SolaData

Z495

Installation Guide.

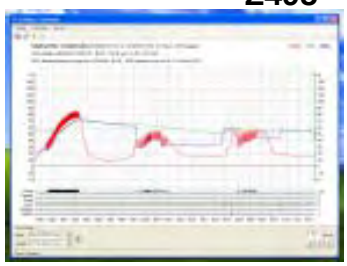
SolaData Installation Guide Index.

SolaData - SolaStat Monitoring Software.

Features.

- Integrated Hardware and Software solutions for monitoring the SolaStat-Plus or SolaStat-Pool Controllers.
  - Easy installation.
- Detailed sensor and control graphing.
  - Status, trends and levels easy to comprehend and in real time.
- Powerful diagnostic tool.
  - Easy to tell if a system is working properly and displays savings in dollars and kWh.
- Different interface options.
  - Connects to a variety of computer interfaces including PC and industrial standards.
- Easy image or Excel compatible export feature.

Z495



SolaStat Models Include:
SolaStat-Eco: Controller c/w 4 Status Lights
SolaStat-Plus: Controller c/w Display.
SolaStat-Pool: Pool Controller c/w Display.
SolaStat-Rmt: Remote Display.
SolaStat-Rly: Slave Relay for HWC Control.
SolaData: PC Datalogging & Comms.

Introduction.

SolaData is a Hardware and Software package for monitoring and logging the data output by your SolaStat-Plus, SolaStat–Pool, OmniStat-Plus or AlphaStat-Plus over a serial communications link. It features real-time, colour graphs of sensor temperatures and relay states as well as a logging facility which stores all data for later review.

The power of your PC can be put to use displaying the temperatures measured, the approximate amount of money and energy saved and other totals as well as preserving a continuous record of all your solar hot water systems activities. You can easily select the time period to be displayed, historical or recent, and print or email the resulting graph. Whether you wish to look at 10 minutes or 96 hours, the graph is easily understandable.

SolaData is compatible with RS232 (short distance) or RS485 (long distance) hardware interfaces (as well as USB via a converter) and computers running Microsoft Windows® 98 or later software.

SolaStat Ltd has experience in designing and manufacturing Solar Hot Water Controllers to Industrial Electronic Standards for over 15 years. This has earned SolaStat a reputation for Quality, Accuracy, Efficiency and Reliability.

Ordering Information.

SolaData-RS232N SP-Comms-232 board, 10M cable and DB9 adaptor.

SolaData-RS485N SP-Comms-485 board, 50M cable and Comms-NS
Non isolated RS485 to RS232 converter

The SolaData software is available for download from our website, (www.solastat.com)

Note: For the waterproof versions of the SolaStat controllers only SolaData-RS485 can be used.
Note: If you are running a SolaStat-Rmt only RS485 is possible. However the RS485 signal can be converted to RS232 externally with a Comms-NS (non isolated).

Quality Assurance Programme.

The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design, development, production and final inspection grant the long term reliability of the instrument.

SolaData Users Guide.

Principle of operation.

Hardware

The SolaStat-Plus, SolaStat-Pool, OmniStat-Plus and AlphaStat-Plus controllers constantly output data detailing all their sensor temperatures and control states. This data is transmitted to a PC by an adaptor board fitted inside the controller as either RS232 or RS485 signals.
RS232 can connect directly into most PCs serial port but is limited to a cable length of less than 15 meters.
RS485 is more robust and can operate over more than a kilometer, but a special receiver (Comms-NS) is needed to convert it to RS232 for the PC serial port.
Notes:
1. If you are running a SolaStat-Rmt only RS485 is possible. However the RS485 signal can be converted to RS232 externally with a Comms-NS (non isolated).
2. Each individual controller to be monitored requires a discrete comms connection to the PC.
3. BF-810 USB to RS232 converter is required when only a USB port is available and no 9 Pin RS232 port is available on the PC. Connect any of the three SolaData Options into this converter to get up and running off a USB port.

Software

The SolaData graphing application displays the recorded sensor temperatures and output states. The graph is capable of showing data from any historical period, or the most recent data (updated in real time). Calculations of running totals, approximate energy harvested from the collector and money spent on electricity to run any booster element are all easily available.
It is a very effective diagnostic tool to rapidly and clearly identify problems or inefficiencies in hot water systems. Graphs can be printed or saved as pictures to send via email.

SolaData Remote is a mimic of the SolaStat display, very similar to the SolaStat-Rmt Remote Display. It allows you to view the status of the SolaStat-Plus or SolaStat-Pool being monitored over any network connection, including over the Internet. Any number of SolaData Remote applications can be open at the same time.

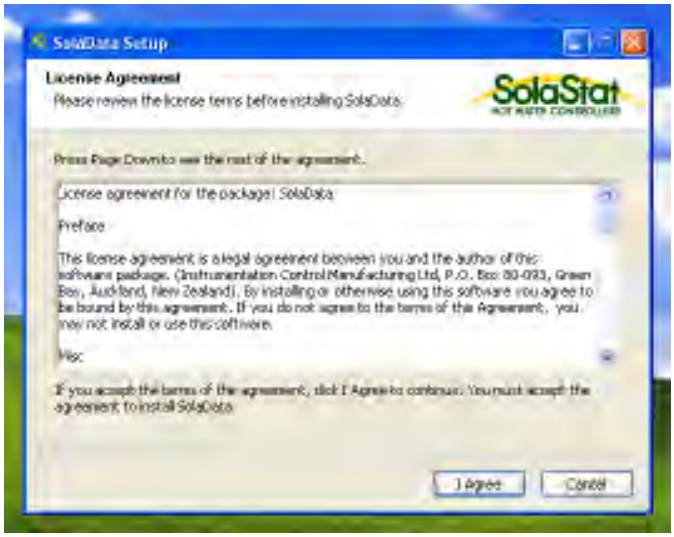
SolaData Software Quick Install Guide.

Only supports Microsoft Windows® 98 or newer

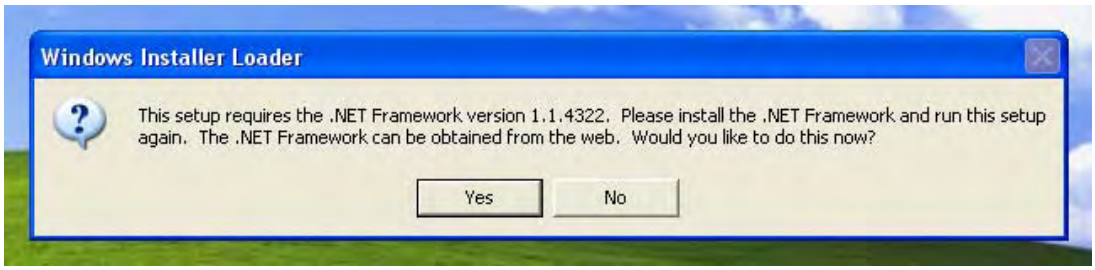
Note: Hardware must be installed before installing software. SolaData may only be used with the SolaStat-Plus, the SolaStat-Pool, the OmniStat-Plus or the AlphaStat-Plus.

1. Download the installation and setup program from the SolaStat website (www.solastat.com)

2. Run the installer. The following screen should appear:



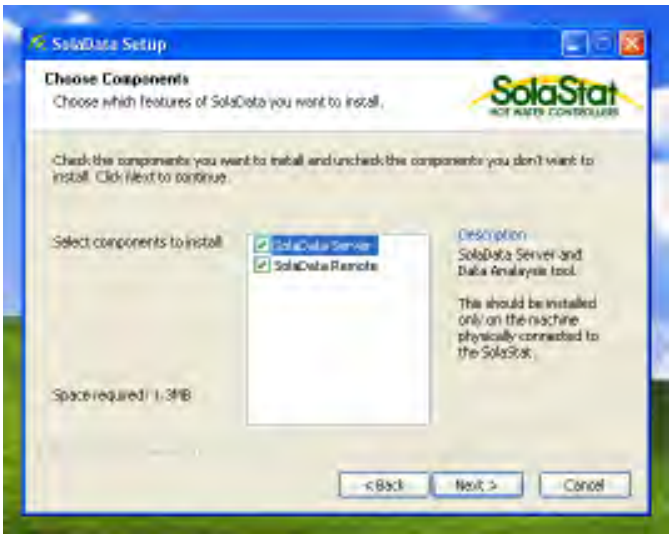
If instead you see this message:



Then the .NET Framework is not installed. Click 'Yes' to download it off the internet. You will be taken to a Microsoft website, shown partially below:

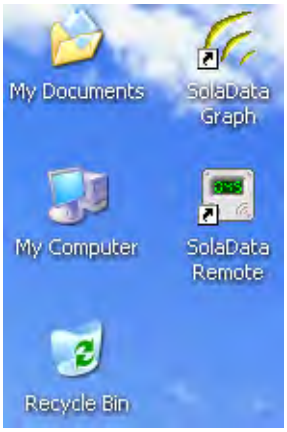
Click the 'Download' button and save the file to your computer. After it has downloaded successfully, run the file and follow the onscreen instructions. After installation has completed, run the SolaData setup again.

3. You should now be at the following screen:



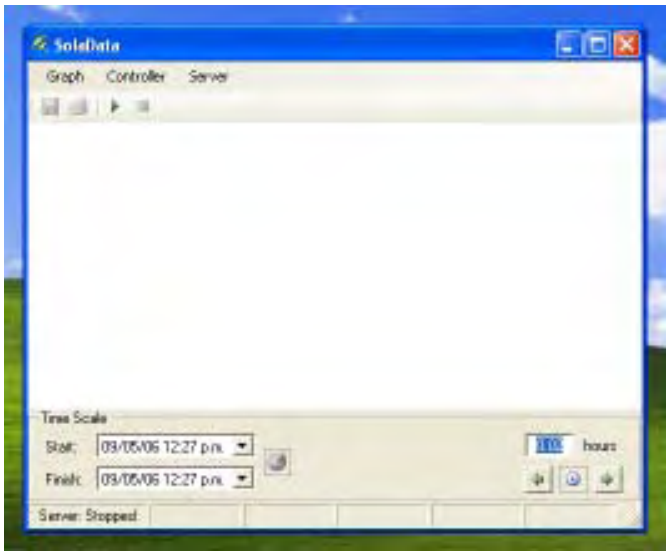
You must install either or both of the options here. Move the mouse over either option to see a brief description. By default both options are installed. Note that the SolaData Server option should only be installed on a computer which is directly connected to the controller.

4. Click 'Next' and follow the rest of the on-screen instructions to complete your installation. Once this has finished (and assuming you installed both options), you should notice two new icons on your desktop, shown below:

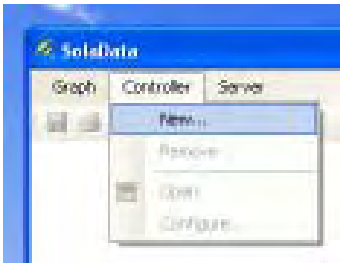


5. Double-click the 'SolaData Graph' icon (or 'SolaData Remote' as appropriate) to start the application. For instructions on setting up SolaData Graph, continue to step 6. Instructions for SolaData Remote are in the following section.

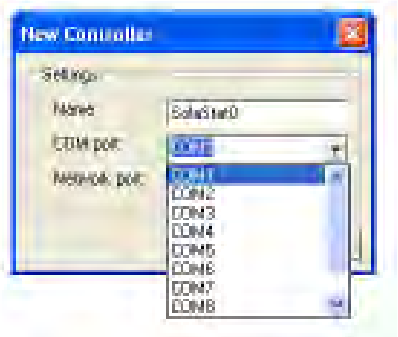
Setting up the SolaData Graphing application.



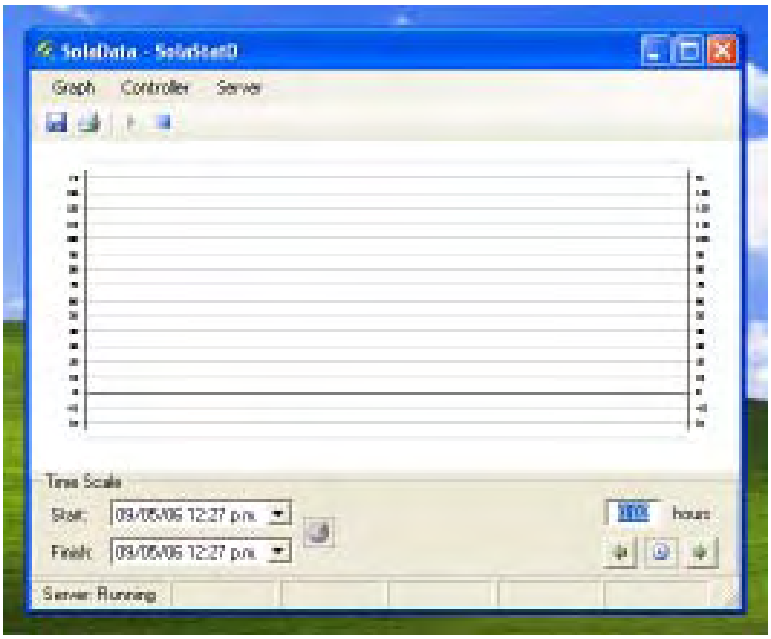
6. First you need to setup a connection to the controller. Select ‘New’ from the ‘Controller’ menu at the top of the window:



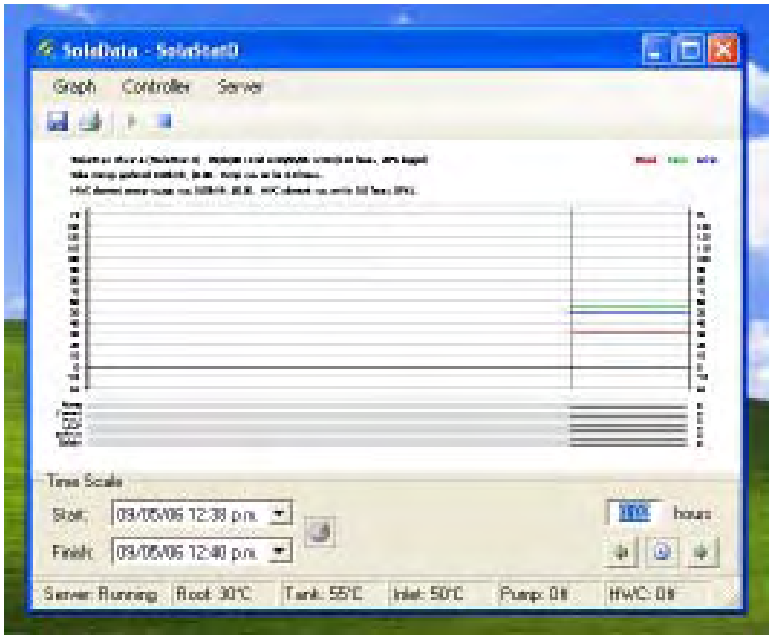
7. Select the Comm port that your controller is connected to. Normally, this will be COM1 or COM2. You can also give your controller a name (mainly for installations which monitor more than one controller). Leave the Network Port setting as it is.



8. Click the OK button. The SolaData Server should start up (see status indicator in the lower left corner), and a graph should be outlined on the screen:



9. If the controller is connected to the PC, powered up, and functioning correctly, the sensor traces will begin to appear at the right of the graph and the temperatures will be displayed along the status bar at the bottom of the screen.

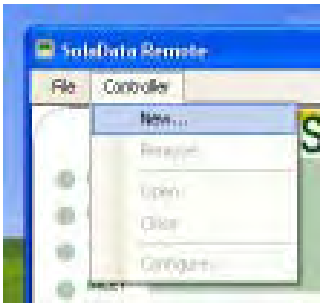


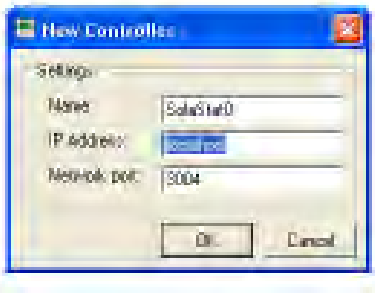
10. If you wish, you can now close this application and the SolaData Server will continue to monitor the controller.

Setting up the SolaData Remote Viewer.

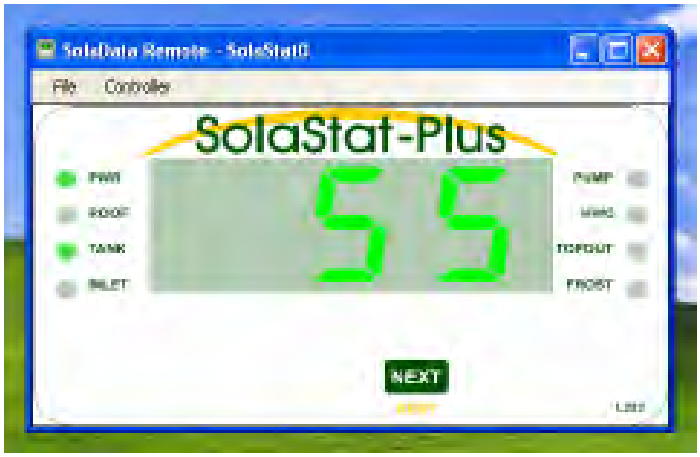
As with the SolaData Graphing application, you must first set up a connection to a controller. Note that you must first have installed SolaData on the machine connected to the controller and set it up as in the previous section.

1. Select ‘New’ from the ‘Controller’ submenu.





2. You may use any name you wish for the controller. It does not have to match up with the name given in the SolaData Graphing application. The ‘IP Address’ must match the machine connected to the controller, and the ‘Network port’ must be the same as configured in SolaData on that machine.



3. Click ‘OK’. SolaData Remote will automatically connect to the remote unit. If all is working correctly, the virtual PWR light will be lit and the display will show a temperature reading, as above.

SolaData Main Screen. (Example from a SolaStat-Plus-2.)
This section describes the information displayed on SolaData Main Screen. The example below is used as a reference.

Graph Heading. (Example from a SolaStat-Plus-2.)

> **SolaStat Plus-2 (SolaStat0)** 24/02/06 07:24 to 27/02/06 07:24 (72 hours, 99% logged)
>
> Solar energy gathered 42.82kWh, $6.42. Pump was on for 2.9 hours.
>
> HWC element energy usage was 6.24kWh, $0.94. HWC element was on for 2.1 hours (3%).

Displays up to three lines of information, depending on the type of controller:

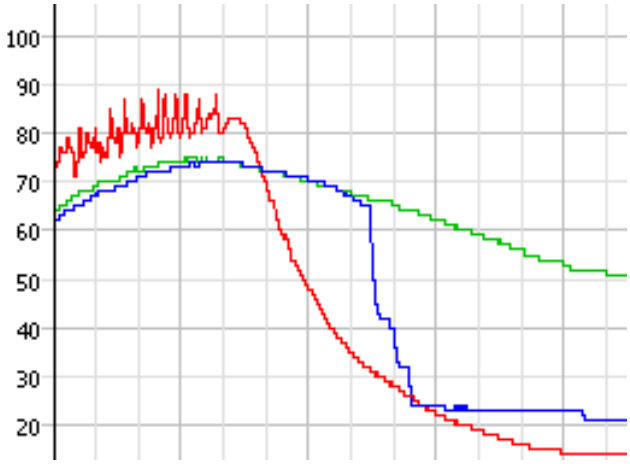
The first line is always the type and name of the SolaStat Controller in bold, followed by the time range of the graph and the percentage of available data for this period.

For a SolaStat-Plus or SolaStat-Pool controller, the second line shows the solar energy gathered in kWh, the value of this energy and the number of hours the pump was on. These match the time period selected. Calculations are based on the specific heat capacity of water, water flow rate, pump power rating and the heat difference between the roof and inlet (or pool) temperature sensors. This calculation does not allow for variations in flow rate and heat loss between the Solar Collector and HWC.

For a SolaStat-Plus-2 and AlphaStat-Plus-1, there will be a third line showing the energy usage of the HWC followed by the time it was on. The time is also shown as a percentage of the range of the graph. These match the time period selected. Note that there may be inaccuracies in this reading as Electricity Suppliers may remotely turn off the HWC element.

SolaData Main Screen Cont.

Temperature Sensor Traces. (Example from a SolaStat-Plus-2.)



The main portion of the graph is taken up by the traces of the temperature sensors. For a SolaStat-Plus the Roof sensor is always in red, the Tank sensor in green and the Inlet sensor in blue. A key is visible at the top-right corner of the graph:

Roof Tank Inlet

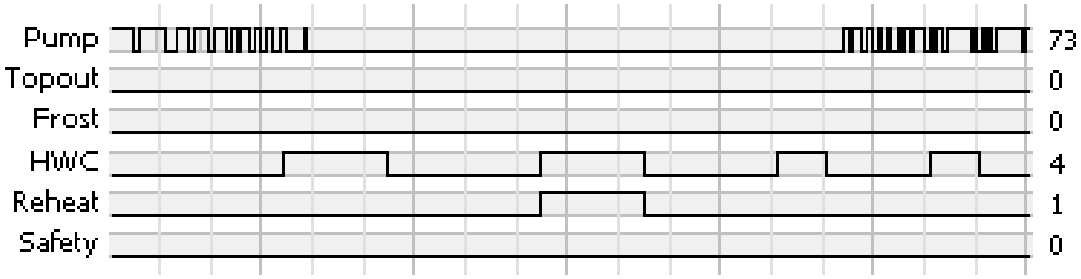
If a SolaStat-Pool is connected, the three readings will be shown as 'Roof', 'Pool' and 'Comfort'. For an OmniStat-Plus, 'Outlet', 'Middle' and 'Inlet'. An AlphaStat-Plus will show 'Set Off', 'Tank' and 'Set On'.

Grid lines are spaced 10°C and one hour apart. Slightly darker lines appear every three hours and every 20°C. Temperature references are present to the left and right of the graph. Logged temperatures can range from -20°C to 140°C. 'Hi' and 'Lo' signify that the reading is equal to or outside these limits. 'SSd' signifies that the reading is outside the specified temperature range of -40 to 150C and the controller has entered Smart Shutdown mode. See your SolaStat installation guide for more details.

The time is visible at the bottom of the graph:

At midnight the date of the coming day is displayed instead of 12am.

Control Function Traces. (Example from a SolaStat-Plus-2.)



Beneath the Temperature Sensor traces, a number of Control Function traces are visible.

For each trace, the Control Function is active when the black line is at the upper edge, and inactive with the black line is at the lower edge. For example, in the above screenshot the Reheat function is only active once for a short time, whereas the HWC function is turned on and off four times.

The number to the right of each trace shows the number of times the Function went from inactive to active. Additional information such as pump cavitations or primary activations may be shown as dark gray shading under the trace.

SolaData Main Screen Cont.

Different Control Functions will be displayed depending on the type of SolaStat Controller that you have connected.

A SolaStat-Plus-1 Controller will display the following Control Function traces; 'Pump', 'Topout' and 'Frost'.

A SolaStat-Plus-2 Controller will display the following Control Function traces; 'Pump', 'Topout', 'Frost', 'HWC', 'Reheat' and 'Safety'.

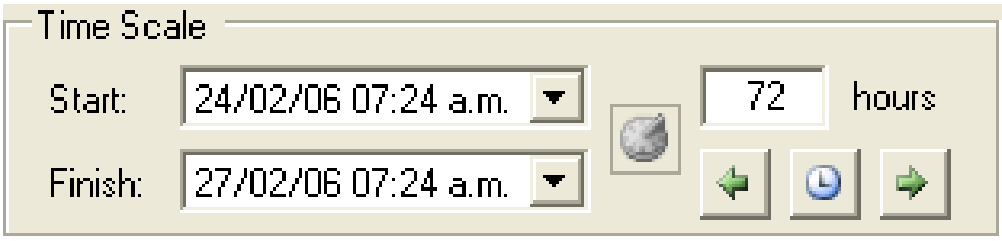
A SolaStat-Pool Controller will display the following Control Function traces; 'Pump', 'Tropical', 'Comfort' and 'Frost'.

An OmniStat-Plus Controller will display the following Control Function traces: 'Pump', 'Topout', 'Out Zone', 'Mid Zone' and 'In Zone'.

An AlphaStat-Plus Controller will display the following Control Function traces: 'HWC', 'Reheat', 'Safety' and 'Away'.

For explanations of these Control Functions, refer to the respective controller Installation Guides.

Time Scale Controls.



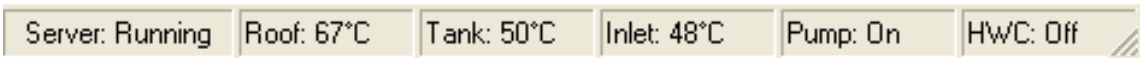
The SolaData graph is dynamic and is updated in real time with incoming data from the SolaStat.

The Recent button ( ) on the right controls whether or not the timescale of the graph is updated as new data comes in. If the Recent button is down, then the graph will always be showing the most recent data going back the specified number of hours. If the Recent button is up, the graph's timescale will not change (although if the graph covers a period into the future, new data will still be drawn on the graph as it appears).

The Start and Finish dates on the left permit you to enter in a set start and finish date. Once you start editing these values, the History button ( ) becomes active, and the Recent button ( ) is deactivated. When you have finished editing the date range, click the History button to set the graph to display this range.

The Previous ( ) and Next ( ) buttons skip forwards or back in time by the specified number of hours.

Status Bar. (Example from a SolaStat-Plus-2.)



The Status Bar is visible at the bottom of the window. It has six panels, each monitoring a different part of the system.

The first panel 'Server' shows the current state of the SolaData Server. If this does not show 'Running', then the Server is inactive and no logging will be taking place. During normal operation, this should always show 'Running'.

SolaData Main Screen, Cont.

The second, third and fourth panels display the respective temperature readings from the connected SolaStat Controller. These readings are always current, even when graphing historical data.

The fifth and sixth panels show the on/off states of the Pump and HWC relays within the connected SolaStat Controller. These states are always current, even when graphing historical data. The HWC Function is only available on the SolaStat-Plus-2 and the AlphaStat-Plus-1.

Different Status Bar Panels will be displayed depending on the type of SolaStat Controller that you have connected.

A SolaStat-Plus-1 Controller will display the following Status Bar Panels; 'Server', 'Roof', 'Tank', 'Inlet' and 'Pump'.

A SolaStat-Plus-2 Controller will display the following Status Bar Panels; 'Server', 'Roof', 'Tank', 'Inlet', 'Pump' and 'HWC'.

A SolaStat-Pool Controller will display the following Status Bar Panels; 'Server', 'Roof', 'Pool', 'Set' and 'Pump'.

An OmniStat-Plus Controller will display the following Status Bar Panels: 'Server', 'Outlet', 'Middle', and 'Inlet'.

An AlphaStat-Plus Controller will display the following Status Bar Panels: 'Server','Tank','Set Off' and 'Set On'.

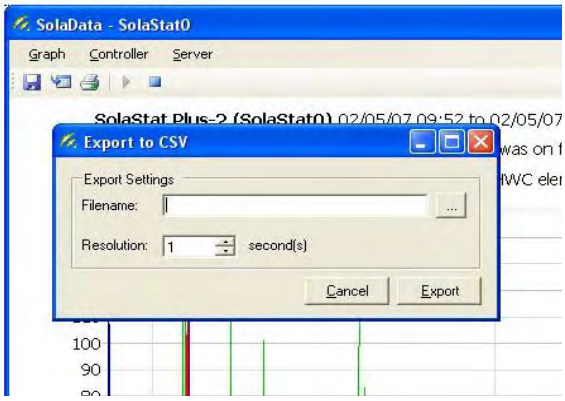
For explanations of these Status Bar Panels, refer to the relevant Installation Guides.

Toolbar

Visible at the top-left of the window, the Toolbar allows quick access to some common SolaData functions. From left to right, the functions are:

Save Graph ( ) This saves the current graph out to a picture file. The program will prompt you as to the location and name of the file.

Export Data ( ) This export the data to a CSV file, that can be viewed with Microsoft Excel.



To export data select export data ( ) from the toolbar. Use the browse button ( ) to select a location and file name for the exported data. You can also select the desired resolution by using the arrows or simply enter the number of seconds into the box. If a resolution greater than 1 second is selected the data will be averaged and all actions counted to assure no data is lost.
Warning: Not setting an appropriate resolution can generate huge CSV files.

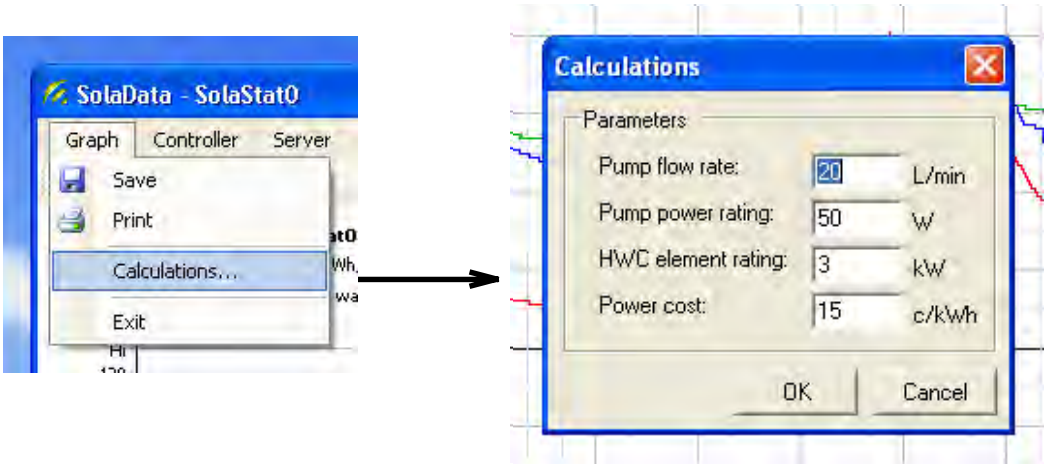
Print Graph ( ) Immediately prints a copy of the graph to the default printer.

Start Server ( )
If available, starts the SolaData Server.
This option is only available if the SolaData Server is not already running.

Stop Server ( ) If available, stops the SolaData Server.
This option is only available if the SolaData Server is currently running. Note that if you stop the SolaData Server, no data from any SolaStat will be logged until it is started again by the user, or the computer is reset.

SolaData Menu Commands.

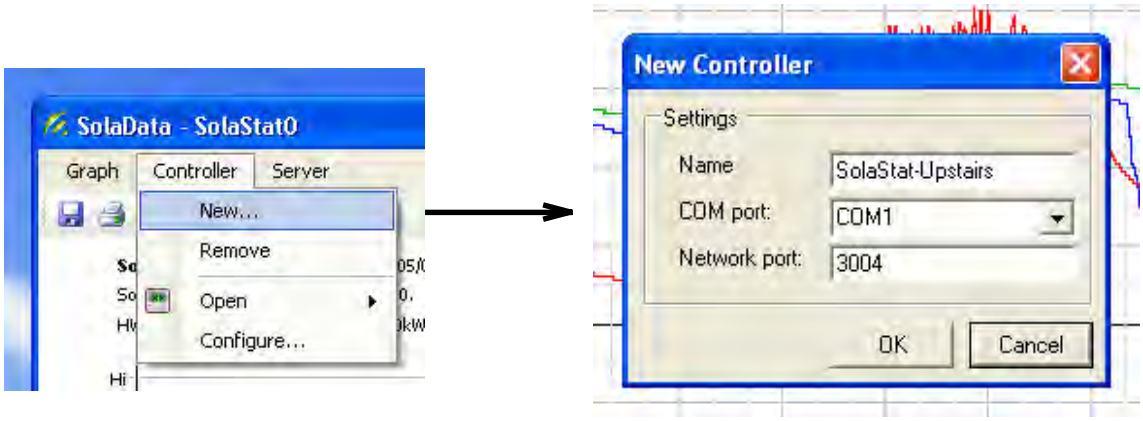
Calculation Settings (Example from a SolaStat-Plus-2)



The figures visible in the header of the graph are calculated using four parameters that are entered into the fields shown above – the pump flow rate and power rating, the power rating of the HWC element, and the cost of electricity to the user. The calculation for Solar Energy Gathered also uses the specific heat capacity of water and the heat difference between the roof and inlet (or pool) temperature sensors and does not allow for variations in flow rate and heat loss between the Solar Collector and HWC.The HWC Function is only available on the SolaStat-Plus-2.

The numbers shown above are defaults - in order to achieve the best results, all settings must be measured and set accurately by the user for each SolaStat Controller.

New Controller.



To connect a new SolaStat-Plus or SolaStat-Pool to the PC, simply select ‘New’ from the ‘Controller’ menu and enter the details of the new SolaStat Controller.

‘Name’ is just a way to distinguish between different SolaStat Controllers. This must be different to all other installed SolaStat Controllers. The dialog checks and will not permit duplicate names.

‘COM port’ is the physical port that the SolaStat Controller is connected to. This is usually COM1 or COM2, although if a USB to Serial converter is used, it is likely to be a higher number.

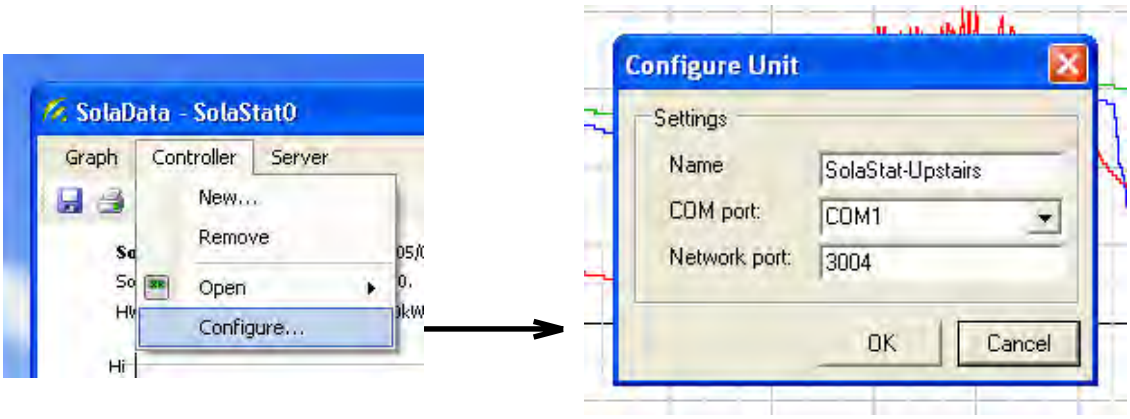
‘Network port’ is the TCP/IP port used by SolaData Remote for this SolaStat Controller. Each SolaStat Controller must be on a different port. If you are not experienced with network management, it is recommended that you leave this setting at the default.

SolaData Menu Commands, Cont.

Open Controller.

For a system which is monitoring more than one SolaStat Controller, you can switch between them using the ‘Open’ submenu within the ‘Controller’ menu. This displays a list of all the installed SolaStat Controllers. The SolaStat Controller currently being viewed is marked with a tick symbol. To switch to a different SolaStat Controller, simply select it. If no SolaStat Controllers are installed, this option will be unavailable.

Configure Controller.



To configure the current SolaStat Controller, select ‘Configure’ from the ‘Controller’ menu. The parameters are those that were set when the SolaStat Controller was created. For details on the settings, see the documentation for ‘New Controller’ above.

Remove Controller.

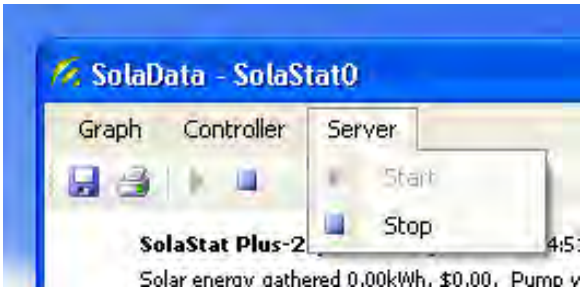
If you wish to remove a SolaStat Controller, select the SolaStat Controller with the Open menu and then select the ‘Remove’ command from the ‘Controller’ menu. The system will ask whether you also wish to remove all archived data for the SolaStat Controller. Clicking ‘Yes’ removes the SolaStat Controller and all archived data. Clicking ‘No’ removes the SolaStat Controller but leaves the archived data intact. Clicking ‘Cancel’ aborts the remove command and leaves both the SolaStat Controller and the data intact.

SolaData Menu Commands, Cont.

If you remove a SolaStat Controller but leave the data intact, and you later add a SolaStat Controller with exactly the same name, SolaData will assume that the archived data belongs to the new SolaStat Controller.

Data is stored in the SolaData program directory (Program Files\SOLASTAT\SolaData by default). The data is stored in '.dat' files with the same name as the SolaStat Controller, suffixed with the year that the file refers to.

Server Start/Stop Commands.

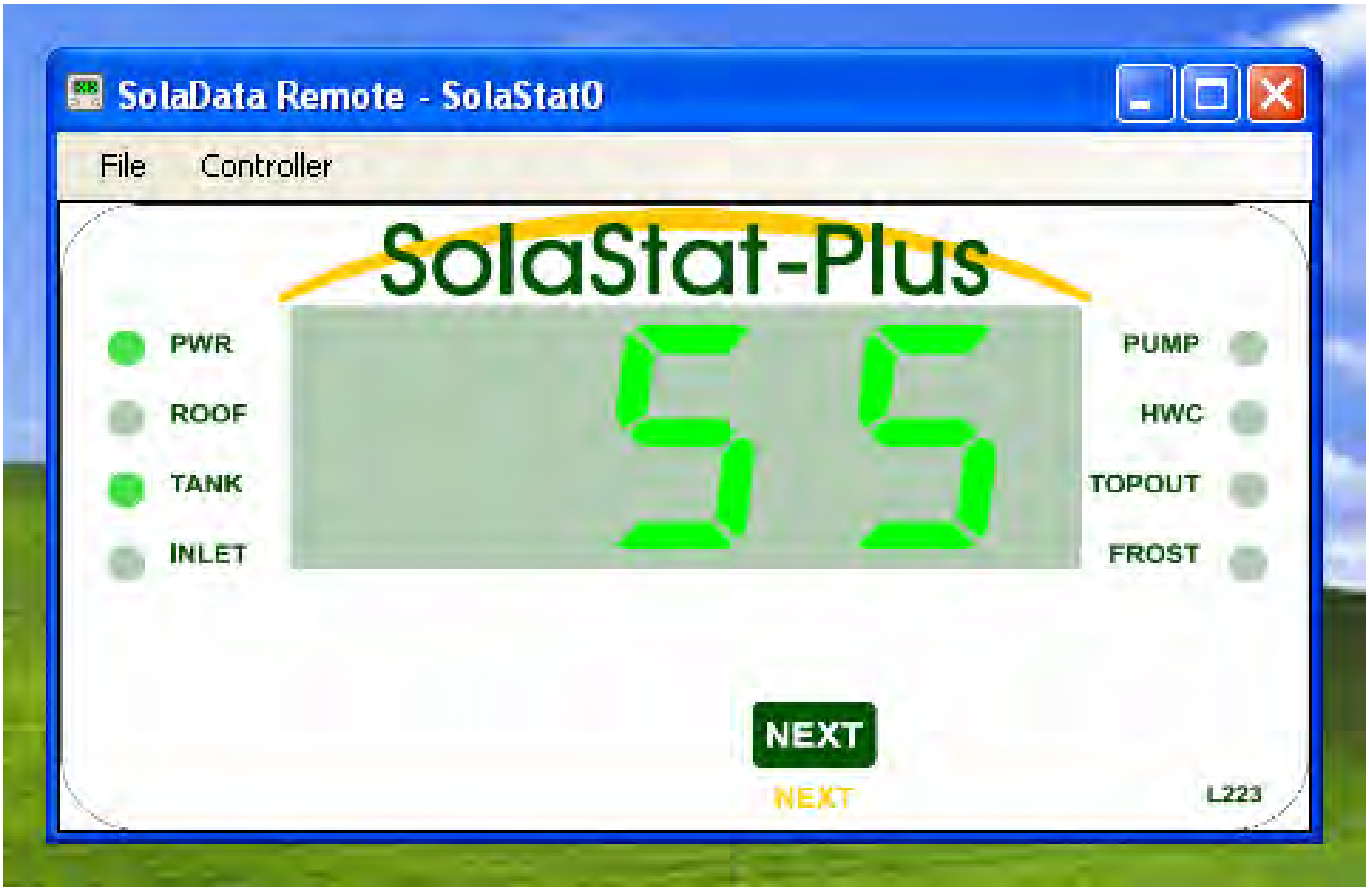


The SolaData Server application runs invisibly in the background, handling communication to the SolaStat Controller and archiving the data received. The SolaData Server also communicates with the SolaData Remote application. During normal operation, the SolaData Server will always be running. It automatically shuts down and restarts after configuration changes, and also starts automatically when the computer is turned on. The user should never need to start or stop the server application; but the option is there if it becomes necessary.

Note that if the SolaData server is stopped, no data will be received or logged from any installed SolaStat Controller, and the SolaData Remote application will not function.

SolaData Remote Software Users Guide.

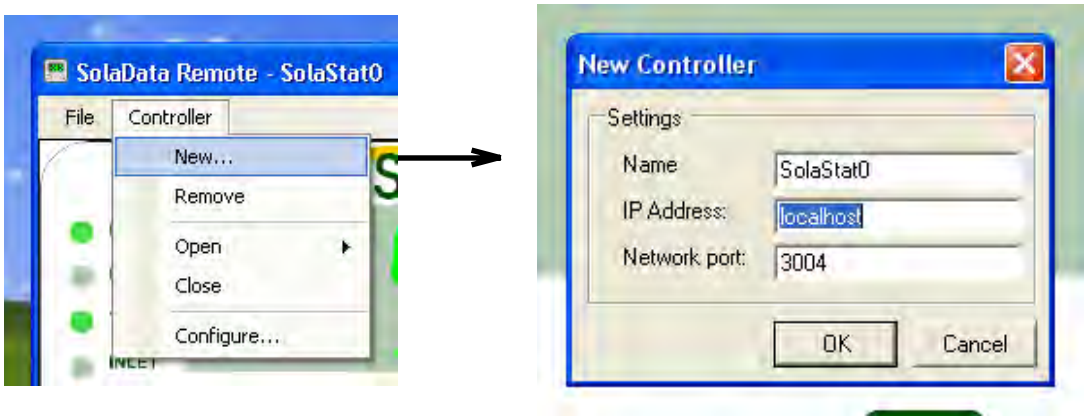
SolaData Remote Main Screen.



SolaData Remote Display.
The SolaData Remote display mimics the controller it is monitoring. If the controller is a SolaStat-Plus, as above, the Rmt will show the label from a SolaStat-Plus controller. If the controller is a SolaStat-Pool, a Pool label will be shown.

The display acts exactly like the controller; the sensor reading is shown in large green seven-segment digits in the centre of the display. The virtual light to the left indicates which sensor is being displayed. By clicking 'NEXT', the display will cycle through the three temperatures available. The status Lights on the right are fully functional and display the current status of the controller.

Connecting a New Controller.



To connect a new controller to the SolaStat Rmt, Select 'New' from the 'Controller' menu, and set the values in the resulting dialog box as desired. A brief explanation of each setting follows:

Name.

The name of the remote SolaStat controller for this SolaData Remote installation. This name is solely to aid the user in identifying which controller is being monitored. It does not have to match up with the name given to the controller in the remote SolaData installation.

IP Address.

SolaData Remote monitors the remote controllers by connecting to the SolaData server on the PC they are plugged into and requesting data over TCP/IP, a standard networking protocol. The 'IP Address' of the remote machine identifies them on the network and allows SolaData Remote to connect.

'localhost' refers to the machine where SolaData Remote is running. For other machines, the machine name may be used (seen when browsing through 'Network Neighbourhood'). Standard numeric addresses may also be specified (i.e. 255.255.255.255).

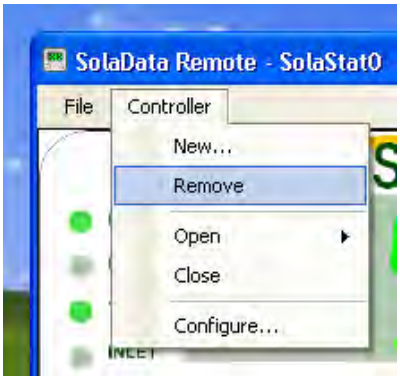
Network port.

Each controller outputs information on a specific Network port, which is specified in the SolaData Graphing application. Make sure the two numbers match or you may be talking to a different controller.

Configuring an existing Controller.

To change the configuration of a controller that you have already created, select 'Configure' from the 'Controller' menu. The options that may be configured are detailed in the section 'Connecting a new Controller' above.

Removing a Controller.



To remove a controller, select 'Remove' from the 'Controller' menu. Unlike SolaData, SolaData Remote keeps no logs of unit data.

SolaData Remote Software Users Guide, Cont.

Opening and Closing Controllers.

SolaData Remote keeps a network connection open to the remote unit in order to keep the data being displayed current. If you wish to open a different controller, the connection must be switched over. To open another controller, select 'Open' from the 'Controller' menu, and a list will be shown of the controllers installed for remote access on this machine.

Closing a controller will blank the display and prevent any network data from being transmitted.

SolaStat-Data Specifications.

Data Interface.	
Physical.	RS232N or RS485 (Rx Only.)
Baud Rate.	4800baud.
Format.	8 bit, 1 stop, No Parity.
Protocol.	Special Solastat data packets.
EMC and Safety Compliances.	
Emissions:	EN 55022-A, CTick.
Immunity:	EN 50082-1.
Safety Compliance:	EN 60950, CTick.
General Specifications.	
Operating Temperature:	0~60C
Operating Humidity:	90% RH Max. Non-Condensing
Weight.	Standard model + packaging = 300grams

Notes.
1. 'Solar energy gathered' calculations in kWh are based on the specific heat capacity of water, water flow rate, pump power rating and the heat difference between the roof and inlet (or pool) temperature sensors. This calculation does not allow for variations in flow rate and heat loss between the Solar Collector and HWC.
2. 'HWC element energy usage' in kWh may have inaccuracies in the reading as Electricity Suppliers may remotely turn off the HWC element.

SolaData Safety Instructions and Limit of Liability.

Read safety instructions and limit of liability before proceeding with the installation.

General Safety Instructions.

1. This installation guide is for the installation of SolaData hardware and software only and is not an installation guide for any other part.
2. The complete installation should be checked at least annually for damage or malfunction.
3. All servicing to be carried out by an authorised service agent only.
4. All aspects of the installation must comply with local electrical regulations.

Installation Precautions.

1. Must be installed away from water sources such as rain, leaking pipes, or wet floors and must not be installed in damp areas like bathrooms. (Water resistant case option an exception)
2. Must be installed away from direct sunlight, flammable liquids or radiant heat sources.
3. Cables must be facing directly down, not sideways or upwards.
4. Must be in a safe environment for users to inspect display panel.

Electrical Precautions.

1. Data cables and 9Vdc Power Supply cables must run 300mm away from mains cables
2. To supply power to the Comms-NS uses an external plug pack rated at 9Vdc with a minimum current of 200mA. Note: The standard plug pack supplied is Mains 230Vac and also Australian/NZ plug only. Any voltage regulated 9Vdc power supply capable to supply 200mA or more can be used. Be careful to observe polarity.
3. When terminating the data cable and 9Vdc Power Supply cable inside the SolaStat-Plus or the SolaStat-Pool enclosure do not allow the cables to come within 10mm of the high voltage connectors or components inside the enclosure.
4. Never use with damaged leads, plugs or sockets.

Product Liability.

This information describes our products. It does not constitute guaranteed properties and is not intended to affirm the suitability of a product for a particular application. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. Regrettably, omissions and exceptions cannot be completely ruled out. No liability will be accepted for errors, omissions or amendments to this specification. Technical data are always specified by their average values and are based on Standard Calibration Units at 25C, unless otherwise specified. Each product is subject to the ‘Conditions of Sale’.

Warning:

These products are not designed for use in, and should not be used for patient connected applications. In any critical installation an independent fail-safe back-up system must always be implemented.

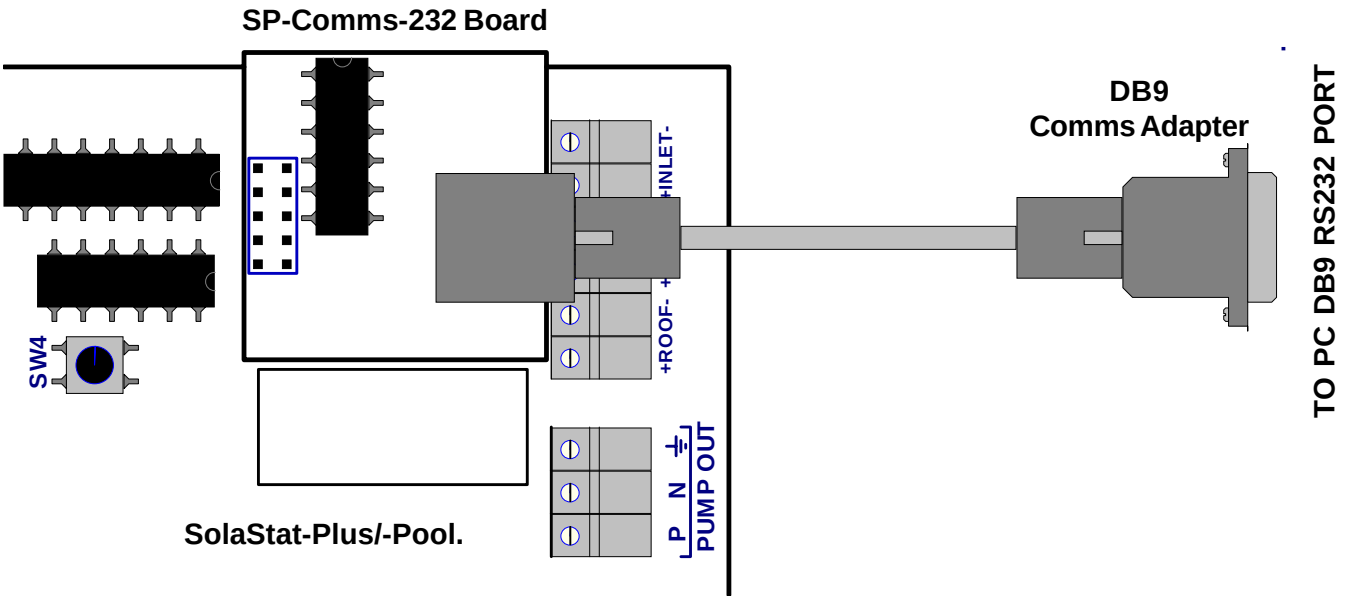
Mounting the SolaData board. **(If not already installed.)**

Note: For the waterproof versions of the SolaStat controllers only SolaData-RS485 can be used.
Note: If you are running a SolaStat-Rmt only RS485 is possible. However the RS485 signal can be converted to RS232 externally with a Comms-NS (non isolated).

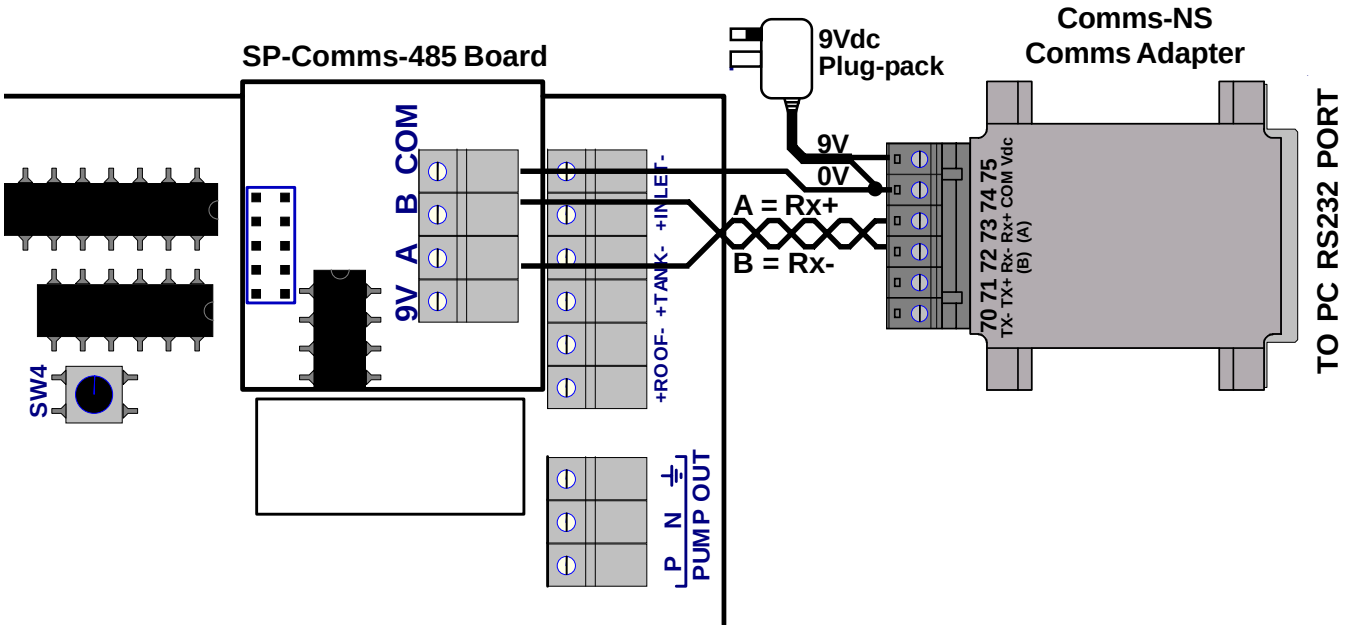
1. Install SP-Comms board into SolaStat-Plus or SolaStat-Pool.
   a. Remove the power supply from ALL concerned equipment: the SolaStat-Plus or SolaStat-Pool; Comms Adapters, Pumps, Relays, etc. preferably remove plugs from the walls.
   b. Remove the 4 screw covers on each corner of the lid of the enclosure if already in place. This will require a fine tipped tool such as a screw driver. Be careful not to damage the lid. Always press the tool away from you to avoid injury if you slip.
   c. Remove the 4 screws that hold the lid on.
   d. Earth yourself to the SolaStat-Plus or SolaStat-Pool, a simple method might be to lightly press a screw driver into the far right sensor terminal screw and touch the screw driver metal shaft. This is signal earth, Do Not connect to mains earth.
   e. Briefly hold your fingers across the bottom of the SP-Comms board while repeating section “d” above.
   f. Press the SP-Comms board into the PROG/COMMS pins (see diagram). Locating the mounting lugs and ensuring all pins are inserted correctly.
   g. Connect the SP-Comms to the Comms Adapter board. Ensure NO power to units.
      I. RS485 . Using CAT5e Comms Cable connect the SP-Comms-485 Board in the SolaStat to the Comms-NS as shown in the RS485 Connection Diagram. Use one twisted pair and connect A to Rx+, B to Rx- and use one wire from another twisted pair to connect COM to COM. Trim all unused wires back, to avoid shorting.
      II. RS232. Simply plugs into socket provided. To insert the RS232 RJ12 plug into a standard SolaStat enclosure the following technique is necessary.
      i. Label or mark the sensor wires. Remove the sensor wires by unscrewing the terminals and cable clamp, and then pull them back through the square hole.
      ii. Orientate the RJ12 plug such that the locking tab is pointing down and push the plug into the hole. The plug will stop ¾ of the way in.
      iii. Press down on the part of the plug that is outside the case. This will cause the part of the plug inside the case to move up.
      iv. Push the plug forward past the clamp saddle. Plug will clear the saddle and is ready to be inserted into the Comms board.
      v. Re-thread the sensor cables and attach as before. Re attach the cable clamp.
      vi. If the RJ12 plug needs to be removed then follow the reverse to the previous method <u>except</u> the RJ12 tab must be held down when exiting through the hole.
      v. RS232 plugs into DB9 Comms Adaptor which plugs into the PC.
   h. Do not allow the cables to come within 10mm of the high voltage connectors or components inside the enclosure
   i. For RS485 configure the Comms Adapter. In most cases the Comms Adapters will work without any adjustments of the jumpers. Select the RS422 option on each unit. (Jumpers H1 & H6 are inserted only. Refer to Installation Guides with the Comms Adapters for further information.)
2. Check there are no shorts, broken wires or incorrect wiring.
3. Replace the lid, replace the 4 screws and tighten.
4. Power up the SolaStat Controller, and check it is operating normally. Shorted data cable power wires will cause the SolaStat Controller to not start up properly and ‘flash’ it’s power light. If this is happening remove power and find the short.
5. If all is working correctly then push in 4 screw covers for the SolaStat-Rmt and push in 4 new screw covers for the SolaStat-Plus or SolaStat-Pool into each corner of the enclosure lid. (Spares available from your distributor or SolaStat Ltd). Note: There are locating lugs to ensure correct orientation.

Connection of the SolaData Board.

RS232 Connection Diagram.



RS485 Connection Diagram.



Notes.

SolaStat Distributor.

Email: sales@solastat.com