CertaUPS

C400R USER MANUAL

A COMPLETE INSTALLATION
AND USER GUIDE

THE C400R SERIES

An uninterruptible power supply (UPS) incorporating online double conversion technology, which eliminates all mains power disturbances.

www.certaups.com

For assistance please contact your local CertaUPS partner.

Contents

CertaUPS

SAFETY INFORMATION

> **KEEP THESE INSTRUCTIONS IN A SAFE PLACE**
> This section contains essential information and instructions that should be followed to ensure the safe handling, installation and maintenance of CertaUPS equipment and batteries.

USER MANUAL SYMBOLS

The following will be referenced throughout this document.

SYMBOL	DEFINITION
⚠	Caution! Follow instructions carefully
⚡	Caution, risk of electric shock
⏻	Power On/Off
∼	Alternating current (AC)
⎓	Direct Current (DC)
⏚	Grounding
♻	Recycle
🗑	Not to be disposed of in general waste Waste electrical equipment or electronic equipment (WEEE) should not be disposed of in the general waste. CertaUPS systems should always be disposed of at a proper recycling/hazardous waste disposal centre. Please see page 10 for disposal guidance.

HANDLING

UPS handling weight guidelines

<18kg (<40lb)	One-person
18 – 32 kg (40 – 70 lb)	Two-person
32 – 55 kg (70 – 120 lb)	Three-person
>55 kg (>120 lb)	Forklift

> **AUTHORISED PERSONNEL TO HANDLE ONLY**
> UPS systems contain both AC and DC when disconnected from the mains outlet and should only be serviced by qualified persons.

Before any handling please ensure that the following precautions are taken:

QUALIFIED PERSONNEL Any persons servicing the UPS must be qualified and knowledgeable in UPS technology and batteries	
CLOTHING Correct PPE should always be worn	
POWER OFF Ensure all mains power is disconnected before starting work	
TOOLS always use insulated tools. Do not lay tools down near the Ups or batteries. Follow all insolation procedures.	
UPS GROUNDING The UPS must always be properly grounded	

CAUTIONARY NOTES

Please be aware of the following risks when handling and operating CertaUPS units.

RISK TYPE	DETAILS
Electric shock	Even after the unit is disconnected from the mains power supply (building outlet socket), components inside the UPS are still energised from the battery which are potentially dangerous.
	The battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the battery terminals and the ground. Verify that no voltage is present before servicing.
Hazardous voltages	Repairs must be carried out only by qualified UPS Engineer.

FOR FURTHER INFORMATION ON REPLACEMENT PARTS AND SERVICING PLEASE CONTACT YOUR CertaUPS PARTNER.

OPERATING SAFETY

Before operating any UPS system, please read the following guidance:

DO NOT install the UPS in a humid environment or expose to liquids	
DO NOT block the ventilation of the UPS	
DO NOT expose the UPS to direct sunlight or source of heat	
DO NOT exceed ambient temperatures when operating or storing the UPS	
DO NOT allow excessive particulates or foreign bodies to enter the UPS	

DO follow all connection procedures and operational instructions in the order in which they appear within this manual	
DO check that the indicators on the rating plate correspond to the AC powered system and to the actual electrical consumption of all the equipment to be connected to the UPS	
DO ensure the outlet is installed near the UPS and is easily accessible	
DO store the UPS in a dry environment	
DO keep the UPS in a well-ventilated area	

Additional considerations:

- To reduce the risk of fire or injury the unit must be supplied by a circuit which is protected by overcurrent by means of an MCB or other protective devices.

- The upstream circuit breaker or local means of isolation must be easily accessible. The unit can then be disconnected from the AC power source by opening the circuit breaker/isolator.

- If An additional AC contactor is to be used for back feed protection, this must comply with IEC/EN 62040-1

- Disconnection and overcurrent protection devices shall be provided by others for permanently connected AC input (Normal AC/Bypass AC) and AC output circuits.

- The admissible storage temperature range is -15ºC to +40ºC with battery, -25ºC to +60ºC without battery.

- The operating temperature should be kept between 20 ºC to 25 ºC, failure to do so will reduce the expected battery design life

PRODUCT OVERVIEW

> FULL PRODUCT DETAILS CAN BE FOUND AT WWW.CERTAUPS.COM/PRODUCT/CERTAUPS-C400R/

The CertaUPS C400R series is an uninterruptible power supply (UPS) incorporating online double conversion technology, which eliminates all mains power disturbances.

THE MODEL LIST

Please check that the unit you have purchased is correct by referring to the model number, which appears on the rear panel of the UPS unit.

ITEM	MODEL NAME	POWER RATING	MODEL TYPE	MODEL DESCRIPTION	OTHER
1	C400R-010-B	1000VA/900W	Rack	Internal battery model	Single Phase input Single Phase output
2	C400R-010-C	1000VA/900W	Rack	Charger model	Single Phase input Single Phase output
3	C400R-020-B	2000VA/1800W	Rack	Internal battery model	Single Phase input Single Phase output
4	C400R-020-C	2000VA/1800W	Rack	Charger model	Single Phase input Single Phase output
5	C400R-030-B	3000VA/2700W	Rack	Internal battery model	Single Phase input Single Phase output
6	C400R-030-C	3000VA/2700W	Rack	Charger model	Single Phase input Single Phase output

THE TECHNOLOGY

The C400R UPS series uses online double conversion technology, which ensures that clean and stable power is always provided. An online UPS operating in, line mode always provides a consistent supply of AC power to the load. This is done by using the battery and the inverter to ensure a clean stable and supply. When the mains power fails, the battery is no longer supplied by the rectifier and the batteries begin to discharge.

Once the battery is depleted the UPS will no longer be able to generate AC power through the inverter and the output will in turn cease. Once the mains power is restored the rectifier will charge the batteries and then allow the inverter to provide power to the load once more.
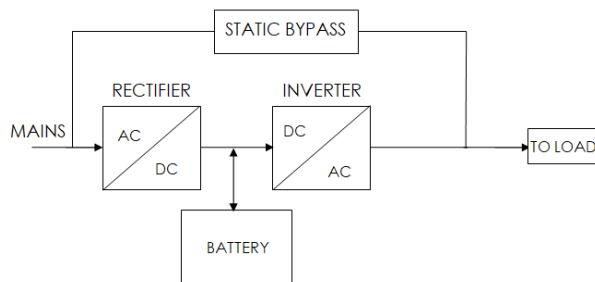
Key features:

- Wide input voltage window
- 0.9 power factor
- Frequency converter feature
- EPO connection
- Future expansion or redundancy
- Internal manual bypass
- Small footprint

SUITABLE APPLICATIONS

Ideally suited for small to medium-sized offices, telecoms centres and security facilities. Please see list below (not exhaustive):

Small data centres

Server room

IT facilities

Telecoms

Networking

ACCESSORIES

PART	DESCRIPTION
C-NMC	SNMP Network management card
C-REL	Relay card
C-DB9REL	Relay card (DB9 Interface)
C-EMP	Environmental monitoring probe (SNMP required)
C-MOD1	Modbus interface
MBSRACK 1-3	Rack-mountable Maintenance bypass switch

UPS STANDARDS

DESCRIPTION	STANDARD
Conduction/Radiation	IEC/EN 62040-2
Harmonic Current	IEC/EN 61000-3-2
Voltage Fluctuation	IEC/EN 61000-3-3
ESD	IEC/EN 61000-4-2
RS	IEC/EN 61000-4-3
EFT	IEC/EN 61000-4-4
Surge	IEC/EN 61000-4-5
CS	IEC/EN 61000-4-6
MS	IEC/EN 61000-4-8
Voltage Dips	IEC/EN 61000-4-11
Low frequency signals	IEC/EN 61000-2-2

UPS INSTALLATION

PLEASE ENSURE ALL SAFETY INSTRUCTIONS HAVE BEEN OBSERVED AND UNDERSTOOD PRIOR TO UNPACKING AND INSTALLING THE UPS

INSPECTION

Every effort is made to ensure that CertaUPS systems are packaged as safely as possible to ensure that no damage is incurred during shipment. Please visually inspect the UPS when it is received. Please keep all packaging in a safe place for future use.

IF THE DEVICE IS DAMAGED, PLEASE NOTIFY THE CARRIER IMMEDIATELY

UNPACKING

The UPS unit must be positioned in a well-ventilated area that is free from excessive dust, heat and moisture. Please take note of the specified operating temperatures and remain within these guidelines.

- Unpacking the unit in a low-temperature environment may cause condensation to occur in and on the device. DO NOT install the UPS/EBM until the inside and outside of the device are clear of condensation.

- The UPS/EBM is heavy. Follow any special precautions provided on the carton.

- Unpack the equipment and remove shipping carton and all the packaging materials. DO NOT lift the using the front panel and rear panel.

Rackmount/Tower model
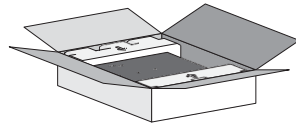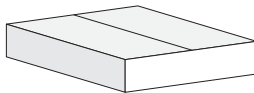
PACKING MATERIALS MUST BE DISPOSED OF IN COMPLIANCE WITH ALL LOCAL WASTE MANAGEMENT REGULATIONS.

RECYCLING SYMBOLS ARE PRINTED ON THE PACKING MATERIALS TO FACILITATE SORTING.

C400R BOX CONTENTS CHECKLIST

C400R Series UPS	
Rack rails	
USB A to B	
Software CD	
Quick Start Guide	
Warranty Card	
Horizontal stabilising bracket	

IF ANY OF THE ITEMS ARE MISSING FROM THE UPS BOX PLEASE NOTIFY YOUR SUPPLIER

DO NOT FORGET TO REGISTER THE UPS WARRANTY WWW.CERTAUPS.COM/SUPPORT/WARRANTY-REGISTRATION/

INSTALLATION

DO NOT MAKE ANY UNLICENSED MODIFICATIONS TO THE UPS. THIS MAY INCUR DAMAGE AND AFFECT THE UPS WARRANTY.

- DO NOT connect the UPS to a mains supply until installation is completed
- Ventilation of the UPS is important for proper operation. Ensure the air vents on the front, side and rear of the UPS are clear. Allow adequate space around the UPS. The airflow diagram is shown as below:
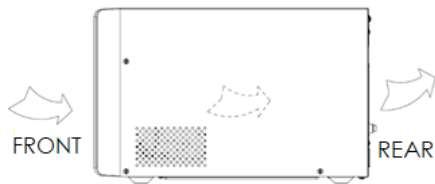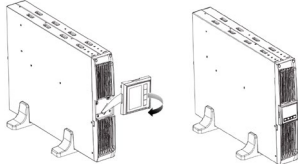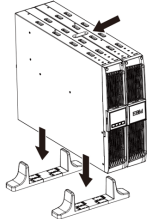

Installation considerations:

- The final location of the UPS unit must be on a flat stable surface in a well-ventilated environment
- DO keep at least 150mm of free space behind the rear panel
- If installing an additional unit, place it next to the first unit in its final location
- DO allow the UPS to reach ambient temperature before turning on
- The UPS needs to be fully charged to achieve full autonomy
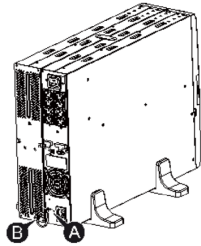
C400R TOWER MODEL INSTALLATION

A QUICK START VIDEO GUIDE FOR THE C400R TOWER MODEL IS AVAILABLE AT WWW.CERTAUPS.COM/MEDIA

Tools required:

- Insulated screwdriver
- Box Contents

STEP ONE	Ensure utility power is switched off.
STEP TWO	Carefully place the UPS within the stands.
STEP THREE	Pull out the LCD panel and carefully rotate it taking care not to damage the cable.
STEP FOUR	If not installing additional EBMs skip to step six Position the UPS and External Battery Modules (EBM) within the extended UPS stands then slide the stands to either end of the tower finally, on top of the units screw in the joining plate provided for extra stability.

	Connect an Earth line from the UPS (port A) to the EBM (port B) Take off the front panel. To do this remove the 2 top screws from the front of the UPS and carefully take out the LCD screen and remove the screw that is behind it. Finally, push inward the small blanking plate on the side of the front panel in order to remove it. This then enables you to connect the battery terminal (A) from the UPS to the EBM terminal (B) shown below. After doing this reassemble the front panel After setting up the UPS the load can then be connected. Please make sure the load equipment is turned off before connecting all loads into the output C13/C19 ports
STEP FIVE	If not connecting multiple EBMs skip to step six. To connect multiple EBMs in tower form for use the same method as assembling the UPS/EBMs in rack form. To install multiple EBMs connect an Earth line between the UPS and the first EBM and then connect a second Earth line between the first EBM and the second EBM Take off the front panel as instructed in the previous steps, This then enables you to connect the battery terminal (A) from the UPS to the EBM terminal (B) shown below. Then connect the battery terminal (D) from the first EBM to the battery terminal (E) of the second EBM. The user then needs to reassemble the front panel
STEP SIX	Plug the UPS into a mains power socket and turn Utility power 'ON'. The UPS will power on in bypass mode and begin charging
STEP SEVEN	Switch the UPS from bypass mode to online. Press and hold ⏻ button for longer than 3 seconds. After a short while, the LCD display will show ⎓ signalling that the UPS is powered and protecting the equipment
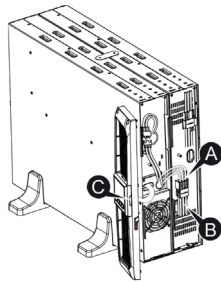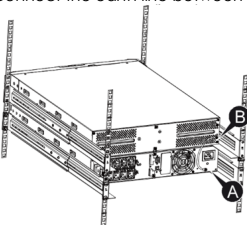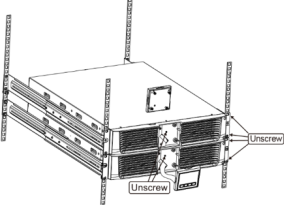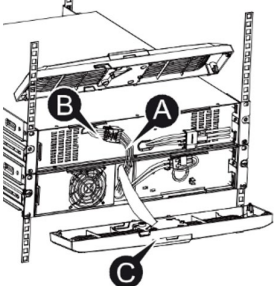
C400R RACKMOUNT MODEL INSTALLATION

A QUICK START VIDEO GUIDE FOR THE C400RR RACKMOUNT/TOWER MODEL IS AVAILABLE AT
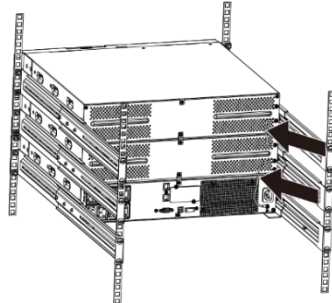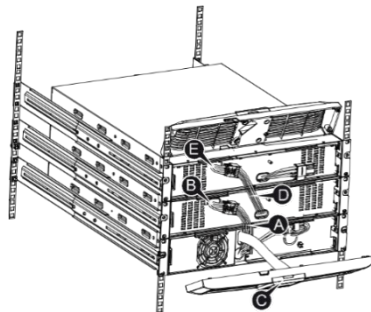WWW.CERTAUPS.COM/MEDIA

This series of UPS can be placed horizontally and vertically, with the LCD screen rotating 90 degrees.

STEP ONE	Ensure the master input breaker switch is OFF
STEP TWO	Installing the UPS in a rack position: Install the L bracket(s) to the unit Install the unit to the rack cabinet in a suitable U-space (Pre-install rail kit) Slide the UPS into the rack rails and lock it into the rack enclosure Tighten the screws. The UPS is now ready for cabling unless you are installing EBMs.
STEP FOUR	If not installing additional EMBs skip straight to step six. Using the same method as assembling the UPS in rack form. Connect the earth line between mounting point A & B

Take off the front panel. To do this remove the 2 screws from the right-hand side of the front of the UPS, carefully take out the LCD screen and remove the screw behind it.
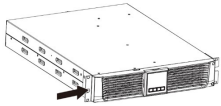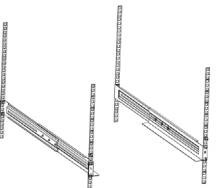
Finally, push inward the small blanking plate on the side of the front panel in order to remove it. This then enables you to connect the battery terminal (A) from the UPS to the EBM terminal (B) shown below. After doing this reassemble the front panel.

STEP FIVE	If 1 or fewer EBMs are to be connected skip to step six

To install multiple EBMs connect an Earth line between the UPS and the first EBM and then connect a second Earth line between the first EBM and the second EBM

Take off the front panel as instructed in the previous steps, This then enables you to connect the battery terminal (A) from the UPS to the EBM terminal (B) shown below. Then connect the battery terminal (D) from the first EBM to the battery terminal (E) of the second EBM. The user then needs to reassemble the front panel

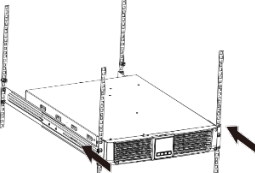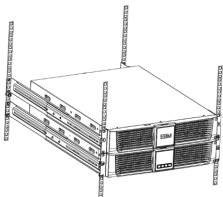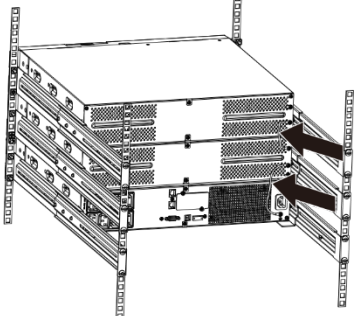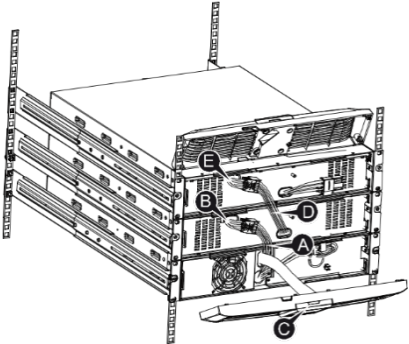| STEP SIX	Plug the UPS into a mains power socket and turn the power on. The UPS will power on in bypass mode and begin charging
STEP SEVEN	To switch the UPS from bypass mode to online. Press and hold for ⏻ button for longer than 3 seconds. After a short while, the LCD display will show ⊏ signalling that the UPS is powered and protecting the equipment.

Read the UPS safety instructions back-feed protection requirements page 7

C400R SERIES STARTUP AND SHUTDOWN

STARTING THE UPS WITH MAIN POWER PRESENT

[i] Please switch off the connected loads before turning on the UPS, and switch on connected devices one by one after the UPS is turned on. Switch off all connected loads before turning off the UPS.

[i] The C400R Series UPS can be started either "hot" or "Cold", this means the UPS can be activated regardless of whether the unit has a main supply (Hot) or if no mains power is available (Cold).

[i] Verify that the total equipment ratings do not exceed the UPS capacity to prevent an overload alarm.

To start the UPS via mains power (Hot start):

1. Check all the connections are properly connected and correct.

2. Supply mains power to the UPS, the fans will start and the LCD will show the default UPS status summary screen and be in static bypass mode.

3. Hold the ⏻ button continuously for more than 3 seconds and UPS shall start to turn on.

4. After a few seconds, the UPS will start in Line mode. If the utility power is abnormal, the UPS will transfer to battery mode without output interruption to the UPS.

5. When the UPS is online the icon will be displayed

STARTING THE UPS FROM BATTERY

[i] Before using this feature, the UPS must have been powered by utility power with output enabled at least once to ensure the unit is adequately charged.

[i] After connecting the UPS to any EBMs you should wait for at least 10s before pressing the ⏻ button for pre-charging of the auxiliary power supply.

[i] Battery start can be disabled.

To start the UPS via battery power (Cold start):

1. Check all the connections are properly connected and correct.

2. Press the ⏻ button continuously for more than 100ms, the UPS will power on. The fans will start and the LCD will show the default UPS status summary screen after finishing the initialisation self-test.

3. Pressing the ⏻ button continuously for more than 1 second and the UPS will start to turn on and initialise.

4. After a few seconds, the UPS will transfer to battery mode. If the mains power comes back the UPS will transfer to Line mode without output interruption of the UPS.

5. When the UPS is running from battery power the icon will be displayed, when mains power is restored the icon will change to .

UPS SHUTDOWN WITH MAINS POWER

When in Bypass UPS output voltage is still present!

To shutdown the UPS with mains power:

1. Press the ⏻ button continuously for more than 3 seconds.

2. After that, the UPS will transfer to bypass mode immediately.

3. In order to cut off the UPS output remove the mains power supply. A few seconds later the LCD display will shut down and no output power is available from the UPS output terminal.

UPS SHUTDOWN WITHOUT MAINS POWER

To shutdown the UPS without mains power:

1. Power off the UPS by pressing the ⏻ button continuously for more than 3 seconds and the UPS output will stop.

2. A few seconds later the LCD display will power off.

C400R SERIES OPERATION

FRONT PANNEL

The CertaUPS C400R has a four-button user interface and graphical LCD. It provides useful information about the UPS itself, load status, events, measurements and settings. In the event of a critical alarm, the LCD backlight will illuminate red.

The following table shows the indicator status and description:

BUTTON	FUNCTION	DESCRIPTION
⏻	Power on	When the unit has no mains power and batteries connected, press for >100ms & <1s to power on
	Turn on	When the unit is powered on and in Bypass mode, press this button for >3s to turn on
	Turn off	When the unit has been turned on, press this button for >3s to turn off
◀	Enters the main menu	When displaying the default UPS status summary screen, press this button for >1s to enter the main menu tree
	Exit main menu	Press this button for >1s to exit the present menu to default system status display menu without executing a command or changing a setting
	Scroll up	Press this button <1s to scroll up the menu option
▶	Scroll down	Press this button for <1s to scroll down the menu option
↵	Enter next menu tree	Press this button for <1s to select the present menu option, or enter next menu, but not change any settings
	Select one menu option	Press this button for <1s to select the present menu option, or enter next menu, but not change any settings
	Confirm the present setting	Press this button for >1s to confirm the edited options and change the setting
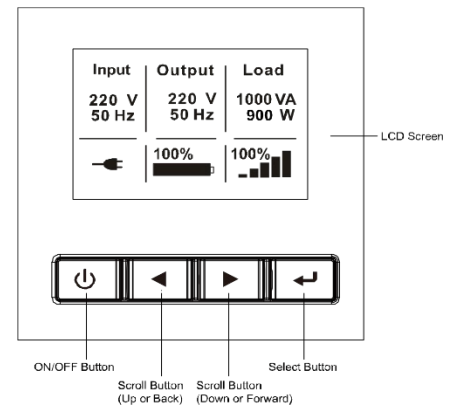
IF AN ERROR CODE APPEARS PLEASE REFER TO THE ALARMS AND FAULTS SECTION OF THE MANUAL PAGE 29 OR CONTACT YOUR CertaUPS REPRESENTIVE

LCD DESCRIPTION

The table below gives details on the information provided by the UPS:
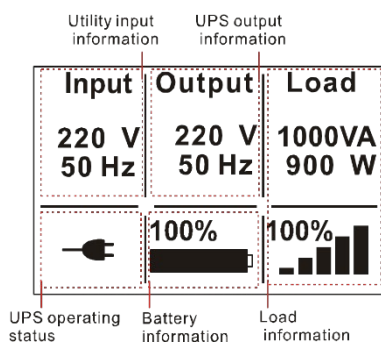
IF ANY OTHER STATUS APPEARS, OR FOR FURTHER GUIDANCE ON WHAT TO DO PLEASE SEE THE TROUBLESHOOTING SECTION ON PAGE 28 OR CONTACT A CertaUPS REPRESENTIVE

OPERATION STATUS	CAUSE	DESCRIPTION
Standby mode	The UPS is Off	UPS is in stand by mode without any output
Online mode	The UPS is operating normally	The UPS is powered and protecting the equipment
Battery mode (1 beep every 4 seconds)	Mains failure has occurred, the UPS is in Battery mode	The UPS is powering the equipment from battery power. Prepare equipment for imminent shutdown
End of backup time (1 beep every 1 second)	The UPS is in Battery mode and the battery is nearing depletion	This warning is approximate, and the actual time to shutdown may vary depending on the configuration and load.
High-Efficiency mode (10ms transfer time in HE)	The UPS is operating in High-Efficiency mode	Once mains power is lost or out of tolerance, the UPS will transfer to Line/Battery mode and the load is supplied from battery power.
Bypass mode	An overload/fault has occurred, or the UPS has been instructed to enter Bypass mode.	Equipment is powered but not protected by the UPS.
Converter mode	The UPS is operating in converter mode, where the UPS will provide fixed output frequency (50Hz or 60Hz)	In converter mode, Once the mains power is lost or out of tolerance. The UPS will transfer to battery mode and the load is supplied continuously
Warning	Warnings are present, this will not necessarily affect operation.	The UPS continues working, but the problem should be identified and resolved immediately, or it could prevent normal operation of the UPS
Fault	A fault has been detected	The UPS will immediately cut off the output/transfer to bypass and present an alarm
Overload	The load exceeds the capacity of the UPS	The excess load should be removed to meet the UPS output rating
Battery test	UPS is executing a battery test	The UPS is performing a Battery test. This is a normal scheduled self-maintenance test and is part of normal operation
Battery fail	The UPS has detected a fault or a battery is disconnected	The battery failure symbol is shown and UPS will alarm. The fault should be investigated by a qualified UPS engineer

DISPLAY FUNCTIONS

The UPS is controlled using basic button functions via the LCD panel, basic operation functions include:

- Use the two middle buttons (◀ and ▶) to scroll through the menu structure.

- Press the Enter (⬅) button to select an option.

- Press the ⏻ button to cancel or return to the UPS status summary screen.

- When starting the UPS, the display is in the default UPS status summary screen.

MAIN MENU	SUBMENU	DISPLAY INFORMATION OR MENU FUNCTION
UPS status	N/A	[status summary screen] / [Alarm] / [Battery charging/Volt/level/remain time] / [mode/ Para Num. /Running time]
Measurements	N/A	[Load] W VA/ [Output/Current] A % / [Output/Voltage] V Hz/ [Input/Voltage] V Hz / [Battery] V % / [DC bus] V V / [temperature] °C /[Battery remaining time] Min
Control	Buzzer mute	The buzzer will stop sounding
	Load segments	Switches on/off to the two load outputs at the rear
	Clear EPO status	Resets the unit after an EPO event
	Clear event log	Clears events
	Restore factory settings	Returns all settings to original values
Settings	N/A	Sets parameters
Event log	N/A	Event list
Identification	N/A	[Product type/model] / [Part/Serial number] / [UPS firmware]

USER SETTINGS

The following table displays the options that can be changed by the user:

SUBMENU	AVAILABLE SETTINGS	DEFAULT SETTINGS
Password	Key the password	USER
Language	[English] [Chinese]	English
User password	[Disabled] [Enabled]	[Disabled]
Audible alarm	[Enabled] [Disabled]	[Enabled]
Output voltage	[220V] [230V] [240V] Can be changed in Standby mode and bypass mode	[230V]
Output frequency	[Autosensing] [50Hz] [60Hz]	[Autosensing]
Power strategy	[Normal] [High efficiency] [Converter]	[Normal]
Auto bypass	[Enabled] [Disabled]	[Enabled]
Auto-restart	[Enabled] [Disabled] Authorize the product to restart automatically when the mains supply is restored after a complete discharge	[Enabled]
Dry in	[Disabled] [SON] [SOFF] [Maintain bypass]	[Disabled]
Dry out	[Loaded power] [On battery mode] [Battery low] [Battery disconnected] [Bypass output] [UPS normal]	[Loaded power]
Start on battery	[Enabled] [Disabled]	[Enabled]
External Battery Modules	[0~20]	[1]
External Battery AH Setting	[0~300]	[120]
Battery remaining time	[Disabled] [Enabled]	[Enabled]
Charger current	[0~4] 0~4A for -B [0~12] 0~12A for -C	[1]
Site wiring fault alarm	[Disabled] [Enabled]	[Disabled]
LCD contrast	[-5 ~ +5]	[+0]
Ambient temperature warning	[Enabled] [Disabled]	[Enabled]
Automatic overload restart	[Enabled] [Disabled]	[Enabled]

Short curcit clearance	[Enabled] [Disabled]	[Disabled]
Automatic battery test period	[0-21 Days]	[7 Days]

LCD MENU SYSTEM

The LCD display can be used to access detailed information about the current UPS status.

> BY DEFAULT, THE LCD WILL DISPLAY THE UPS STATUS SUMMARY SCREEN.

To cycle through the available UPS status summary screen information;

- Press ◄ or ► for less than 1 second and this will cycle information types: Alarms > Battery > System status > Summary screen

MAIN MENU

To access the main menu, start from the UPS status summary screen

- Press ◄ for more than 1 second and the display will enter the main menu.

The main menu includes six areas:

- UPS status
- Event log
- Measurement
- Control
- Identification
- Settings
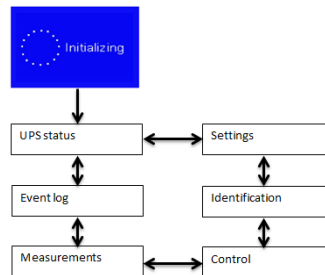
The following section outlines the working schematic for each of the above menu items.

UPS STATUS

- From the main menu pressing ↵ on the "UPS status" option, the display will enter the UPS status menu.

- By pressing ◄ for 1 second at any time, will return the display to the last main menu.

- Pressing ⏻ at any time will return the display to the Ups summary screen.
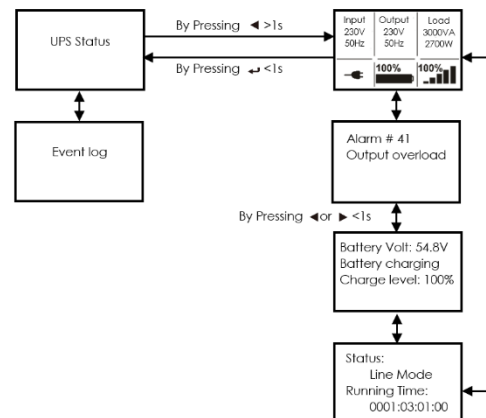
The content of the UPS status menu provides additional information to the status summary screen.

MEASUREMENTS MENU

- Press ⏎ on the "Measurement" option, this will enter the measurement menu.

A lot of detailed information is available within this menu, including output voltage and frequency, output current, load capacity, input voltage and frequency, etc.

- By pressing ◀ or ▶ the displayed measurement can be changed.

- Pressing ◀ for 1 second at any time, will return the display to the last main menu.

- Pressing ⏻ at any time will return the display to the UPS summary screen.

UPS Status	Output 1350W 1500VA	
UPS Status	Output 6.8A 75%	Temperature 22 C
Measurements	Output 220.4V 60.0 Hz	DC Bus 325.1V 325.5V
Control	Input 220.4V 60.0 Hz	Battery 54.6V 100%

Press ◀ >1s
Press ⏎ >1s
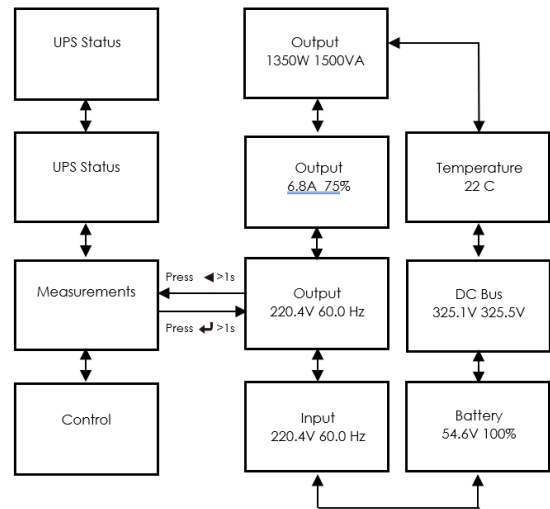
EVENT LOG

- By pressing ⏎ on "Event log" the display will enter the event menu.

All previous events, alarms and faults will have been recorded here. This includes the description, event code, and the precise time when the event occurred.

The maximum number of recorded events is 50. When the event log is full the oldest event will be overwritten.
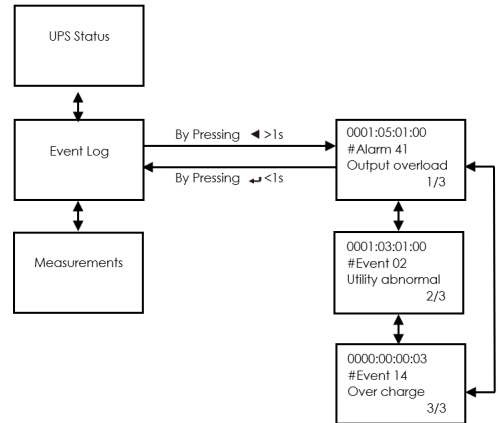
CONTROL MENU

- By pressing ⏎ on the menu of "Control", the display enters the control menu.

- Battery test: this commands the UPS to carry out a battery self-test.

- Reset fault status: when a fault occurs, the UPS will stay in fault mode and alarm until acknowledged. To clear the alarm, enter the "Reset Fault status" menu to clear the error. The UPS will stop alarming and return to bypass mode. The cause of the fault should be established and cleared prior to the ups being returned to normal operation

- Restore factory settings: all the settings will be returned to their factory defaults. This can only be done while in bypass mode.
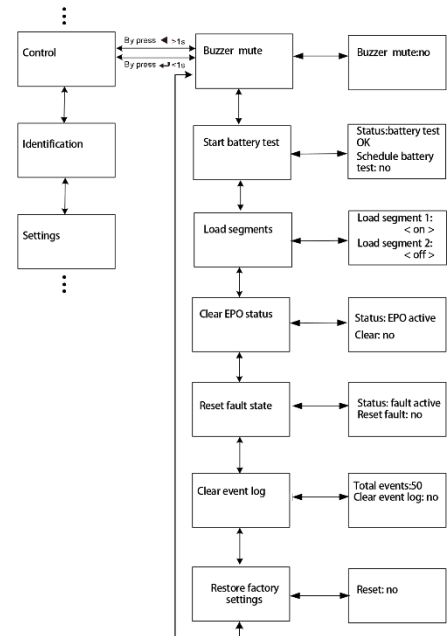
IDENTIFICATION MENU

- The identification information includes UPS serial number, firmware version and model.
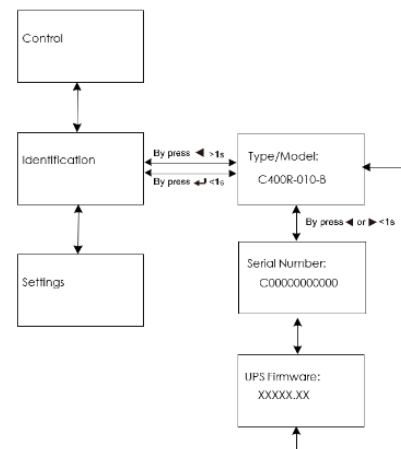
TO REGISTER A FAULT PLEASE VISIT WWW.CERTAUPS.COM/SUPPORT/FAULT-REPORTING/

SETTINGS MENU

ℹ️ Please contact your local CertaUPS partner for further information before configuring the UPS.

MISCONFIGURATION COULD RESULT IN FAILURE OF THE EQUIPMENT AND PERSONAL INJURY.

Most settings in this menu require the UPS to be in bypass to take effect.

Settings

Password: AAAA ⟷ LCD contrast <+0>

Change language <English>	Site wiring fault alarm <enabled>
Change language <English>	Charge current <4A>
User password <disabled>	Battery remaining time <Disabled>
Audible alarms <enabled>	
Output voltage <230V>	External Battery Modules <1> External Battery AH setting <120>

If AH setting disable   If AH setting enable

Output frequency <autosensing>	Start on battery <enabled>
Power strategy <normal>	Dry out <Loaded powed>
Auto bypass <enable>	Dry in <disable>
Auto restart <enable>	

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COMMUNICATION PORTS

RS232/USB

ℹ️ The RS232 and USB communication ports cannot be used simultaneously.

- Connect the communication cable to the serial or USB port on the computer.
- Connect the other end of the communication cable to the RS232 or USB communication port on the UPS.
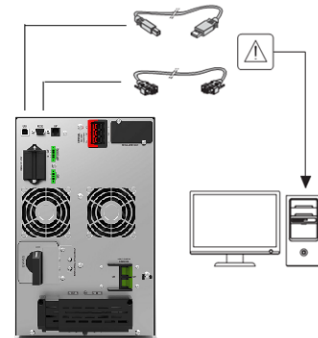
Both RS232 and USB connections allow for 2 way communication between the device connected and the UPS. This can be used for both issuing configuration commands, communicating with the UPS and issuing shutdown commands. When connected via USB to a PC the UPS will present itself as a HID compliant ACPI device allowing for zero configuration shutdown initiated by the UPS in the event of a power failure.

EPO CONNECTION

The EPO (Emergency Power Off) connection allows the UPS to be powered off by changing the state of either a normally open or normally closed circuit. The default state of the connection can be configured via the LCD display settings.

- Normally open - Normally the EPO circuit is open on the rear panel. Once the connector is closed with a wire, the UPS will stop output until EPO status is reset.
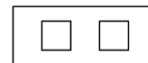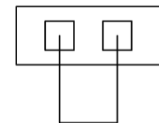
DISABLE EPO STATUS   ENABLE EPO STATUS

- Normally closed - Normally EPO connector is closed with a wire on the rear panel. Once the connector is open, the UPS will stop output until the EPO status is disabled.
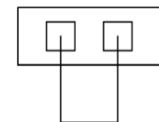
ENABLE EPO STATUS   DISABLE EPO STATUS

DRY IN/DRY OUT CONTACTS

Dry in allows maintenance bypass to be remotely switched on and off. When the contact changes the maintenance bypass is switched on or off depending on its current state.

ℹ️ Dry out could indicate the status of UPS.
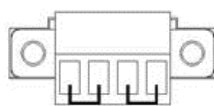
dry out   dry in

The Dry out port is normally closed, if the Dry out port is open it indicates an event has occurred such as:

| Output overload |
| On battery mode |
| Battery low |
| Battery disconnected |
| Bypass enabled |

INTERFACE CARDS (OPTIONAL)

The Network Management Card allows the UPS to communicate with monitoring devices by utilising network connectivity. The C400R series has one available expansion bay for the following connectivity cards:

- NMC/SNMP Card – this interface card provides SNMP and HTTP capabilities as well as monitoring through a Web browser interface using RJ45 10/100Mbps over TCP/IP.

- AS400 card - for RS485 communication protocol. Please contact your CertaUPS partner for details.

SOFTWARE

The C400R series is compatible with WinPower which is an open-source, online UPS monitoring and management software tool.

Key features:

- Power flow display for monitoring UPS status
- Scheduled system shutdown/restart
- Warning notification via E-mail / SMS / Windows system log*
- Scheduled UPS test
- Password security protection
- Remote monitor/control via LAN
- Safety to shutdown multi-system
- Selectable User Interface (Background)
- UPS parameter setting
- SNMP Central monitoring up to 1000 units
- Record logs for analysis
- Multi-language support: English, Italian, Turkish, Spanish, French, Portuguese, Polish, Thai, Germanic, Russian and Japanese.
  *Requires a GSM modem (not supplied)

WinPower installation:

STEP ONE	Go to: https://www.certaups.com/downloads/ download winpower
STEP TWO	Choose the operating system you need and follow the instruction described on the website to download the software.
STEP THREE	When downloading all the required files from the internet, enter the product key: **511C1-01220-0100-478DF2A**
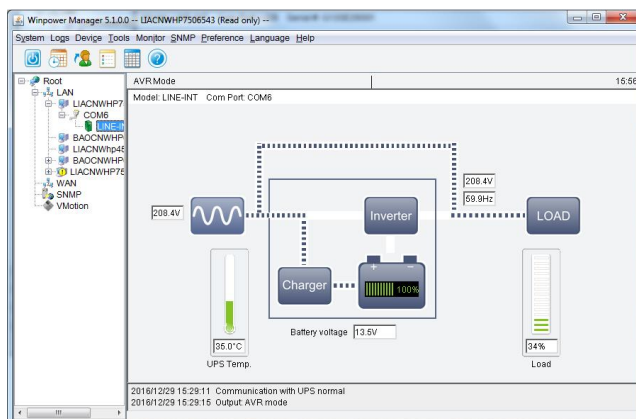
WHEN THE INSTALLATION IS COMPLETE, WinPOWER WILL APPEAR AS A GREEN PLUG ICON LOCATED IN THE SYSTEM TRAY, NEAR THE CLOCK.

FOR FURTHER GUIDANCE ON UPS MONITORING, PLEASE CONTACT YOUR CertaUPS PROVIDER OR VISIT WWW.CERTAUPS.COM

UPS MAINTENACE

ADOPTING A PREVENTATIVE MAINTENANCE SCHEDULE IS CRITICAL TO ACHIEVING OPTIMUM UPS PERFORMANCE

UPS CARE

For the best preventive maintenance:

Keep the area around the equipment clean
Keep the equipment free from dust
Ensure the equipment is positioned in a well-ventilated area
For maximum battery life keep the equipment at an ambient temperature of 20-25°C (77°F max)
Carry out regular environmental and battery checks

i The batteries are rated for a 3-5 year service life. The service life varies depending on the frequency of usage and ambient temperature. Batteries used beyond expected service life will often have severely reduced runtimes. Replace batteries at least every 4 years to keep units running at peak efficiency and prevent failure.

TRANSPORTING THE UPS

i THE INTERNAL UPS BATTERIES MUST BE DISCONNECTED BEFORE TRANSPORT

⚠ The following procedure should be performed or supervised by personnel knowledgeable about batteries and the required precautions. Keep unauthorised personnel away from batteries. If the UPS requires any type of transportation, the batteries must be disconnected (but not removed) before the unit is transported:

Verify that the UPS is off and disconnected from mains power
Place the UPS on a flat stable surface with the front of the cabinet facing you
Remove the UPS front cover
Disconnect the internal battery connectors
Replace the UPS front cover

To avoid damage and to prevent DOA's always use a reputable courier for all equipment transportation.

STORING THE UPS

UPS BATTERIES MUST BE RECHARGED EVERY SIX MONTHS. ALWAYS CHECK THE BATTERY RECHARGE DATE ON THE SHIPPING CARTON BEFORE USE.

Where UPS equipment is stored for a long period of time, the batteries must be recharged every six months. The optimal storage vdc for VLRA batteries, depending on the environment is between 20-40%. This can be achieved by connecting the UPS to mains power.

DO NOT store the equipment in a warm, damp, dusty environment	
DO NOT use the equipment if the batteries have not been recharged/if the recharge date exceeds six months	
DO NOT Expose the UPS to direct sunlight or source of heat	

DO Store the equipment in a cool, dry, clean environment	
DO Ensure the batteries are recharged every six months for a minimum of 48 hours	
DO Ensure EBMs are recharged every six months for a minimum of 3 hours	

BATTERY REPLACEMENT

i	DO NOT DISCONNECT THE BATTERIES WHILE THE UPS IS IN BATTERY MODE

⚡	CONSIDER ALL WARNINGS, CAUTIONS, AND NOTES BEFORE REPLACING BATTERIES

⚡	ELECTRIC ENERGY HAZARD. DO NOT ATTEMPT TO ALTER ANY BATTERY WIRING OR CONNECTORS.

DO NOT allow unauthorised personnel near the batteries. Servicing should be performed by qualified, knowledgeable personnel only	
DO NOT dispose of batteries in a fire. Batteries may explode when exposed to flame	
DO NOT open or modify the battery or batteries in any way. Released electrolyte is harmful to the skin and eyes and maybe extremely toxic	
DO NOT attempt to alter any battery wiring or connectors. Attempting to alter wiring can cause injury	

DO ensure personnel servicing the batteries are all knowledgeable on the required precautions for battery servicing	
DO replace the batteries with the same type and number of batteries or battery packs	
DO dispose of the batteries responsibly. Please refer to local regulations and disposal requirements	
DO determine if the battery is inadvertently grounded. If inadvertently grounded, remove source to ground. Contact with any part of a grounded battery can result in electrical shock. The likelihood of shock can be reduced if grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).	
DO disconnect charging source prior to connecting or disconnecting battery terminals	

Batteries can present a risk of electrical shock or burn from high short circuit current. Observe the following precautions:

Remove watches, rings, or other metal objects
Use tools with insulated handles
Do not lay tools or metal parts on top of batteries
Wear rubber gloves and boots

REPLACING THE EBM

⚠	THE EBM IS HEAVY AND REQUIRES A MINIMUM OF 2 PEOPLE TO LIFT INTO RACKING.

For the C400R rotation module: If a PDU is connected to the UPS, turn the MBS to bypass and switch off the input, it is then safe to replace the EBM(s). If a PDU is not connected to the UPS, turn off the UPS and then replace the EBM.

To replace the EBM(s):

1. Unplug the EBM power cable and battery detection cable from the UPS. If additional EBM(s) are installed, unplug the EBM power cable from each EBM
2. Replace the EBM(s)

i	A SMALL AMOUNT OF ARCING MAY OCCUR WHEN CONNECTING AN EBM TO THE UPS. THIS IS NORMAL AND WILL NOT CAUSE SHOCK. INSERT THE EBM CABLE INTO THE UPS BATTERY CONNECTOR QUICKLY AND FIRMLY

- Plug the EBM cable(s) into the battery connector(s)
- Verify that the EBM connections are secure and that adequate bend radius and strain relief exist for each cable
- Connect the EBM cable to the UPS

To test new batteries:

1. Charge the batteries for 48 hours.
2. Press ↵ on the menu of "Control".
3. Select Control
4. Select Single battery test

The UPS starts a battery test if:

- The batteries are fully charged
- The UPS is in Normal mode with no active alarms
- Bypass voltage is acceptable

During the battery test, the UPS transfers to Battery mode and discharges the batteries for 10 seconds. The front panel displays and the percentage of the test completed.

RECYCLING A UPS

> CONTACT YOUR LOCAL RECYCLING OR HAZARDOUS WASTE CENTRE FOR INFORMATION ON PROPER DISPOSAL OF THE USED EQUIPMENT.

DO NOT dispose of the battery or batteries in a fire. Batteries may explode. Proper disposal of batteries is required. Refer to your regulations for disposal requirements.

DO NOT open or modify the battery or batteries. Released electrolyte is toxic and harmful to the skin and eyes.

DO NOT discard the UPS or the UPS batteries in the general waste. This product contains sealed lead-acid batteries and must be disposed of responsibly. For more information contact your local recycling centre.

DO NOT discard of waste electrical or electronic equipment (WEEE) in the trash. For proper disposal contact your local recycling centre.

TROUBLESHOOTING

The C400R series is designed for durable, automatic operation. It also provides alerts whenever potential operating problems occur.

> ALARMS SHOWN ON THE CONTROL PANEL DO NOT MEAN THAT THE OUTPUT POWER IS AFFECTED. INSTEAD THEY ARE PREVENTIVE ALARMS INTENDED TO ALERT THE USER

- Events are silent status information that are recorded into the Event log. Example = "AC freq in range".
- Alarms are recorded into the Event log and displayed on the LCD status screen with the logo blinking. Some alarms may be announced by a beep every 1 second. Example = "Battery low".
- Faults are announced by a continuous beep and red LED recorded into the Event log. Example = Out. Short circuit.

To check the Event log:

- By pressing ⏎ on the menu of "Event log".
- Scroll through the listed events or faults.
- The following table describes typical conditions.

ALARMS & FAULTS

> TO REGISTER A FAULT PLEASE VISIT WWW.CERTAUPS.COM/SUPPORT/FAULT-REPORTING/

Use the following troubleshooting chart to determine the UPS alarm condition.

| ALARM CODE	EVENT	CAUSE	ACTION
N/A	FAILURE TO RESPOND OR ILLUMINATE	No mains input detected by the UPS	Check building wiring, fusing and input wiring
N/A	RUNTIME LOWER THAN EXPECTED	Batteries not fully charged / batteries require replacement	Charge the batteries for at least 5 - 8 hours and then check capacity. If the problem persists, consult your CertaUPS representative
84	INTERNAL FAN SPEED ABNORMAL	Low RPM or fan failure	Check the fan is running and free from obstruction
16	BATTERIES OVERCHARGED	Batteries are overvoltage	The C400R will automatically discharge to the correct value and maintain the battery voltage
12	LOW BATTERY	Battery voltage is low	An alarm will sound every second, the battery is almost empty
15	CHARGER FAIL	A critical failure of the charging module has occurred	Consult your CertaUPS representative
86	HIGH INTERNAL TEMPERATURE	The internal temperature of the UPS is too high	Check ventilation of the UPS, also consider the ambient temperature
82	HIGH AMBIENT TEMPERATURE	The ambient temperature is too high	Check environment and ventilation
11	BATTERY OPEN	Batteries not connected correctly	Check the EBM is correctly connected, confirm the Battery breaker is on
13	SERVICE FAILURE	Battery condition is preventing proper operation	Consult you CertaUPS representative
41/42/43	UPS OVERLOADED	The UPS is overloaded	Remove noncritical load, check for attached device failure
71	EPO ENABLED	The EPO state has changed condition NO/NC	Confirm reason for activation and reset EPO status
21	BUS HIGH	Fault preventing proper operation	Consult you CertaUPS representative
22	BUS LOW	Fault preventing proper operation	Consult you CertaUPS representative
23	BUUNBALANCED	Fault preventing proper operation	Consult you CertaUPS representative
25	SOFT START FAILURE	Fault preventing proper operation	Consult you CertaUPS representative
32/33/34	INVERTER FAILURE	Fault preventing proper operation	Consult you CertaUPS representative
81	OVER TEMP	UPS is Over temperature preventing proper operation	Check ventilation of the UPS, also consider the ambient temperature
87	NTC OPEN	Internal UPS fault	Consult you CertaUPS representative
31	INVERTER SHORT	Output short Circuit	Remove all loads. Turn off the UPS. Check output wiring and load for short circuit before turning on

| 24 | BUS SHORT | Internal UPS fault | Consult you CertaUPS representative |

i Check the alarm condition and perform the applicable action to resolve the condition.

i If an alarm status changes the alarm will need to be silenced again.

TECHNICAL DATA

BLOCK DIAGRAM
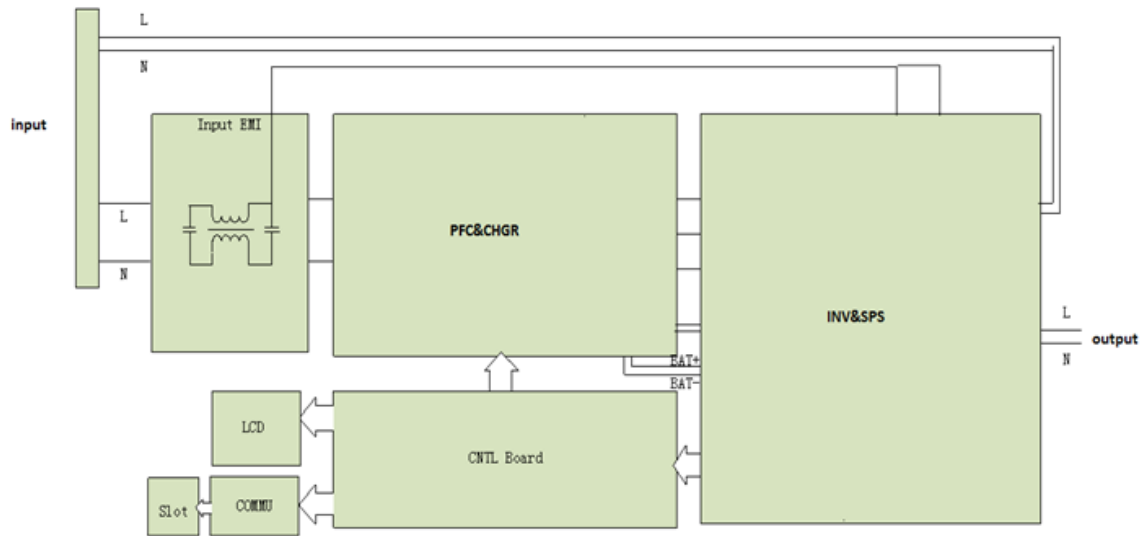
ELECTRICAL SPECIFICATION

INPUT						
Model No.	C400R-010-B	C400R-010-C	C400R-020-B	C400R-020-C	C400R-030-B	C400R-030-C
Phase	Single					
Frequency	50/60Hz +/- 10%					
AC Voltage (V)	220/230/ 240/250V	220/230/ 240/250V	220/230/ 240/250V	220/230/ 240/250V	220/230/ 240/250V	220/230/ 240/250V
Current(A)	230V / 7.5A		230V / 13.5A		230V / 16A	
OUTPUT						
Model No.	C400R-010-B/C		C400R-020-B/C		C400R-030-B/C	
Power rating*	1000VA/900W		2000VA/1800W		3000VA/2700W	
Voltage	220VAC/230VAC/240VAC					
Frequency	50/60Hz					
Waveform	Sinusoidal					
BATTERIES						
Model No.	C400R-010-B	C400R-010-C (EBM)	C400R-020-B	C400R-020-C (EBM)	C400RR-030-B	C400RR-030-C (EBM)
Voltage	36V	36V	48V	48V	72V	72V
Capacity	7Ah x 3	7Ah x 6 (EBM)	9Ah x 4	9Ah x 8 (EBM)	9Ah x 6	9Ah x 12 (EBM)

OPERATING ENVIRONMENT

Ambient Temperature	0 °C to 40 °C (Full load no de-rating) 40 °C to 50 °C output power derated to 50% load, Charger current derated 50%
Operating humidity	< 95% no condensing
Altitude	< 3000m
	3000m (Above 3000m altitude10% derating per 1000m)
Storage temperature	-25°C~55°C (-13 to 130°F)
Audible noise	< 50 dBA at 1 meter typical for 6kVA models < 55 dBA at 1 meter typical for 10kVA models

*Above 3000m altitude10% derating per 1000m.

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RUNTIMES
*

MODEL	EBM CODE	EBM QTY	RUNTIME @ 100%	RUNTIME @ 75%	RUNTIME @ 50%	RUNTIME @ 25%
C400R-010-B	NA	0	5 Mins	8 Mins	15 Mins	33 Mins
C400R-010-C	NA	0	0 Mins	0 Mins	0 Mins	0 Mins
C400R-010-C	C400R-BB1	1	26 Mins	40 Mins	66 Mins	157 Mins
C400R-010-C	C400R-BB1	2	53 Mins	80 Mins	124 Mins	280 Mins
C400R-010-C	C400R-BB1	3	86 Mins	115 Mins	183 Mins	433 Mins
C400R-010-C	C400R-BB1	4	112 Mins	157 Mins	245 Mins	450+
C400R-020-B	NA	0	3 Mins	6 Mins	10 Mins	23 Mins
C400R-020-C	NA	0	0 Mins	0 Mins	0 Mins	0 Mins
C400R-020-C	C400R-BB2	1	14 Min	23 Mins	41 Mins	102 Mins
C400R-020-C	C400R-BB2	2	29 Min	47 Mins	81 Mins	176 Mins
C400R-020-C	C400R-BB2	3	50 Min	73 Mins	116 Mins	261 Mins
C400R-020-C	C400R-BB2	4	68 Min	102 Mins	159 Mins	334 Mins
C400R-030-B	NA	0	3 Mins	6 Mins	10 Mins	23 Mins
C400R-030-C	NA	0	0 Mins	0 Mins	0 Mins	0 Mins
C400R-030-C	C400R-BB3	1	15 Mins	25 Mins	44 Mins	106.9 Mins
C400R-030-C	C400R-BB3	2	31 Mins	50 Mins	87 Mins	186 Mins
C400R-030-C	C400R-BB3	3	52 Mins	79 Mins	122 Mins	276 Mins
C400R-030-C	C400R-BB3	4	74 Mins	106 Mins	167 Mins	390 Mins

*Calculated to 20°C

DIMENSIONS AND WEIGHTS

Model No.	Dimensions W×H×D (mm)	Net Weight (kg)
C400R-010-B	438X86.5x436	15.34
C400R-010-C	438X86.5x436	9.12
C400R-020-B	438X86.5x436	20.29
C400R-020-C	438X86.5x436	10.25
C400R-030-B	438X86.5x605	27.99
C400R-030-C	438X86.5x605	13.56
C400R-BB1	438X86.5x436	6.76
C400R-BB2	438X86.5x436	6.64
C400R-BB3	438X86.5x605	8.9

A FULL GLOSSARY OF TERMS CAN BE FOUND AT:
WWW.CERTAUPS.COM/SUPPORT/UPS-GLOSSARY/

FOR FURTHER INFORMATION OR ASSISTANCE, PLEASE CONTACT YOUR CertaUPS REPRESENTATIVE OR VISIT:
WWW.CERTAUPS.COM