



# **UPSTools Plus**

**- USER'S MANUAL -**

**Compatible with UPS series:**




- SDU (5÷10 kVA)

# INTRODUCTION

*UPSTools Plus* is a utility program, compatible with Windows systems, for the configuration of UPS devices.

To use *UPSTools Plus*, copy the "*UPSToolsPlus.exe*", "*UPSToolsPlus.pdf*" and "*usbdl.dll*" files to a folder of your PC. Then, run *UPSToolsPlus.exe*.

## Symbols used in this manual:

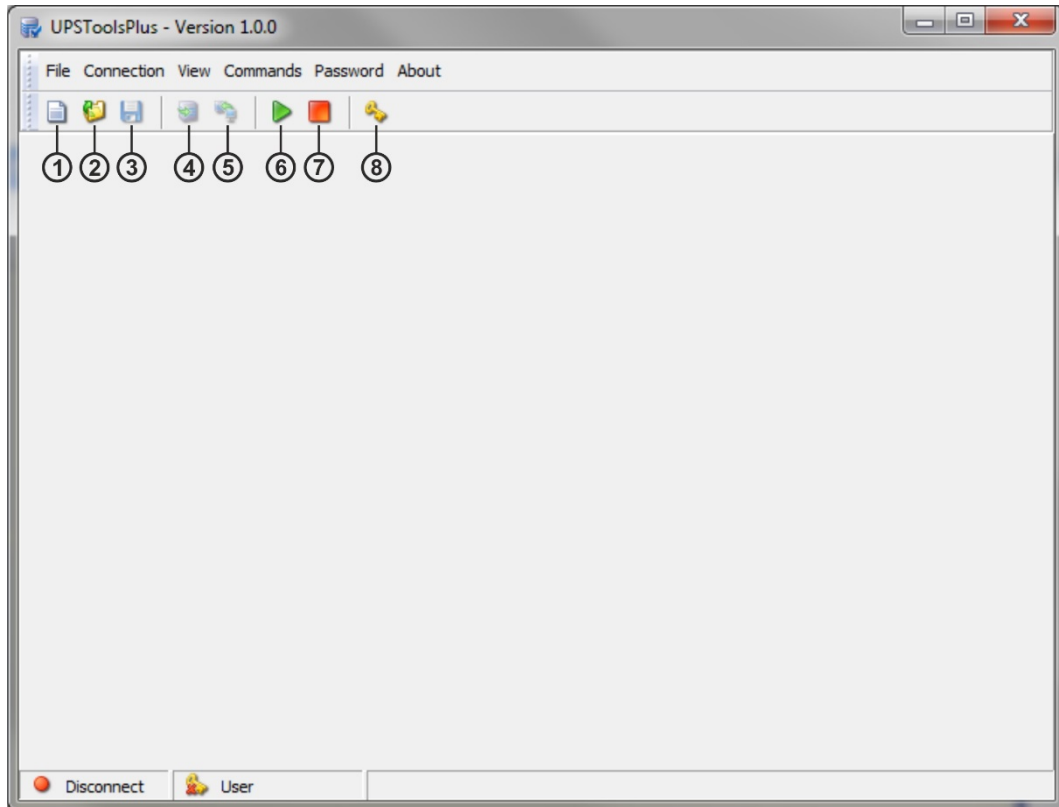
- |  |             |  |
|--|-------------|--|
|  | Danger      | Indicates information that must not be ignored.<br>Failure to follow these indications may cause serious damage to the UPS, the batteries or the load. |
|  | Warning     | Indicates important information.<br>Failure to follow these indications may result in UPS malfunctioning.  |
|  | Information | Provides notes and useful suggestions for the User.  |

## 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.

<b>MENU</b>	<b>4</b>
<i>FILE</i>	<b>5</b>
<i>CONNECTION</i>	<b>6</b>
<i>VIEW</i>	<b>7</b>
<i>COMMANDS</i>	<b>9</b>
<i>PASSWORD</i>	<b>11</b>
<i>ABOUT</i>	<b>11</b>
<b>SETTINGS</b>	<b>12</b>
<b>BASIC</b>	<b>12</b>
<i>OPERATING MODE</i>	<b>13</b>
<i>OUTPUT</i>	<b>14</b>
<i>GENERAL</i>	<b>15</b>
<i>ENERGYSHARE</i>	<b>16</b>
<i>TIMER</i>	<b>17</b>
<b>ADVANCED</b>	<b>18</b>
<i>GENERAL</i>	<b>19</b>
<i>COMMUNICATION SPEED</i>	<b>20</b>
<b>BYPASS</b>	<b>21</b>
<i>ONLINE</i>	<b>22</b>
<i>ECO MODE</i>	<b>23</b>
<b>BATTERY</b>	<b>24</b>
<i>NOMINAL</i>	<b>24</b>
<i>GENERAL</i>	<b>25</b>
<i>CAPACITY</i>	<b>25</b>
<b>BATTERY TEST</b>	<b>26</b>
<i>SCHEDULING TIME TEST</i>	<b>27</b>
<b>EXTERNAL I-O</b>	<b>28</b>
<i>I/O CARD MODEL</i>	<b>28</b>
<i>INPUT CONTACT</i>	<b>29</b>
<i>OUTPUT CONTACT</i>	<b>30</b>
<b>AVAILABILITY OF THE FUNCTIONS</b>	<b>32</b>

# MENU



- ① New configuration file:**  
Creates a new UPS configuration using default values.
- ② Open configuration file:**  
Opens a configuration file (.gcf) previously saved on a disk.
- ③ Save configuration file:**  
Saves a configuration file (.gcf) to disk, containing all the settings selected in the various program tabs.
- ④ Download configuration file from UPS:**  
Downloads the configuration of the UPS at the moment of connection, which is then displayed on the various program tabs.
- ⑤ Upload configuration file to UPS:**  
Loads the configuration displayed in the various program cards to the UPS.
- ⑥ Connect to UPS:**  
Activates the PC↔UPS connection.
- ⑦ Disconnect from UPS:**  
Deactivates the PC↔UPS connection.
- ⑧ Insert password for service level:**  
Allows a password to be entered to access the Service level.

## **FILE**

### **New**

Creates a new UPS configuration using default values.

### **Open**

Opens a configuration file (.gcf) previously saved on a disk.

### **Save**

Saves a configuration file (.gcf) to disk, containing all the settings selected in the various program tabs.

### **Save as...**

Saves and renames a configuration file (.gcf), containing all the settings selected in the various program cards.

### **Download**

Downloads the configuration from the UPS that is currently connected, which is then displayed in the various program cards.



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

### **Upload**

Loads the configuration displayed in the various program tabs to the UPS.



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



After confirming this command, the UPS configuration is overwritten with that present and cannot be restored. Before giving the command, make sure that all the values set are correct.

### **Exit**


To exit the program.

## CONNECTION

### Connect

Activates the PC↔UPS connection by the USB port.

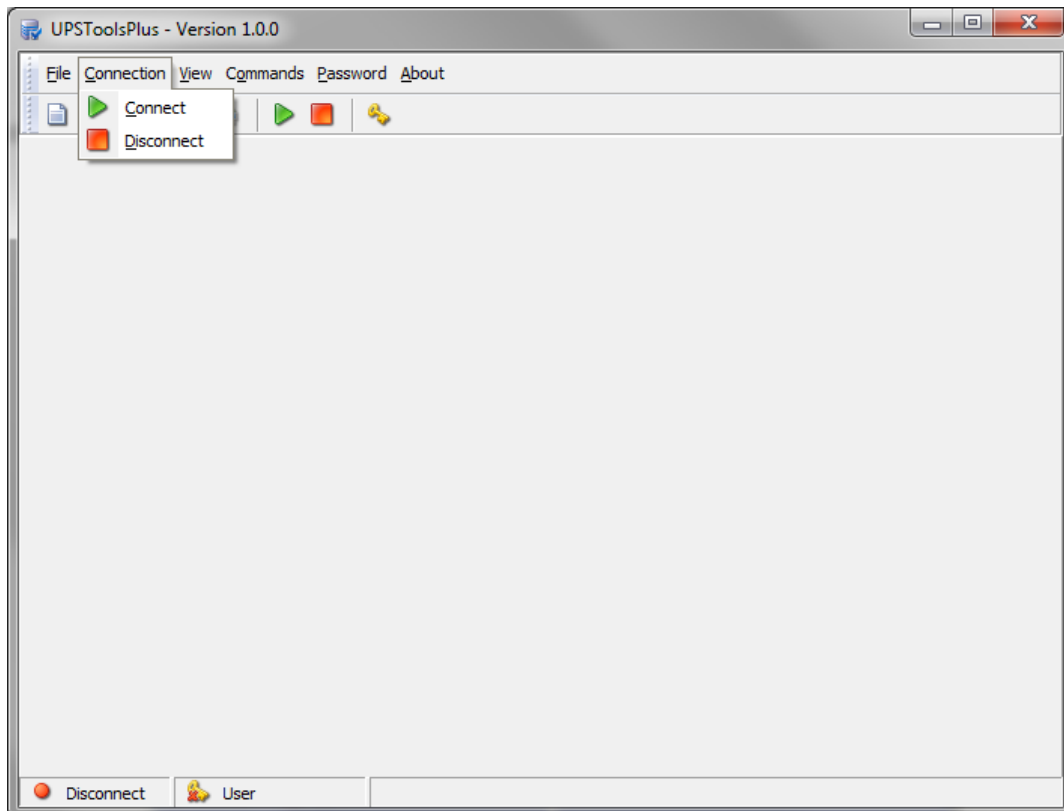
Once the operation is finished, the status of the UPS is indicated in the status bar on the bottom left.

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

### Disconnect

Deactivates the PC↔UPS connection.

Once the operation is finished, the UPS disconnected status is indicated in the status bar on the bottom left.



## VIEW

### Settings

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

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

Nominal Data	
UPS identification	
UPS model	CSDU6K0AA7U0RUA
UPS code	MZ31JT270230031
Firmware version (mC)	SWM070-01-02
Firmware version (DSP)	SWD068-01-01
Nominal data	
Nominal power (VA)	6000
Nominal power (W)	6000
Nominal battery voltage (V)	180
Nominal battery capacity (Ah)	6
UPS type	
UPS type	On Line and Line Interactive
I/O configuration	Monophase/Monophase
Batteries number for bench	15
Battery benches	1

### Statistics

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

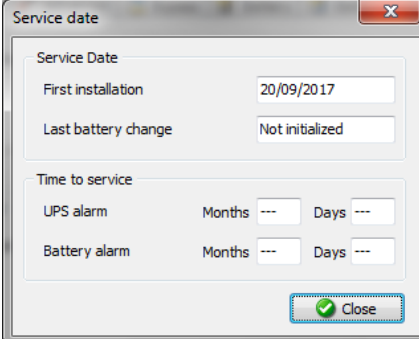
The command is active only if the configuration has already been downloaded (see *Menu* → *File* → *Download*).

Counters	
Nr. battery working	1
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	3h 12m
Total time on battery	0h 4m
Work time with load > 75%	0h 0m

### Service date

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



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

**Service Date**

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


**Time to service**

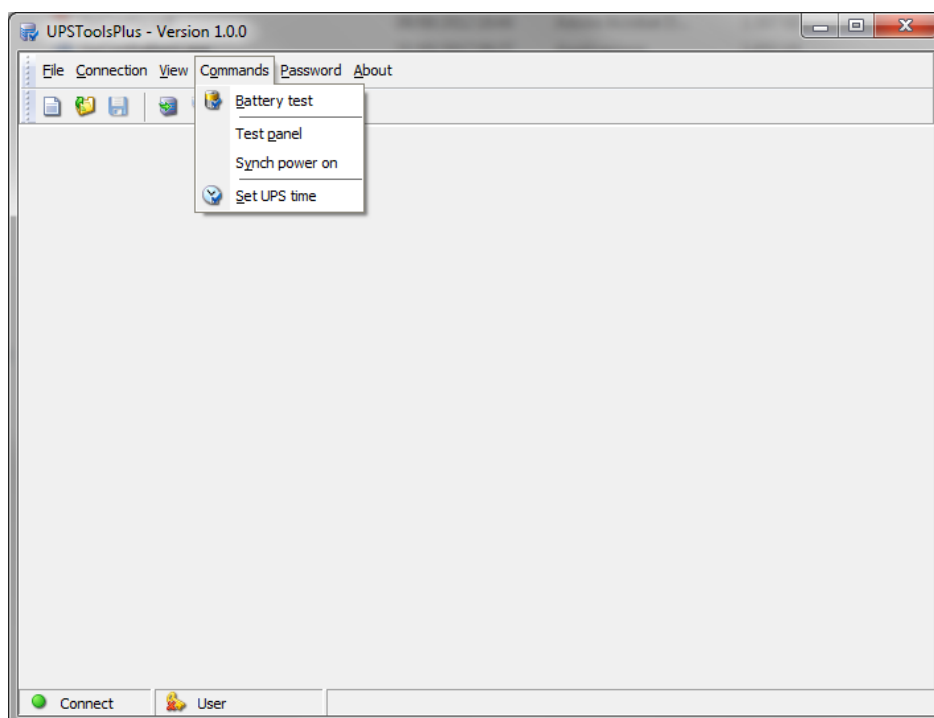
UPS alarm	Months ---	Days ---
Battery alarm	Months ---	Days ---

At the bottom right of the dialog, 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

Activates 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.



In a parallel battery configuration system, the command must be sent to the Master UPS.

### Test panel

Allows for a UPS panel test to be carried out.

### Synch power on

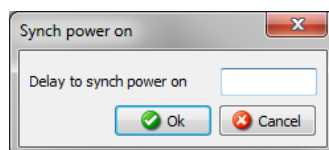
If sent to a UPS belonging to a parallel system, the command simultaneously switches on all of the UPS devices. To be used to power the system on when the load already connected, in order to avoid overload problems which may occur if all the UPS devices are not switched on simultaneously.



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

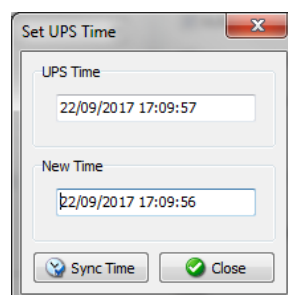


The service level password is required to execute this command.



### Set UPS time

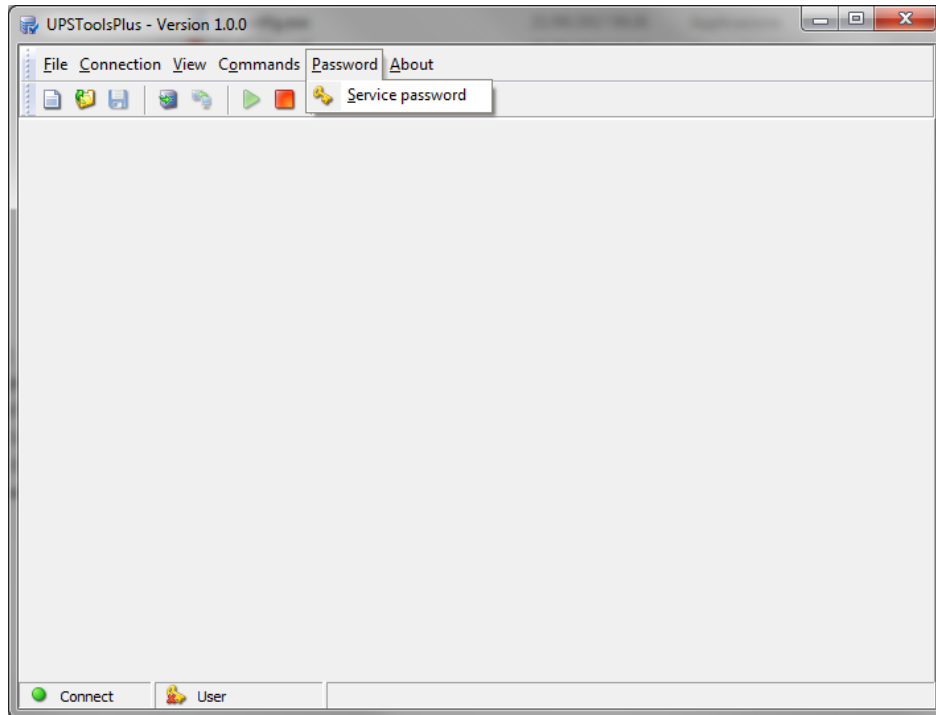
Allows for changing the UPS clock and date.



## PASSWORD

### Service password

Allows a password to be entered to access the Service Level.



## ABOUT

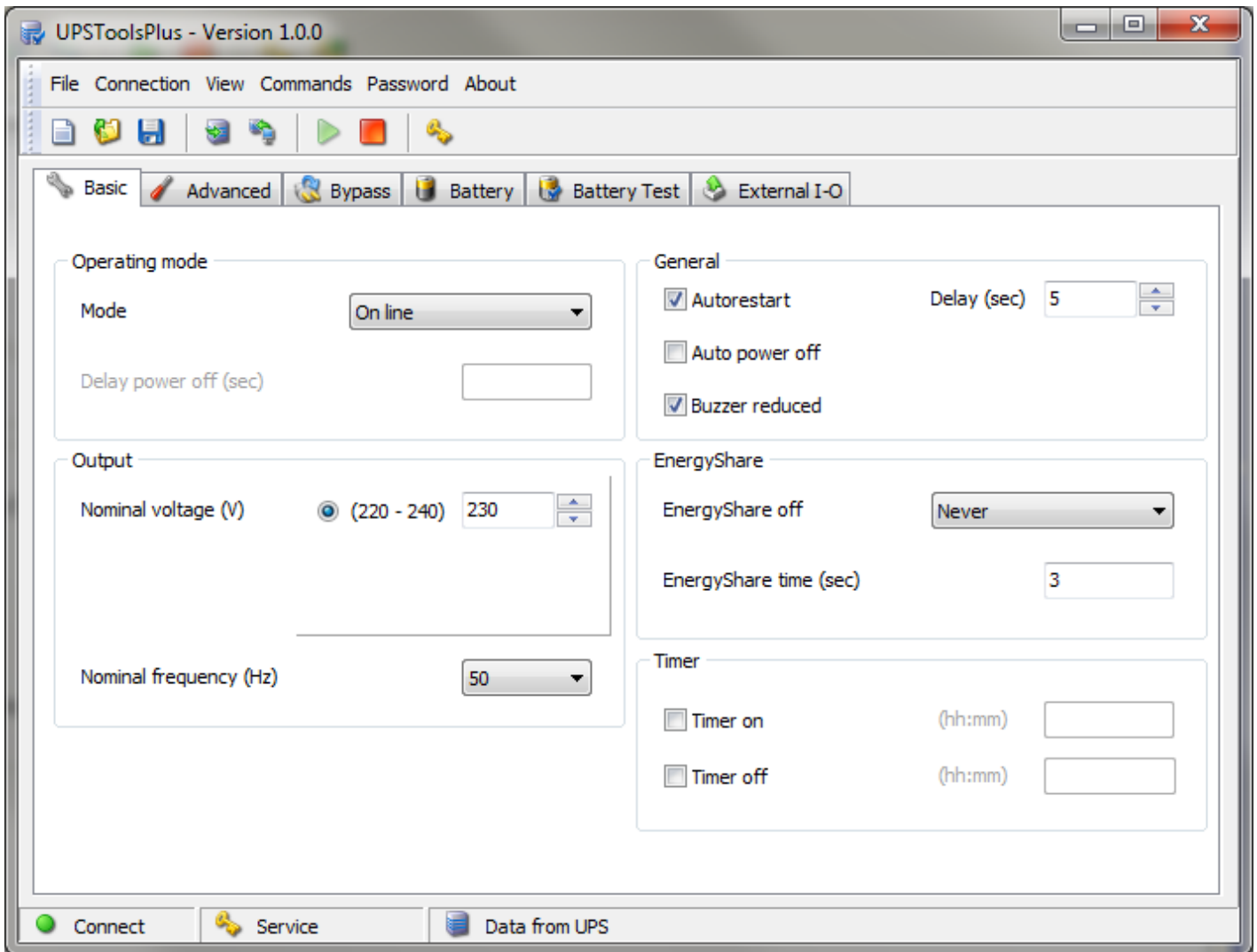
### Help

Opens this manual.

# SETTINGS

## BASIC

Setting the main operating parameters of the UPS.



## OPERATING MODE

Operating mode


Mode On line ▼

Delay power off (sec)

### Mode

Select the desired operating mode [Default → Online].

<b>Online</b>	This mode ensures maximum load protection and the best waveform output quality.
<b>Eco mode</b>	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.
<b>Smart active</b>	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.
<b>Standby Off</b>	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").
<b>Frequency converter</b>	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.

### 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 [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.

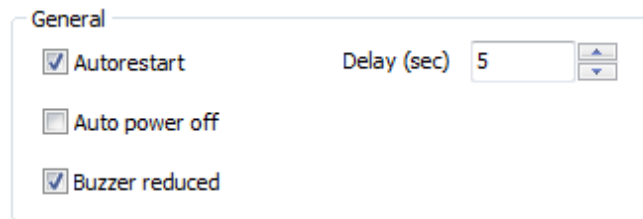
Select the desired output frequency (50 or 60 Hz) of the UPS [Default → 50Hz].

 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

Autorestart      Delay (sec) 5

Auto power off

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].

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

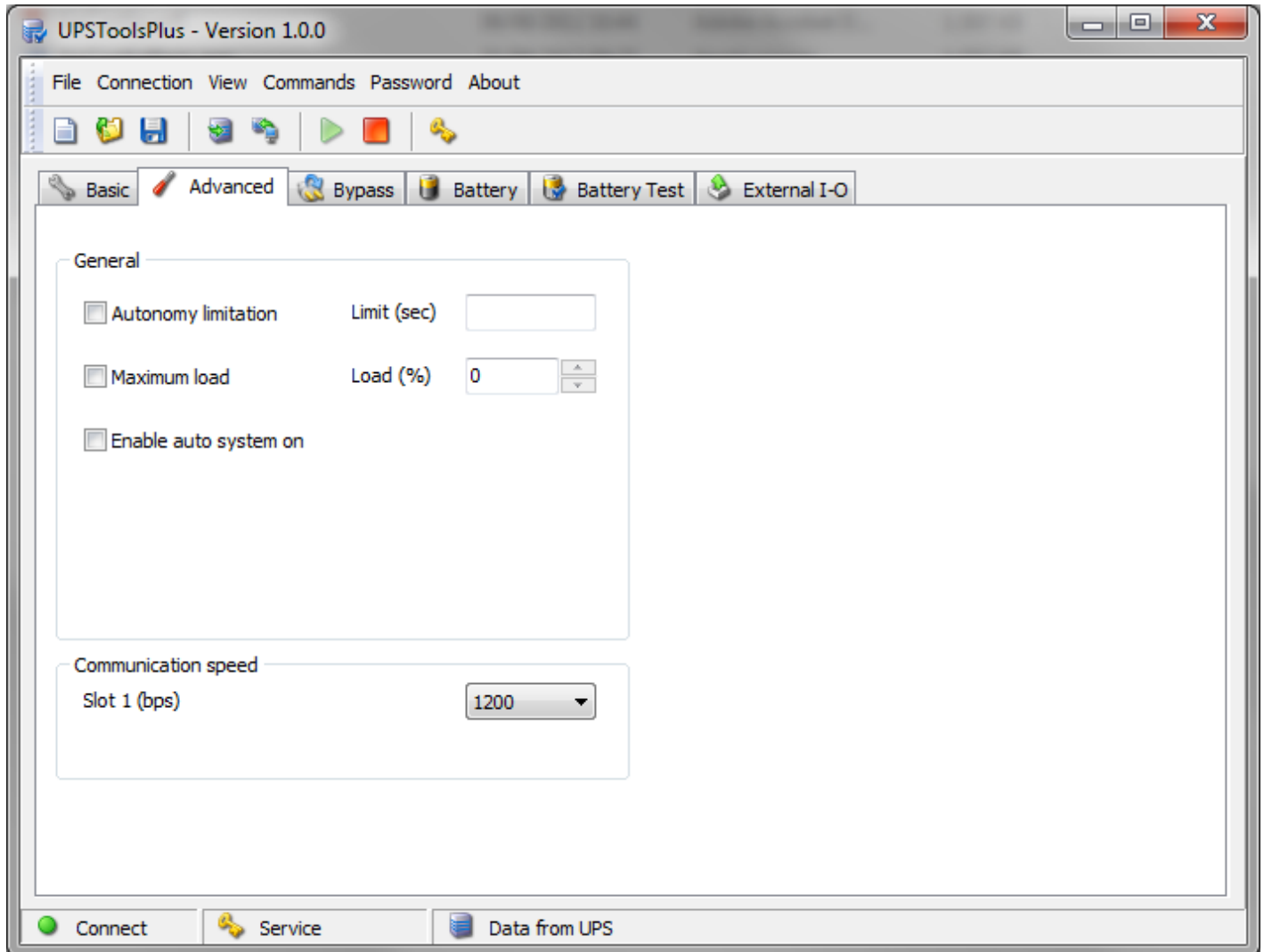
### Timer off

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].

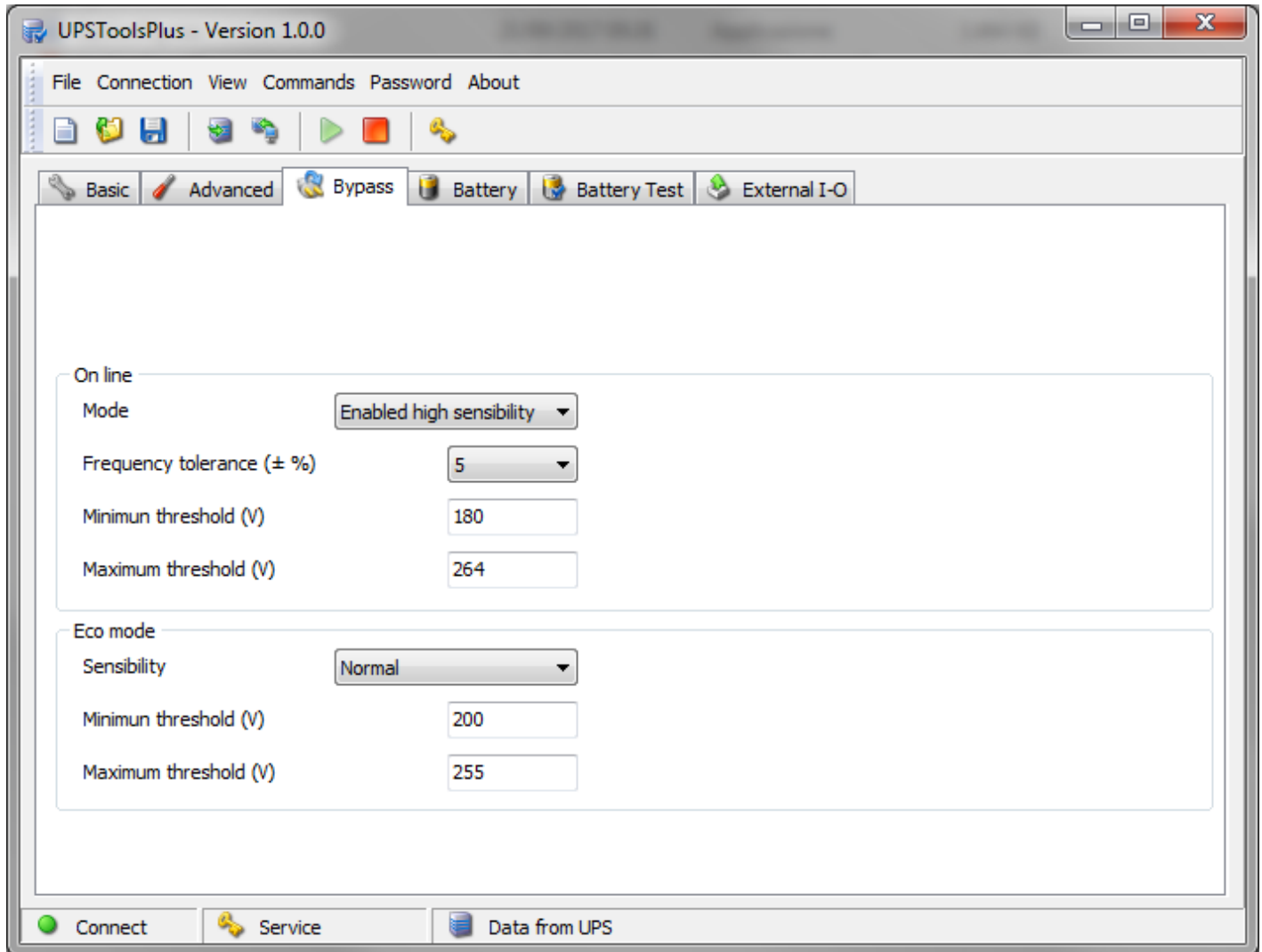


Speed configuration takes place only when the UPS is powered. After a change is made the UPS must be completely switched off and then switched back on.  
If the value 9600bps is set, the PRTK code of the corresponding communication port becomes GPSE19601...

## BYPASS

Setting the bypass operating parameters.

 The service level password is required to configure these parameters.



## 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].

<b>Enabled high sensibility</b>	Switching to bypass enabled with high sensitivity intervention (inverter voltage waveform control active).
<b>Enabled low sensibility</b>	Switching to bypass enabled with low sensitivity intervention (inverter voltage waveform control not active; inverter voltage RMS value control active)
<b>Disabled /Inverter sync.</b>	Switching to bypass disabled. Output frequency synchronized with input frequency.
<b>Disabled /Free running</b>	Switching to bypass disabled. Output frequency NOT synchronized with input frequency.
<b>Active in stand-by</b>	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].

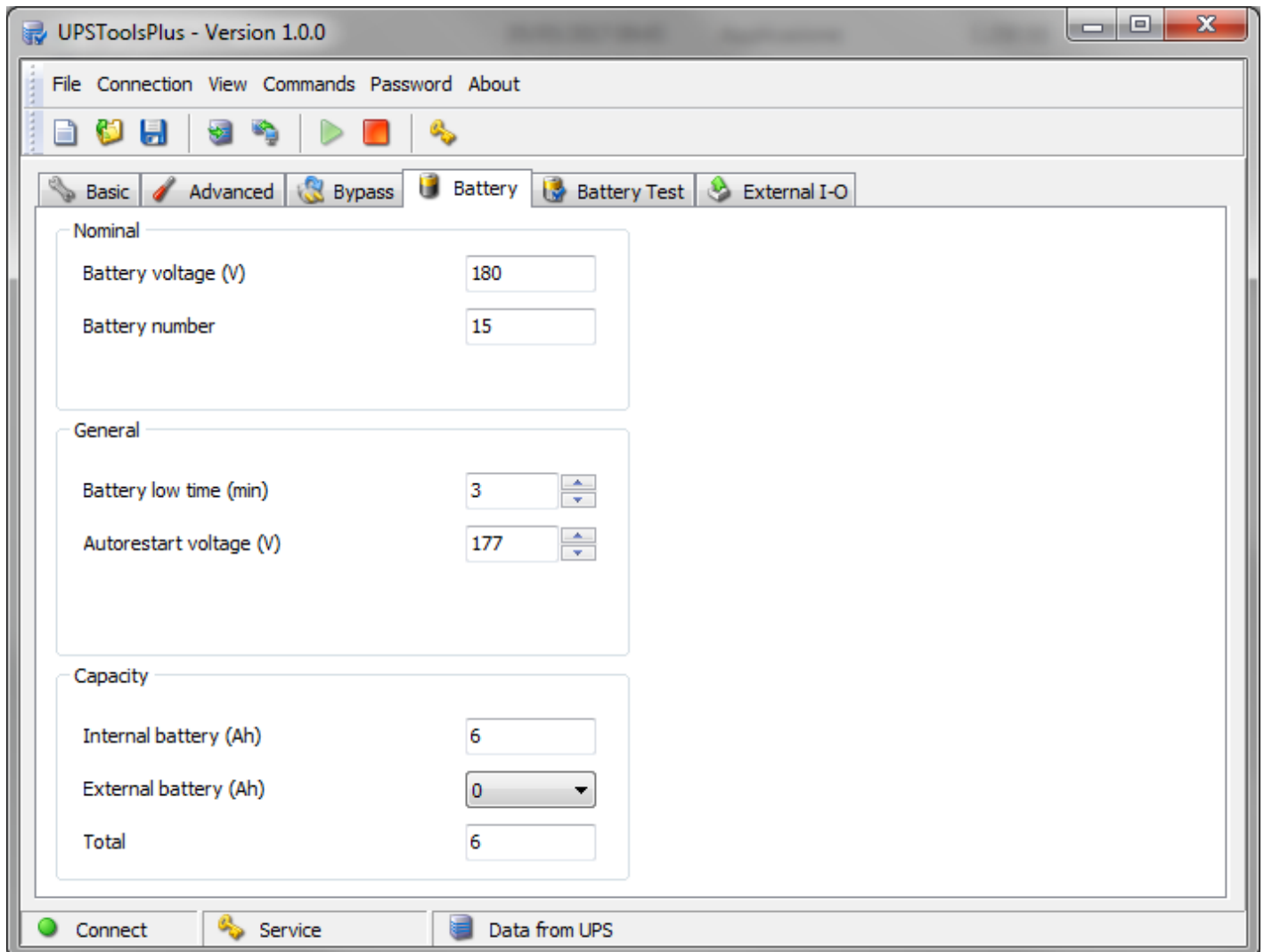
### **Maximum threshold**

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”).



### 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"/>
Autorestart voltage (V)	<input type="text" value="177"/>

### **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.

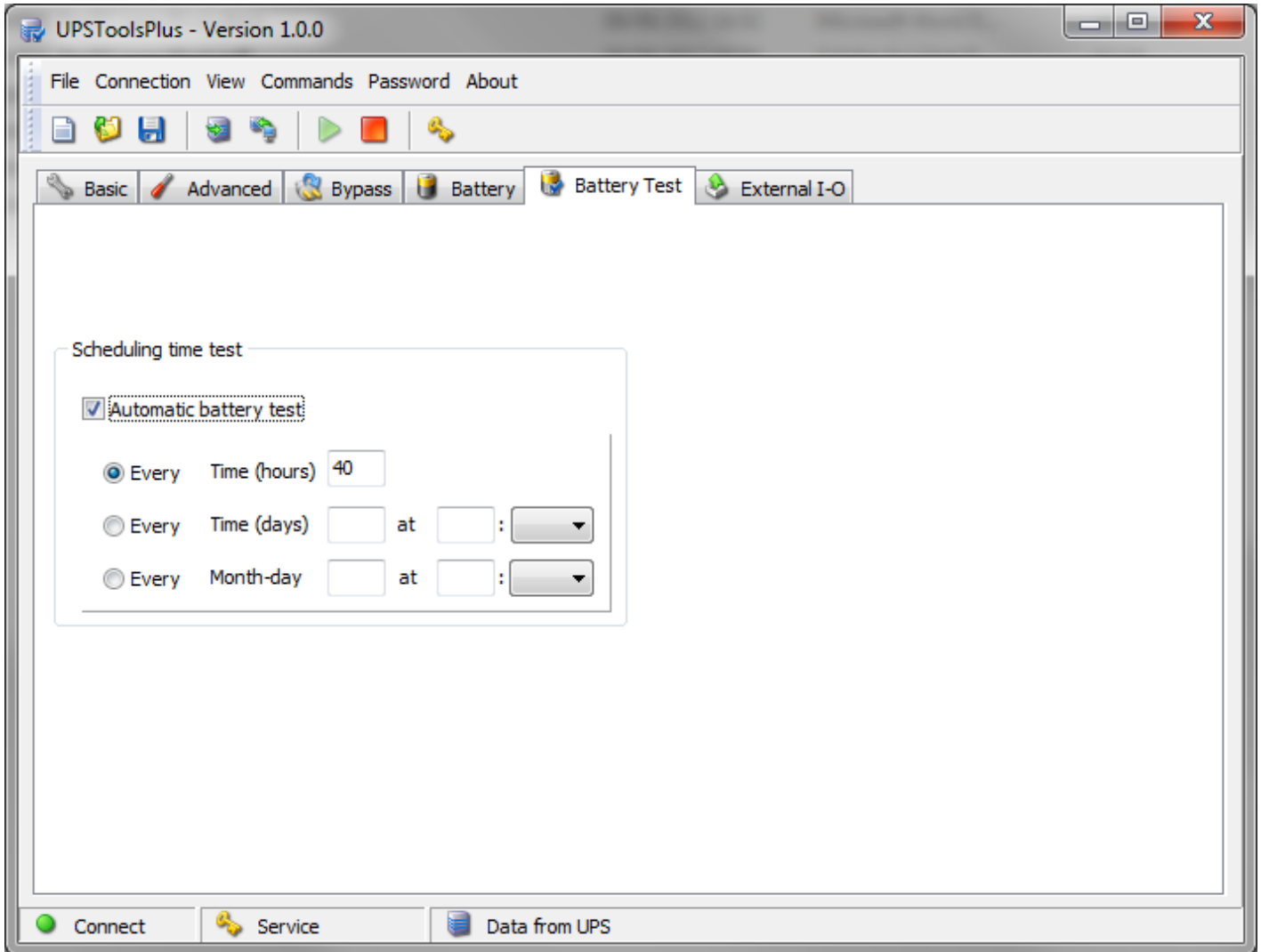
### **Total**

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].

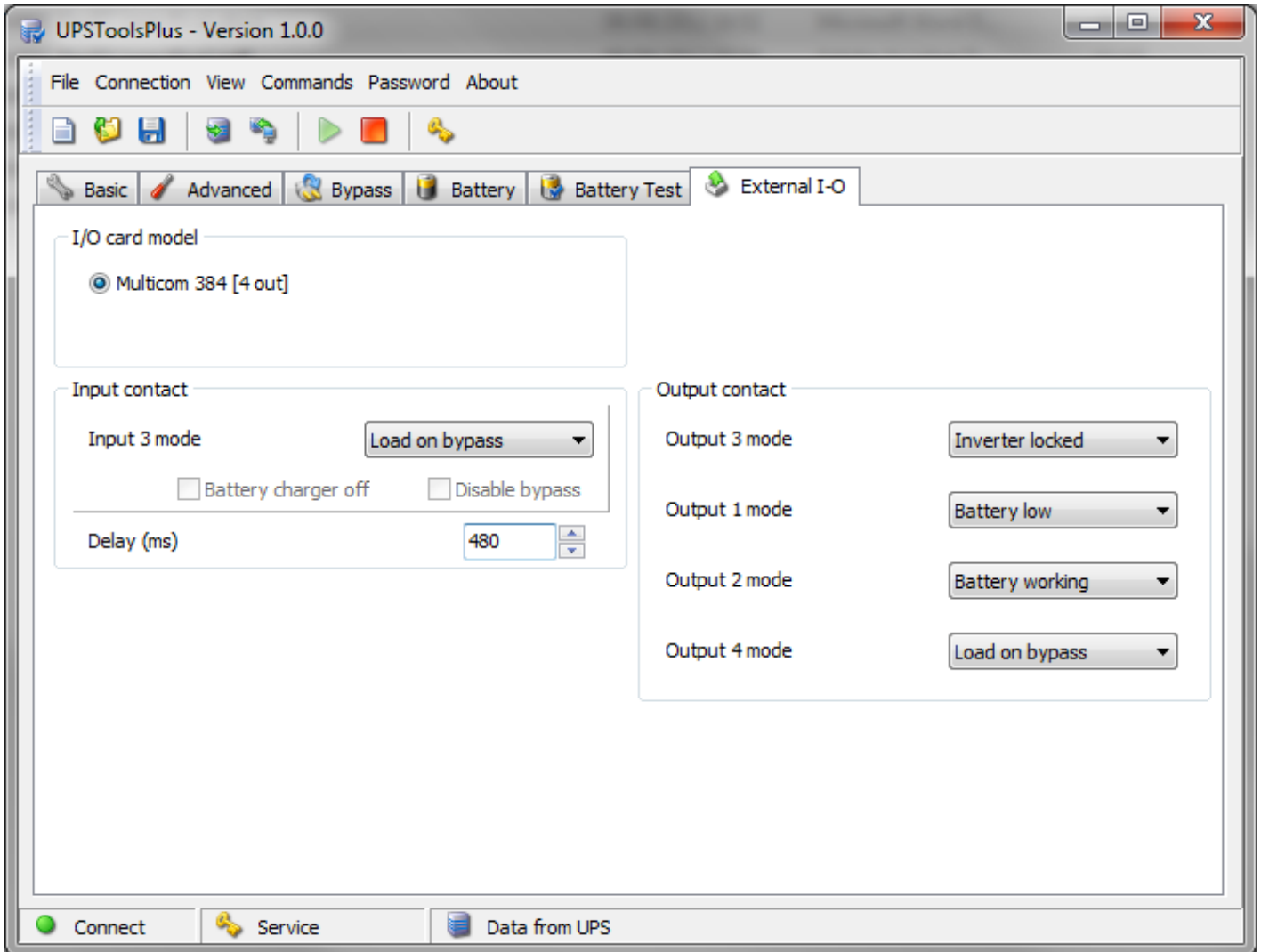
It is possible to set the frequency with which the UPS run the test (time between tests and the next) choosing from 3 options:

- 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; "*at*" - 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; "*at*" - time of the test in the format "hh:mm" between 00:00 to 23:45 in step of 15 minutes).

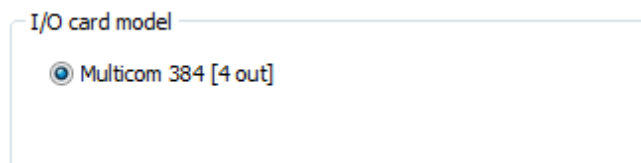
## EXTERNAL I-O

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].

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


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

All the functions described in this manual are available in the following firmware revision:

mC	FW070-0101 or higher
DSP	FW068-0101 or higher



