Lifetime | Charts | Details

1.619 kW | xantrex

Lifetime Statistics

Energy Produced
7.803 GWh

CO2 Avoided
4916242.4 lbs

Estimated Money Saved
$780355.93

NOx Avoided
10456.77 lbs

Power From Space? Pentagon Likes the Idea

User Guide

Xantrex Solar Monitor Widget

xantrex

Xantrex Solar Monitor Widget

User Guide

About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics and controls with products ranging from small mobile units to utility-scale systems for wind, solar, batteries, fuel cells, microturbines, and backup power applications in both grid-connected and stand-alone systems. Xantrex products include inverters, battery chargers, programmable power supplies, and variable speed drives that convert, supply, control, clean, and distribute electrical power.

Trademarks

Xantrex Solar Monitor Widget is a trademark of Xantrex International. Xantrex is a registered trademark of Xantrex International.

Other trademarks, registered trademarks, and product names are the property of their respective owners and are used herein for identification purposes only.

Notice of Copyright

Xantrex Solar Monitor Widget User Guide© January 2008 Xantrex International. All rights reserved.

Exclusion for Documentation

Date and Revision

January 2008 Revision A

Part Number

975-0332-01-01

Product Number

155-0007-01-01

Contact Information

Telephone: 1 800 670 0707 (toll free North America)
1 408 987 6030 (direct)

Fax: 1 800 994 7828 (toll free North America)
1 360 925 5143 (direct)

Email: customerservice@xantrex.com

Web: www.xantrex.com

Contents

Solar Monitor Widget User Guide

Solar Monitor Widget User Guide

This guide contains information and procedures to use the Xantrex Solar Monitor Widget.

After installing and configuring the Gateway, use the Solar Monitor Widget to monitor your power system on your personal computer. The Widget provides up-to-the-minute status information and power production statistics in an easy-to-read format.

Starting the Widget

After installing the Yahoo! Widgets and copying the Solar Monitor Widget from the CD, you should have a Yahoo! Widgets icon on the right side of your Windows taskbar. This icon provides several options for running and viewing Yahoo! Widgets.

To start the Widget for the first time:

1. Right click the Yahoo! Widgets icon.

2. Click **Preferences...**, select **Consolidate Widgets**, then click **Save**.

3. Double click the Solar Monitor Widget file (xtSolarMonitor-xx.xx.widget).

   The Widget file moves to the default location, which makes it easier to find and keep track of Widget files on your computer.

   The Widget opens and requests a password.

To open the Widget:

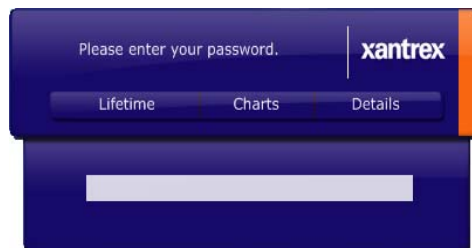1. Right click the Yahoo! Widgets icon and select **Open Widget**.

   The My Documents folder opens.

   If you have already run the Widget once, it may be available under **Recent Widgets**.

2. Double click **My Widgets**.

3. Select the Solar Monitor Widget file and click **Open**.

   The Widget opens and requests a password.

4. In the password box, type a lower-case "x" and press Enter.

The Widget displays the message "Authenticating...," then the Main Status Window appears. If a device in the system has a fault, the Widget displays Component Details. The device with the fault is listed in Component Details.

If the Widget does not discover the Gateway after five attempts and displays "Lost Communication," automatic device discovery did not work. See "Finding the Gateway IP Address Manually" in the *Communications Gateway Installation Guide*.

Main Status Window

Power Flow Diagram

The power flow diagram shows the present state of total power production in the system. The animated dotted line shows the direction of power flow between devices in the system.

Diagram Elements

The power flow diagram can include the following symbols representing devices in the system.

Symbol	Description
	PV Array. When sufficient solar energy is available, the diagram indicates power flow from this symbol. When solar energy is insufficient for power production, the symbol dims. When there is no PV Array in the system, the symbol is not shown. Hovering the mouse over the symbol displays the PV array output.
	Inverter/charger. When the inverter is operating, the diagram indicates power flow from a DC source (PV array or batteries) through this symbol to the household AC loads or grid.[a] When the inverter is charging in pass-through mode (XW Hybrid Inverter/Charger only), the diagram indicates power flow from the grid or generator through the inverter/charger to the batteries.

Symbol	Description
	Off-grid house, where the inverter is used for backup power.[b] Power generated by the system is used for household loads only. The power system is not grid-tied and power is not sold to the utility.
	Grid-tied house, where the inverter/charger can power loads and sell power to the utility. When the diagram indicates power flow from the house, the inverter/charger is using utility power to charge the batteries.
	House with generator. When the diagram indicates power flow from the house, the inverter/charger is using generator power to charge the batteries. When the power flows from the batteries through the inverter/charger to the house, the inverter/charger is in generator support mode.
	Batteries. Power flow from the batteries indicates inverting. Power flow to the batteries indicates charging. The symbol fills in to show the approximate battery state of charge in steps of 20 per cent. The symbol also changes color from red to yellow to green as the batteries charge. Hovering the mouse over the symbol displays the battery capacity.

a.In systems with XW Hybrid Inverter/Chargers, the diagram can indicate an incorrect power flow direction (flowing from inverter to battery instead of from battery to inverter) when inverter loads are less than 50 watts.

b.Your installer or dealer must use proprietary Xantrex software to configure the Xanbus network for an off-grid system. Otherwise, the Widget does not display this symbol. You cannot configure this type of system using only a System Control Panel.

The Widget may not display the correct icons if the power system Connections are not configured correctly. See the *XW Hybrid Inverter/ Charger Operation Guide* or consult your installer for more information.

Power Production

The Widget displays power production in kilowatts. Power production is always displayed as a positive value, whether power is flowing from renewable sources to the batteries or utility grid, from the utility grid to the batteries, or from the batteries to the utility grid or household loads.

Other system monitoring devices, such as the XW System Control Panel, may display power flow from the batteries as a negative value (to denote power being discharged from the system). The Widget does not distinguish between "positive" or "negative" power production.

Power production can be either:

• the sum of power "sold" to the grid plus power used by household loads (for GT Solar Inverters and XW Hybrid Inverter/Chargers)

   If the Widget is monitoring an XW Hybrid Inverter/Charger that has a System Control Panel connected, you may notice that the power production data displayed on the Widget and the System Control Panel differs. This is because the System Control Panel displays (on its Meters screen) separate values for "sold" power and power used by the loads. It does not display the sum of the total power production.

• power drawn from the grid for battery charging (for XW Hybrid Inverter/Chargers)

• power supplied by a generator for battery charging (for XW Hybrid Inverter/Chargers).

Note: Occasionally, the power production shown in the main status window and the sum of power production for individual devices shown in Component Details (see "Details" on page 9) may not match exactly because of delays in getting the values from the Gateway. The delays are short but the differences may be observable.

Similar differences in power production data can also occasionally occur between the Widget main status window and the Widget dock (a column of Widget icons you can configure to appear on your desktop). Because the Widget dock icon gets updates three times slower than the main Widget, the power value displayed on the Widget dock icon may not match perfectly with the main status window.

Web Site Link

The Xantrex logo is a link to the Xantrex web site. If you are connected to the Internet, click the logo to open your browser and visit the Xantrex web site.

Button Bar

The button bar along the bottom of the Main Status Window provides three options for viewing additional information about the Power System.

Lifetime   Click to extend the Lifetime Statistics drawer and display statistics based on total energy production stored in the Gateway.

Charts   Click to extend the Charts drawer, where you can view bar graphs showing hourly (over the last 24 hours), daily (over the last 7 days), and monthly (over the last 12 months) power production for each inverter in the system.

Details   Click to display a list of system devices, including the Gateway. From here you can select individual devices and display current operating conditions and advanced diagnostic screens for each device.

Lifetime Statistics

Clicking **Lifetime** displays the Lifetime Statistics drawer, which displays cumulative data for the entire power system.

Important: After installation, the Gateway and Widget begin recording lifetime statistics starting from zero. Lifetime statistics cannot be calibrated ahead or reset to zero. If the Gateway is connected to an existing power system, the lifetime energy produced displayed on the Widget will differ from the lifetime energy produced displayed on the inverter.

The cumulative data includes:

- **Energy Produced**
- **Estimated Money Saved**, based on your local electrical utility rates.
- **CO2 Avoided**, based on the mass of carbon dioxide produced by conventional power in your area.
- **NOx Avoided**, based on the mass of nitrogen oxide produced by conventional power in your area.
- The **scrolling headlines** are taken from an RSS feed, and can be set to any RSS feed in Lifetime Statistics Preferences.

To configure the base values for Lifetime Statistics, see "Setting Lifetime Preferences" on page 15.
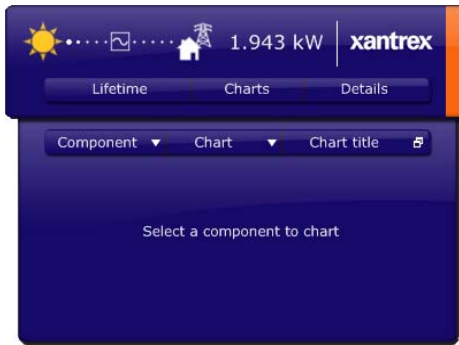
Charts

Charts display a power production bar graph for a single inverter or the entire power system. You can select charts that show power production over the previous 24 hours, previous seven days, or previous 12 months.

In inverter/charger systems, bars on a graph may dip below zero to represent periods of power consumption, when the system is drawing power from the utility grid to charge batteries.

Important: If the Widget has run for less than one hour after installation, it will have insufficient data from the Gateway to display any charts.

To select a chart:

1. On the button bar, click **Charts**.

   The Charts drawer extends.

2. On the chart control bar, click **Component** and select the inverter for which you want to view charts. If you select **System Total**, the Widget displays charts showing data for the entire power system.

Note: In systems with only a single device, the Widget shows only a chart for the system total.

3. On the chart control bar, click **Chart** and select **hour**, **day** or **month**. Hour displays production over the previous 24 hours. Day displays power production for the previous seven days. Month displays production for the previous 12 months.
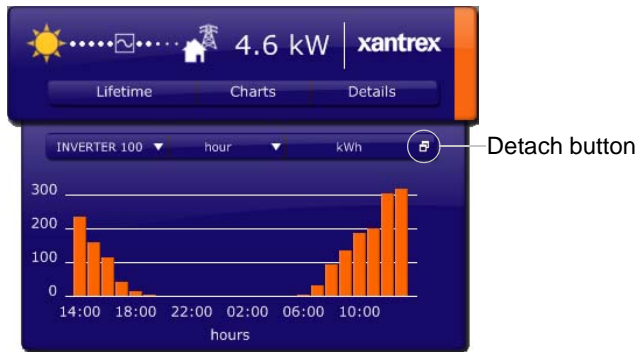
Detach button

You can detach charts and compare several charts side-by-side. To detach a chart, click the Detach button on the right side of the chart control bar. You can detach an unlimited number of charts. You can also detach a blank chart, then add data to the chart by selecting **Component** and **Chart**.

To close a detached Chart, click ×.

Details

To view system device details, click **Details** on the button bar.

Component Details lists available devices on the Xanbus network, including the Gateway. Green check marks indicate devices that are online. The total power production of each inverter or inverter/charger is also listed in Component Details.

Component Details also displays DC output power for charge controllers. However, unlike inverter or inverter/charger power production, charge controller output power is not added to the total system power production.

To display advanced diagnostics for a device:

◆   In Component Details, click a device name.

An advanced diagnostic device window appears. If you click **Gateway**, the Gateway configuration web page appears.

Advanced Diagnostic Window

The advanced diagnostic device window displays detailed real-time information for the selected device.

The two meters can display a variety of PV Input and AC Output data.

To display data in the meters:

1. Click the value you want to display.

2. Select **display on left meter** or **display on right meter**.

After selecting data to display, there is a slight delay before the meters respond.

***

Important: The meters range between the minimum and the maximum value of the selected item. When a value is negative (such as current when a device is inverting), the meter indicates a value to the right of the minimum value. Always refer to the numerical values below the meters to determine the direction of the power or current flow.

***

Clicking **View Logs** displays active or logged faults and warnings.

Device Faults

The Widget also displays Component Details when a device in the power system has an active fault.


Click the name of the device with the fault to view the advanced diagnostic window and the fault/warning log for that device.

Setting Widget Preferences

Widget Preferences includes five separate categories: Comm, Appearance, Lifetime, Behavior, and Window.

To view Widget Preferences:

1. Right click anywhere on the Widget and select **Widget Preferences**.

| About GW Solar Monitor |
| Widget Preferences... |
| Hide Widget |
| Close Widget |
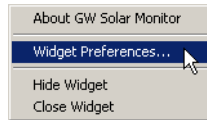
The Widget Preferences window opens.

Setting Comm Preferences

Auto-detect Device   Select to have the Widget automatically detect the Gateway Device IP address.

Device IP address   If Auto-detect is selected, the Gateway IP address is filled in with the first address detected by the Widget. If Auto-detect is not selected, manually enter the IP address. You must also manually enter the IP address to run a Widget from a computer outside your local area network.

Auto-detected IPs   If Auto-detect is selected and there is more than one Gateway on the network, all other Gateway IP addresses are listed here. To display data for another Gateway, select another IP address from the list.

Device Port   Set the TCP/IP port of your device. The default is port 80, but you can enter custom ports as required to run a Widget from a computer outside your local area network. Inside the local area network, Device Port must always be set to 80.

Request   Sets the gap between data request messages from the Widget to the Gateway. You can leave the request gap at the default setting. When using multiple Widgets with the same Gateway, you may need to set the request interval wider to reduce network traffic. If you experience network performance issues, experiment to find the optimal value for this setting.

Timeout   Set the timeout period for the Widget to assume that communications between the Widget and the Gateway have been lost. The more devices that are connected to the Gateway, the longer the timeout should be. If the Widget loses communication regularly on large systems, experiment to find the optimal value for this setting.
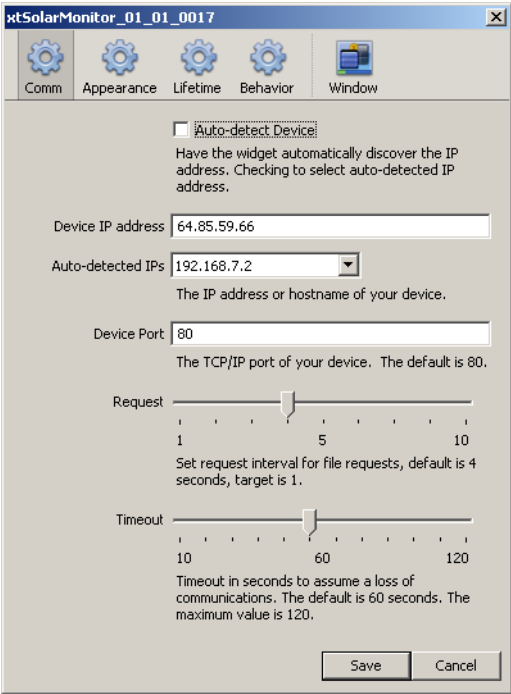
Setting Appearance Preferences

Fault Text   Change the color for displaying fault text in the details drawer to improve readability.

Positive Value, Negative Value   Set the color of positive or negative values for the total power output.

Meter Display   Set the meter type for device windows to analog or none.

Animate Flow   Disable or enable the animation of the power flow dots in the main status window.
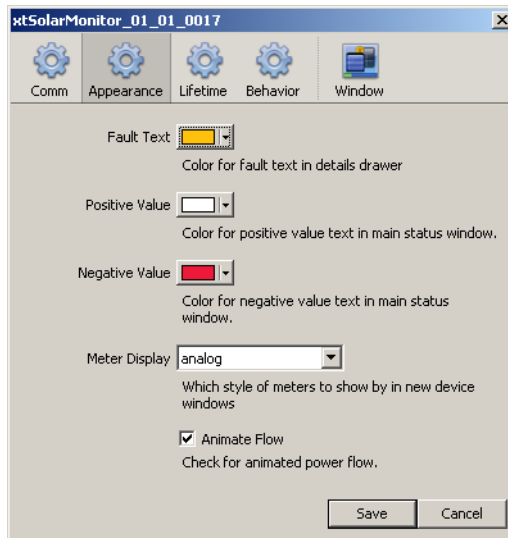
Setting Lifetime Preferences

You can configure the Lifetime Statistics display in the Lifetime Preferences. The "Estimated Money Saved" and greenhouse gases (CO_2 and NO_x) avoided totals displayed in Lifetime Statistics are multiples of the Energy Produced total and the values defined in Lifetime Preferences. In Lifetime Preferences you can also select whether imperial or metric values are displayed in Lifetime Statistics.

Utility average kWh rate   Enter the average cost per kWh charged by your utility.

CO2 mass per kWh   Enter the mass of carbon dioxide produced by conventional power in your area in lb/kWh or kg/kWh.

NOx mass per kWh   Enter the mass of nitrogen oxide produced by conventional power in your area in lb/kWh or kg/kWh.

Note: The EPA has emissions data for all the U.S. power plants connected to the grid: **http://www.epa.gov/cleanenergy/egrid/index.htm**.
Slightly older information for the U.S., Canada, and Mexico can be found at:
http://www.cec.org/pubs_docs/documents/index.cfm?id=1688.
This data can be used to adjust the CO_2 and NO_x values in the Widget as appropriate for the power plant closest to you.

System of measurement   Select imperial (lb) or metric (kg) units for the CO_2 and NO_x mass totals. After changing the system of measurement, you must also change the base units for **CO2 mass per kWh** and **NOx mass per kWh** to match the selected system of measurement.

Currency Sign   Enter the sign that matches your local currency.

Display headlines   Select the check box to display headlines from the RSS feed entered in **Headline location**.

Headline location   Enter the location of an RSS feed for news headlines to be displayed in the Lifetime Statistics. The default headline location source (**www.renewableenergyaccess.com/rss/solarenergy.rss**) provides information on the renewable energy sector. When the Widget displays Lifetime Statistics, click the headlines to open your browser and display the full article.
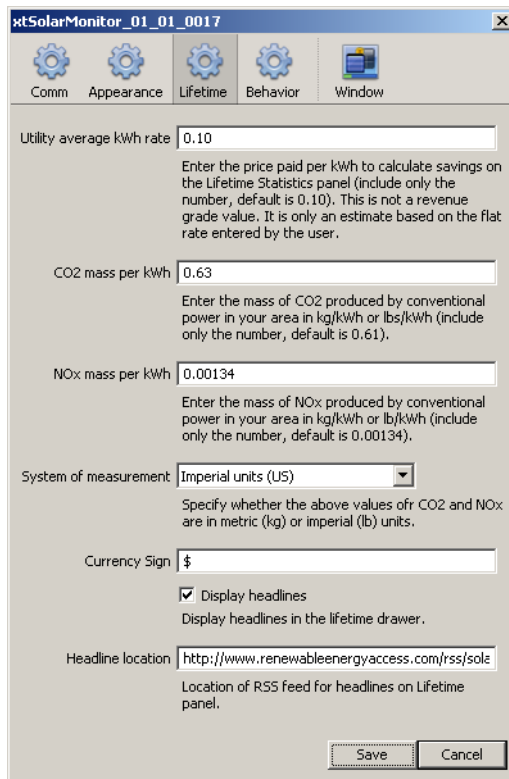
Setting Behavior Preferences

Behavior Preferences configure how the Widget responds to faults.

Raise widget on fault   Select the check box to move the Widget to the foreground of the desktop when an active fault is present.

Note: Occasionally Windows blocks this action, preventing the Widget from moving to the foreground.

Remember password   Select the check box to skip the password entry screen when you start the Widget.
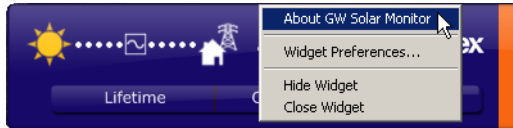
Troubleshooting

When making troubleshooting enquiries with Xantrex, please have the Widget's version number handy.

To find the Widget firmware version number:

◆ Right-click the Widget and select **About GW Solar Monitor**.

The Widget version and build number are displayed.

General Precautions

- Close the Widget before disconnecting or adding devices to the network.
- Close the Widget before using the Gateway Upgrade Device function.

Communication Loss Between the Widget and Gateway

You can often restore communication between the Widget and the Gateway by power cycling the Gateway (removing and replacing the Xanbus cable).

If the Gateway communicates with your computer in wireless mode, connection problems can arise after the Gateway is manually reset. Resetting the Gateway reconfigures it for use with a wired link. For more information about resetting the Gateway, see the *Communications Gateway Installation Guide.*

If your equipment is near the limit of the wireless range:

- The radio signal may be blocked by a vehicle parked in the line of sight
- Heavy rain may be absorbing the radio signal.

If the Gateway communicates using a wired link and the Widget loses communication with the Gateway:

- Your router may need to be reset
- There may be a loose cable connection
- The Gateway may have been configured for use with a wireless link.

For more troubleshooting information, see the *Communications Gateway Installation Guide*.

Xantrex Technology Inc.

1 800 670 0707 Tel toll free NA
1 408 987 6030 Tel direct

1 800 994 7828 Fax toll free NA
1 360 925 5143 Fax direct

customerservice@xantrex.com

www.xantrex.com

975-0332-01-01