

UPSTools

- User's Manual -

Compatible with UPS series:

- VST / VSD / VSR
- SEP / SER / SDH
- SDU / STW
- CAM

Symbols used in this manual:



Danger

Indicates information that must not be ignored.
Failure to follow these indications may cause serious damage to the UPS, the batteries or the load.



Warning

Indicates important information.
Failure to follow these indications may result in UPS malfunctioning.



Information


Provides notes and useful suggestions for the User.


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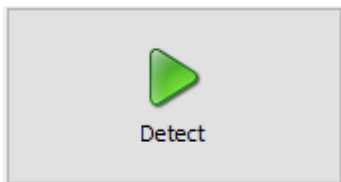
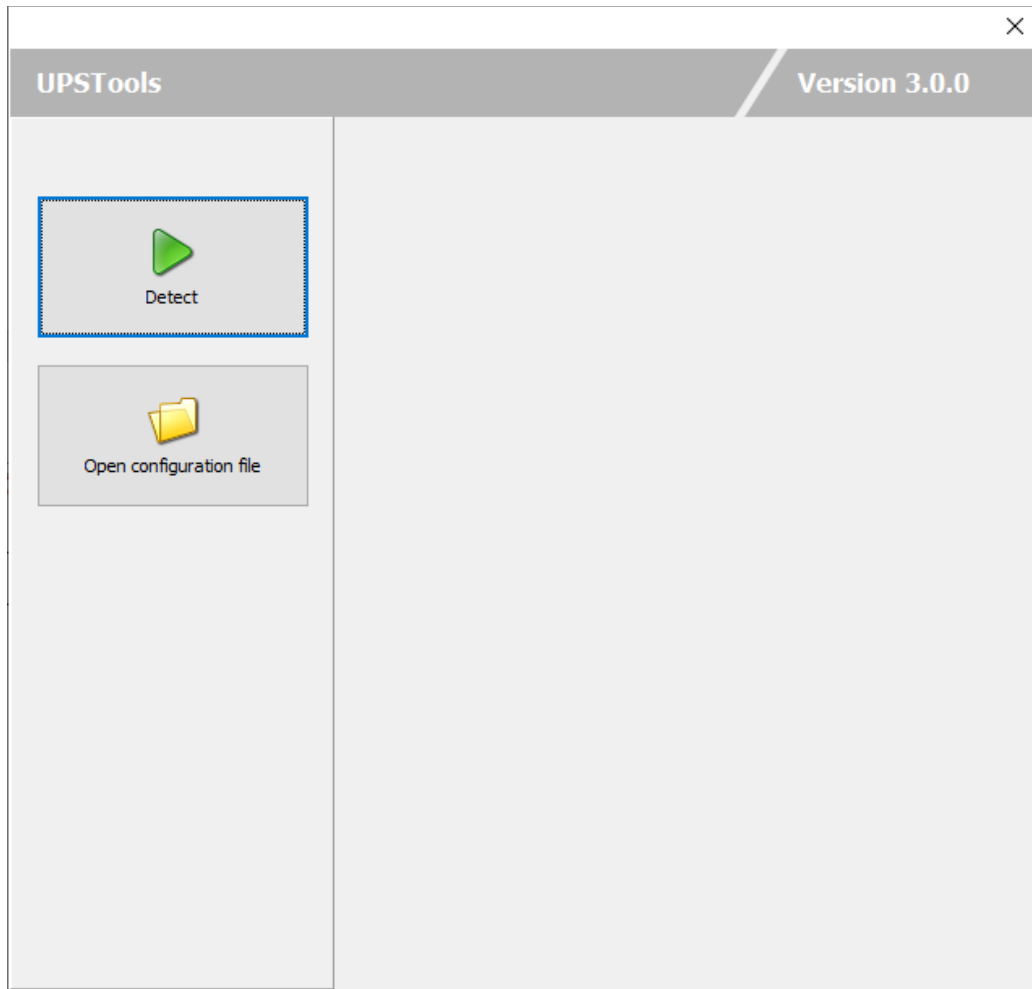
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UPSTOOLS

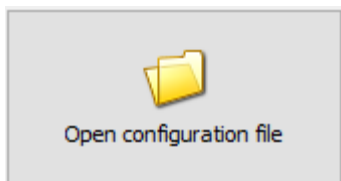
UPSTools is a utility program, compatible with Windows systems, for the configuration of your UPS via USB port.

 For the PC↔UPS connection, use a USB cable 2.0 (A-B, m-m).

 **Software version:** This manual refers to UPSTools version 3.0.0 or higher.



To identify the UPS connected.



To open a configuration file previously saved.

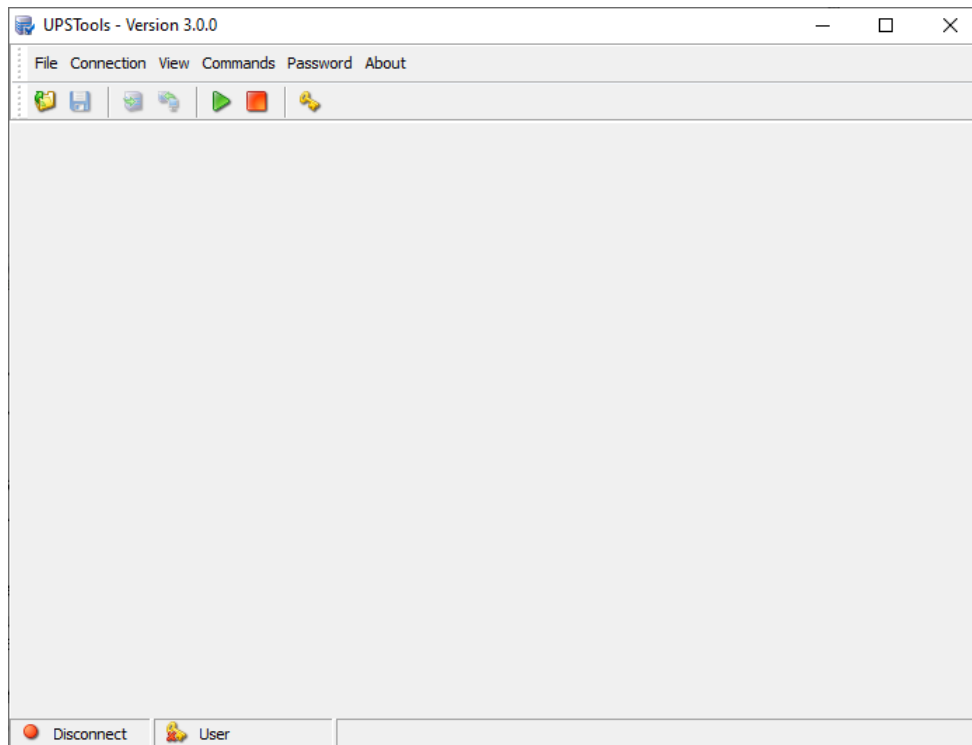


To proceed with the configuration once the UPS has been identified.



Not all functions are available for all UPS series.
Refer to the code on the UPS data plate to trace back to the UPS model you own (ex. P/N: **CSDUK10AA5...**).

MENU

**Open**

To open a configuration file (.gcf or .gcf) previously saved.

**Save**

To save a configuration file containing all the settings selected.

**Download**

To download the actual configuration of the UPS and to display it.

**Upload**

To upload the new configuration into the UPS.

**Connect**

To activate the PC↔UPS connection.

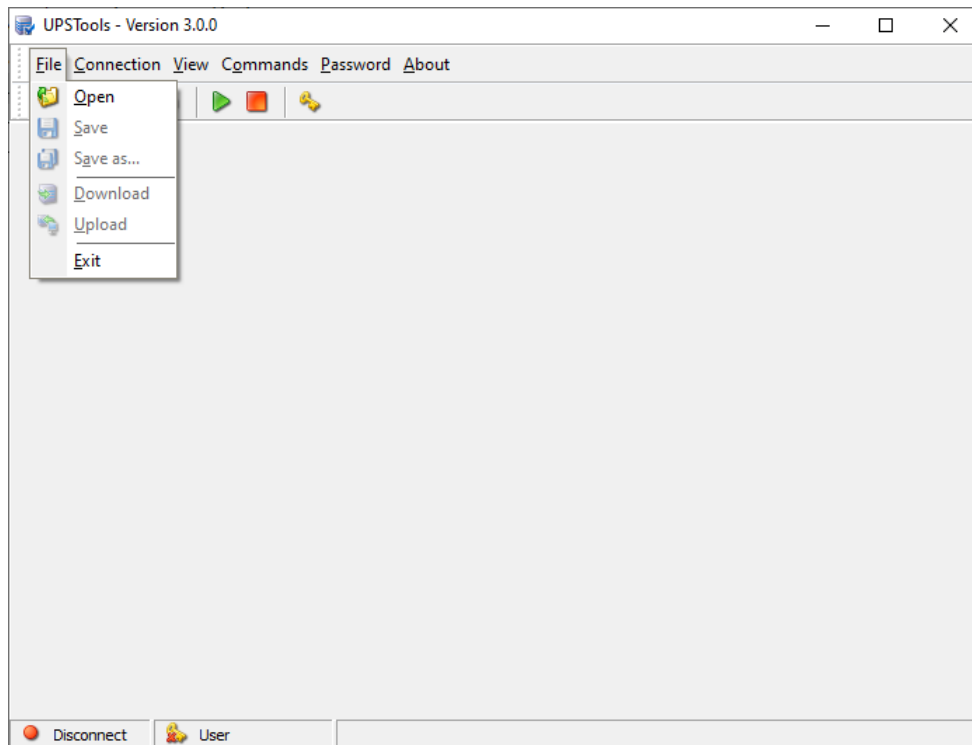
**Disconnect**

To deactivate the PC↔UPS connection.

**Service password**

To enter the password to access the Service level.

FILE



Open

To open a configuration file (.gcfs or .gcf) previously saved.

Save

To save a configuration file containing all the settings selected.

Save as...

To save and rename a configuration file containing all the settings selected.

Download

To download the actual configuration of the UPS and to display it.



The command is active only if the UPS is connected (see *Menu* → *Connection* → *Connect*).

Upload

To upload the new configuration into the UPS.



The command is active only if the UPS is connected (see *Menu* → *Connection* → *Connect*).

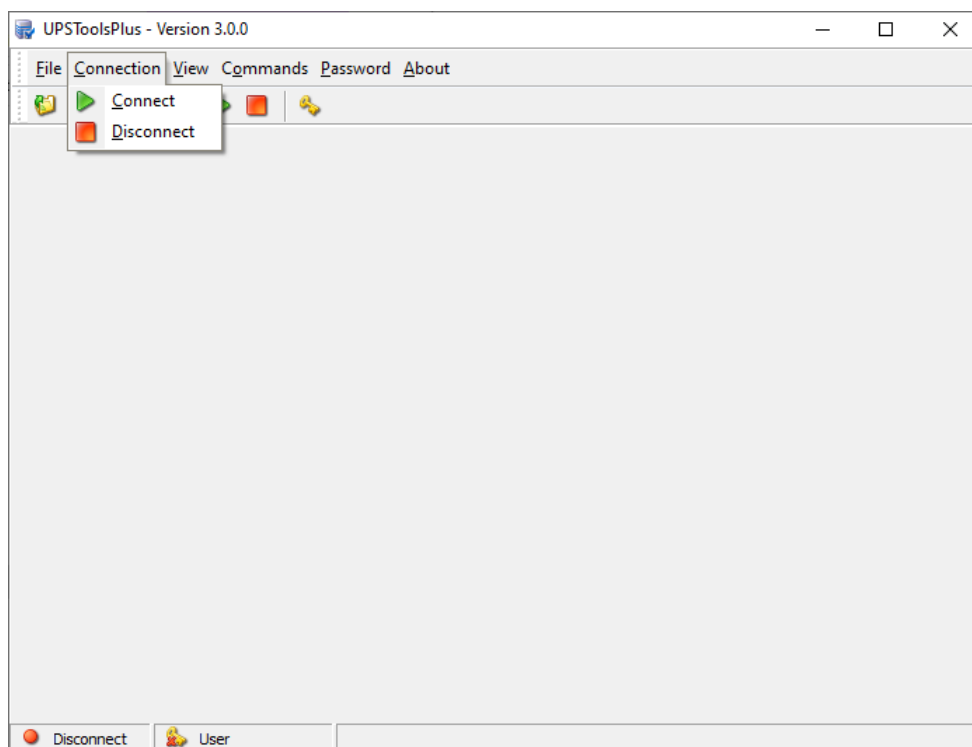


This command overwrites the UPS configuration with the new one and the previous configuration cannot be restored. Before executing the command, make sure that all set values are correct.

Exit

To exit the program.

CONNECTION



Connect

To activate the PC↔UPS connection by the USB port.

Disconnect

To deactivate the PC↔UPS connection.



The Connect/Disconnect status of the UPS is indicated in the status bar on the bottom left

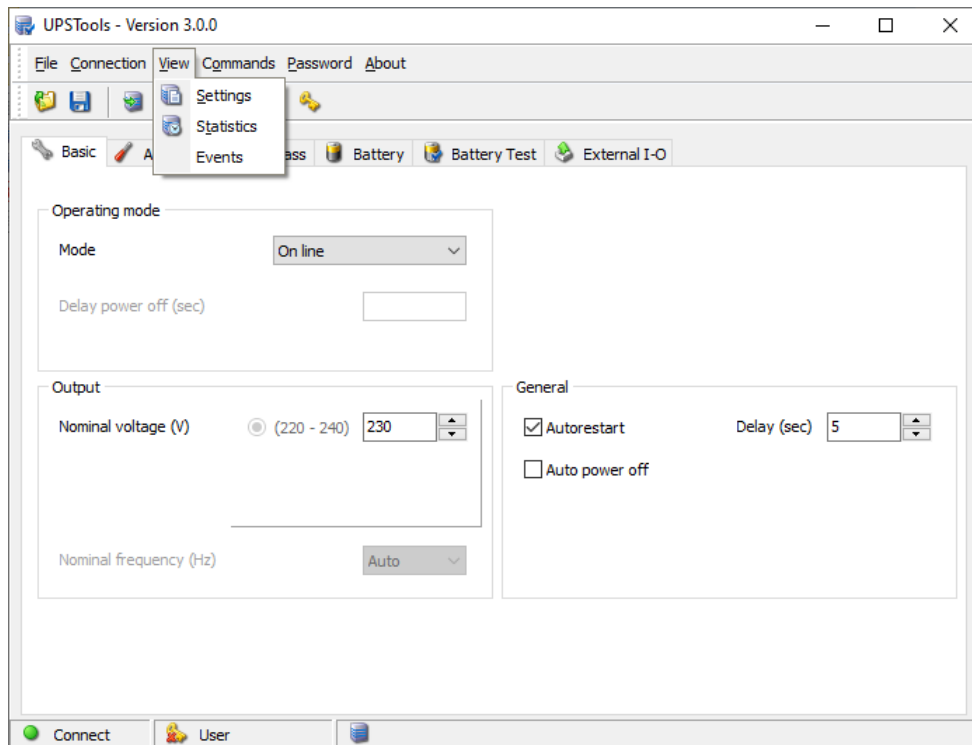


Disconnect



Connect

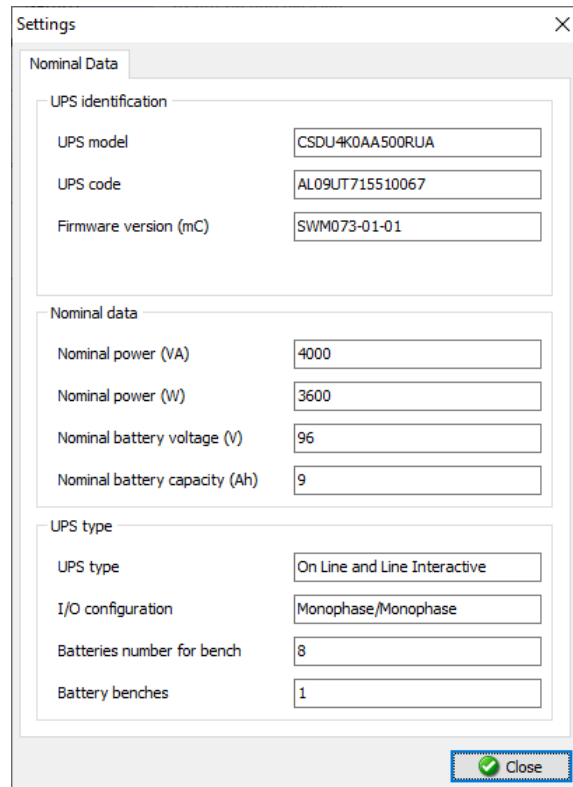
VIEW



The View menu is active only if the configuration has already been downloaded (see *Menu* → *File* → *Download*).

Settings

Displays the identification data, nominal data, and the type of UPS connected.



Statistics

Displays the values of the internal counters and timers of the UPS.

The screenshot shows a dialog box titled "Statistics" with a close button (X) in the top right corner. It is divided into two sections: "Counters" and "Timers".

Counters:

- Nr. battery working: 0
- Nr. bypass work: 0
- Locks due to short circuit: 0
- Locks due to overload: 0
- Locks due to overtemperature: 0
- Other locks: 0

Timers:

- Total working time: 0h 0m
- Total time on battery: 0h 0m
- Inverter work time in ECO: 0h 0m

At the bottom right, there is a "Close" button with a green checkmark icon.

Events



This command is available only for SEP, SER, SDH and SDU (4kVA) series.

Displays the log of recent lock events.

Service date



This command is available only for SDU (5÷10kVA), STW and CAM series.

Displays the dates of the most recent activities carried out by the Service team and the months/days remaining before the next scheduled maintenance.

The screenshot shows a dialog box titled "Service date" with a close button (X) in the top right corner. It is divided into two sections: "Service Date" and "Time to service".

Service Date:

- First installation: 20/09/2017
- Last battery change: Not initialized

Time to service:

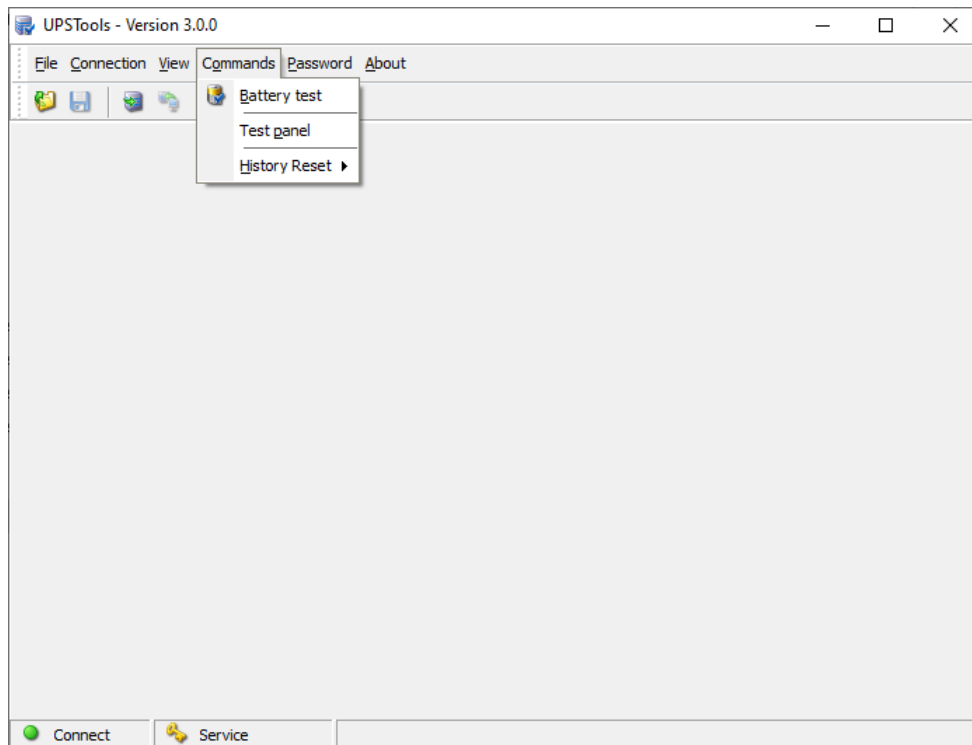
- UPS alarm: Months --- Days ---
- Battery alarm: Months --- Days ---

At the bottom right, there is a "Close" button with a green checkmark icon.

COMMANDS



All commands are active only when the UPS is connected (see *Menu* → *Connection* → *Connect*).



Battery test

To activate the battery test. The command is carried out only if the UPS is powered by the mains, the load is powered by inverter and the batteries are at least 90% charged.

Test panel

To execute a UPS panel test.

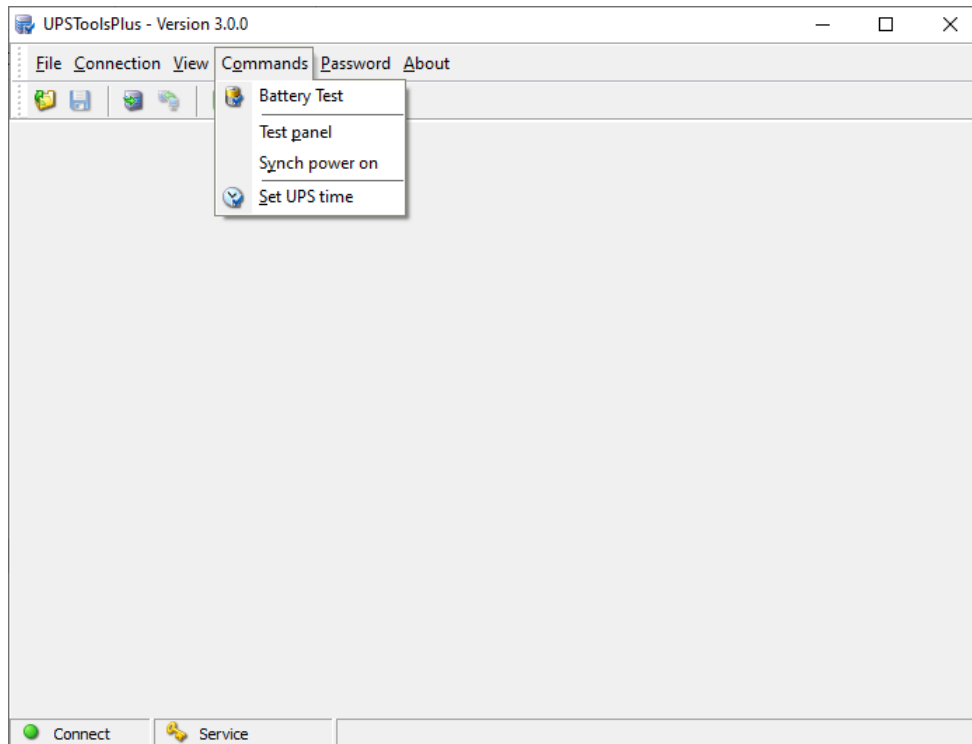
History reset




This command is available only for SEP, SER, SDH and SDU (4kVA) series.

Counters reset → To reset all UPS counters (see *Menu* → *View* → *Statistics*)

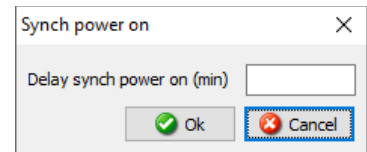
Timers reset → To reset all UPS timers (see *Menu* → *View* → *Statistics*)





Synch power on

 This command is available only for SDU (5÷10kVA), STW and CAM series.


If sent to a UPS belonging to a parallel system, the command simultaneously switches on all of the UPS devices. To be used to power the system on when the load already connected, in order to avoid overload problems which may occur if all the UPS devices are not switched on simultaneously.



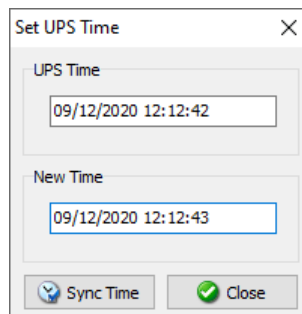
 The command is carried out only if the UPS is on Stand-by.

 The service level password is required to execute this command.

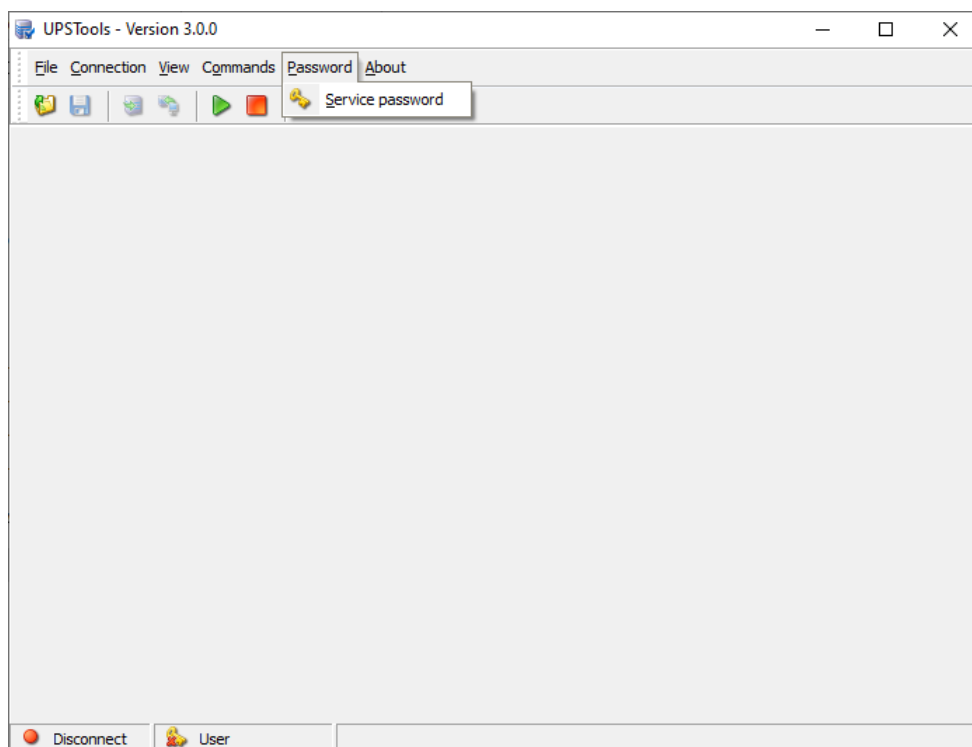
Set UPS time

 This command is available only for SDU (5÷10kVA), STW and CAM series.

To change the UPS clock and date.



PASSWORD



Service password

To enter the password to access the Service level.

ABOUT

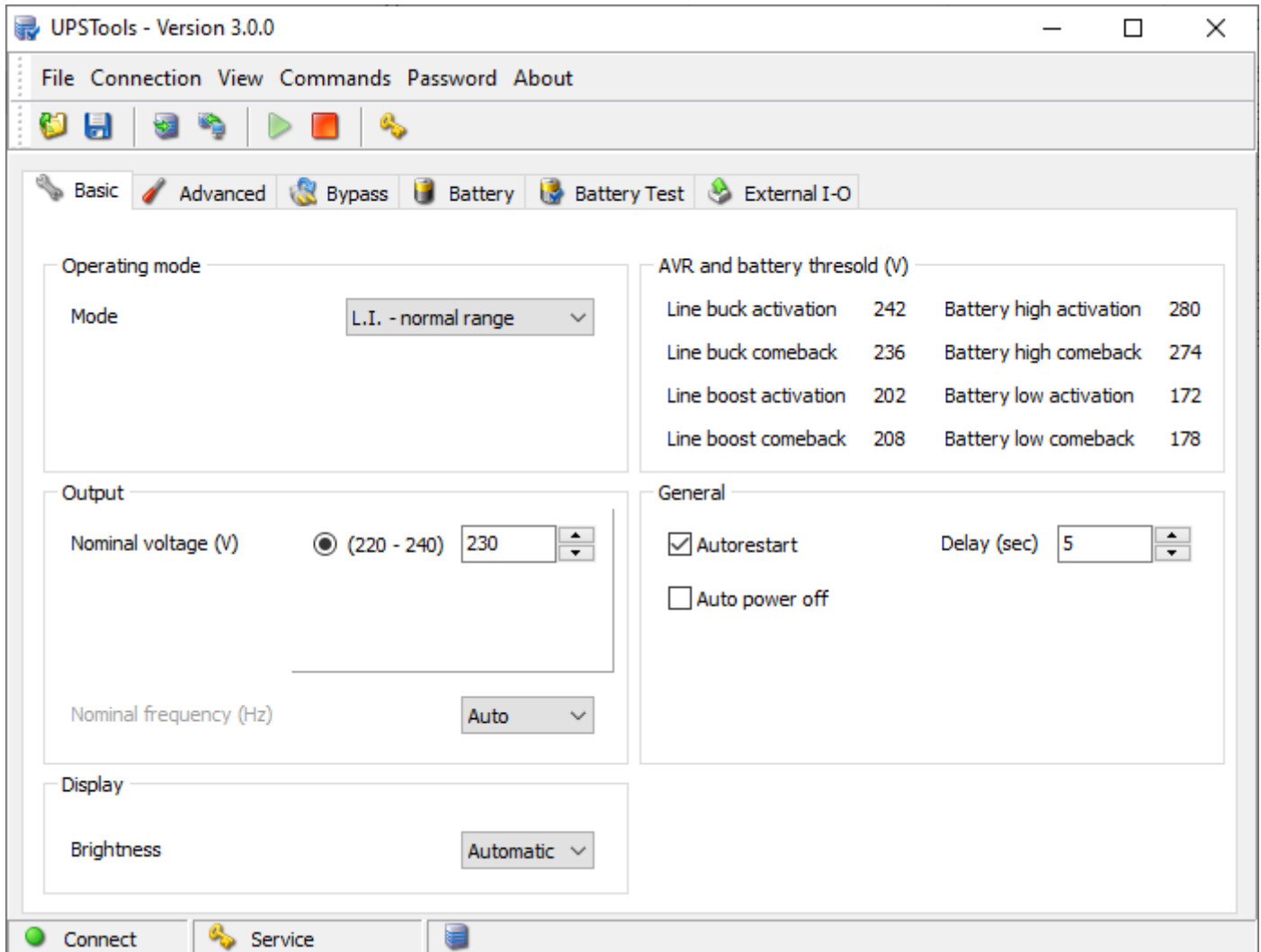
Help

To open this manual.

VST / VSR / VSD - SETTINGS

BASIC

Setting of the main UPS operating parameters.



OPERATING MODE

Operating mode

Mode L.I. - normal range ▼

Mode

Select the desired operating mode [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

AVR AND BATTERY THRESHOLD

AVR and battery threshold (V)			
Line buck activation	242	Battery high activation	280
Line buck comeback	236	Battery high comeback	274
Line boost activation	202	Battery low activation	172
Line boost comeback	208	Battery low comeback	178

These are read only parameters which varies according to the setting of operation mode and output voltage.

OUTPUT

Output

Nominal voltage (V) (220 - 240)

Nominal frequency (Hz) ▼

Nominal voltage

Set the desired output voltage of the UPS [Default → 230V].

Nominal frequency



The service level password is required to configure this parameter.

Set the desired output frequency of the UPS [Default → Auto].

If "Auto" is set, the output frequency of the UPS is automatically set according to frequency of the input mains.



The configuration of a new frequency set occurs only when the UPS is powered. After any changes are made, the UPS must be completely switched off and then switched back on.



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

GENERAL

General

Autorestart Delay (sec)

Auto power off

Auto restart

If, during battery operation, the UPS switches off due to end of autonomy, or due to a remote shutdown command, or due to self-shutdown, when power is restored, the UPS automatically switches on if the function is enabled; otherwise, it remains in stand-by if the function is disabled [Default → Function ENABLED].

If the function is enabled, set the delay (expressed in seconds from 0 to 255) between the restoration of power and the switching on of the UPS [Default→5 sec].

Auto power off

If, during battery operation, the percentage of the load powered by the UPS falls below the 5% threshold (load switched off or disconnected), after 40 seconds the UPS automatically switches off if the function is enabled; the UPS continues to function normally via battery if the function is disabled [Default → Function DISABLED].

DISPLAY

Display

Brightness

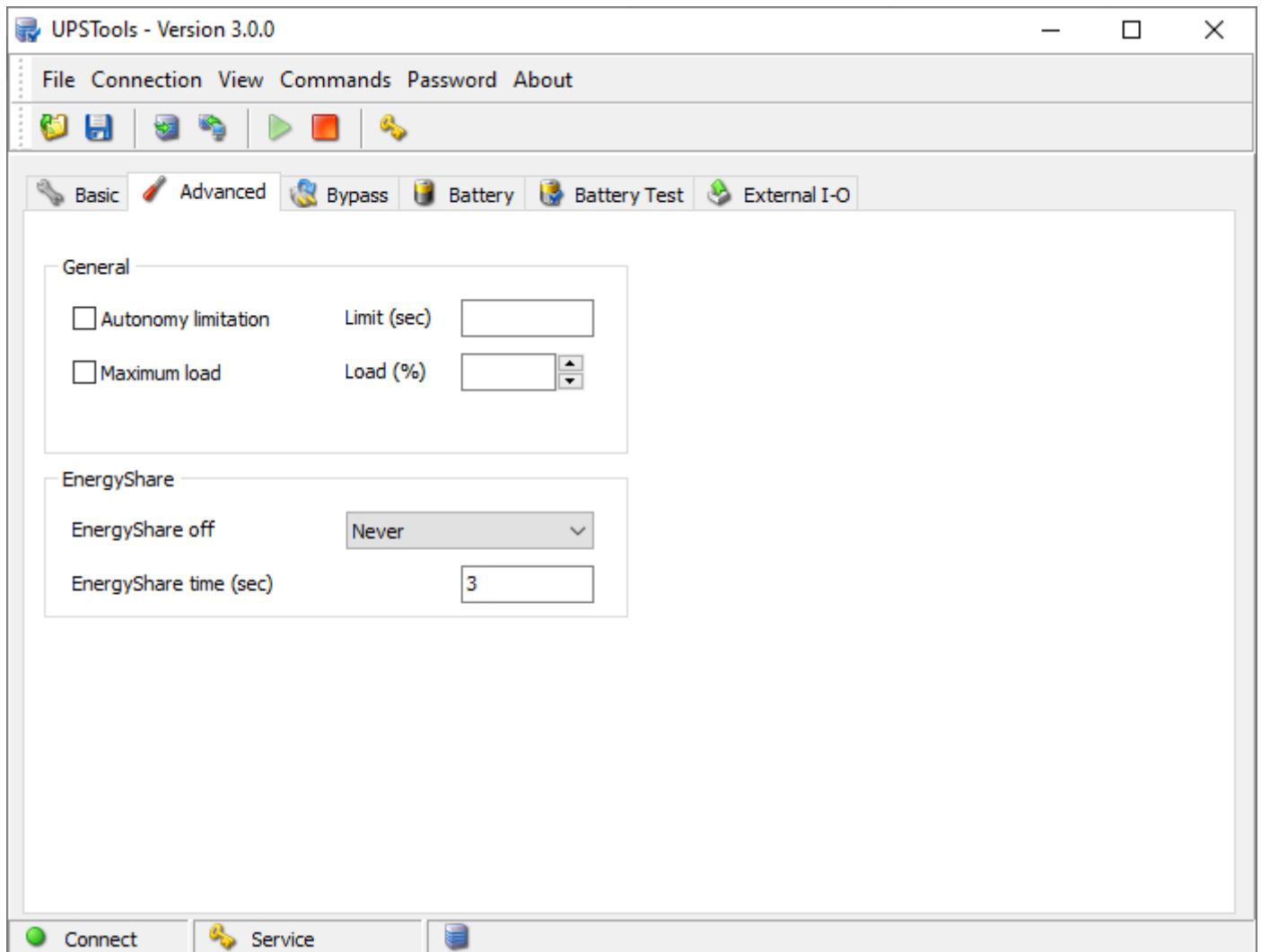
Brightness

Select the configuration of the LCD backlight display.

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

ADVANCED

Setting of the advanced UPS operating parameters.



GENERAL

General		
<input type="checkbox"/> Autonomy limitation	Limit (sec)	<input type="text"/>
<input type="checkbox"/> Maximum load	Load (%)	<input type="text"/> ▲ ▼



The service level password is required to configure this parameter.

Autonomy limitation

If the function is enabled, it is possible to set a maximum battery operation time ("*Limit*" - expressed in seconds and between 1 and 65534); when this time has expired the UPS automatically switches off even if the autonomy of the batteries has not been exhausted. [Default → Function DISABLED]

Maximum load

If the function is enabled, the load percentage may be set ("*Load*" - between 0 and 103%); if this is exceeded the UPS signals a maximum load fault [Default → Function DISABLED].

ENERGYSHARE

EnergyShare

EnergyShare off Never

EnergyShare time (sec)



Not all UPS are provided with the Energy Share socket.

EnergyShare off

Set the event that causes automatic disconnection of the Energy Share socket [Default → NEVER]:

Never	Energy 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	Energy Share socket always disconnected

EnergyShare time

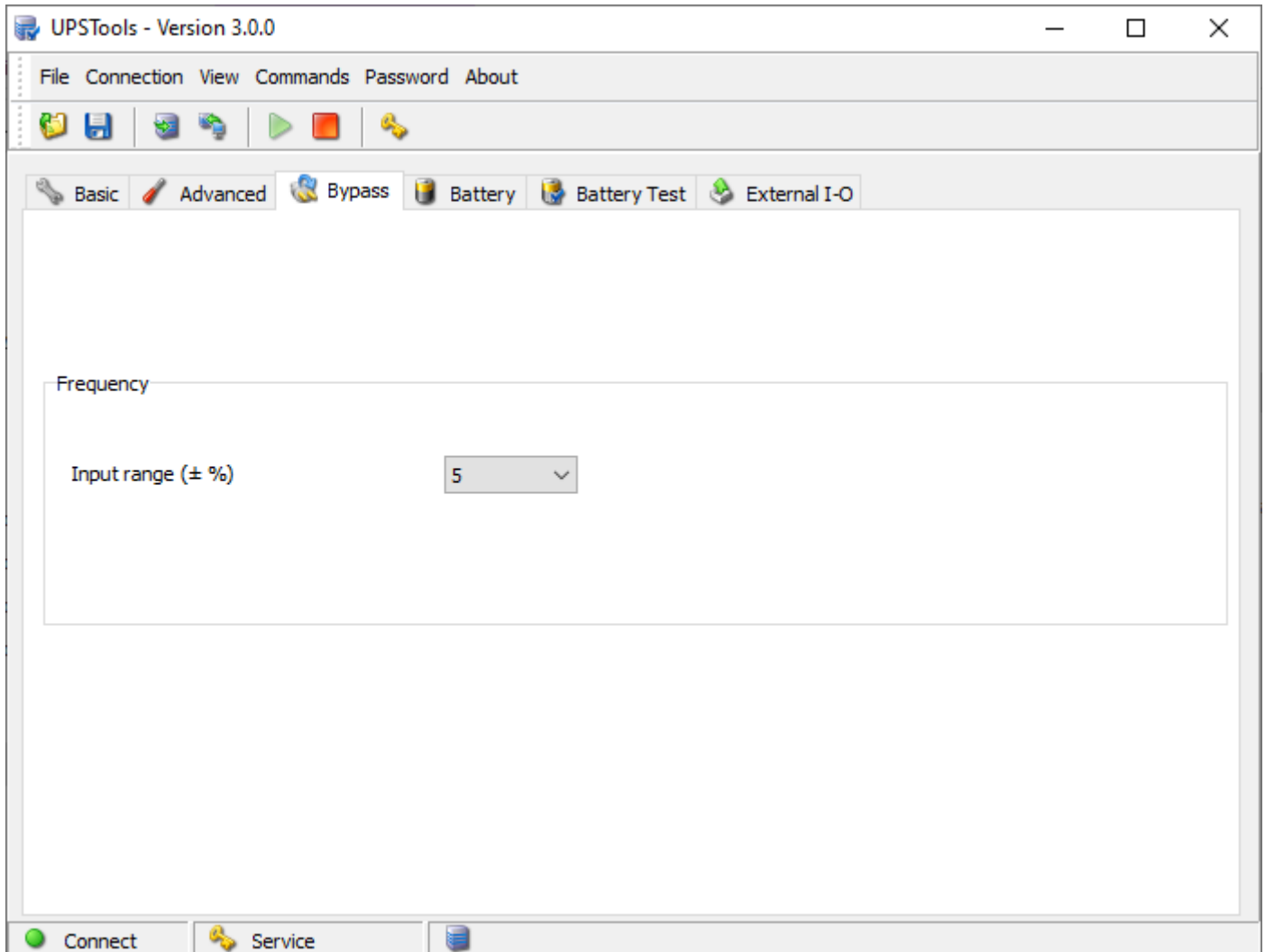
Set the delay (expressed in seconds and between 0 and 65535) from when the selected event occurs and automatic disconnection of the Energyshare socket. [Default → 0]

BYPASS

Setting of the bypass operating parameters.



The service level password is required to configure these parameters.



FREQUENCY

Frequency

Input range (± %)

Input range

Select the percentage that determines the input frequency range within which the UPS works without switching in battery mode [Default → 5%].

BATTERY

Setting of the execution mode of the battery test.



Except of “Battery low time”, the service level password is required to configure these parameters.

UPSTools - Version 3.0.0

File Connection View Commands Password About

Basic Advanced Bypass Battery Battery Test External I-O

Nominal

Battery voltage (V) 24

General

Battery low time (min) 3

Threshold for auto-on (V) 11.8

Capacity

Battery capacity (Ah) 7

Connect Service

NOMINAL

Nominal

Battery voltage (V) 24

Battery voltage

Displays UPS internal battery voltage (field cannot be changed).

GENERAL

General

Battery low time (min)

Threshold for auto-on (V)

Battery low time

Set the estimated runtime (expressed in minutes between 0 and 255), below which the UPS signals the battery low alarm [Default → 3].

Threshold for auto-on

Set the minimum battery voltage value above which the UPS automatically restarts [Default → 11.8 V].



The threshold is referred to the voltage of a single battery.

CAPACITY

Capacity

Battery capacity (Ah)

Battery capacity

To set the total capacity (Ah) of the batteries:

Enter the total Ah calculated by adding the internal capacity and the capacity of the external battery box if present (for example, if a 14Ah Battery Box is connected to a UPS with 7Ah internal batteries, the value to enter is 21Ah).



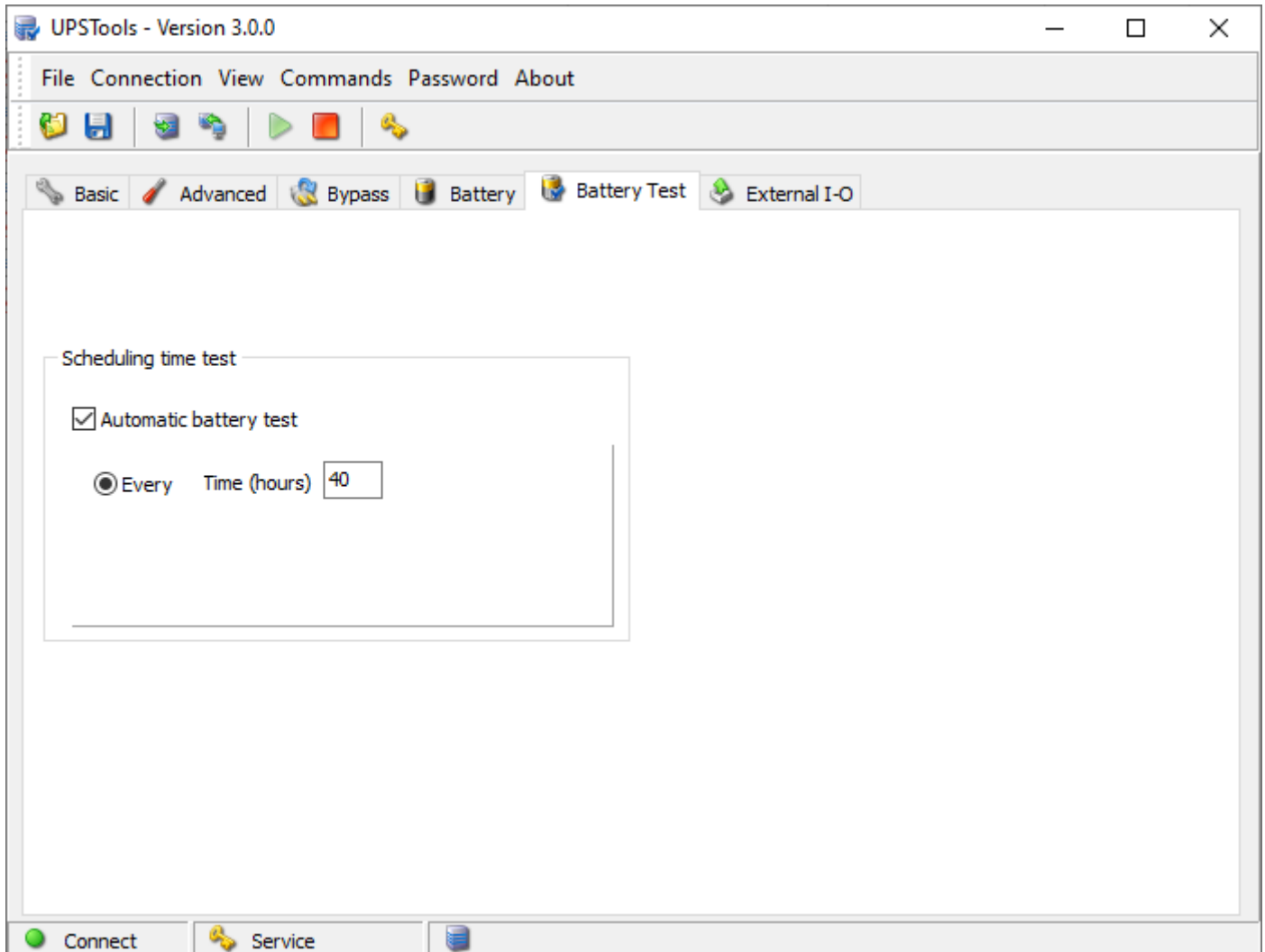
Not all UPS models support an external battery box.

BATTERY TEST

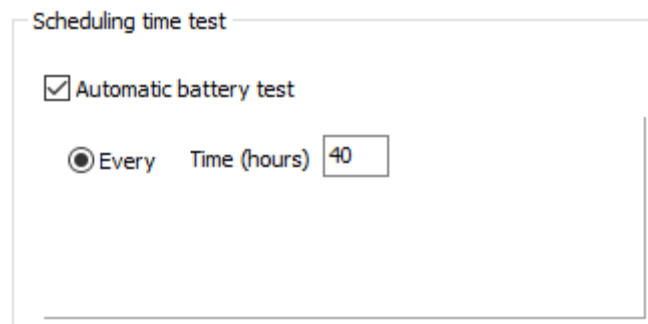
Setting of the execution mode of the battery test.



The service level password is required to configure these parameters.



SCHEDULING TIME TEST



Automatic battery test

If the function is enabled, the UPS automatically carries out the battery tests [Default → Function ENABLED]. It is possible to set the frequency with which the UPS runs the test, entering the time, expressed in hours, between a test and the next.

EXTERNAL I-O

Configuration of the programmable inputs and outputs present on the UPS or on the MultiCOM 384 accessory.



The service level password is required to configure these parameters.

The screenshot displays the 'UPSTools - Version 3.0.0' application window. The 'External I-O' tab is selected, showing configuration options for two input contacts and two output contacts. Each contact configuration includes a mode dropdown, a delay (ms) dropdown, and an autorestart dropdown.

Contact	Mode	Delay (ms)	Autorestart
Input 1 contact (RS232 pin 7)	No function	80 ms	Disabled
Input 2 contact (RS232 pin 4 / Slot card REPO)	No function	80 ms	Disabled
Output 3 contact (RS232 pin 1 / Slot card)	Any alarm		
Output 1 contact (RS232 pin 8 / Slot card)	Battery low		

INPUT

Input 1 contact (RS232 pin 7)

Input 1 mode

Delay (ms)

Autorestart

Input 2 (REMOTE TERMINAL pin 1-2)

Input 2 mode

Delay (ms)

Autorestart

Input 2 contact (RS232 pin 4 / Slot card REPO)

Input 2 mode

Delay (ms)

Autorestart

Input 1 (REMOTE TERMINAL pin 2-3)

Input 1 mode

Delay (ms)

Autorestart

VST

VSR / VSD

Input mode

To configure the function associated to the input contacts (Input 1 / Input 2) of the UPS.

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



According to UPS model, not all functions are always available on both inputs.

Delay

To set the minimum impulse time for the activation of the function associated to the input.

Autorestart

To enable the automatic restart of the UPS when the mains come back, if the shutdown command was performed during battery operation.

OUTPUT

Output 3 contact (RS232 pin 1 / Slot card)

Output 3 mode Any alarm ▼

Output 1 contact (RS232 pin 8 / Slot card)

Output 1 mode Battery low ▼

Output contact

To configure the function associated to the output contacts of the UPS or of the MultiCOM 384 accessory.

Battery low	End of charge pre-alarm
Battery working	Battery operating mode
Inverter locked	Inverter stage locked
Lock or fault	Lock or fault level alarm
Any alarm	Any alarm
Overload	Overload
Overtemperature	Overtemperature
Replace battery	Batteries to be replaced
External input	Signal active at "Input 3" of MultiCOM384
Output powered	Output powered
UPS ok	Normal operation
AVR on	AVR active

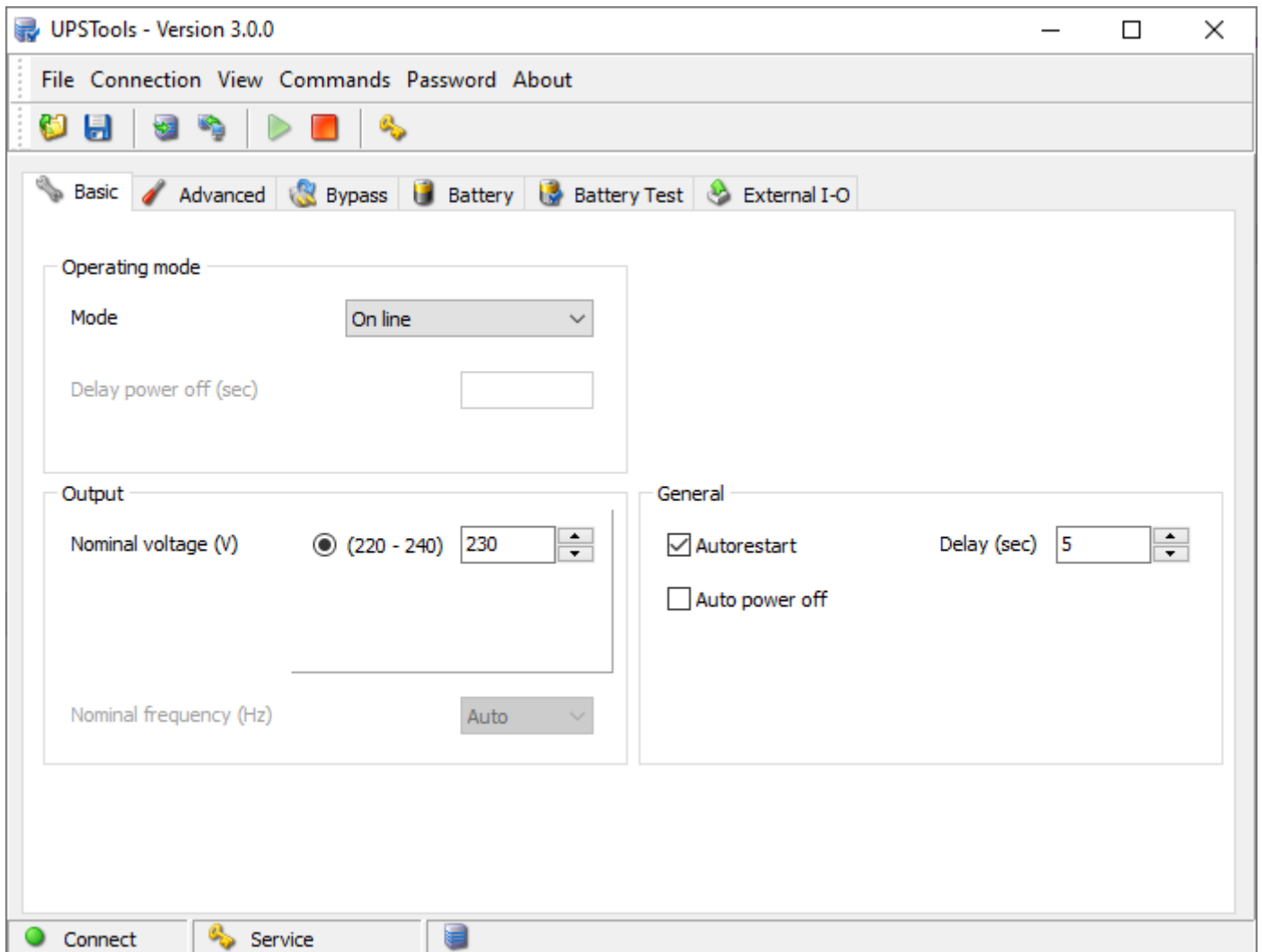


Read carefully MultiCOM384 user manual to properly configure it. Keep the rotary switches of the MultiCOM 384 in the default configuration in order to have the right association between the outputs and the events selected with the software.

SEP / SER / SDH / SDU (4KVA) - SETTINGS

BASIC

Setting of the main UPS operating parameters.



OPERATING MODE

Operating mode

Mode On line ▼

Delay power off (sec)

Mode

Select the desired operating mode [Default → Online].

On line	This mode ensures maximum load protection and the best waveform output quality.
Eco mode	This is the mode with the lowest UPS consumption and; therefore, the most efficient. The load is normally powered by bypass and, if the mains power is out of the tolerance range, the UPS changes to Online mode. Approximately 5 minutes after the mains tolerances are restored, the load is automatically switched over to bypass.
Smart active	In this mode, the UPS, based on statistics regarding the quality of the input network, decides independently whether to work in Online or Eco mode.
Standby Off	In this mode, the UPS is used as an emergency device. When there is mains power, the load is not powered while, if there is a black-out, it is powered by the inverter using the batteries, with a less than 0.5 second intervention time (see also "Delay power off").
Frequency converter	In this mode, the UPS can work with an input frequency of 50Hz and an output frequency of 60Hz or vice versa. In this case, automatic bypass is disabled.



If the **Frequency converter** mode is set, the UPS is power downgraded by 70%.

Delay power off

If the operating mode is set as "Stand by off", configure the delay (expressed in seconds, from 0 to 65534) between the restoration of mains power and the switching off of the load.

OUTPUT

Output

Nominal voltage (V) (220 - 240)

Nominal frequency (Hz) ▼

Nominal voltage

Set the desired output voltage of the UPS [Default → 230V].

Nominal frequency



The service level password is required to configure this parameter.

If the **Frequency converter** mode is set, you have to select the desired output frequency (50 or 60 Hz). If any other operating mode is set, the output frequency is automatically set according to frequency of the input mains (Auto).



The configuration of a new frequency set occurs only when the UPS is powered. After any changes are made, the UPS must be completely switched off and then switched back on.



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

GENERAL

General

Autorestart Delay (sec)

Auto power off

Autorestart

If, during battery operation, the UPS switches off due to end of autonomy, or due to a remote shutdown command, or due to self-shutdown, when power is restored, the UPS automatically switches on if the function is enabled; otherwise, it remains in stand-by if the function is disabled [Default → Function ENABLED].

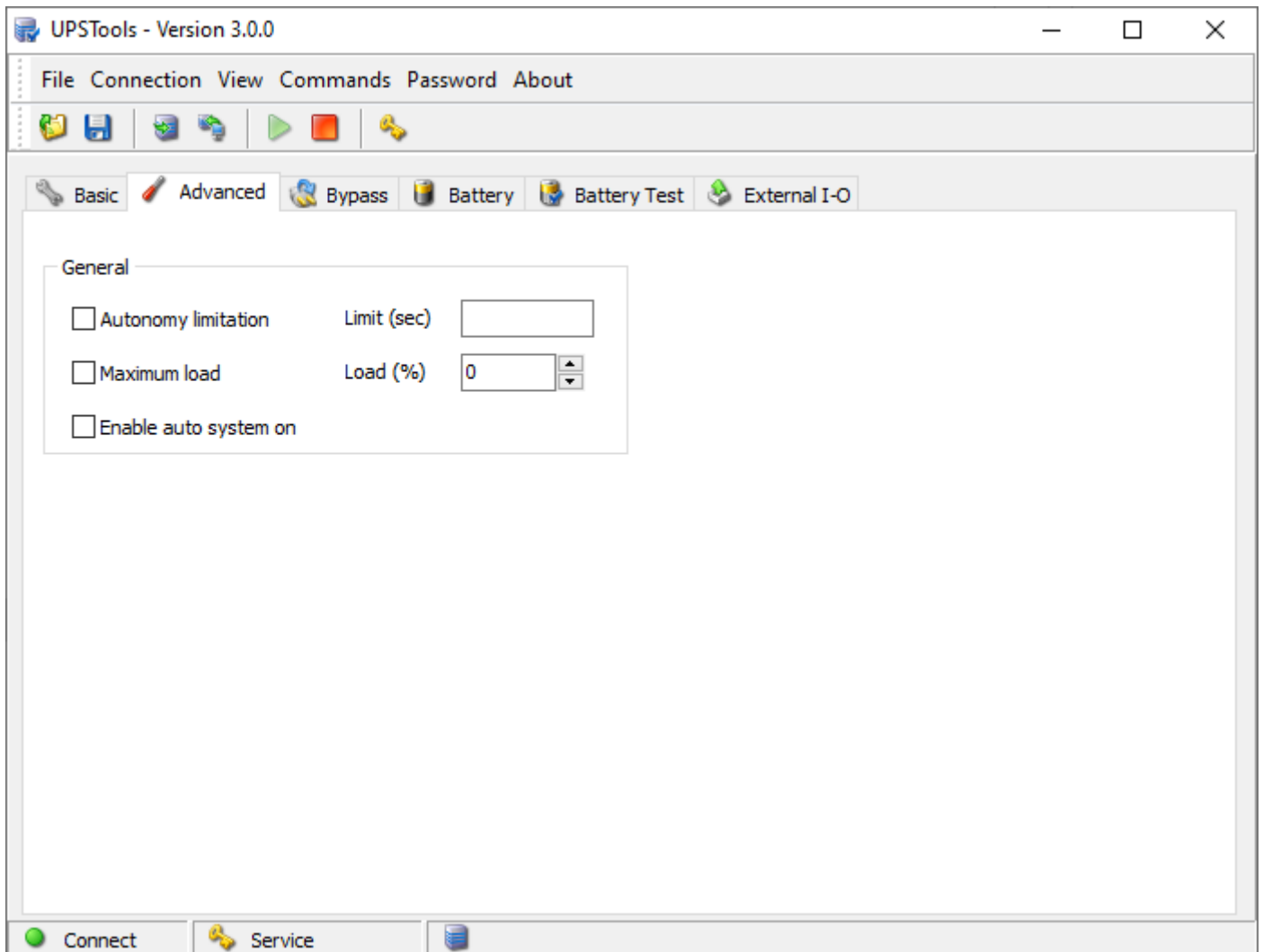
If the function is enabled, set the delay (expressed in seconds from 0 to 255) between the restoration of power and the switching on of the UPS [Default→5 sec].

Auto power off

If, during battery operation, the percentage of the load powered by the UPS falls below the 5% threshold (load switched off or disconnected), after 40 seconds the UPS automatically switches off if the function is enabled; the UPS continues to function normally via battery if the function is disabled [Default → Function DISABLED].

ADVANCED

Setting of the advanced UPS operating parameters.



GENERAL

General

<input type="checkbox"/> Autonomy limitation	Limit (sec)	<input type="text"/>
<input type="checkbox"/> Maximum load	Load (%)	<input type="text" value="0"/> <input type="button" value="▲"/> <input type="button" value="▼"/>
<input type="checkbox"/> Enable auto system on		

Autonomy limitation

If the function is enabled, it is possible to set a maximum battery operation time ("*Limit*" - expressed in seconds and between 1 and 65534); when this time has expired the UPS automatically switches off even if the autonomy of the batteries has not been exhausted. [Default → Function DISABLED]



The service level password is required to configure this parameter.

Maximum load

If the function is enabled, the load percentage may be set ("*Load*" - between 0 and 103%); if this is exceeded the UPS signals a maximum load fault [Default → Function DISABLED].



The service level password is required to configure this parameter.

Enable auto system on

When the function is enabled and the UPS is powered, it will automatically switch on-line without first changing to Stand-By and without having to press the ON button [Default → Function DISABLED].

BYPASS

Setting of the bypass operating parameters.



The service level password is required to configure these parameters.

The screenshot shows the UPSTools - Version 3.0.0 application window. The 'Bypass' tab is selected, displaying the following settings:

Section	Parameter	Value
On line	Mode	Enabled
	Frequency tolerance (\pm %)	5
	Minimum threshold (V)	180
	Maximum threshold (V)	264
Eco mode	Sensibility	Normal
	Minimum threshold (V)	200
	Maximum threshold (V)	253

The interface includes a menu bar (File, Connection, View, Commands, Password, About), a toolbar with icons for file operations and execution, and a bottom status bar with 'Connect', 'Service', and a battery icon.


ON LINE

Setting of the bypass parameters with the UPS in Online mode (see *Setting* → *Basic* → *Operating mode*).

On line	
Mode	Enabled ▾
Frequency tolerance (± %)	5 ▾
Minimum threshold (V)	180
Maximum threshold (V)	264

Mode

Select the bypass line mode for transitional events and in emergency conditions [Default → Enabled].

Enabled	Switching to bypass enabled in case of emergency.
Disabled w/ link.	Switching to bypass disabled. Output frequency synchronized with input frequency.
Disabled w/o link	Switching to bypass disabled. Output frequency NOT synchronized with input frequency.  In this configuration, the UPS is power downgraded by 70%.

Frequency tolerance

Select the percentage that determines the frequency range within which the UPS can synchronize the output sinusoid with the input sinusoid [Default → 5%].

Minimum threshold

Set the minimum accepted bypass voltage threshold for use of the same; it is possible to set values from 180V to 220V in increments of 1V [Default → 180V].

Maximum threshold

Set the maximum accepted bypass voltage for use of the same; it is possible to set values from 240V to 264V in increments of 1V [Default → 264V].

ECO MODE

Setting of the bypass parameters when the UPS is in Eco mode (see *Settings* → *Basic* → *Operating mode*).

Eco mode	
Sensibility	Normal <input type="button" value="v"/>
Minimum threshold (V)	<input type="text" value="200"/>
Maximum threshold (V)	<input type="text" value="253"/>

Sensibility

Select the sensibility of the bypass line quality control [Default → NORMAL].

Minimum threshold

Set the minimum bypass voltage range threshold accepted for Eco mode operation; below this threshold, the UPS switches to Online mode. It is possible to set values from 180V to 220V in increments of 1V [Default → 200V].

Maximum threshold

Set the maximum bypass voltage range threshold accepted for Eco mode operation; above this threshold, the UPS switches to Online mode. It is possible to set values from 240V to 264V in increments of 1V [Default → 255V].

BATTERY

Setting of the UPS internal battery parameters.



Except of “Battery low time”, the service level password is required to configure these parameters.

UPSTools - Version 3.0.0

File Connection View Commands Password About

Basic Advanced Bypass **Battery** Battery Test External I-O

Nominal

Battery voltage (V)

Battery number

General

Battery low time (min)

Threshold for auto-on (V)

Capacity

Battery capacity (Ah)

Connect Service

NOMINAL

Nominal

Battery voltage (V)

Battery number

Battery voltage

Displays UPS internal battery voltage (field cannot be changed).

Battery number

Displays the number of UPS internal batteries (field cannot be changed).

GENERAL

General

Battery low time (min)	<input type="text" value="3"/>
Threshold for auto-on (V)	<input type="text" value="11.8"/>

Battery low time

Set the estimated runtime (expressed in minutes between 0 and 255), below which the UPS signals the battery low alarm [Default → 3].

Threshold for auto-on

Set the minimum battery voltage value above which the UPS automatically restarts [Default → 11.8 V].



The threshold is referred to the voltage of a single battery.

CAPACITY

Capacity

Battery capacity (Ah)	<input type="text" value="80"/>
-----------------------	---------------------------------

Battery capacity

To set the total capacity (Ah) of the batteries:

Enter the total Ah calculated by adding the internal capacity and the capacity of the external battery box if present (for example, if a 14Ah Battery Box is connected to a UPS with 7Ah internal batteries, the value to enter is 21Ah).



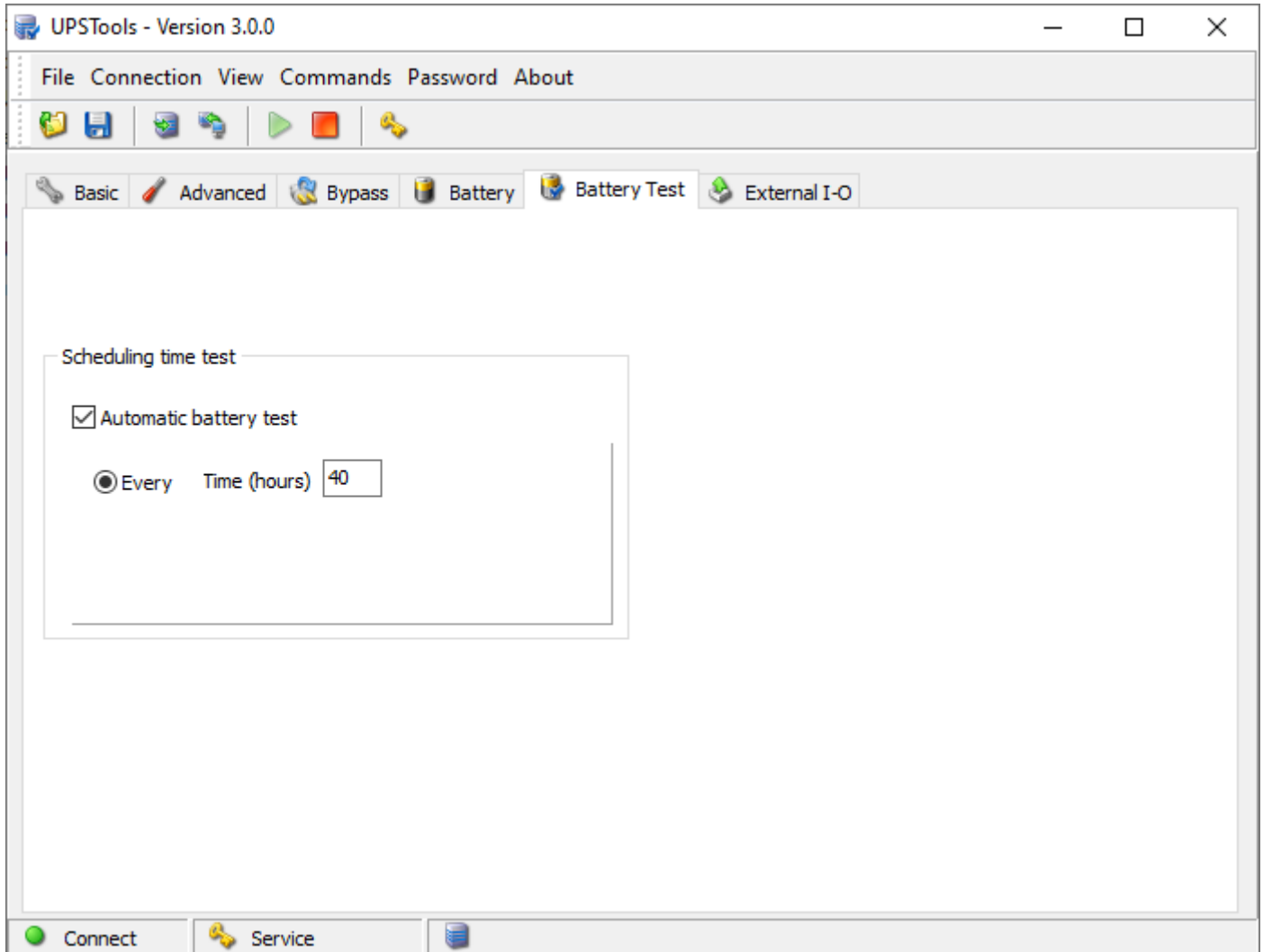
Not all UPS models support an external battery box.

BATTERY TEST

Setting of the execution mode of the battery test.



The service level password is required to configure these parameters.



SCHEDULING TIME TEST

Scheduling time test

Automatic battery test

Every Time (hours)

Automatic battery test

If the function is enabled, the UPS automatically carries out the battery tests [Default → Function ENABLED]. It is possible to set the frequency with which the UPS runs the test, entering the time, expressed in hours, between a test and the next.

EXTERNAL I-O

Configuration of the programmable inputs and outputs present on the UPS or on the MultiCOM 384 accessory.



The service level password is required to configure these parameters.

UPSTools - Version 3.0.0

File Connection View Commands Password About

Basic Advanced Bypass Battery Battery Test External I-O

Input 2 (REMOTE TERMINAL pin 1-2)

Input 2 mode: REPO

Delay (ms): 80 ms

Autorestart: Enabled

Input 1 (REMOTE TERMINAL pin 2-3)

Input 1 mode: Remote on

Delay (ms): 80 ms

Autorestart: Enabled

Output 3 contact (RS232 pin 1 / Slot card)

Output 3 mode: Inverter locked

Output 1 contact (RS232 pin 8 / Slot card)

Output 1 mode: Battery low

Connect Service

INPUT

Input 2 (REMOTE TERMINAL pin 1-2)

Input 2 mode	REPO ▼
Delay (ms)	80 ms ▼
Autorestart	Enabled ▼

Input 1 (REMOTE TERMINAL pin 2-3)

Input 1 mode	Remote on ▼
Delay (ms)	80 ms ▼
Autorestart	Enabled ▼

Input mode

To configure the function associated to the input contacts (Input 1 / Input 2) of the UPS.

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



Not all functions are available on both inputs.

Delay

To set the minimum impulse time for the activation of the function associated to the input.

Autorestart

To enable the automatic restart of the UPS when the mains come back, if the shutdown command was performed during battery operation.

OUTPUT

Output 3 contact (RS232 pin 1 / Slot card)

Output 3 mode Inverter locked

Output 1 contact (RS232 pin 8 / Slot card)

Output 1 mode Battery low

Output contact

To configure the function associated to the output contacts of the UPS or of the MultiCOM 384 accessory.

Battery low	End of charge pre-alarm
Battery working	Battery operating mode
Load on bypass	Load powered by bypass
Inverter locked	Inverter stage locked
Lock or fault	Lock or fault level alarm
Any alarm	Any alarm
Overload	Overload
Overtemperature	Overtemperature
Replace battery	Batteries to be replaced
External input	Signal active at "Input 3" of MultiCOM384
Load on inverter	Load powered by inverter
Output powered	Output powered
Bypass bad	Bypass line out of tolerance range
Eco mode	Operation in Eco mode
Manual bypass	Operation by manual bypass
UPS ok	Normal operation



Read carefully MultiCOM384 user manual to properly configure it. Keep the rotary switches of the MultiCOM 384 in the default configuration in order to have the right association between the outputs and the events selected with the software.

SDU (5÷10KVA) / STW / CAM - SETTINGS

BASIC

Setting the main operating parameters of the UPS.

UPSToolsPlus - Version 3.0.0

File Connection View Commands Password About

Basic Advanced Bypass Battery Battery Test External I-O

Operating mode

Mode: On line

Delay power off (sec):

General

Autorestart Delay (sec): 5

Auto power off

Buzzer reduced

Output

Nominal voltage (V): (220 - 240) 230

Nominal frequency (Hz): 50

EnergyShare

EnergyShare off: Never

EnergyShare time (s): 3

Timer

Timer on (hh:mm)

Timer off (hh:mm)

Connect Service Data from UPS

Parallel UPS configuration
In a parallel system, the configuration sent to a single UPS (either Master or Slave) is automatically transmitted, unless otherwise specified, to all the UPS devices.

OPERATING MODE

Operating mode


Mode On line ▼

Delay power off (sec)

Mode

Select the desired operating mode [Default → Online].

SDU (5÷10kVA) / STW	
Online	This mode ensures maximum load protection and the best waveform output quality.
Eco mode	This is the mode with the lowest UPS consumption and; therefore, the most efficient. The load is normally powered by bypass and, if the mains power is out of the tolerance range, the UPS changes to Online mode. Approximately 5 minutes after the mains tolerances are restored, the load is automatically switched over to bypass.
Smart active	In this mode, the UPS, based on statistics regarding the quality of the input network, decides independently whether to work in Online or Eco mode.
Standby Off	In this mode, the UPS is used as an emergency device. When there is mains power the load is not powered while, if there is a black-out, it is powered by the inverter using the batteries, with a less than 0.5 second intervention time (see also “Delay power off”).
Frequency converter	In this mode, the UPS can work with an input frequency of 50Hz and an output frequency of 60Hz or vice versa. In this case, automatic bypass is disabled.

 In a parallel system the **Frequency converter** mode set on a single UPS (either Master or Slave) is NOT transmitted automatically to all the UPS devices. Therefore, it is necessary to set this mode on all of the parallel system's UPS devices.

CAM	
Online	This mode ensures maximum load protection and the best waveform output quality.
Eco mode	This is the mode with the lowest CPS consumption and; therefore, the most efficient. The load is normally powered by bypass and, if the mains power is out of the tolerance range, the CPS changes to Online mode. Approximately 5 minutes after the mains tolerances are restored, the load is automatically switched over to bypass.
Emergency only	The CPS operates as an emergency power supply. When there is mains power the load is not powered while, if there is a black-out, it is powered by the inverter using the batteries, with a less than 0.5 second intervention time (see also “Delay power off”).

Delay power off

If the operating mode is set as "Stand by off" (SDU/STW) or “Emergency only” (CAM), configure the delay (expressed in seconds, from 0 to 65534) between the restoration of mains power and the switching off of the load [Default → 0sec.].

OUTPUT

Output

Nominal voltage (V) (220 - 240)

Nominal frequency (Hz)

Nominal voltage

Set the desired output voltage of the UPS [Default → 230V].

Nominal frequency



The service level password is required to configure this parameter.

Select the desired output frequency (50 or 60 Hz) of the UPS [Default → 50Hz].



The output nominal frequency must always be properly selected.



The configuration of a new frequency set occurs only when the UPS is powered. After any changes are made, the UPS must be completely switched off and then switched back on.



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

GENERAL

General

<input checked="" type="checkbox"/> Autorestart	Delay (sec)	5	<input type="button" value="▲"/>	<input type="button" value="▼"/>
<input type="checkbox"/> Auto power off				
<input checked="" type="checkbox"/> Buzzer reduced				

Auto restart

If, during battery operation, the UPS switches off due to end of autonomy, or due to a remote shutdown command, or due to self-shutdown, when power is restored, the UPS automatically switches on if the function is enabled; however, it remains in stand-by if the function is disabled [Default → Function ENABLED].

If the function is enabled, set the delay (expressed in seconds from 0 to 255) between the restoration of power and the switching on of the UPS [Default→5 sec].

Auto power off

If, during battery operation, the percentage of the load powered by the UPS falls below the 5% threshold (load switched off or disconnected), after 40 seconds the UPS automatically switches off if the function is enabled; the UPS continues to function normally via battery if the function is disabled [Default → Function DISABLED].

Buzzer reduced

If the function is disabled, the buzzer sounds in all cases provided for (see UPS manual). If, however, it is enabled with bypass operation, the buzzer remains switched off for the first 3 seconds: in this way, brief bypass transfers are not reported [Default → Function ENABLED].

ENERGYSHARE

The UPS may be equipped with an outlet socket that allows for the automatic disconnection of the load applied to it in certain operating conditions.

EnergyShare

EnergyShare off Never ▾

EnergyShare time (sec) 3

EnergyShare off

Set the event that causes the automatic cut-off of the EnergyShare socket [Default → Never].

Never	EnergyShare socket always connected
Battery working	Switch off in battery operating mode
Line present	Switch off if the input line is present
Battery low	Switch off if battery power is low
User overload	Switch off if a load exceeds the threshold defined by the user (see <i>Settings</i> → <i>Advanced</i> → <i>General</i> → <i>Maximun load</i>)
Overload	Switch off due to overloading
Temperature Ok	Switch off if the UPS temperature is good
External input on	Switch off if the signal at the "Input 3" remote input is active (see <i>Settings</i> → <i>External I-O</i> → <i>Input contact</i>)
No lock	Switch off in the absence of safety blocks
No fault/alarm	Switch off in the absence of alarms
Normal status	Switch off in case of normal operation
Battery % low ⓘ	Switch off due to discharged battery
Stand-by	Switch off if the UPS is in Stand-by
Always	EnergyShare socket always disconnected

ⓘ When **Battery % low** is selected, the parameter **EnergyShare time** indicates the percentage of battery capacity [range 0% -100%] below which the EnergyShare socket is automatically cut off.

EnergyShare time

Set the delay (expressed in seconds between 0 and 65535) between the occurrence of the selected event and the automatic cut-off of the EnergyShare socket [Default → 3].

ⓘ In a parallel system this parameter is NOT transmitted automatically to all the UPS devices. Therefore, it must be configured on each individual UPS.

TIMER



The service level password is required to configure these parameters.

You can schedule the automatic switch on and/or the automatic switch off of the UPS at a specific hour.

Timer

<input checked="" type="checkbox"/> Timer on	(hh:mm)	<input type="text" value="07:00"/>
<input checked="" type="checkbox"/> Timer off	(hh:mm)	<input type="text" value="20:30"/>



Check the time set on the UPS before enabling any timer.



The times of switch on and switch off have to be expressed in **hh:mm** (eg. 07:30).

Timer on

Set the time when the UPS have to be switched on automatically.



If the mains is not present at the time set for automatic switching on, the UPS stays in stand-by status and ready to switch on when the mains will be present.

Timer off

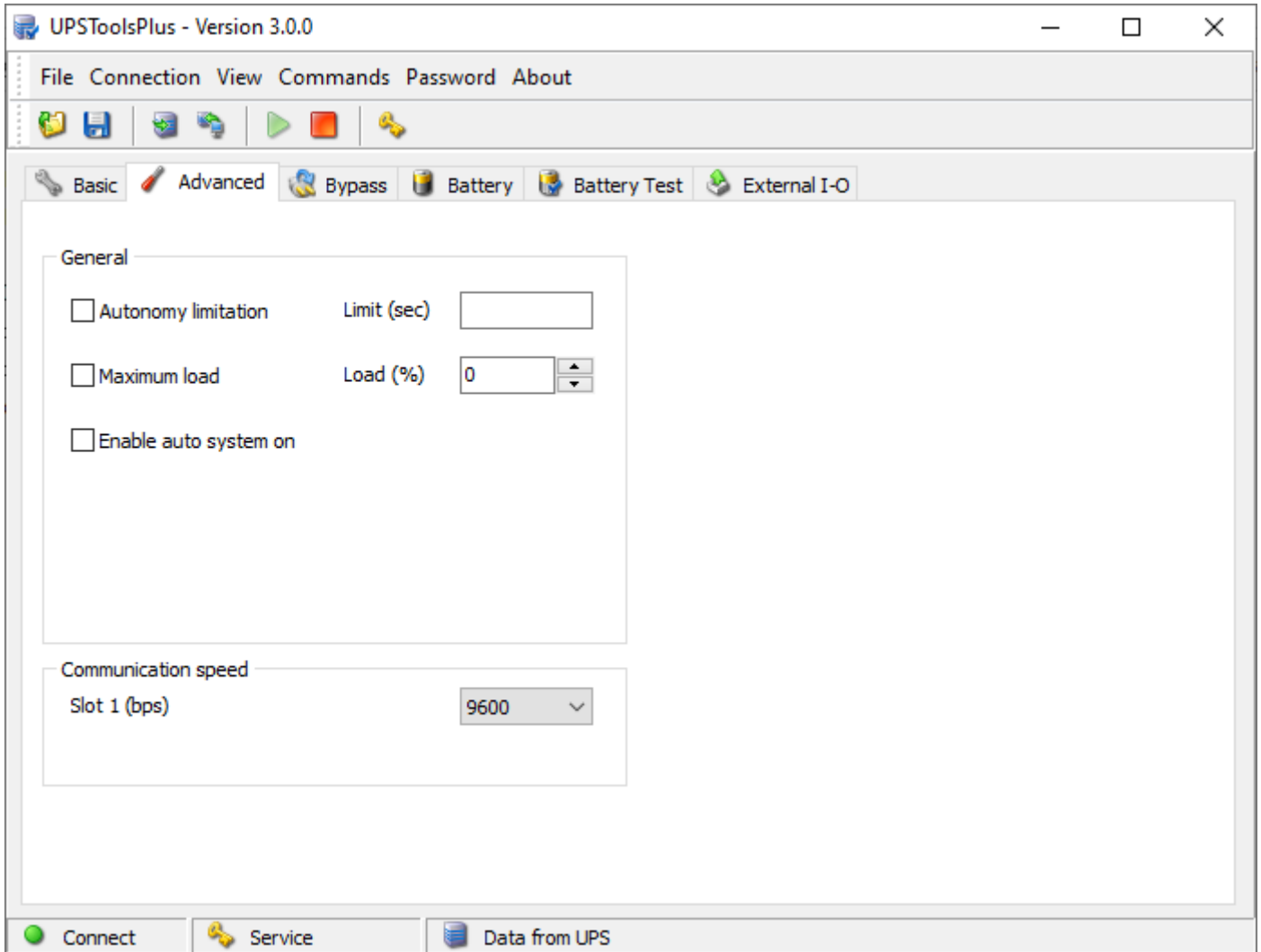
Set the time when the UPS have to be switched off automatically.

ADVANCED

Setting the advanced operating parameters of the UPS.



The service level password is required to configure these parameters.




GENERAL

General

<input type="checkbox"/> Autonomy limitation	Limit (sec)	<input type="text"/>
<input type="checkbox"/> Maximum load	Load (%)	<input type="text" value="0"/> <input type="button" value="▲"/> <input type="button" value="▼"/>
<input type="checkbox"/> Enable auto system on		

Autonomy limitation

If the function is enabled, it is possible to set a maximum battery operation time ("*Limit*" - expressed in seconds and between 1 and 65534); when this time has expired the UPS automatically switches off even if the autonomy of the batteries has not been exhausted. [Default → Function DISABLED]

 In a parallel system this function is NOT transmitted automatically to all the UPS devices. Therefore, it must be configured on each individual UPS.

Maximum load

If the function is enabled, the load percentage may be set ("*Load*" - between 0 and 103%); if this is exceeded the UPS signals a maximum load fault [Default → Function DISABLED].

Enable auto system on

When the function is enabled and the UPS is powered, it will automatically switch on-line without first changing to Stand-By and without having to press the ON button [Default → Function DISABLED].

COMMUNICATION SPEED

Communication speed

Slot 1 (bps)

Slot 1

To set the desired speed for “*Communication slot 1*” [Default→1200].



Speed configuration takes place only when the UPS is powered. After a change is made the UPS must be completely switched off and then switched back on.

If the value 9600bps is set, the PRTK code of the corresponding communication port becomes GPSE19601...

BYPASS

Setting the bypass operating parameters.



The service level password is required to configure these parameters.

The screenshot shows the UPSToolsPlus software interface, Version 3.0.0. The window title is "UPSToolsPlus - Version 3.0.0". The menu bar includes "File", "Connection", "View", "Commands", "Password", and "About". The toolbar contains icons for file operations and a key icon. The main area has tabs for "Basic", "Advanced", "Bypass", "Battery", "Battery Test", and "External I-O". The "Bypass" tab is active, showing two sections: "On line" and "Eco mode".

Section	Parameter	Value
On line	Mode	Enabled high sensibility
	Frequency tolerance (\pm %)	5
	Minimum threshold (V)	180
	Maximum threshold (V)	264
Eco mode	Sensibility	Normal
	Minimum threshold (V)	200
	Maximum threshold (V)	255

At the bottom of the window, there are three buttons: "Connect", "Service", and "Data from UPS".

ONLINE

Setting the bypass parameters with the UPS in Online mode (see *Setting* → *Basic* → *Operating mode*).

On line

Mode Enabled high sensibility ▼

Frequency tolerance (± %) 5 ▼

Minimum threshold (V) 180

Maximum threshold (V) 264

Mode

Select the bypass line mode for transitional events and in emergency conditions [Default → Enabled high sensibility].

Enabled high sensibility	Switching to bypass enabled with high sensitivity intervention (inverter voltage waveform control active).
Enabled low sensibility	Switching to bypass enabled with low sensitivity intervention (inverter voltage waveform control not active; inverter voltage RMS value control active)
Disabled /Inverter sync.	Switching to bypass disabled. Output frequency synchronized with input frequency.
Disabled /Free running	Switching to bypass disabled. Output frequency NOT synchronized with input frequency.
Active in stand-by	When the UPS is on stand-by, the load connected to the output is powered via the bypass line.



If the **Active in stand-by** mode is activated, the UPS output is always powered.

Frequency tolerance

Select the percentage that determines the frequency range within which the UPS can synchronize the output sinusoid with the input sinusoid [Default → 5%].

Minimum threshold

Set the minimum accepted bypass voltage threshold for use of the same; it is possible to set values from 180V to 220V in increments of 1V [Default → 180V].

Maximum threshold

Set the maximum accepted bypass voltage for use of the same; it is possible to set values from 240V to 264V in increments of 1V [Default → 264V].

ECO MODE

Setting bypass parameters when the UPS is in Eco mode (see *Settings* → *Basic* → *Operating mode*).

Eco mode	
Sensibility	<input type="text" value="Normal"/>
Minimum threshold (V)	<input type="text" value="200"/>
Maximum threshold (V)	<input type="text" value="255"/>

Sensibility

Select the sensibility of the bypass line quality control [Default → NORMAL].

Minimum threshold

Set the minimum bypass voltage range threshold accepted for Eco mode operation; below this threshold, the UPS switches to Online mode. It is possible to set values from 180V to 220V in increments of 1V [Default → 200V].

Maximum threshold

Set the maximum bypass voltage range threshold accepted for Eco mode operation; above this threshold, the UPS switches to Online mode. It is possible to set values from 240V to 264V in increments of 1V [Default → 255V].

BATTERY

Setting the internal battery parameters of the UPS.



The service level password is required to configure these parameters (except of “Battery low time”).

UPSToolsPlus - Version 3.0.0

File Connection View Commands Password About

Basic Advanced Bypass Battery Battery Test External I-O

Nominal

Battery voltage (V) 180

Battery number 15

General

Battery low time (min) 3

Autorestart voltage (V) 177

Capacity

Internal battery (Ah) 6

External battery (Ah) 0

Total 6

Connect Service Data from UPS

NOMINAL

Nominal

Battery voltage (V) 180

Battery number 15

Battery voltage

Displays UPS internal battery voltage (field cannot be changed).

Battery number

Displays the number of UPS internal batteries (field cannot be changed).

GENERAL

General

Battery low time (min)	<input type="text" value="3"/>	<input type="button" value="↑"/> <input type="button" value="↓"/>
Autorestart voltage (V)	<input type="text" value="177"/>	<input type="button" value="↑"/> <input type="button" value="↓"/>

Battery low time

Set the estimated runtime (expressed in minutes between 0 and 255), below which the UPS signals the battery low alarm [Default → 3].

Auto restart voltage

Set the minimum battery voltage value (between 200 and 260 volts) above which the UPS automatically restarts [Default → 236].

CAPACITY

Capacity

Internal battery (Ah)	<input type="text" value="6"/>
External battery (Ah)	<input type="text" value="0"/>
Total	<input type="text" value="6"/>

Internal battery

Displays the capacity (Ah) of the UPS internal batteries (field cannot be changed)

External battery

Allows for insertion of the capacity (Ah) in case of an external UPS battery box.

Total

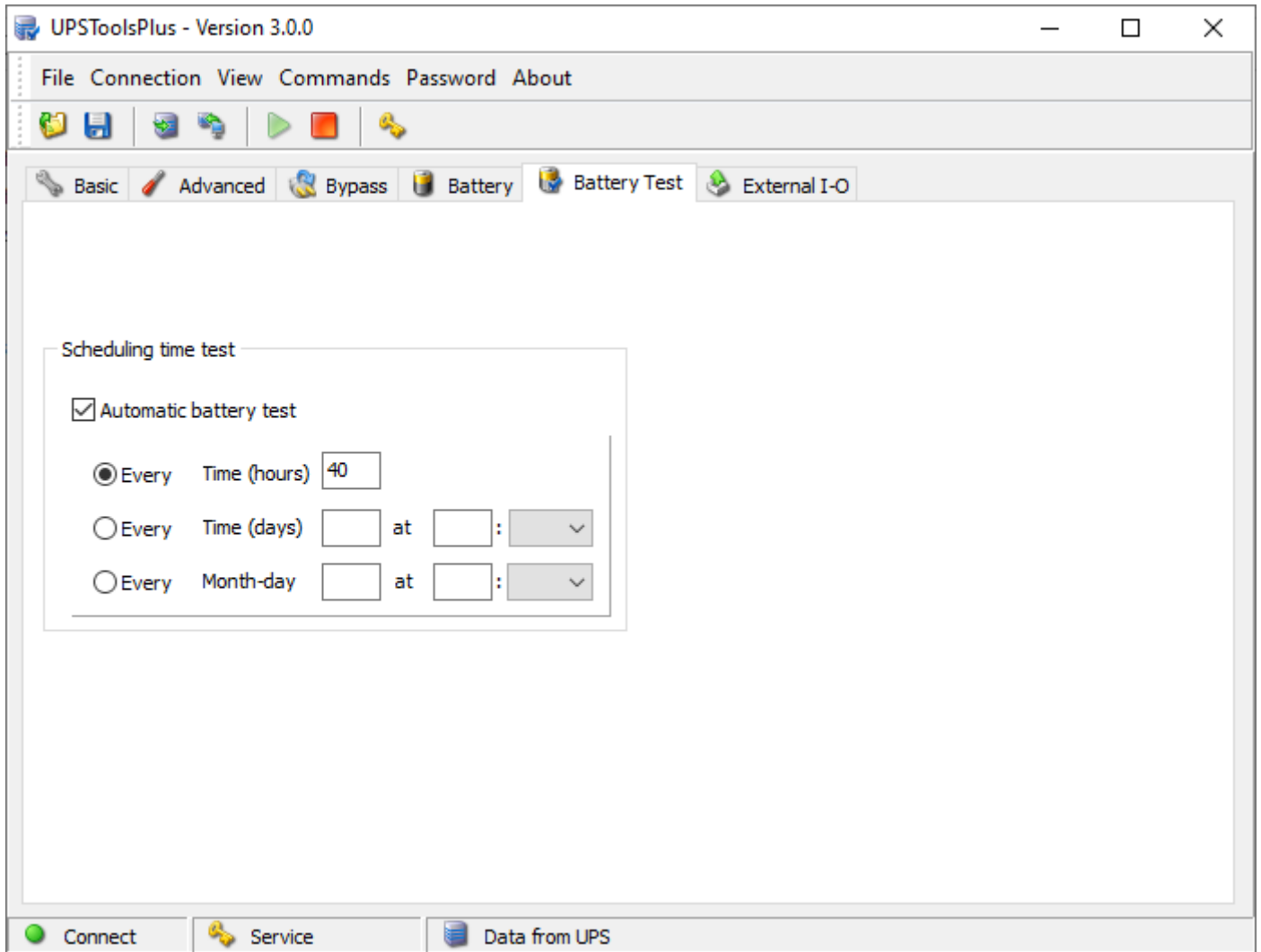
Displays the total capacity of the batteries, calculated by adding the internal capacity and the capacity of the external battery box (if any).

BATTERY TEST

Setting the execution mode of the battery test.



The service level password is required to configure these parameters.



SCHEDULING TIME TEST

Scheduling time test

Automatic battery test

Every Time (hours)

Every Time (days) at :

Every Month-day at :

Scheduling time test

Automatic battery test

Every Time (hours)

Every Time (days) at :

Every Month-day at :

Automatic battery test



If the function is enabled, the UPS automatically carries out the battery tests [Default → Function ENABLED].

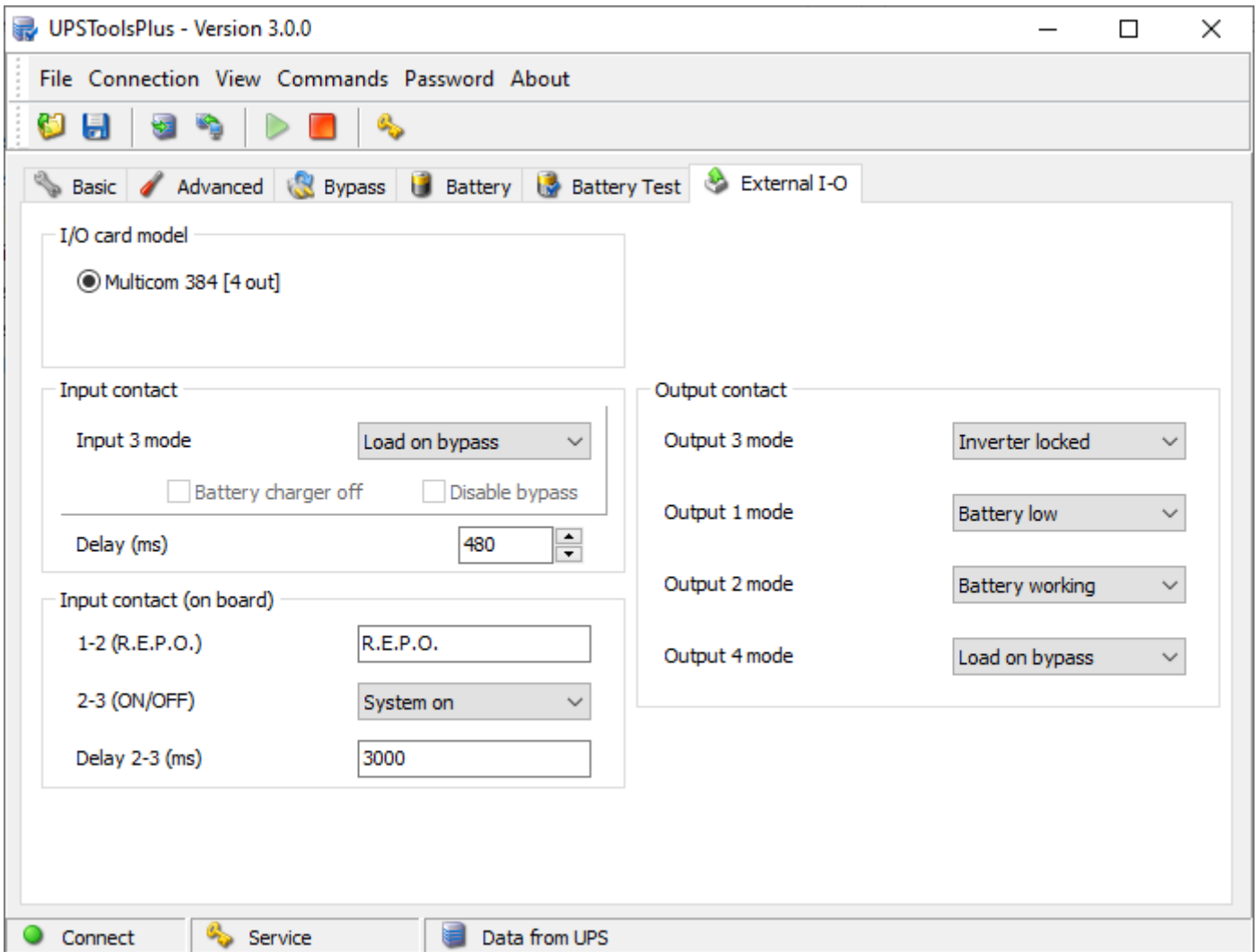
It is possible to set the frequency with which the UPS run the test (time between tests and the next) choosing from 3 options:

- 1) execution of the test every *n* hours ("*Time*" - expressed in hours and between 1 and 273) [Default → 40].
- 2) execution of the test every *n* days at a fixed time ("*Time*" - expressed in days and between 1 and 39; "*a*" - time of the test in the format "hh:mm" between 00:00 to 23:45 in step of 15 minutes).
- 3) execution of the test every established day of the month at a fixed time ("*Month-day*" – day of every month between 1 and 28; "*a*" - time of the test in the format "hh:mm" between 00:00 to 23:45 in step of 15 minutes).

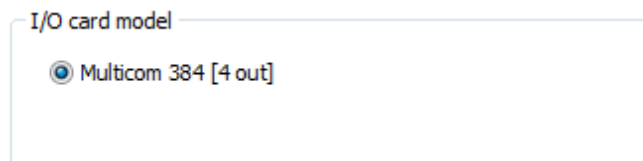
EXTERNAL I-O

Configuration of the programmable inputs and outputs present on the MultiCOM 384 accessory.

-  The service level password is required to configure these parameters.
-  In a parallel system these parameters are NOT transmitted automatically to all the UPS devices. Therefore, they must be configured on each individual UPS.



I/O CARD MODEL



Multicom 384 [4 out]

To configure the contacts of the MultiCOM 384.

INPUT CONTACT

Input contact

Input 3 mode Load on bypass ▼

Battery charger off Disable bypass

Delay (ms) 480 ▲▼

Input 3 mode

Select the function to be associated with the "Input 3" input remote control. In presence of a low active signal at the input (see also *Settings* → *External I-O* → *Delay*), the UPS carries out the associated function [Default → Load on bypass].

No operation	No function
System on	UPS start-up
System stand-by	UPS switch-off
System on/stand-by	UPS Start-up and Switch-off
GE mode	Generator group mode (see also <i>Settings</i> → <i>External I-O</i> → <i>Battery charger off & Disable bypass</i>)
Battery test	Battery test
Load on bypass	Load on bypass
Eco mode	UPS in Eco mode
Stand-by Off Mode	UPS in Stand-by Off mode
SWBAT status	External Battery Switch Status

Battery charger off

This option can only be enabled if Input 3 is set to GE mode; if the function is enabled, in presence of a high active signal at input, the UPS battery charge is switched off [Default → Function DISABLED].

Disable bypass


This option can only be enabled if Input 3 is set to GE mode; if the function is enabled, in presence of a high active signal at input, use of the bypass line is disabled [Default → Function DISABLED].

Delay

Set the min time (expressed in milliseconds and between 0 and 5000) of the impulse at the Input 3 input, below which the UPS does not consider the signal active [Default → 480].

OUTPUT CONTACT

Output contact	
Output 3 mode	Inverter locked ▼
Output 1 mode	Battery low ▼
Output 2 mode	Battery working ▼
Output 4 mode	Load on bypass ▼

 Read carefully MultiCOM384 user manual to properly configure it. Keep the rotary switches of the MultiCOM 384 in the default configuration in order to have the right association between the outputs and the events selected with the software.

Output 3 mode

Select the event to be associated with "Output 3" (RL3 of the MultiCOM 384). The contact opens when the set event occurs [Default→Inverter locked].

Output 1 mode


Select the event to be associated with "Output 1" (RL1 of the MultiCOM 384). The contact closes when the set event occurs [Default→Battery low].

Output 2 mode

Select the event to be associated with "Output 2" (RL2 of the MultiCOM 384). The contact closes when the set event occurs [Default→Battery working].

Output 4 mode

Select the event to be associated with "Output 4" (RL4 of the MultiCOM 384). The contact closes when the set event occurs [Default→ Load on bypass].

Battery low	End of charge pre-alarm
Battery working	Battery operating mode
Load on bypass	Load powered by bypass
Inverter locked	Inverter stage locked
Lock or fault	Lock or fault level alarm
Any alarm	Any alarm
Overload	Overload
Overtemperature	Overtemperature
Replace battery	Batteries to be replaced
External input	Signal active at "Input 3" remote input is (see <i>Settings</i> → <i>External I-O</i> → <i>Input contact</i>)
Load on inverter	Load powered by inverter
Output powered	Output powered
Bypass bad	Bypass line out of tolerance range
Eco mode	Operation in Eco mode
Manual bypass	Operation by manual bypass
UPS ok	Normal operation
Backfeed protection 	BYPASS SCR FAIL alarm active
Inverter asynch.	Inverter not synchronized with the bypass line
Mains line bad	Input line out of tolerance
Battery fail	Batteries not present, to be replaced or end of discharge
Output switch open	Output switch open



Selecting **Backfeed protection**, the contact can be used to control an external circuit breaker for the bypass line in case of a backfeed alarm.

In this case, changes the operation logic of the UPS because, being able to disconnect the bypass line, the load is powered by the inverter also in the presence of a BYPASS SCR FAIL alarm.

AVAILABILITY OF THE FUNCTIONS



Check the UPS firmware version before using the functions described in this section.

All the functions described for SDU (5÷10kVA) / STW / CAM are available in the following firmware revision:

mC	FW070-0111 or higher
DSP	FW068-0108 or higher

