



UPSTools

- USER MANUAL -




Compatible with UPS series:

- LINE INTERACTIVE UPS:
VST / VSD
- ON LINE UPS:
SEP / SDH / SDL / SPW / SPT / SPM / SPH

INTRODUCTION

UPSTools is a utility program for the configuration of UPSs from 500VA to 20KVA. It is compatible with Windows 2000, XP, 2003, Vista and 7, Linux x86 and Solaris (8, 9, and 10 SPARC). Java virtual machine 32 bit version 6 or higher is required for this program.

Conventions used in this manual:

- | | | |
|--|--------------------|--|
|  | Danger | Indicates information that cannot be ignored.
Failure to comply with these warnings could cause serious damage to the UPS, batteries, or charger. |
|  | Warning | Indicates important information.
Failure to comply with these warnings could cause the UPS to malfunction. |
|  | Information | Provides useful notes and tips for the user. |

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COMMANDS

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COMMAND

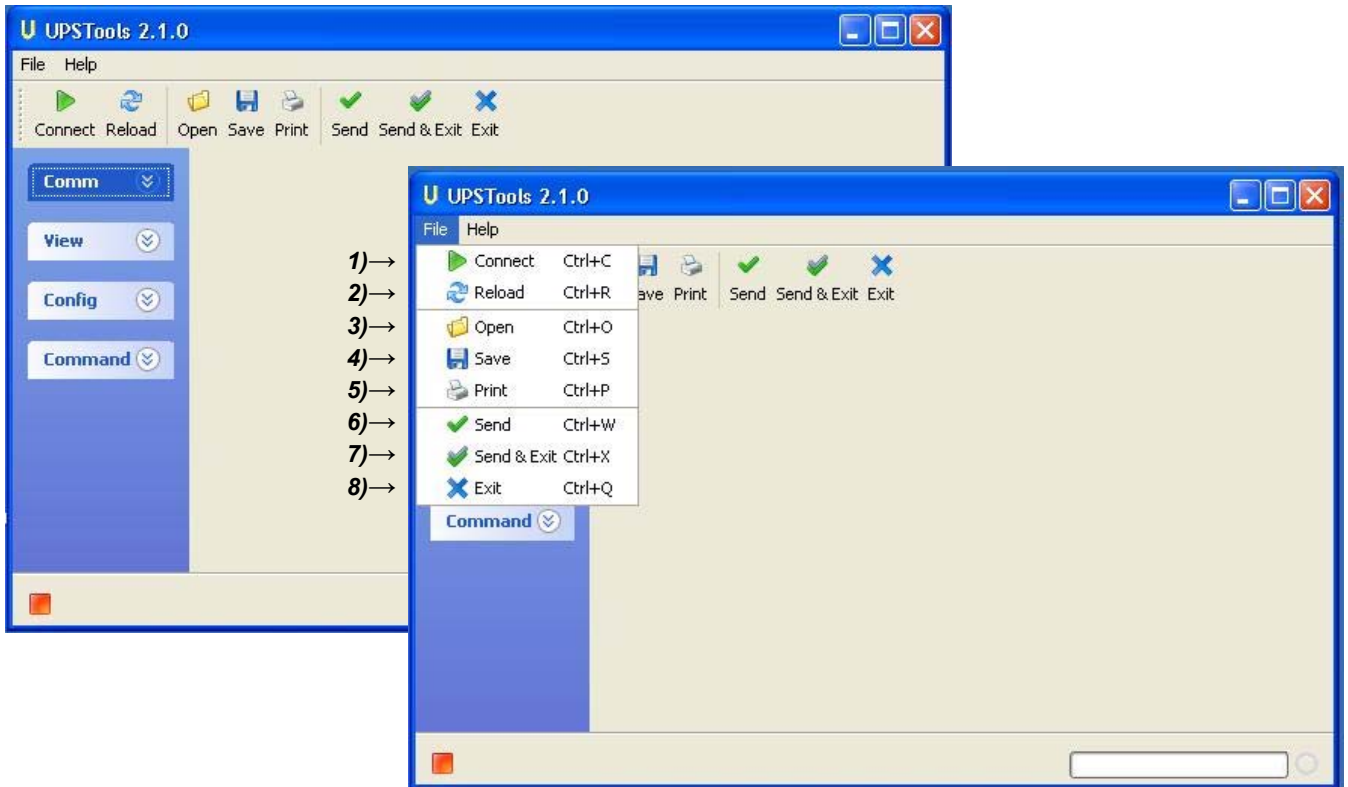
38

CONTROL

38

MAIN WINDOW

MAIN WINDOW



FILE MENU

1) CONNECT

Activates the PC↔UPS connection using the set serial communication port. Once this operation is performed, the UPS connected status will appear in the status bar on the bottom left.

For the PC↔UPS connection use:

- USB 2.0 cable (A-B, m-m) if using the USB port of the UPS.
- Pin-to-Pin cable (D-Sub 6 pins, 1:1, m-f) if using the standard RS232 port of the UPS.
- Null-Modem cable (D-Sub 9 pins, f-f) if using an optional port of the UPS (Communication Slot 1 or 2).

For the PC↔UPS remote connection use:

- UTP cable for LAN if using an optional port of the UPS (Communication Slot 1 or 2).

2) RELOAD

Runs a full interrogation of the UPS status to update the displayed data.

3) OPEN

Loads the UPS configuration data from a file, this is useful to copy the configuration from one UPS to another.

MAIN WINDOW

4) **SAVE**


Saves the UPS configuration data on a file, this is useful to create a backup copy of the configuration.

5) **PRINT**

Prints the current configuration.


6) **SEND**


Sends and activates the current configuration on the UPS.

 The commands are not enabled in remote connection.

7) **SEND & EXIT**

Sends and activates the current configuration on the UPS and to exit the program.

 The commands are not enabled in remote connection.

 No settings made or loaded from the disk will be effective on the UPS until the “Send” or “Send &Exit” command is executed. Some screens have a “Send” button to enable the changes on the page shown on the screen.

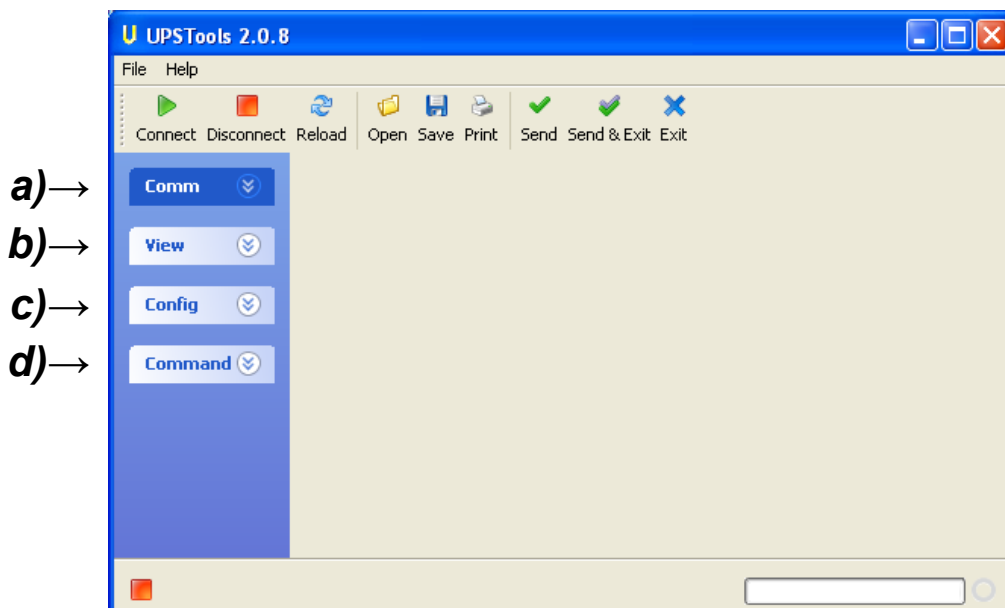
8) **EXIT**

Used to exit the program.

DROP-DOWN MENU

The drop-down menu can be expanded only after putting the UPS in communication with the UPSTools software. The settings within the drop-down menu vary based on the type of UPS:

- a) **Comm** – used to set the communication port between the PC and UPS
- b) **View** – used to view the nominal data of the UPS
- c) **Config** – used to configure the UPS and commands and varies based on the type of UPS connected
- d) **Command** – used to send several test and on/off commands



COMMUNICATION

COMMUNICATION

COMM

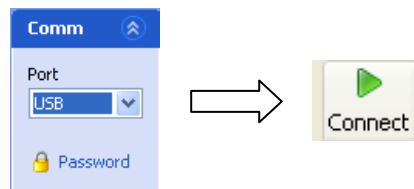
PORT

Used to select the port of the PC to be used for communication with the UPS:

- USB
- NET
- COM1
- COM2
- ...
- COM9

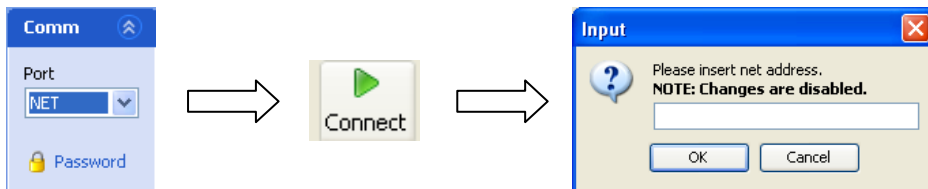
USB

For PC↔UPS communication via USB, select the USB port and press Connect



NET

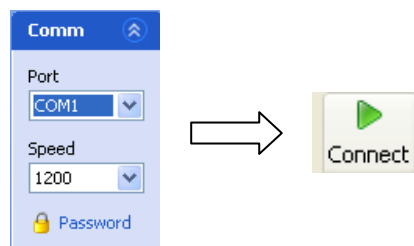
For PC↔UPS communication via NET, select the NET port and click on Connect. A pop-up will appear where you need to enter the IP address of the network card to query:




 Communication via NET allows you to only view the UPS configurations. You cannot make settings using the NET communication.

COMx

For PC↔UPS communication via COM port, select the COM ports of the PC and click on Connect:



 The default communication speed for all UPSs is 1200 baud.
For some optional cards, the communication speed could be 9600 baud.

PASSWORD

Used to enter the password to access the Service level.

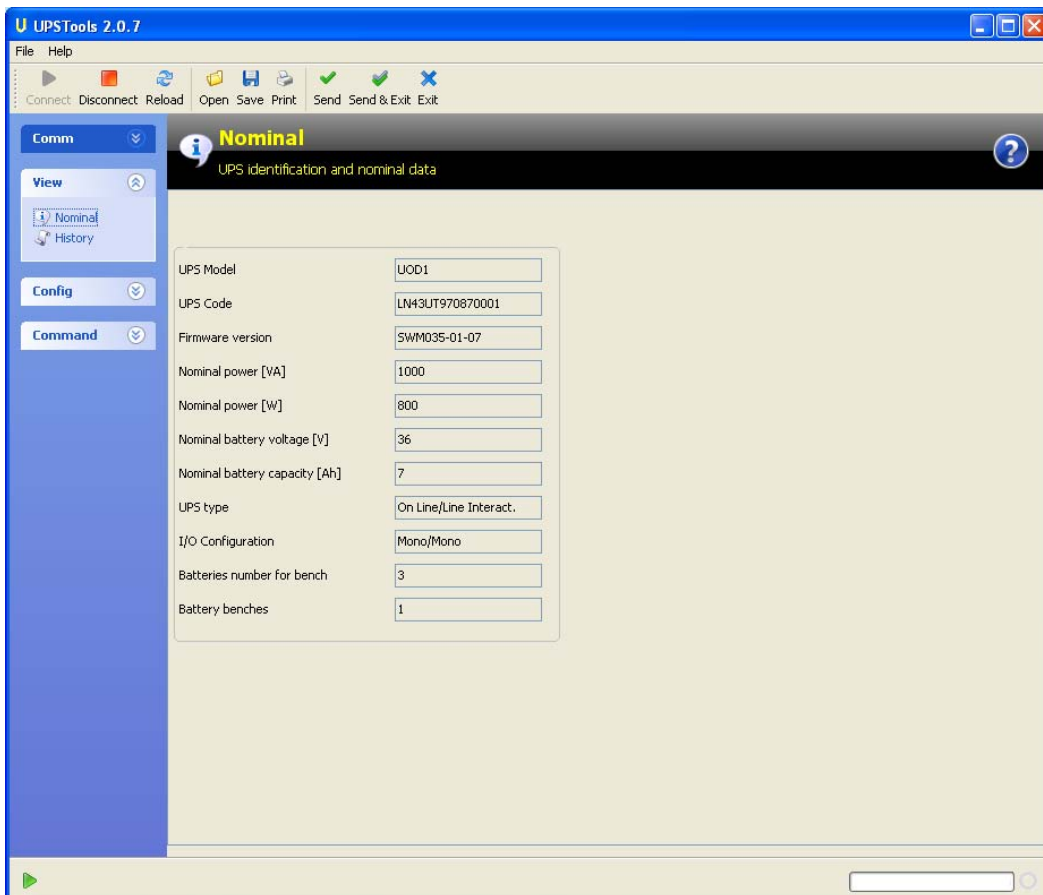
NOMINAL DATA



NOMINAL DATA

VIEW

NOMINAL

The “Nominal Data” page shows the rating data of the UPS: model, identification code, firmware version, rated power, rated voltage and battery capacity, the type of operation, input/output configuration, the number of batteries per bank and the number of banks (1= positive bank; 2= positive + negative bank).

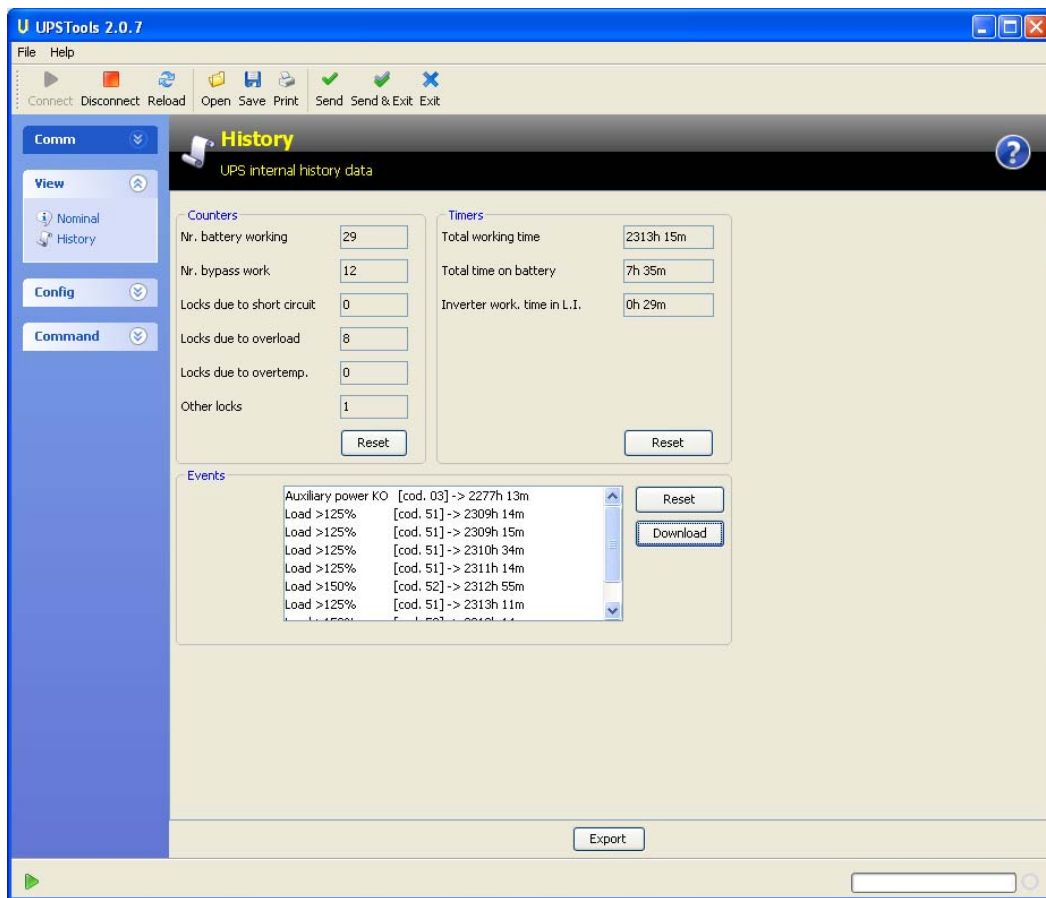


-  The command is active only if the UPS was previously connected to the PC.
-  For some UPS families the “UPS Code” window is not managed, so in the relative windows could not be shown the UPS identification code.

NOMINAL DATA

HISTORY

The “History” page shows the data from the history log file of the UPS; the screen is divided into the following three sections:



Counters

Counters

Nr. battery working	29
Nr. bypass work	12
Locks due to short circuit	0
Locks due to overload	8
Locks due to overtemp.	0
Other locks	1

Reset

Displays the number of times of operation from the battery, the number of times of operation from the bypass and the number of locking events that occurred, subdivided by type of alarm (short circuit, overload, over temperature, and other alarms). The event counter file can be cleared by clicking on the “Reset” button, but only if the “Service password” has been entered.

NOMINAL DATA

Timers

The screenshot shows a window titled "Timers" with three input fields and a "Reset" button. The fields contain the following values:

Field	Value
Total working time	2313h 15m
Total time on battery	7h 35m
Inverter work. time in L.I.	0h 29m

Displays the time (hour/minutes) of total UPS operation (device switched on from the mains, battery, bypass, etc.), of battery operation, and operation via the inverter with the UPS configured in Line-Interactive mode. The event counter file can be cleared by clicking on the **Reset** button, but only if the "Service password" has been entered.

Events




The screenshot shows a window titled "Events" with a list of recent lock events. The list contains the following entries:

Event	Code	Time
Auxiliary power KO	[cod. 03]	-> 2277h 13m
Load >125%	[cod. 51]	-> 2309h 14m
Load >125%	[cod. 51]	-> 2309h 15m
Load >125%	[cod. 51]	-> 2310h 34m
Load >125%	[cod. 51]	-> 2311h 14m
Load >150%	[cod. 52]	-> 2312h 55m
Load >125%	[cod. 51]	-> 2313h 11m

Buttons: Reset, Download

Displays the log of recent lock events with details on the cause of each one, the code, and time (with reference to the total operation clock) when they occurred. The "+" and "-" symbols, if present, indicate the start and end of a condition. By clicking on **Download** you can see the events file. The event counter file can be cleared by clicking on the **Reset** button, but only if the "Service password" has been entered.

By clicking on the "Export" button you can create a text file ("history.txt") in the program installation directory, which contains all history log file data shown on the screen.

-  The *Export* command is active only if the configuration has been downloaded beforehand.
-  For some UPS families event management is not handled. In this case, the "Events" window is not shown.
-  For some UPS families, the event visualization could vary from the picture above.

NOMINAL DATA

STATUS

The "Status" page shows the current status, updated in real time, and will continue to do so until "Disconnect" on the "File" menu is selected. The last data detected will remain visible after disconnection.

UPSTools 2.0.6

File Help

Connect Disconnect Reload Open Save Print Send Send & Exit Exit

Comm

View

- Nominal
- History
- Status

Config


Command

Status

Current UPS status updated in real time

Vbyp	234	V	01) UPS ON	14) Battery inserted
Vout	226	V	02) Battery not working	15) Battery voltage good (Btok=1)
Load	0	A%	03) Bypass line good	
Load	0	VA%	04) Line present	
Load	0	W%	05) Precharge contact CLOSED	
Load	0	A	06) Input contact CLOSED	
Load	0	VA	07) Booster/PFC ON	
Load	0	W	08) Inverter OFF	
Vbat+	+13.61	Vdc	09) Inverter output synchronized	
Vbat-	0	Vdc	10) Bypass contact CLOSED	
Vbus+	+399	Vdc	11) Output contact CLOSED	
Vbus-	-400	Vdc	12) Battery charger ON	
Vin1	234	V	13) Battery contact OPEN	
Vin2	(0)	V		
Vin3	(0)	V		
Temp	49	°C		

* NO ALARMS *

 Some UPS families do not have a status management page.

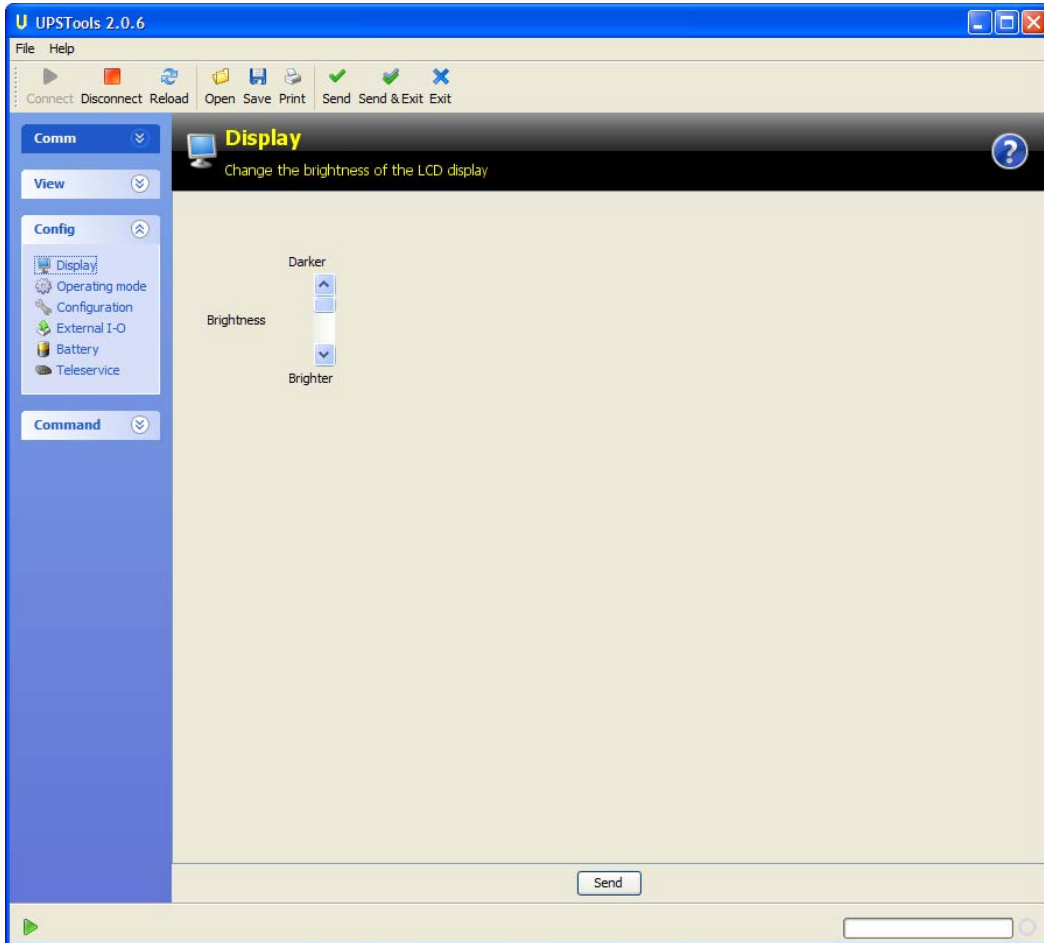
UPS CONFIGURATION – ON LINE


UPS CONFIGURATION – ON LINE

CONFIG

DISPLAY

The “Display” page is used to change the brightness settings on the LCD display in order to save energy of the UPS.

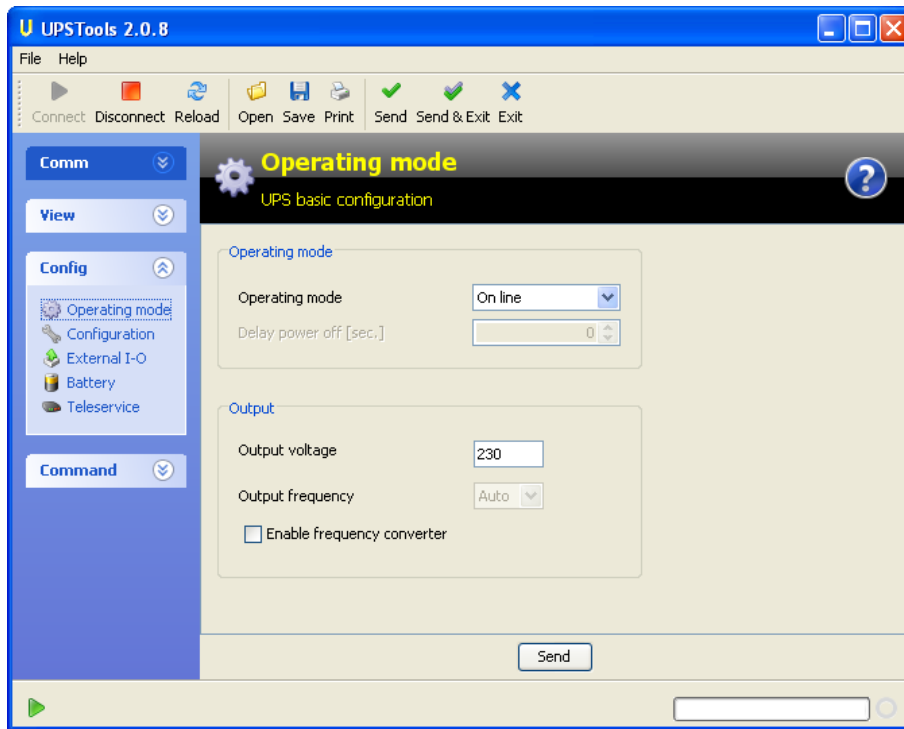


 This page may not be available on some models.

UPS CONFIGURATION – ON LINE

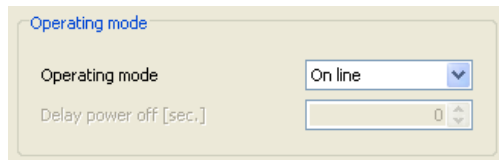
OPERATING MODE

Used to set the main UPS operating parameters.



Operating mode

The “Operating mode” page is used to configure the operating mode from one of those supported. For “Stand-by off” mode, you can configure the delay time in seconds for shutdown after the mains power is restored.



Mode

Select the operating mode desired: [Default → On line]

On line	This mode ensures the maximum protection of the load and the best quality of the output waveform
Eco mode	This is the mode with the lowest consumption of the UPS and therefore with the greatest efficiency. The load is normally powered by bypass and in case the mains go outside of the tolerance range the UPS switches to On line operation. About five minutes after the mains return within the tolerance range, the load is switched back to bypass.
Smart active	In this mode, the UPS based on a statistic detected on the quality of the input mains, it decides on its own whether to work in On line mode or Eco mode.
Stand by Off	In this mode the UPS is used as an emergency unit. When the mains power is present, the load is not supplied, while if a black-out occurs it is powered by the inverter via the batteries with a trip time less than 0.5 seconds (see also “Delay power off”).
Frequency converter	In this mode the UPS can operate with an input frequency at 50Hz and output frequency at 60Hz and vice versa. In this case the automatic bypass is disabled.



Some UPS families may not have several of the operating modes listed above.

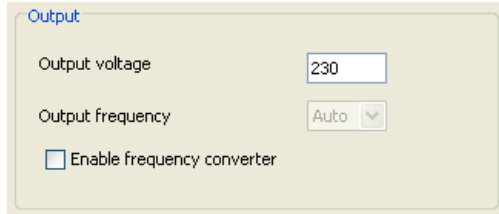
UPS CONFIGURATION – ON LINE

Delay power off

If the operating mode is set to “Stand by Off”, configure the delay (expressed in seconds) between the return of the mains power and shut off of the load [Default → 0sec.].

Output

The “Output settings” page is used to configure the UPS voltage (between 220 and 240 Volt) and frequency parameters.



Output

Output voltage

Output frequency

Enable frequency converter

Output voltage

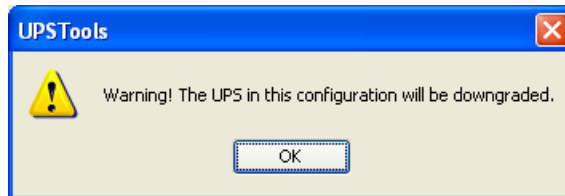
Use to set the desired output voltage of the UPS [Default → 230V].




Output frequency

Use to select the desired output frequency (50 or 60 Hz) of the UPS [Default →Auto].

Enable frequency converter

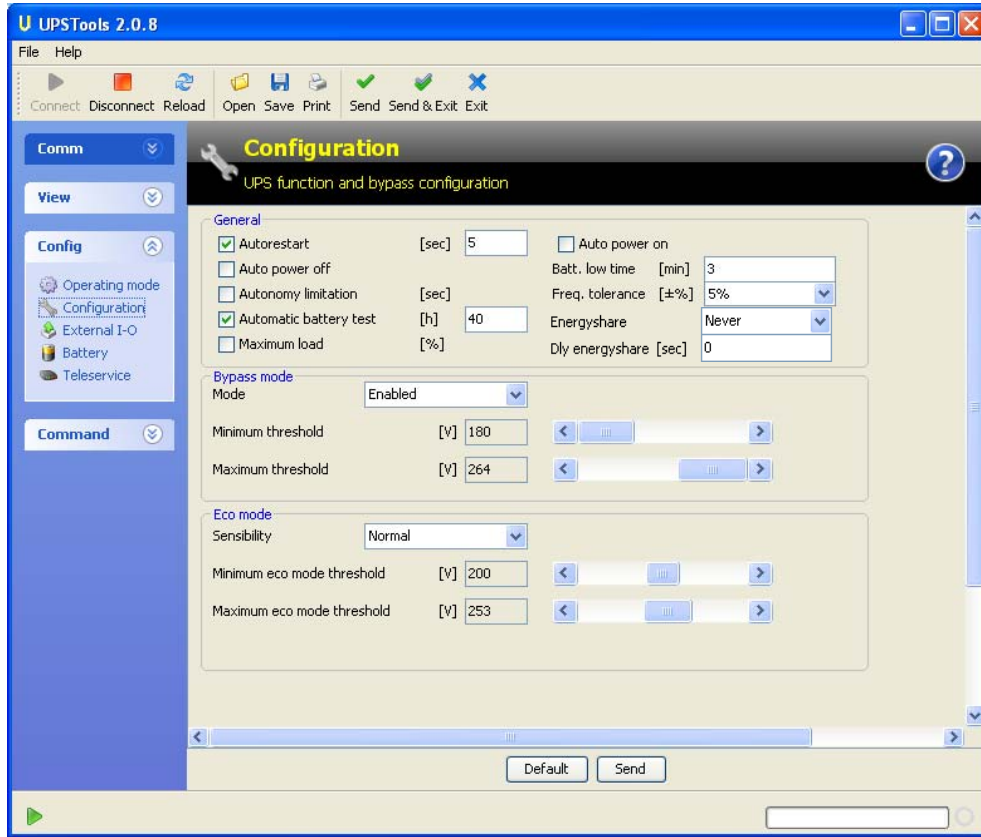
In this mode the UPS can operate as a frequency converter [Default → DISABLED].



-  For some families, when the UPS functions as a “*Frequency converter*” or the link to the mains is disabled, the rated power of the UPS will be downgraded.
-  The configuration of the set frequency is activated only when the UPS is powering up. Therefore, if you make a change you need to shutdown the UPS and then restart it.
-  Incorrect output frequency conversion may cause damage to the loads connected to the UPS. Before configuring the parameter, check the rated frequency of the loads connected to the UPS.

UPS CONFIGURATION – ON LINE

CONFIGURATION



General

General				
<input checked="" type="checkbox"/> Autorestart	[sec]	5	<input type="checkbox"/> Auto power on	
<input type="checkbox"/> Auto power off			Batt. low time [min]	3
<input type="checkbox"/> Autonomy limitation	[sec]		Freq. tolerance [±%]	5%
<input checked="" type="checkbox"/> Automatic battery test	[h]	40	Energysshare	Never
<input type="checkbox"/> Maximum load	[%]		Dly energysshare [sec]	0

Autorestart

If during operation via battery, the UPS shuts off due to end of backup time, a remote shutdown or auto power off command, if this function is enabled the UPS will automatically start up when the mains power supply is restored; if the function is disabled, the UPS will remain in stand-by [Default → Function ENABLED].

If the function is enabled, you can set the delay (expressed in seconds and between 0 and 255) between mains restore and the restart of the UPS [Default □ 5 sec].

Auto power off

If during operation from the battery, the percentage of load powered by the UPS goes below the 5% threshold (load off or disconnected), the UPS will shut off automatically after 40 seconds if the function is enabled; if the function is disabled it will continue to function as usual from the battery. [Default → Function DISABLED]

Autonomy limitation

Allows (if enabled) to specify a maximum time in seconds of operation from battery; once this time has passed, the UPS automatically shuts down even if the battery backup time has not finished; this time can be set from 1 to 65534 seconds. [Default → Function DISABLED]

UPS CONFIGURATION – ON LINE

Automatic battery test

If this function is enabled, a battery test is run automatically [Default → Function ENABLED] at scheduled times during UPS operation. [Default → 40 h]

Maximum load

The user can set the load rate after which the UPS will signal a maximum load fault. [Default → Function ENABLED] [Default → 103%]

Auto power on

If this function is enabled, the UPS will re-start automatically when the mains return regardless of the reason why it shutdown.



Some UPS families may not have the function listed above.

Batt. Low time

Used to set the threshold of residual backup time (expressed in minutes and between 0 and 255) under which the UPS activates the low battery alarm. [Default → 3]

Freq. tolerance

Used to select the percentage that defines the frequency range where the UPS is allowed to synchronize the output's sine curve with the input's [Default → 5 %].



The Default value may vary according to the UPS family.

Energys share

The UPS may be equipped with a power outlet that allows for the automatic disconnection of the load applied to them in certain operating conditions.

Setting an event that causes automatic disconnection of the Energys share socket [Default → Never]:

Never	Energys share socket always connected
Battery working	Disconnection in battery operation
Line present	Disconnection if the input mains is present
Battery low	Disconnection in case of low battery charge
User overload	Disconnection for loads greater than the user defined threshold
Overload	Disconnection for overload
Temperature Ok	Disconnection if the temperature of the UPS is good
External input on	Disconnection if remote input signal "Input 3" is active
No lock	Disconnection when there are no locking events
No fault/alarm	Disconnection when there are no alarms
Normal status	Disconnection in case of normal operation
Battery % low	Disconnection for low battery
Stand-by	Disconnection if the UPS is in Stand-by
Always	Energys share socket always disconnected

UPS CONFIGURATION – ON LINE

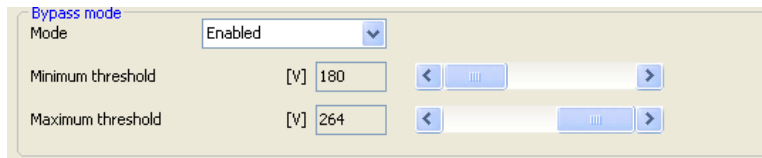
Dly energyshare


Used to set the delay (expressed in seconds and between 0 and 65535) from when the selected event occurs and automatic disconnection of the Energyshare socket. [Default → 0]

 This configuration is possible only for UPS models that have an Energyshare socket.

Bypass mode

Used for setting the bypass operation parameters.





 This setting appears only if the UPS supports this function.

Mode

Used to select the use mode of the bypass line for transitory events and in emergency conditions.

Enabled high sensibility	Changeover on bypass enabled with high triggering sensibility (control of waveform of the inverter voltage active).
Enabled low sensibility	Changeover on bypass enabled with low triggering sensibility (control of waveform of the inverter voltage inactive, control of the RMS value of the inverter voltage active).
Disabled /Inverter sync. Disabled w/ link	Changeover on bypass disabled. Output frequency synchronized with the input frequency.
Disabled /Free running Disabled w/o link	Changeover on bypass disabled. Output frequency NOT synchronized with the input frequency.
Active in stand-by	When the UPS is in stand-by, the load connected to the output is powered via the bypass line.

 If the **Active in stand-by** function is enabled, the UPS output remains powered.


 Some UPS families may not have several of the bypass modes listed above.

Minimum threshold

Used to set the minimum threshold for the bypass voltage accepted for its use; you can set values from 180V to 220V 1V increments [Default →180V].

Maximum threshold

Used to set the maximum threshold for bypass voltage accepted for its use; you can set values from 240V to 264V in 1V increments [Default →264V].


 The Default values may vary according to the UPS family.

UPS CONFIGURATION – ON LINE

Eco mode

Used to set the bypass parameters when the UPS is in Eco mode.


Eco mode
Sensibility: Normal
Minimum eco mode threshold [V]: 200
Maximum eco mode threshold [V]: 253

 This setting appears only if the UPS supports this function.

Sensibility

Used to select the sensibility of the bypass line quality control [Default →NORMAL].

High	When the voltage of the bypass line goes below the minimum threshold setting, the UPS switches immediately to ON LINE operation
Normal	At the selected minimum voltage threshold an hysteresis is added to prevent continuous ECO → ON LINE passages due to fluctuations of the mains
Low	


 This setting appears only if the UPS supports this function.

Minimum eco mode threshold

Used to set the minimum threshold for the bypass voltage range accepted for operating in Eco mode; below this threshold, the UPS switches to On line mode. The values can be set between 180V to 220V in 1V increments [Default → 200V].

Maximum eco mode threshold


Used to set the maximum threshold for the bypass voltage range accepted for operating in Eco mode; over this threshold, the UPS switches to On line mode. The values can be set between 240V to 264V in 1V increments [Default → 255V].

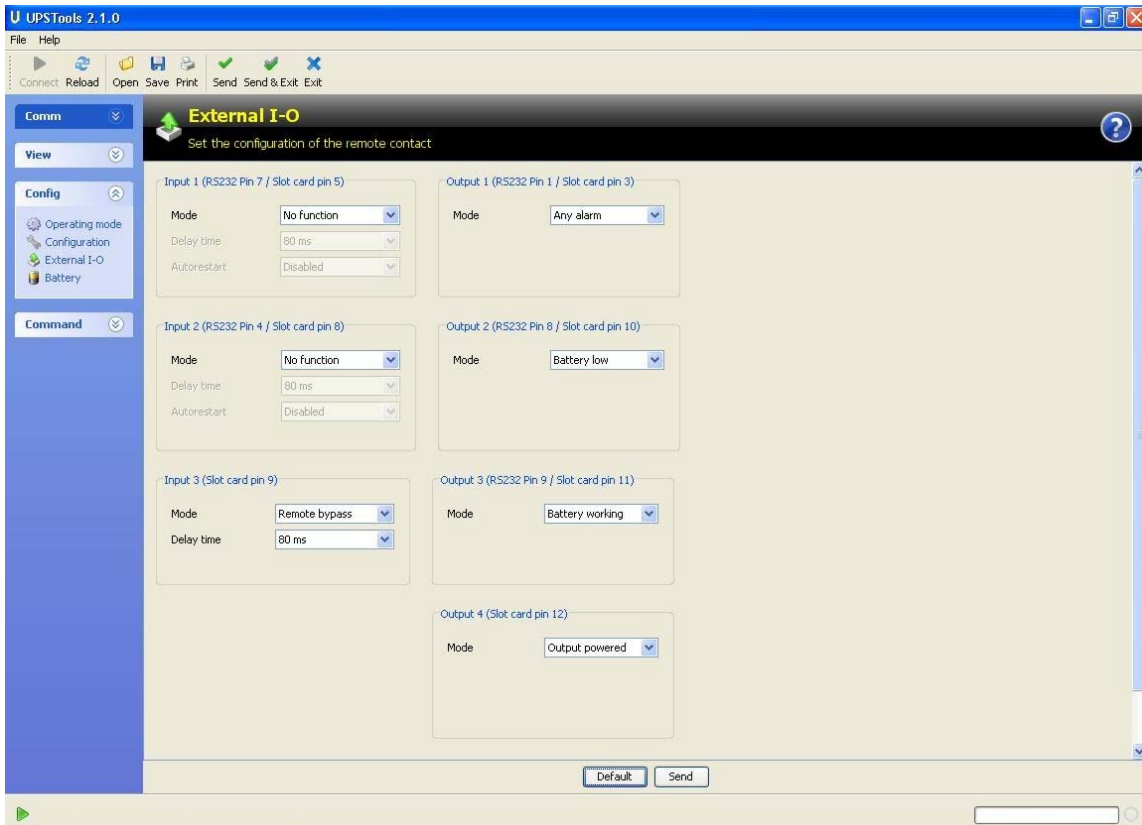
 The Default values may vary according to the UPS family.

UPS CONFIGURATION – ON LINE

EXTERNAL I-O

The “External Input/Output” page allows you to change the configuration of the communication port when used as a contact port; or the configuration of the REMOTE port, if present.

 The visualizations and the settings of this section may vary according to the UPS family.



Input 1 / 2

UPS with REPO function

Input 1 (REMOTE TERMINAL Pin 1-2)	
Mode	REPO
Delay time	80 ms
Autorestart	Disabled
Input 2 (REMOTE TERMINAL Pin 2-3)	
Mode	Remote on
Delay time	80 ms
Autorestart	Disabled

UPS without REPO function




Input 1 (RS232 Pin 7)	
Mode	No function
Delay time	80 ms
Autorestart	Disabled
Input 2 (RS232 Pin 4 / Slot card REPO)	
Mode	No function
Delay time	80 ms
Autorestart	Disabled

UPS CONFIGURATION – ON LINE

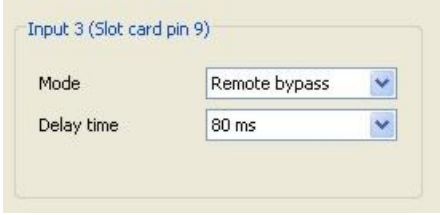
Mode

Allows you to select the input function of the remote command (pin 7 or pin 4 of the RS-232 port):

No function	No function is performed
Remote on	UPS start up
Remote off	UPS shutdown
Remote on/off	UPS start up or shutdown
REPO	UPS shutdown

-  The REPO setting appears only in those UPSs that support this function.
-  In the UPS models (Rack or Rack-Tower) that have the REPO contact, the inputs may be displayed in a slightly different manner and Input 1 can be set only as a remote shutdown contact (REPO).
-  To prevent unwanted start up or shutdown of the UPS enable the Remote on/Remote off function only if the device connected to the communication port of the UPS (PC or otherwise) is capable of correctly handling the signal.

Input 3



Input 3 (Slot card pin 9)


Mode: Remote bypass

Delay time: 80 ms

Mode

Allows you to select the input function of the remote command (pin 9 of the Slot card):

Remote on	turns the UPS in bypass mode
No function	No function is performed

-  The Remote bypass setting appears only in those UPSs that support this function

Delay time

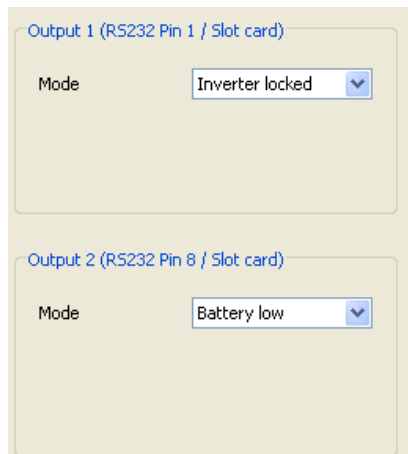
Minimum impulse time for the input mode signal (active high)

Autorestart

Enables or disables the automatic re-start after turning off the UPS (subordinate to the re-starting defined on the "Configuration" page)

UPS CONFIGURATION – ON LINE

Output



The screenshot displays two configuration panels for RS232 outputs. The top panel is titled "Output 1 (RS232 Pin 1 / Slot card)" and has a "Mode" dropdown menu set to "Inverter locked". The bottom panel is titled "Output 2 (RS232 Pin 8 / Slot card)" and has a "Mode" dropdown menu set to "Battery low".

Output 1

Alarm type signaled by output 1.

Output 2

Alarm type signaled by output 2.

Output 3

Alarm type signaled by output 3.



This setting appears only if the UPS supports this function.

Output 4

Alarm type signaled by output 4.



This setting appears only if the UPS supports this function.

UPS CONFIGURATION – ON LINE

Mode

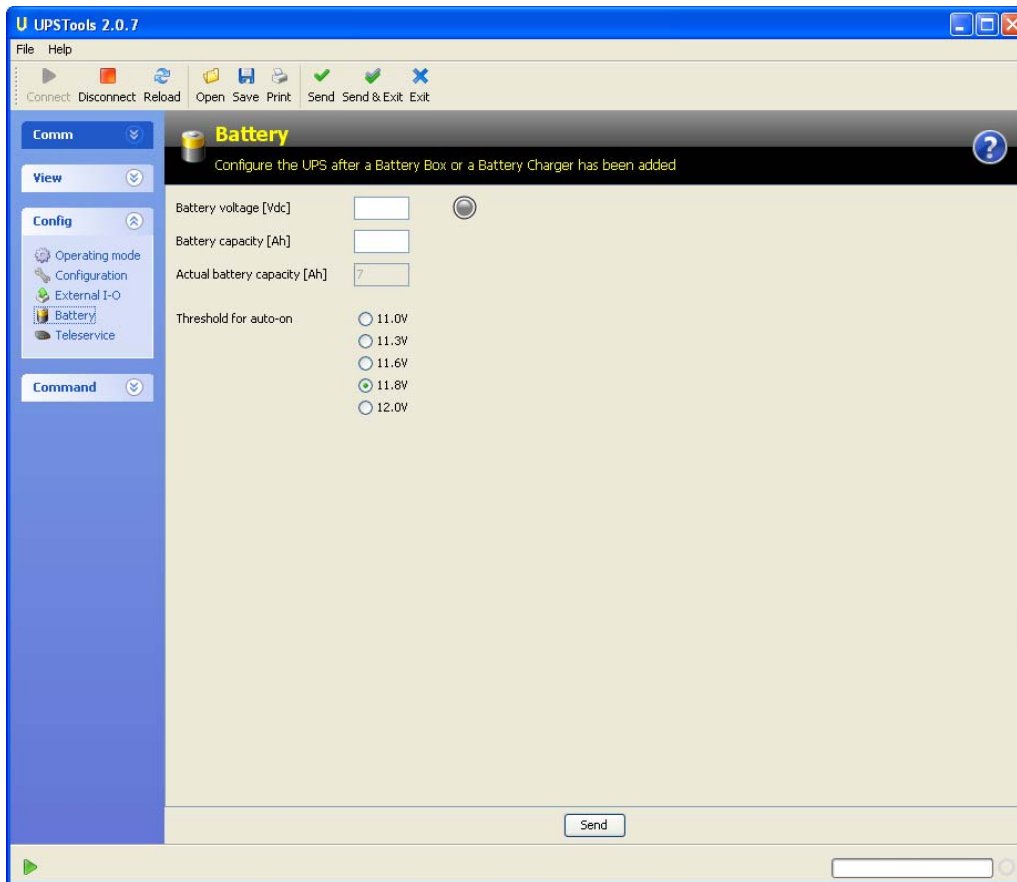
Allows you select the function of the programmable outputs shown in the box.

Battery low	In case of low battery charge
Battery working	In battery operation
Load on bypass	In case of load powered by bypass
Inverter locked	In case the inverter locks
Lock or Fault	In case of UPS faults or locks
Any alarm	In case of any type of active alarm
Overload	In case of overload
Overtemperature	In case of overtemperature
Replace battery	In case of faulty battery
External input	In case of External input 1 connected
Load on inverter	In case of load powered by inverter
Output powered	In case of output voltage present
Bypass bad	In case of bad bypass
Eco mode	In case of operation by ECO
Manual bypass	In case of Manual bypass active
UPS OK	In case of correct functioning, no type of fault, alarm, or lock is active.

UPS CONFIGURATION – ON LINE

BATTERY

The “Battery” page is used to configure the UPS after a Battery Box or battery charger has been added.



Battery voltage

Battery voltage [Vdc]

Enter the battery voltage indicated on the data plate of the Battery Box. To prevent errors, a control has been included on the entered voltage: if this is incorrect, the warning light on the side will turn red and the program will not allow for configuration to be completed. If the warning light is green, the voltage value entered is correct and you can continue with the configuration.

 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

Battery capacity

Battery capacity [Ah]

If the warning light is green, enter the Ah value indicated on the data plate of the Battery Box plus those of the UPS and any additional Battery Boxes (for example: by adding a 14Ah Battery Box to a 7Ah UPS, the value to enter is 21Ah in total).


 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

UPS CONFIGURATION – ON LINE

Actual battery capacity

Actual battery capacity [Ah]

Shows the actual battery capacity settings.

 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

Threshold for auto-on

Threshold for auto-on

- 11.0V
- 11.3V
- 11.6V
- 11.8V
- 12.0V

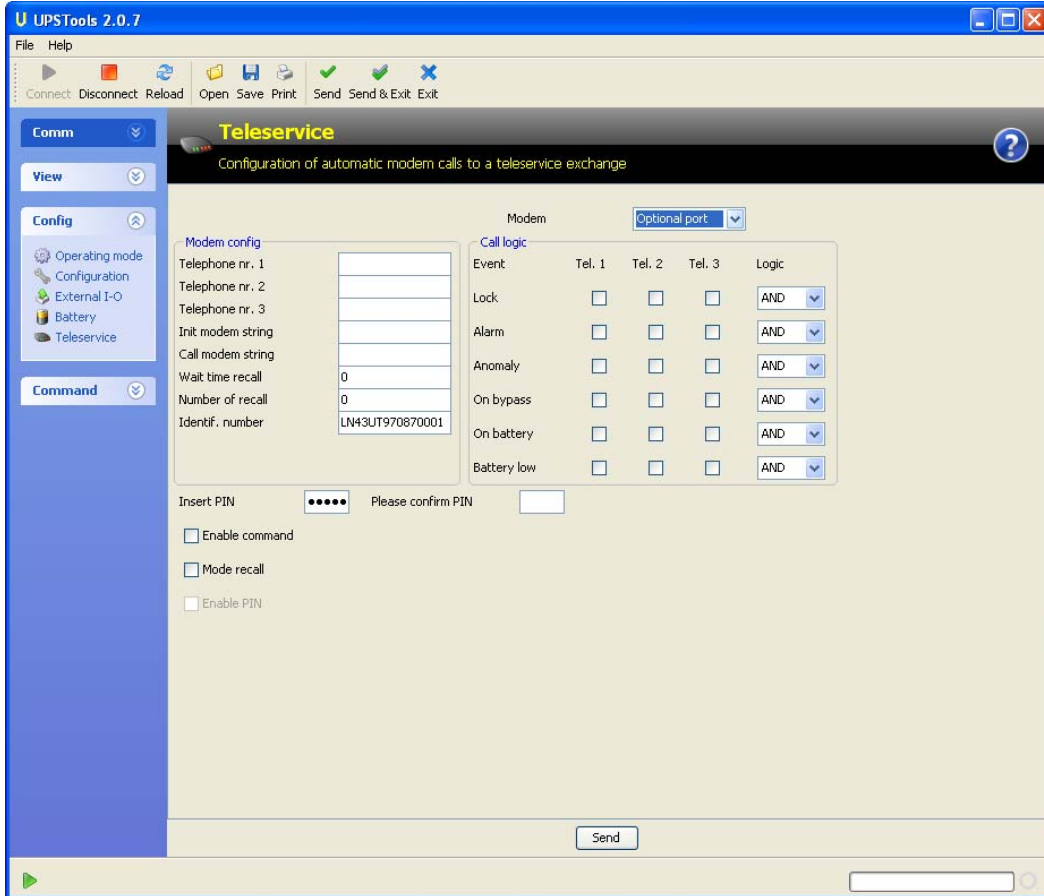
Used to set the voltage level of the battery for automatic re-start.




UPS CONFIGURATION – ON LINE

TELESERVICE

This page requires a Service password.

The “Teleservice” page is used to activate and configure the automatic call procedure via modem in order to contact remote assistance for UPS faults and alarms.



-  If a PIN code has been previously set, the operator has to enter the security code in order to be enabled to edit the data.
-  To enable this function an optional card is required to insert in the expansion slot.
-  This setting appears only if the UPS supports this function.

Modem

Used to select the communication port of the UPS that the modem is connected to

Not installed	No modem, remote assistance function disabled
Optional port	The modem is connected to the optional port (card for expansion slot)
Comm port 1	The modem is connected to Comm port 1
Comm port 2	The modem is connected to Comm port 2

UPS CONFIGURATION – ON LINE

Modem config

Modem config	
Telephone nr. 1	<input type="text"/>
Telephone nr. 2	<input type="text"/>
Telephone nr. 3	<input type="text"/>
Init modem string	<input type="text"/>
Call modem string	<input type="text"/>
Wait time recall	0
Number of recall	0
Identif. number	LN43UT970870001

Telephone no.

Allows you to enter three telephone numbers that the UPS can communicate with.

Init modem string

Specifies the modem command or sequence of commands (without AT suffix) for the initialization of the modem (refer to the modem handbook). Example: "&A0". The commands indicated in this parameter are sent by the UPS to the modem preceded by the sequence with prefix "ATE0V0X0S0=1".

Call modem string

Specifies the modem command or sequence of commands (without AT suffix) to activate the call (refer to the modem handbook). For example: "DT", "DP". The commands indicated in this parameter are sent by the UPS to the modem preceded by the sequence with prefix "AT".

Wait time recall

Specifies the number of seconds to wait between one call and the next call in case of attempt to recall due to failed connection (busy, no answer, etc.);

Number of recall

Specifies the maximum number of call attempts for each of the three telephone numbers in case of failed connection (busy, no answer, etc.)

Identif. Number

This is the UPS identification code. When a call is made to remote assistance, the UPS sends the ID number to be recognized; data exchange only takes place if the UPS code is entered in the remote assistance records.

UPS CONFIGURATION – ON LINE

Call logic

The first column shows the various events and the first line contains the three telephone numbers. The boxes can be set to select which telephone number to call in the various cases. If there is more than one per line, you can select whether to call all the selected numbers (AND logic) or one of them (OR logic).

Event	Tel. 1	Tel. 2	Tel. 3	Logic
Lock	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>
Alarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>
Anomaly	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>
On bypass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>
On battery	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>
Battery low	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	AND <input type="button" value="v"/>

Other settings

Insert PIN	<input type="text" value="•••••"/>	Please confirm PIN	<input type="text"/>
<input type="checkbox"/>	Enable command		
<input type="checkbox"/>	Mode recall		
<input type="checkbox"/>	Enable PIN		

Insert Pin / Please confirm Pin

For security purposes a PIN code can be entered to change the remote assistance configuration. It needs to be entered twice to prevent typing errors



After the PIN code is sent to the UPS, the data for remote assistance can only be changed if the correct security code is entered; if the operator forgets the code, the PIN can only be disabled by the manufacturer. The PIN should only be entered when required for security purposes and you should make sure to keep a copy of the code in a safe place.

Enable command

If the function is enabled, the UPS accepts and executes the commands received remotely via modem (test, shutdown etc.); otherwise the execution of remote commands will be disabled.

Mode recall

Enables the mode used by the UPS to establish communication with the modem and remote assistance.

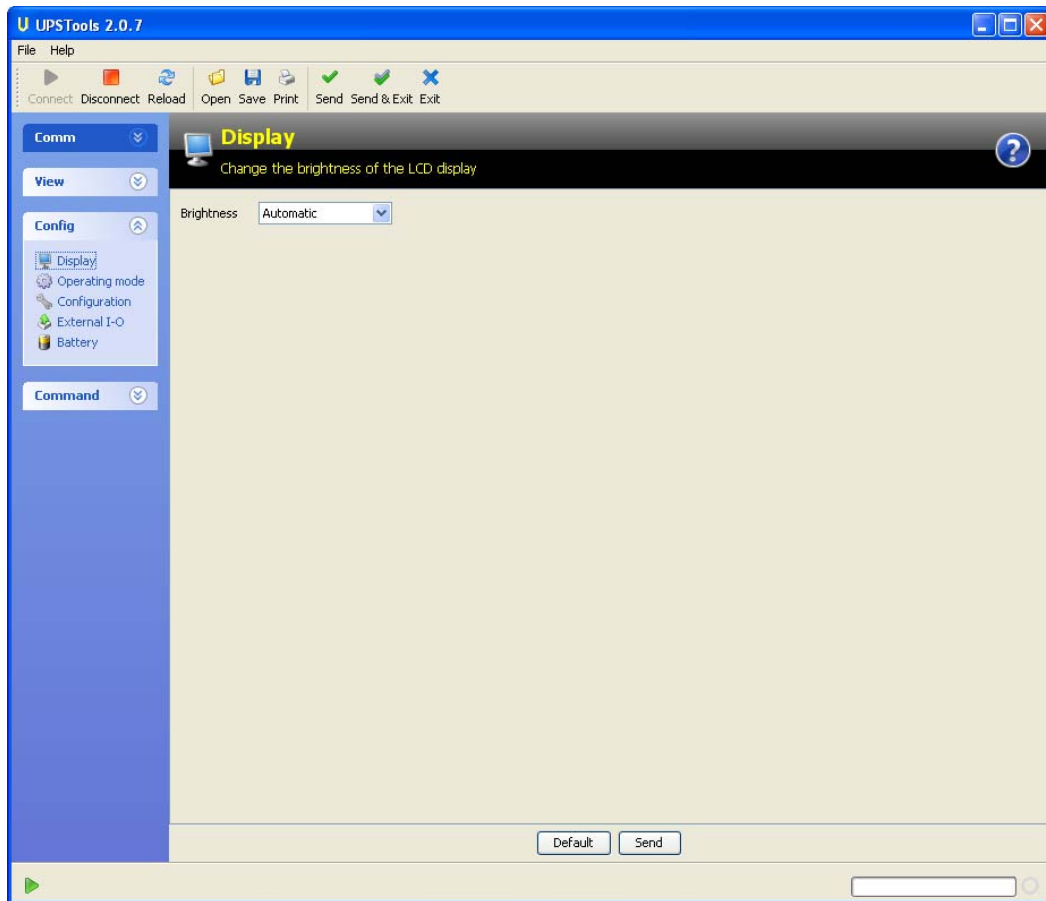
UPS CONFIGURATION – LINE INTERACTIVE

UPS CONFIGURATION – LINE INTERACTIVE


CONFIG

DISPLAY

The “Display” page is used to change the brightness settings on the LCD display to save energy or to keep the back light on at all times. [Default → AUTOMATIC]



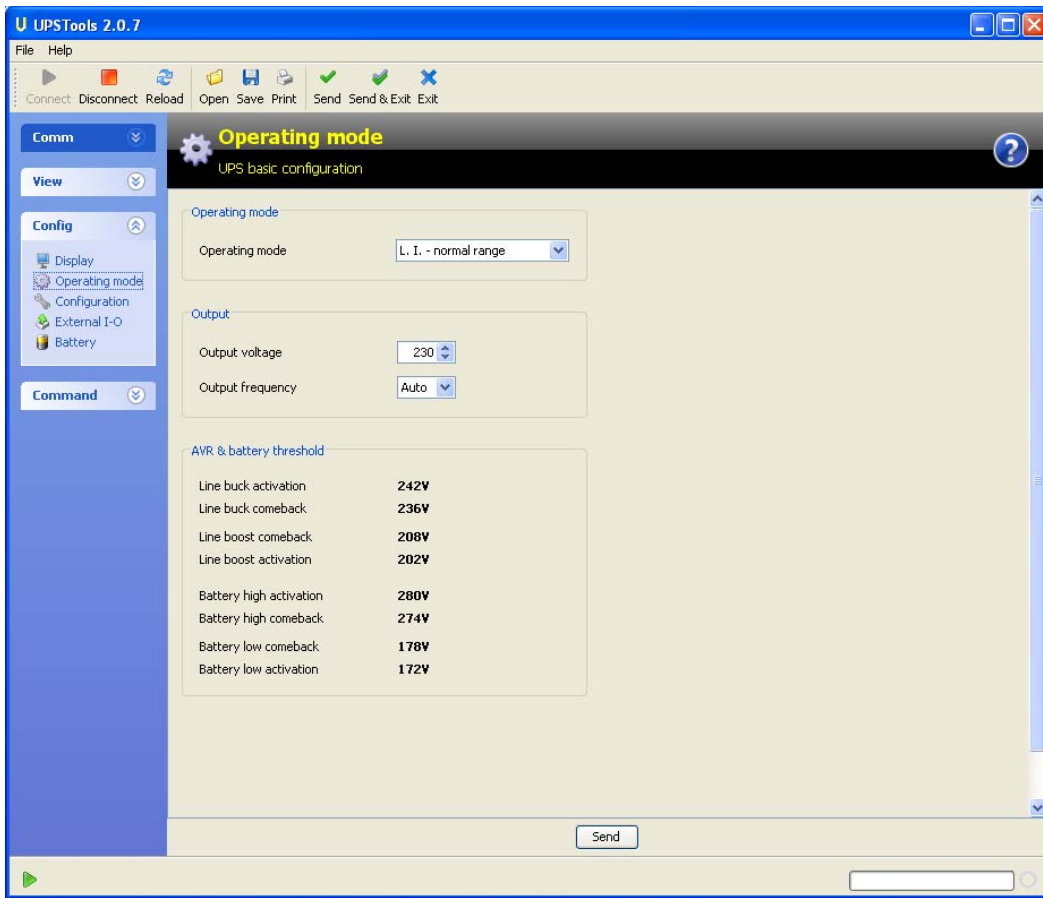
Always ON	Back light always on
Automatic	Back light is managed automatically by the UPS
Always OFF	Back light always off

 This page may not be available on some models.

UPS CONFIGURATION – LINE INTERACTIVE

OPERATING MODE

Used to set the main UPS operating parameters.



Operating mode

The “Operating mode” page is used to configure the operating mode from one of those supported.



Mode

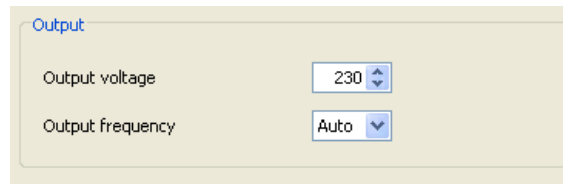
Select the operating mode desired: [Default → L.I. – normal range]

L.I. – normal range	Line Interactive Mode- standard input voltage range
L.I. – wide range	Line Interactive Mode– extended input voltage range
L.I. – narrow range	Line Interactive Mode– limited input voltage range
ECO – normal range	ECO Mode (greater efficiency) – standard input voltage range
ECO – wide range	ECO Mode (greater efficiency) - extended input voltage range
ECO – AVR off – normal range	ECO Mode (greater efficiency) – AVR disconnected- standard input voltage range
ECO – AVR off – wide range	ECO Mode (greater efficiency) – AVR disconnected- extended input voltage range

UPS CONFIGURATION – LINE INTERACTIVE

Output

The “Output settings” page is used to configure the UPS voltage (between 220 and 240 Volt) and frequency parameters.



Output


Output voltage	230
Output frequency	Auto


Output voltage

Use to set the desired output voltage of the UPS [Default → 230V].

Output frequency

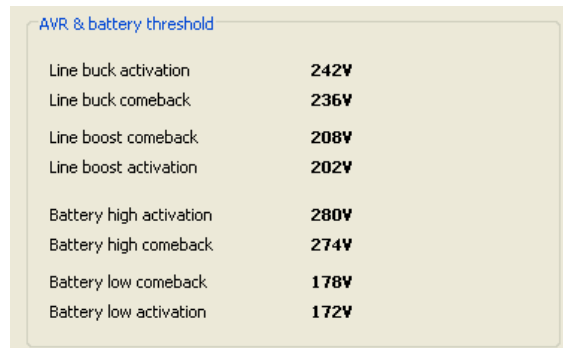
Use to select the desired output frequency (50 or 60 Hz) of the UPS [Default →Auto].

 The configuration of the set frequency is activated only when the UPS is powering up. Therefore, if you make a change you need to shutdown the UPS and then restart it.

 Incorrect output frequency conversion may cause damage to the loads connected to the UPS. Before configuring the parameter, check the rated frequency of the loads connected to the UPS.

AVR & battery threshold

The “AVR & battery threshold” page allows you to see the voltage thresholds for the activation/ return for operating in buck, boost, and battery mode. These thresholds vary with the operating mode and output voltage setting changes.

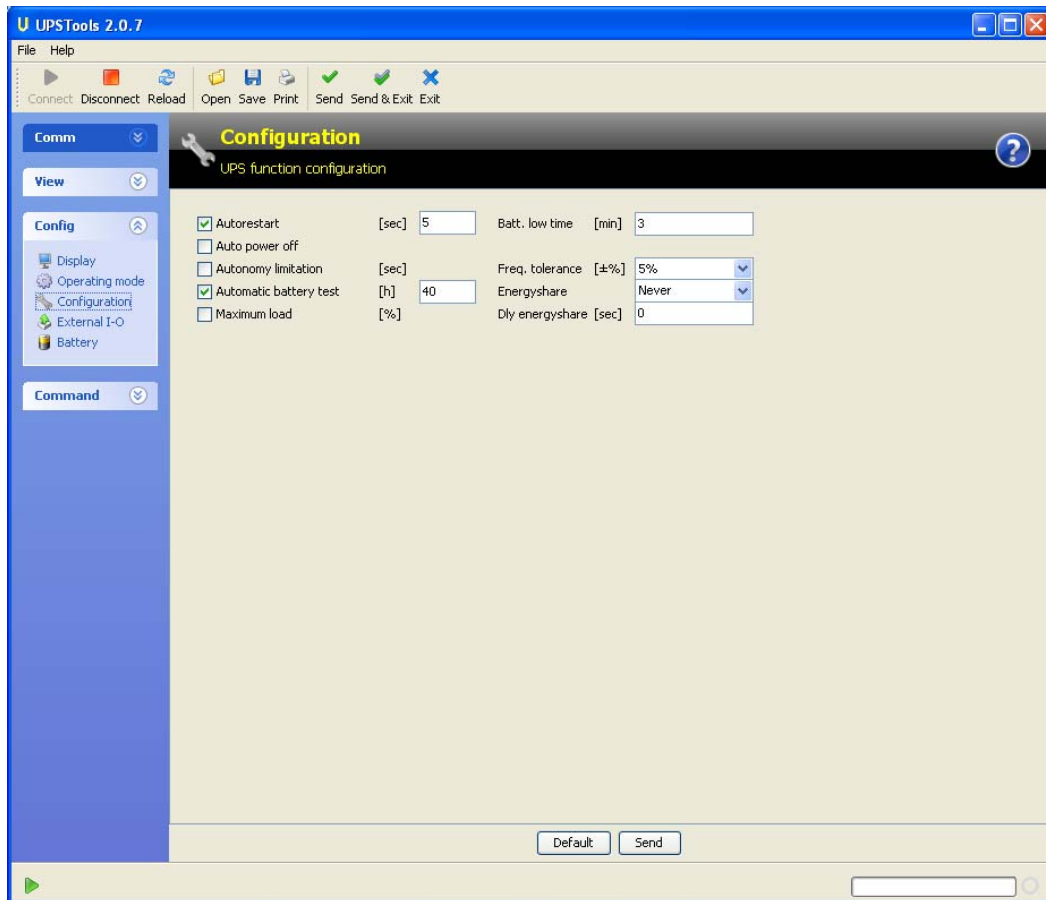


AVR & battery threshold

Line buck activation	242V
Line buck comeback	236V
Line boost comeback	208V
Line boost activation	202V
Battery high activation	280V
Battery high comeback	274V
Battery low comeback	178V
Battery low activation	172V

UPS CONFIGURATION – LINE INTERACTIVE

CONFIGURATION



Autorestart

If during operation via battery, the UPS shuts off due to end of backup time, a remote shutdown or auto power off command, if this function is enabled the UPS will automatically start up when the mains power supply is restored; if the function is disabled, the UPS will remain in stand-by [Default →Function ENABLED].

If the function is enabled, you can set the delay (expressed in seconds and between 0 and 255) between mains restore and the restart of the UPS [Default→5 sec].

Auto power off

If during operation from the battery, the percentage of load powered by the UPS goes below the 5% threshold (load off or disconnected), the UPS will shut off automatically after 40 seconds if the function is enabled; if the function is disabled it will continue to function as usual from the battery. [Default → Function DISABLED]

Autonomy limitation

Allows (if enabled) to specify a maximum time in seconds of operation from battery; once this time has passed, the UPS automatically shuts down even if the battery backup time has not finished; this time can be set from 1 to 65534 seconds. [Default → Function DISABLED]

Automatic battery test

If this function is enabled, a battery test is run automatically [Default →Function ENABLED] at scheduled times during UPS operation. [Default → 40 h]

UPS CONFIGURATION – LINE INTERACTIVE

Maximum load

The user can set the load rate after which the UPS will signal a maximum load fault.
[Default → Function ENABLED] [Default → 103%]

Auto power on

If this function is enabled, the UPS will re-start automatically when the mains return regardless of the reason why it shutdown.



This function may not be available in some models.

Batt. Low time

Used to set the threshold of residual backup time (expressed in minutes and between 0 and 255) under which the UPS activates the low battery alarm. [Default → 3]

Freq. tolerance

Used to select the percentage that defines the frequency range where the UPS is allowed to synchronize the output's sine curve with the input's [Default→5 %].

Energysshare

The UPS may be equipped with a power outlet that allows for the automatic disconnection of the load applied to them in certain operating conditions.

Setting the event that causes automatic disconnection of the Energysshare socket [Default → NEVER]:

Never	Energysshare socket always connected
Battery working	Disconnection in battery operation
Line present	Disconnection if the input mains is present
Battery low	Disconnection in case of low battery charge
User overload	Disconnection for loads greater than the user defined threshold
Overload	Disconnection for overload
Temperature Ok	Disconnection if the temperature of the UPS is good
External input on	Disconnection if remote input signal "Input 3" is active
No lock	Disconnection when there are no locking events
No fault/alarm	Disconnection when there are no alarms
Normal status	Disconnection in case of normal operation
Battery % low	Disconnection for low battery
Stand-by	Disconnection if the UPS is in Stand-by
Always	Energysshare socket always disconnected

Dly energysshare

Used to set the delay (expressed in seconds and between 0 and 65535) from when the selected event occurs and automatic disconnection of the Energysshare socket. [Default → 0]

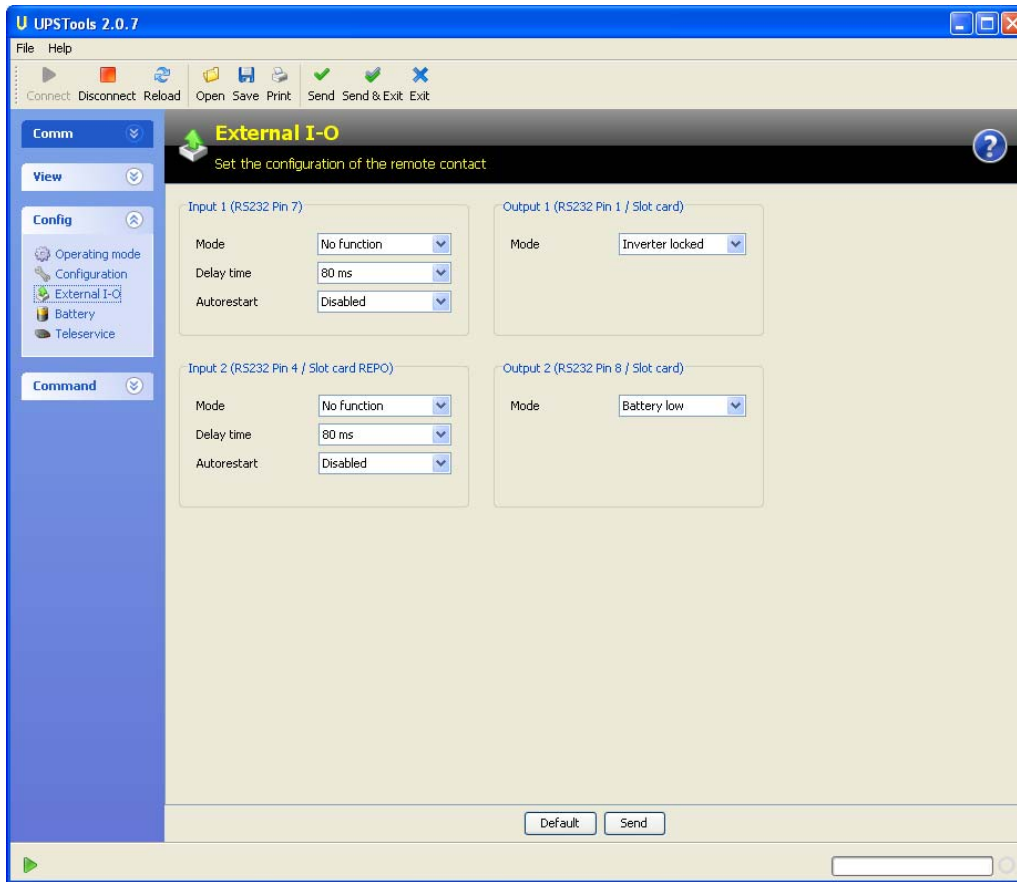


This configuration is possible only for UPS models that have an Energysshare socket.

UPS CONFIGURATION – LINE INTERACTIVE

EXTERNAL I-O

The “External Input/Output” page allows you to change the configuration of the communication port when used as a contact port; or the configuration of the REMOTE port, if present.



Input

UPS with REPO function

Input 1 (REMOTE TERMINAL Pin 1-2)	
Mode	REPO
Delay time	80 ms
Autorestart	Disabled
Input 2 (REMOTE TERMINAL Pin 2-3)	
Mode	Remote on
Delay time	80 ms
Autorestart	Disabled

UPS without REPO function


Input 1 (RS232 Pin 7)	
Mode	No function
Delay time	80 ms
Autorestart	Disabled
Input 2 (RS232 Pin 4 / Slot card REPO)	
Mode	No function
Delay time	80 ms
Autorestart	Disabled


UPS CONFIGURATION – LINE INTERACTIVE

Mode

Allows you to select the input function of the remote command (pin 7 or pin 4 of the RS-232 port):

No function	No function is performed
Remote on	UPS start up
Remote off	UPS shutdown
Remote on/off	UPS start up or shutdown
REPO	UPS shutdown

 In the UPS models (Rack or Rack-Tower) that have the REPO contact, the inputs may be displayed in a slightly different manner and Input 1 can be set only as a remote shutdown contact (REPO).

 To prevent unwanted start up or shutdown of the UPS enable the Remote on/Remote off function only if the device connected to the communication port of the UPS (PC or otherwise) is capable of correctly handling the signal.

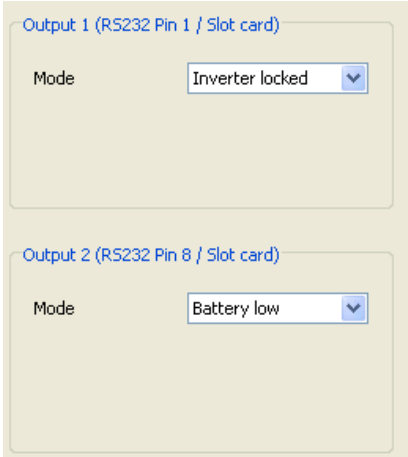
Delay time

Minimum duration of the impulse for the input mode signal (active high).

Autorestart

Enables or disables the automatic re-start after turning off the UPS (subordinate to the re-starting defined on the “Configuration” page)

Output



Output 1 (RS232 Pin 1 / Slot card)
Mode: Inverter locked

Output 2 (RS232 Pin 8 / Slot card)
Mode: Battery low

Output 1

Alarm type signaled by output 1 (pin 1 of the RS-232 port)

Output 2

Alarm type signaled by output 2 (pin 8 of the RS-232 port)

UPS CONFIGURATION – LINE INTERACTIVE

Mode

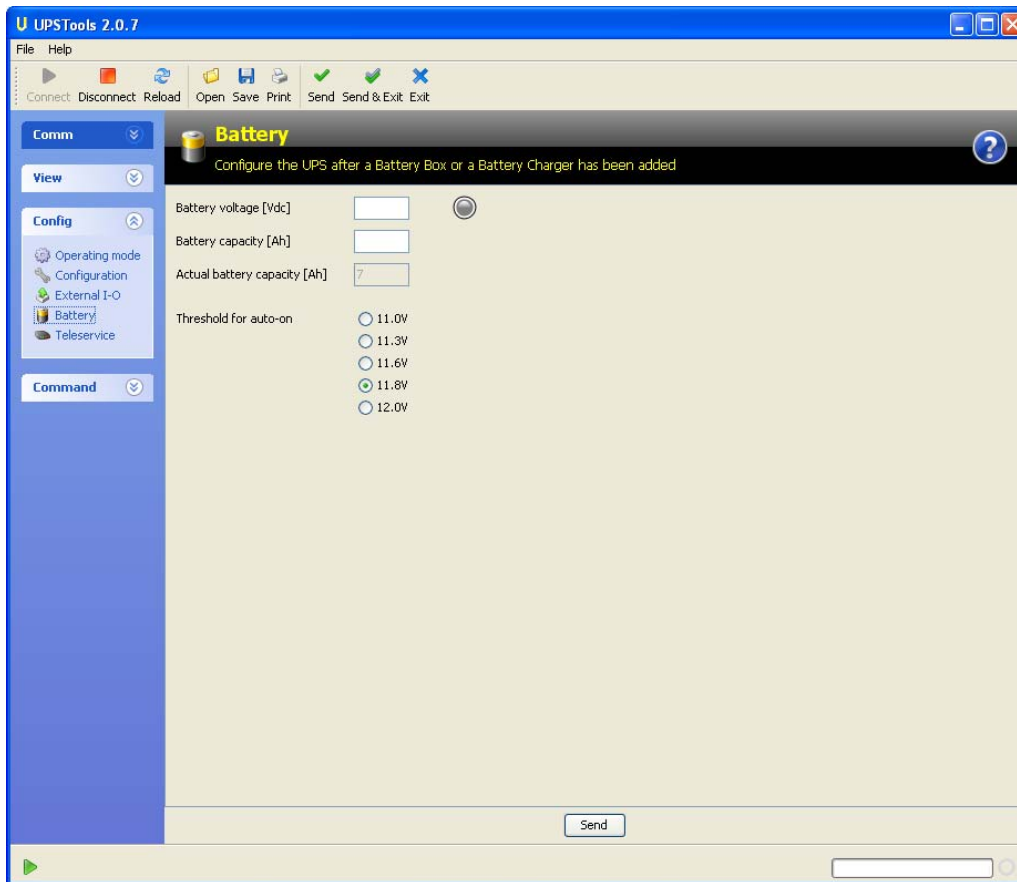
Allows you select the function of the programmable outputs shown in the box.

Battery low	In case of low battery charge
Battery working	In battery operation
Load on bypass	In case of load powered by bypass
Inverter locked	In case the inverter locks
Lock or Fault	In case of UPS faults or locks
Any alarm	In case of any type of active alarm
Overload	In case of overload
Overtemperature	In case of overtemperature
Replace battery	In case of faulty battery
External input	In case of External input 1 connected
Load on inverter	In case of load powered by inverter
Output powered	In case of output voltage present
Bypass bad	In case of bad bypass
Eco mode	In case of operation by ECO
Manual bypass	In case of Manual bypass active
UPS OK	In case of correct functioning, no type of fault, alarm, or lock is active.

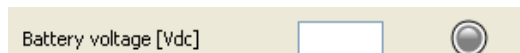
UPS CONFIGURATION – LINE INTERACTIVE

BATTERY

The “Battery” page is used to configure the UPS after a Battery Box or battery charger has been added.



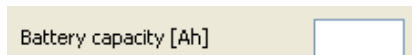
Battery voltage



Enter the battery voltage indicated on the data plate of the Battery Box. To prevent errors, a control has been included on the entered voltage: if this is incorrect, the warning light on the side will turn red and the program will not allow for configuration to be completed. If the warning light is green, the voltage value entered is correct and you can continue with the configuration.

 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

Battery capacity



If the warning light is green, enter the Ah value indicated on the data plate of the Battery Box plus those of the UPS and any additional Battery Boxes (for example: by adding a 14Ah Battery Box to a 7Ah UPS, the value to enter is 21Ah in total).


 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

UPS CONFIGURATION – LINE INTERACTIVE

Actual battery capacity

Actual battery capacity [Ah]

Shows the actual battery capacity settings.

 This setting appears only if the UPS is equipped with a battery expansion socket and supports this function.

Threshold for auto-on

Threshold for auto-on

- 11.0V
- 11.3V
- 11.6V
- 11.8V
- 12.0V

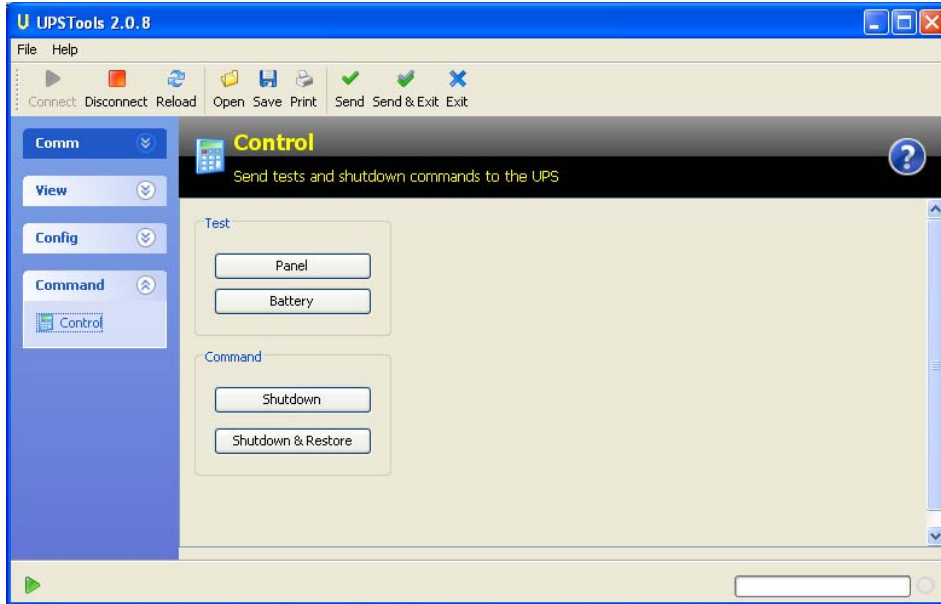
Used to set the voltage level of the battery for automatic re-start.

COMMANDS

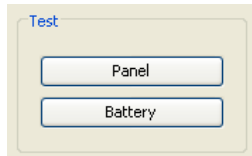
COMMANDS

COMMAND

CONTROL



Test



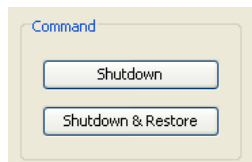
Panel

Allows you to run a panel test of the UPS, all icons on the screen will turn on for several seconds.

Battery

Activates the battery test. The command is performed only if the UPS is operating from the mains, the load is supplied by the inverter and the batteries are at least 90% charged.

Command



Shutdown

Allows you to run a shutdown test of the UPS, setting the delay (in seconds) from sending the command to shutdown of the UPS.

Shutdown & Restore

Allows you to run a shutdown and restore test of the UPS, setting the time (in seconds) from sending the command to shutdown of the UPS and the delay (in minutes) for the subsequent restarting of the UPS.