INTRODUCTION

Thank you for choosing our product.

The accessories described in this manual are of the highest quality, carefully designed and built in order to ensure excellent performance.

This manual contains detailed instructions on how to install and use the product.
It should be kept with care near the *NetMan Plus*, so that it can be consulted for information on how to use and make the most of your device. IT SHOULD BE READ BEFORE YOU START WORKING ON THE DEVICE.

SAFETY

This part of the manual contains SAFETY precautions that must be followed scrupulously.

- The device has been designed for professional use and is therefore not suitable for use in the home.
- The device has been designed to operate only in closed environments. It should be installed in rooms where there are no inflammable liquids, gas or other harmful substances.
- Take care that no water or liquids and/or foreign bodies fall into the device.
- In the event of a fault and/or impaired operation of the device, do not attempt to repair it but contact the authorized service centre.
- The device must be used exclusively for the purpose for which it was designed. Any other use is to be considered improper and as such dangerous. The manufacturer declines all responsibility for damage caused by improper, wrong and unreasonable use.

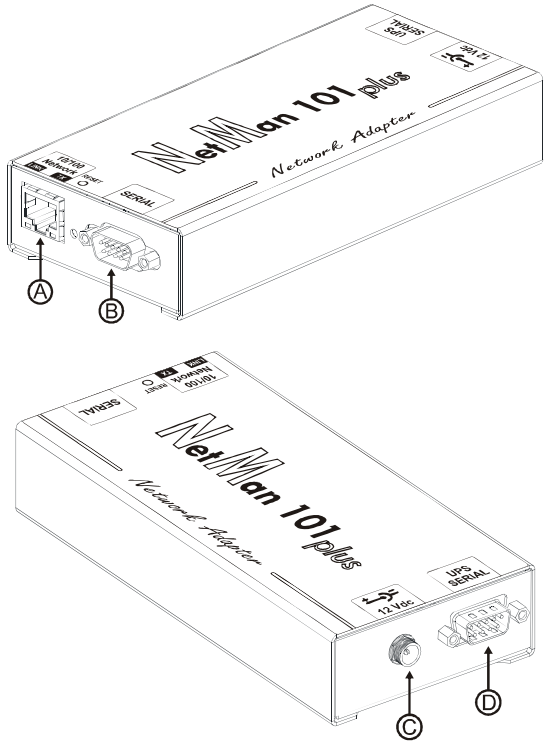
SUMMARY

PRESENTATION

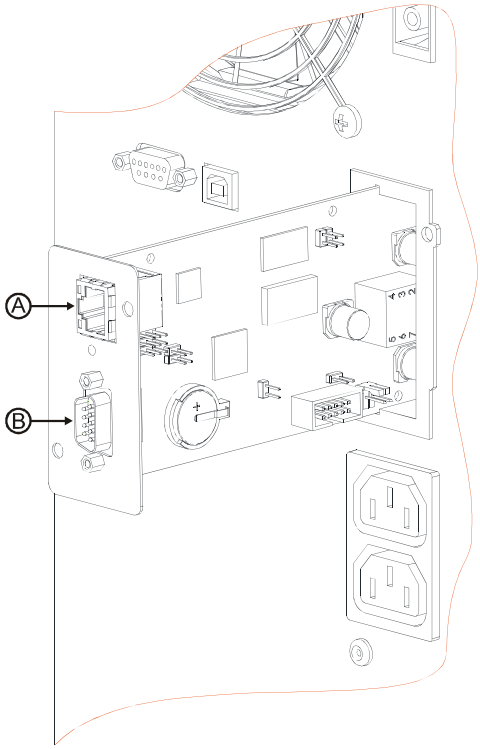
DESCRIPTION

NetMan plus is a device that allows UPS management through a LAN (Local Area Network); the accessory supports all the main network protocols (SNMP, TCP/IP, HTTP and so on) and is compatible with Ethernet 10/100Mbps IPv4/6 networks. The UPS can therefore be integrated easily into medium and large-sized networks.
NetMan plus can manage a modem for remote support or, alternatively, makes available an RS-232 serial line for the local monitoring of the UPS.
The device also records UPS values and events in the history log archive.
NetMan 101 plus is an accessory which is external to the UPS and connected to it by serial cable; *NetMan 102 plus* is an expansion card which is inserted in the UPS slot (for the models that support it) as shown in the figure below. The two products have the same functionalities and the description in this manual is valid for both products (unless otherwise specified).

NetMan 101 plus



NetMan 102 plus



- A: network port;
- B: RS-232 communication port
- C: power supply connector
- D: connector for connection to the UPS

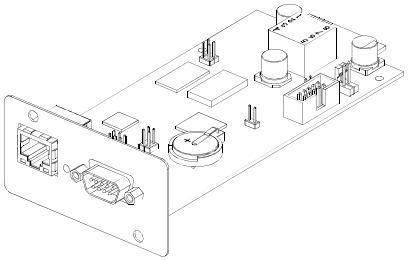
OPENING THE PACKAGING AND CHECKING THE CONTENTS

After opening the packaging, first check the contents.
The packaging should contain:

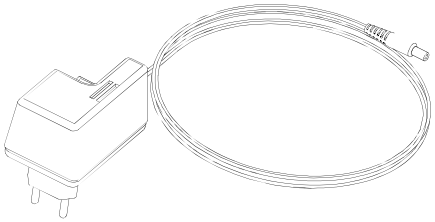
NetMan 101 plus

OR

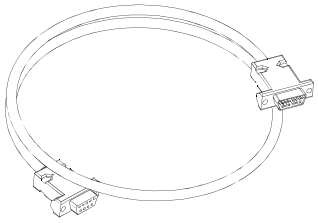
NetMan 102 plus



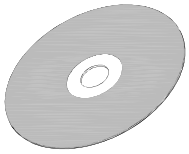
12Vdc 0.3A external power supply unit [1]



DB9-DB9 null-modem serial cable



CD-Rom (User manual and MIB file)



[1] *only for NetMan 101 plus*

NETWORK PORT

NetMan plus connects to 10/100 Mbps Ethernet networks by means of connector RJ45 (see paragraph “Specifications for the cabling of the network cable”). The LEDs built into the connector describe the status of the network:

- Left LED:
  1. on and yellow if the 10/100Mbps mode link is present
  2. on and green if the 10Mbps mode link is present

- Right LED:
  1. on and yellow during transmission in full-duplex mode
  2. on and green during transmission in half-duplex mode

RS-232 COMMUNICATION PORT

NetMan plus makes available a serial communication port through which it is possible to:

- Configure *NetMan plus* (see paragraph “Configuration via RS-232 serial line”)
- Connect a modem to *NetMan plus* (see paragraph “Tx/Rx Modem”)
- Monitor the UPS via the RS-232 serial line (see paragraph “RS-232 serial line”)

NETWORK SERVICES

NetMan plus implements a series of services based on the main network protocols. These services can be activated or deactivated according to requirements (see paragraph “Configuration”). A brief description for each of these is given below.

Telnet

By means of a client telnet (available on all the main operating systems) a remote connection with *NetMan plus* can be established to change its configuration (see paragraph “Configuration via telnet”).

Serial network

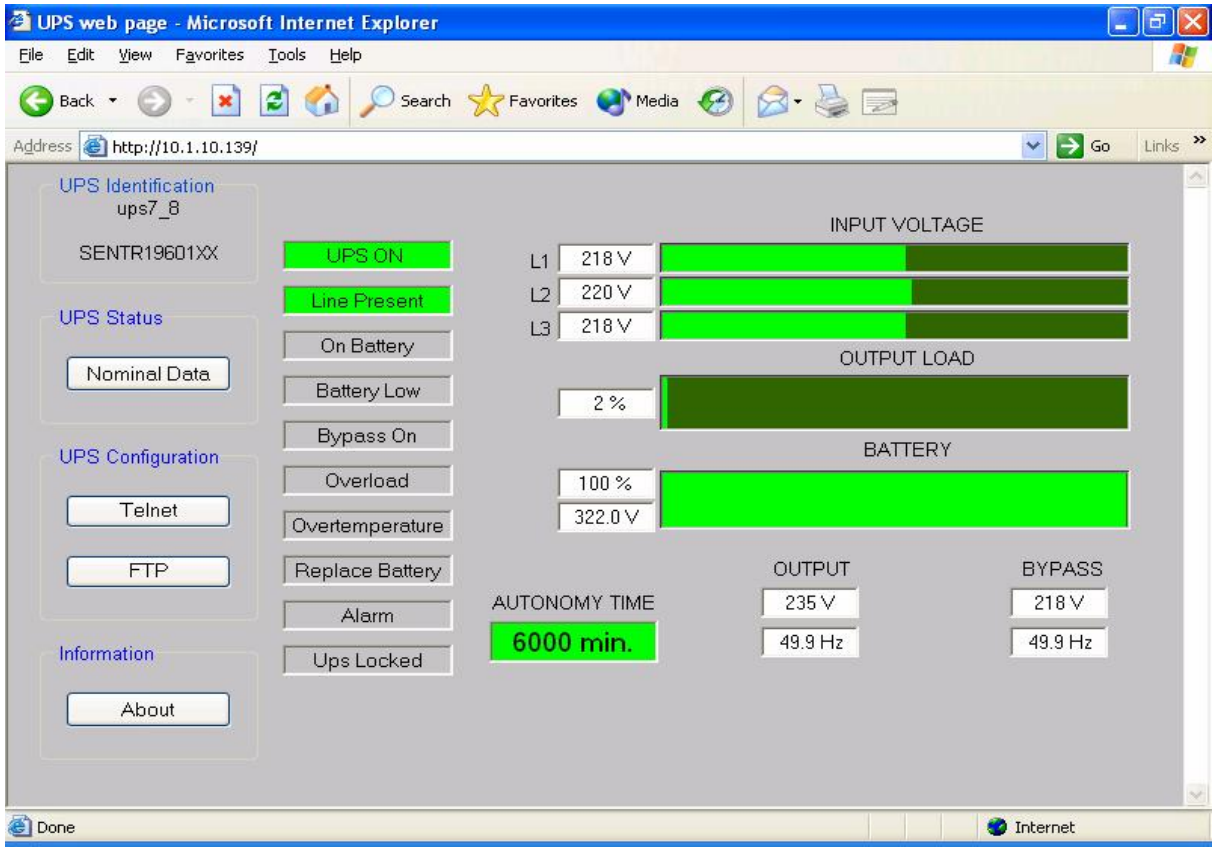
It’s possible to enable a network connection together with Serial network compatible software (for example UPSTools) for UPS event log download.

Wake-on-LAN

NetMan plus can send “Wake-on-LAN” command for remote computers boot.

HTTP

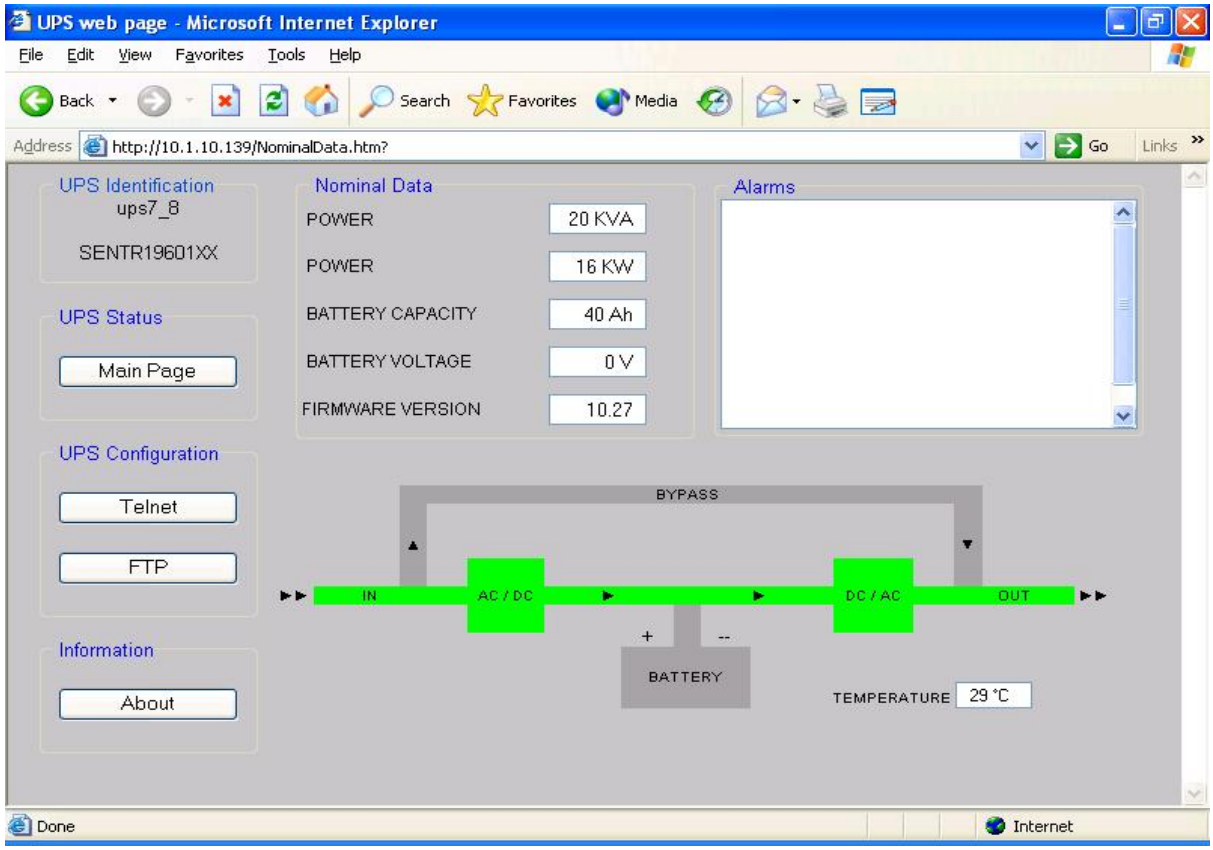
Using the HTTP (Hyper Text Transfer Protocol), the status of the UPS can be monitored by means of a web browser without having to install additional software. All the most popular web browsers (Internet Explorer, Safari, Firefox, Netscape Navigator, Konqueror, Opera) are supported.
Once the hostname or the *NetMan plus* IP address has been inserted in your web browser, a screen like the one shown below will be displayed, with the main UPS operating data.



Example of display via HTTP

The following buttons are found on the left-hand side of the page:

- Nominal Data: opens a page displaying the nominal values of the UPS, the list of active alarms and a diagram of UPS operation (see image on next page)
- Telnet: opens a Telnet session (see paragraph “Telnet”)
- FTP: opens an FTP session (see paragraph ”FTP”)
- About: opens a page with copyright information



Example of "Nominal Data" window

SNMP

SNMP (Simple Network Management Protocol) is a communication protocol that allows a client (manager) to make requests to a server (agent). *NetMan plus* is an SNMP agent.
To exchange information, manager and agent use an addressing technique called MIB (Management Information Base). There is an MIB file for each agent, defining which variables can be requested and the respective access rights. The MIB file of *NetMan plus* is found on the CD supplied with the device. The agent can also send messages (TRAP) without a prior request from the manager, to inform the latter of particularly important events.

UDP

UDP (User Datagram Protocol) is a low level network protocol that guarantees speed in the exchange of data and low network congestion. It is the protocol used by the UPSMon software for monitoring and control of the UPS.
The UDP connection uses the UDP 33000 port by default but can be configured on other ports according to requirements.

FTP

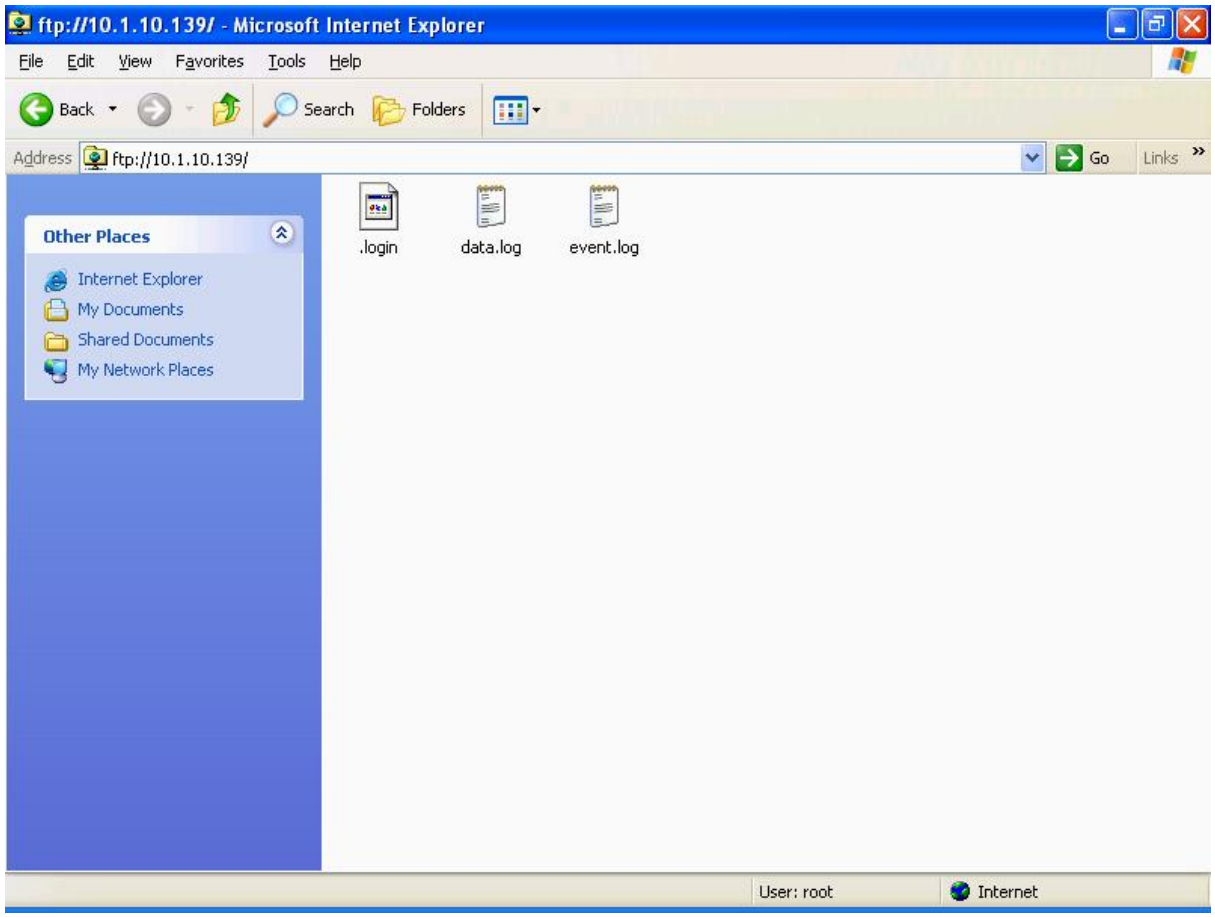
FTP (File Transfer Protocol) is a network protocol used for file exchange. *NetMan plus* uses this protocol for two purposes:

1. download of files of the UPS values and events history log archive (Datalog and Eventlog)
2. download and upload of configuration files

In both cases a client FTP is required, configured with these parameters:

- Host: hostname or *NetMan plus* IP address
- User: “root”
- Password: current password (default configuration: “password”)

The connection can also be established using a web browser (all the most popular web browsers are supported), by inserting the following address: ftp://root@<address.NetMan plus>, where <address.NetMan plus> is replaced with the device’s real address. In this case a screen like the following will be displayed.

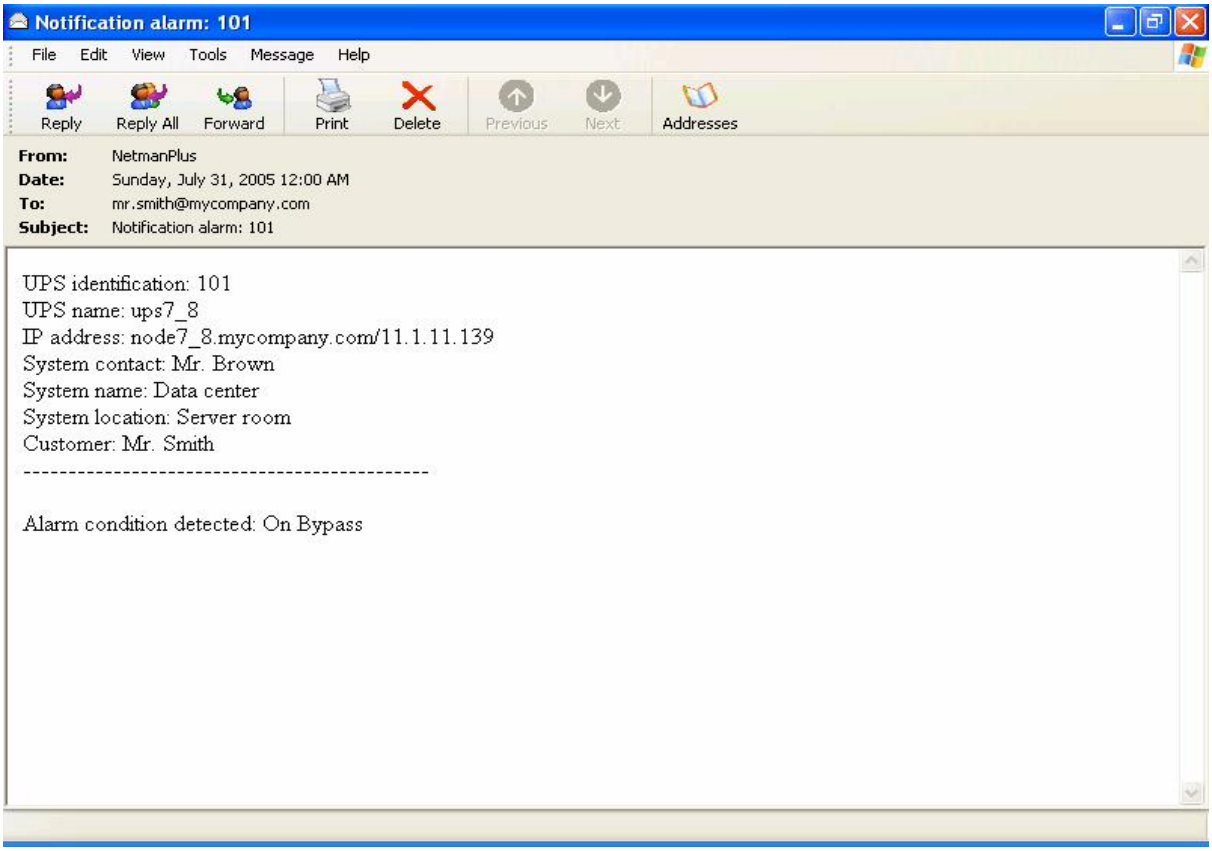


Example of FTP connection

when an FTP connection is established, all HTTP connections are refused

Email

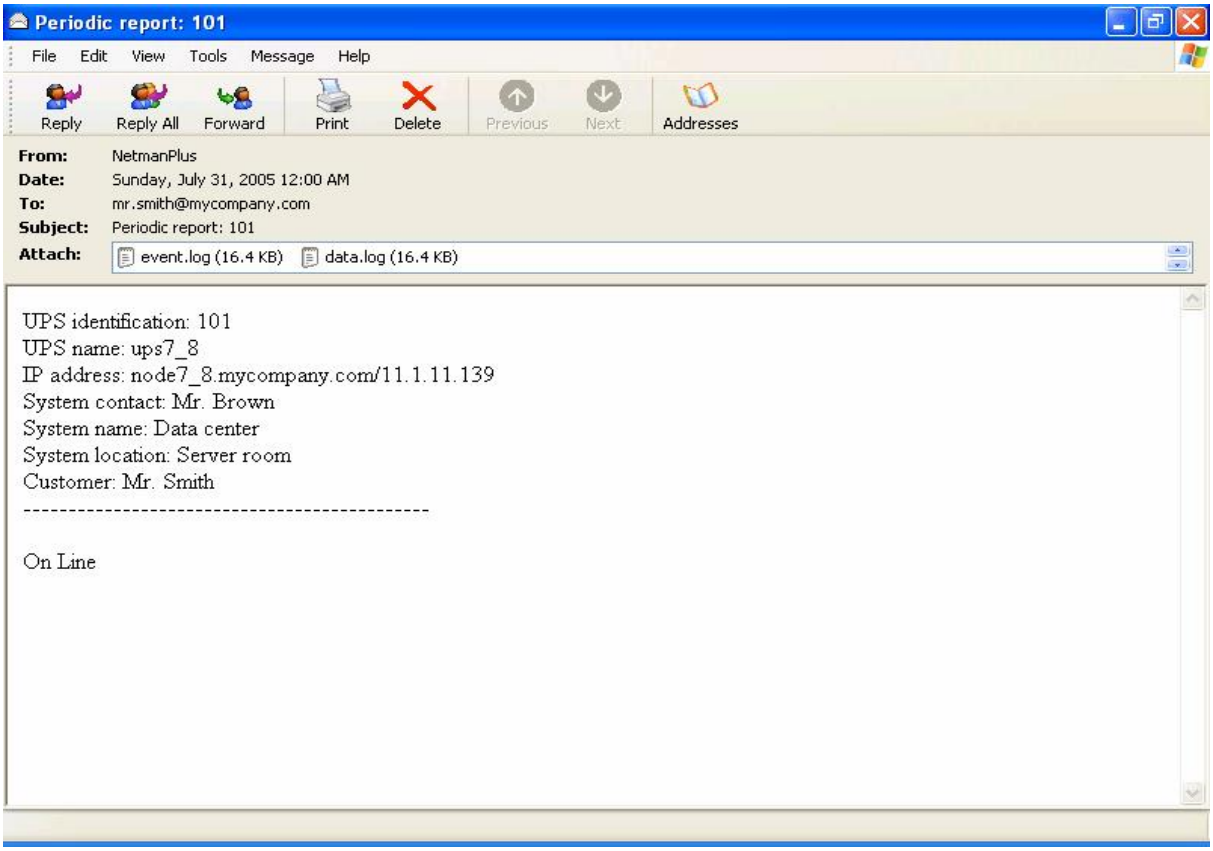
NetMan plus can send a notification e-mail if one or more alarm conditions occur. The e-mails can be sent to up to three recipients and they can be sent for seven different kinds of alarm.
SMTP (Simple Mail Transfer Protocol) is the protocol used to send the e-mails. They are sent to an SMTP server on port 25. For more details, see paragraph “Configuration”



Example of notification e-mail

Reports

NetMan plus can send periodic e-mails with an attachment containing the files of the UPS values and events history log archive.
This service can be used to periodically save the history log archives.
The “Email” service must be enabled in order to send reports; the reports are sent to all the addresses configured for this service (for more details see paragraph “Configuration”).



Example of report e-mail

"SERIAL" COMMUNICATION PORT SERVICES

NetMan plus can be configured via RS-232 by means of the "SERIAL" communication port; further services are also implemented on the port, which can activated or deactivated according to requirements (see paragraph "Configuration"). A brief description for each of these is given below.

Modem Tx/Rx

NetMan plus can be used to monitor the status of the UPS by means of a modem connected to the "SERIAL" communication port.
If the "Modem Tx" service is activated, the modem can be enabled for transmission; the UPS is thus able to make calls to a remote support station to notify any alarm situations. The device can make calls to three different telephone numbers.
If the "Modem Rx" service is activated, the modem can be enabled to receive calls. This allows monitoring of UPS status and operation from a remote support station or via the UPSMon software. The "Modem Tx" service must be enabled.

RS-232 serial

The status of the UPS can be monitored via RS-232 by means of the “SERIAL” communication port using, for example, UPSMon software. Communication is only active when the “Tx/Rx Modem” service is disabled.

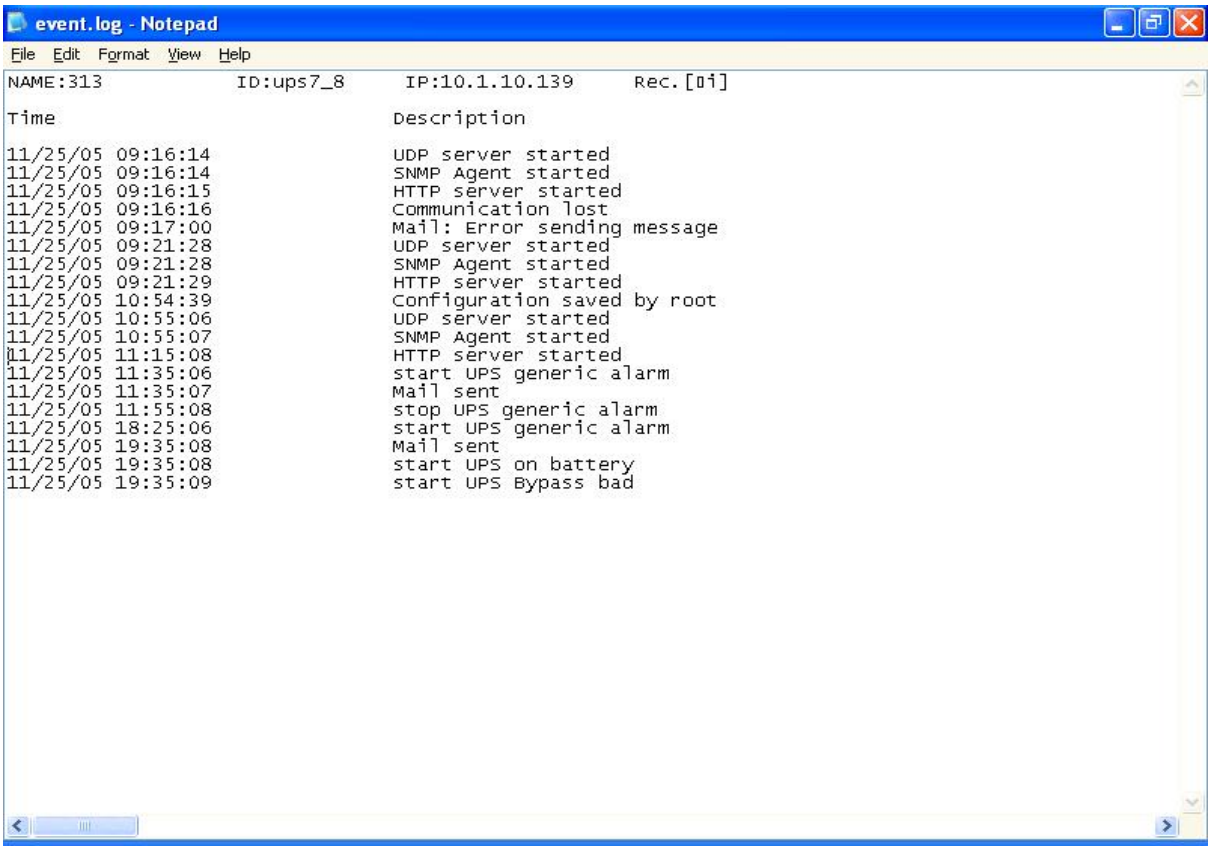
if the software requires a PRTK code and the UPS code is of the GPSER112… type, the PRTK code to be used in the software is GPSER196…; that is, the seventh and eighth characters of the code “…12…” must be replaced with the characters “…96…”, remembering that the PRTK code must always consist of twelve characters

UPS VALUES AND EVENTS HISTORY LOG ARCHIVE

NetMan plus records the UPS values (Datalog) and events (Eventlog) in a history log archive. The data are saved to file in text format and can be read either by means of an electronic spreadsheet (which allows the data to be ordered chronologically) or by any text editor. The format used to record the date and time is of the type: MM/DD/YY HH:MM:SS

Eventlog

The Eventlog service is always active and records all relevant UPS events in the ‘event.log’ file. The file can be downloaded via FTP or sent by e-mail using the “Email report” service. The data are saved in circular list mode, thus the most recent data are saved by overwriting the oldest data.



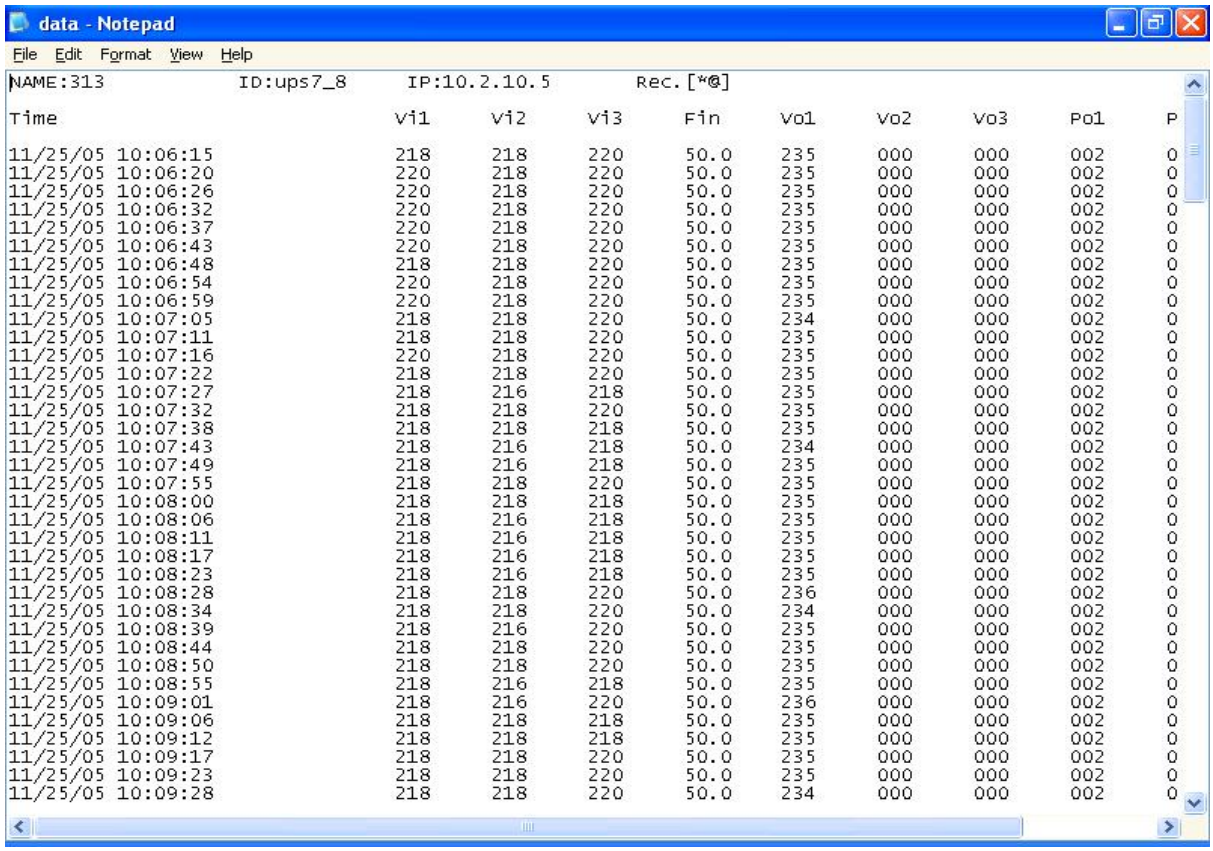
Example of Eventlog

Datalog

The Datalog service records the main UPS data in the 'data.log' file. The file can be downloaded via FTP or can be sent by e-mail using the "Email report" service. The following data are monitored:

- Input voltage line 1
- Input voltage line 2
- Input voltage line 3
- Input frequency
- Output voltage line 1
- Output voltage line 2
- Output voltage line 3
- Load on line 1
- Load on line 2
- Load on line 3

The interval of time between one recording and the next (Log frequency) can be configured by the user (see paragraph "*Miscellaneous* Menu"). The data are saved in circular list mode, thus the most recent data are saved by overwriting the oldest data. Data for up to 256 different points of time can be recorded.



data - Notepad

File Edit Format View Help

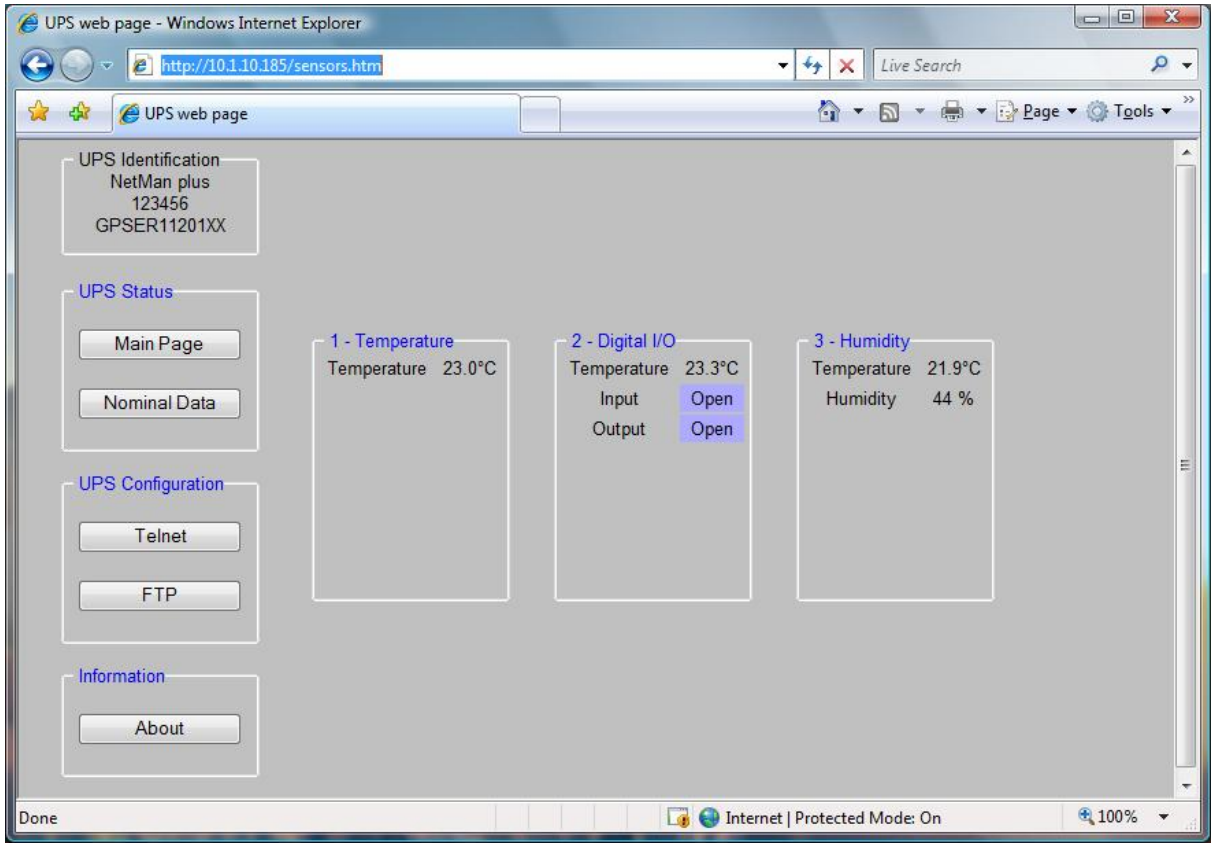
NAME:313 ID:ups7_8 IP:10.2.10.5 Rec.[*@]

Time	Vi1	Vi2	Vi3	Fin	Vo1	Vo2	Vo3	Po1	P
11/25/05 10:06:15	218	218	220	50.0	235	000	000	002	0
11/25/05 10:06:20	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:26	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:32	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:37	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:43	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:48	218	218	220	50.0	235	000	000	002	0
11/25/05 10:06:54	220	218	220	50.0	235	000	000	002	0
11/25/05 10:06:59	220	218	220	50.0	235	000	000	002	0
11/25/05 10:07:05	218	218	220	50.0	234	000	000	002	0
11/25/05 10:07:11	218	218	220	50.0	235	000	000	002	0
11/25/05 10:07:16	220	218	220	50.0	235	000	000	002	0
11/25/05 10:07:22	218	218	220	50.0	235	000	000	002	0
11/25/05 10:07:27	218	216	218	50.0	235	000	000	002	0
11/25/05 10:07:32	218	218	220	50.0	235	000	000	002	0
11/25/05 10:07:38	218	218	218	50.0	235	000	000	002	0
11/25/05 10:07:43	218	216	218	50.0	234	000	000	002	0
11/25/05 10:07:49	218	216	218	50.0	235	000	000	002	0
11/25/05 10:07:55	218	218	220	50.0	235	000	000	002	0
11/25/05 10:08:00	218	218	218	50.0	235	000	000	002	0
11/25/05 10:08:06	218	216	218	50.0	235	000	000	002	0
11/25/05 10:08:11	218	216	218	50.0	235	000	000	002	0
11/25/05 10:08:17	218	216	218	50.0	235	000	000	002	0
11/25/05 10:08:23	218	216	218	50.0	235	000	000	002	0
11/25/05 10:08:28	218	218	220	50.0	236	000	000	002	0
11/25/05 10:08:34	218	218	220	50.0	234	000	000	002	0
11/25/05 10:08:39	218	216	220	50.0	235	000	000	002	0
11/25/05 10:08:44	218	218	220	50.0	235	000	000	002	0
11/25/05 10:08:50	218	218	220	50.0	235	000	000	002	0
11/25/05 10:08:55	218	216	218	50.0	235	000	000	002	0
11/25/05 10:09:01	218	216	220	50.0	236	000	000	002	0
11/25/05 10:09:06	218	218	218	50.0	235	000	000	002	0
11/25/05 10:09:12	218	218	218	50.0	235	000	000	002	0
11/25/05 10:09:17	218	218	220	50.0	235	000	000	002	0
11/25/05 10:09:23	218	218	220	50.0	235	000	000	002	0
11/25/05 10:09:28	218	218	220	50.0	234	000	000	002	0

Example of Datalog

ENVIRONMENTAL SENSORS (OPTIONAL)

Is possibile to connect to *NetMan plus* the environmental sensors for monitoring temperature, humidity and digital input/output.
The information provided by these sensors can be showed with the UPS monitoring and control software or with a web browser (the HTTP service must be active).



The values provided by the sensors may also be requested with SNMP according to the RFC 3433 standard. The MIB file is inside the bundled CD.

Available sensors

- ***Temperature***: detects the environmental temperature in °C.
- ***Humidity & Temperature***: detects the relative humidity in % and the environmental temperature in °C.
- ***Digital I/O & Temperature***: detects the environmental temperature in °C and features a digital input and a digital output.

It is possible to connect up to 3 environmental sensor to a *NetMan plus* (for sensor installation please see the sensors' manual)

It is necessary to modify the default jumper configuration for using the sensors. The use of the sensors does not allow the use of the modem

INSTALLATION AND CONFIGURATION

JUMPER SETTINGS

The jumpers on the card can be used to:

- activate or deactivate the autonegotiation of transmission speed and mode of the Ethernet network (JP7, JP8, JP9)
- select 10/100Mbps or 10Mbps transmission speed (JP7, JP8, JP9)
- select half duplex or full duplex transmission mode (JP7, JP8, JP9)
- activate automatic netboot on start-up (JP14)
- enable the modem (JP10) or the environmental sensors (JP6, JP10)

Refer to the tables and figures below to configure the jumpers correctly.

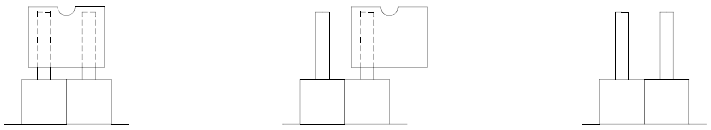
	NetMan 101 plus	*NetMan 102 plus*
JP1	CLOSED	NOT MOUNTED
JP2		
JP3	NOT MOUNTED	CLOSED
JP4		
JP5	NOT MOUNTED	
JP6	➢ OPEN = DISABLE ENVIRONMENTAL SENSORS • CLOSED = ACTIVATE ENVIRONMENTAL SENSORS	
JP10	➢ CLOSED 1-2 TO ENABLE THE MODEM • CLOSED 2-3 TO ENABLE THE ENVIRONMENTAL SENSORS	
JP11	NOT MOUNTED	
JP14	➢ OPEN = AUTOMATIC NETBOOT INACTIVE • CLOSED = AUTOMATIC NETBOOT ACTIVE (1)	

(1) See paragraph “Firmware update”

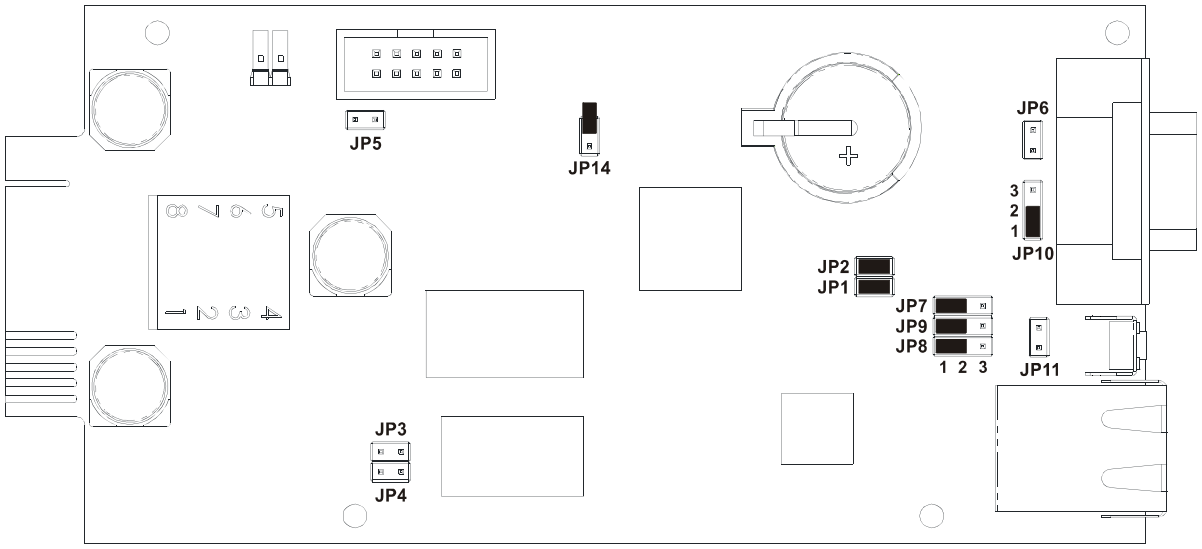
NetMan plus					
AUTO-NEG	**SPEED (Mbps)**	**DUPLEX**	**JP7**	**JP8**	**JP9**
Deactivated	10	Half	PINS 2-3 closed	PINS 2-3 closed	PINS 2-3 closed
		Full	PINS 2-3 closed	PINS 2-3 closed	PINS 1-2 closed
	10/100	Half	PINS 2-3 closed	PINS 1-2 closed	PINS 2-3 closed
		Full	PINS 2-3 closed	PINS 1-2 closed	PINS 1-2 closed
Activated	only 100	Half	PINS 1-2 closed	PINS 2-3 closed	PINS 2-3 closed
		Full	PINS 1-2 closed	PINS 2-3 closed	PINS 1-2 closed
	10/100	only Half	PINS 1-2 closed	PINS 1-2 closed	PINS 2-3 closed
		Full or Half	➢ PINS 1-2 closed	➢ PINS 1-2 closed	➢ PINS 1-2 closed

the default configurations are shown with the symbol “ ➢ ”

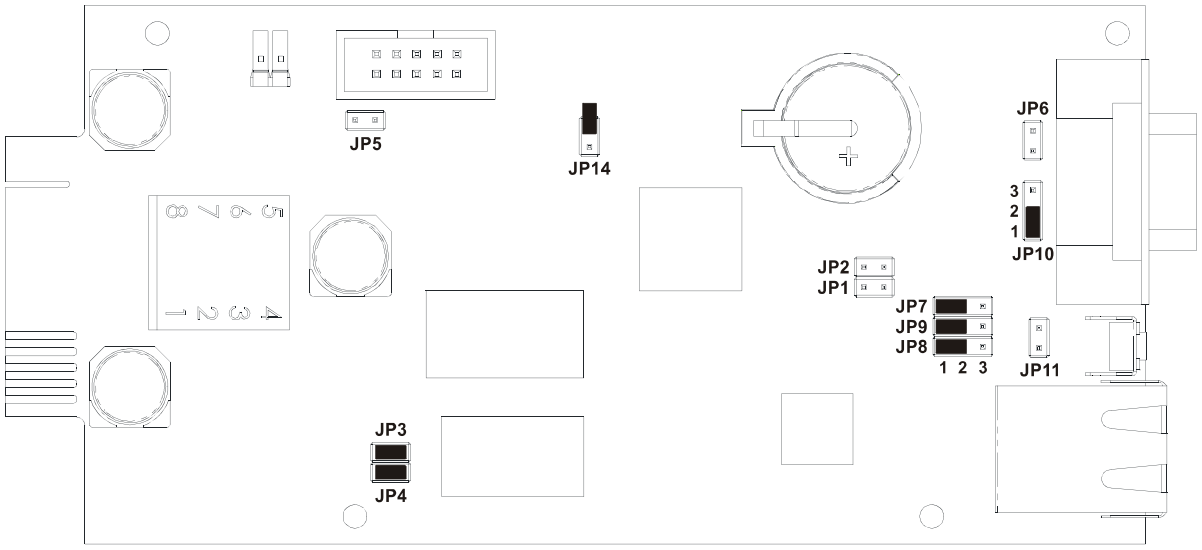
CLOSED **OPEN** **NOT FITTED**



Graphic example of the various setting possibilities



NetMan 101 plus default configuration



NetMan 102 plus default configuration

(only for *NetMan 101 plus*): In order to use the jumpers, the power supply connector, network cable and serial cables must be disconnected. Remove the four screws located in the lower part of the device and remove the cover

INSTALLATION OF NETMAN 101 PLUS

1. Remove the protection strip of the backup battery.
2. Connect the “UPS SERIAL” port of the device to the serial port of the UPS using the cable supplied with the UPS.
3. Connect the device to the network by means of connector RJ-45 (see “Specifications for the cabling of the network cable”)
4. Connect the power supply unit to the device.

the power supply unit must be connected to a plug protected by a UPS

INSTALLATION OF NETMAN 102 PLUS

1. Remove the protection strip of the backup battery.
2. Remove the cover of the UPS expansion slot by removing the two retaining screws.
3. Insert *NetMan 102 plus* in the slot.
4. Connect the device to the network by means of connector RJ-45 (see “Specifications for the cabling of the network cable”)
5. Secure *Netman* in the slot using the two screws removed previously.

CONFIGURATION

NetMan plus can be configured via serial line or via telnet.

NetMan plus needs approx. 30 seconds to become operational from when it is powered up; before this time the device may not respond to commands that are sent to it

Configuration via RS-232 serial line

To configure *NetMan plus* via RS-232 serial line, it is necessary to:

- Connect, with the null-modem cable provided, the “SERIAL” port of the device to the serial port of a PC with terminal emulation software
- execute the terminal emulation software with the following settings: 9600 baud, no parity, 8 databits, 1 stop bit, no flow control
- press the “ESC” key of the PC
- when the message “Hit any key to login.” is displayed, press any key
- at the login prompt, enter “root”
- at the password prompt, enter the current password (default configuration: “password”)

During password’s typing, no character is shown

Once login has been effected, the screen of the main configuration menu is displayed. From this screen it is possible to access the various menus to change *NetMan plus* settings (see paragraph “Main configuration menu” and following paragraphs).

Configuration via telnet

To configure *NetMan plus* via telnet it is necessary to:

- execute a telnet program on a PC connected in a network to *NetMan plus* set with the IP address of the device to be configured
- at the login prompt, enter “root”
- at the password prompt, enter the current password (default configuration: “password”)

During password’s typing, no character is shown

Once login has been effected, the screen of the main configuration menu is displayed. From this screen it is possible to access the various menus to change *NetMan plus* settings (see paragraph “Main configuration menu” and following paragraphs).

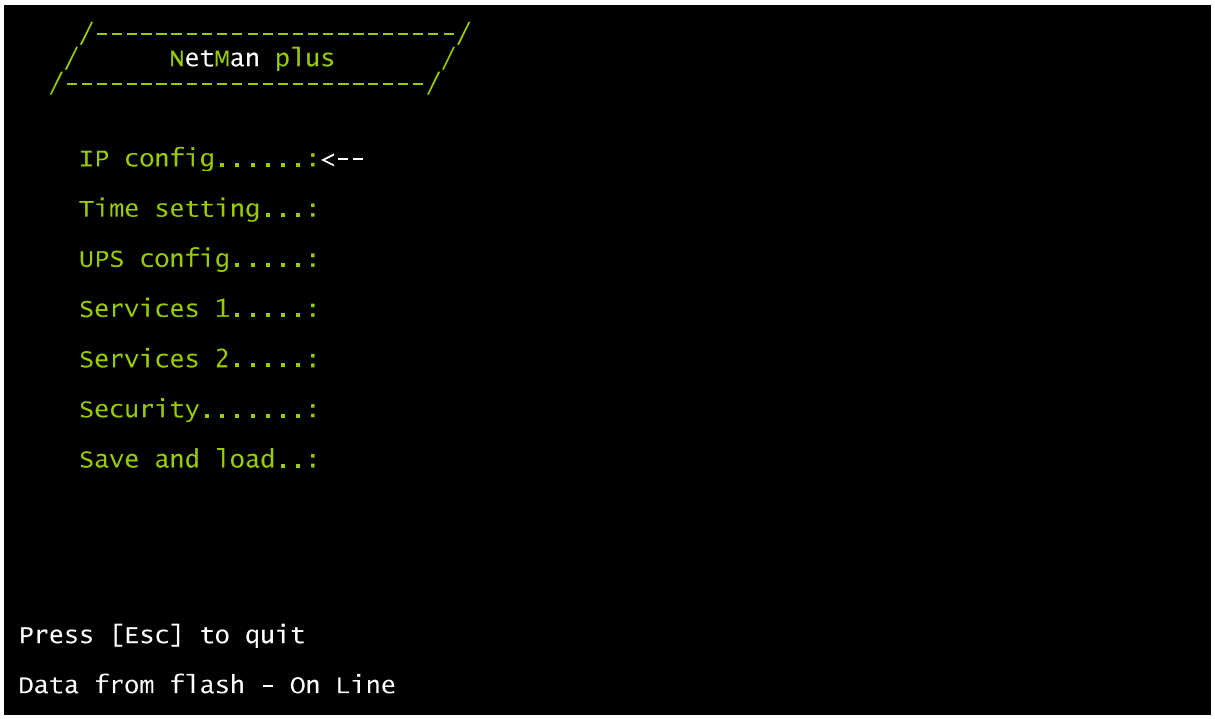
Saving the configuration and applying the changes

In order to make the new configuration effective, it is necessary to save it in the flash memory; this action automatically reboot the device (see paragraph “Menu *Save and load*”).

the clock settings (see paragraph “*Time settings* Menu”) become effective without saving

Main configuration menu

The main configuration menu displays a screen like the following:



From this main menu it is possible to access the various submenus, the function of each of which is shown in the table below.

Menu	Function
IP config	To configure the network parameters
Time setting	To configure the internal clock
UPS config	To configure the type of UPS connected
Services 1	To activate and/or deactivate device services
Services 2	
Security	To configure the password and access to the network
Save and load	To save a configuration thus making it effective in the event of a device restart

To move within this menu and the following menus, use the keys as described in the following table; the arrow or the cursor shows the current selection.

Key	Function
Direction keys (Arrow up, down, right, left)	To move the cursor within the menus
Tab	Goes on to next option
Enter (1)	Choice of submenu
	Confirmation of characters entered
Esc (1)	Exit main menu (2)
	Return to previous menu

(1) Some keys can have a different function depending on the menu.

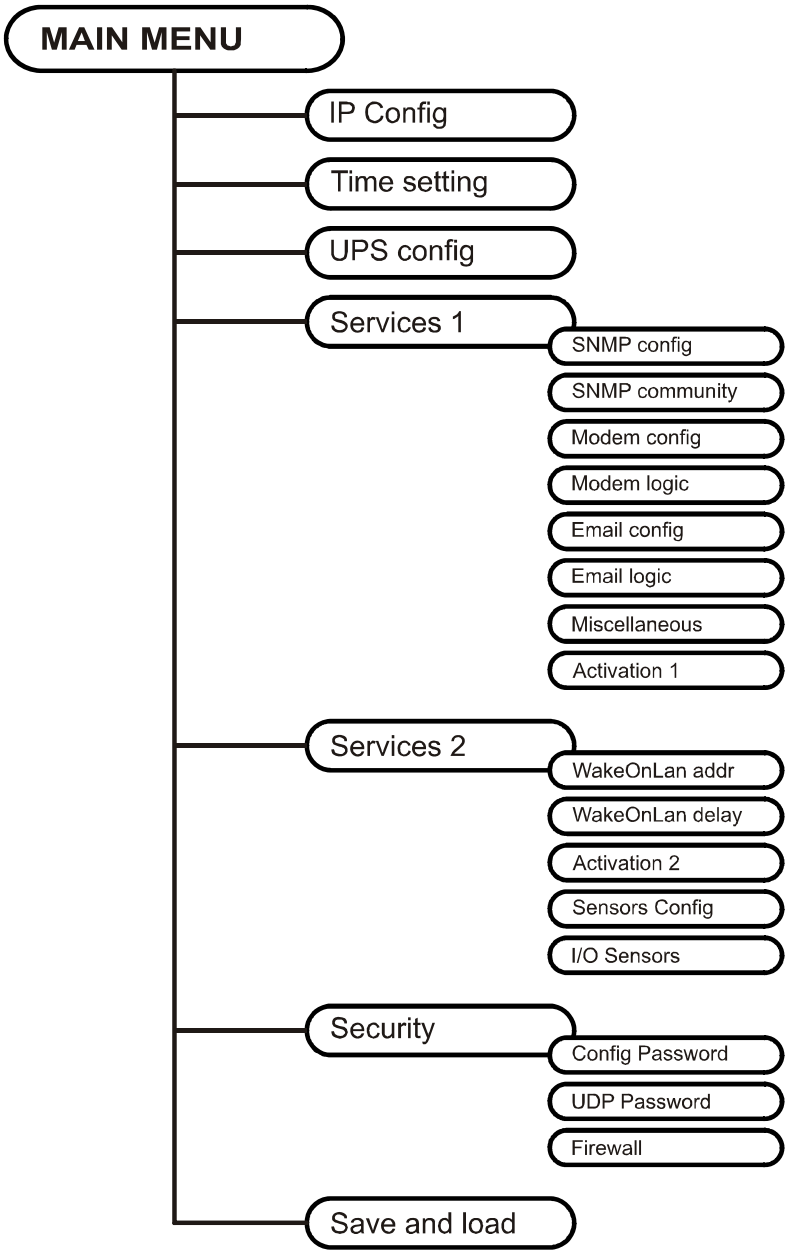
(2) To exit from a menu a confirmation ('Y' or 'N') is required after pressing the ESC key.

The screen also displays some messages describing the kind of configuration data displayed and the status of the UPS. The meaning of these messages is described below.

- Data from flash: means that the configuration has been loaded from the flash memory
- Data from file: means that the configuration has been loaded from file
- Default data: means that the configuration has been reset to the default values

- On Line: UPS in “On Line” mode
- Overload: UPS in overload
- On Bypass: UPS from bypass
- AC fail, battery low: UPS in operation from battery with batteries low
- AC fail! Remaining min …: UPS in operation from battery and estimation of the remaining autonomy
- Low battery: Batteries low
- Line interactive: UPS in “Line Interactive” mode
- AC fail: UPS in operation from battery
- Stand-by: UPS in Stand-by
- Communication lost: lack of communication between the UPS and *NetMan plus*

Here is a graphical rapresentation of the menus and submenus:



IP config menu

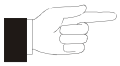
```
  /------------------------/
 /       IP config        /
/------------------------/

  Hostname.......:ups_server
  IP address/DHCP:dhcp
  Netmask........:
  Gateway........:
  Primary DNS....:
  Secondary DNS..:
  Mailhost.......:
```

With this menu the main network parameters can be set as described in the following table.

Field	Parameters to be inserted
Hostname	Enter the *NetMan plus* host name
IP address/DHCP	Enter the IP address for a static IP; enter “DHCP” for a dynamic IP
Netmask	Enter the netmask to be used together with the static IP address
Gateway	Enter the name or the address of the network gateway
Primary DNS	Enter the name or the address of the preferred DNS to be used
Secondary DNS	Enter the name or the address of the alternative DNS to be used
Mailhost	Enter the name or the address of the SMTP server to be used to send e-mails. (1)

(1) Ensure that the SMTP server accepts connections on port 25.



If a static IP address is assigned to the device, all the fields must be configured with the network parameters. If a dynamic IP address is assigned, just enter ‘dhcp’ in the “IP Address/DHCP” field and provide a hostname; all the other options should be ignored because these are automatically configured with DHCP

After pressing “ESC” and “Y” to confirm exit from the menu, a screen is displayed summarizing the current settings (see image below). Press the “ENTER” key to return to the main menu. The configuration must however be saved to make it effective after restart of the device (see “*Save and load”* menu).

```
Hostname          : ups_server.mynetwork.domain
Current IPv4 addr.: 10.1.10.187/16 (255.255.0.0) (active)
Current IPv6 addr.: fe80:0:0:0:260:35ff:fe02:4184/64 (active)
Default IPv4 GW   : 10.1.4.1
Ethernet Address  : 00:60:35:02:41:84
Primary DNS       : 10.1.4.2
Secondary DNS     : 10.3.4.1
DNS Timeout       : 0 (ms)
DHCP Server       : 10.1.5.1
DHCP Enabled      : true
DHCP Lease Ends   : Sun Jun 05 00:00:12 GMT 2005
                    (66 hr, 40 min, 38 seconds left)
Mailhost          : mymailserver
Restore From Flash: Not Committed
```

Time setting menu

```
   /------------------------/
  /     Time setting       /
 /------------------------/


   Set time........:<--

   Set timezone...:

   Sync with NTP..:
```

From this menu the time and date of the device can be set as described in the following table.

Command	Description
Set time	To configure the time and date manually
Set timezone	To configure the time zone
Sync with NTP	To synchronize the clock with an NTP server

Pressing the “ENTER” key corresponding to the “Set time” command displays a screen like the one shown below.

```
Current date is Wed Jun 15 08:09:40 GMT 2005


Insert new date and clock time in this form:

MMDDYYYYHHMMSS
06152005081000

Current date is Wed Jun 15 08:10:00 GMT 2005
```

Enter the date and time in the format shown, then press the ENTER key and then “ESC” to exit.

Pressing the “ENTER” key corresponding to the “Set timezone” command displays a screen like the one shown below.

```
Current date is Thu Jun 16 12:15:25 GMT 2005
Available Timezones:
GMT (+0000)     IET (-0500)     CTT (+0800)     VST (+0700)     SST (+1100)
PST (-0800)*    MST (-0700)*    JST (+0900)     AST (-0900)*    EAT (+0300)
ECT (+0100)*    NET (+0400)     EET (+0200)*    BET (-0300)*    PLT (+0500)
PNT (-0700)     IST (+0530)     CST (-0600)*    PRT (-0400)     ACT (+0930)
MET (+0330)*    ART (+0200)*    AET (+1000)*    AGT (-0300)     MIT (-1100)
NST (+1200)*    HST (-1000)     CNT (-0330)*    EST (-0500)*    BST (+0600)
CAT (+0200)
* denotes a time zone that uses Daylight Savings


Insert new timezone:

ECT

Current date is Thu Jun 16 14:15:31 ECT 2005
```

Enter the time zone selected from those shown, then press the ENTER key and then “ESC” to exit.

Pressing the “ENTER” key corresponding to the “Sync with NTP” command displays a screen like the one shown below.

```
Current date is Thu Jun 16 14:17:06 ECT 2005


Insert IP Address or host name of the NTP server to synchronize time:

leg
Synchronizing time to server: server.mycompany
New system time: 16 Jun 2005 12:17:00 GMT

Current date is Thu Jun 16 14:17:01 ECT 2005
```

Enter the name or the address of the NTP server with which the device is to be synchronized. In this case the time has to be within the GMT time zone, thus it may be necessary to correct the current time zone with the “Set timezone” command.

UPS config menu

```
   /------------------------/
  /       UPS config       /
 /------------------------/

   PRTK Code.....:GPSER11201XX
   Name..........:ups3
   UPS Address....:1
   Serial number..:324321
```

With this menu the UPS parameters must be set as described in the following table, for the UPS to be able to communicate correctly with the device.

Field	Parameters to be inserted
PRTK Code	Enter the PRTK code indicated at the back of the UPS(1)
Name	Enter the identifying name of the UPS
UPS Address	Enter the UPS address for serial communication (2)
Serial number	Enter the UPS identification code for modem connection

(1) The PRTK code is formed of 12 alphanumeric characters.

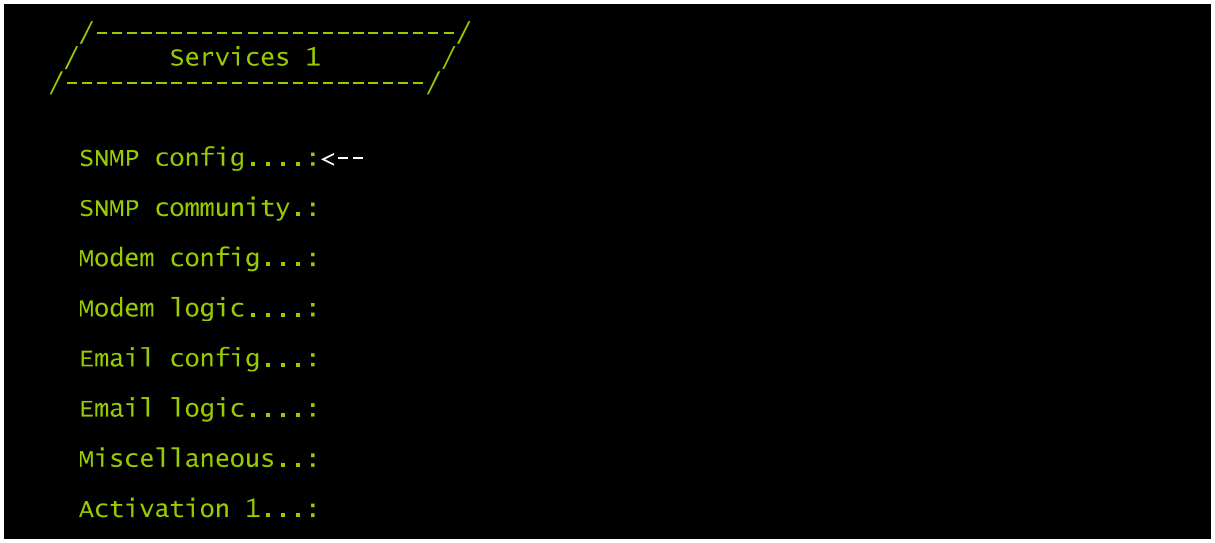
(2) The address is only used when several UPSs are connected on a serial line.

After inserting the data and pressing the “ESC” key to exit from the menu, the settings can be tested by pressing the “T” key. If the test is performed, a screen like the one shown below is displayed, with some of the main UPS values. If the values remain at zero, this means that the UPS and the device are not communicating correctly.

```
   /------------------------/
  /         Status         /
 /------------------------/

UPS On          Input voltage..: 232V
On line
                Load..........:  15%
                Battery cap....: 100%
                Autonomy.......: 75 min
```

Services 1 menu

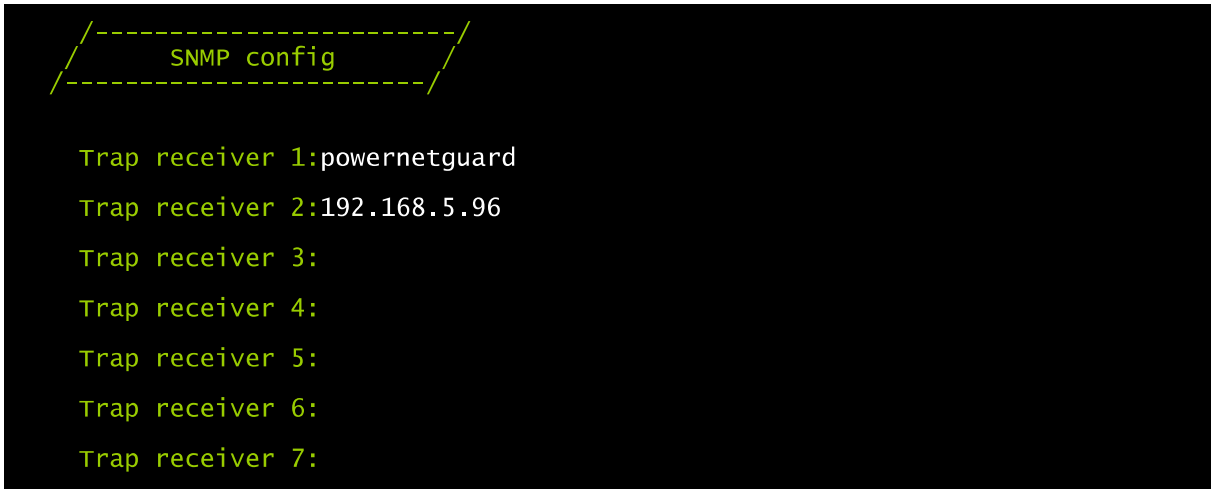


With this menu the configuration screens of the various services can be accessed as described in the following table.

Menu	Function
SNMP config	To configure the SNMP service
SNMP community	
Modem config	To configure the modem service
Modem logic	
Email config	To configure the e-mail service
Email logic	
Miscellaneous	To configure the other options
Activation 1	To configure the services to be activated

as well as being configured, the services must also be activated to function correctly (see paragraph "*Activation* menu"). It is recommended to activate only the services used

SNMP config menu



With this menu the IP addresses to which traps are sent can be configured. Traps are SNMP messages that are sent to an SNMP manager for alarm notification.
Traps can be sent to seven different hosts.

SNMP community menu

With this menu the protection password of the SNMP messages (SNMP Communities) can be configured as described in the following table.

Field	Parameters to be inserted
Get community	Enter the community for read access
Set community	Enter the community for write access
Trap community	Enter the community for traps

Modem config menu

```
  /------------------------/
 /       Modem config     /
/------------------------/

  Phone number 1.:111
  Phone number 2.:112
  Phone number 3.:113
  Modem init.....:ATE0X0V0S0=1
  Modem dial.....:ATDT
  No. repeat.....:3
  Delay..........:30
```

With this menu the modem can be configured as described in the following table.

Field	Parameters to be inserted
Phone number 1	Enter the telephone numbers to be called
Phone number 2	
Phone number 3	
Modem init	Enter the modem initialization string (see note)
Modem dial	Enter the dialling string used by the modem (see note)
No. Repeat	Enter the number of attempts to be made if there is no reply
Delay	Enter the interval of time between two calls if there is no reply

the modem initialization string (Modem init) recommended for the U.S. Robotics modem is **ATE0X0V0S0=1**;
the dialling string (Modem dial) recommended for the U.S. Robotics modem is **ATDT**

Modem logic menu

```
  /------------------------/
 /       Modem logic      /
/------------------------/

                   Tel. 1    Tel. 2    Tel. 3    Logic:
  UPS Lock.......:   X<--       X         X       And
  Ovrload/Ovrtemp:   X          X         X       And
  UPS Failure....:   X          X         X       And
  On bypass......:   X          X         X       And
  Battery work...:   X          X         X       And
  Battery low....:   X          X         X       And
  Communic lost..:   X          X         X       And
```

With this menu it can be established which telephone numbers will be called and with which mode when certain events occur. One or more telephone numbers can be associated with each event.

use the ENTER key to change the selected configuration (“X”, “0”, “AND”, “OR”)

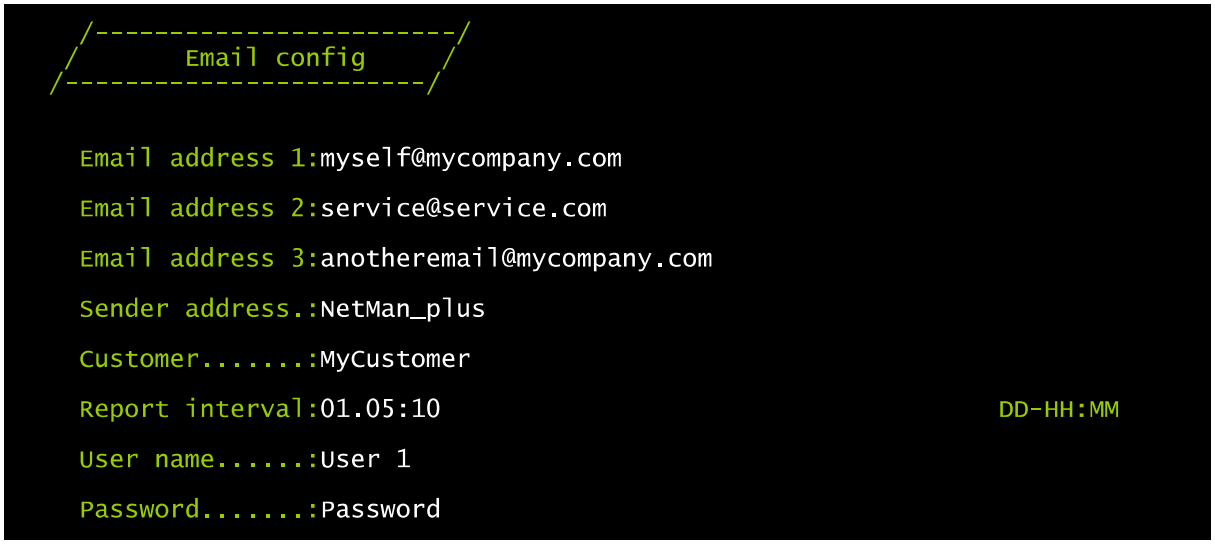
- X: when the event occurs, *NetMan plus* is enabled to call the corresponding telephone number (see “*Modem logic* menu” to set the telephone numbers to be called);
- 0: when the event occurs, *NetMan plus* does not call the corresponding telephone number;
- AND: when the event occurs, all the enabled telephone numbers will be called;
- OR: when the event occurs, only one of the enabled telephone numbers is called: if all the call attempts for the first enabled telephone number fail, the device calls the next enabled telephone number (see “*Modem logic* menu” to set the number of attempts to be made and the interval of time between two calls if there is no reply).

The tables below describe the meaning of the events. These can vary according to the UPS connected.

Events	Meaning
UPS Lock	UPS is locked
Ovrload/Ovrtemp	UPS in overload or in overtemperature
UPS Failure	Failure of the UPS
On bypass	Operation from bypass
Battery work	Operation from battery

Events	Meaning
Battery low	Battery low
Communic lost	Communication between the UPS and the device has been interrupted
SENTR level 2	Presence of an internal UPS failure (this condition emulates the level of modem alarm for UPSs of the SENTR type)
SENTR level 3	Presence of a failure in the UPS, excluding those envisaged in the previous point (this condition emulates the level of modem alarm for UPSs of the SENTR type)

Email config menu



This menu may be used to configure the addresses to which to send the alarm notification and report e-mails and other parameters of the e-mail service as described in the following table.

Field	Parameters to be inserted
Email address 1	Enter the e-mail addresses to which to send the alarm notifications and reports (see note).
Email address 2	
Email address 3	
Sender address	Enter the address from which the e-mails are sent. (1)
Customer	Enter an identifying string; this additional information is included in the e-mail.
Report interval	Enter the delay, measured in days, between the sending of one report e-mail and the next by using exactly 2 figures, followed by a dot, an finally by the hour and minutes on which the email should be sent.
User name	If the server requires authentication, insert the “User name”.
Password	If the server requires authentication, insert the password.

(1) do not use the “space” character in this field

After inserting the data and pressing the “ESC” key to exit from the menu, the service can be tested by pressing the “T” key. If the test is performed, a “@” is displayed and a test email is sent to all the configured email addresses. After this the previous menu is shown.

report e-mails are sent to all the addresses inserted; for alarm notification e-mails see paragraph “*Email logic* menu”

Email logic menu

```
  /------------------------/
 /       Email logic      /
/------------------------/

                  Email 1   Email 2   Email 3   Logic:
  UPS Lock.......:   X<--      0         0        And
  Ovrload/Ovrtemp:   X         0         0        And
  UPS Failure....:   X         0         0        And
  On bypass......:   X         0         0        And
  Battery work...:   X         0         0        And
  Battery low....:   X         0         0        And
  Communic lost..:   X         0         0        And
```

With this menu it can be established to which addresses the e-mails will be sent when certain events occurs. One or more addresses can be associated with each event and in the latter case, when the event occurs, notification e-mails will be sent to all the addresses associated with it.

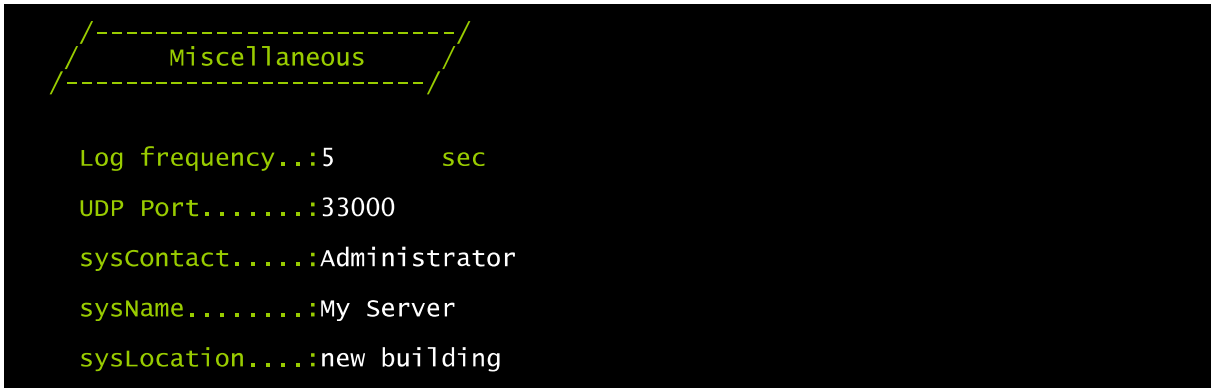
use the ENTER key to change the selected configuration (“X” or “0”)

- X: when the event occurs, *NetMan plus* sends a notification e-mail to the corresponding addresses (see “*Email logic* menu” to set the addresses);
- 0: when the event occurs, *NetMan plus* does not send a notification e-mail to the corresponding addresses;

The following table describes the meaning of the events. These can vary depending on the UPS connected.

Event	Meaning
UPS Lock	UPS is locked
Ovrload/Ovrtemp	UPS in overload or in overtemperature
UPS Failure	Failure of the UPS
On bypass	Operation from bypass
Battery work	Operation from battery
Battery low	Battery low
Communic lost	Communication between the UPS and the device has been interrupted
SENTR level 2	Presence of an internal UPS failure (this condition emulates the level of modem alarm for UPSs of the SENTR type)
SENTR level 3	Presence of a failure in the UPS, excluding those envisaged in the previous point (this condition emulates the level of modem alarm for UPSs of the SENTR type)

Miscellaneous menu



With this menu further device parameters can be configured as described in the following table.

Field	Parameters to be inserted
Log frequency	Enter the delay, measured in seconds, between one data log and the next (see paragraph “Datalog”)
UDP Port	Enter the port where the UDP service is started [1]
sysContact	Enter the string to be associated with these SNMP variables
sysName	
sysLocation	

[1] This port must be the same as configured in the UPSMon software

Activation 1 menu

```
  /------------------------/
 /       Activation 1      /
/------------------------/

  Enable telnet..:[ON/off]<--        Enable FTP.....:[ON/off]
  Enable HTTP....:[ON/off]           Enable DataLog.:[ON/off]
  Enable Modem Tx:[on/OFF]           Enable Modem Rx:[on/OFF]
  Enable SNMP....:[ON/off]           Enable Email...:[ON/off]
  Enable UDP.....:[ON/off]           Enable Report..:[ON/off]
```

With this menu the services implemented in *NetMan plus* can be activated or deactivated:

use the ENTER key to change the selected configuration (“ON” or “OFF”)

- ON (green characters): service active
- OFF (red characters): service not active

It is recommended to activate only the services used.

Services 2 menu

```
  /------------------------/
 /       Services 2       /
/------------------------/

  WakeOnLan addr.:<--
  WakeOnLan delay:
  Activation.2...:
  Sensors config :
  I/O Sensors....:
```

With this menu the configuration screens of the various services can be accessed as described in the following table.

Menù	Funzione
WakeOnLan addr.	To configure the Wake-on-LAN service
WakeOnLan delay	
Activation 2	To configure the services to be activated
Sensors. config	To configure the environmental sensors
I/O Sensors	

as well as being configured, the services must also be activated to function correctly (see paragraph “*Activation 2* menu”). It is recommended to activate only the services used.

Wake-On-LAN address menu

```
  /------------------------/
 /  Wake-on-LAN  address  /
/------------------------/

  MAC Address 1..:00-12-3F-2B-F6-6F
  MAC Address 2..:aa-bb-cc-dd-ee-ff
  MAC Address 3..:00-00-00-00-00-00
  MAC Address 4..:
  MAC Address 5..:
  MAC Address 6..:
  MAC Address 7..:
  MAC Address 8..:
```

With this menu is possible to insert up to 8 MAC address to execute Wake-on-LAN.

Please make sure that your PC supports this function, and that it is correctly configured

Wake-On-LAN delay menu

```
  /------------------------/
 /  Wake-on-LAN  delay    /
/------------------------/

  Address 1 delay:2    sec.
  Address 2 delay:40   sec.
  Address 3 delay:2    sec.
  Address 4 delay:     sec.
  Address 5 delay:     sec.
  Address 6 delay:     sec.
  Address 7 delay:     sec.
  Address 8 delay:     sec.
```

With this menu is possible to insert the delay times for each Wake-on-LAN.

Activation 2 menu

```
    /------------------------/
   /       Activation 2      /
  /------------------------/

    Enable Serial N:[ON/off]<--
    Enable Sensors.:[ON/off]
    Enable WOL     :[on/OFF]
```

With this menu the services implemented in *NetMan plus* can be activated or deactivated:

use the ENTER key to change the selected configuration (“ON” or “OFF”).

- ON (green characters): service active
- OFF (red characters): service not active

It is recommended to activate only the services used.

Sensors Config menu

To enter on the “Sensors config” menu is necessary to enable the “Sensors” service (Activation 2 menu) and to save the configuration (Save and load menu).

```
Sensors Devices




Press [C] to change sensors, [E] to exit
```

Enter on the “Config sensor” menu, connect the first sensor and press “C”. After some instants the device will be recognized and the device will be given an identifier number [1]. Connect the next sensor, if present, and press “N”. After some instants the device will be recognized and the device will be given an identifier number [2]. Repeat the procedure for all the sensors and when the configuration is finalized press “Y”.

```
Sensors Devices
[1] Sensor Digital I/O
    + Temperature (140000009A204C28)
    + Digital I/O (220000003B8C9F12)
      + 1 Input
      + 1 Output
[2] Sensor Digital I/O
    + Temperature (510000009A154228)
    + Digital I/O (BB0000003BA2FF12)
      + 1 Input
      + 1 Output
[3] Sensor Temperature (F100000013BE0628)
    + Temperature
[4] Sensor Temperature (6C0000009F6D6128)
    + Temperature
[5] Sensor Humidity (4D00000083FF3326)
    + Humidity
    + Temperature


Press [Y] to confirm, [N] to insert a new sensor
```

For proper working of the devices, it is necessary to add just one device for each iteration and wait that it is recognized by *NetMan plus*.

Example: how to connect a *Temperature* sensor, a *Humidity & Temperature* sensor and a *Digital I/O & Temperature* sensor in exactly this order.

```
Sensors Devices




Press [C] to change sensors, [E] to exit
```

Connect the first sensor (*Temperature*), and press “Y”.

```
Sensors Devices
[1] Sensor Temperature (F100000013BE0628)
    + Temperature




Press [Y] to confirm, [N] to insert a new sensor
```

Wait until the first sensor is identified and then connect the second sensor (*Humidity & Temperature*), and press “N”.

```
Sensors Devices
[1] Sensor Temperature (F100000013BE0628)
    + Temperature
[2] Sensor Humidity (4D00000083FF3326)
    + Humidity
    + Temperature




Press [Y] to confirm, [N] to insert a new sensor
```

Wait until the second sensor is identified and then connect the third sensor (*Digital I/O & Temperature*), and press “N”.

```
Sensors Devices
[1] Sensor Temperature (F100000013BE0628)
    + Temperature
[2] Sensor Humidity (4D00000083FF3326)
    + Humidity
    + Temperature
[3] Sensor Digital I/O
    + Temperature (510000009A154228)
    + Digital I/O (BB0000003BA2FF12)
      + 1 Input
      + 1 Output



Press [Y] to confirm, [N] to insert a new sensor
```

Press “Y” to confirm.

I/O Sensors menu

```
    /------------------------/
   /         Output         /
  /------------------------/

    UPS Lock.......:    -<--

    Ovrload/Ovrtemp:    -

    UPS Failure....:    -

    On bypass......:    4

    Battery work...:    3

    Battery low....:    -

    Communic lost..:    -

    Input sensor...:    1

Press [Esc] to quit
```

With this menu is possibile to associate a digital output of the installed sensors to one or more events of the UPS. The output will be closed when the associated event happens.

Press ENTER to select the output.
The identification number is the same which is associated to the sensor during installation.

The following table describes the meaning of the events. These can vary depending on the UPS connected.

Event	Description
UPS Lock	UPS is locked
Ovrload/Ovrtemp	UPS in overload or in overtemperature
UPS Failure	Failure of the UPS
On bypass	Operation from bypass
Battery work	Operation from battery
Battery low	Battery low
Communic lost	Communication between the UPS and the device has been interrupted

The “Input sensor” event allows to associate a digital output with the digital input of the *Digital I/O & Temperature* sensor which is installed with the lowest identification number (the first that was detected during configuration). The state of the input (open/closed) is reported to the output of the selected sensor.

Security menu

The *Security* menu shows a screen like the one below.

From this menu the setup password, the UDP password and the firewall can be configured as described in the following table.

Menu	Function
Config Password	To change the password used to enter the configuration menu and for FTP connections (1)
UDP Password	To change the password used for UDP/UPSMon communication (2)
Firewall	To configure access from the network

(1) default configuration: “password”

(2) this password must be the same as the one used by the UPSMon software

Pressing the ENTER key corresponding to the “Config Password” command displays a screen like the one shown below.

```
Enter the old password:
Enter the new password:
Confirm the new password:
```

Enter, as requested, the old and the new password.

Pressing the ENTER key corresponding to the “UDP Password” command displays a screen like the one shown below.

```
Enter the new UDP password:
Confirm the new UDP password:
```

Enter, as requested, the new password.

Pressing the ENTER key corresponding to the “Firewall” command displays a screen like the one shown below.

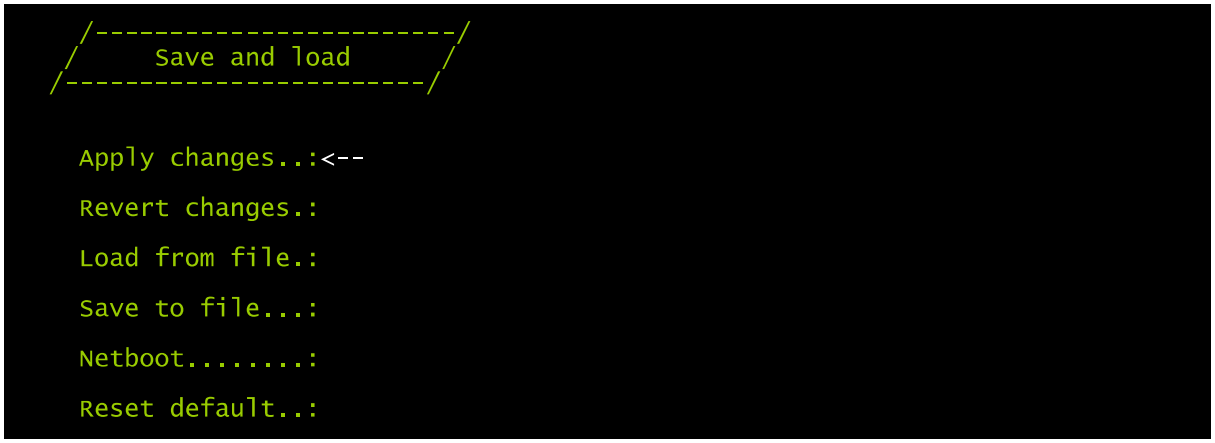
```
   /------------------------/
  /         Firewall       /
 /------------------------/

   Access IP 1....:*.*.*.*
   Access IP 2....:0.0.0.0
   Access IP 3....:0.0.0.0
   Access IP 4....:0.0.0.0
   Access IP 5....:0.0.0.0
   Access IP 6....:0.0.0.0
   Access IP 7....:0.0.0.0
```

With this menu the IP addresses or hostnames of the devices enabled for communication with *NetMan plus* can be configured. The character “*” can be used for one or more fields of the IP address to indicate that all values between 0 and 255 are accepted in that field. The following table provides some possible configuration examples.

IP Access	Description
..*.*	All the devices present on the network are enabled to communicate with *NetMan plus* (default configuration)
10.1.10.*	The devices with addresses between 10.1.10.0 and 10.1.10.255 are enabled to communicate with *NetMan plus*
myserver.mydomain	Hostname of the device enabled to communicate with *NetMan plus*

Save and load menu



With this menu the configuration can be saved to make it effective or to load other configurations as described in the following table.

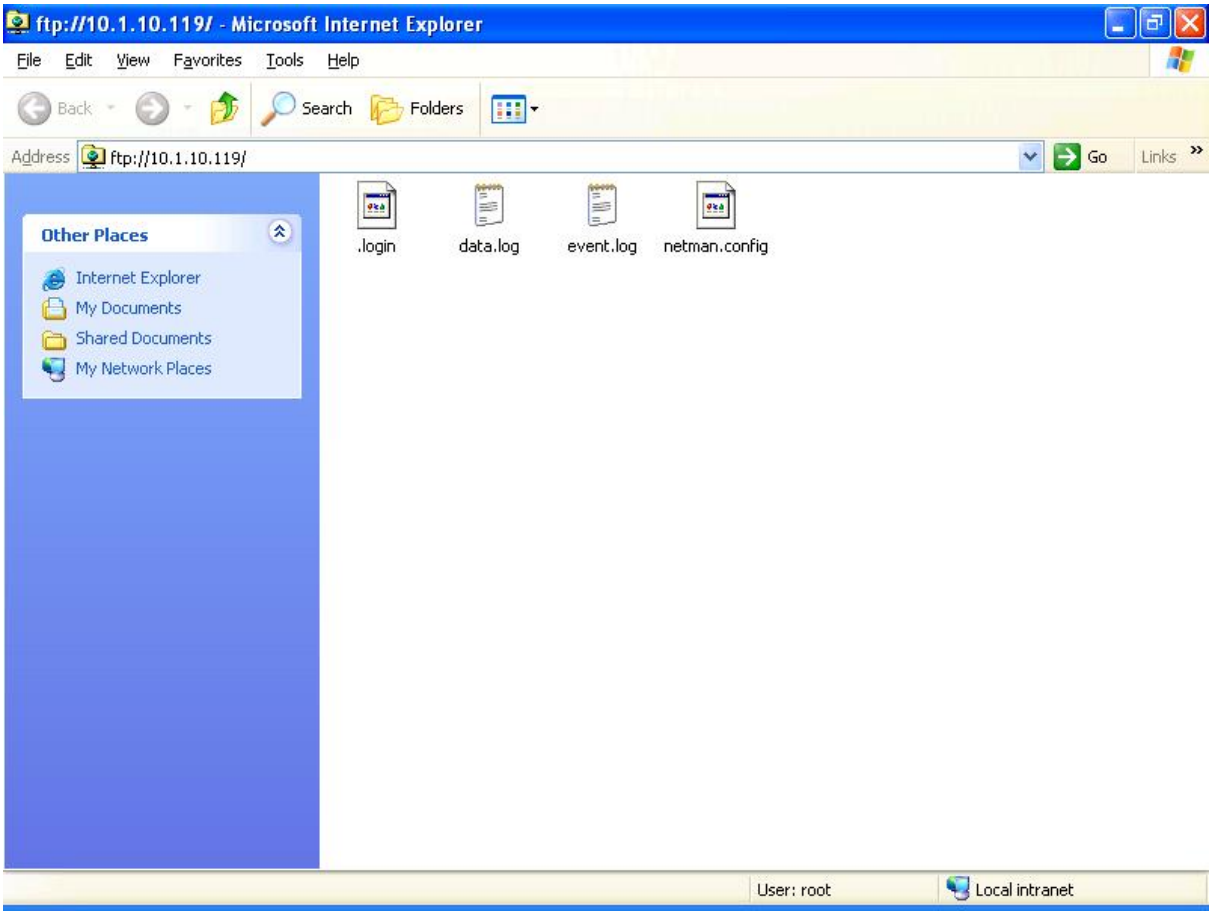
Function	Description
Apply changes	Saves the configuration in flash memory and then automatically restarts to make the changes effective
Revert changes	Cancels the changes and reloads the last saved configuration (excluding the the clock -Time setting- configurations)
Load from file	The configuration is loaded from a file sent via FTP (1)
Save to file	The configuration is saved on a file to be downloaded via FTP (1)
Netboot	Restarts and attempts to update to a new version of the firmware if available on the network (2)
Reset default	Loads the default configuration

(1) see paragraph “Configuration of several devices”

(2) see paragraph “Firmware update”

Configuration of several devices

If several devices requiring similar configuration parameters are to be installed, it may be useful to save the basic configuration to file and then load it on all the devices to be installed. After completing device configuration, save it by selecting the option “Save to file” from the *Save and load* menu (a “netman.config” file will be created). The file can be downloaded from the device and loaded on another via FTP (see paragraph “FTP”). Once the file has been loaded, select the option “Load from file” from the *Save and load* menu and, if necessary, change the configuration for the new device.



Example of FTP connection for multiple installations

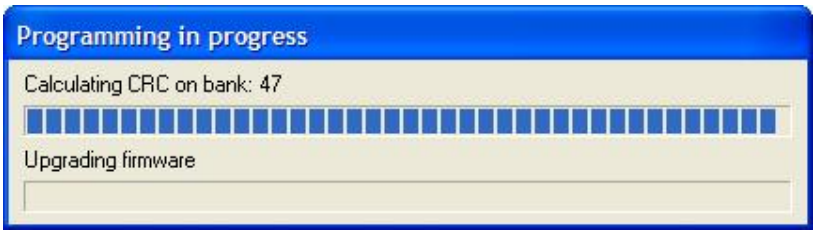
FIRMWARE UPDATE

The *NetMan plus* firmware can be updated via serial line or via network (Netboot).

WARNING: updating the firmware resets the current password (default configuration: “password”), loses the clock’s settings and deletes the event.log and data.log files.

Update via serial line

- Connect the “Serial” port of *NetMan plus* to the serial port of the PC by means of the null-modem cable provided;
- Execute the NetManplus.exe program;
- Select the folder containing the update files;
- When prompted, press the *NetMan plus* RESET button and click on the “OK” key. Wait for the end of the operation.



Firmware update via serial line

Update via network (Netboot)

- Configure and start the DHCP/BOOTP server. The DHCP/BOOTP configuration must include the TFTP server address at the item “next server IP” or “option 150”. On Windows Server for example, it is “TFTP server name” on “code 66”.
- Start the TFTP server; the update file must be present on this server. The TFTP server must have the address configured in the previous step.
- Start the update in one of the following ways:
  1. by closing the jumper JP14. *NetMan plus* automatically starts Netboot at each device start-up;
  2. by sending a network command via SNMP, via Telnet or via UDP as described below. The service relating to the command used must be active;
     - SNMP: send a SET 3.6.1.4.1.5491.6.8.1 command with value 2;
     - Telnet: connect with user “root” and own password, enter the *Save and load* menu and select “Netboot”;
     - UDP: execute the “upgrade <ip address> -n” command (where <ip address> is the address of *NetMan plus*). A group of addresses can be set for the simultaneous update of several *NetMan plus*; for example, by setting an IP address 10.1.255.255, the command is sent to all the devices within the address range 10.1.*.*.
  3. by connecting to the configuration serial port and choosing the “Netboot” option.

TECHNICAL DATA

SPECIFICATIONS FOR THE CABLING OF THE NETWORK CABLE

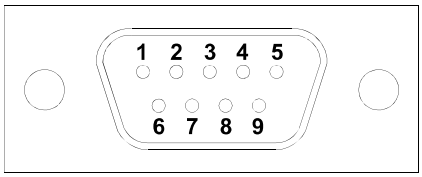
To connect the device to the Ethernet (10Base-T) or Fast Ethernet (100Base-T) network, a UTP (Unshielded Twisted Pair) or STP (Shielded Twisted Pair) cable with RJ45 connectors is required. The cable must conform to the standard IEEE 802.3u 100Base-T with 2 pairs of UTP cables of category 5 or higher. The cable between the adaptor and the hub must not be more than 100m and not less than 2.5m.

NETWORK CABLE CONNECTIONS	
Signal	**Pin # to Pin #**
TX+	1 ← → 1
TX-	2 ← → 2
RX+	3 ← → 3
RX-	6 ← → 6

pins 1 and 2 must be connected to one twisted pair, pins 3 and 6 to another

SIGNALS ON THE "SERIAL" CONNECTOR

SERIAL



PIN #	SIGNAL	
1	n.c.	
2	RXD	
3	TXD	
4	DTR	
5	GND	
6	n.c.	
7	RTS (1)	+5V (2)
8	n.c.	
9	n.c. (1)	BUS sensori (2)

n.c. = not connected

(1) *With default jumper configuration*
(2) *With environmental sensors jumper configuration*

BACKUP BATTERY

The device uses a backup battery for the correct clock working and for maintenance of the historical data in case of power loss.
In case of long period of inactivity disconnect the battery. It's recommended to replace the battery every three years.
If you have to change the battery ensure that the positive side (+) is facing upwards.

Battery type: CR1620 3V Lithium

(only for *NetMan 101 plus*): In order to change the battery the power supply connector, network cable and serial cables must be disconnected. Remove the four screws located in the lower part of the device and remove the cover

TECHNICAL SPECIFICATIONS

NetMan 101 plus			
POWER SUPPLY (1)	Input voltage	[Vdc]	12
	Maximum inputcurrent	[mA]	200
ENVIRONMENTAL CONDITIONS	Operating temperature	[°C]	0 ÷ +40
	Storage temperature	[°C]	-5 ÷ +50
	Operating relative humidity	[%]	80 (max)
	Storage relative humidity	[%]	90 (max)
PHYSICAL CHARACTERISTICS	Dimensions H x L x D	[mm]	28 x 77 x 158
	Weight	[g]	250

(1) Connector polarity: 

NetMan 102 plus			
POWER SUPPLY	Input voltage	[Vdc]	12
	Maximum inputcurrent	[mA]	200
ENVIRONMENTAL CONDITIONS	Operating temperature	[°C]	0 ÷ +40
	Storage temperature	[°C]	-5 ÷ +50
	Operating relative humidity	[%]	80 (max)
	Storage relative humidity	[%]	90 (max)