



GTEC UPS MODEL:

**SATURN 10-200 kVA – SIRIUS 10-120 kVA**

UCOM GP Configurator

**USER MANUAL**

# **INTRODUCTION**

*Configurator* is a utility program for the configuration of transformerless UPS devices from 10 to 120kVA. Compatible with Windows 2000, XP, 2003, Vista and 7 systems.

## **Symbols used in this manual:**

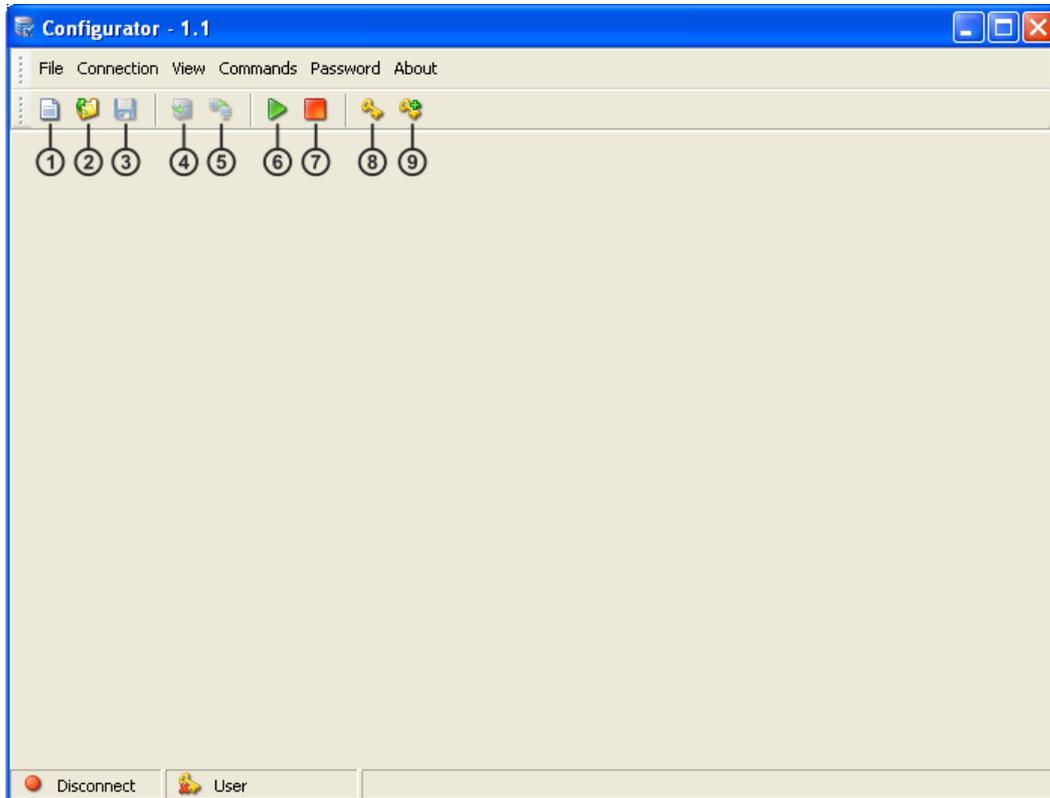
- |  |                    |  |
|--|--------------------|--|
|  | <b>Danger</b>      | Indicates information that must not be ignored.<br>Failure to follow these indications may cause serious damage to the UPS, the batteries or the load. |
|  | <b>Warning</b>     | Indicates important information.<br>Failure to follow these indications may result in UPS malfunctioning.  |
|  | <b>Information</b> | 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. |
|--|---|

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## MENU



- |  |  |
|--|--|
| <p><b>① New configuration file:</b><br/>Creates a new UPS configuration using default values.</p> <p><b>② Open configuration file:</b><br/>Opens a configuration file (.gcf) previously saved on a disk.</p> <p><b>③ Save configuration file:</b><br/>Saves a configuration file (.gcf) to disk, containing all the settings selected in the various program tabs.</p> <p><b>④ Download configuration file from UPS:</b><br/>Downloads the configuration of the UPS at the moment of connection, which is then displayed on the various program tabs.</p> <p><b>⑤ Upload configuration file to UPS:</b><br/>Loads the configuration displayed in the various program cards to the UPS.</p> | <p><b>⑥ Connect to UPS:</b><br/>Activates the PC↔UPS connection.</p> <p><b>⑦ Disconnect from UPS:</b><br/>Deactivates the PC↔UPS connection.</p> <p><b>⑧ Insert password for service level:</b><br/>Allows a password to be entered to access the Service level. </p> <p><b>⑨ Insert password for advanced service level:</b><br/>Allows a password to be entered to access the Advanced level. </p> <p> To access to the “Service level” and to the “Advanced service level” you need the licence of the UcomGP.</p> |
|--|--|

## **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 using the set serial communication port (see *Menu* → *Connection* → *Com 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.

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

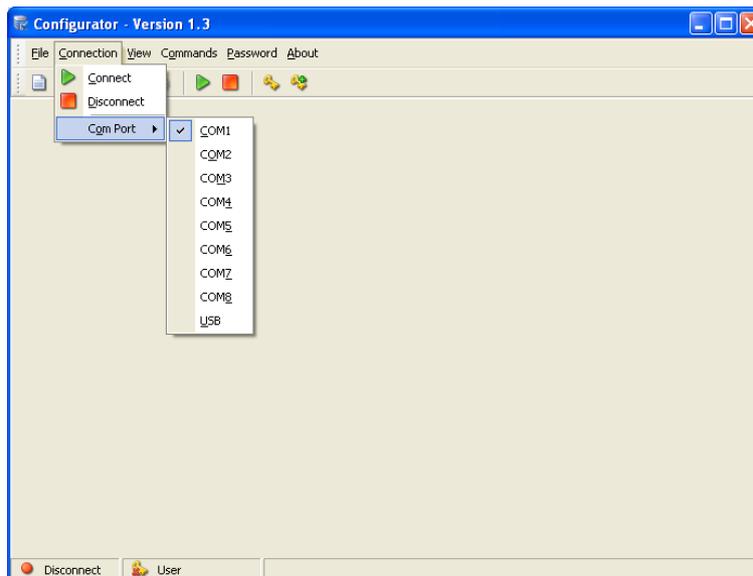
### Disconnect

Deactivates the PC↔UPS connection.

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

### Com Port

Allows for the configuration of the PC serial port that is used for communicating with the UPS.



## VIEW

### Settings

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

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

The Settings dialog box is titled "Settings" and contains three sections:

- Nominal Data**
  - UPS identification**
    - UPS model: TT2K20
    - UPS code: LN58U004567
    - Firmware version (mC): SWM022-0A-U4
    - Firmware version (DSP): SWD023-02-11
  - Nominal data**
    - Nominal power (VA): 20000
    - Nominal power (W): 18000
    - Nominal battery voltage (V): 240
    - Nominal battery capacity (Ah): 9
  - UPS type**
    - UPS type: On Line and Line Interactive
    - I/O configuration: Threephase/Threephase
    - Batteries number for bench: 20
    - Battery benches: 2

A "Close" button with a green checkmark is located at the bottom right of the dialog.

### Statistics

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

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

The Statistics dialog box is titled "Statistics" and contains three sections:

- 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: 61h 19m
  - Total time on battery: 0h 52m
  - Work time with load > 75%: 15h 29m
- Service Date**
  - First installation: 05/02/2010
  - Last battery change: 05/02/2010

A "Close" button with a green checkmark is located at the bottom right of the dialog.

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



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

**Service Date**

First installation	<input type="text" value="24/03/2011"/>
Last battery change	<input type="text" value="24/03/2011"/>

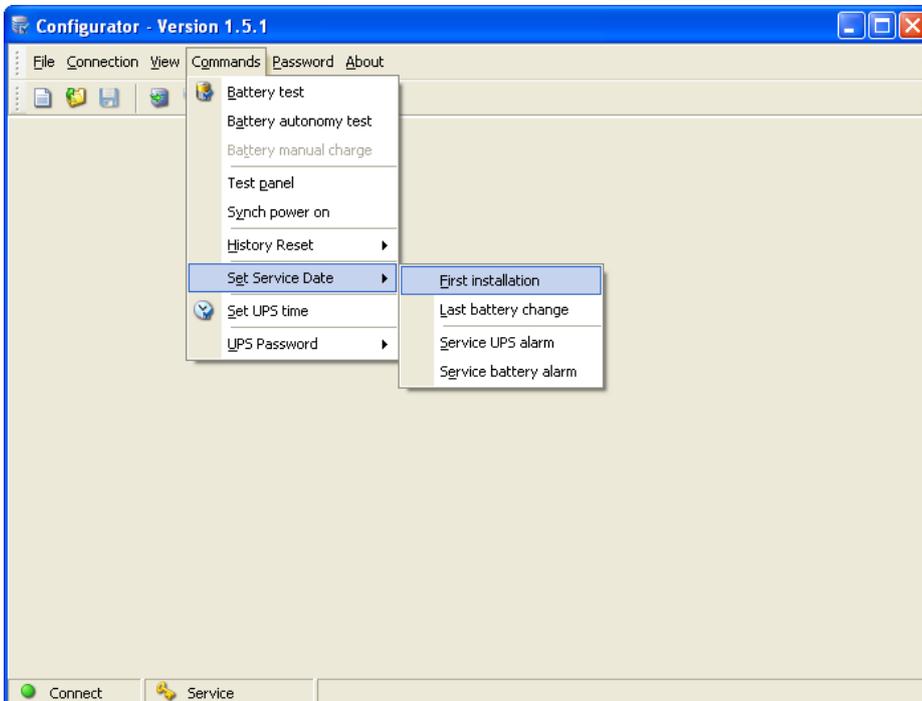
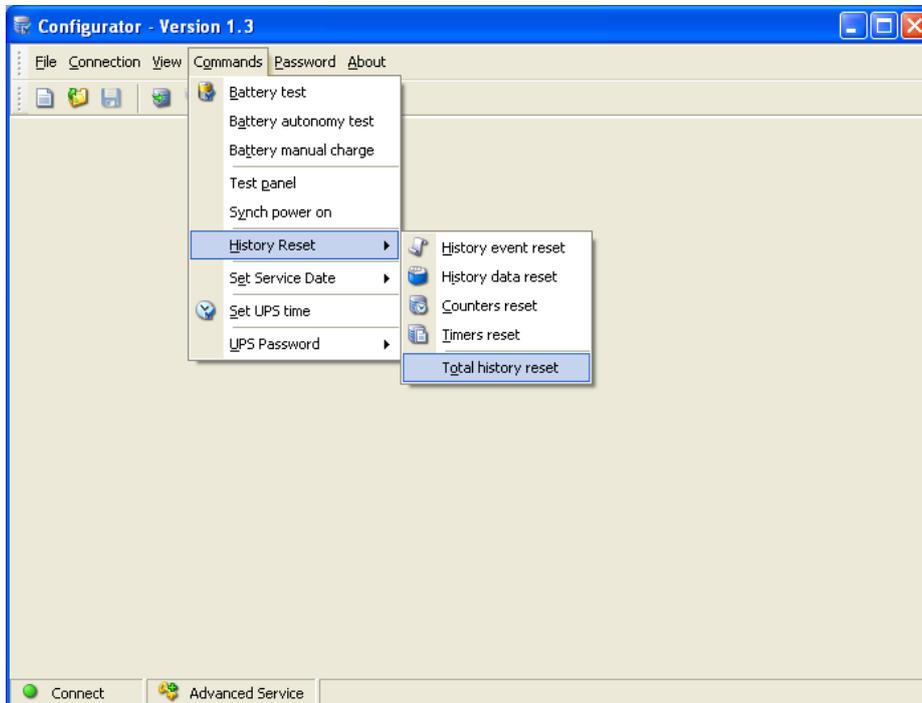
**Time to service**

UPS alarm	Months	<input type="text" value="36"/>	Days	<input type="text" value="0"/>
Battery alarm	Months	<input type="text" value="36"/>	Days	<input type="text" value="0"/>

At the bottom right of the window is a "Close" button with a green checkmark icon.

## COMMANDS

 All commands are only active 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.

### Battery autonomy test

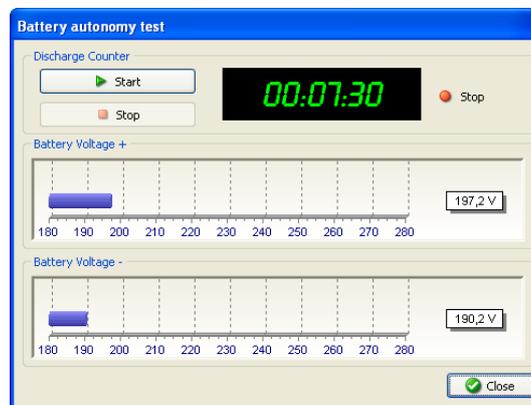
Activates the battery autonomy test. Once activated manually (Start button) the test automatically stops when the end charge threshold has been reached, or manually using the Stop button. The test can also be stopped pressing F3 key on the front panel of the UPS.

At the end of the test, the timer shows the autonomy of the batteries in relation to the charge applied during the execution of the test itself.

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

 At the end of the test, the batteries will be discharged and, therefore, if there is no mains power, it will not be possible to maintain the powered load.

 The service level password is required to execute this command.



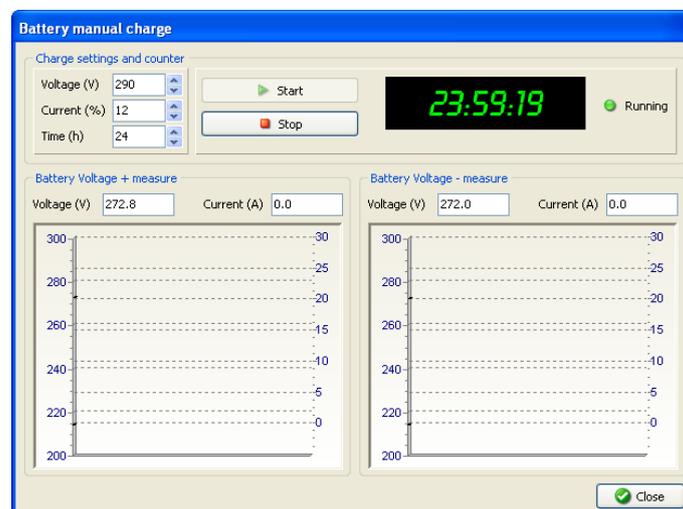
### Battery manual charge

Activate manual formation charge to equalize the batteries. This operation is recommended after the installation of new batteries to ensure uniform discharge and wear.

 In a parallel battery configuration system, the Start and Stop commands must be sent to the Master UPS.

 Incorrectly setting the charge parameters (Voltage, Current and Time) may damage the batteries.

 The advanced level password is required to execute this command.



### 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 turn 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.



### History Reset

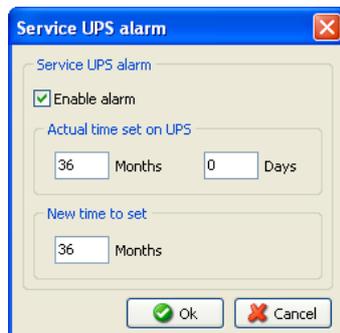
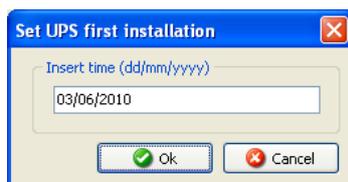
Deletes historical data stored in the UPS memory. Historical data may be globally deleted (Total history reset) or by selecting those of interest among the events (History event reset), data (History data reset), counters (Counters reset) and timers (Timers reset).

-  The service level password is required to execute the History event reset and History data reset commands.
-  The advanced level password is required to carry out the Total history reset, Counters reset and Timers reset commands.

### Set Service Date

For setting the first start-up date (First installation), the last battery change date (Last battery change) and the remaining months of the reporting of alarms "UPS Service" and "Battery Service" (Service UPS alarm [W07] / battery alarm Service [W08]).

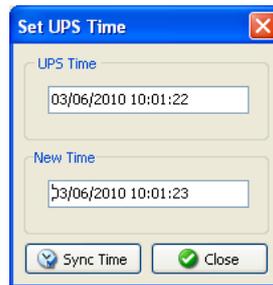
-  The service level password is required to execute this command.



-  Once the time set for "Service UPS alarm" and/or "Service battery alarm" has elapsed, a warning is displayed on the panel reporting the telephone number set in "Telephone number 3" (see "Alarm Service").

## Set UPS time

Allows for changing the UPS clock and date.



## UPS Password

It is possible to set a password to block access to the configuration of the UPS via software (Set UPS password). If you have the password, you can however change it (Set Password UPS) or delete it (UPS Reset password). In order to block access to the configuration panel of the UPS, refer to "Panel Lock".



Once you set the password, you cannot change the configuration of the UPS without entering the password itself. It is recommended keep your password safe and do not disclose it to anyone



The password must be exactly 6 characters.

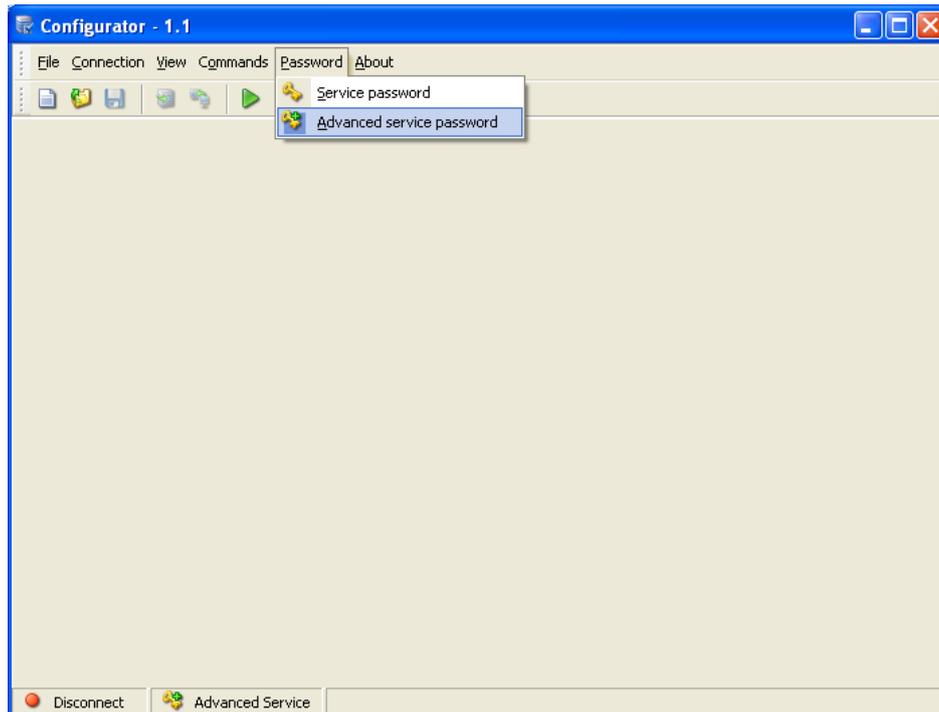
## PASSWORD

### Service password

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

### Advanced service password

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



## ABOUT

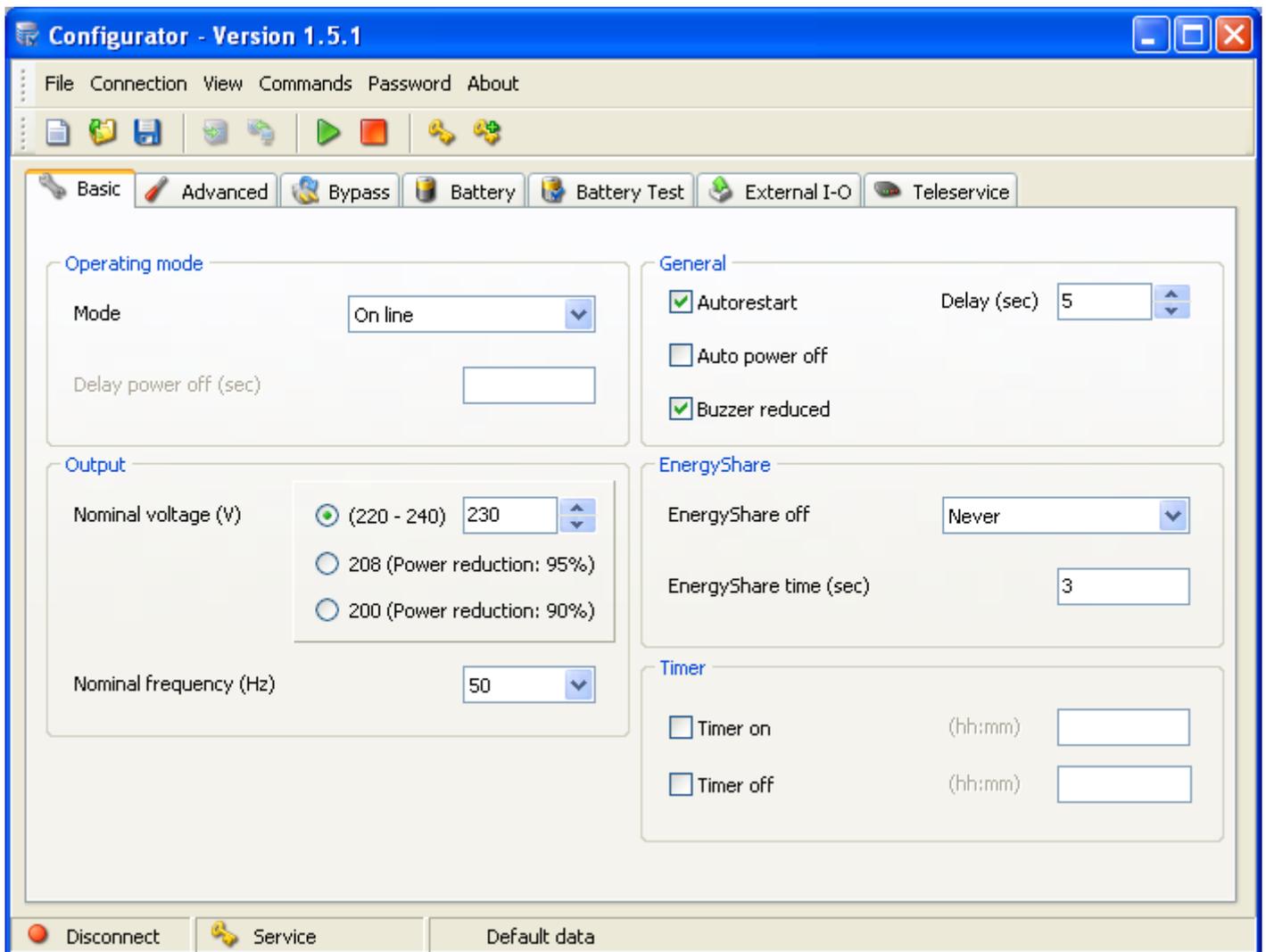
### Help

Opens this manual.

# SETTINGS

## BASIC

Setting the main operating parameters of the UPS.



## OPERATING MODE

The screenshot shows a configuration window titled "Operating mode". It contains two fields: "Mode" with a dropdown menu currently showing "On line", and "Delay power off (sec)" with an empty text input box.

### 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

 The service level password is required to execute this command.

**Output**

Nominal voltage (V)  (220 - 240)

208 (Power reduction: 95%)

200 (Power reduction: 90%)

Nominal frequency (Hz)

### **Nominal voltage**

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

### **Nominal frequency**

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 the frequency set only occurs 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)

### 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>	Turn-off in battery operating mode
<b>Line present</b>	Turn -off if the input line is present
<b>Battery low</b>	Turn -off if battery power is low
<b>User overload</b>	Turn -off if a load exceeds the threshold defined by the user (see <i>Settings → Advanced → General → Maximun load</i> )
<b>Overload</b>	Turn -off due to overloading
<b>Temperature Ok</b>	Turn -off if the UPS temperature is good
<b>External input on</b>	Turn -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>	Turn -off in the absence of safety blocks
<b>No fault/alarm</b>	Turn -off in the absence of alarms
<b>Normal status</b>	Turn -off in case of normal operation
<b>Battery % low</b> 	Turn -off due to discharged battery
<b>Stand-by</b>	Turn -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

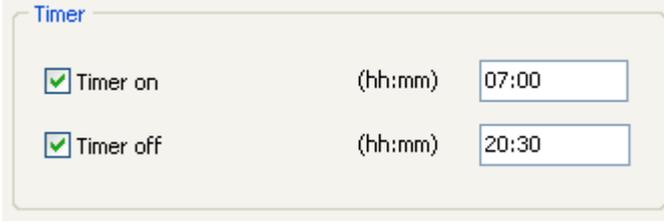
Set the delay (expressed in seconds between 0 and 65535) between the occurrence of the selected event and the automatic cut-off of the EnergyShare socket [Default → 3].

 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.



The screenshot shows a configuration window titled "Timer". It contains two rows of settings. The first row is for "Timer on", with a checked checkbox, a label "(hh:mm)", and a text input field containing "07:00". The second row is for "Timer off", with a checked checkbox, a label "(hh:mm)", and a text input field containing "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.

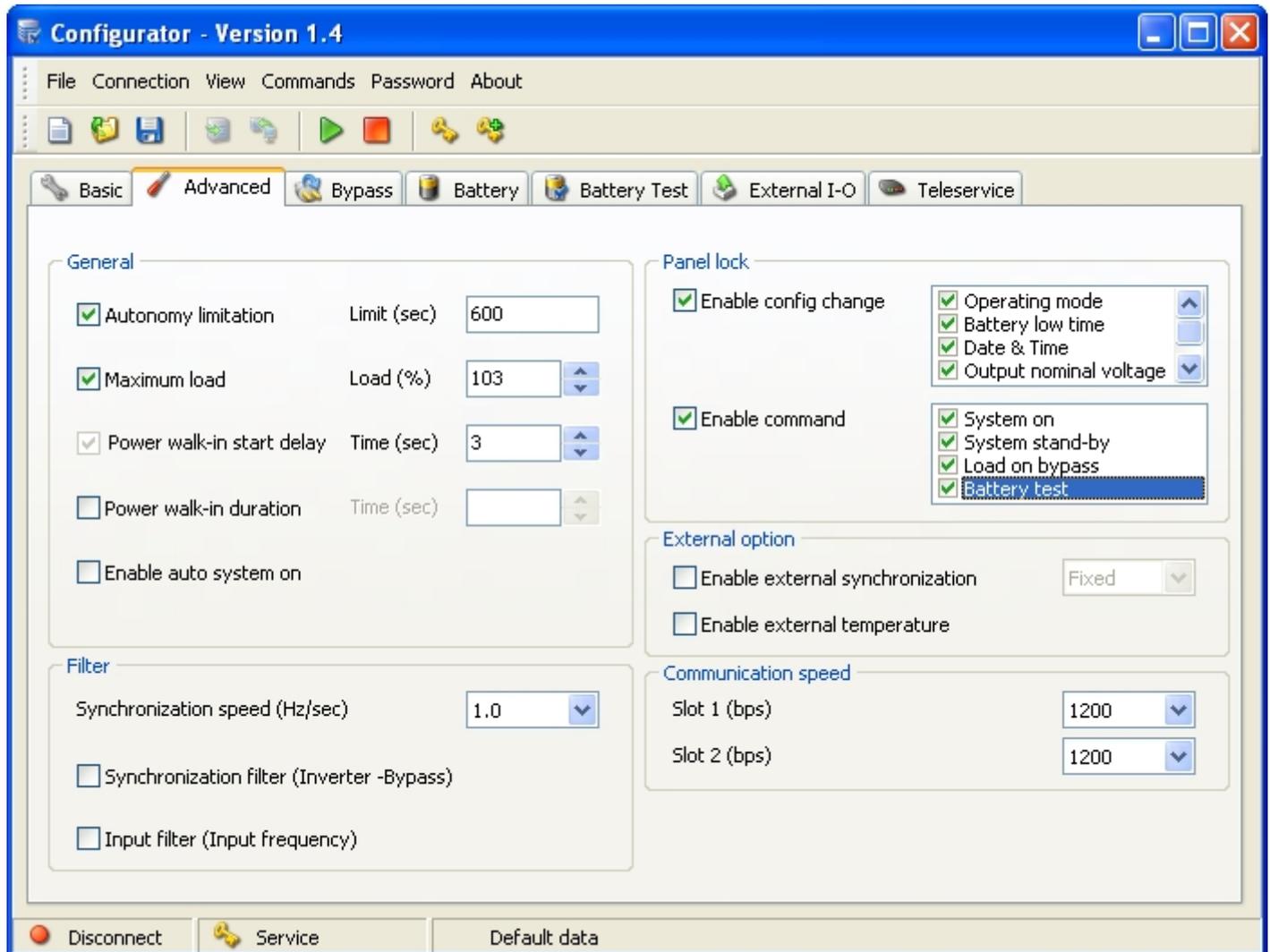
### Timer off

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 checked="" type="checkbox"/> Autonomy limitation	Limit (sec)	<input type="text" value="600"/>
<input checked="" type="checkbox"/> Maximum load	Load (%)	<input type="text" value="103"/>
<input checked="" type="checkbox"/> Power walk-in start delay	Time (sec)	<input type="text" value="3"/>
<input type="checkbox"/> Power walk-in duration	Time (sec)	<input type="text" 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].

### Power walk-in start delay

Once the mains power is restored (after a period of battery operation), the UPS delays switching of the input stage for a programmable period of time. This function is particularly useful when the source must supply various UPS or, more typically, multiple users so as not to cause a crisis (due to the peak) for any generator group that may be installed upstream. The duration of the delay can be set ("*Time*" – expressed in seconds is configurable up to 120). [Default→3 sec].

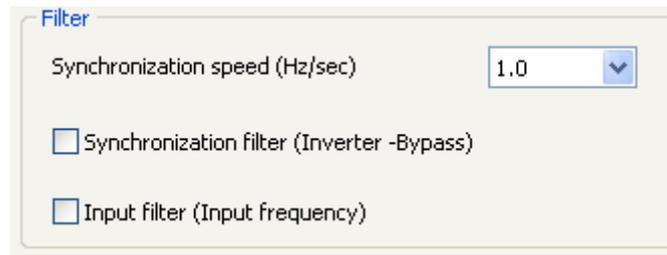
### Power walk in duration

When the function is enabled, once the mains power is restored (after a period of battery operation), the UPS begins absorbing from it again progressively so as not to cause a crisis (due to the peak) for any generator group that may be installed upstream. The duration of the transition can be set ("*Time*" – expressed in seconds from 0 to 125). During the transition, the power required is drawn partly from the batteries and partly from the mains while maintaining sinusoidal absorption. The battery charger is switched back on only after the transition is complete [Default→DISABLED].

### Enable auto system on

When the function is enabled and the UPS switched on, it will automatically switch on-line without first changing to Stand-By and without having to carry out the "SYSTEM ON" command [Default → Function DISABLED].

## ***FILTER***



Filter

Synchronization speed (Hz/sec) 1.0

Synchronization filter (Inverter -Bypass)

Input filter (Input frequency)

### ***Synchronization speed***

Allows the setting of the synchronization speed of the inverter to the bypass line. The possible speeds are 0.5, 1.0, 1.5 and 2.0 [Default → 1.0 Hz/sec].

### ***Synchronization filter (Inverter-Bypass)***

Enable a filter to improve the synchronization of the inverter with the bypass line in case of disturbance on the mains [Default → Function DISABLED].

### ***Input filter (Input frequency)***

Enable a digital filter of voltage and frequency reading on the input line. The function can be enabled in the case of disturbance on the mains [Default → Function DISABLED].

## PANEL LOCK

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

The image displays two screenshots of the 'Panel lock' configuration window. Both screenshots have 'Enable config change' and 'Enable command' checked. The top screenshot shows the following settings under 'Enable config change': Operating mode (checked), Battery low time (checked), Date & Time (checked), and Output nominal voltage (checked). Under 'Enable command', the settings are: System on (checked), System stand-by (checked), Load on bypass (checked), and Battery test (checked). The bottom screenshot shows the following settings under 'Enable config change': Battery low time (checked), Date & Time (checked), Output nominal voltage (checked), and External battery (unchecked). Under 'Enable command', the settings are: System on (checked), System stand-by (checked), Load on bypass (checked), and Battery test (checked).

### Enable config change

If the function is enabled, it is possible to change the selected settings of the UPS from the display panel. [Default → Function ENABLED].

### Enable command

If the function is enabled, it is possible to carry out the selected commands from the display panel. [Default → Function ENABLED].

## EXTERNAL OPTION



External option

Enable external synchronization

Enable external temperature

Fixed

Fixed

Automatic

### **Enable external synchronization**

Activates the inverter synchronization function from an external synchronization source (YMSTEXSA accessory / user manual 0MNMSTEXSENU.) [Default → Function DISABLED].

Selecting the "Fixed" option, the inverter is always synchronized to the external synchronization source (regardless of the status of the bypass line).

Selecting the "Automatic" option, the inverter is synchronized to the external synchronization source only if the bypass line is out of tolerance (otherwise is synchronized to the bypass line).

 If the inverter is synchronized to the external synchronization source, use of the bypass line is automatically disabled (even in the case of an emergency).

### **Enable external temperature**

Enables reading and controlling the external temperature probe (YMSTTEMA accessory / user manual 0MNMSTTEMENU.) and activates the automatic compensation of the FLOATING voltage of the batteries based on the temperature itself ( $3\text{mV} \times ^\circ\text{C} \times \text{cell}$ ). [Default → Function DISABLED]

## COMMUNICATION SPEED

Communication speed

Slot 1 (bps)	1200	▼
Slot 2 (bps)	1200	▼

### Slot 1

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

### Slot 2

To set the desired speed for “*Communication slot 2*” [Default→1200].



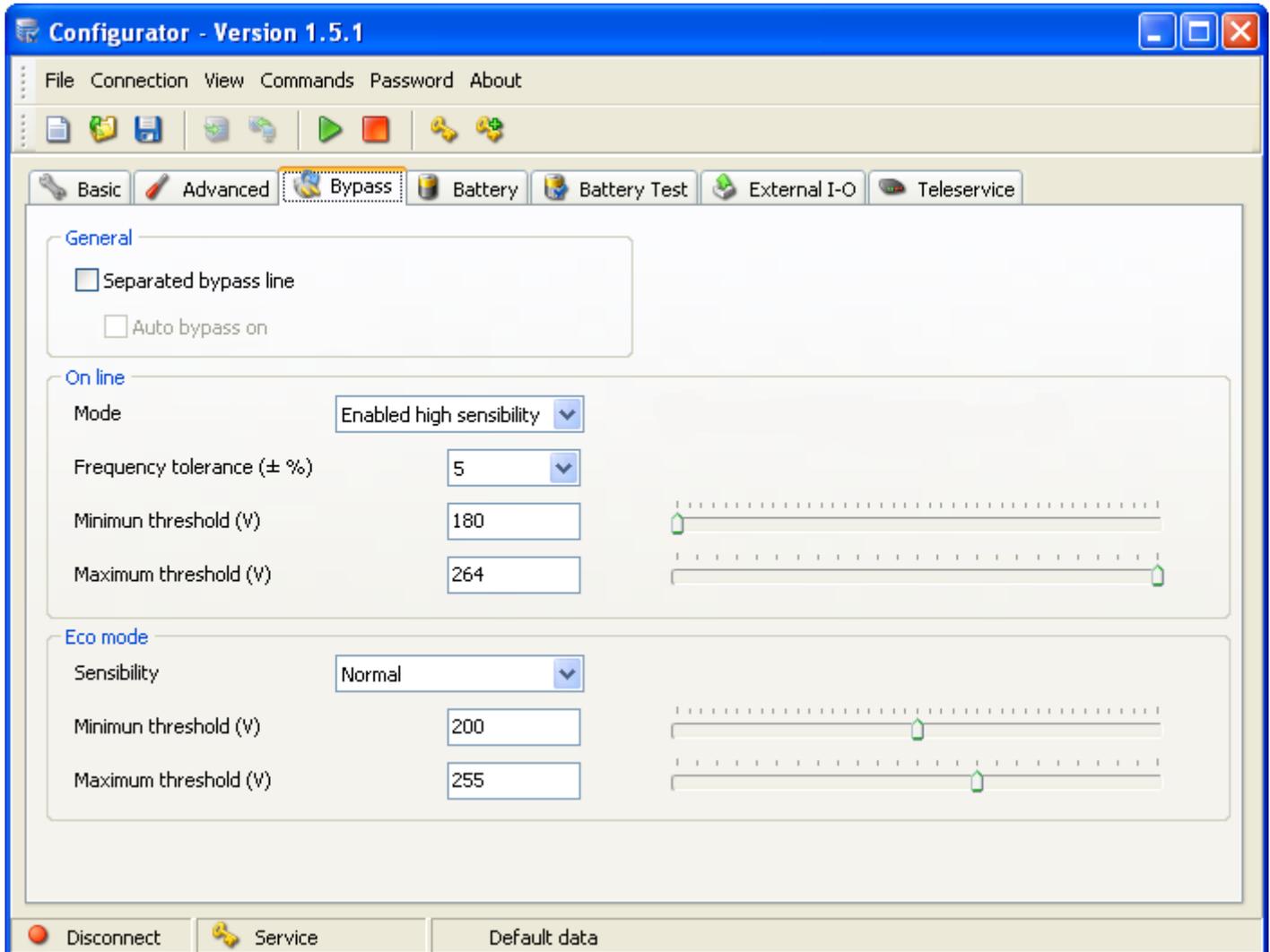
Speed configuration takes place only when the UPS is powered. After a change is made the UPS must be completely switched off and then switched back on.

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

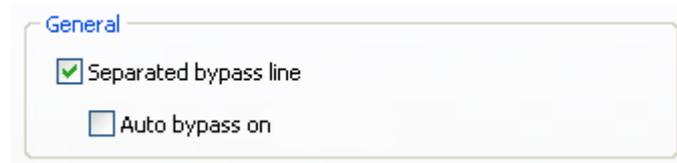
# BYPASS

Setting the bypass operating parameters.

 The service level password is required to configure these parameters.



## GENERAL



General

Separated bypass line

Auto bypass on

### **Separated bypass line**

If the UPS is installed with the bypass line separated from the input line, this function must be enabled [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.

### **Auto bypass on**

In the absence of the mains, at the end of battery discharge the load is powered by bypass. If also the bypass line fails, the load is no longer supplied and the UPS turns off.

If only the bypass line comes back present (mains not present), the load is supplied by the bypass if the "Auto Bypass on" function is enabled. If the function is not enabled, the UPS waits for the mains to power the load [Default → Function DISABLED].

**ONLINE**

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

**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: Normal

Minimum threshold (V): 200

Maximum threshold (V): 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].

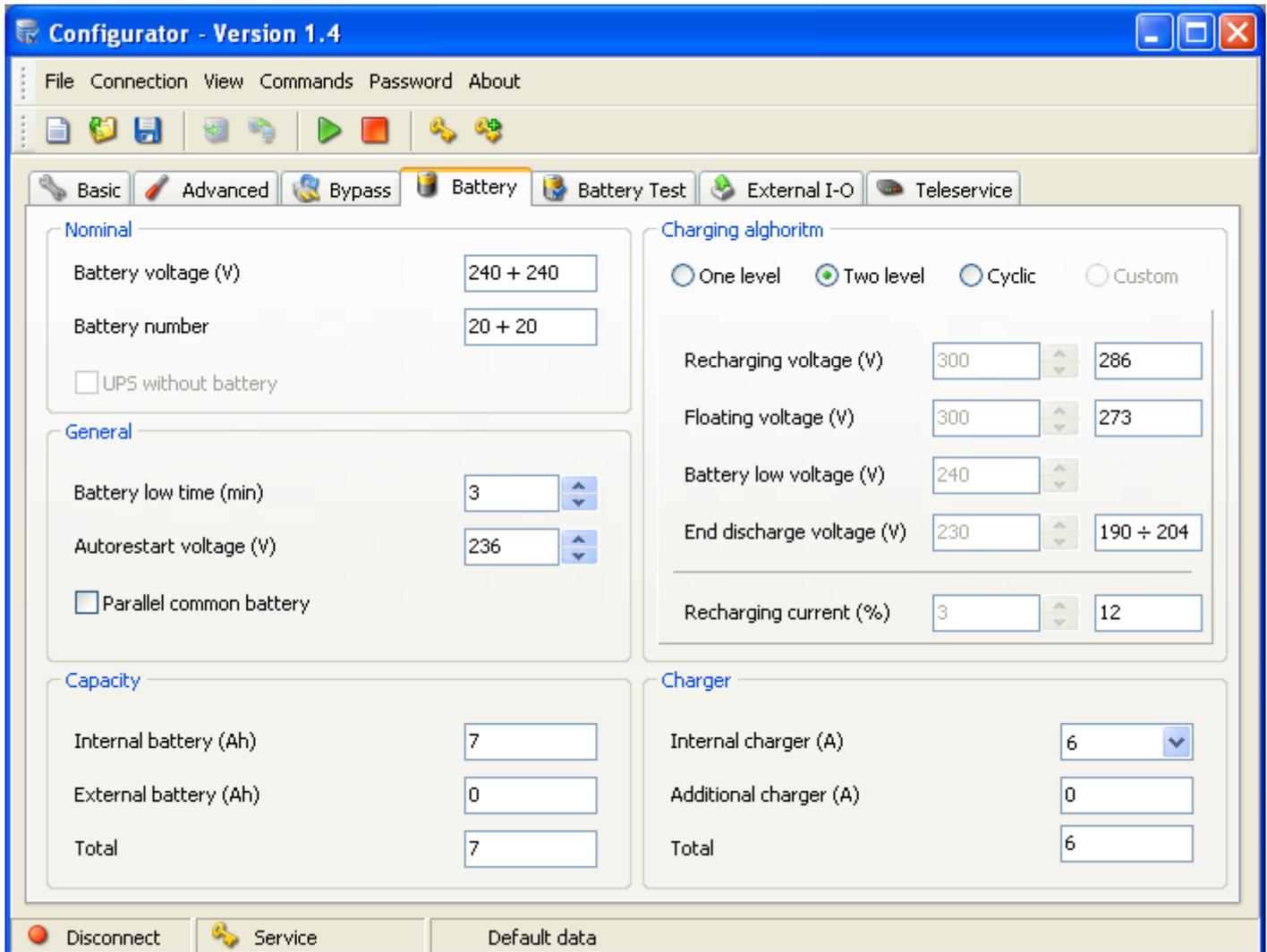
### Maximum threshold

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.



## NOMINAL

Nominal

Battery voltage (V)	240 + 240
Battery number	20 + 20
<input type="checkbox"/> UPS without battery	

### **Battery voltage**

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

### **Battery number**

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

### **UPS without battery**

If the UPS is normally used without batteries installed (for example as a frequency converter or stabilizer), this option must be enabled [Default → Option DISABLED]



If the option is enabled, the UPS switches off in the event of mains power failure.



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

## GENERAL

General

Battery low time (min)  ▲ ▼

Autorestart voltage (V)  ▲ ▼

Parallel common battery

### **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].

### **Parallel common battery**

If common batteries are used in a parallel system, this option must be enabled [Default → function DISABLED].

 The batteries may be damaged if, in a parallel system with common batteries, the function is not enabled.

 To deactivate the configuration (previously activated), it is necessary to correctly set the *External Battery* parameter and to execute an *Upload* command, and this, only after the *Parallel common battery* function has been deactivated (unselecting the option and repeating the *Upload* command).

## CAPACITY

Capacity	
Internal battery (Ah)	<input type="text" value="7"/>
External battery (Ah)	<input type="text" value="0"/>
Total	<input type="text" value="7"/>

### Internal battery

Allows for insertion of the capacity (Ah) of the UPS internal batteries.

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

### External battery

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

 In case common batteries are used in a parallel system, the total capacity of the external batteries must be inserted.

 In a parallel system this parameter is automatically transmitted to all the UPS devices only if the “Parallel common battery” option has been selected.

### Total

Displays the total capacity of the batteries, calculated by adding the internal capacity and the capacity of the external battery box (if any). In case of operation in “Parallel common battery” mode, this field has no value and is disabled.

## CHARGING ALGORITHM

It is possible to select the battery charging mode [DEFAULT → Two level].

 For information on the charging algorithm refer to the product technical specification.

Charging algorithm

One level  
  Two level  
  Cyclic  
  Custom

Recharging voltage (V)	300	286
Floating voltage (V)	300	273
Battery low voltage (V)	240	
End charge voltage (V)	230	190 ÷ 204
Recharging current (%)	3	12

### One level

The batteries are charged at a set voltage level which cannot be changed (displayed in the field “Recharging voltage”) (in this mode the “Recharging voltage” and “Floating voltage” values are the same).

### Two level

The batteries are first charged at a set voltage level that cannot be changed (displayed in the “Recharging voltage” field) and then charged and maintained at a lower voltage level (displayed in the “Floating voltage” field).

### Cyclic

The batteries are subjected to charge /discharge cycles at set voltage levels and cannot be changed (262÷273 displayed in the “Floating voltage” field). This charging algorithm is at times recommended by the manufacturers of the batteries.

 If this mode is selected, it is not possible to configure the time interval of the battery tests (see *Settings → Battery → General*); the “Automatic battery test” function may still be enabled but the UPS will automatically establish the frequency with which to carry out the test.

### Custom

 The advanced level password is required to select this mode.

Selecting this mode, it is possible to set the “Recharging voltage”, “Floating voltage”, “Battery low voltage”, “End charge voltage” and “Recharging current” values.

 In case of a parallel system, if the custom mode is selected, the thresholds set on a UPS are not transferred to the others. It is therefore necessary to configure all the system's UPS devices.

**Recharging voltage**

Second level threshold (high level) of battery charge. This value can only be changed if the "Custom" option is selected (accepted range: 260-300V).

**Floating voltage**

Battery charge maintenance threshold. This value can only be changed if the "Custom" option is selected (accepted range: 260-300V).

**Battery low voltage**

"Battery low" voltage failure threshold. This value can only be set by selecting the "Custom" option (accepted range: 210-240V); in all other cases the "Battery low" failure is signaled when the estimate of residual autonomy falls below a configurable time (see *Settings → Battery → General*).

**End charge voltage**

Cut-off threshold for end of charge. This value can only be set by selecting the "Custom" option (accepted range: 190-230V); in all other cases it is fixed but variable depending on the load and therefore a minimum or maximum value is displayed.

**Recharging current**

Maximum battery recharging current expressed as a percentage of the nominal battery capacity (accepted range: 3-50%)

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

## CHARGER

Charger

Internal charger (A)	6	▼
Additional charger (A)	0	
Total	6	

### **Internal charger**

Allows for insertion of the nominal charge current (expressed in A) of the internal UPS battery charger.

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

### **Additional charger**

Allows for insertion of the nominal charge current (expressed in A) of the internal or external UPS battery charger (if present).

-  In a parallel system this parameter is transmitted automatically to all the UPS devices only if the “Parallel common battery” option has been selected.

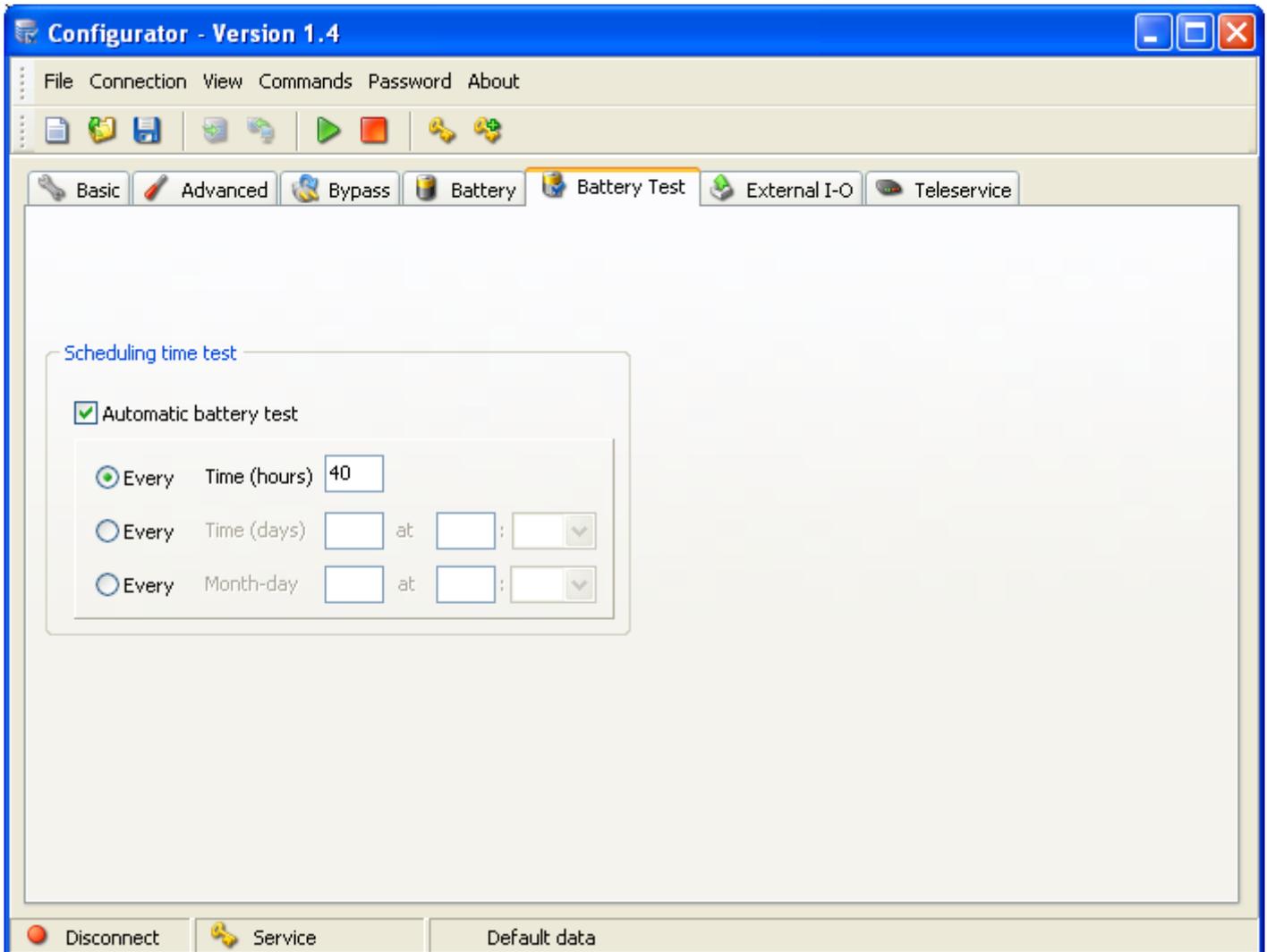
### **Total**

The total battery charger current, obtained by adding the internal battery charger current and that of any additional battery charger. In case of operation in “Parallel common battery” mode, this field has no value and is disabled.

## 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].

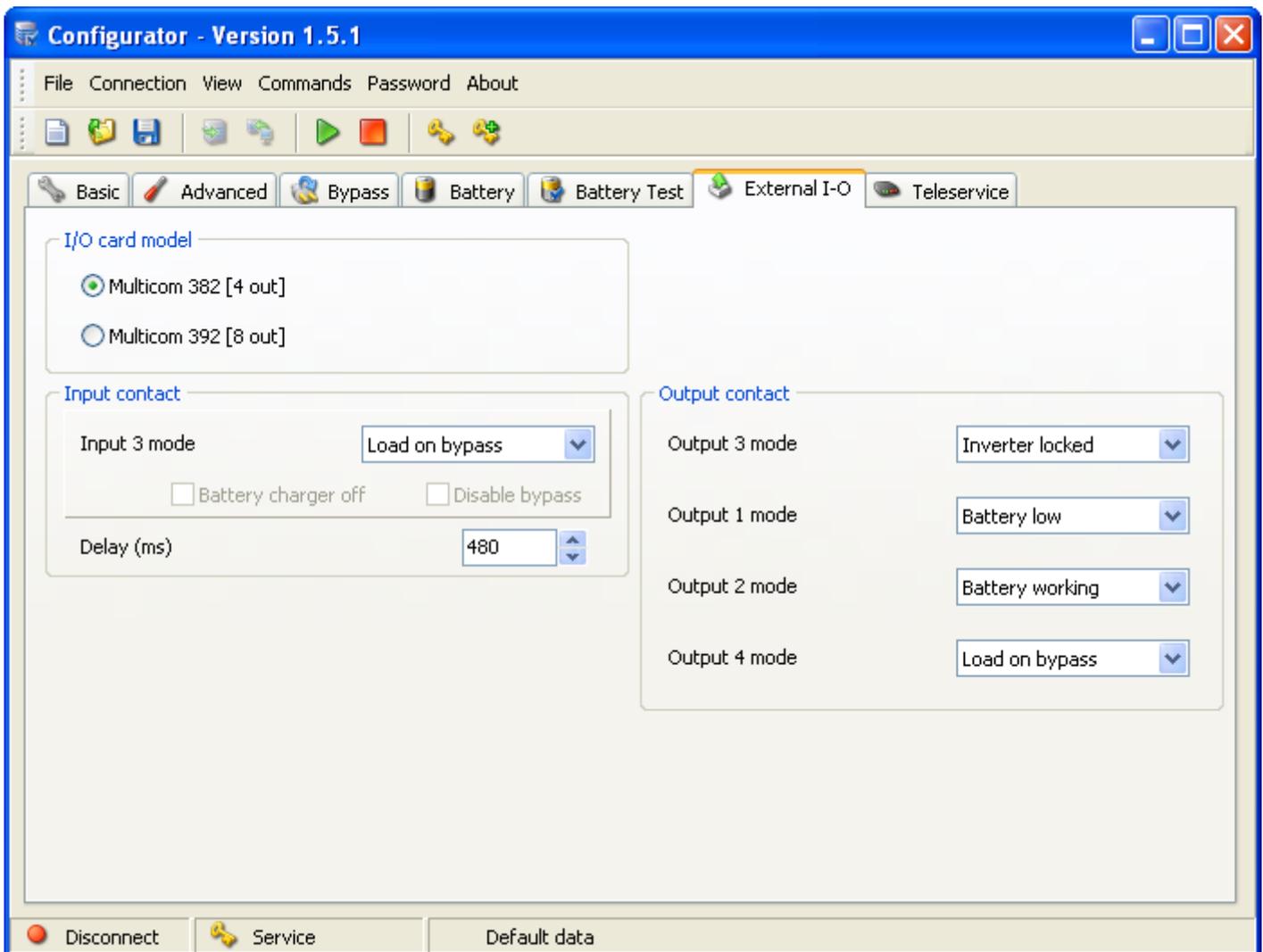
It is possible to set the frequency with which the UPS run the test (time between tests and the next) choosing from 3 options:

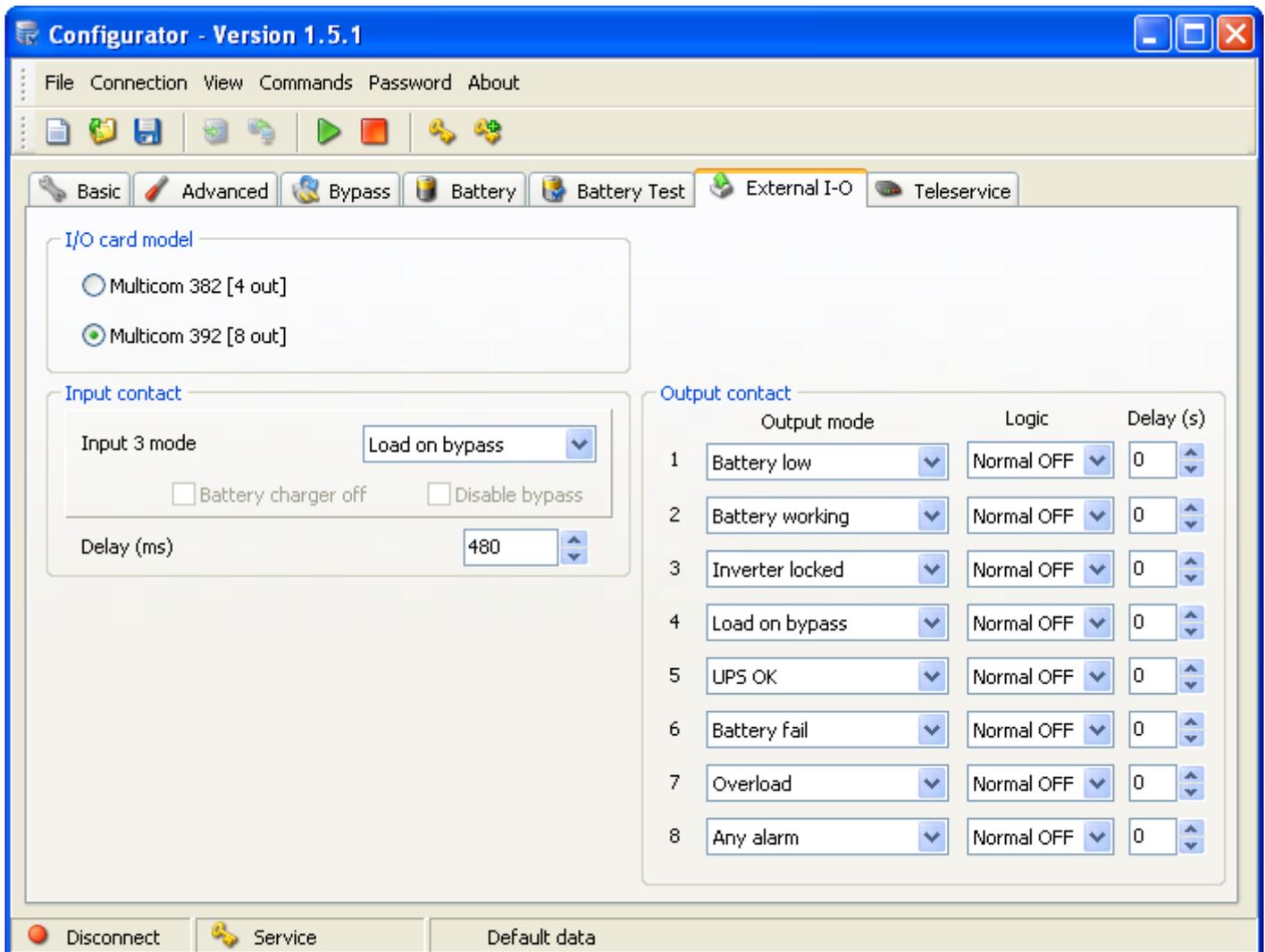
- 1) execution of the test every  $n$  hours ("*Time*" - expressed in hours and between 1 and 273) [Default → 40].
- 2) execution of the test every  $n$  days at a fixed time ("*Time*" - expressed in days and between 1 and 39; "*at*" - time of the test in the format "hh:mm" between 00:00 to 23:45 in 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 “AS400 PORT” contact port and the MultiCOM 382 accessory or on the MultiCOM 392 accessory.

-  The MultiCOM 392 accessory is to use as an alternative to the MultiCOM 382 accessory and the gate contacts "AS400 PORT".
-  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 382 [4 out]

To configure the contacts of the MultiCOM 382 and of the “AS400 PORT”.

### Multicom 392 [8 out]

To configure the contacts of the MultiCOM 392.

 Do not select the option Multicom 392 [out 8] if on the UPS is not installed the MultiCOM 392 accessory.

## INPUT CONTACT

The screenshot shows a configuration window titled "Input contact". Inside, there is a section for "Input 3 mode" with a dropdown menu currently showing "Load on bypass". Below this are two checkboxes: "Battery charger off" and "Disable bypass", both of which are unchecked. At the bottom, there is a "Delay (ms)" field with a numeric value of 480 and up/down arrow buttons.

### Input 3 mode

Select the function to be associated with the "Input 3" input remote control (pin 7 of the "AS400 PORT contact port). 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</i> → <i>External I-O</i> → <i>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

### 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 (FOR MULTICOM 382 AND CONTACTS PORT “AS400 PORT”)**

Output contact

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

 Keep the jumpers of the MultiCOM 382 in the standard 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" (pin 9-10 of the "AS400 PORT" contact port and RL3 of the MultiCOM 382). The contact closes when the set event occurs [Default→Inverter locked].

**Output 1 mode**

Select the event to be associated with "Output 1" (pin 4-5-12 of the "AS400 PORT" contact port and RL1 of the MultiCOM 382). The contact closes when the set event occurs [Default→Battery low].

**Output 2 mode**

Select the event to be associated with "Output 2" (pin 6-13-14 of the "AS400 PORT" contact port and RL2 of the MultiCOM 382). The contact closes when the set event occurs [Default→Battery working].

**Output 4 mode**

Select the event to be associated with "Output 4" (pin 3-11 of the "AS400 PORT" contact port and RL4 of the MultiCOM 382). The contact closes when the set event occurs [Default→ Load on bypass].

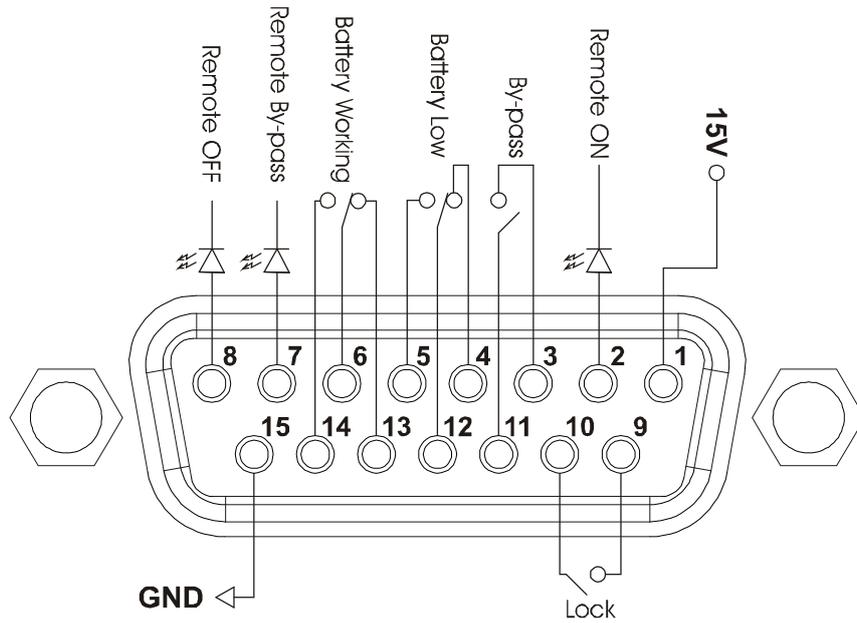
Battery low	End of charge pre-alarm
Battery working	Battery operating mode
Load on bypass	Load powered by bypass
Inverter locked	Inverter stage locked
Lock or fault	Lock or fault level alarm
Any alarm	Any alarm
Overload	Overload
Overtemperature	Overtemperature
Replace battery	Batteries to be replaced
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.

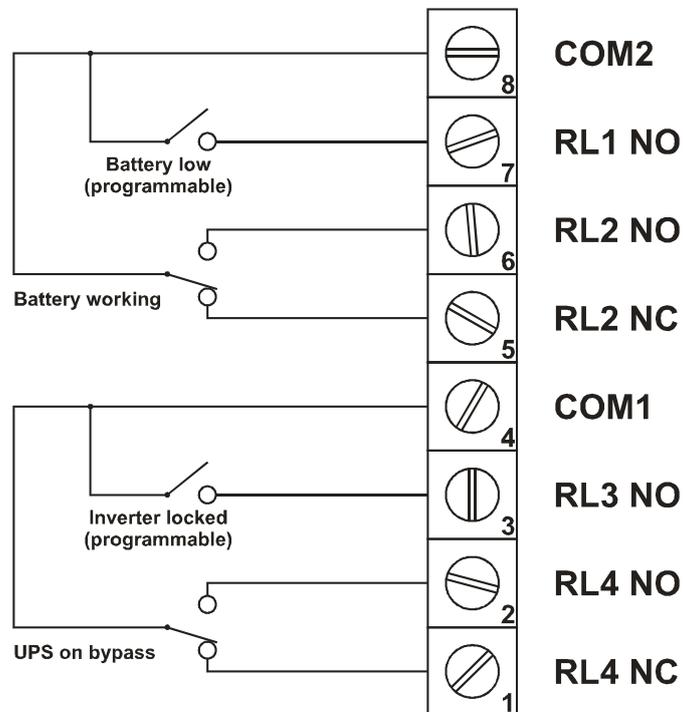
 In this case, changes the operation logic of the UPS because, being able to disconnect the bypass line, the load is powered by the inverter also in the presence of a BYPASS SCR FAIL alarm.

 A contact on the "AS400 PORT" and a relay on the MultiCOM 382 accessory board correspond to "Output 3", "Output 1", "Output 2" and "Output 4". When the event associated with "Output 3", "Output 1", "Output 2" or "Output 4" occurs it causes both the closure of the related contact on the "AS400 PORT" and the relay on the MultiCom board.

AS400 port



MultiCOM 382



## OUTPUT CONTACT (FOR MULTICOM 392)

**Output contact**

	Output mode	Logic	Delay (s)
1	Battery low	Normal OFF	0
2	Battery working	Normal OFF	0
3	Inverter locked	Normal OFF	0
4	Load on bypass	Normal OFF	0
5	UPS OK	Normal OFF	0
6	Battery fail	Normal OFF	0
7	Overload	Normal OFF	0
8	Any alarm	Normal OFF	0

### Output mode

For each of the eight outputs, select the event to be associated to the relative contact.

<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
<b>On external sync.</b>	Inverter synchronized to the "external sync" input.
<b>Service call</b>	Service assistance required
<b>Undertemperature</b>	Undertemperature
<b>External temp. high</b>	High temperature detected by external sensor
<b>Parallel line fault</b>	Alarm communication line of parallel system
<b>Battery test active</b>	Battery test in progress
<b>REPO command active</b>	REPO command active
<b>Wait Vbat ready</b>	Waiting for battery ready status.



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.

### Logic

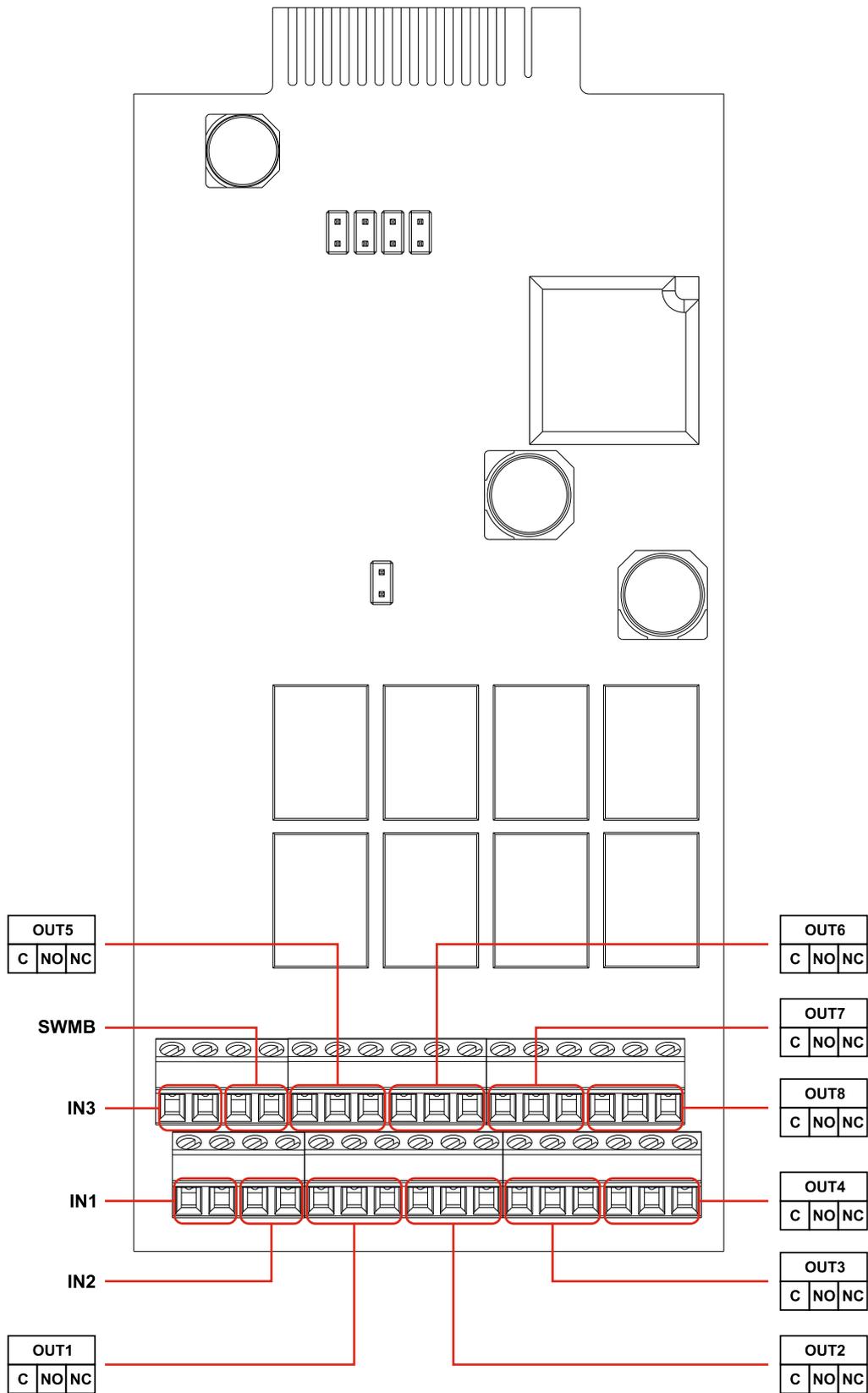
For each of the eight outputs, select the operating logic of the relay.

<b>Normal OFF</b>	The contact closes when the associated event occurs
<b>Normal ON</b>	The contact opens when the associated event occurs

### Delay

Set the delay (in seconds and from 0 to 255) between the occurrence of the event and the switching of the relative contact..

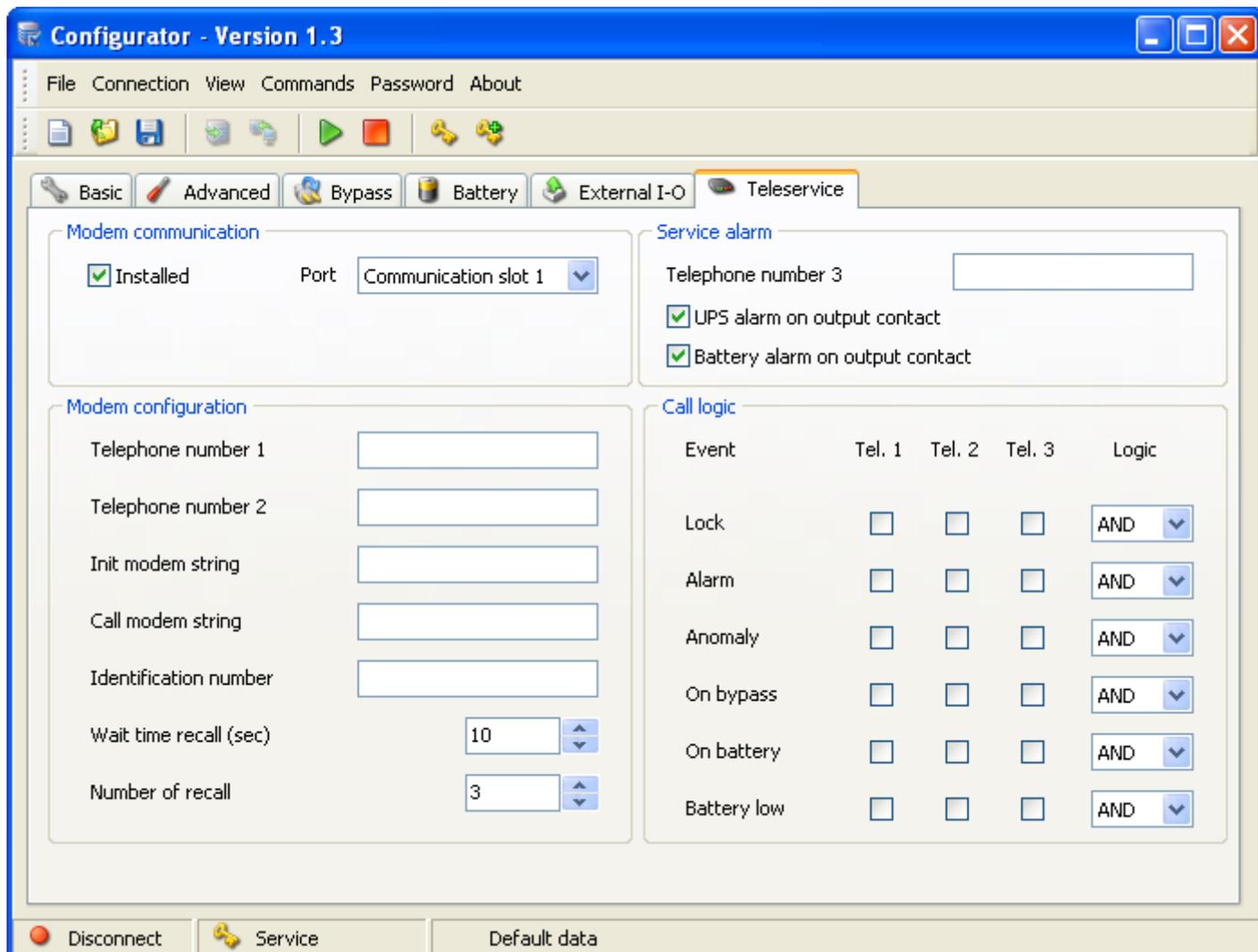
MultiCOM 392



## TELESERVICE

Configuration of the automatic call procedure via modem to the remote teleservice center for reporting anomalies and alarms.

-  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.



## MODEM COMMUNICATION

Modem communication

Installed      Port:  

### **Installed**

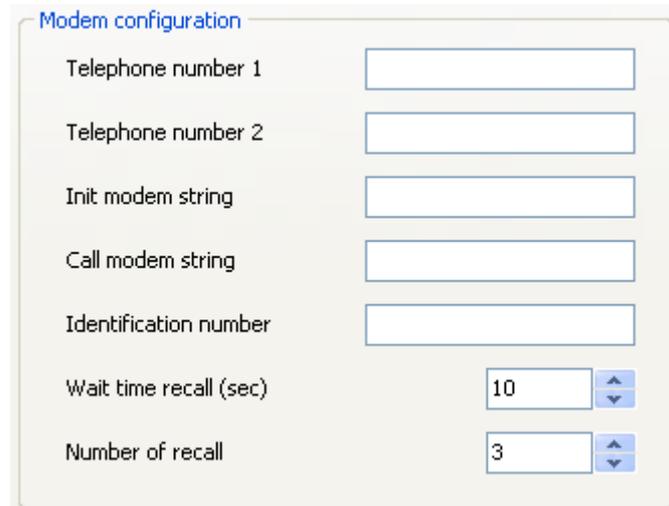
Indicates if the modem is present. If the modem is not present, the remote teleservice function is deactivated [Default → Function DISABLED].

### **Port**

Selecting the UPS communication port to which the modem is connected:

- Communication slot 1 – the modem is connected to Comm port 1
- Communication slot 2 – the modem is connected to Comm port 2

## MODEM CONFIGURATION



The screenshot shows a window titled "Modem configuration" with the following fields:

Telephone number 1	<input type="text"/>
Telephone number 2	<input type="text"/>
Init modem string	<input type="text"/>
Call modem string	<input type="text"/>
Identification number	<input type="text"/>
Wait time recall (sec)	<input type="text" value="10"/> <input type="button" value="▲"/> <input type="button" value="▼"/>
Number of recall	<input type="text" value="3"/> <input type="button" value="▲"/> <input type="button" value="▼"/>

### Telephone number 1 – 2 - 3

It is possible to insert up to three telephone numbers with which the UPS can communicate (refer to “Service alarm” for “Telephone number 3”).

### Init modem string

Specifies the command or the sequence of modem commands (without the suffix AT) for the initialization of the modem itself (refer to the modem manual). Example: “&A0”.

The commands indicated in this parameter are sent by the UPS to the modem preceded by the prefix “ATE0V0X0S0=1”.

### Call modem string

Specifies the command or the sequence of modem commands (without the suffix AT) for the initialization of the modem itself (refer to the modem manual). Example: “DT”, “DP”.

The commands indicated in this parameter are sent by the UPS to the modem preceded by the preset sequence “AT”.

### Identification number

Specifies the UPS identification code. When a call is made to the remote teleservice center, the UPS sends its identification number so it can be recognized; the data exchange occurs only if the UPS code is registered in the remote center's archive.

### Wait time recall

Specifies the number of seconds of wait time between one call and the next in case of a failed call-back due to connection loss (engaged no answer etc.).

### Number of recalls

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

## SERVICE ALARM

Service alarm

Telephone number 3

UPS alarm on output contact

Battery alarm on output contact

### Telephone number 3

Type the phone number to be displayed on the panel upon the occurrence of "UPS service" and "Battery Service" alarms. The number entered in the Telephone number 3 can be used to communicate via modem.

### UPS alarm on output contact

If the function is enabled, the occurrence of the alarm "UPS Service" will change the status of the contacts associated with "Any alarm" or "UPS ok". (see also *Output contact*) [Default → Function ENABLED]

### Battery alarm on output contact

If the function is enabled, the occurrence of the alarm "Battery Service" will change the status of the contacts associated with "Any alarm", "Replace battery" or "UPS ok" (see also *Output contact*) [Default → Function ENABLED]

## CALL LOGIC

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

### Lock

The UPS calls the remote teleservice center in case of Lock.

### Alarm

The UPS calls the remote teleservice center in case of Alarm.

### Anomaly

The UPS calls the remote teleservice center in case of Anomaly.

### On bypass

The UPS calls the remote teleservice center in case of bypass operation.

### On battery

The UPS calls the remote teleservice center in case of operation by battery (AC failure)

### Battery low

The UPS calls the remote teleservice center in case the battery power is insufficient.

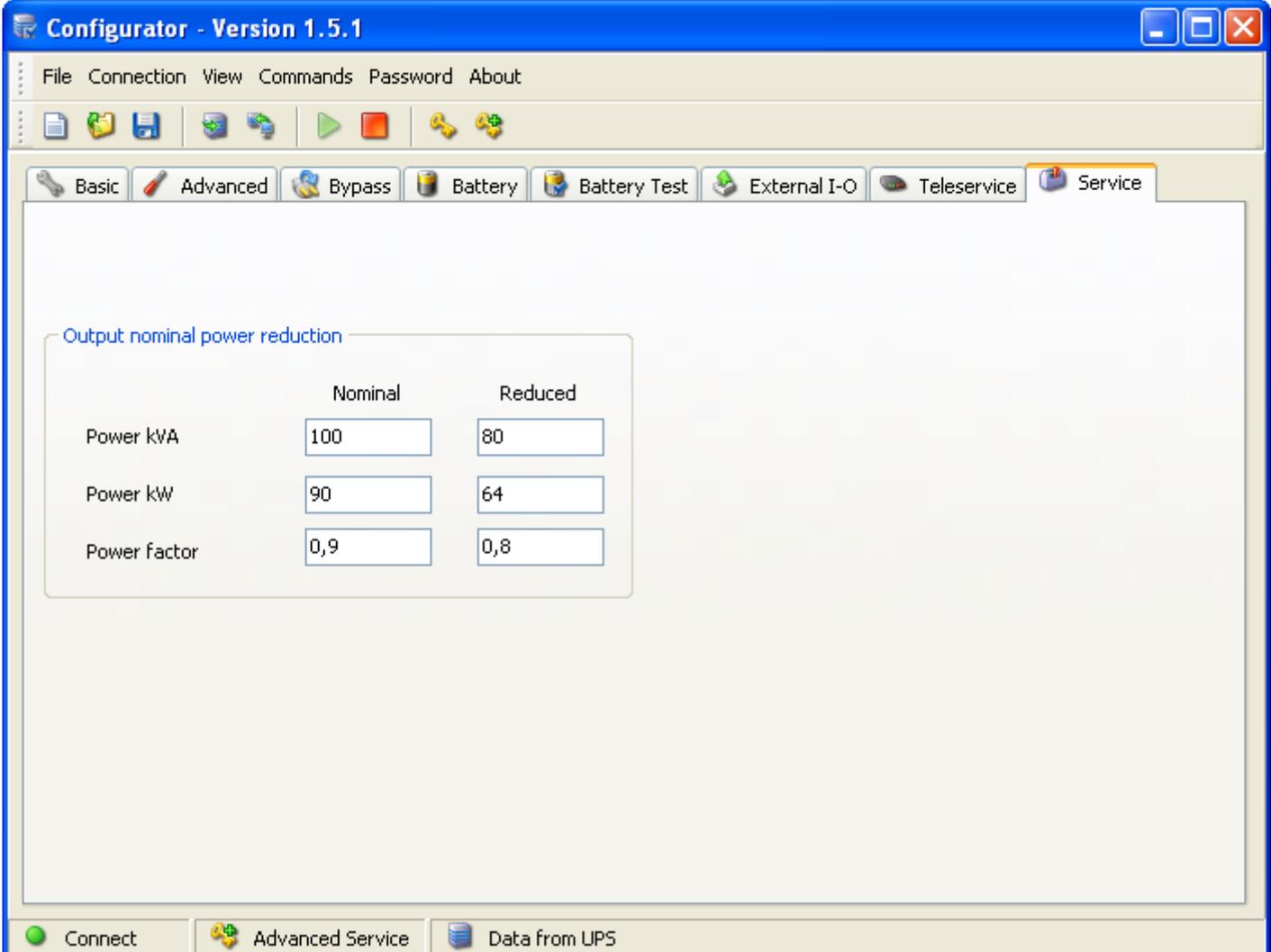
### Logic

For each of the events described above, it is possible to select the number(s) to call by ticking the boxes indicated in columns Tel. 1 – Tel. 2 – Tel. 3.

In case of several numbers it is possible to choose the call logic: wait for the response of all the numbers selected (AND) or only from one among these (OR).

## SERVICE

 The advanced level password is required to display this tag.



The screenshot shows the 'Configurator - Version 1.5.1' application window. The 'Service' tab is selected, displaying a table for 'Output nominal power reduction'.

	Nominal	Reduced
Power kVA	<input type="text" value="100"/>	<input type="text" value="80"/>
Power kW	<input type="text" value="90"/>	<input type="text" value="64"/>
Power factor	<input type="text" value="0,9"/>	<input type="text" value="0,8"/>

**OUTPUT NOMINAL POWER REDUCTION**

Output nominal power reduction

	Nominal	Reduced
Power kVA	<input type="text" value="100"/>	<input type="text" value="80"/>
Power kW	<input type="text" value="90"/>	<input type="text" value="64"/>
Power factor	<input type="text" value="0,9"/>	<input type="text" value="0,8"/>

**Power kVA**

Type the reduced power expressed in kVA.

**Power kW**

Type the reduced power expressed in kW.

**Power Factor**

The power factor is automatically calculated and displayed.

## AVAILABILITY OF THE FUNCTIONS



Check the UPS firmware version before using the functions listed in the following table.

Some functions/commands may not be supported by the UPS depending on the firmware revision. The following table shows the firmware revision, starting from the function that is supported by the UPS.

FUNCTION	Firmware revision	
	mC - FW022/028	DSP - FW023/029
<i>UPS without battery</i>	02.01	--.--
<i>Panel lock</i>	02.07	--.--
<i>Battery custom</i>	02.08	--.--
<i>Synchronization filter</i>	02.10	02.09
<i>Input contact mode</i>	02.10	--.--
<i>Enable external temperature</i>	02.10	--.--
<i>Battery autonomy test</i>	02.13	--.--
<i>Battery charging algorithm</i>	02.14	--.--
<i>Battery manual charge</i>	02.14	--.--
<i>Output 2 mode</i>	02.15	--.--
<i>Output 4 mode</i>	02.15	--.--
<i>Input filter</i>	02.15	02.12
<i>UPS password</i>	02.18	--.--
<i>Panel lock (single setting)</i>	02.18	--.--
<i>Service alarm</i>	02.18	--.--
<i>Backfeed protection (Output contact)</i>	02.18	--.--
<i>Power walk-in start delay</i>	02.19	--.--
<i>Scheduling time test (Battery test)</i>	02.19	--.--
<i>Stand-by Off Mode (Input 3 mode)</i>	02.20	--.--
<i>Multicom 392 [8 out]</i>	02.20	--.--
<i>Timer</i>	02.20	--.--
<i>Auto bypass on</i>	02.20	--.--

