

www.power-one.com



# AURORA

# **Photovoltaic Inverters**

## Aurora® Power Service Aurora® Power Service

USA	
France	
Germany	
Italy	
Spain	
Middle East	
Australia	
China	
Singapore	
Malavsia	



# INSTALLATION AND OPERATOR'S MANUAL MANUALE DI INSTALLAZIONE E OPERATORE

Model: PVI-DESKTOP-yy-xx



# **PVI-DESKTOP**

## Remote controller and monitoring system

# INSTALLATION AND OPERATION MANUAL

Note: this document contains information which is the sole property of Power-One Inc.. No part of it may be copied or circulated without the prior written consent of Power-One.



Model number: PVI-DESKTOP-yy-xx

Rev. 1.3

## **REVISION TABLE**

Document revision	Date	Description of changes
1.0	21/07/2009	First release
1.1	29/12/2009	First revision
1.2	09/12/2009	Second revision
1.3	25/07/2011	Third revision



## **CONTENTS**

1	MAN	IUAL INFORMATION	5
	11	SYMBOLS USED	5
	1.2	PURPOSE	5
_			_
2	PRO	DUCT INFORMATION	5
	2.1	DESCRIPTION OF THE PVI-DESKTOP SYSTEM	5
	2.2	POSSIBLE USE	7
	2.2.1	Possible connection to inverters:	7
	2.2.2	Operative systems compatible for PC connection:	7
	2.3	PACKAGING CONTENTS	8
	2.4	PRODUCT IDENTIFICATION	9
	2.4.1	outer label data	9
	2.4.2	firmware version	9
	2.5	PVI-DESKTOP CONNECTIONS AND INTERFACES	10
	2.5.1	power supply connector	
	2.5.2	usb connector	
	2.5.3	rs485 connector	
	2.5.4	sd card / sd card slot	
	2.5.5	reset button	
	2.5.6	status led	
	2.5.7	bluetooth (optional)	13
	2.5.8	touchscreen	14
3	SAFE	TY WARNINGS	14
4	PVI-I	DESKTOP INSTALLATION	15
	4.1	PRELIMINARY OPERATIONS	15
	4.1.1	inverter configuration (radio connection)	
	4.1.2	inverter configuration (rs485 wired connection)	
	4.1.3	tips on the selection of installation location	
	4.1.4	positioning of the antenna with respect to the device	
	4.1.5	radio communication test	16
	4.2	SYSTEM INSTALLATION	17
	4.2.1	wall mounting	
	4.2.2	desk installation	
	4.3	HOW TO USE – POWER-SUPPLIES	



5	PVI-	DESKTOP SYSTEM OPERATION	19
	5.1	INITIAL START UP OPERATION	19
	5.2	BATTERY DURATION	19
	5.3	START UP	20
	5.3.1	inverter disassociation	22
	5.3.2	association (or configuration) of additional inverters	23
	5.4	BASIC DEVICE SETTING	23
	5.4.1	brightness	23
	5.4.2	language	23
	5.4.3	energy saving modality (stand by or "sleep mode")	23
	5.4.4	calibration	24
	5.4.5	date and time setting	24
	5.5	SD CARD	24
	5.6	SYSTEM MODE	25
	5.7	MAIN MENU	26
	5.7.1	default screen	26
	5.7.2	settings menu	27
	5.7.3	info menu	27
6	PC C	ONNECTION	28
6	<b>PC C</b>	ONNECTION	<b>28</b>
6	<b>PC C</b> 6.1 6.2	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION	<b>28</b> 28 34
6	<b>PC C</b> 6.1 6.2 6.3	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE	<b>28</b> 28 34 37
6	PC C 6.1 6.2 6.3 <i>6.3.1</i>	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating	<b>28</b> 28 34 37 37
6	PC C 6.1 6.2 6.3 6.3.1 6.3.2	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card	<b>28</b> 34 37 37 41
6	PC C 6.1 6.2 6.3 <i>6.3.1</i> <i>6.3.2</i> TRO	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING	28 34 37 41 42
6 7 8	PC C 6.1 6.2 6.3 <i>6.3.1</i> <i>6.3.2</i> TRO MAI	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING NTENANCE AND CLEANING	28 34 37 41 42 43
6 7 8	PC C 6.1 6.2 6.3 6.3.1 6.3.2 TRO MAI 8 1	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING NTENANCE AND CLEANING BATTERIES CHARGE AND DISCHARGE	28 28 34 37 37 41 42 43
6 7 8	PC C 6.1 6.2 6.3 <i>6.3.1</i> <i>6.3.2</i> TRO MAI 8.1 8.2	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING NTENANCE AND CLEANING BATTERIES CHARGE AND DISCHARGE CLEANING PROCEDURE	28 
6 7 8 9	PC C 6.1 6.2 6.3 <i>6.3.1</i> 6.3.2 TRO MAI 8.1 8.2 DISP	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING NTENANCE AND CLEANING BATTERIES CHARGE AND DISCHARGE CLEANING PROCEDURE	28 28 34 41 41 42 43 43 43 43
6 7 8 9	PC C 6.1 6.2 6.3 6.3.1 6.3.2 TRO MAI 8.1 8.2 DISP 0 AUR	ONNECTION USB DRIVERS CONFIGURATION DOWNLOAD GRAPHS FOR ENERGY PRODUCTION FIRMWARE UPGRADE usb firmware updating firmware upgrade via sd card UBLESHOOTING NTENANCE AND CLEANING BATTERIES CHARGE AND DISCHARGE CLEANING PROCEDURE OSAL ORA PVI-DESKTOP TECHNICAL DATA	28 28 37 41 42 43 43 43 43 43 43 43
6 7 8 9 1(	PC C 6.1 6.2 6.3 6.3.1 6.3.2 TRO MAI 8.1 8.2 DISP 0 AUR	ONNECTION	28 28 34 41 42 43 43 43 43 43



## **1 MANUAL INFORMATION**

## 1.1 SYMBOLS USED

In order to reduce potential safety risks or highlight useful information the following symbols have been used:



**WARNING**: Paragraphs marked by this symbol contain actions and instructions which must be understood and followed carefully to avoid potential damage to the device or injury to persons



**NOTE**: Paragraphs marked by this symbol contain actions and instructions which must be understood and followed carefully to avoid damage on installation and malfunction of the equipment.

## 1.2 PURPOSE

This manual edited for the installer and user contains important instructions relating to installation, safety and operation, which must be understood and carefully followed.

## 2 PRODUCT INFORMATION

## 2.1 DESCRIPTION OF THE PVI-DESKTOP SYSTEM

The PVI-DESKTOP allows to monitor and display the performance of the AURORA Power-One inverter and is ideal for residential or small commercial system installations.

The main advantage of using a PVI-DESKTOP lies in the possibility of setting up wireless communication in the absence of wired communication, thanks to the PVI-RADIOMODULE installation (on every inverter). Moreover the large TFT touch screen display allows the data acquired by the system to be easily and intuitively displayed and processed. In this way the use of an external PC is not strictly necessary.Connection to an external PC is only necessary for updating the internal firmware or downloading the data collected and displaying them by using Aurora Communicator.

Figure 1 - 2 shows a diagram summarizing the connections possible with the PVI-DESKTOP, both to the inverters and a traditional PC/Laptop. The interface of the PVI-DESKTOP with the PC/Laptop requires the installation of the SW Aurora Communicator, available from the CD inside the packaging.



**NOTE**: it is advisable to periodically check the availability of new SW updates, from the web site <u>www.power-one.com</u>.



**NOTE**: the connection of the Power-One server must be only considered as a FW update of the system using the SW Aurora Communicator installed on the PC/Laptop and connected to the internet.





Figure 1 – Communication diagram for the PVI-DESKTOP (inverter communication via RS485).



Figure 2 – Communication diagram for the PVI-DESKTOP system (inverter communication via radio connection).





The wireless and wired (RS485) connections are mutually exclusive, therefore the PVI-DESKTOP cannot be used in both configurations and the communication channel must always be chosen. When the use wireless communication is chosen, it is absolutely necessary that every field inverter has the PVI-Radiomodule installed; it is not possible to use one PVI-Radiomodule and connect the other inverters to each other via RS485.

## 2.2 POSSIBLE USE

## 2.2.1 POSSIBLE CONNECTION TO INVERTERS

- RS485 (cable length up to approx. 1000m, a maximum of 6 inverters)
- Radio (approx. up to 300m in the open/obstacle free, maximum of 6 inverters)

The list of inverters having limitations in using the PVI-DESKTOP, is summarized in the following table:

INVERTER	PVI-Radiomodule	RS485	Notes
model	compatibility	compatibility	
PVI-6000	Yes (see note)	YES	Inverters manufactured before the
			week 32/09 require a firmware
			upgrade.
PVI-5000	YES	YES	Inverters manufactured before the
			week 32/09 require a firmware
			upgrade.
PVI-3600 Indoor	YES (see note)	YES	From the FW 11 version of the PVI-
			RADIOMODULE (units manufactured
			after the week 25/10).
PVI-2000 Indoor	YES (see note)	YES	From the FW 11 version of the PVI-
			RADIOMODULE (units manufactured
			after the week 25/10).
PVI-3600 Outdoor	NO	YES	N/A
PVI-2000 Outdoor	NO	YES	N/A



All other inverter models (PVI-3.0/3.6/4.2/10.0/12.5-OUTD) in all different versions, there are no compatibility issues.

## 2.2.2 OPERATIVE SYSTEMS COMPATIBLE FOR PC CONNECTION

- Windows XP 2002 version(Home and Professional), Service Pack 3
- Windows 2000
- Windows Vista 32bit
- Windows Vista 64bit
- Windows 7 32bit
- Windows 7 64bit



## 2.3 PACKAGING CONTENTS

The packaging contains, a PVI-DESKTOP and its docking station, and all other accessories shown in the figure below:



#### Figure 3 – Packaging Contents

- 1. PVI-DESKTOP
- 2. Software and documentation
- 3. Stylus Pen (already assembled)
- 4. DC power-supply
- 5. USB cable
- 6. SD Card (already assembled)
- 7. Wall mounting kit (2 dowels + 2 universal screws)



**NOTE:** The distributor delivered your PVI-DESKTOP to the courier safely packed, and in perfect condition. By accepting the package, the courier takes responsibility for it up to the delivery. Despite careful handling by the courier, both the package and its contents may be damaged during transport.

### Product inspection at time of delivery

- Carefully check the device
- Immediately complain to the courier if one of the following is found:
  - o Damage to the package which could result into device malfunction
    - o Clear damages to the device



## 2.4 PRODUCT IDENTIFICATION

Several versions of the PVI-DESKTOP are available, and they differ by their features or added components. The various models are identified by the P/N ID.



## 2.4.1 OUTER LABEL DATA

IC- Made in Italy MODEL: **PVI-DESKTOP-US** 

FCC ID: X6W-DESKNOP

This device compiles with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesidered operation.

Figure 4 – Product label (USA version)



#### Figure 5 – Product label (Europe / Australia versions)

## 2.4.2 FIRMWARE VERSION

The firmware version of the PVI-DESKTOP and of the PVI-RADIOMODULE (if the installed inverter results already configured to the device) can be consulted following the following procedure:

- Select "Menu" from the main screen
- Once in "Menu" select "Info"
- In "Info" select "ID system" to find out the firmware version installed in each PVI-RADIOMODULE configurated to each inverter of the system or select "Firmware" to check the version installed in the PVI-DESKTOP.



## 2.5 PVI-DESKTOP CONNECTIONS AND INTERFACES

For a correct use of the PVI-DESKTOP it is recommended to carefully observe Figure 6 to be able to identify each component of the device.







Figure 6 - Components position

- 1. PVI-DESKTOP
- 2. Docking station
- 3. Holes for wall mounting
- **4.** Touch screen display
- 5. Multicolour LED status indicator
- 6. Switch ON/OFF button
- 7. RS485 communication port
- 8. USB 2.0 communication port
- 9. Reset button (inner)
- 10. Power-supply input
- 11. Sound output holes
- 12. Stylus Pen groove
- 13. SD card connector



**WARNING**: Component 7. is a connector to be used solely and exclusively for connection by RS485 to the Aurora inverters. On no account use it for anything else (i.e. connection of Ethernet cables for PC or phone connections) to prevent damage to the communication port.



**WARNING**: the PVI-DESKTOP is fitted with security labels which, if removed or showing scratch marks, make the warranty null and void. Maintenance operations and components replacement on the PVI-DESKTOP can only be carried out by qualified specialist staff.



## 2.5.1 POWER SUPPLY CONNECTOR

Component 10 in Figure 6 shows the input connector for the power-supply on the back of the device. Figure 7 shows power-supply polarity.



Figure 7 – Power-supply polarity



WARNING: use the provided power-supply to power the device.

## 2.5.2 USB CONNECTOR

Component 8 in Figure 6 shows the USB 2.0 interface connector. The connector is a USB mini B and is used with the cable supplied. The interface is designed to connect the device to a standard PC with a USB 2.0 port.



Insertion of other types of peripheral such as mass storage keys, external hard disks, mobile telephones, MP3 players and other devices is not permitted.

Communication with the PC occurs after installation of the special drivers and through the software on the CD attached to the packaging.

The USB connector can also be used to recharge the PVI-DESKTOP (please refer to paragraph 5.1).

## 2.5.3 RS485 CONNECTOR

Component 7 in Figure 6 shows the connector entry of the RS485 port. This port is to be used exclusively for Aurora inverters connection. The connecting cables must have a RJ45 connector with 8 pins and must be used in accordance to the following table.

Pin N°	Function		
1	not used		18
2	not used		
3	+T/R	TOP:	
4	not used		
5	-T/R		
6	not used	FRONT:	
7	GND		1 8
8	not used		

This connection is as an alternative to the radio communication with the inverters.



#### 2.5.4 SD CARD / SD CARD SLOT

The slot dedicated to the SD card is located at the bottom of the PVI-DESKTOP (component 133 in Figure 6).

To remove the SD card, simply press on it until there is a click (Figure 8) and at that point the card will be automatically pushed out.

The SD card contains some files essential to the system's operation (Language, Sound, Theme) together with files created during system operation (System - containing all installation data acquired during operation, SNxxxxxx - containing detailed data of the inverter together with SNxxxxxx acquired during operation). The SD card can be used to update the system FW, through a procedure described in paragraph 6.3.2



The memory card can only be reinserted into its slot in one correct way; do not force insertion as this may break the connector.



NOTE: the SD card can remain indefinitely in its slot. Do not use the SD card as a storage disc for data unrelated to the operation of the PVI-DESKTOP.

#### 2.5.5 RESET BUTTON

Just above the USB connector, shown in Figure 6, component 9, there is a small hole which allows, through the use of the stylus pen or other pointed object, the processor to be reset and hence the device restarted.



**NOTE:** the reset procedure is a recovery process to be used solely and exclusively when the need arises (i.e. blocking of operation stopage due to exceptional events). The reset procedure does not damage the device or alter any of its functional characteristics.

#### 2.5.6 STATUS LED

At the top right of the display there is a multicolour LED status indicator for the PVI-DESKTOP system. This LED will take on different colours depending on the operating status. Figure 6 identifies the position of the multicolour LED.

The following table describes the different states of operation corresponding to colours that the multicolour LED can take on.

Flashing red light	Flat Battery
Steady yellow	Battery charging
Steady green	Charged battery and power-supply on
LED off	No power-supply connected
Flashing blue	Unit in backlight off mode (not yet on standy by)

#### 2.5.7 **BLUETOOTH (OPTIONAL)**

There is the possibility of having a Bluetooth® module as an optional interface for the PVI-DESKTOP. This interface allows communication with PCs equipped with Bluetooth® and dedicated software (Aurora Communicator) which allows data download. Under normal operating conditions, the Bluetooth® function is disabled to eliminate unnecessary power consumption. To enable this function, access to the appropriate menu is needed.

For references on the Part Number for the model with integrated Bluetooth® please see paragraph 2.4.



NOTE: we recommend using Bluetooth® only when necessary and disabling it immediately after use to avoid draining the battery too quickly, when the device is not connected to the network.



## 2.5.8 TOUCHSCREEN

The PVI-DESKTOP is equipped with a (resistive) touch screen that allows easy and fast navigation through the menus. At the back (see Figure 6) there is a groove where to insert a stylus pen, for use apply pressure on the screen. The screen is sensitive to pressure from any object (fingers, pens, etc.) and only a light touch is needed to activate it.



**WARNING**: take care to avoid touching the touch screen with sharp or pointed objects or applying excessive pressure on the surface. Do not scratch, strike violently or scrape the display surface and only use products specially designed for cleaning LCD screens. Damage to the touch screen seriously undermines the object's operating efficiency.



**NOTE:** we recommend using the stylus pen to prevent any staining or soiling to the display surface.

## **3** SAFETY WARNINGS

Please pay attention to all safety warnings contained in this manual; failing to comply can cause damage to the device and danger to people.

The PVI-DESKTOP system can only be opened by specialized Power-One personnel.

The energy production data, saved by the PVI-DESKTOP system can vary from those indicated by the counter installed in the system. Data acquired from the PVI-DESKTOP directly derive from the inverters and have no tax value.

For any questions concerning information not reported in this manual, please contact Power-One assistance service.



## 4 PVI-DESKTOP INSTALLATION

## 4.1 PRELIMINARY OPERATIONS



**WARNING**: the PVI-DESKTOP requires some preliminary steps at the initial start up of the system. Instructions reported in the next paragraphs must be carefully followed for a correct start up.

The PVI-DESKTOP can simply be placed on a flat surface or a desk, or can be wall-mounted. This is possible thanks to the docking station with supporting feet and pre-scoring for the fixing holes.

## 4.1.1 INVERTER CONFIGURATION (RADIO CONNECTION)

- Check that the PVI-RADIOMODULE card has been correctly installed (see the PVI-RADIOMODULE manual) if you want to initialize radio communication, and that LED 3 (orange) is flashing (see Figure 10 for LED positioning).
- Check that the Aurora inverters in your system are switched on.
- Check that the addresses for the RS485 ports are all different for each inverter (they do not need to be sequential).
- Check that the current date and time are set on the inverters.

## 4.1.2 INVERTER CONFIGURATION (RS485 WIRED CONNECTION)

- Check that the RS485 wiring is correctly done and inserted.
- Check that the Aurora inverters in your system are switched on.
- Check that the addresses for the RS485 ports are all different for each inverter (they do not need to be sequential).
- Check that the current date and time are set on the inverters.

## 4.1.3 TIPS ON THE SELECTION OF INSTALLATION LOCATION

ENVIRONMENT CONDITIONS:

- The PVI-DESKTOP is a device designed for internal use only and with IP20 (NEMA 1 for USA version) protection.
- Protect the PVI-DESKTOP from water, dust and corrosive substances.
- Avoid direct sunlight which could make it impossible to correctly read the display or discolour the outside plastic.
- Avoid installation on or near heat sources (i.e. radiators, stoves, heaters or alike) which could damage the system.

### CONDITIONS FOR GOOD QUALITY RECEPTION:

The quality of the radio signal received is strongly influenced by the selection of installation location and the position of the PVI-DESKTOP.

The best radio signal reception is obtained by choosing to leave the PVI-DESKTOP resting on a desk free of obstacles and objects in a 20 cm radius.

If a wall mounting is chosen, some rules must be taken into account that allow data reception to be much improved.



- Preferably install the PVI-DESKTOP on walls with less obstacles coming between the inverter and the PVI-DESKTOP system.
- Avoid installing the system near large metallic walls (i.e. boilers, steel doors, metal boxes etc. in order not to limit the operating efficiency of radio communications or Bluetooth<sup>\*</sup>.
- Signal quality is also influenced by environmental factors such as fog, rain, air humidity, etc. The effect of these environmental factors can be considerable for communication distances near the limits reported in the technical data sheet (paragraph 10).



**NOTE:** A radio communication test is recommended to be carried out before the actual installation, once a plausible location for mounting has been identified.

## 4.1.4 POSITIONING OF THE ANTENNA WITH RESPECT TO THE DEVICE

Another important factor for improving reception quality is how the inverter antenna installed is positioned in relation to the PVI-DESKTOP system.

Avoid positioning the inverter antenna with the tip pointing towards the PVI-DESKTOP, because exactly at this point there is a signal shadow as shown in Figure 8.

Preferably install the PVI-DESKTOP system with the front or back towards the inverter antenna.



Figure 8 – Antenna position in relation to the PVI-DESKTOP system a. optimal reception b. weak reception

## 4.1.5 RADIO COMMUNICATION TEST

To test communication quality, it is possible to carry out a simple system configuration as shown in paragraph 5.3.1. Appearance of the own inverter in the list of associable devices is confirmation of radio signal reception.



## 4.2 SYSTEM INSTALLATION

## 4.2.1 WALL MOUNTING

Choose the location carefully for wall mounting for comfortable and easy reading of data. The figures below illustrate the procedure for proper wall mounting.





Figure 9 – Wall mounting procedure



- Drill two holes, diameter 5 mm and 3 cm apart from each other.
- Insert the dowels.
- Screw the base to the wall using the screws provided.
- The PVI-DESKTOP support base is designed to make it easy to remove the device even with the power or communication cables inserted.

## 4.2.2 DESK INSTALLATION

The PVI-DESKTOP base enables comfortable and solid positioning on flat surfaces such as tables or desks. The axis inclination of about 10° allows for easier reading of the display and more comfortable use of the touch screen.

## 4.3 HOW TO USE – POWER-SUPPLIES

The PVI-DESKTOP has 3 different power-supplies:

- Universal power-supply AC/DC, 5 V, 1.5A
- USB cable for connection to USB 2.0 port of the PC
- Lithium internal battery, 1800mAh, 3.7V nominal

The unit is very versatile due to the combination of these 3 power-supplies.

#### AC/DC power-supply always connected

The PVI-DESKTOP can also be used with the power supply always connected causing no problem to its internal battery. Nevertheless, it is recommended that a full charging and discharging cycle of the battery be carried out twice a year.

This is an optimal modality of use and does not require any particolar setting.

#### Connecting via USB cable

The USB cable is another power source which can provide enough energy for unit operation. PC connecting must be considered as "maintening energy" charge and might not allow a full charge depending on setting.

#### Lithium battery

The use the PVI-Desktop on battery mode is very much influenced by the system setting. A display warning and a flashing red LED light indicate that the device needs recharging. To see how long the battery lasts please see paragraph 5.2.



## 5 PVI-DESKTOP SYSTEM OPERATION

## 5.1 INITIAL START UP OPERATION

The battery inside the PVI-DESKTOP may not be completely charged, or even completely discharged, at the time of initial start up.

The PVI-DESKTOP can be recharged in operation and even when it is switched off. The power sources are the AC/DC power unit and the USB cable connected to a USB 2.0 door. The multicolour LED lights in front of the PVI-DESKTOP system indicate the battery status as shown below:

- Flashing red LED light = flat battery, recharge
- Steady yellow LED light = battery charging
- Steady green LED light on = fully charged battery, power connected, or charging time-out completed.

The charging time-out is a protective function to prevent over-charging and has a variable duration between 5h 30min and 7h. Charging characteristics are summarized in the table below.

Charge mode	Full charge time with unit turned on	Full charge time with unit turned off	Notes regarding recharging
AC/DCpower unit	Between 4h and 4h30min.	4h / 4h30min	Always sufficient for full charge.
USB 2.0	Between 5h and 7h	5h	Charging may not be complete depending on the use of the PVI- DESKTOP system. It is advisable to use the USB only as maintaining charge or when the unit is turned off.



**WARNING**: Should recharging not be complete after 10 hours, unplug the power supply, check that there is no overheating or deformation of the plastic parts of the device that would indicate potential damage to the internal battery.

## 5.2 BATTERY DURATION

Battery duration depends on configurations and use. The battery will last for at least 10h during normal operation.

The configurations affecting the battery duration are reported below:

## short --- $\leftarrow$ battery duration $\rightarrow$ +++ long

Scanning every 1 minute

Sleep mode OFF 6 inverter connected Bluetooth (optional) ON Display Backlight High Scanning every 15 minutes

Sleep mode ON every 1 minute 1 inverter connected Bluetooth (optional) OFF Display Backlight Low



The menus where the above mentioned parameters can be configured are summarized below:

Parameter	Menu
Scanning period	Initial Config. (can be modified from Settings $ ightarrow$ Setting wizard)
Sleep mode Settings_Sleep mode	
No. of connected	Initial Config. (can be modified from Settings $ ightarrow$ Setting wizard)
inverters	
Bluetooth (optional)	Settings_Bluetooth
Display Backlight	Settings _ Display _ Backlight



**NOTE:** The battery of the device has an automatic decharge operation also with device turned off. It is advisable not to leave the device switched off for over 6 months and to fully recharge it after a long period of not using it.

## 5.3 START UP

Once the preliminary operations (paragraph 4.1) have been carried out, the initial start up of the communication system can proceed.

**NOTE:** In case of radio communication, it is advisable to carry out the association with the inverter at the chosen installation location. In case of procedure failure it is advisable to repeat the operation near the inverters to make sure to have a proper stable radio signal.

## 5.3.1 INVERTER ASSOCIATION

For proper PVI-DESKTOP system start up ensure that the Aurora inverter is correctly configured as reported in paragraphs 4.1.1 and 4.1.2.

- Switch on the device using the ON/OFF button.
- Set the current date and time.
- Set Bluetooth name (BT version only)
- Select the communication channel to be used: radio or RS485.
- Select the number of inverters to be associated with the PVI-DESKTOP system (from 1 to 6).
- Select how often the inverter polling (questioning/refresh) must be done (from 1 to 15 minutes).



**NOTE:** when in operation the PVI-DESKTOP system is not continuously connected with the inverters, but from time to time is in data gathering, equal to the polling period set. The polling period therefore represents the granularity with which data are requested to the inverters, displayed and saved in the memory. It is also possible to impose the data display update using the button "update" at the bottom right corner (data requested using this procedure are not saved).

- Scan the communication channel to search for inverters or choose to defer the operation to a later time.
- If it is deemed necessary to carry out the scan, the PVI-DESKTOP will begin to interrogate the various
  addresses until it has found a number of inverters corresponding to the one set in the configuration
  process. During scanning, a screen showing a table with an indication of the scanning status will
  appear. The table will only be filled at the end of the scanning procedure.
- At the end of scanning, the table will report the models and serial numbers of the inverters found.



	Serial No.	Part No.	
1.	334286	-3G03-	
2.	339872	-3G03-	
3.	315168	-3G96-	
4.	315170	-3G96-	
5.			
6.			The state of the s

At this point it is possible to choose which inverter(s) to associate uniquely with the own PVI-DESKTOP so that they cannot be "seen and recognised" by other PVI-DESKTOPs nearby. The selection is made by pressing the '+' key next to each inverter chosen. Pressing the '+' key changes the colour of the corresponding row in the table and highlights the selection.

	Serial No.	Part No.	in the second
1.	334286	-3G03-	
2.	339872	-3G03-	
3.	315168	-3G96-	
4.	315170	-3G96-	
5.			
6.			
C) F	Please make y	our selection	

- It is advisable to check that the serial numbers of the inverters chosen match those of the inverters in your system to avoid associating inverters from other systems nearby with the own PVI-DESKTOP.
- Once the selection has been made, the "next" key on the display must be pressed and the choice confirmed.
- At this point the system is configured and:
  - In case of radio communication, the LED on the PVI-RADIOMODULE corresponding to the association state will cease to flash and will stay switched off. This state corresponds to the PVI-RADIOMODULE association with the PVI-DESKTOP system (see paragraph 5.3.3).
  - The PVI-DESKTOP system starts the synchronization procedure. Data synchronization allows daily energy production data that the inverter has stored in its memory, to be copied into the PVI-DESKTOP system and be ready for the user. The first synchronization can also take a very long time because of the high amount of historical data that the inverters will send to the PVI-DESKTOP.
  - On the other hand, if the channel scan is unsuccessful, an error message and a request to repeat the scan will be displayed. To determine the causes of non-recognition of the inverters, consult the troubleshooting guide (paragraph 7) of this manual.



**NOTE:** inverters configuration must be carried out at the same time. Avoid associating other inverters once the system has already been configured with one or more inverters. For other inverters association please refer to paragraph 5.3.3.



## 5.3.2 INVERTER DISASSOCIATION

Whenever deemed necessary to delete one or more inverters from the list of associated inverters, (i.e. inverter replacement) it is necessary to run the guided procedure again, accessing it from the "Settings – Configuration wizard" menu. When the table with the associated serial numbers appears, just click on the '-' key to deselect the inverter and remove it from the list of associated inverters. Press "next" then "OK" to confirm the procedure.

Any time a re-configuration is necessary, the guided procedure must be carried out using "Configuration wizard".



**NOTE:** the guided configuration procedure is necessary when replacing an inverter or adding an inverter for monitoring.



**NOTE:** in case of radio communication, it is possible to monitor the correct completion of the operation by observing the orange LED light which indicates the association status of the PVI-RADIOMODULE: if the procedure is successfully concluded, the LED light will flash.



**NOTE:** it is advisable to carry out the disassociation only when there is proper stable radio contact with the inverter. The inverter and the PVI-DESKTOP system must be next to each other or nearby. Non-communication could erase the inverter from the PVI-DESKTOP system inverter list without deconfiguring the PVI-RADIOMODULE association with the PVI-DESKTOP system. This could result in an impossibility of associating the PVI-RADIOMODULE (even if installed into a new inverter) with the PVI-RADIOMODULE without prior HW reset procedure of the card on the inverter, by keeping pressed the reset button on the card itself. This procedure can also be referred to from the PVI-RADIOMODULE installation manual.



## 5.3.3 ASSOCIATION (or CONFIGURATION) OF ADDITIONAL INVERTERS

Whenever deemed necessary to add one or more inverters please procede as follows :

• Check that all inverters are switched on and disassociate all already configured inverters as per the guided procedure described in paragraph 5.3.2.

**NOTE:** When the radio connection is chosen as communication mean (by means of inverter PVI-RADIOMODULE installed within the inverters), verify the effective disassociation of the radio moduli by checking the orange LED light (LED 3 in figure 10) which must be flashing.



Figure 10 – LED 3 (orange) position on PVI-RADIOMODULE

• Repeat the inverter association procedure, by inserting the new inverter number to be searched during the scanning phase as described in paragraph 5.3.1.



**NOTE:** please remember that inverter scanning is based on the RS485 address (independently from the chosen communication type, radio or RS485). When multi-inverter installation is required, they must have different RS485 addresses to enable recognition from the system.

## 5.4 BASIC DEVICE SETTING

### 5.4.1 BRIGHTNESS

Backlight setting is carried out from the SETTING menu and then "Display" must be selected. At this point use the + o - touchscreen keys to set the brightness.

## 5.4.2 LANGUAGE

Menu language setting is carried out through the SETTING menu by selecting "language". At this point language selection is possible.

## 5.4.3 ENERGY SAVING MODALITY (STAND BY or "SLEEP MODE")

Stand by or sleep mode can be activated after a certain period of time which can be set from the SETTING Menu selecting "Stand by / Sleep mode", to achieve a longer battery duration. At this point energy saving mode can be activated as well as the length of inactivity time after which the stand by / sleeping mode is on.



## 5.4.4 CALIBRATION

Calibration of the touchscreen display is carried out through the SETTING menu and selecting "Display". At this point calibration can be carried out by touching the touchscreen points automatically highlighted.

LZ

**NOTE:** in case of calibration errors, the PVI-DESKTOP may not respond correctly at display touching. It is then necessary to connect the device to a PC via USB cable or Bluetooth (BT models only) and use the Aurora Communicator Software (contained in the CD supplied) allowing to open the calibration screen through the PVI-DESKTOP dedicated menu.

## 5.4.5 DATE AND TIME SETTING

Date and time setting is carried out through the SETTING menu and selecting "Date and time". At this point setting is possible by pressing + o - for each field.

## 5.5 SD CARD

The PVI-DESKTOP uses the SD card memory as archive of the data gathered by the inverters configured in the system. Within the memory there are also folders relating to the proper operation of the system and may allow the device FW update.

The SD card folders structure is shown below:

- THEME \*\*
- LANGUAGE \*\*
- SOUND \*\*
- SYSTEM
- SNxxxxxx (1 folder for each field inverter)

The folders identified by \*\* are folders containing PVI-DESKTOP setting and must never be edited or deleted to avoid losing the device's operating efficiency. In the event of accidental editing or deleting a recovery copy of the SD card must be downloaded from the CD supplied.

The "SYSTEM" and "SNxxxxx" folders contain and store data acquired during operation. These folders are not present in the SD card by default but are automatically generated by the system as soon as the data are acquired by the inverters.

- The folder marked "SYSTEM" contains all the system files. Within it, the files marked by the name "DAYxxxx.xml" containing data about the power fed into the grid by all the inverters acquired through the system.
- The folder "SNxxxxx" contains the files concerning the inverter included in the list of the inverters of the system. For each inverter acquired by the system there is a folder (thus even if a disassociation has been carried out). Within the folder there are two types of file:
  - "DAYxxxx.xml" containing data about the power fed into the grid by the inverter (daily).
  - "DATA.xml" containing historical data from the memory of the inverter and gathered by the PVI-DESKTOP during synchronisation.



**NOTE:** data from "DATA.xml" files are only partly recoverable because they derive from the synchronisation of data contained in the inverter internal memory. Since the inverter memory can only keep the data from the last 365 days, file deletion could cause loss of previously acquired data which cannot be recovered. Therefore, it is advisable to carry out a copy of the data, before deleting.





**NOTE:** data from "DAYxxxx.xml" files cannot be recovered because they derive from the acquisitions that the system performs daily. It is advisable to periodically (once a year) save the data to avoid data loss.



**WARNING**: we strongly do not recommend handling the files directly from the SD card without accessing them through Aurora Communicator. Any unintentional or intentional editing of the files on the SD card seriously jeopardise the device's operation. Always use the Aurora Communicator interface to process and download saved data.

## 5.6 SYSTEM MODE

Once the PVI-DESKTOP has been configured, it operates automatically and continues to make data requests to the associated inverters, storing the replies. The device will pass through different modes during the process of normal operation, which are:

- **"FULL-ON" MODE**; in this mode the display is on and all functions are 100% active. Every touch in an active area of the touch screen will make the page change and execute the set commands. During this mode, the status LED is off.
- "STAND-BY" MODE; in this mode the PVI-DESKTOP display will be off, but the device will be ready to
  react to a touch on the touch screen. The radio and RS485 peripherals are 100% operational. The PVIDESKTOP automatically goes into standby 1 minute after the last touch screen command. During this
  mode the status is a flashing blue LED light.
- "SLEEP MODE"; in this mode the whole system is on minimum consumption. The peripherals are off and automatically come back on to send data requests to the inverter. The user will not see any indication from the PVI-DESKTOP. The device will go into this status only if this option has been enabled through the appropriate menu and after a time that can be set. This mode activates the stand-by (display is off and flashing blue LED light) after 1 minute of inactivity (this cannot be set). From now on the device will enter "sleep mode" at the end of the time set from the SETTINGS-SLEEP MODE menu. In this mode the status LED is flashing blue. To re-awaken the system, the ON/OFF key must be pressed for at least one second. The device will never go into SLEEP mode if at least one power supply is connected (AC/DC or USB 2.0)
- "OFF MODE"; by pressing the ON/OFF key for at least 5 seconds, a screen will appear asking turning
  off is required. By pressing 'OK', the device will switch off completely and will not send any data
  requests via radio or RS485, or perform any other operation, until it is switched back on. To switch
  the PVI-DESKTOP back on, simply press the ON/OFF key for at least 5 sec. In this mode the status LED
  is off.



## 5.7 MAIN MENU



**NOTE:** because of the continuous firmware updates, the graphics may be slightly different from the pictures shown below. This does not constitute a product non-conformity.

## 5.7.1 DEFAULT SCREEN

The PVI-DESKTOP remains, by default, on an intuitive screen, summarizing the system's important data and operating status. The screen is shown in the figure below.



Each inverter in the system is surrounded by a line indicating different states:

- Green line Inverter connected and running correctly
- Yellow line Inverter not connected to the network
- Red line Inverter in alarm
- Blue line Inverter off or no radio or wired communication

Touching or clicking on each inverter a bubble showing the recognition data for the individual inverter and its operating status can be seen.

The top bar contains the information regarding date and time, battery status (three bars mean fully charged battery), the power of the radio signal received (three bars mean full strength radio signal) and the radio communication icon.

The central black band shows the summary data for the whole system. Touching or clicking any point of the black band gives a detailed view of the system. The screen that opens is detailed in the following figure.





The screen shows the graph of the power produced by the system (tab SYSTEM) and each individual inverter (tab INV.1, INV.2, INV.3, etc.). The right side also summarises the sensitive parameters. The graph with black background in the central black band of the display shows the data for the system or the inverter selected from the tabs.

By touching or clicking on the tabs, the graphs and data for each individual inverter (INV.N) or the complete system (SYS) can be selected, the tab also reports the status of each individual inverter or system through coloured dots indicating:

- Green dot Inverter running correctly
- Yellow dot Inverter not connected to the network
- Red dot Inverter in alarm
- Blue dot Inverter off or no radio or cabled communication

In this section all the production data for the system for certain time intervals can be recalled. Sub-sections indicate the time interval for the production data (Total, Partial, Today, 7 days, 30 days, 365 days, User).

Aurora PVI Desktop Last 30 days statistics		Aurora Last 365 days s	PVI Desktop tatistics
🗲 Energy	1784.42 kWh	🗲 Energy	6407.57 kWh
📾 Value	892.21 EUR	🚥 Value	3203.79 EUR
CO2 Saving	1017.12 kg	CO2 Saving	3652.32 kg
<sup>k</sup> <sup>60</sup> 23 → Back		Julus Sép Oct. Nóv Dec. 3	an Fab Mar Apr May Jun Jul

## 5.7.2 SETTINGS MENU

In this section the device's configuration parameters cab be entered or changed:

- "Date-Time" allows changes of date and time set.
- "Money" allows entering the current exchange rate for calculating savings.
- "Display" sets the brightness and recalibrates the touch screen.
- "Language" allows system language setting.
- "Configuration Wizard" allows the communication channel to be re-configured
- "Firmware Update" enables upgrade of the PVI-DESKTOP firmware to the latest level, through an SD card.
- "Sleep" heading, on the other hand, allows the battery save function to be activated. This function can be enabled or disabled at set time intervals (see paragraph 5.7).
- Models with Bluetooth<sup>®</sup> also have a heading in this menu dedicated to the enabling/disabling of the peripheral.

## 5.7.3 INFO MENU

In the sub-sections of this menu it is possible to get information as follows:

- Aurora PVI Desktop ID: device ID info
- System ID: info related to PVI-DESKTOP associated inverter and RADIOMODULE installed inside each of them.
- Firmware: firmware version installed into the PVI-DESKTOP.



## 6 PC CONNECTION

## 6.1 USB DRIVERS CONFIGURATION

Download the latest version of USB drivers for the PVI-DESKTOP from the web address: http://www.power-one.it/digilab/Digi.aspx?Code=15

nwer-nne	8		Ro	HS Certif	icates &	Updates
Changing the Shap	e of Power					
Links Home Digilab Staff	Tools					
Select Products	Name	Rev.	Description	64-bit	32-bit	Manua
3G29 Aurora Aurora PVI Desktop	Aurora Communicator	2.9.3	New Aurora Communicator (BETA)	Download	Download	Downloa
Debug Tools i.Illumination i.Illumination USA	Aurora PVI Desktop Driver				Download	
Programming Tools Tec Controller Various Front-Ends	USB Drivers		AuroraSix - USB Driver Installation		Download	
Received Area		Admin	Resources   Universal Access   PATs   2 @ 2005 Power-One Copyright and Disclaims	Allance		
NCRAF	All information listed on this web si should not rely on the continued ac information stale. All viewers shoul	te, to the bes occuracy of an Id carefully o	st of Power-One's knowledge, was timely an ty material beyond the date of issuance sin heck the dates of issuance of the material i	d accurate when v ce the passage of contained on this v	ritten. Please n itime can rende veb site.	ote that you r such
			Web One Dealer by TO			

- Click "Download" and save file AuroraPVIDesktop-inf.zip in a PC folder (in the following example C:\ is considered).
- Unzip file: the content will be:
  - mchpcdc.inf
  - mchpcdc.cat
- Connect the PVI-DESKTOP to the PC using the USB cable provided
- It is advisable to connect the PVI-DESKTOP to the PC directly without using external HUBS which could result in communication problems
- Switch on the PVI-DESKTOP
- The system will recognize the new hardware. A configuration screen will appear. Select "No, not this time" and click Next>:





• Select "Install from a list or specific location (Advanced)" and click Next>:



- Select the folder where the drivers have been saved (C:/) and click Next>.
- When the following screen appears click Continue.



• Wait for the drivers to configure and when configured click Finish.

Installazione guidata nuov	o hardware.
	Completamento dell'Installazione guidata nuovo hardware in corso.
	Installazione del software completata per:
	Communications Port
	Per chiudere l'Installazione guidata, scegliere Fine.
	< Indietro Fine Annulla



• To check if configuration is correct, open the System Control Panel, choose "System Properties" select Hardware tab. At this point open "Device Manager":

	Ripristino configuraz	ione di sistema	
Aggioma	menti automatici	Connessio	one remota
Generale	Nome computer	Hardware	Avanzate
Gestione perifi	eriche tione periferiche visualizza	un elenco di tutte l	e perferiche
pert pert	tware installate nel compu eriche per modificare le pr	er. Utilizzare Gestio oprietà delle periferi Gestione per	ine che ifferiche
Driver			
Laf	ima driver consente di ver	ificare che i driver c	the si
LIX insta con per	allano siano compatibili co sente di configurare la cor i driver.	n Windows, Window Inessione a Window	ws Update vs Update
insta con per	allano siano compatibili co sente di configurare la cor i driver. Fima driver	n Windows, Windov Inessione a Windov Windows L	ws Update vs Update Ipdate
rofili hardwar	allano siano compatibili coi sente di configurare la cor i driver. Firma driver	n Windows. Window Inessione a Windov Windows L	ws Update vs Update Ipdate
Profili hardwar	allano siano compatibili con sente di configurare la con i driver: Firma driver e fill hardware consentono i rse configurazioni hardwa	n Windows, Window Inessione a Window Windows L di impostare e memo re.	ws Update vs Update Jpdate
Profili hardwar	allano siano compatibili coi serite di configurare la cor driver. Firma driver e filhardware consentono rise configurazioni hardwa	n Windows. Window Inessione a Window Windows L di impostare e memore. Profili harc	vs Update vs Update

In the Ports section (COM and LPT) check that the new communication port has appeared (in the example it is COM14):





## WINDOWS 7 COMPATIBILITY

Windows 7 adopts a notification system limiting programmes functionality to avoid computer intrusion and prevent Aurora Communicator Software to communicate with the PVI-DESKTOP.

It is therefore necessary to launch the software in a compatible way according to the following procedure:

PROCEDURE PREREQUISITE: before modifying the access level to the Aurora Communicator Software it is necessary to configure the PV-Desktop using the guided Windows procedure for new hardware installation. Windows 7 compatible drivers can be downloaded from the Internet using the following link http://www.power-one.it/digilab/Digi.aspx?Code=15

Apri		
Risoluzione dei problemi relativi alla compatibilità	1 - Press the r	iaht side
Apri percorso file	of the mou	se on
Aggiungi alla barra delle applicazioni		Se on
Aggiungi al menu Start	the Aurora	
Bingstine versioni necedenti	Communic	ator
optioning control presidents	Software id	on and
Invia a	select	
Taglia	Compatibil	li+.,
Copia	compatibility	
Crea collegamento	troublesho	oting
Elimina		
Rinomina		
Proprietà		





Compatibilità accarammi	
	A DA ADOM
Specificare i problemi rilevati.	
Selezionare le opzioni appropriate.	
Il programma funzionava nelle versioni precedenti di Wir può essere installato o eseguito	ndows ma in questa versione non
🔲 Il programma viene aperto ma non viene visualizzato coi	rrettamente
🛿 Il programma richiede autorizzazioni aggiuntive 💌	3 - Tick the selection
Il problema non è incluso nell'elenco	Theprogramme requires additional authorisations and click Next.
	Avanti Annulla
Si Compatibilità programmi	X
국 Compatibilità programmi Verifica impostazioni di compatibilità del pro	gramma
Compatibilità programmi Verifica impostazioni di compatibilità del pro Impostazioni applicate: Modalità compatibilità Vindows: Nessuna Controllo dell'account utente: Esegui come amministrator	igramma re
Compatibilità programmi Verifica impostazioni di compatibilità del pro- Impostazioni applicate: Modalità compatibilità Windows: Nessuna Controllo dell'account utente: Esegui come amministrator Avviare il programma per verificare che il problema sia stat Dopo avere eseguito il programma con queste impostazion	igramma re to risolto con le nuove impostazioni. ni, fare clic su Avanti per continuare.
Compatibilità programmi Verifica impostazioni di compatibilità del pro- Impostazioni applicate: Modalità compatibilità Windows: Nessuna Controllo dell'account utente: Esegui come amministrator Avviare il programma per verificare che il problema sia stat Dopo avere eseguito il programma con queste impostazion Avvia il programma	igramma re to risolto con le nuove impostazioni. ni, fare clic su Avanti per continuare. <b>– Run the Aurora Communicator program</b> m
Compatibilità programmi Verifica impostazioni di compatibilità del pro- Impostazioni applicate: Modalità compatibilità Windows: Nessuna Controllo dell'account utente: Esegui come amministrator Avviare il programma per verificare che il problema sia stat Dopo avere eseguito il programma con queste impostazion Avvia il programma	rgramma re to risolto con le nuove impostazioni. ni, fare clic su Avanti per continuare. – Run the Aurora Communicator programm
Compatibilità programmi Verifica impostazioni di compatibilità del pro- Impostazioni applicate: Modalità compatibilità Windows: Nessuna Controllo dell'account utente: Esegui come amministrator Avviare il programma per verificare che il problema sia stat Dopo avere eseguito il programma con queste impostazion Avvia il programma	re to risolto con le nuove impostazioni. ni, fare clic su Avanti per continuare. – Run the Aurora Communicator programm













## 6.2 DOWNLOAD GRAPHS FOR ENERGY PRODUCTION

Aurora Communicator can display on PC the total daily and historical production data, and for each individual inverter of the photovoltaic field.

Connecting Desktop PVI Aurora PVI to a PC using a USB cable or Bluetooth, from the specific menu it is possible to use the Aurora Communicator for various functions:



The "Set (Bluetooth) communication" is enabled only if Desktop PVI is not spotted via USB: when the device is directly connected via USB, by clicking "Desktop PVI Aurora" menu, this option is automatically disabled.

For each monitored inverter the Desktop PVI acquires statistics relative to the daily energy and power. This function will allow downloading to the own PC, display them or export them to a file.



Data Logging	
System	
Status:	Data available for download
Download/Show:	Import Data Delete Data Open File
Inverter	
Select Inverter:	000443
Monitoring:	Inverter not monitored
Status:	
5/N:	000443
Link Type:	
Download/Show:	Import Data Delete Data Open File

In the upper panel "System" data related to the whole system are available, while the lower part contains inverters data.

Use "Import data" button (for the system or for an inverter selected from the list) to see available files:

Select Files		
File 🔺	Date	Measurements
DATA.XML	-	Energy
DAY3733.XML	22/03/2010	Power
DAY3737.XML	26/03/2010	Power
DAY3756.XML	14/04/2010	Power
DAY3757.XML	15/04/2010	Power
DAY3758.XML	16/04/2010	Power
DAY3814.XML	11/06/2010	Power
HEADER.XML	-	-
Destination Folder:		
C:\Documents and Settings\Nocentinif\Desktop		Browse
Select All Select None	Download	Cancel

Only select the desired files from the list, select the folder to save them and click "Download".



#### The download window will open:

Data Logging			
System			
Status:	System Data Imported	1	
Download/Show:	Import Data	Delete Data	Open File
Inverter Select Inver	Receiving file 6 of 8, (chunk 10	18 of 114)	~
Monitoring: Status:		Cancel	
5/N:	038753		
Link Type:	-		
			0

Follow the same procedure to cancel files: simply click the "**Cancel data**" button and select the files to be cancelle from the list, and then click "**Cancel**".

NOTE: to use "Cancel data" buttons it is necessary to update the PVI-DESKTOP to at least version 6.18.

Once the files have been downloaded into the PC, it is possible to view them in Communicator: click "**Open file**" and select a file. The files containing daily power curves are renamed with the acquisition date by the PVI-DESKTOP, while the files containing the produced energy (day by day) are named SYSTEM\_DATA.XML (or SNXXXXXX\_DATA.XML for single inverters).



A typical Communicator graph is shown above, which can be exported using the upper left button (Save).



## 6.3 FIRMWARE UPGRADE

The PVI-DESKTOP can be upgraded very simply. Upgrading is possible by two different methods: through the USB 2.0 port and the Aurora Communicator software or directly through the SD card tab. It is recommended using the first procedure as it is simpler and automatic.



**NOTE:** it is advisable to periodically verify new FW versions.



**WARNING**: it is strongly recommended to keep the system connected to a power source during FW updating. Loss of power during FW updates may cause a system lock.

## 6.3.1 USB FIRMWARE UPDATING

 Download the latest version of the Aurora Communicator software. This can be done from the link: http://www.power-one.it/digilab/Digi.aspx?Code=15

nouver_one			R	oHS Certifi	icates &	Updates
Changing the Shape of	f Power					
Links	Aurora					
Home Digilab Staff	Tools					
Select Products	Name	Rev.	Description	64-bit	32-bit	Manual
3G29 Aurora Aurora PVI Desktop	Aurora Communicator	2.9.3	New Aurora Communicator (BETA)	Download	Download	Download
Debug Tools i.Illumination i.Illumination USA	Aurora PVI Desktop Driver				Download	
Programming Tools Tec Controller Various Front-Ends	USB Drivers		AuroraSix - USB Driver Installation		Download	
Reserved Area Not Ad Miss Softman Rotman Rotsoff	All information listed on this web sit should not rely on the continued ao information stale. All viewers should	Admin e, to the bes curacy of an d carefully of	I Resources   Universal Access   PATs   Z \$ 2005 Power-One Copyright and Disclaim t of Power-One's knowledge, was timely any y material beyond the date of Issuance air heck the dates of Issuance of the material Web Site Desin bor YSI	Alliance er id accurate when w ice the passage of contained on this w	ritten. Please n i time can rende web site.	ote that you r such

- Click Download to save the correct version (32 or 64bit).
- In case there are previous Aurora Communicator versions in the PC, it is recommended to remove them before installing the new version.
- Close all other applications before proceeding with the new installation.
- Unzip the file and launch setup.exe to install.
- Launch the Aurora Communicator software and select from the Configuration menu the Aurora PVI Desktop Update section.



le	Con	figuration Language	Statistics	E-Mai	Data Logger	Windows	Help	
) E In		Configure Inverters Preferences	CTRL+S CTRL+I CTRL+P					
-	9	Demo		orp	Son	Status	Out. Power	Energy
Ш		Aurora PVI Desktop Up	date					

Click Test Device to check communication between PC and PVI-DESKTOP. If communication is
stable it will be possible to read some information regarding the device and "Device found" will
appear at the bottom left of the screen. Other function keys will also appear.

	Aurora F	VI Deskto	p Firmware	Upgrade	
<ul> <li>S/N: 00000</li> <li>P/N: -3188</li> <li>WK: 0109</li> <li>FW: 0509</li> <li>Boot: 10</li> </ul>	00	-			
Test Device	Open File	Update	Web Update	Data Logging	Change Revisio

• Click Web Update to connect to Power-One server.



**NOTE:** to successfully complete operations, the PC needing update must be connected to the Internet.

• From the list of avaibale firmwares select the chosen one (the newest realeased will be at the top of the list) and click Update to start update procedure.

Select Applicatio	n
New Updates	
0561	×
Application Info	
Name:	0561
File:	0561.ben
Version:	0.5.6.1
Date:	13-04-2010
Time:	18:36:44
Auth. Key:	10013I88
Upd	ate Download Cancel



 The Firmware update will require three operations during which some messages will appear on the display. On the PVI-DESKTOP display "FW update" will be lit. The next operations will be as follows:

"Delete memory section" "Writing firmware" "Verifying firmware"

Aurora PVI	Desktop Firmware Upgrade
14 Mar.	Aurora PVI Desktop Firmware Upgrade

	S/N:         000000           P/N:         -3188-           WK:         0109           FW:         0509           Boot:         10			Sezione memoria Scrittura comple Verifica in corso	a cancellata tata .27 %		
--	--	--	--	--	-------------------------------	--	--

• When the three operations are completed the FW firmware version can be changed within the PVI-DESKTOP. To carry out this operation click on Change Revision and choose the desired version (latest downloaded, current or recovery).

Change Revision	
Change Revision	
VERSIONE ATTUALE: 0.5.beta 09	
ULTIMO SCARICATO: 0.5.beta 61 VERSIONE DI RIPRISTINO: 0.4.beta 88 VERSIONE ATTUALE: 0.5.beta 09	
	.:

 A screen, which will appear once the software revision for installation has been chosen, is shown below. During time necessary for the version change (several minutes) the PVI-DESKTOP display will not show any information and the process will be followed from the PC monitor. The device will automatically restart at the end of the process. Do not disconnect the USB port until restarting has finished.

211	Aurora	Jrora PVI Desktop Firmware Upgrade					
S/N: 00000 P/N: -3188 WK: 0109 FW: 0509 Boot: 10	00	Preparazione bo Preparazione rip Scrittura ripristin Composizione da Preparazione rip Scrittura dati ex Riavvio nuova ap	ot applicazione ristino applicazione 10 applicazione 100 Iti extra ristino dati extra 10 tra 100% oplicazione	: 100% % 30%			
Tact Douico	Oosse File	Undata	Web Undate	Data Longing	Change Revisio		



# SAVING DOWNLOADED FIRMWARE VERSIONS AND LATER UPDATE (update procedure to follow for uploads subsequent to FW download)

- The new firmware versions can be saved on your PC for updating at a later time. This operation can also be performed without connecting the PVIDESKTOP System to the USB 2.0 port. A working internet connection is still needed.
- If the PVI-DESKTOP is connected to the USB, launch Aurora Communicator and choose Aurora PVI-Desktop Update from the Configuration menu.

File	Configuration Language		Language	Statistics CTRL+S	E-Mai	Data Logger	Windows	Help	
1 In		Configure Preferenci Demo	Inverters es	CTRL+I CTRL+P	0'0	Son	Status	Out. Power	Energ
		Aurora PV	I Desktop Up	date					

Click on Web Update to connect to the P1 server. Select the desired firmware from the list of
available firmware (the latest release will be at the top of the list) and click on Download to download
the file. Save the file in the following format: FWxxxx.ben, where xxxx is the name of the firmware.

0561		~
Application Info		
Name:	0561	
File:	0561.ben	
Version:	0.5.6.1	
Date:	13-04-2010	
Time:	18:36:44	
Auth. Key:	10013188	

- If the PVI-DESKTOP is not connected to the USB port, launch Aurora Communicator and choose Aurora PVI-Desktop Update from the Configuration menu.
- Click on Web Update, an access key will be requested. The access key can be found on the PVI-DESKTOP by following the menu: Menu/Information/ID Aurora PVI Desktop.
- Enter the authorization key (i.e. 10013188) and select the desired firmware from the list of available firmware (the latest release will be at the top of the list) and click on Download to download the file. Save the file in the following format: FWxxxx.ben, where xxxx is the name of the firmware.

Device not tested: please insert device information				
Auth. Key				
10013188				
Ok Cancel				



• To update the PVI-DESKTOP using the Aurora Communicator, choose Open File from the next screen and then select Update.

	Aurora P			Desktop	o <mark>Fi</mark> rmwai	e Upgr	ade	
S/N: P/N: WK:	000000 -3I88- 0109		:					
FW: Boot:	0509							

## 6.3.2 FIRMWARE UPGRADE VIA SD CARD

This update procedure presupposes availability of FW (previously downloaded from Power-One server) and to be able to directly interact using the SD Card memory (SD card reader).

- Disassociate the inverters following procedure described in paragraph 5.3.2
- Turn off the PVI-DESKTOP by pressing the ON/OFF key for more than 5 seconds and confirming the action on the display.
- Take the SD card out of the PVI-DESKTOP by pressing it lightly.
- Insert the SD card into a reader connected to the PC or into the SD card slot.
- Delete SYSTEM and SNxxxxx folders (if necessary carry out a PC back-up).
- If the folder 'BOOT' does not exist, create it and rename it as BOOT; copy the file containing the new FW rename it as **boot.ben**.
- Remove the SD card reader from the PC following the safe hardware removal procedure or take the SD card out of the slot and put it back in the PVI-DESKTOP.
- Switch the PVI-DESKTOP System on.
- Carry out the configuration procedure WITHOUT scanning. When asked "Scanning now" select "NOT NOW".
- Access "FW Settings-Upgrade" and follow the indications on the display to start the FW update.
- Once the new software has been read and loaded, a selection dialogue will appear on the screen. From this screen it is possible to decide whether to install the new firmware, return to the previous version or cancel the procedure and keep the current firmware.
- Wait until the PVI-DESKTOP concludes the installation operations to see the menu automatically reappearing.



**NOTE:** some minutes are required to end the procedure, after which the screen will show "Boot...". This screen is totally normal and represents system restart following the FW update.

- From the "Firmware-Information" menu verify that the FW version in progress is the desired one.
- Access the "Settings-Wizard" menu and configure the system following the guided procedure. Complete the configuration by associating the inverters to the system (see paragraph 5.3).



## 7 TROUBLESHOOTING

Here below, some of the most common problems together with their possible solutions are described:

Problem	Possible cause	Solution
The PVI-DESKTOP does not switch on	Battery totally flat	Connect the provided power-supply and verify that orange LED is on. Switch system on.
		Connect the provided power-supply and press system reset key using the stylus pen.
The PVI-DESKTOP does not communicate via radio with the inverter	Radio out of range	Carry out a communication test at close range. If it works check the positioning of the PVI-DESKTOP.
The downloaded historical data are not aligned with those of the inverters	Data synchronization error	Update the firmware. Carry out the update via SD Card (see Paragraph 6.3.2).
The PC does not	Incorrect USB port	Check that the USB of the PC is a USB 2.0.
recognise the PVI- Desktop	Drivers not installed	Install USB drivers on the PC.
Daily graphs do not appear	Failed SD card writing	Check that the SD card is not read only. The SD card selector must not be in 'Lock' position. Verify that SD Card content can be read by a standard (SD) reader.
Failed configuration and inverters recognition	Wrong PVI-Radiomodule card setting	Check that in configuration mode all PVI- Radiomodule cards have a flashing orange LED. Please see the PVI-Radiomodule manual.
The error message	Memory card not properly	Check that the SD card is correctly inserted
"Card Removed!"	inserted	in its slot.
appears		



## 8 MAINTENANCE AND CLEANING

## 8.1 BATTERIES CHARGE AND DISCHARGE

The device battery can auto discharge even when the device is switched off, the same way as a standard battery. It is advisable not to leave the system idle for more than 6 months and to fully recharge it if not used for a long time.

It is advisable to carry out at least two complete charge and discharge cycles every year.

## 8.2 CLEANING PROCEDURE

To clean the device plastic parts use non aggressive detergents or a wet soft cloth to avoid damage to the PVI-DESKTOP surface.



WARNING: To clean the touchscreen, only use products specially designed for cleaning LCD screens.

Damage to the touchscreen seriously compromises the device operating efficiency.

## 9 DISPOSAL

There are no specific measures to dispose of this device.

Please dispose of the PVI-DESKTOP contacting a firm specialized in this kind of operations.



## 10 AURORA PVI-DESKTOP TECHNICAL DATA

The tecnical features of the PVI-DESKTOP Remote controller and monitoring device are summarised in the following table.

PARAMETERS	PVI-DESKTOP	PVI-DESKTOP-AU	PVI-DESKTOP-US	
INVERTER - RADIO				
Radio Communication	864 MHz	915927 MHz	915 MHz	
Max Radio Range	30	0 m / 960 ft Free Space		
Cabled Communication	RS 48	35 (Half Duplex 19200 bps	)	
Max Distance for Cabled Connection		1000 m / 3280 ft		
Communication PC				
Wireless		Bluetooth (Optional)		
Cabled Communication		USB 2.0		
Connectivity				
Inverter Compatibility	Wir	e PVI AURORA® Series (1)		
Max. Number of AURORA <sup>®</sup> Inverters		6		
Features				
Displayable Parameters	All param	eters of AURORA <sup>®</sup> inverte	ers <sup>(1)</sup>	
Memorable Parameters	Energy	and Power (from SD Car	d)	
Software Upgrade	USB (AURORA Communicator) or SD Card			
Language		IT / EN / ES / DE / FR		
Power-supply				
AC/DC Adaptor		5 V, 1 A, 50/60 Hz		
USB	SI			
Stand Alone	Rec	hargeable Battery Li-Ion		
Display				
Dimensions		3.5"		
Colour		Si		
Resolution		QVGA 320X240 px		
Туре	Integr	ated Resistive Touchscree	n	
Equipment				
Stylus Pen		Yes		
AC Adaptor	Yes			
USB Cable	Yes			
SD Card (1GB)		Yes		
Environmental parameters				
Ambient Temperature Interval in °C (°F)		0/+ 40°C (32/104°F)		
Degree of Environmetal Protection	IP20		NEMA 1	
Relative Humidity	<	90% without moisture		
Mechanics				
Dimensions H x L x P	102mm x 12	28mm x 54mm / 4.0" x 5.0	)" x 2.1"	
Weight		0.4 kg / 0.88 lb		
Assembly Kit (Desk and Wall)		Si		
Product versions available				
Standard	PVI-DESKTOP	PVI-DESKTOP-AU	PVI-DESKTOP-US	
Bluetooth	PVI-DESKTOP-BT	PVI-DESKTOP-BT-AU	PVI-DESKTOP-BT-US	
Safety				
Certification	CE	C-Tick	FCC	

(1) All string AURORA® series are provided with radio transmitter (optional). To verify the compatibility see paragragh 2.2 of this manual



#### FCC WARNING (Federal Communications Commission)

This device meets the part 15 of FCC regulations. The device operation must comply with the following 2 conditions:

This device must not cause harmful interferences

This device must accept any received interference, including interferences that can cause an undesired functioning

FCC ID: X6W-DESKNOP



## 11 CERTIFICATES



rif. PVI-DESKTOP-BT & other models (CE declaration)

## **Declaration of Conformity** CE MARKINO

We, Power-One, Inc., 740 Calle Plano, Camarillo, CA. 93012 USA declare under our sole responsibility that the product

**PRODUCT:** Radio Equipment for Inverter Check TYPE: **Aurora Series MODELS: PVI-DESKTOP-X-ZZ** where X may be blank or BT where ZZ is the country code

to which this declaration relates, is in compliance with the following documents:

Quality Standard(s):	ISO 9001: 2000
Directives:	1999/5/EC (R&TTE Directive)
Health Standards:	EN 62311: 2008
Safety Standards:	EN 60950-1: 2006 + A11: 2009
EMC Standards:	EN 301489-1 V1.8.1: 2008
	EN 301489-3 V1.4.1: 2002
	EN 301489-17 V1.3.2: 2008
Spectrum Standards:	EN 300 220-1 V2.1.1: 2006
	EN 300 220-2 V2.1.2: 2007
	EN 50371: 2002
	EN 300 328 V1.7.1: 2006

This Declaration of Conformity is not valid any longer, in case, without any written authorization by Power-One, Inc. :

- the products are modified, supplemented or changed in any other way ;

- components, which are not part of the accessories kit, if any, are integrated in the products ;

- the products are used or installed improperly .

(Manufacturer) Robert P. White Jr. ( Director of Safety )

Camarillo, CA (Place)

2010 January 12 (Date)

 Power-One Italy, S.p.A.

 52028 Terranuova Bracciolini (Ar) – Via S.Giorgio, 642 – Tel. +39 055.9195.1 – Fax +39 055.9195.248 – Fax +39 055.9195.263 (purch. dept.)

 Capitale Sociale € 22.000.000 int. vers. – C.C.I.A.A. Arezzo n. 101220 – Reg. Imp, E Cod. Fisc. 09286180154 – Partita I.V.A. 01574720510

 Società soggetta alla direzione e controlio della Power-One Inc.





## CERTIFICATO DI CONFORMITA' CERTIFICATE OF CONFORMITY

#### Ref. n. 11.026

alle prescrizioni tecniche contenute nelle seguenti Norme e/o specifiche tecniche according to the technical requirements of the following Standard and/or technical specifications

47 CFR FCC part 15.249

FCC Part 15 C - § 15.249 47 CFR FCC part 1.1310; OET BULLETIN 65

Identificazione del prodotto: Product identification : **PVI-DESKTOP-BT-US** 

FCC TR 101468-0

MPE TR 101468A-0

#### RADIO EQUIPMENT FOR INVERTER CHECK

Descrizione prodotto: Product description:

Rif. Rapporto tecnico di prova: Ref. Technical test report:

Costruito da: Manufactured by:

Rappresentante autorizzato: Authorized representative: POWER-ONE IT.ALY S.P.A. Via San Giorgio, 642 – 52028 Terranuova Bracciolini (AR) Italy

Idem come sopra As above

European Notified Body Via Campagina 92 22020 Foloppio fraz. Gaggino (CO) Tel. +39 03135000.11 Fax +39 031991309 C.F. e PL CO 02633860139

Pag. 1/2





## CERTIFICATO DI CONFORMITA' CERTIFICATE OF CONFORMITY

#### Rif. n. 11.026

ANNEX 1

Identificazione del modello derivato: Derived model identification :

#### **PVI-DESKTOP-US**

. . . . . . . . . . . . . . . .

Descrizione modello derivato: Derived model description: On derived model PVI-DESKTOP-US is not present the Bluetooth Module

. . . . . .

Faloppio, 29/03/2010

100-11

Giovanni Molteni Laboratory Manager

 European Notified Body

 Via Campagna, 92
 22020 Faloppio fraz. Gaggino (CO)
 Tel. +39 03135000.11
 Fax +39 031991309

 CF = PI CO 02655860139
 CF
 PI CO 02655860139
 CF

Pag. 2/2





rif. PVI-DESKTOP-AU (Declaration of Confomity)

# **Declaration of Conformity**

We, Power-One Italy S.p.a, Via San Giorgio, 642, I-52028 Terranuova Bracciolini (AR), Italy, declare under our sole responsibility that the product:

#### **PRODUCT:** Control Equipment for Inverter without FHSS MODEL: **PVI-DESKTOP-AU**

to which this declaration relates, is in compliance with the technical requirements of the following Standard(s) and/or technical specifications:

## AS-NZS 4268 2008

This Declaration of Conformity is not valid any longer, in case, without any written authorization by Power-One, Inc. :

- the product is modified, supplemented or changed in any other way;

- components, which are not part of the accessories kit, if any, are integrated in the product ;

- the product is used or installed improperly.

(Manufacturer) Ing. Giuseppe Ricci (Site Director)

Terranuova B.ni (Place)

2011 May 02 (Date)

 Power-One Italy, S.p.A.

 52028 Terranuova Bracciolini (Ar) – Via S.Giorgio, 642 – Tel. +39 055.9195.1 – Fax +39 055.9195.248 – Fax +39 055.9195.263 (purch. dept.)

 Capitale Sociale € 22.000.000 int. vers. – C.C.I.A.A. Arezzo n. 101220 – Reg. Imp. E Cod. Fisc. 09286180154 – Partita I.V.A. 01574720510

 Società soggetta alla direzione e controllo della Power-One Inc.





POWER-OTTE® Renewable Energy Solutions





