 80%-70% / 70%-60% / 60%-0%)	175VAC / 155VAC / 135VAC / 125VAC ± 3% (based on load percentage 100%-80% / 80%-70% / 70%-60% / 60%-0%)
Voltage range (low line comeback)	Low-line transfer voltage + 10V	
Voltage range (high line transfer)	150VAC ± 3%	300VAC ± 3%
Voltage range (high line comeback)	High line transfer voltage - 10V	
Frequency	40-70Hz	
Power factor	≥0.99 at 100% load	
Total harmonic distortion (THD)	≤4% at 100% load THDU < 1.6%	
AC plug style	L5-30P	IEC C20
Output		
Nominal voltage	100/110/115/120/127 VAC	200/208/220/230/240VAC
AC voltage regulation (battery mode)	± 1%	
Frequency (synchronized range)	46-54Hz at 50Hz system / 56-64Hz at 60Hz system	
Frequency (battery mode)	50Hz ± 0.1Hz or 60Hz ± 0.1Hz	
Power factor	1	
Efficiency (AC mode)	> 91%	
Efficiency (battery mode)	> 90%	
Overload	AC mode: 100%-110%: 10min / 110%-130%: 1min / >130%: 1sec Battery mode: 100%-110%: 30sec / 110%-130%: 10sec / >130%: 1sec	
Transfer time (line to battery)	0ms	
Transfer time (inverter to bypass)	4ms	
Crest ratio	3:1 (max)	
Harmonic distortion	≤1% THD (linear load) / ≤4% THD (non-linear load)	
Waveform	Pure sine wave	
Total outlets	8 (5-20R) 1 (L5-30R)	8 (IEC C13) 1 (IEC C19)
Battery		
Battery type and quantity	12V / 9Ah (6)	
Recharge time	3 hours to 90% capacity	
Charging current	2A ± 10% (default) / 8A ± 10% (max)	
Charging voltage	82VDC ± 1%	
Communications		
LCD display	Graphical LCD with blue backlight	
Visual indicators	Status LEDs	
Audible	Battery mode: Sounds every 5 seconds Low battery: Sounds every 2 seconds Overload: Sounds every second Fault: Continuous sound	
Communication ports	SNMP, RS-232, USB	
Power management software	Includes ForzaTracker	
Environment		
Operating temperature	32°F-104°F	
Storage temperature	-4°F-122°	
Relative humidity	20-90% non-condensing	
Operating altitude	<1000m Every 100m above 1000m decreases output power 1% up to 4000m	
Audible noise	<50dB at 1 meter	
Physical appearance		
Dimensions	16.6x7.5x12.5in	
Weight	61.7lb	
Additional information		
Warranty	Two years	

Derate capacity to 80% when the output voltage is adjusted to 100VAC, 200VAC or 208VAC.

** If the UPS is installed or used in a place where the altitude is above than 1000m, the output power must be derated one percent per 100m.

***Product specifications are subject to change without further notice.

