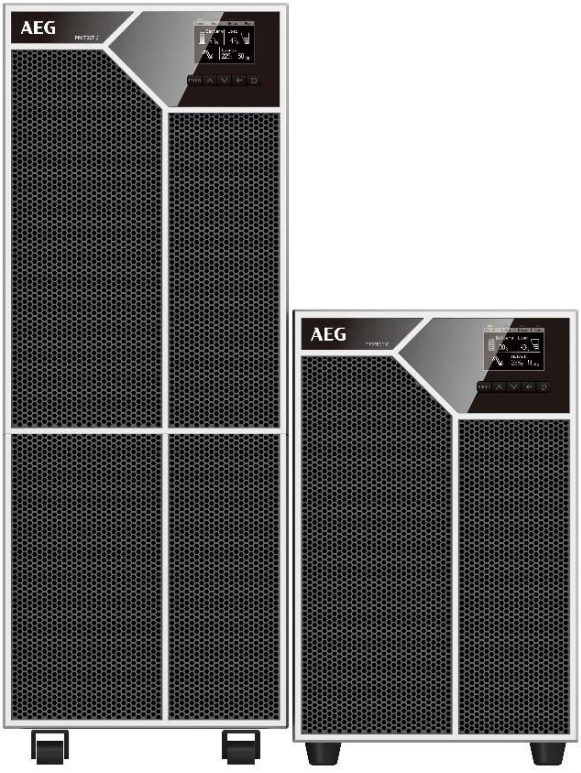
AEG

POWER
SOLUTIONS

PROTECT C

User Manual

Protect C LCD 6000 (S)
Protect C LCD 10000 (S)
Protect C LCD BP 6000
Protect C LCD BP 10000



EN

REVISION

Status	Change	Date	Name
00	Created	18/03/2019	Smrekar

Thank you for purchasing the AEG PS UPS Protect C LCD
from AEG Power Solutions.

Safety information and operating instructions are included in this manual. To ensure correct use of the UPS, please read this manual thoroughly before operating it. Use this manual properly.

CONTENTS

1. NOTES ON THESE OPERATING INSTRU

1.1 Duty to provide information

These operating instructions will help you to install and operate the Uninterruptible Power Supply (UPS) Protect C series – safely and properly, and for its intended purpose. These operating instructions contain important information necessary to avoid dangers during operation. Please read these instructions carefully prior to commissioning!

1.2 Operating instructions

The owner of this unit is obliged to communicate the full content of these operating instructions to all personnel transporting or starting the Protect C or performing maintenance or any other work on the unit.

1.3 Validity

These operating instructions comply with the current technical specifications of the Protect C at the time of delivery. The contents do not constitute a subject matter of the contract but serve for information purposes only.

1.4 Warranty and liability

We reserve the right to alter any specifications given in these operating instructions, especially with regard to technical data and operation, prior to start-up or as a result of service work. Claims in connection with supplied goods must be submitted within one week of receipt, along with the packing slip. Subsequent claims cannot be considered.

The warranty does not apply to damage caused by non-compliance with these instructions (such damage also includes damaging the warranty seal). AEG will accept no liability for consequential damage. AEG reserves the right to rescind all obligations such as warranty agreements, service contracts, etc. entered into by AEG and its representatives without prior notification in the event of maintenance and repair work being carried out with anything other than original AEG spare parts or spare parts purchased by AEG.

1.5 Handling

Protect C is designed and constructed so that all necessary steps for start-up and operation can be performed without any internal manipulation of the unit. Maintenance and repair work may only be performed by trained and qualified personnel.

Illustrations are provided to clarify and facilitate certain steps.
If danger to personnel and the unit cannot be ruled out in the case of certain work, it is highlighted accordingly by pictographs explained in the safety regulations of chapter 3.

1.6 Copyright

This product complies with the safety and environmental regulations in EU.
If the time arises to throw away your product, please recycle all the components possible.
Batteries and rechargeable batteries are not to be disposed in your domestic waste! Please recycle them at your local recycling point.
Together we can help to protect the environment.

2. SYSTEM OVERVIEW

2.1 Technology

Protect C is an Uninterruptible Power Supply (UPS) for essential loads such as PCs, workstations, servers, network components, telecommunication equipment and similar devices.

It has the following model versions:

- Protect C 6000 LCD, 6kVA unit with integrated battery
- Protect C 6000S LCD, 6kVA unit with the bigger charger for long backup
- Protect C 10000 LCD, 10kVA unit with integrated battery
- Protect C 10000S LCD, 10kVA unit with the bigger charger for long backup
- Protect C 6000BP LCD, battery cabinet for 6kVA unit
- Protect C 10000BP LCD, battery cabinet for 10kVA unit

It consists of:

• Mains filter with overvoltage Protection (appliance Protection / class D)

• Rectifier section with PFC logic (power factor correction unit)

• Charger is buck topology from DC BUS

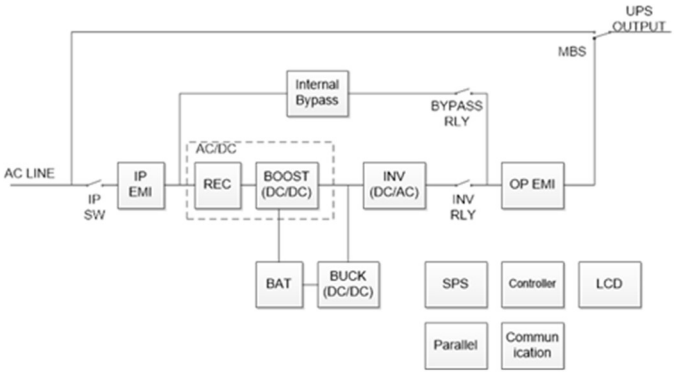
• Integrated sealed, maintenance-free battery system
(Protect C 6000 LCD / C 10000 LCD) as energy storage medium with downstream DC/DC converter unit

• IGBT inverter for continuous supply of connected loads with sinusoidal AC voltage

• Automatic electronic bypass (SBS = Static Bypass Switch) as additional passive redundancy

• Manual bypass for maintenance and service purposes (with SBS activation when activated)

• Digital signal processor control unit.



2.2 System description

The UPS is connected between the public utility's mains and the loads to be Protected.

The power section of the rectifier converts the mains voltage to DC voltage for supplying the inverter. The circuit technology used (PFC) enables sinusoidal current consumption and therefore operation with little system disturbance. The charger is buck topology from DC bus.

The configuration of this charging REC means the harmonic content of the charging current for the battery is almost zero, so the service life of the battery is increased even more. The inverter is responsible for converting the DC voltage into a sinusoidal output voltage. A microprocessor-controlled control system based on pulse-width modulation (PWM) in conjunction with digital signal processor technology and extremely quickly pulsating IGBT power semiconductors of the inverter guarantee that the voltage system on the Protected busbar is of the highest quality and availability.

In the event of mains faults (e.g. current failures), the voltage continues to be supplied from the inverter to the load without any interruption. From this point onwards, the inverter draws its power from the battery instead of the inverter. No switching operations are necessary; this means there is no interruption in the supply to the load.

The automatic electronic bypass serves to increase the security of supply further. It switches the public mains directly through to the load if there is an inverter malfunction. As a result, the automatic bypass represents an extra passive redundancy for the load.

The integrated manual bypass ensures in case of service and/or maintenances a complete power supply of all connected loads. The internal electronic circuit (with exception of the Protected manual bypass) can be enabled by the input fuse.

The maximum security of supply for connected loads is achieved by switching up to three Protect C UPS appliances parallel. The n+x technology provides the highest possible availability by a single or double redundancy. On the other hand, the power can be raised by using the single redundancy. In case of no redundancy the highest power is reached with the UPS. The relation between available power and active redundancy is explained in the following table.

Parallel system with Protect C 6000 LCD.

Available power		Number of UPS units		
		1	2	3
Active redundancy level	0	6 kVA	12 kVA	18 kVA
	1	-	6 kVA	12 kVA
	2	-	-	6 kVA

Parallel system with Protect C 10000 LCD.

Available power		Number of UPS units		
		1	2	3
Active redundancy level	0	10 kVA	20 kVA	30 kVA
	1	-	10 kVA	20 kVA
	2	-	-	10 kVA

2.3 Technical data

UPS MODEL LIST

Protect C 6000(S) LCD	6000VA / 6000W
Protect C 10000(S) LCD	10000VA / 10000W
Protect C 6000BP LCD	Battery pack for Protect C 6000 LCD
Protect C 10000BP LCD	Battery pack for Protect C 10000 LCD

WEIGHT AND DIMENSIONS

Protect C 6000 LCD	225x589x452 mm (WxHxD) 61kg
Protect C 6000S LCD	225x353x452 mm (WxHxD) 14kg
Protect C 10000 LCD	225x589x452 mm (WxHxD) 71kg
Protect C 10000S LCD	225x353x452 mm (WxHxD) 16kg
Protect C 6000BP LCD	225x589x452 mm (WxHxD) 111kg
Protect C 10000BP LCD	225x589x452 mm (WxHxD) 115kg

ELECTRICAL INPUT

Selectable input Voltage range	208/220/230/240V
Voltage at 100% Load	176~276Vac
Nominal frequency	50/60Hz auto-sensing
Frequency range	40 Hz– 70 Hz, for ≤60% rated load
	45 Hz– 55 Hz (50Hz system) 54 Hz – 66 Hz (60Hz system) for >60% rated load
Bypass voltage range	176~264 Vac (default)
Noise filtering	MOV for normal and common mode noise
Input connection	Hardwired
Input cable	Not provided

ELECTRICAL INPUT CONNECTIONS

Protect C 6000 LCD	
Nominal	230V / 31.2A
Over load input current (maximum charging current, low input voltage, continuous over load)	Up to 43A
Protect C 6000S LCD	
Nominal	230V / 38.7A
Over load input current (maximum charging current, low input voltage, continuous over load)	Up to 53,4A
Protect C 10000 LCD	
Nominal	230V / 49.9A
Over load input current (maximum charging current, low input voltage, continuous over load)	Up to 70.1A
Protect C 10000S LCD	
Nominal	230V / 57.6A
Over load input current (maximum charging current, low input voltage, continuous over load)	Up to 79.3A

ELECTRICAL OUTPUT

Voltage regulation	Normal mode: ±1% Battery mode: ±1%
Efficiency	Normal mode: > 98% (High Efficiency mode) > 95% Battery mode: > 93%
Frequency regulation	**Normal mode**: Sync with line ±10% of nominal line frequency (outside this range: ±0.1% of auto-selected nominal frequency) **Battery mode**: ±0.1% of auto-selected nominal frequency
Nominal output	208V*, 220V, 230V, 240V (voltage configurable) 6000/10000VA* 6000/10000W*
Frequency	50 or 60Hz, autosensing or configurable as a frequency converter
Output overload	100-105 %: no alarm

	105-125 %: load transfers to Bypass mode after 10 minutes
Output overload (Bypass mode)	100-105 %: no alarm 105-125 %: continue working and alarm 125-150 %: UPS shuts down after 30s
Voltage waveform	Sinewave
Harmonic distortion	< 1% THDV on linear load < 5% THDV on non-linear load
Transfer time	Online mode: 0 ms (no break) High Efficiency mode: 10ms maximum (due to loss of utility)
Power factor	1
Load crest ratio	3 to 1
Output connection	Hardwired
Output cable	Not provided

NOTE: * for 208V output, the load level will be derating to 90%.

ENVIRONMENTAL AND SAFETY

Certifications	EN 62040-1 IEC/EN 62040-2: Cat. C3 IEC/EN 62040-3 EN 60950-1
EMC (Emissions)*	Conduction C3 IEC/EN 62040-2 Radiation C3 IEC/EN 62040-2
EMC (Immunity)	IEC 61000-4-2, Level 3 IEC 61000-4-3, Level 3 IEC 61000-4-4, Level 4 (also on signal ports), IEC 61000-4-5, Level 4, Criteria B IEC 61000-4-6, Level 3 IEC 61000-4-8, Level 4 IEC 61000-4-11
Agency markings	CE
Operating temperature	0~40℃ full load no derating 40~50℃ output power derating to 50% load, Charger current derating 50%
Storage temperature	-15 to 40°C (32 to 104°F) with batteries -25 to 60°C (5 to 140°F) without batteries

Transit temperature	-25 to 55°C (-13 to 130°F)
Relative humidity	0 to 95% no condensing
Operating altitude	Up to 3,000 meters (9,843 ft) above sea level with 10% derating per 1000m
Transit altitude	Up to 10,000 meters (32,808 ft) above sea level
Audible noise	< 50 dBA at 1 meter typical for 6kVA models < 55 dBA at 1 meter typical for 10kVA models

NOTE: * for output cable < 10m.

BATTERY

Configuration	192Vdc, 16 x 12V, 9Ah for Protect C 6000 LCD 240Vdc, 20 x 12V, 9Ah for Protect C 10000 LCD
Fuses	100A for 10kVA models and BP battery cabinets
Type	Sealed, maintenance-free, valve-regulated, lead-acid, with minimum 3-year float service life at 25°C (77°F). Lifetime is reduced above 30 °C.
Monitoring	Advanced monitoring for earlier failure detection and warning
Battery port	External ANEN-SA30 connector on power module for connection to External Battery Module
External Battery Module battery cable length	100 cm

COMMUNICATION OPTIONS

Communication bay	Available independent communication bay for connectivity cards
Compatible connectivity cards	MODBUS card NMC card AS400 card

Communication ports	RS-232 (DB9): 2400 bps USB 2.0: full speed
Dry out	2 pins jumper (normally closed)
Dry in	2 pins jumper (normally closed)
Emergency Power Off	3 pins jumper (normally closed)

3. SET-UP AND OPERATION

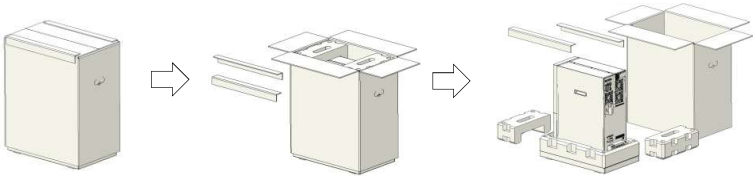
3.1 Unpacking and Inspection

It is recommended to move the equipment to the installation site by using a pallet jack or a truck before unpacking. The system may be installed only by qualified electricians in accordance with applicable safety regulations. The cabinet is heavy, please install it with at least two peoples.

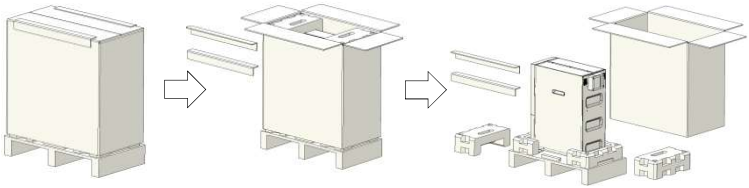
If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

Unpacking the unit in a low-temperature environment may cause condensation occurred in and on the cabinet. Do not install the unit until the inside and outside of the unit are absolutely dry (hazard of electric shock). Remove the packing materials and lift the unit out with two people at least.

UPS unit:



Battery cabinet:



Check the provided accessories

Verify that the following additional items are included with the unit:

	Protect C 6000/10000 LCD	Protect C 6000/10000BP LCD
Battery power cable		S
USB cable	S	
RS232 cable	O	
Parallel cable	S	
Dry contractor	S	
EPO contractor	A	
Stabilizer bracket	S	S
User manual	S	O

S: standard configuration
A: assembled to unit
O: optional configuration

If you ordered other accessories, please contact with local sale center.

Notes:
The cabinet is heavy, please see spec weight provided on the carton/label.
Do not lift the unit's front panel and rear panel.
Discard or recycle the packaging in a responsible manner or store it for future use.

Packing materials must be disposed in compliance with all local regulations concerning waste. Recycling symbols are printed on the packing materials to facilitate sorting

3.2 Transportation to the site.

Please transport the UPS only in the original packaging (to protect against shock and impact).

3.3 Point of installation

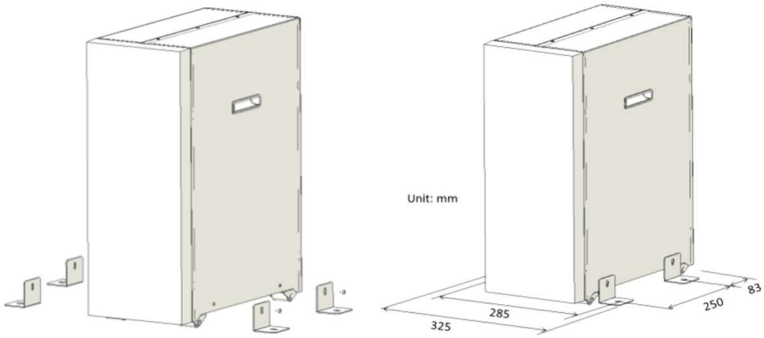
UPS unit

To keep air-flowing freely, it is recommended to keep a clearance with 500mm space both for front and rear side.

1. Place the unit on a flat, stable surface in its final location,

2. Install ‘Stabilizer bracket’ (optional): remove side’s screw from the unit, then install ‘Stabilizer bracket’ to the unit.

3. Install the unit to a surface (optional): place 4pcs bolts (M8 is recommended) to the final location previously, bolt’s position please refer to below, then fix the unit to the bolts

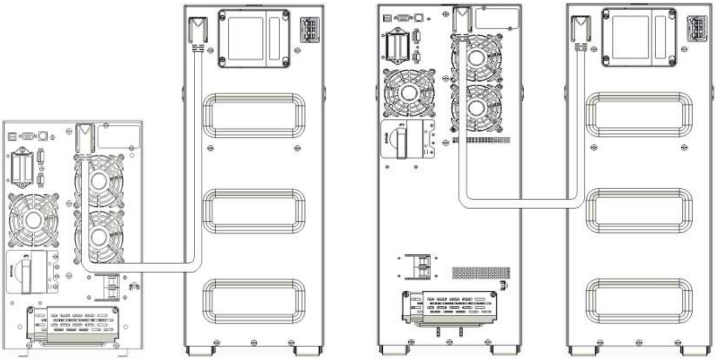


External Battery Module unit

NOTE: The Protect C 6000/10000BP LCD cabinets are referred to as External Battery Module.

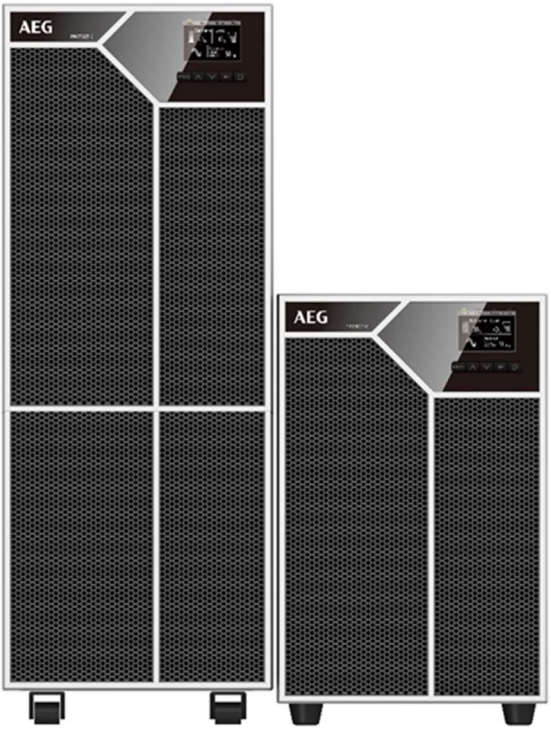
1. Install the External Battery Module model----Refer to UPS model installation as above.

2. Connect External Battery Module to UPS with ‘Battery power cable’.



3.4 Overview: Connections, Operating / Display Elements

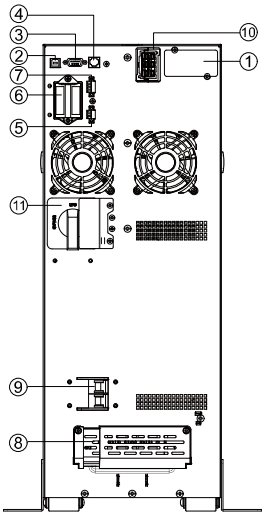
3.4.1 Front panels



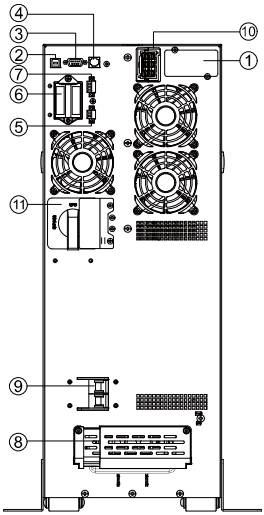
Protect C 6000 /10000 LCD long backup version

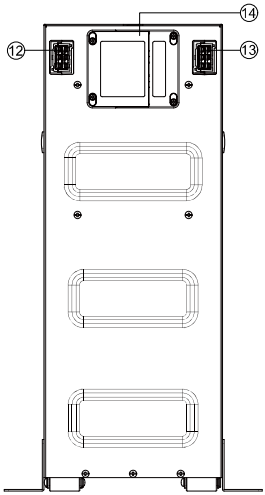
Protect C 6000S /10000S LCD,

3.4.2 Rear panels

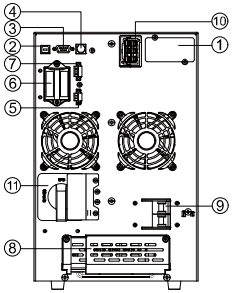


Protect C 6000 /10000 LCD

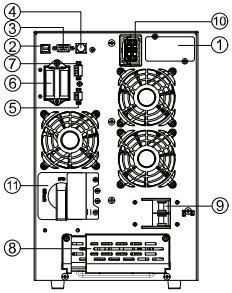




External Battery Module



Protect C 6000S LCD



Protect C 10000S LCD

1. Intelligent slot
2. USB
3. RS232
4. RJ11 (only for RT model)
5. EPO
6. Parallel card (optional)
7. Dry IN/OUT
8. Input /Output terminal
9. Input switch
10. External battery connector
11. Maintenance bypass switch (optional)
12. External Battery Module connector
13. External Battery Module connector
14. Fuse board cover (replace External Battery Module fuse)

4. COMMISSIONING

Attention

Before any work is started, ensure that the cables are free of tension and no power can be switched on.

To prevent a deformation of the bus-bar and to keep the foot of the terminal free of torsion, it is recommended to hold the cable when removing the terminal screw. The grounding Protection prevents inappropriately high contact tension with reachable metal pieces. The grounding of the Protect C is realized via the grounding screw (⏚ / PE). Before UPS start ensure that the Protect C is grounded according the regulations, e.g. VDE 0100.

Before starting the connection, check that:

• the values of the mains voltage (input voltage) and frequency complies with the values on the label on the UPS,

• the grounding connection complies with the IEC norms or with the regional regulations,

• the UPS is connected to the mains via a separate and fused line in a pre-switched NS distribution,

• the power fuse in the LV distribution has the same or higher value as indicated on the label on the rear of the UPS appliance.

4.1 Protection for the personnel

Before setting up the UPS appliance and the external battery modules (optional accessory) check the following:

• Disconnect the unit from the mains.

• Protect against reconnection.

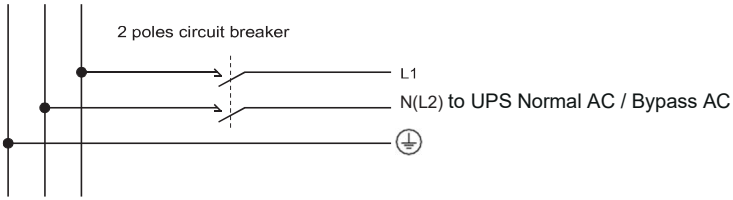
• Assure for no power.

• Cover or seals adjacent components still under power.

4.2 Mains connection general information

Recommended protective devices and cable cross-sections.
Recommended upstream protection

	Upstream circuit breaker
Protect C 6000(S) LCD	C curve, 2p63A
Protect C 10000(S) LCD	C curve, 2p100A

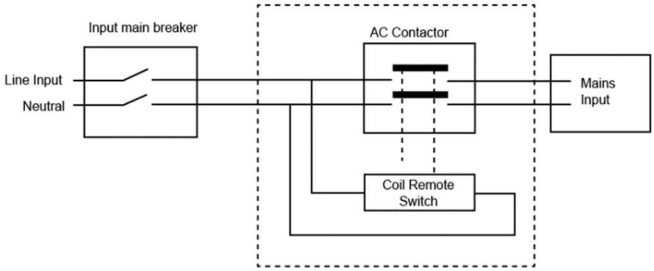


Read the Safety instructions regarding backfeed protection requirements.

Recommended cable cross-sections

	Protect C 6000(S) LCD	Protect C 10000(S) LCD
Protective earthing conductor Min cross section	6mm² (8AWG)	10mm² (6AWG)
Input L, N, G Min conductor cross section	6mm² (8AWG)	10mm² (6AWG)
Input fuse	80A	100A
Output L,N, Min conductor cross section	6mm² (8AWG)	10mm² (6AWG)
Battery cable*	6mm² (8AWG)	10mm² (6AWG)

It is recommended that an external isolating device should be installed between the mains input and UPS as shown in next figure.



AC Contactor:
208-240V, 63A (Protect C 6000(S) LCD)
208-240V, 100A (Protect C 10000(S) LCD)

4.3 Mains connection

Earth connection is essential before connecting supply.

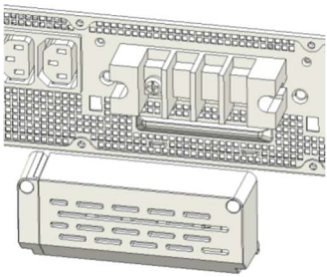
Common input/output sources connection.

Connection must be carried out by qualified electrical personnel.

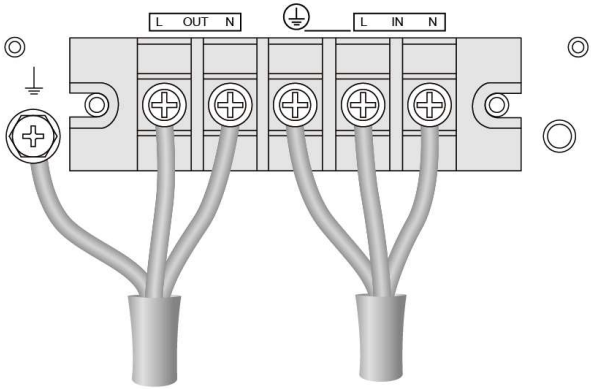
Before carrying out any connection, check that the upstream protection devices (Normal AC source and Bypass AC source) are open "O" (Off).

Always connect the ground wire first!

1. Remove the cover of terminal block.



2. Connect the AC cable to terminal blocks refer to the indication on rear panel



3. Tie up the AC cable to the rear panel.

4. Install back the cover of terminal block.

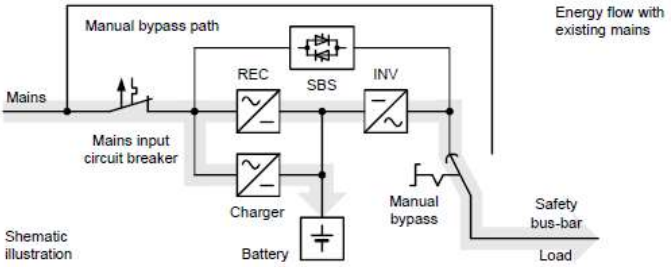
5. ELECTRICAL START UP

5.1 Operating modes

Protect C LCD UPS can work in one of these operating modes:

- Operation with existing mains
- Operation with faulty mains
- Operation with faulty inverter
- Manual bypass

5.1.1 Normal operation

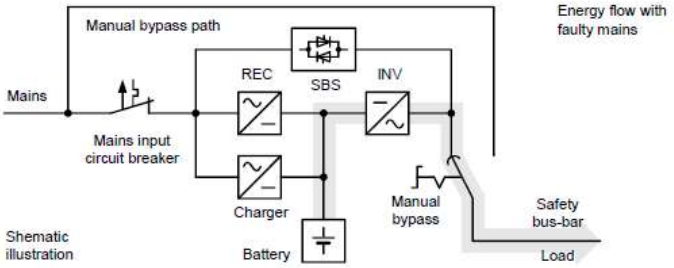


Once you have connected the UPS to a suitable mains connection, you can start operation using the UPS main switch. Normally, the UPS operates continuously. The UPS now supplies the output with voltage, this is being signaled on UPS LCD screen.

This is often referred to as “online” mode. It offers the greatest protection, in particular when there are mains fluctuations and mains failures, because the loads are supplied continuously with voltage with no interruptions in this operating mode.

5.1.2 Battery operation / autonomy operation

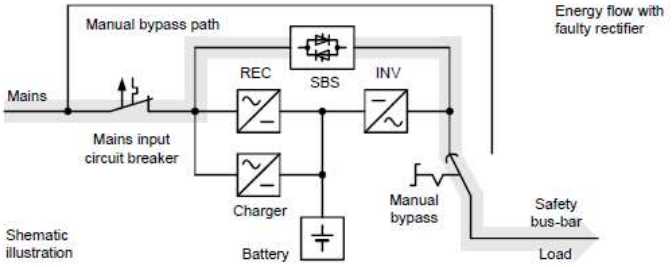
The mains is not within the required tolerance range or has failed. In this case power is supplied to the inverter from the charged battery without interruption. The power supply to the loads is therefore also ensured in the event of a mains failure.



This drains the capacity of the battery and it is discharged. This status is signaled UPS LCD screen, as well as an intermittent acoustic signal periodically every 4 seconds. This can be suppressed by pressing the “Alarm off” button. With decreasing battery capacity, the alarm is activated automatically. Depending on the expansion level, age and condition of the battery and in particular on the load to be supplied, the standby time can vary from a few minutes to several hours.

The inverter is switched off if the battery voltage drops below a factory-set minimum voltage value. Never store the unit in this condition! The discharged battery system should be recharged within a week at the latest. When the voltage and frequency are within the tolerance range once more, the inverter and the battery charger switch back on automatically. The inverter then continues supplying the inverter and the battery charger takes over charging the battery.

5.1.3 Bypass operation



If the inverter is overloaded or if overtemperature is detected, e.g. also if an inverter defect is detected, voltage is supplied to the load via the bypass that switches on automatically.

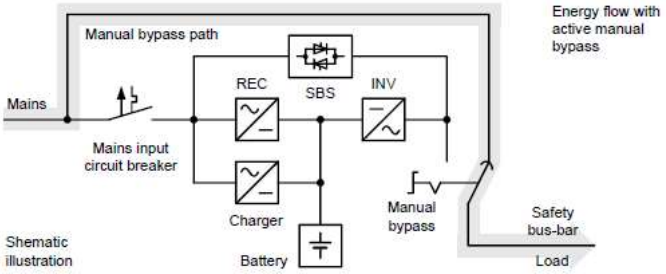
This function is also referred to as passive redundancy. It protects against total failure of the voltage supply on the protected busbar, however in the operating status that is now attained, mains faults would have a direct effect on the load.

As a result, the electronics continuously attempt to switch back to "online" / normal operating status (e.g. when the overload or overtemperature no longer applies).

The bypass is a mechanical link that switches extremely rapidly. It is located between the load and the mains. The associated synchronization unit in the bypass ensures that the frequency and phase of the inverter voltage is synchronized with the mains.

5.1.4 Manual bypass

The manual bypass allows maintenance and service personnel to work on the Protect C without switching of the appliance.



If the mains supply fails if the manual bypass is activated, the loads supply fails completely. For this reason, it is important to switch as fast as possible to normal operation mode.

5.1.5 Unit overload

The load on the UPS should never exceed the specified rated load of the unit. If a unit overload occurs nevertheless (from 105% of the specified unit rated load) the fault LED is turned on accompanied with a signal tone (twice per second). The connected loads continue to be supplied for a certain time depending on the level of the overload. However, the connected load must be reduced without delay.

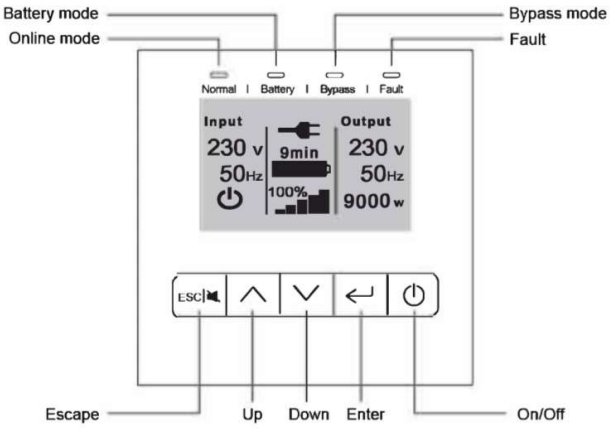
Non-observance of the "Unit overload" condition may cause

the total loss of all UPS functions! Also avoid short-term unit overloads, which may, for example, occur when connecting a laser printer or laser fax machine.

Do not connect any household appliances or machine tools to the UPS. Never connect or switch on any additional loads to the UPS if there is a mains failure, i.e. if the UPS is working in emergency power operation! As a rule, if there has never been an overload during normal operation, there will not be one during battery operation either.

5.2 Control panel

The UPS has a graphical LCD with five-button. It provides useful information about the UPS itself, load status, events, measurements and settings.



Indicator	Status	Description
Normal (Green)	On	The UPS is operating normally on Online or on High Efficiency mode.
Battery (Orange)	On	The UPS is on Battery mode.
Bypass (Orange)	On	The UPS is on Bypass mode.

	Flash	The UPS is on Standby mode.
Fault (Red)	On	The UPS has an active alarm or fault.

The following table shows the Control Button Functions

The Button	**Function**	**Illustration**
	Power on	Press this button for >100ms&<1s can power on the ups without utility input at the condition of battery connected.
	Turn on	When the unit is powered on and stayed in Bypass mode, press this button for >1s can turn on the UPS.
	Turn off	Press this button >3s can turn off the UPS.
	Clear fault	When the unit is in fault mode, press this button for >1s to stop alarm and clear fault
	Scroll up	Press this button for >100ms&<1s to scroll up the menu option
	Scroll down	Press this button for >100ms&<1s to scroll down the menu option

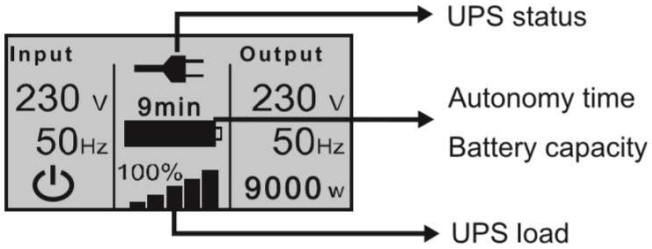
	Enter next menu tree	Press this button for >100ms&<1s to select the present menu option, or enter next menu, but do not change any setting
	Select one menu option	Press this button for >100ms&<1s to select the present menu option, or enter next menu, but do not change any setting
	Confirm the present setting	Press this button for >1s to confirm the edited options and change the setting
	Exit main menu	Press this button for > 100ms & < 2s to exit the present menu to default system status display menu or the higher-level menu without executing a command or changing a setting
	Mute buzzer	Press this button for > 2s to mute the buzzer temporarily, once new warning /fault is active or UPS re-enters into bypass mode or battery mode, buzzer will work again.

The Buzzer definition is as per below:

UPS condition	**Buzzer status**
Fault active	Continuous
Over Load Warning active	2 Beeps every second
Other Warning active	Beep every second
Battery output	Beep every 4 seconds, if battery low, buzzer Beeps every second
Bypass output	Beep every 2 minutes

5.3 LCD description

The LCD backlight automatically dims after 2 minutes of inactivity (except UPS is fault). Press any button to wake up the screen.

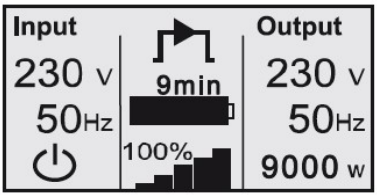


The UPS status display is divided into several different sections to retrieve the following information:

- Display that summarizes all load segment-relevant input and output parameters, including the information on operation status, the current load and the currently available battery capacity
- Messages and alarms
- Battery display with status window and state of charge

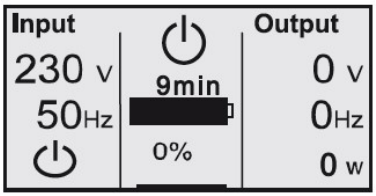
The display indicates the current UPS status in the top middle section. Here is a list of the symbols used and what they mean:

Display	Status
	UPS is in normal / continuous double-conversion mode. Power supply is available and within the acceptable tolerance range (Mode: “High performance”).
	UPS is in battery mode.

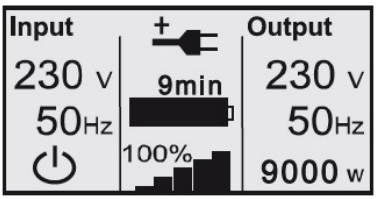


UPS supplies the load via the integrated bypass.

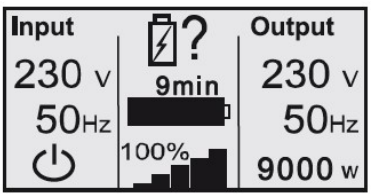
UPS is operating in frequency converter mode.



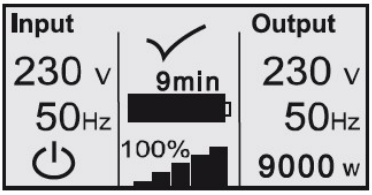
UPS is in standby mode.



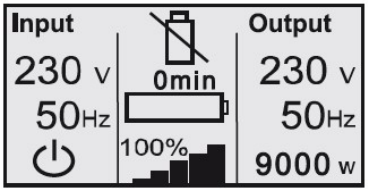
UPS is operating in economical mode (ECO mode).



UPS is testing the battery.



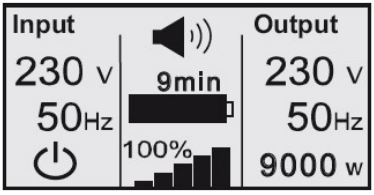
Display for 10 seconds after a successful battery test.



UPS reports a defective or disconnected battery system.

UPS is overloaded.

UPS indicates a critical error and has switched off the UPS output.



General UPS alarm. Details can be found in the Alarm messages and entries in the event log

5.4 Display functions

Use the two middle buttons ( and ) to scroll through the menu structure. Press the Enter () button to select an option.

Press the ESC button to cancel or return to the previous menu.

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

Main menu	**Submenu**	**Display information or Menu function**
UPS status		[status summary screen] / [Alarm] / [Battery resting]
Measurements		[PUE] % /[Output] W VA/ [Output] A pf/ [Output] V Hz/[Input]V Hz [Battery] V % / [DC bus] V V/ [External Battery Modules] /[Cumulative] kWH
Control		Go to bypass
		Battery test
		Reset error state
		Load segments
Settings		Sets parameters
Event log		Event list
Identification		[Type model] / [Part/Serial number] / [UPS/firmware]

5.5 User settings

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

Submenu	**Options on the display**	**Default**
Change language	[English], [German] , [French], [Spanish], [Russian] If user select German for display language, Option item display as below:	English

	[Englisch], [Deutsch], [Französisch], [Spanisch], [Russisch]	
User password	[enabled<****>], [disabled]	disabled
Audible alarms	[enabled], [disabled]	enabled
Set date and time	mm/dd/yyyy; hh:mm	01/01/2019 08:00
Relay configuration	[UPS ok], [on bypass], [on Economical mode(ECO)], [on High efficiency(ECO+)], [on battery], [battery low], [battery fault], [battery missing], [Fan fault], [Summary Alarm]	UPS ok
Control commands from serial port	[enabled], [disabled]	enabled
Output voltage	[200V], [208V], [220V], [230V], [240V], [autosensing]	autosensing
Output frequency	[50Hz], [60Hz], [autosensing]	autosensing
Load alarm level	[10%], [20%], [30%], …, [100%]	100%
Reserved (unused)		
Power strategy	[High performance mode(normal)], [Economical mode(ECO)],[converter],[High efficiency mode(ECO+)]	High performance mode(normal)
Start w/o mains	[enabled], [disabled]	enabled
Battery saving mode	[disabled], [10%], [20%], …, [100%]	disabled
Site wiring fault alarm	[enabled], [disabled]	disable
Battery charge % to restart	[0%], [10%], [20%], …, [100%]	0
Automatic battery support tests	[enabled], [disabled],	enabled
Periodic battery test	[daily], [weekly], [monthly]	weekly

Ambient temperature high alarm	[enable], [disable]	Enable(40°C)
REPO operation	[normally open], [normally closed]	Normally closed
Reset Cumulative Consumption kWh	When “yes” is selected the Cumulative Consumption kWh value is cleared and the Date & Time stamp for this statistic is set to the current date & time.	“no”
Battery limit time	disable,1h,2h,....,14h,15h,16h,…999h,	14h
Auto reboot	[enable], [disable]	enable
Auto bypass	[enabled], [disabled]	enable
Start without battery	[enable], [disable]	disable
Clear event log	-	display present number of events
LCD contrast	-5,-4,-3,-2,-1, 0 ,+1,+2,+3,+4,+5	0
Restore Factory Settings	[no], [yes]	no

5.6 UPS startup and shutdown

Please make sure there is no load connected to the ups before the ups is turned on and take on the load one by one after the UPS is turned on.

Take off all the connected loads before turning off the UPS.

5.6.1 Starting the UPS with utility

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

Check all the connection is correct.

Power on the UPS, the fan begins to rotate. After that, the LCD will show the default UPS status summary screen.

Pressing  button continuously for more than 1 second, the buzzer will beep 300ms, UPS starts to turn on.

A few seconds later, the UPS turns into Line mode. If the utility power is abnormal, the UPS will transfer to Battery mode without output interruption of the UPS.

5.6.2 Starting the UPS on Battery

Before using this feature, the UPS must have been powered by utility power with output enabled at least once.

After connecting the UPS with battery, you should wait 10s before pressing the  button for pre-charging the auxiliary power supply.

Battery start can be disabled. See “Start on battery” setting in user settings refer to chapter on User Settings.

To start the UPS on battery:

Check all the connection is correct.

Pressing  button continuously for more than 100ms, the UPS would be powered on. At this time the fan begins to rotate. Then LCD will show the default UPS status summary screen.

Pressing  button continuously for more than 1 second, the buzzer will beep for 300ms, UPS starts to turn on.

A few seconds later, the UPS turns into Battery mode. If the utility power comes back, the UPS will transfer to Line mode without output interruption of the UPS.

5.6.3 UPS shutdown with utility

To shut down the UPS with utility:

Pressing  button continuously for more than 3 seconds and the buzzer will beep 300ms. After that, the UPS will turn into Bypass mode at once.

When completing the above action, UPS output voltage is still present. In order to cut off the UPS output, simply cut off the utility power supply. A few seconds later, the ups will shut down and no output voltage is available from the UPS output terminal.

5.6.4 UPS shutdown without utility

To shut down the UPS without utility:

To power off the UPS by pressing  button continuously for more than 3 second, and the buzzer will beep for 300ms. The UPS will cut off the output at once.

A few seconds later, the ups will shut down and no voltage is available from the UPS output.

5.7 LCD operation

Except the default UPS status summary screen, the user can get more useful information about UPS status, detailed various measurements, previous event records which ever occurred, UPS own identification, and could change the settings to fit the user own requirements, optimize the function of UPS.

5.7.1 The main menu

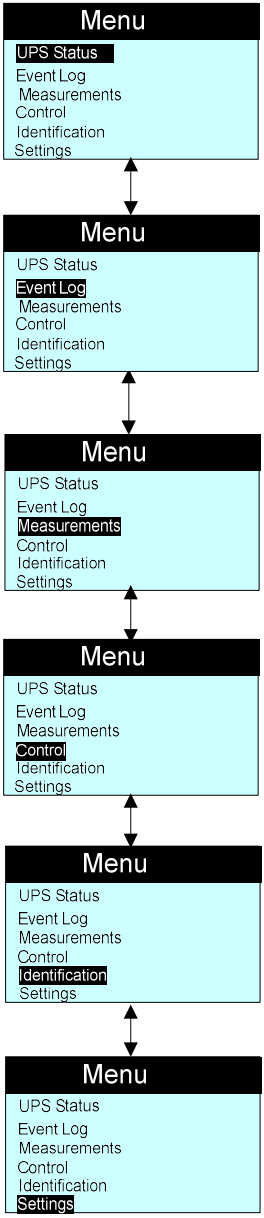
In the default UPS status summary screen, when pressing  or  for less than 300ms, the detailed information about alarm, battery, the system status would be shown.

In the default UPS status summary screen, when pressing 

for more than 300ms, the display would enter main menu tree.

The main menu tree includes six branches:

- UPS status menu,
- measurement menu,
- event log menu,
- control menu,
- identification menu
- settings menu.


Menu
UPS Status
Event Log
Measurements
Control
Identification
Settings
Menu
UPS Status
Event Log
Measurements
Control
Identification
Settings
Menu
UPS Status
Event Log
Measurements
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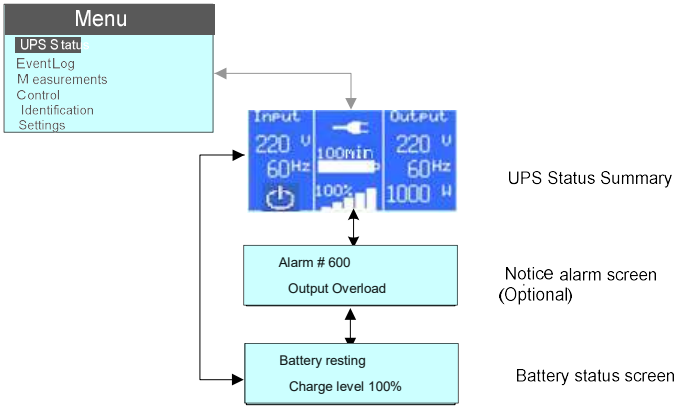
Event Log
Measurements
Control
Identification
Settings
Menu
UPS Status
Event Log
Measurements
Control
Identification
Settings

5.7.2 The UPS status menu

By pressing  on the menu of “UPS status”, the display would enter the next UPS status menu tree.

The content of UPS status menu tree is same as the default UPS status summary menu.

By pressing  for more than 300ms, the display would return the last main menu tree.

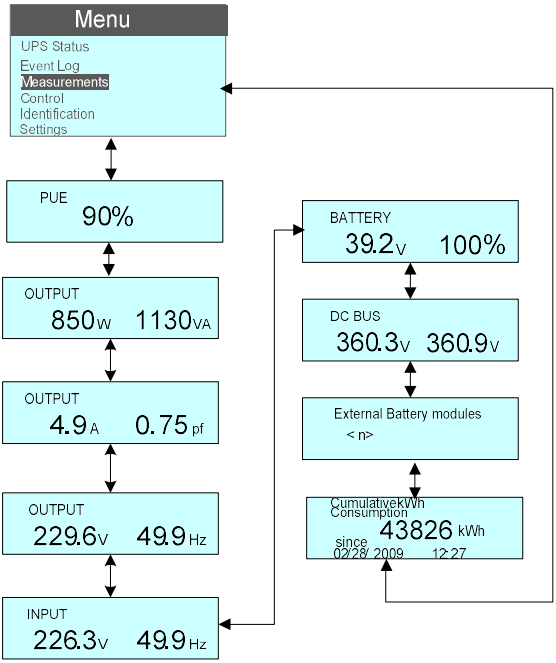


5.7.3 The measurement menu

By pressing  on the menu of “Measurement”, the display would enter the next measurement menu tree.

A lot of detailed useful information could be checked here, Ex. the output voltage and frequency, the output current, the load capacity, the input voltage and frequency, etc.

By pressing  for more than 300ms, the display will return to the last main menu tree.



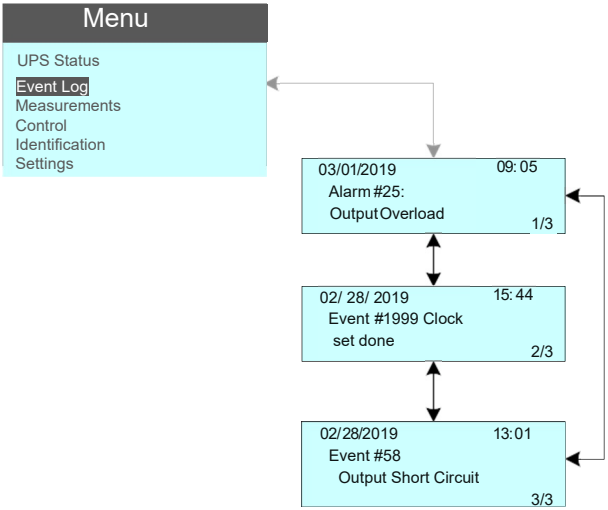
5.7.4 The event log menu

By pressing  on the menu of “Event log”, the display would enter the next event menu tree.

All the previous events, alarm and fault have been recorded here. The information includes the illustration, the event code, and the precise time of UPS when the event happened. By press  or  for less than 300ms, all the events could be displayed one by one.

The max number of records is 100, when the number is larger than 100, the latest will replace the previous.

By pressing ESC for more than 300ms, the display would return the last main menu tree.



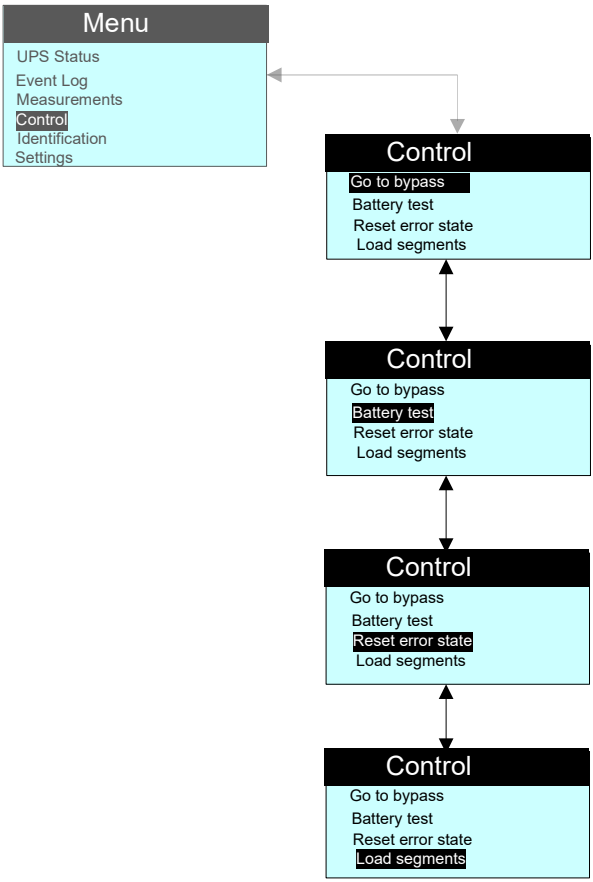
5.7.5 The control menu

By pressing on the menu of “Control”, the display would enter the next control menu tree.

Start Battery Test: this is one command that control the UPS to do the battery test.

Reset Fault status: when fault occurs, UPS would keep in Fault mode and alarm. To recover to normal status, enter this menu to reset error status, then UPS would stop alarm and recover to bypass mode. And the reason of fault should be checked and deleted before UPS is turned on again by manual operation.

Restore factory settings: all the settings would be recovered to default factory settings. It could only be done in Bypass mode.

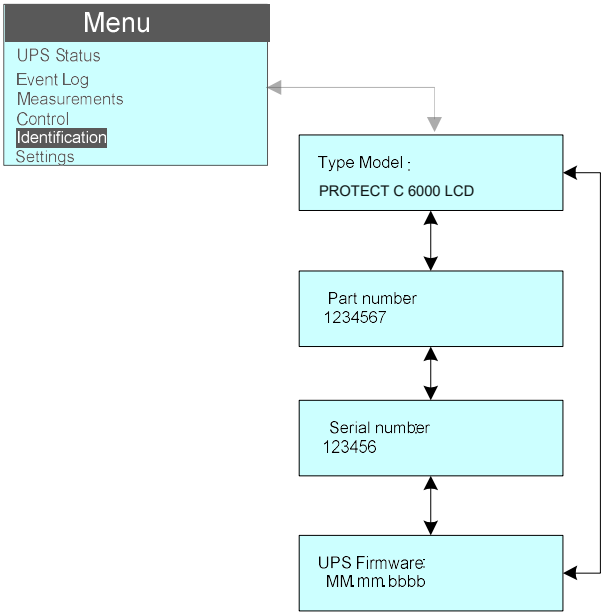

Menu
UPS Status
Event Log
Measurements
Control
Identification
Settings
Control
Go to bypass
Battery test
Reset error state
Load segments
Control
Go to bypass
Battery test
Reset error state
Load segments
Control
Go to bypass
Battery test
Reset error state
Load segments
Control
Go to bypass
Battery test
Reset error state
Load segments

5.7.6 The identification menu

By press  on the menu of “Identification”, the display would enter the next identification menu tree.

The identification information includes UPS serial number, firmware serial number, model type, would be shown here.

By press  for more than 300ms, the display would return the last main menu tree.

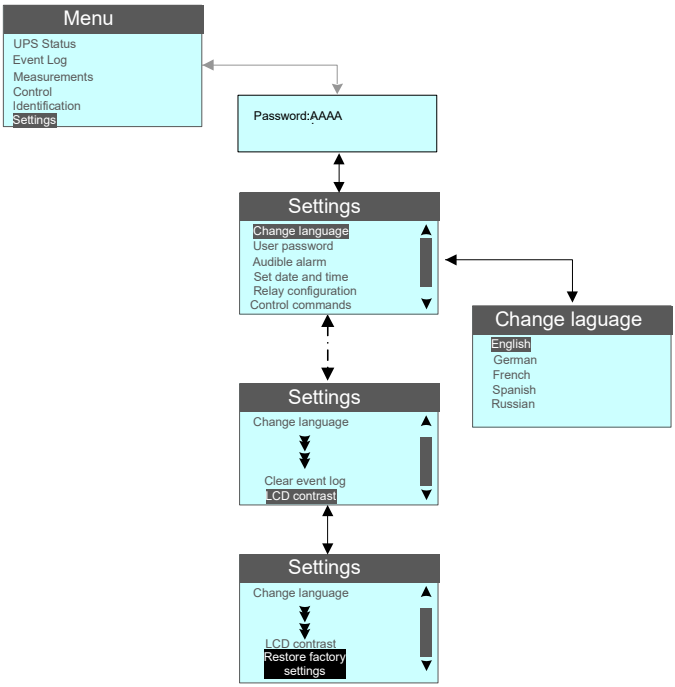


5.7.7 The setting menu

Please contact your local distributor for further information before using the settings. Some settings would be changed the specification, and some settings would enable or disable some functions. The unsuitable option setting by user may result in potential failures or protecting function loss, even directly damage the load, battery or UPS.

AH setting could be set via RS232 or USB communication. Default AH setting is disabled.

Most of settings could only be done while UPS is in Bypass mode



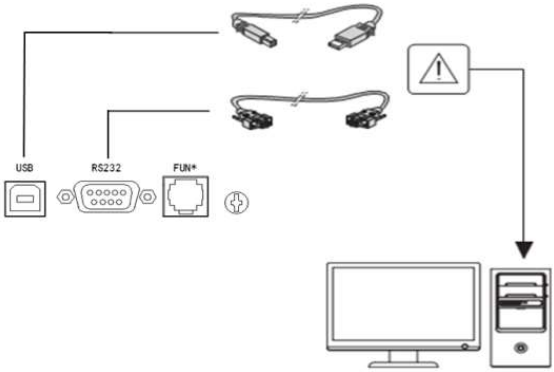
6. COMMUNICATION PORTS

6.1 RS232 or USB communication ports

The RS232 and USB communication ports cannot operate simultaneously.

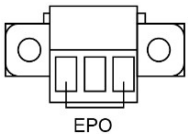
1. Communication cable to the serial or USB port on the computer.

2. Connect the other end of the communication cable to the RS232 or USB communication port on the UPS.



6.2 Emergency Power Off

The Emergency Power Off (EPO) interface provides an emergency power off function. When the EPO function is enabled (default setting), once the EPO electrical circuit has opened, the UPS would shut off the output and enter EPO mode. The UPS would not respond to ON/OFF command unless the electrical circuit is closed again.

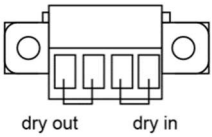


6.3 Dry input & Dry output contacts

NOTE: Dry input and output contacts settings are programmable via LCD User interface.

Dry input contacts allow remote action to switch On / switch Off / maintain bypass the UPS. Depending on user selection, when contact changes from closed to open, the UPS is switch On / switch Off / maintain bypass the UPS.

The Dry out port is normally closed, if the Dry out port is open depending on user selection, it indicates that the UPS is Loaded power / On battery mode / Battery low / Battery disconnected / Bypass output / UPS normal.



6.4 Intelligent Card (Optional)

Intelligent Card allow the UPS to communicate with different types of devices in variety of networking environments. The Online series has one available communication bay for the following connectivity cards:

1. Connect UPS-MS Web/SNMP Card – has SNMP and HTTP capabilities as well as monitoring through a Web browser interface; connects to a twisted-pair Ethernet (10/100BaseT) network. In addition.

2. MODBUS card provides connection to Modbus protocol with standard RS485 signal.

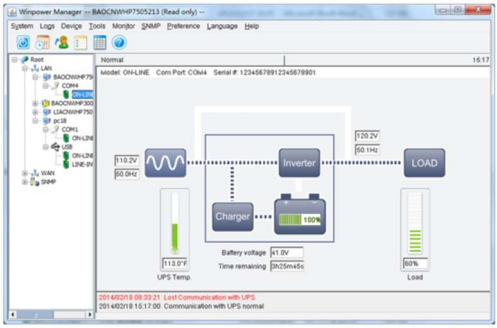
3. This series UPS has AS400 card (an optional accessory) for AS400 communication protocol. Please contact your local distributor for details.

6.5 UPS Management Software

For the UPS settings, management and shutdown scheduling AEG can propose two different solutions:

- Advanced software package CompuWatch
- Lite software package WinPower

For more details, please visit www.aegps.com under Products / Monitoring Solutions. There you can download software package and documentation.



WinPower

CompuWatch

7. TROUBLESHOOTING

To check the Event log:

1. By pressing  on the menu of “Event log”.
2. Scroll through the listed events or faults.
3. The following table describes typical conditions.

Conditions	Possible cause	Action
Battery mode Battery (Orange) LED is On. 1 beep every 4 seconds. Code: 168	A utility failure has occurred, and the UPS is in Battery mode.	The UPS is powering the equipment with battery power. Prepare your equipment for shutdown.
Battery low Battery (Orange) LED is On. 1 beep every 1 second. Code: 56	The UPS is in Battery mode and the battery is running low.	This warning is approximate, and the actual time to shutdown may vary significantly. Depending on the UPS load and number of Extended Battery Modules (EXTERNAL BATTERY MODULE s), the "Battery Low" warning may occur before the batteries reach 20% capacity.
No battery Fault (Red) LED is Flash 1beep every 1 second Code: 199	The batteries are disconnected.	Verify that all batteries are properly connected. If the condition persists, contact your service representative.

Bypass mode Bypass (Orange) LED is on. Code: 169	An overload or a fault has occurred, or a command has been received and the UPS is in Bypass mode	Equipment is powered but not protected by the UPS. Check for one of the following alarms: over temperature, overload or UPS failure.
Power overload Fault (Red) LED is Flash 2beep every 1 second Code: 25	Power requirements exceed the UPS capacity	Remove some of the equipment from the UPS. The UPS continues to operate but may switch to Bypass mode or shut down if the load increases. The alarm resets when the condition becomes inactive.
UPS over temperature Fault (Red) LED is On. Beep continuous. Code: 73	The UPS internal heat sink temperature is too high or a fan has failed. At the warning level, the UPS generates the alarm but remains in the current operating state. If the temperature rises another 2°C, the UPS transfers to Bypass mode or Standby mode.	Clear vents and remove any heat sources. Allow the UPS to cool. Ensure the airflow around the UPS is not restricted. Restart the UPS. If the condition continues to persist, contact your service representative.
ON Maintenance Bypass Bypass (Orange) LED is on. Code: 144	UPS was manually commanded to switch to bypass and will remain in bypass until commanded out of bypass	Check the maintain bypass switch status

In HE Mode Line (green) LED is on. Code: 227	The UPS is on bypass while operating on the High Efficiency setting.	The equipment transferred to bypass utility power as a normal function of High Efficiency operation. Battery mode is available, and your equipment is protected.
Site Wiring Fault Fault (Red) LED is flash 1beep every 1 second Code: 194	Site Fault detection is supported on all models anytime there is a Grounding Neutral connection. Alarm triggers when the difference between ground and neutral voltage is > 15v.	Site Fault detection should be enabled by default. It can still be enabled / disabled from the LCD settings menu. Reconnect all input wires.
Back feed Fault (Red) LED is On. Beep continuous. Code: 195	UPS has an unexpected bypass current on battery mode	Transfer to maintenance bypass and call service.
Inv Overload Fault Fault (Red) LED is On Beep continuous. Code: 25	UPS has transferred to bypass or fault mode because of overload in inverter mode	The UPS transfers to Battery mode if supporting the load. Remove some of the equipment from the UPS
Bypass Overload Fault Fault (Red) LED is On. Beep continuous. Code: 25	UPS has cut off the output and transferred to fault mode because of overload in bypass mode or HE mode.	Remove some of the equipment from the UPS

Output Short Circuit Fault (Red) LED is On. Beep continuous. Code: 58	Indicates that the UPS has detected abnormally low impedance placed on its output and considers it a short circuit	Remove all the loads. Turn off the UPS. Check if UPS output and loads is short circuit. Ensure short circuit is removed before turning on again.
Fan Failure Fault (Red) LED is flash 1 beep every 1 second Code: 193	Indicates that the fan could not work normally	Check fans of UPS
BUS Over Voltage Fault (Red) LED is On. Beep continuous. Code: 28	Indicates that the UPS get BUS over voltage fault because of BUS.	The UPS transfers to Bypass mode if supporting the load
BUS Under Voltage Fault (Red) LED is On. Beep continuous. Code: 29	Indicates that the UPS get BUS under voltage fault	The UPS transfers to Bypass mode if supporting the load
BUS Unbalance Fault (Red) LED is On. Beep continuous. Code: 1234	Indicates that the positive BUS voltage and negative BUS voltage are too lopsided to fault	The UPS transfers to Bypass mode if supporting the load
BUS Softstart Fail Fault (Red) LED is On. Beep continuous. Code: 30	Indicates that the BUS could not soft start successfully	Contact your service representative
Inv Over Voltage Fault (Red) LED is On. Beep continuous. Code: 0	Indicates that the UPS get invert over voltage fault	The UPS transfers to Bypass mode if supporting the load
Inv Under Voltage Fault (Red) LED is On. Beep continuous. Code: 1	Indicates that the UPS get inverter under voltage fault	The UPS transfers to Bypass mode if supporting the load
Inv Soft start Fail Fault (Red) LED is On. Beep continuous. Code: 31	Indicates that the inverter could not soft start successfully	Contact your service representative

Charger Fail Fault (Red) LED is flashing 1 beep every 1 second Code: 34	Indicates that the UPS has confirmed the charger has failed	The UPS turns off the charger until the next power recycle. Contact your service representative
Battery Over Voltage Fault (Red) LED is On. Beep continuous. Code: 68	Indicates that the battery voltage is too high	The UPS will turn off the charger until the battery voltage is normal
Negative power Fault Fault (Red) LED is On. Beep continuous. Code: 131	In parallel system, power of UPS is negative	Redundancy mode is on, the fault UPS turn to fault mode without output Increase mode, UPS1& UPS2 turn to fault mode
Parallel cable loss Fault (Red) LED is On. Beep continuous. Code: 130	In parallel system, parallel cable disconnected	Disconnect parallel cable one turn to fault mode
Parallel system battery status Fault (Red) LED is flash 1 beep every 1 second Code: 134	UPS1 connect battery , UPS2 without battery	Check battery connect status

Line input different Fault (Red) LED is flash 1 beep every 1 second Code: 132	Parallel system, UPS1 line ok, UPS2 line loss	Check the line input
Power strategy different Fault (Red) LED is flash 1 beep every 1 second Code: 135	In parallel system, UPS mode (normal, converter, HE) is different	Check UPS operating mode and keep operating mode the same on all systems
Rate power different Fault (Red) LED is flash 1 beep every 1 second Code: 137	Parallel system rate power different	Rated power is different, not allowed to turn on UPS. Keep rated power the same on all systems
HE in parallel Fault (Red) LED is flash 1 beep every 1 second Code: 136	Parallel system, UPS mode set as HE	HE not allowed in parallel system, change UPS mode

7.1 Silencing the alarm

Press the 

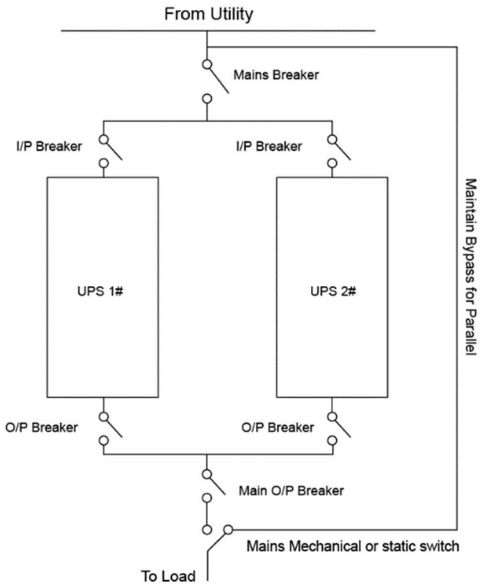
button for 3s on the front panel display to silence the alarm. Check the alarm condition and perform the applicable action to resolve the condition.

If the alarm status changes or press the 

button 3s on the front panel display, the alarm beeps again, overriding the previous alarm silencing.

8. PARALLEL OPERATION

As long as the UPS is equipped with parallel board and parallel cables, up to 3 UPSs can be connected in parallel to configure a sharing and redundant output power.

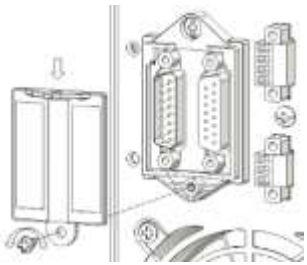


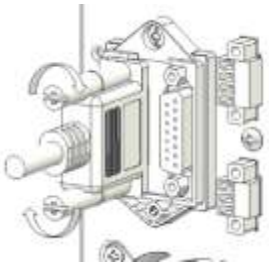
8.1 How to install a new parallel UPS system

1) Before installing a new parallel UPS system, please prepare the input /output wires, breakers, and a main maintenance mechanical switch or static switch.

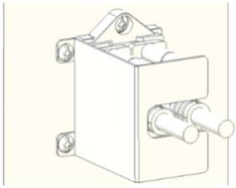
2) Independent battery packs for each UPS.

3) Remove the cover plate of parallel port on the UPS, connect each UPS one by one with parallel cable, and make sure the cable is screwed tightly.

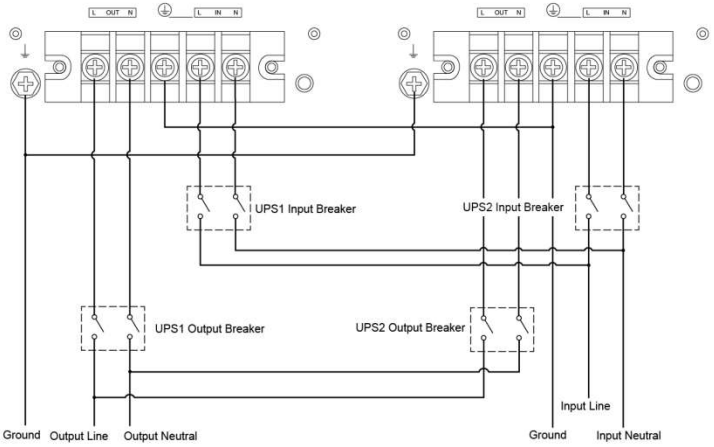




4) Install ‘cable locker’ to protect the ‘parallel cable’ for each UPS.



5) Connect the input and output wires and make sure all the breakers are turned off.



6) Turn on the input breakers for the parallel UPS.

7) Pressing  button continuously for more than 1 second for one UPS of the system, then the system will turn to line mode.

8) Regulate the output voltage of each UPS separately, and check if the difference of output voltage is less than 0.5V among the parallel system. If the difference is more than 0.5V, the UPS need to be regulated.

9) If the difference output voltage is less than 0.5V, turn off the input breakers to let UPS shut down. And then switch on the output breakers for all the UPS.

10) Switch on the input breakers for the parallel UPS. Pressing  button continuously more than 1 second for one UPS of the system, then the system will turn to line mode, after these operations, the system will work normally in parallel mode.

Note: **The output wiring requirement as below**:

1) If the distance between the UPS and breaker panel is less than 20 meters in parallel system, the length difference between input and output cable of the UPSs is required to be less than 20%.

2) If the distance between the UPS and breaker panel is more than 20 meters in parallel system, the length difference between input and output cable of the UPSs is required to be less than 5%.

8.2 How to join a new UPS to parallel system:

1) Firstly, a main maintenance mechanical switch or static switch should be installed for the parallel system.

2) Regulate the output voltage of the new UPS: check if the output voltage difference between the new UPS and the parallel system is less than 0.5V.

3) Ensure the bypass of the parallel system is normal and the auto bypass setting is “enabled”, then press the  button to turn off the UPS, the UPS will turn to bypass mode.

4) Set the main maintenance switch or static switch from “UPS” to “BPS”, then switch off the main output breaker, input breaker and mains breaker, then the UPS will shut down.

5) Connect the cable and wire for the new ups.

6) Switch on the input breakers and mains breaker, and make sure that every UPS work in bypass mode.

7) Switch on the O/P breakers and main O/P breaker transfer the main maintenance switch or static switch from “BPS” to “UPS”.

8) Press the  button of one UPS, all the ups will turn on, after that, the system will work in Line mode.

8.3 How to remove a single UPS from parallel system:

1) Firstly, a main maintenance mechanical switch or static switch should be installed for the parallel system.

2) Ensure the bypass is normal and the auto bypass setting is "enabled", press the  button to turn off the UPS system, and the UPS system will turn to bypass mode.

3) Transfer the main maintenance switch or static switch from "UPS" to "BPS", then switch off the output breakers, input breakers and mains breaker in the parallel system, and the UPS will shut down.

4) Switch off the main O/P breaker and O/P breaker in the parallel system.

5) Remove the wanted UPS and disconnect cables/wires.

6) Switch on the mains breaker and input breaker of the reserved UPS, make sure the UPS work in bypass mode.

7) Switch on the O/P breaker and main O/P breaker.

8) Transfer the main maintenance switch or static switch from "BPS" to "UPS" and press the  button to turn on the UPS, and the UPS will turn on to Line mode.

8.4 How to remove all the UPS from parallel system

1) Firstly, a main maintenance mechanical switch or static switch should be installed for the parallel system.

2) Ensure the bypass is normal and the auto bypass setting is "enabled", press the  button to turn off the UPS system, and the UPS system will turn to bypass mode.

3) Transfer the main maintenance switch or static switch from "UPS" to "BPS", then switch off the output breakers, input breakers and mains breaker in the parallel system, and the UPS will shut down. The line will power the load via maintenance mechanical switch or static.

9. MAINTENANCE

9.1 Equipment care

For the best preventive maintenance, keep the area around the equipment clean and dust free. If the atmosphere is very dusty, clean the outside of the system with a vacuum cleaner.

For full battery life, keep the equipment at an ambient temperature of 25°C (77°F).

If the UPS requires any type of transportation, verify that the UPS is disconnected and turned off. The batteries are rated for a 3-5 years of service life. The length of 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.

9.2 Storing the equipment

If you store the equipment for a long period, recharge the battery every 6 months by connecting the UPS to utility power. The External Battery Module charge to 90% capacity in less than 3 hours.

However, recommends that the batteries charge for 48 hours after long-term storage.

If the date has passed and the batteries were never recharged, do not use them. Contact your service representative.

9.3 Replacing batteries

DO NOT DISCONNECT the batteries while the UPS is in Battery mode.

Consider all warnings, cautions, and notes before replacing batteries.

- Servicing should be performed by qualified service personnel with knowledgeable of batteries and required precautions. Keep unauthorized personnel away from batteries.

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

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

- When replacing batteries, replace with the same type and number of batteries or battery packs. Contact your service representative to order new batteries.
- Proper disposal of batteries is required. Refer to your local codes for disposal requirements.
- Never dispose of batteries in a fire. Batteries may explode when exposed to flame.
- Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes and may be extremely toxic.
- Take care if the battery is inadvertently grounded. If grounded, remove source from ground. Contact with any part of a grounded battery may cause electrical shock.
- The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance (applicable to equipment and remote battery supplies not having a grounded supply circuit).
- ELECTRIC ENERGY HAZARD. Do not attempt to alter any battery wiring or connectors. It may cause injury.
- Please disconnect battery charging source before battery replacing or maintenance.

9.3.1 Replacing the External Battery Module

NOTE: Extended Battery Module cabinet, refers to Protect C 6000 /10000 BP LCD cabinet

The External Battery Module is heavy. Lifting the cabinet into a rack requires two people at least.

Turn the MBS to bypass and switch off the input and then replace the External Battery Module (s).

To replace the External Battery Module (s):

1. Unplug the External Battery Module power cable from the UPS. If additional External Battery Module (s) are installed, unplug the power cable from each External Battery Module.

2. Replace the External Battery Module (s). See "Recycling the used equipment" refer to chapter 9.5 for proper disposal.

A small amount of arcing may occur when connecting the External Battery Module to UPS. This is normal and will not harm personnel. Please connect the External Battery Module cable to the UPS quickly and firmly.

3. Plug the External Battery Module cable(s) into the battery connector(s).

4. Verify that the External Battery Module connections are tight, and there are adequate bend radius and strain relief exist for each cable.

9.3.2 Testing new batteries

1. Charge the batteries for 48 hours.
2. By pressing  on the menu of “Control”.
3. Select Control then Single battery test.

The UPS can start battery test only in line mode without active alarms. 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.

9.4 Recycling the used equipment

Contact your local recycling or hazardous waste center for information on proper disposal of the used equipment.

Do not dispose of the batteries in the fire. Which may cause battery explosion. The batteries must be rightly disposed according to local regulation.

Do not open or destroy the batteries. Escaping electrolyte can cause injury to the skin and eyes. It may be toxic.

Do not discard the UPS or the UPS batteries in the trash. This product contains sealed, lead acid batteries and must be disposed of properly. For more information, contact your local recycling/ reuse or hazardous waste center.

Do not discard waste electrical or electronic equipment (WEEE) in the trash. For proper disposal, contact your local recycling/reuse or hazardous waste center.

The UPS is designed for durable, automatic operation and also alert you whenever potential operating problems may occur. Usually the alarms

shown by 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 = "Battery charging".

- 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.

Use the troubleshooting chart to determine the UPS alarm condition.

9.5 Disposal

This section tells you how to dispose of the individual components of the equipment.

• **Packaging**: Dispose of the stretch plastic film and the moulded parts made from polyethylene foam with normal industrial waste. They are chemically inactive and can be disposed of or recycled.

• **Metal parts**: Take metal parts to a scrap metal dealer. The equipment housing, the lines, the inverter, the rectifier and the transformers can be recycled via normal routes.

• **Electronics components**: Take the electronics components to a recycling company which specialises in disposing of electronics components.

• **Batteries**: Follow the specifications set out by the battery manufacturer for toxic and hazardous substances.

Batteries must be removed from all parts of the equipment and disposed of in accordance with the regulations for toxic and hazardous substances.

• **Other components**: Dispose of rubber seals and plastic parts with industrial waste. They can be disposed of or recycled.

Electrical and electronics waste must only be disposed of in compliance with local legislation and regulations.

Never dispose of used batteries or battery material with refuse. Ensure compliance with local legislation and regulations governing the storage, handling and disposal of batteries and battery material.

10. GLOSSARY

Bypass AC source	Source supplying the bypass line. The equipment can be transferred to the bypass line if an overload occurs on the UPS output, for maintenance or in the event of a malfunction.
Frequency converter	Operating mode used to convert the AC-power frequency between the UPS input and output (50Hz -> 60Hz or 60Hz -> 50Hz).
Low-battery warning	This is a battery-voltage level indicating that battery power is low and that the user must take action to prevent the imminent break in the supply of power to the load.
Backup time	Time during which the load can be supplied by the UPS operating on battery power.
Load	Devices or equipment connected to the UPS output.
HE mode	Operating mode by which the load is supplied directly by the AC source if it is within the tolerances defined by the user. This mode reduces the consumption of electrical power
Manual bypass	Rotary switch controlled by the user, used to connect the loads directly to the AC source. Transfer of the load to the manual bypass enables UPS maintenance without interrupting the supply of power to the connected loads.
Normal (double conversion) mode	The normal UPS operating mode in which the AC source supplies the UPS which in turn supplies the connected loads (after electronic double conversion).
Normal AC source	Normal source of power for the UPS.
Relay contacts	Contacts supplying information to the user in the form of signals.
UPS	Uninterruptible Power Supply.

Certificate of guarantee

Model:

Serial number:

Date of purchase:

Trading stamp / Signature

Specifications are subject to change without notice

Operating instructions
8000068305 BAL, EN

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