User manual

ONLINE XANTO series
Models 700 – 3000

Germany

ONLINE USV-Systeme AG
Luise-Ullrich-Str. 8
D-82031 Grünwald

Phone +49 (89) 2423990-10
Fax +49 (89) 2423990-20

www.online-usv.de

Italy

ONLINE UPS-Systems S.r.l.
Via Ferruccio Gilera 110
I-20862 Arcore (MB)

Phone +39 (039) 2051444
Fax +39 (039) 2051435

www.online-ups.it

Switzerland

ONLINE USV-Systeme AG
c/o POTESTA AG
Hertistrasse 29
8304 Wallisellen (Zürich)

Phone +49 (89) 242399010
Fax +49 (89) 242399020

www.online-usv.ch

Content

List of Illustrations

List of tables

1. Introduction

ONLINE USV-Systeme AG (ONLINE) is one of the leading manufacturers of uninterruptible power supplies (UPS). Since 1988, the German company has focussed on the development, production, sale and support of UPS systems. Based on unit numbers sold, ONLINE products are the German number one in the UPS market and internationally recognised because of their top quality and excellent support.

The power supply often fails when you least expect it. There can also be significant fluctuation in the quality of the power supply. Network problems can lead to the corruption of critical data, data which is not backed up can be lost and hardware damaged. This means expensive repairs and downtime.

Models in the XANTO range from ONLINE are the best way of preparing for these kinds of scenarios. These UPS system offer top class power supply protection for your delicate electronic systems. They protect against the most common supply problems such as power outage, voltage blips, surge voltage and low voltage, voltage drops, interference, switching and voltage peaks, frequency deviations and harmonic distortion.

XANTO reliably protects your systems from power supply problems and the functionality of the devices is retained. As well as first-class performance and reliability, XANTO has the following unique benefits:

- True double conversion technology (VFI-SS-111)
- Pioneering power factor 1.0
- Pure sinewave output voltage
- Frequency converter operation
- Automatic and manual bypass
- Scalable autonomy time with additional battery packages
- Efficiency >97%
- Rack-tower-versatile models in space-saving 2U size
- Battery deep-discharge-protection
- Cold-start function, starting the UPS system without main power
- Switchable output sockets to increase the backup time for critical loads
- Surge protection for data and telephone wires
- Steplessly controlled fan
- RS-232 and USB interface

- Slot for optional SNMP adapter or AS400-/ dry-contact interface-card
- Emergency-off function (EPO = Emergency Power Off)
- 2 years warranty including battery and 24 hours free exchange in advance

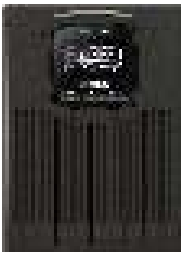


Figure 1: XANTO 700 - 1500

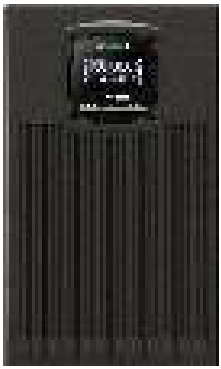


Figure 2: XANTO 2000 - 3000

Figure 3: XANTO 700R - 3000R in the rack

Figure 4: XANTO 700R – 3000R as tower

2. Safety warnings

This manual contains important instructions that you must follow during the installation and maintenance of the UPS system and the batteries. Please read all the instructions in the manual before working with the device. Keep the manual in a safe place.

CAUTION

- The UPS system carries life-threatening voltages. All repair and maintenance work must be carried out by customer service personnel.
- The UPS system has its own energy source (batteries). The output of the UPS system can be live even when the UPS system is not connected to a source of alternating current.
- In order to reduce the risk of fire or electric shock, the UPS system may only be installed in buildings with controlled temperature and air humidity in which there are no conductive contaminants. The ambient temperature must not exceed 40°C. The UPS system must not be operated near water or in extremely high air humidity (>90%).
- Before transporting the UPS system, make sure that it is disconnected from the power supply and switched off.
- Batteries can pose a risk of electric shock or catch fire as a result of high short circuit current. Please take the necessary precautionary measures. Maintenance must be carried out by qualified personnel who are trained in handling batteries and have good knowledge of the necessary precautionary measures (see Chapter *Maintenance)*. keep unauthorised personnel away from batteries
- Batteries must be disposed of properly. Local regulations must be taken into consideration.
- Batteries must not be burnt. There is risk of explosion.

3. Installation

3.1 Checking the delivery

Keep the transport box and the packaging material for the carrier or sales point. If parts of the system have been damaged in transit, submit a transport damage complaint to your supplier within 24 hours. If you only discover damage after accepting the device, please submit a complaint for concealed damage.

3.2 Unpacking the UPS system

CAUTION

- Unpacking the UPS system at a low ambient temperature can lead to the formation of condensation inside and outside the casing. Only install the UPS system if the inside and outside are completely dry (risk of electric shock).
- The UPS system is very heavy (see Chap. 8 *Technical data*). Be careful when unpacking and transporting the UPS.

PLEASE NOTE

Move and open the packaged UPS system carefully. Leave the components in their packaging until they are installed.

To unpack the UPS system and accessories:

1. Open the external box and take the accessories packed with the UPS system out.
2. Carefully lift the UPS system out of the external box.
3. Place the UPS system in a protected, adequately ventilated position which is free of humidity, flammable gasses and corrosion.

3.3 Checking the accessories

Description	XANTO 700	XANTO 1000	XANTO 1500	XANTO 2000	XANTO 3000	XANTO 1000 / 1500 battery pack	XANTO 2000 battery pack	XANTO 3000 battery pack	XANTO 700R	XANTO 1000R	XANTO 1500R	XANTO 2000R	XANTO 3000R	XANTO 1000R / 1500R	XANTO 2000R battery pack	XANTO 3000R battery pack
19"mounting bracket (left and right)									2	2	2	2	2	2	2	2
Feet for tower mounting (sets)									2	2	2	2	2			
Extension for feet for tower fitting														2	2	2
USB interface cable	1	1	1	1	1				1	1	1	1	1			
10A IEC extension cable	2	3	3	4	4				2	3	3	4	4			
16A mainpower cable				1	1							1	1			
Battery cable						1	1	1						1	1	1
Quick start guide	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
DataWatch software*																
Manual*																

*Download from www.online-ups.com

Table 1: Package contents

3.4 Installation as tower, activating battery

The UPS system is delivered fully assembled.

> **CAUTION**
>
> The casing is very heavy (see Chap. 8 *Technical Data)*.

1. Position the UPS system on an even, stable surface for its final location.
2. If you install additional battery packs, position them next to the UPS system.
3. In pure tower models (Art.-No. X700 – X3000) the battery is connect
4. JUST RACK-TOWER-VERSATILE MODELS:

   If you have purchased a rack-tower-versatile model (Art.-No. X700R – X3000R), for safety reasons, the UPS system is delivered without the batteries connected. To order to activate the battery, remove the front panel. To do this, pull them to the front side of the UPS-system. Now connect the two red battery connectors to one another. Finally, fit the front panel by reversing the sequence.

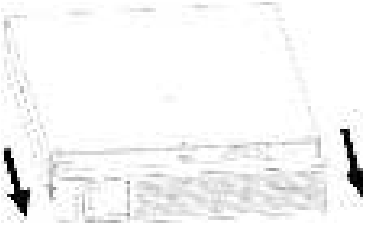


Figure 5: Removing the frontpanel

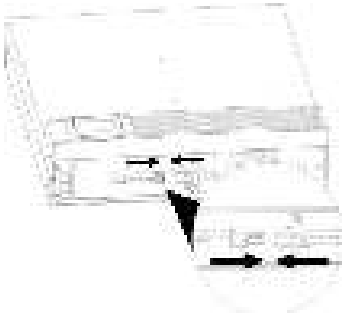


Figure 6: Connecting the battery

5. You can also install this rack-tower-versatile model as a tower. To do this, connect the two components to one foot (see Figure 7) and push the UPS system into the two feet from above (see Figure 8). Make sure the distance between the two feet is as great as possible to ensure stability. If you are using additional battery packs, use the extension plates for the foots.

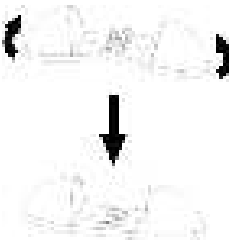


Figure 7: Foot mounting

Figure 8: Installation of the rack-tower-versatile model as a tower

Connecting additional battery packs

1. In order to install additional battery packs, remove the covers of the battery connector on the back of the UPS system and the battery packs, see Chap. 8.6 *Rear view*. If you are installing multiple battery packs, remove all the covers apart from the “V DC Input” cover on the last battery pack. Keep the covers and the screws.
2. Connect all plug connections between the battery packs and the UPS system. This involves connecting the “VDC Output” output on a battery pack with the “VDC Input” on the upstream battery pack. The battery pack connected directly to the UPS system is connected to the “VDC Input” on the UPS system. A maximum of seven battery packs can be connected to the UPS system.
3. Enter the number of battery packs used in menu no. 7 (see Chapter 4.3 *Settings*).
4. Continue the getting started process (see Chap. 3.6)

3.5 Installation in a rack, activating the batteries

The UPS system is delivered fully assembled.

⚠	CAUTION

The casing is very heavy (see Chap. 8 *Technical data).*

Optional slide rails (article no. Rack Kit) are available for the rack model. The slide rails fit 48 cm (19 inch) racks with a depth of 48 to 78 cm.

1. Fit the rack kit (separate assembly instructions provided with the rack kit).
2. Adjust the display direction for horizontal rack installation. To do this, pull the frontpanel to the frontside of the UPS-system. Push the plastic clips apart and pull the display out of the holder. Push it 90 degrees anticlockwise and insert it back into the front panel.

Figure 9: Removing the frontpanel

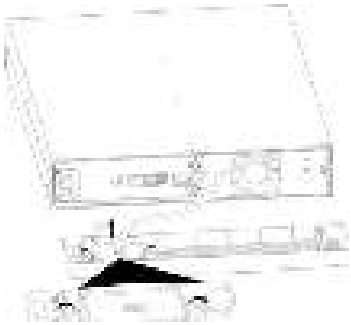


Figure 10: Turning the display

3. For safety reasons, the UPS system is delivered without the batteries connected. To activate the battery connect the two red battery connectors to one another.

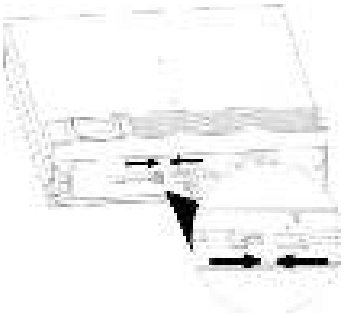


Figure 11: Connecting the battery

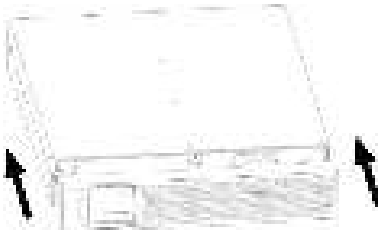


Figure 12: Mounting the frontpanel

4. Finally, fit the front panel by reversing the sequence.
5. Align the mounting bracket (L = left and R = right) with the screw holes on either side of the UPS system and affix it using the M4 x 8 countersunk screws provided (see **Fehler! Verweisquelle konnte nicht gefunden werden.**).
6. Push the UPS system into the rack.
7. Secure the mounting bracket of the UPS system in the rack (see **Fehler! Verweisquelle konnte nicht gefunden werden.*Fehler! Verweisquelle konnte nicht gefunden werden.***).

Figure 13: Mounting the brackets

Figure 14: Fitting in a rack

8. Continue the getting started process (see Chapter 3.6).

Connecting additional battery packs

1. In order to install additional battery packs, remove the covers of the battery connector on the back of the UPS system and the battery packs, see Chap. 8.6 *Rear view*. If you are installing multiple battery packs, remove all the covers apart from the “V

DC Input" cover on the last battery pack. Keep the covers and the screws.

2. Connect all plug connections between the battery packs and the UPS system. This involves connecting the "VDC Output" output on a battery pack with the "VDC Input" on the upstream battery pack. The battery pack connected directly to the UPS system is connected to the "VDC Input" on the UPS system. A maximum of seven battery packs can be connected to the UPS system.
3. Enter the number of battery packs used in menu no. 7 (see Chapter 4.3 *Settings*).
4. Continue the getting started process (see Chap. 3.6)

3.6 Getting started

PLEASE NOTE

Make sure that the overall rated performance of the load connected does not exceed the capacity of the UPS system. The power consumption of inductive loads or laser printers can be very high, please take this into consideration when specifying your UPS system.

1. If you install additional battery packs, make sure they are properly connected (see Chap. 3.4, 3.5) and the battery fuse on the back of the battery packs is switched on.
2. Connect the load with the UPS system without switching them on. Make sure that the UPS system has two groups of output sockets. The programmable output sockets can be switched independently of the remaining sockets. The programmable output sockets are primarily designed for less critical load which cannot be brought down using software. Critical load should not be connected to the programmable output sockets.
3. Connect the power supply cable (supplied with the XANTO 2000 and 3000) for the UPS system into a socket. The display on the UPS system shows "Sb",
4. Hold the "ON / / " button on the UPS system down until you hear a short beep.

5. The UPS system carries out a self-test, after which “OK” appears on the display. The UPS system is now operating in normal mode and supplying the load with reliable power.
6. If an additional emergency power off switch has been installed, the emergency stop function needs to be tested.
7. Switch the load on one by one.

PLEASE NOTE

The internal batteries charge up to 90% of their full capacity in less than four hours. ONLINE recommends charging the batteries for 48 hours after installation or extended periods of non-use.

The batteries start to charge as soon as the UPS system is connected to the supply network and supplied with power, irrespective of the operating mode.

Starting in battery mode

1. Hold the “ON / / ” button on the UPS system down until you hear a beep.
2. The UPS system is starting, the display then shows the battery status (see Chap. 4.4 *Operating statuses*) and supplies the load connected with reliable power.
3. If the display is lit, fix all warnings (see Chap. 7.3 *Troubleshooting*) and restart the UPS system.

Switching off

1. Hold the “OFF / ” button on the UPS system down for 2 seconds. When the continuous beep ends, the UPS system switches to standby mode.

PLEASE NOTE

If the “OFF / ” button is released after less than 2 seconds, the unit is not switched off.

2. Disconnect the mains connection cable of the UPS system from the socket. The display on the UPS system goes out after a short time and the UPS system switches off completely.

4. Operation

4.1 Control panel

The UPS system has a control panel with three buttons and a graphical display (see Figure 15).

Figure 15: Control panel and display

Button	Function	
ON / ✚ / ▲	Switch on	In standby mode: Press button for more than 2 seconds
	Alarm signal OFF	In battery mode: Press button for more than 2 seconds, not valid if there are warnings or error messages
	Back to top	In configuration mode: In previous menu
	Self-test	In normal, frequency converter or Eco mode: Press button for more than 2 seconds
OFF / ↵	Switch off	In normal mode: Hold the button down for longer than 2 seconds

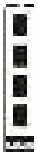
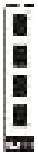
		(switch to standby or bypass mode, depending on the menu setting)
	Selection	In configuration mode: Press the button to apply the selection
SELECT / ☛	Switch over	In normal mode: Switching the display from input voltage, frequency and current, battery voltage, current and capacity, UPS internal temperature, output voltage, frequency and current, load
	Configuration mode	In standby mode: Press button for longer than 2 seconds to start configuration mode
	Down	In configuration mode: Back to menu
ON + SELECT	Manual bypass mode	In normal mode: Press both buttons for longer than 2 seconds to switch to bypass mode. (Depending on the input voltage). In order to exit bypass mode / switch back to normal mode, press both buttons at once until the permanent beeping stops. Not available in frequency converter mode.
	Exit	In configuration mode: Press both buttons to revert from the sub-menu to the main menu or, if you are in the main menu, to exit configuration mode immediately.

Table 2: Descriptions of display

PLEASE NOTE

During the function of battery test, the batteries must be completely charged and the UPS system must be in normal mode.

4.2 Display and menu

Symbol	Description	Function
	Input, battery, temperature, output, load	Pressing the SELECT button in normal mode displays the following measurements: Input voltage, frequency and current, battery voltage, capacity and current, UPS internal temperature, output voltage, current and frequency, load in %.
	Autonomy time	Display of remaining autonomy time
	Load display	Displays the current load. Each segment represents 25 %. If all the segments are lit up, the UPS system is working at 100% load.
	Overload	Indicates that the UPS system is overloaded
	Programmable output sockets	Indicates actively programmed output sockets
	Battery display	Indicates the current battery capacity. Each segment represents 25 %. If all the segments are lit up, the battery is 100% charged.
	Battery empty	Battery symbol underneath battery display: Flashing indicates the battery capacity is almost empty
	Configuration	Display of configuration menu options. For further information, see Chap. 4.3 *Settings*
	Error	Display of error or alarm code. For complete table, see Chap. 7.1 *Error codes*
	Acoustic alarm	Displays a deactivated acoustic alarm, silent
	Input voltage	The UPS input is connected to the mains voltage
	Rectifier	Rectifier active, battery charging
	Inverter	Active inverter, the load on the output sockets are UPS-protected

Symbol	Description	Function
	Output sockets	Active UPS output
	Battery	Battery symbol in DC link: UPS system in battery mode
	Battery charging	Battery symbol in DC link: Battery in charging mode
	Bypass mode	Bypass mode, the load is supplied directly by the supply network without UPS protection
	High-efficiency mode	The UPS system is working in high-efficiency mode
CVCF	Frequency converters	The UPS system is working in frequency converter mode
PFC	Power factor correction	The power factor correction of the UPS system is active

Table 3: Display

Alarm	Description
Every 10 seconds	UPS system in bypass mode
Every 5 seconds	UPS system in battery mode
Every 2 seconds	Battery voltage low
Every second	Overload
Continuous tone	Error

Table 4: Acoustic alarm

Abbreviation	Display	Description
AAT		Time in battery mode
AC		Active Closed
AO		Active Open
BF		Battery Fault
BL		Battery Low
BP		Batterypack

BR		Battery Replace
BY		Bypass not within tolerance
CH		Charger
DIS		Disable
EAT		Remaining autonomy time
EE		EEPROM Error
ENA		Enable
EP		EPO / Emergency Power Off
ESC		Escape
FU		Bypass frequency not stable
NC		Battery not connected
OC		Battery overloaded
OI		Input voltage too high
OK		OK
OL		Overload
ON		On
SB		Standby
SD		Shudown
SF		Site Fault
TP		Temperature

Table 5: Overview of operating status

4.3 Settings

1. Open configuration menu: Switch to standby- or bypass mode and press button for 2 seconds.
2. Selection of menu options: Press or button until you reach the menu option you want (see Table 6: *Configuration menu*).
3. Select menu option: Press OFF / button.
4. Change menu setting: Press or button until you reach the setting you want (see Table 6: *Configuration menu*).
5. Confirm setting: Press OFF / button.
6. Exiting configuration menu: go to menu “00” or press and buttons at the same time.

Setting	Available options	Standard
	Select output voltage: [208] = 208V [220] = 220V [230] = 230V [240] = 240V	“230V”
	Frequency converter mode: Switch frequency converter mode on or off [ENA] = on (bypass mode not possible) [DIS] = off	“DIS”
	Output frequency: If frequency converter mode is possible, the output frequency is in normal and battery mode [50] = 50 Hz [60] = 60 Hz No function if menu 2: frequency converter mode = DIS	“50”
	High-efficiency mode: [ENA] = on [DIS] = off	“DIS”

	Bypass mode: If the UPS system is switched off, it is switched to bypass instead of standby mode. [ENA] = Enabled [DIS] = Disabled	"DIS"
	Battery deep discharge protection: Shutdown of all output sockets after time defined here. [0 – 999] = Shutdown after 0 to 999 seconds. [DIS] = Shutdown time dependent on battery capacity. Attention: If the setting is [0], shutdown is after 10 seconds.	"DIS"
	Number of additional battery packs: Selection of correct number of additional battery packs	"0"
	Autonomy time Select from display [AAT] = Remaining autonomy time [RAT] = Time in battery mode	
	Emergency power off function: [AO] = active open, emergency power off is active with emergency power off contact open [AC] = active close, emergency power off is active with emergency power off contact closed	"AO"
	External isolating transformer: If the function is activated, the switch from standby to UPS normal mode has a 90 degree phase shift and reduce the magnetisation current on the isolating transformer. If this function is disabled, the switch is in phase zero crossing. [ENA] = External isolating transformer allowed on UPS output [DIS] = External isolating transformer not allowed on UPS output	"DIS"
	Programmable output sockets: [ENA] = Enabled [DIS] = Disabled	"DIS"

	Shutdown time for programmable output sockets: [0 - 999] = Shutdown of programmable output sockets in battery mode after time defined here. Only available if “Programmable output sockets = active” and UPS system re-started after setting the time.	“999”
	Charging voltage: Boost voltage [2.25 – 2.40] = fine adjustment of boost load voltage from 2.25 to 2.4V / cell	2.36V / cell
	Charging voltage: Float voltage [2.20 – 2.30] = fine adjustment of float load voltage from 2.20 to 2.30V / cell	2.28V / cell
	Exit: Exiting configuration menu	

Table 6: Configuration menu

4.4 Operating statuses

The status of the UPS system is displayed on the control panel.

Normal operating mode

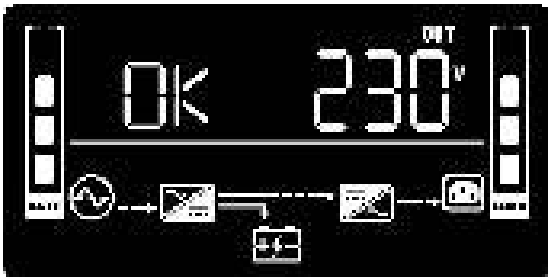


Figure 16: Display in normal mode

In normal mode, “OK” is shown on the display and the UPS system is fed by the supply network. The UPS system monitors the batteries and charges them as required. The load connected is supplied with reliable UPS power.

Battery mode

In battery mode, the following display appears:

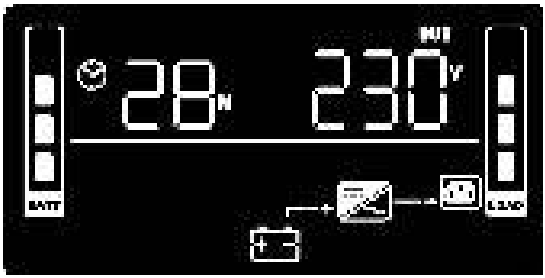


Figure 17: Battery mode display

At the same time, an acoustic alarm every 5 seconds indicates that the load connected are being supplied with battery power.

If the battery charge level is low in battery mode, “BL” is shown on the display. starts to flash and the alarm sounds every 2 seconds. The remaining autonomy time is low. Close all applications, as the UPS is about to shut down automatically.

If the battery is exhausted, the UPS system shuts itself down. All displays and the alarm are switched off.

If the supply network is restored after the UPS system has shut down, the UPS is automatically restarted. The batteries are charged up and the load connected is supplied with power.

Standby mode

If the UPS system is switched off and the power supply cable is connected, the UPS system works in standby mode. The following display appears:

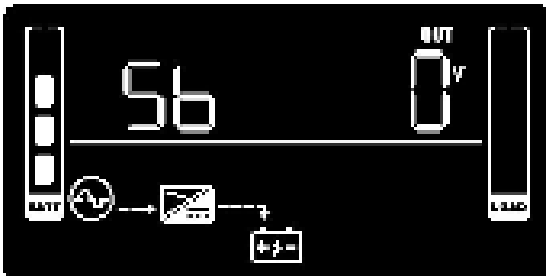


Figure 18: Display in standby mode

No power is available for the load connected. The battery is charged if necessary.

High-efficiency mode

In high-efficiency mode, the load are supplied via the bypass. The inverter is always ready for use at the same time. If the supply network is outside the tolerance, there is a smooth transition to normal mode.

The battery is charged in high-efficiency mode.

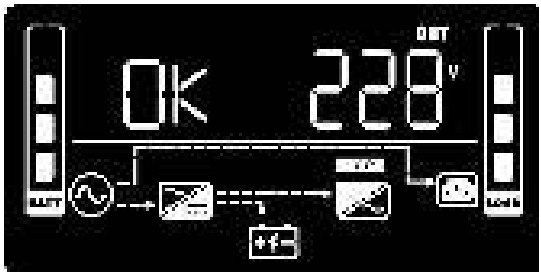


Figure 19: Display in high-efficiency mode

Bypass mode

Bypass mode can be activated in normal mode by pressing the ▼ and ▲ buttons together for 2 seconds. To switch back to normal mode, press ▼ and ▲ buttons also together until the continuous alarm stops. In the event of an overload, the UPS system automatically switches into bypass mode. A beep sounds every 10 seconds.

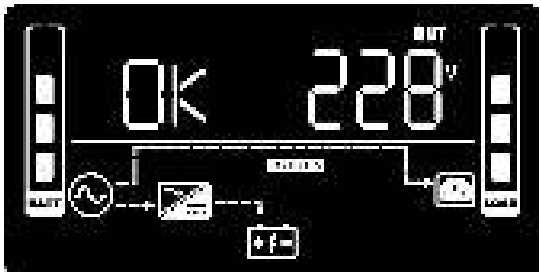


Figure 20: Display in bypass mode

Frequency converter mode

In addition to regular UPS mode, the UPS system can also operate as a frequency converter. This involves providing the load with a constant output frequency of either 50 or 60Hz. Bypass is not available in frequency converter mode. The battery is charged.

Figure 21: Display in frequency converter mode

5. Communication and interfaces

5.1 RS 232 and USB interface

In order to establish communication between the UPS system and a computer, connect the computer using a suitable data cable (cable provided) to the RS-232 or USB interface on the UPS system (see Chap. 8.6 *Rear view*).

PLEASE NOTE

The RS-232 and USB communication interfaces cannot be used at the same time.

The UPS system can then exchange data via the DataWatch software (see Chap. 5.5).

The assignment of the cable connection pins for the RS-232 communications interface is shown in Figure 22, while the functions of the connection pins can be found in Table 7: Pin assignment for RS-232 interface.

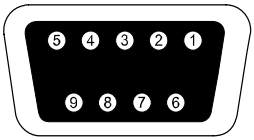


Figure 22: RS-232 interface (DB-9 connector)

Pin	Function
1	Not used
2	Send data (TxD)
3	Receive data (RxD)
4	Not used
5	Mass
6, 7, 8, 9	Not used

Table 7: Pin assignment for RS-232 interface

5.2 Slot for interface cards

The XANTO features a slot (see Chap. 8.6 *Rear view*) for the following interface cards:

Product no.	Description
DW7SNMP30	**SNMP adapter Basic** The SNMP adapter communicates via TCIP/IP with the load attached to the network.
DW5SNMP30	**SNMP adapter Professional** Works like *Basic*, but with additional interface for temperature sensor and environment management.
DWAS400DC	**AS400 relay card** Combined slot card for optional communication with IBM AS400 servers or individual use of relay contacts. The following messages/contact outputs are available: Normal mode, standby mode, battery mode, battery voltage low, bypass mode, collective error, input for UPS shutdown.

Table 8: Interface cards

PLEASE NOTE

The interface cards installed in the slot can be used in parallel with the RS-232 or USB communication.

5.3 Emergency Power Off (EPO) function

The Emergency Power Off (EPO) function is used to remotely shut down the UPS system and connected loads immediately. This means removing the bridge on the emergency power off connector (back of UPS system, see Fig. 15) and connecting an external emergency power off switch.

Cross section of connecting cable = 0.5 - 2.5mm^2 (AWG 13 - 20)

Recommended cross-section of connecting cable = 1.5mm^2 (AWG 15)

CAUTION

- The emergency power off switch must not be connected to circuits which are connected to the supply network. Reinforced insulation from the network is required. The emergency power off switch must be designed for at least 60V DC / 30V AC and 20mA.
- Depending on the programming via the UPS menu (*see Chapter* 4.3 *Settings)*, either an opener or a closer can be used. The emergency power off function must be active for at least 250ms for proper operation.
- If the emergency power off function is activated, the input voltage of the UPS system also needs to be interrupted.
- The emergency power off function is only used to shut down the UPS voltage on an electronic basis.

PLEASE NOTE

- Leave the plug of the UPS system connected if you do not need the emergency power off function.
- Always test the emergency power off function before connecting a critical load. This avoids the load being switched off accidentally

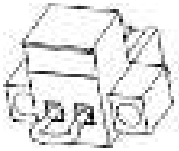


Figure 23: Emergency power off connector

See Chap. 8.6 *Rear view* for the position of the emergency power off connector.

5.4 Surge voltage protection for data and telephone lines (DSL / telephone / fax / network)

The surge protection filters surge voltage from the data and telephone cables. This involves connecting the incoming cable to the IN connection on the reverse of the UPS system. Connect the OUT connection to the end device. The data connection protection cable protects networks with a transfer rate of 10 to 1000 Mbit/s.

5.5 DataWatch software

The XANTO range is supplied as standard with DataWatch, a comprehensive software solution for shutting down and managing the PC or server system and for monitoring the XANTO and the power supply network. To ensure you are always working with the latest version of DataWatch, please download it from the download area of www.online-usv.de.

DataWatch works in the background and is in constant communication with the XANTO via the RS-232, USB or network protocol. The most famous of all functions: Automatic data backup including the shutdown of running applications and the proper shutdown of the whole system by means of a freely configurable shutdown routine. At the same time, DataWatch has a comprehensive messaging system, time-controlled test routines and event logging.

DataWatch supports all current operating systems.

As a client/server application, DataWatch works in networks and on local workstations. Based on optional RCCMD agent (Remote Console Command), multiple servers connected to a UPS system can be addressed and controlled across the network without additional hardware.

Overview of functions:	UPS / LCD	DataWatch software
Display of input voltage, frequency and current, battery voltage, current and capacity, UPS internal temperature, output voltage, frequency and current, load	X	X
Change operation mode of the UPS system (normal-, standby-, bypass-, high efficiency- and converter-mode)	X	X

Changing the output voltage	X	X
Enable / disable and configure converter mode	X	X
Enable / disable high efficiency mode	X	X
Enable / disable high bypass mode	X	X
Configure and enable/disable the battery deep discharge protection	X	X
Configure additional battery packs	X	X
Select the type of autonomy time (accumulated, remaining)	X	X
Configure and enable/disable the emergency power off function (EPO)	X	X
Configure and enable/disable the settings for operation with external isolation transformer	X	X
Configure and enable/disable the programmable outlet sockets	X	X
Changing the settings for charging voltage (boos, float)	X	X
Manual restart of the UPS system	X	X
Signalling battery failure	X	X
Advanced display of the total battery runtime		X
Display of the serial number		X
Local server shutdown via RS-232 / USB-interface		X
Multi server shutdown via TCP/IP		X
SNMP-proxy-agent		X
Send E-Mail, SMS, broadcastmessages		X
Manual UPS 10s-test	X	X

Manual UPS fulltest		X
Auto UPS selftest		X
Enabe/disable alarm for battery operation	X	X
Enable/disable all alarms		X
Reset UPS system to factory settings		X
Display alarm-, warning- and error-messages	X	X
Chronological record, display and export (csv) of warning-, alarm- and error-messages		X
Record, display and export (csv) of voltage, current, frequency and temperature (datalog chart)		X
Customized event configuration		X

6. Maintenance

6.1 Care and maintenance

To ensure a long service life of the system, the area around the UPS system should be kept clean and free of dust. If the area around the system is very dusty, clean the external surfaces of the system with a vacuum cleaner.

To ensure a long service life for the batteries, the ambient temperature should not exceed 25°C.

PLEASE NOTE

- Before transporting the UPS system, make sure that it is disconnected from the supply network and switched off.
- The service life of a battery varies as a function of how often it is used, intensity of use and ambient temperature. Batteries which are used beyond their expected service life often have reduced autonomy times. Replace the batteries in good time to ensure the system always runs at optimum performance.

6.2 Storage

If you intend to store the UPS system for an extended period, charge the battery every three months by connecting the UPS system to the supply network for five hours. The system should be stored in a cool, dry place.

6.3 When to change the batteries

If “BR” is shown on the display and an alarm signal sounds every 2 seconds, the batteries need to be replaced. Contact your reseller or ONLINE (www.usvshop24.de) to order new batteries.

6.4 Changing batteries in tower

PLEASE NOTE

Do not replace the batteries while the UPS system is in battery mode.

To replace the batteries, the UPS system must be switched off, disconnected from the supply network and opened. Batteries cannot be hot-swapped.

CAUTION

- Maintenance work must be carried out by a qualified technician who is familiar with batteries and the necessary safety measures. Do not allow unauthorised personnel to handle the batteries.
- Batteries pose the risk of an electric shock or injury due to high short circuit current. Take the following safety measures:
  - remove watches, jewellery and other metal items
  - only use tools with insulated handles
  - do not place tools or metal components on the batteries
- The batteries must only be replaced with the same number of batteries of the same type.
- Batteries must be properly disposed of. When disposing of batteries, comply with the statutory regulations applicable in your location.
- Batteries must not be burnt. There is risk of explosion.
- Do not open or damage the battery or batteries. Battery acid can damage the eyes and skin and cause poisoning.

CAUTION

- DANGER OF ELECTRIC SHOCK. Never make changes to the battery cabling or connections. Attempting to change the battery cabling yourself could lead to serious injury.
- The batteries of the UPS system are very heavy. Be careful when handling heavy batteries.

6.5 Changing the batteries in rack

PLEASE NOTE

Do not replace the batteries while the UPS system is in battery mode.

The hot-swap functionality means the batteries can be replaced without shutting down the UPS system and disconnecting the load.

If you would prefer to disconnect the UPS system before changing the batteries, read Chapter 3.6 *Getting started*.

CAUTION

- Maintenance work must be carried out by a qualified technician who is familiar with batteries and the necessary safety measures. Do not allow unauthorised personnel to handle the batteries.
- Batteries pose the risk of an electric shock or injury due to high short circuit current. Take the following safety measures:
  - remove watches, jewellery and other metal items
  - only use tools with insulated handles
  - do not place tools or metal components on the batteries
- The batteries must only be replaced with the same number of batteries of the same type.
- Batteries must be properly disposed of. When disposing of batteries, comply with the statutory regulations applicable in your location.
- Batteries must not be burnt. There is risk of explosion.

CAUTION

- Do not open or damage the battery or batteries. Battery acid can damage the eyes and skin and cause poisoning.
- DANGER OF ELECTRIC SHOCK. Never make changes to the battery cabling or connections. Attempting to change the battery cabling yourself could lead to serious injury.
- The batteries of the UPS system are very heavy. Be careful when handling heavy batteries.

The batteries are behind the front panel of the UPS system. The internal batteries are packed together for ease of handling.

1. Remove the front panel (see Figure 24). To do this pull it to the frontside of the UPS-system.

Figure 24: Removing the frontpanel

PLEASE NOTE

There is a flat ribbon cable connecting the control panel to the UPS system. Do not pull on the cable or disconnect it.

2. Disconnect the battery connector (see Figure 25).

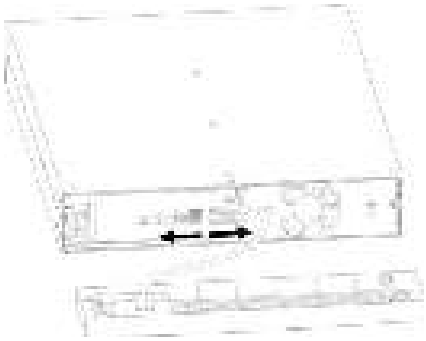


Figure 25: Disconnect the battery connector

3. Remove the battery cover (see Figure 26).

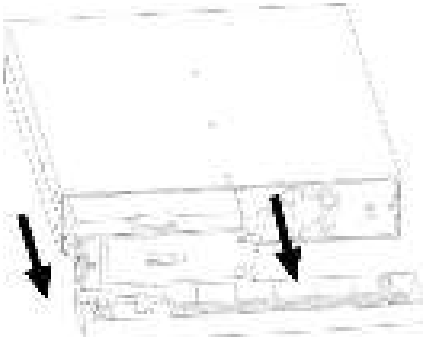


Figure 26: Removing the battery cover

4. Carefully remove the battery insert using the handle.

5. Replace the batteries in the battery insert.

PLEASE NOTE

- Check that the replacement batteries have the same specifications as the old batteries.
- Read chapter 6.7 *Disposing of the old batteries or UPS system* for information on proper disposal.

6. Reverse the removal procedure to reinsert the battery insert.

CAUTION

A small arc can occur when the batteries are connected to the UPS system. This is normal and represents no risk to personnel. Insert the battery cable quickly and firmly into the battery plug connection in the UPS system.

7. Continue with Chapter 6.6 *Testing the new batteries*.

6.6 Testing the new batteries

1. To charge the batteries, connect the UPS to the supply network for 48 hours.
2. In normal mode, hold the ON / **+** / **-** button for at least 2 seconds to start the self-test.
3. If the batteries are faulty, a warning is displayed automatically (see Table 10: Warnings). Press “OK” to acknowledge a successful battery test and to switch the UPS system back into normal mode.

PLEASE NOTE

The UPS system only starts a self-test when the batteries are fully charged and the UPS system is in normal mode with no active warning messages.

6.7 Disposing of the old batteries or UPS system

Find out from a local recycling centre how the old batteries or the UPS system should properly be disposed of. Old batteries can also be returned to ONLINE for disposal free of charge. Please contact Support (see Chap. 7.5)

CAUTION

- Batteries must not be burnt. There is risk of explosion.
- Batteries must be disposed of properly. Find out about the local disposal regulations.

⚠	CAUTION
•	Do not open or damage the battery or batteries. Battery acid can damage the eyes and skin and cause poisoning.

7. Troubleshooting

The XANTO is designed for autonomous operation and automatically reports and problems in the display.

7.1 Error codes

Error code	Event
01	Error starting the DC link
02	DC link voltage too high
03	DC link voltage too low
11	Error starting inverter
12	Inverter voltage too high
13	Inverter voltage too low
14	Short circuit in inverter output
27	Battery voltage too high
28	Battery voltage too low
2A	Short circuit on charger output
41	Temperature too high
43	Overload
45	Charger error
49	Input voltage too high

Table 9: Error codes

If the UPS system indicates one of the error codes listed above, please contact ONLINE support (see Chap. 7.5).

7.2 Warnings

Event	Symbol	Code	Alarm
Battery capacity low			Warning sound every 2 seconds
Overload			Warning sound every second
Input current too high			2 warning sounds every 10 seconds
Battery not connected			Warning sound every 2 seconds

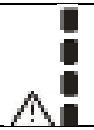
Battery overload			Warning sound every 2 seconds
UPS input error			Warning sound every 2 seconds
Emergency power off active			Warning sound every 2 seconds
Temperature too high			Warning sound every 2 seconds
Charger error			Warning sound every 2 seconds
Battery error			Warning sound every 2 seconds
Bypass voltage out of tolerance			Warning sound every 2 seconds
Bypass frequency not stable			Warning sound every 2 seconds
Replace battery			Warning sound every 2 seconds
EEPROM Error			Warning sound every 2 seconds

Table 10: Warnings

7.3 Troubleshooting

Operating status	Possible cause	Measure
The UPS system cannot be switched on, although there are no alarms and the input voltage is normal.	The input cable is not correctly connected to the input socket.	Check that both connectors are properly inserted in the sockets.
	The input cable has been accidentally connected to the UPS output sockets.	Connect the input cable to the UPS input.
The  and  symbols flash and an alarm is sounded every 2 seconds.	Emergency power off is active.	Check that the emergency power off connector is seated firmly and the wire jumpers match the menu settings in Chapter 4.3 (closed or open, depending on the jumper). Then press the OFF button for 2 seconds

		and start the UPS system using the ON button.
The , symbols and the warning flash and an alarm is sounded every 2 seconds.	L and N wrong way round on UPS input.	Rotate the mains plug about 180 degrees.
The , and symbols flash and an alarm is sounded every 2 seconds.	The internal battery is not connected.	Check that the battery is properly connected (see Chap. 3.4, 3.5). Then restart the UPS system using the ON button.
The , and symbols flash and an alarm is sounded every second.	The output load on the UPS system is too high.	Reduce the load on the UPS output sockets.
	The load on the UPS output is too high, load is supplied via the bypass.	Reduce the load on the UPS output sockets. The UPS is then automatically switched back to normal mode.
	If the overload persists, the UPS switches back to bypass mode.	Reduce the load on the UPS output and then restart the UPS.
The and symbols and the error code 43 are shown in the display. A permanent alarm sounds.	UPS system shutting down because of too frequent or too extensive overload on the UPS output.	Reduce the load on the UPS output sockets. Then press the OFF button for 2 seconds and then start the UPS using the ON button.
The and symbols and the error code 49 are shown in the display. A permanent alarm sounds.	The UPS input current entered is too high.	Reduce the load on the UPS output sockets. The UPS is then automatically switched back to normal mode.
Error code 14 and continuous alarm.	Short circuit in UPS output.	Disconnect all the loads from the UPS output sockets and restart the UPS system without load. If the error continues to occur, please contact ONLINE support (see Chap. 7.5). If the error has been fixed, check the load.
Autonomy time is shorter than expected.	Battery is not fully charged.	Charge the battery for at least 5 hours. If the error persists, please contact ONLINE support (see Chap. 7.5).
	The battery is worn through age or faulty.	Replace the battery (see Chap. 6.4).

Error code 2A and continuous alarm.	Short circuit on charger output	Check the external battery packs for wiring errors, it may be necessary to replace the batteries if they are too old.
The and symbols flash and an alarm is sounded every 2 seconds.	The fan is blocked or not working properly. The temperature is too high.	Check the fan is working and there is enough space behind the fan.

Table 11: Troubleshooting

7.4 Muting the alarm

In battery mode, hold the ON / / button for at least 2 seconds to mute the alarm. Once the alarm is successfully muted, appears in the display. Check the status the warning message has triggered and take appropriate measures to rectify the situation. If the status of the warning message changes, the alarm is emitted again. This has priority over the previous muting of the alarm.

PLEASE NOTE

The alarm cannot be muted for alarm and error messages.

7.5 Support

ONLINE USV-Systeme AG (ONLINE) is one of the leading manufacturers of uninterruptible power supplies (UPS). Since 1988, the German company has focussed on the development, production, sale and support of UPS systems. Based on unit numbers sold, ONLINE products are the German number one in the UPS market and internationally recognised because of their top quality and excellent support.

As a German provider, ONLINE guarantees direct approachability, simple processing and short response times. Comprehensive support is a matter of course - before and after purchase.

ONLINE sets great store by reliable support and service.

- Free direct advice and support on:
  Software hotline: +49 (89) 242 39 90 - 13

Hardware hotline: +49 (89) 242 39 90 - 18

- Free 24 h advance exchange
- Interactive UPS configurator online or as app
- 2 years full warranty, optional renewal
- Unbureaucratic 14 day money-back guarantee
- Excellent product availability and wide network of distributors.

Further information: www.online-usv.de

8. Technical data

8.1 List of device types

UPS system	Form factor	UPS item no.	Service	Battery pack	Battery pack item no.
XANTO 700	Tower	X700	700VA/ 700W	-	-
XANTO 1000	Tower	X1000	1000VA/ 1000W	XANTO 1000 / 1500 battery pack	X1000BP
XANTO 1500	Tower	X1500	1500VA/ 1500W		
XANTO 2000	Tower	X2000	2000VA/ 2000W	XANTO 2000 battery pack	X2000BP
XANTO 3000	Tower	X3000	3000VA/ 3000W	XANTO 3000 battery pack	X3000BP
XANTO 700R	Rack	X700R	700VA/ 700W	-	-
XANTO 1000R	Rack	X1000R	1000VA/ 1000W	XANTO battery pack 1000R / 1500R	X1000RBP
XANTO 1500R	Rack	X1500R	1500VA/ 1500W		
XANTO 2000R	Rack	X2000R	2000VA/ 2000W	XANTO 2000R battery pack	X2000RBP
XANTO 3000R	Rack	X3000R	3000VA/ 3000W	XANTO 3000R battery pack	X3000RBP

Table 12: Overview of UPS systems and battery packs

8.2 Dimensions and weight

UPS system	Dimensions (W x H x D)	Weight
Tower models		
XANTO 700	158 x 238 x 397	12.1kg
XANTO 1000	158 x 238 x 397	13.4 kg
XANTO 1500	158 x 238 x 397	15.0 kg
XANTO 2000	190 x 335 x 415	20.3 kg
XANTO 3000	190 x 335 x 415	28.5 kg
XANTO 1000 / 1500 battery pack	158 x 238 x 397	19.8 kg
XANTO 2000 battery pack	190 x 335 x 415	30.0 kg
XANTO 3000 battery pack	190 x 335 x 415	39.0 kg
Rack models		

XANTO 700R	438 x 88 (2U) x 412	11.6 kg
XANTO 1000R	438 x 88 (2U) x 412	14.1 kg
XANTO 1500R	438 x 88 (2U) x 412	15.5 kg
XANTO 2000R	438 x 88 (2U) x 512	19.5 kg
XANTO 3000R	438 x 88 (2U) x 632	27.5 kg
XANTO 1000R / 1500R	438 x 88 (2U) x 412	21.5 kg
XANTO 2000R battery pack	438 x 88 (2U) x 512	29.0 kg
XANTO 3000R battery pack	438 x 88 (2U) x 632	41.2 kg

Table 13: Dimensions and weight

PLEASE NOTE

All rack models are just 2 height units (HE) tall.

8.3 Electrical connections

UPS system	Input connection	Output connections
XANTO 700 XANTO 700R	IEC320 C14 (10A)	4x IEC320 C13 (10A) 8x IEC320 C13 (10A)
XANTO 1000 XANTO 1000R	IEC320 C14 (10A)	4x IEC320 C13 (10A) 8x IEC320 C13 (10A)
XANTO 1500 XANTO 1500R	IEC320 C14 (10A)	4x IEC320 C13 (10A) 8x IEC320 C13 (10A)
XANTO 2000 XANTO 2000R	IEC320 C20 (16A)	8x IEC320 C13 (10A)
XANTO 3000 XANTO 3000R	IEC320 C20 (16A)	8x IEC320 C13 (10A) 1x IEC320 C19 (16A) 6x IEC320 C13 (10A) 1x IEC320 C19 (16A)

Table 14: Electrical connections

8.4 Electrical specifications

Model	XANTO 700/R	XANTO 1000/R	XANTO 1500/R	XANTO 2000/R	XANTO 3000/R
Electrical characteristics					
Rated power (VA / W)	700 / 700	1000 / 1000	1500 / 1500	2000 / 2000	3000 / 3000
Technology	Doubleconversion, classification as per VFI-SS-111				
Input voltage and tolerance, battery operation	230V (110 – 300V @ 50% load, 160 – 300V @ 100% load)				
Input frequency	50 / 60Hz (auto sensing)				

Input current	5.3A	7.7A	11.0A	15.3A	17.6A
Output voltage, tolerance in battery operation	230V +/-1%				
Output frequency, normal operation	50 / 60H +/-0,1Hz				
Output frequency, battery operation	50 / 60H +/-3Hz				
Output voltage adjustable to	208 / 220 / 230 / 240V				
Max. output current	3.5A	5.0A	7.5A	10.0A	15.0A
Switchover time	0				
Wave form	Sine				
Efficiency, Normal operation	>89%			>91%	
High-efficiency mode	>97%				
Battery mode	>88%			>90%	
Overload-compatible, normal mode					
<110%	Alarm				
110 - 130%	Alarm, Bypass/Standby after 5 minutes				
131 - 140%	Alarm, Bypass/Standby after 30 seconds				
>140%	Alarm, Bypass/Standby after 1.5s				
Battery mode					
<110%	Alarm				
110 - 130%	Alarm, Bypass/Standby after 2 minutes				
131 - 140%	Alarm, Bypass/Standby after 10 seconds				
>140%	Alarm, Bypass/Standby after 1.5				
Power loss, max.	119W	170W	255W	340W	510W
Batteries					
Autonomy times	See Table 17				
Battery type	See Table 16				
Design	Sealed, maintenance-free, valve-controlled, lead/acid, life expectancy 3 to 5 years in accordance with EUROBAT				
Load voltage	27.4V	41.1V	41.1V	54.8V	82.1V
Charging current	2 - 12A				2 - 8A
Communication					
USB	Yes				
RS-232:	Yes				
Modem / Network Over-voltage protection	Yes				
SNMP slot	Yes				
EPO	Yes				

Operating conditions, standards and approvals	
Operating temperature	0 - 40°C
Rel. air humidity	20 – 90%
Operating altitude <1000m	Normal operating mode
1000 - 4000m	Performance reduction of 1% per 100m >1000m
Noise level, max.	<50dB
MTBF at 25°C (w/o battery)	>50.000 hours
Safety	EN62040-1
EMC, Performance	EN62040-2
Approval	CE
Protection class	IP20

Table 15: Electrical specifications

8.5 Batteries and autonomy time

UPS system	**UPS internal battery**	**Battery pack**
Tower models		
XANTO 700	24V (2x 12V / 9Ah)	-
XANTO 1000	36V (3x 12V / 9Ah)	36V (2x 3x 12V / 9Ah)
XANTO 1500	36V (3x 12V / 9Ah)	36V (2x 3x 12V / 9Ah)
XANTO 2000	48V (4x 12V / 9Ah)	48V (2x 4x 12V / 9Ah)
XANTO 3000	72V (4x 12V / 9Ah)	72V (2x 6x 12V / 9Ah)
Rack models		
XANTO 700R	24V (2x 12V / 9Ah)	-
XANTO 1000R	36V (3x 12V / 9Ah)	36V (2x 3x 12V / 9Ah)
XANTO 1500R	36V (3x 12V / 9Ah)	36V (2x 3x 12V / 9Ah)
XANTO 2000R	48V (4x 12V / 9Ah)	48V (2x 4x 12V / 9Ah)
XANTO 3000R	72V (4x 12V / 9Ah)	72V (2x 6x 12V / 9Ah)

Table 16: Batteries

UPS system	**Int. batt.**	**+1 BP**	**+2 BP**	**+3 BP**	**+4 BP**	**+5 BP**	**+6 BP**	**+7 BP**
Tower models								
XANTO 700	24 / 10	-	-	-	-	-	-	-
XANTO 1000	27 / 11	103 / 47	190 / 86	280 / 130	373 / 174	465 / 221	559 / 268	652 / 315

XANTO 1500	15 / 6	61 / 28	114 / 52	171 / 79	229 / 107	269 / 135	349 / 165	409 / 196
XANTO 2000	16 / 6	65 / 28	121 / 52	180 / 78	241 / 106	304 / 135	367 / 165	430 / 195
XANTO 3000	17 / 6	67 / 29	125 / 53	186 / 81	249 / 109	314 / 139	378 / 170	443 / 201
Rack models								
XANTO 700R	24 / 10	-	-	-	-	-	-	-
XANTO 1000R	27 / 11	103 / 47	190 / 86	280 / 130	373 / 174	465 / 221	559 / 268	652 / 315
XANTO 1500R	15 / 6	61 / 28	114 / 52	171 / 79	229 / 107	269 / 135	349 / 165	409 / 196
XANTO 2000R	16 / 6	65 / 28	121 / 52	180 / 78	241 / 106	304 / 135	367 / 165	430 / 195
XANTO 3000R	17 / 6	67 / 29	125 / 53	186 / 81	249 / 109	314 / 139	378 / 170	443 / 201

Table 17: Autonomy times (in minutes) at 50 / 100% load, pf=0.7

8.6 Rear view

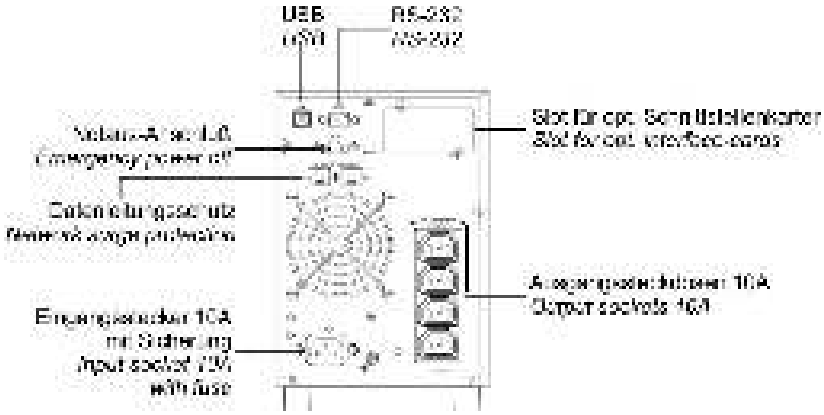


Figure 27: Rear view of XANTO 700

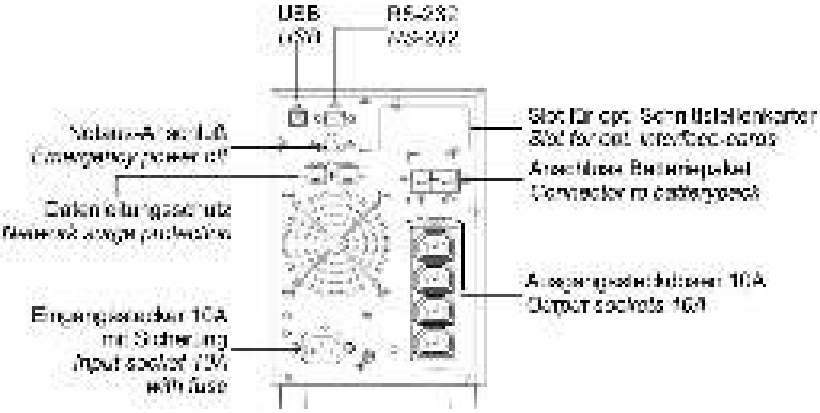


Figure 28: Rear view of XANTO 1000 - 1500

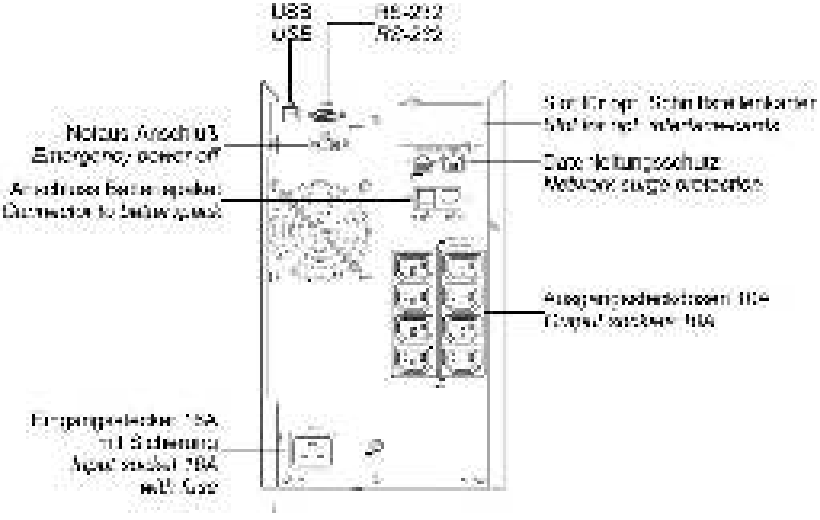


Figure 29: Rear view of XANTO 2000

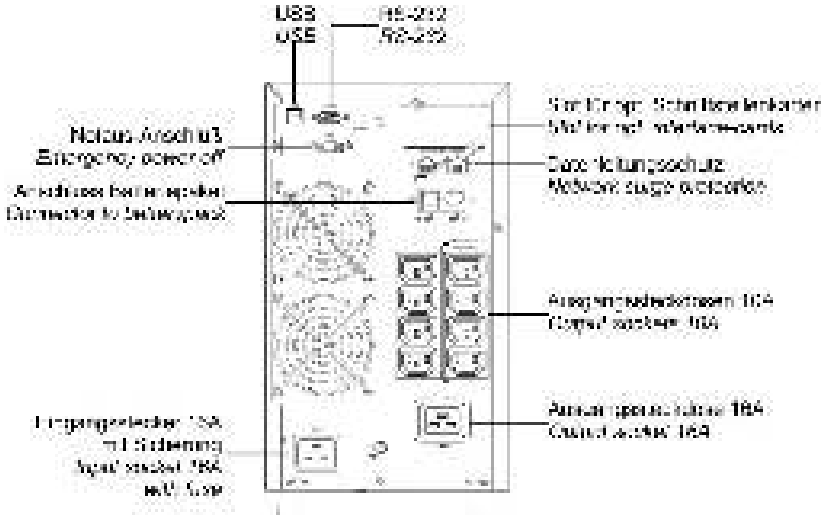


Figure 30: Rear view of XANTO 3000

Figure 31: Rear view of XANTO 700R

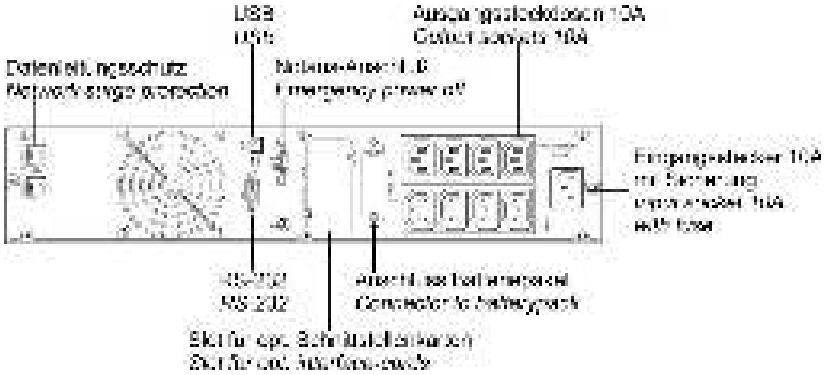


Figure 32: Rear view of XANTO 1000R - 1500R

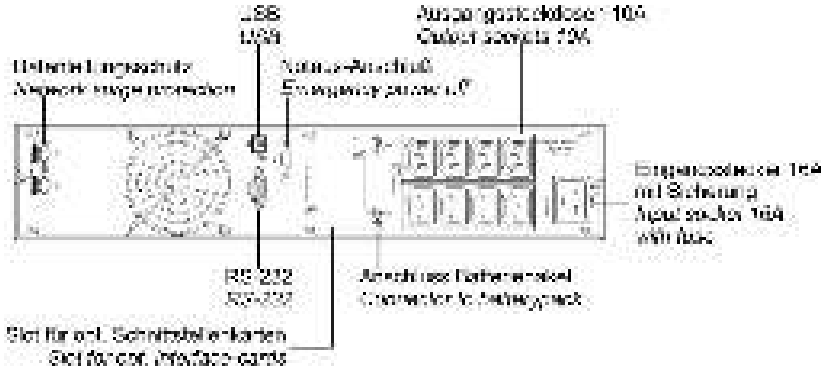


Figure 33: Rear view of XANTO 2000R

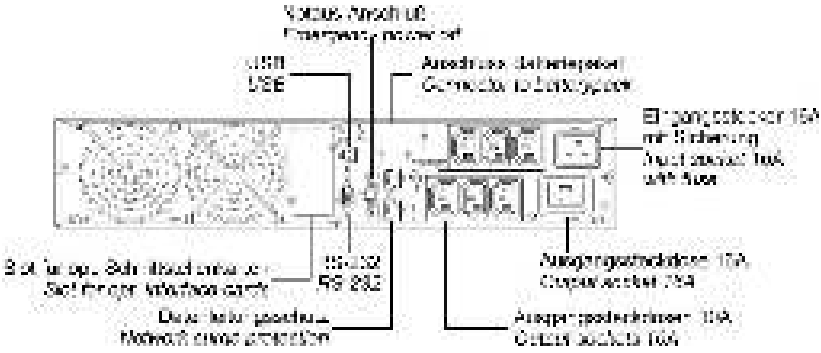
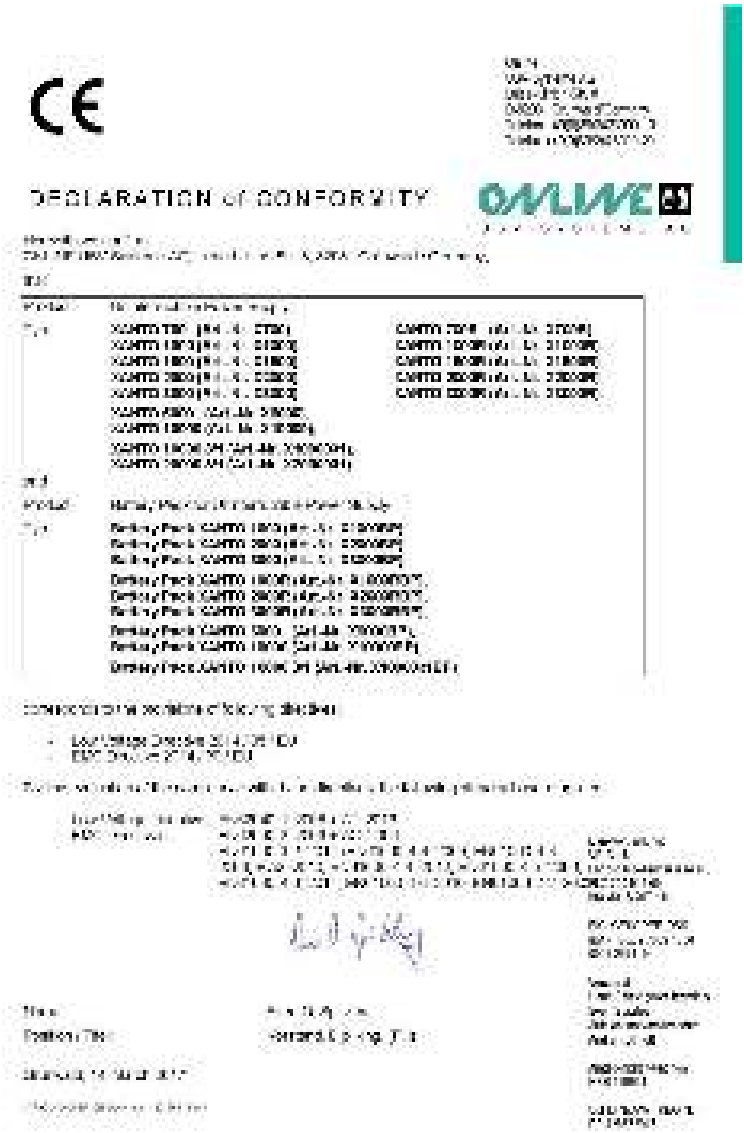


Figure 34: Rear view of XANTO 3000R

8.7 CE confirmation



DECLARATION of CONFORMITY

9. Warranty

ONLINE USV-Systeme AG (ONLINE) guarantees that this product will be free of material and production faults for a period of two years from the purchase date. ONLINE's obligation in accordance with this guarantee is restricted to the repair or replacement (at ONLINE's discretion) of any faulty products. Before warranty claims can be asserted, a Returned Material Authorization (RMA) number must be obtained from customer services. Products must be returned with the postage paid by the sender, a brief description of the problem and evidence of the place and date of purchase. This warranty does not apply to devices damaged by accidents, negligence or misuse or those which have otherwise been altered or modified.

Apart from the above exceptions, ONLINE accepts no explicit or tacit warranty, including a guarantee of conventional quality or suitability for a specific purpose. In some jurisdictions, the restriction or exclusion of tacit guarantees is prohibited, which means that the restrictions or exclusions above may not apply to the purchaser.

Irrespective of the above exclusions, ONLINE shall under no circumstances accept liability for direct, indirect, specific, auxiliary or subsequent damage caused as a result of the use of this product, even if ONLINE was informed about the possibility of such damage. In particular, ONLINE shall not be liable for costs of whatsoever nature, such as lost profit or revenue, loss of equipment, loss of the use of device, loss of software or data, replacement costs, third-party claims or other costs.