

SIEMENS



RWD32S Software Tool Operating Instructions

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1 Introduction

1.1 System requirements

System requirements

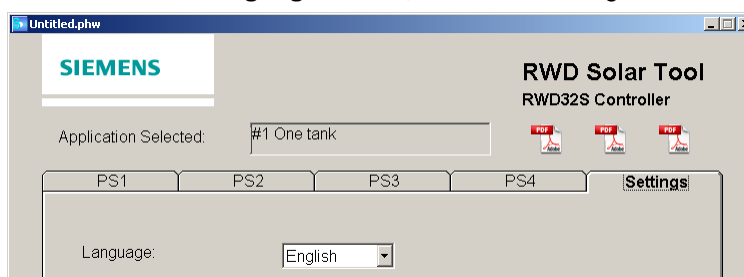
PC component	Minimum requirements
Hard disk	10 MB available memory
Screen	VGA standard driver 1024 x 768, 256 colors Recommended: SVGA standard driver 1028 x 768
Ports	Serial COM, up to 19,200 Baud or USB 1.1 and higher simulated COM port
Operating system	Windows Vista, service pack 1 Windows XP, service pack 2
Software's	Adobe Acrobat Reader 8.0 or later

1.2 Languages

Language

When starting the tool you can select the **language** you wish to use. Tool is provide with three different languages : English, German and French.

To access to the **Language choice**, select the "settings" tab



When closing the tool, language choice made by customer is saved and set as default for next starting up.

1.3 Installing the software

Installation

To install, run setup.exe and follow the on screen instruction.

After installed, to run the software, select Start > All Programs > Siemens > RWD32S > Software Tool

If you installed the software in other folders, then change the above folder names accordingly.

1.4 DB9 cable

Please prepare a 9-pin DB9 extension cable. It is one end female, one end male. The wire connections are straight through. The female is connected to PC and male one to controller.



Note

If you use USB-COM port, please plug it in the computer before starting this software.
Do not unplug until you finish this software.

2 Processes

2.1 The first steps

2.1.1 Starting the tool

Start

Starting up under Windows XP / Vista:

Procedure

1. Click the **Start** button and then point to **Programs**.
2. Point to the **Siemens** folder which contains the **RWD32S Software tool** program.
Depending on the type of installation, you can also start the programs directly from your Desktop or via Windows Explorer.

2.1.2 Settings tab

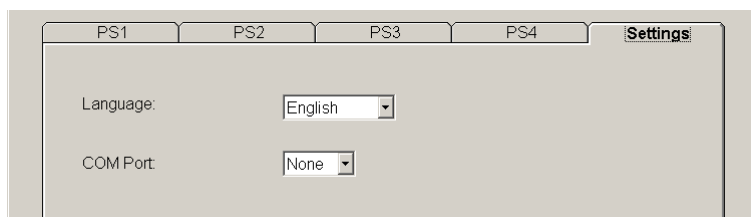
The program settings are available in the Settings Tab:

Language:

You can change the displayed language from the selection list. Several languages are supplied. E.g. English, German, French. After you select the Language, the software will also use it next time as default.

COM Port:

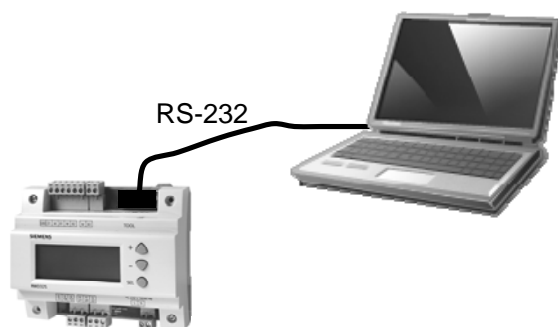
You can select the communication port that connects to your RWD32S. COM port is needed if you will use the Up Load and Down Load features.



2.1.3 Prepare the connection to controller

Communication with the controller takes place directly with COM port.

Direct connection

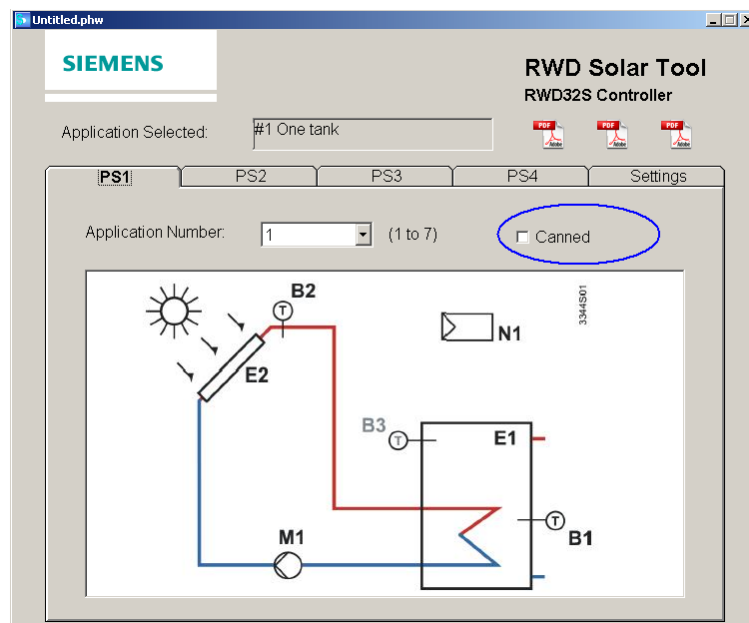


2.2 Editing parameters

The parameters in the tabs PS1 to PS4 are the on screen values. You can edit them. After editing, you can transfer them to the controller or save to a file. The items on the PS tabs are displayed according to application number selected in PS1.

2.2.1 PS1 tab – Application selection

All applications are displayed with corresponding diagrams.



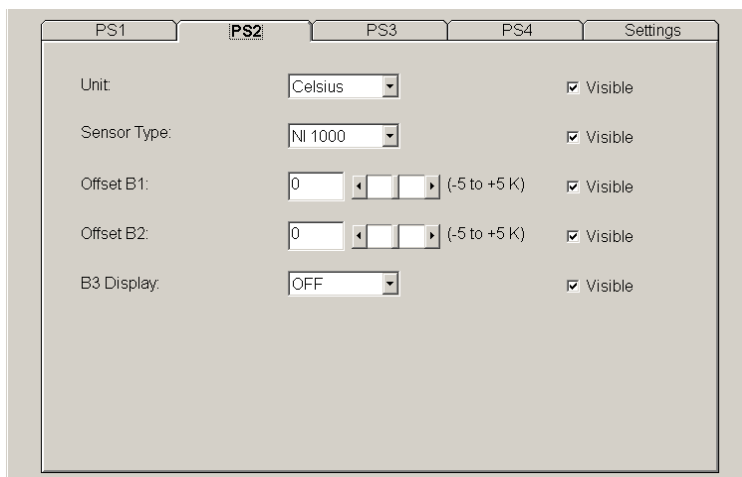
Application Number: Select the application number to adjust its parameters. It will also set other tabs to default values.

Canned: If you checked this box and download the software to a controller, then the controller will use this application. However, it will not allow people to change this application number from its key buttons. If you want to clear a controller from its Canned state, please download an application with the Canned box unchecked.

Note

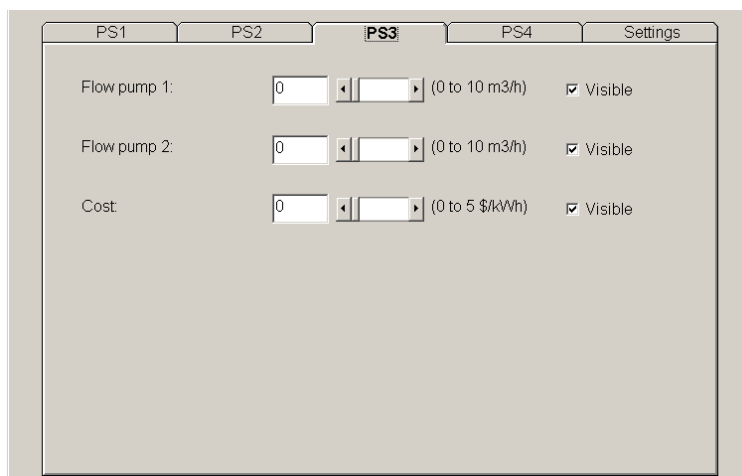
Application selected by customer is displayed permanently in the tool header. Then it's possible to check application choice wherever tab you are.

2.2.2 PS2 tab – Sensors selection



- Unit:** The controller can work in Celsius or Fahrenheit.
- Sensor type:** The sensors can be NI 1000 or PT 1000. Applies to all sensors.
- Offset B1:** The controller will add this amount to the measured value, for B1 sensor.
- Offset B2:** The controller will add this amount to the measured value, for B2 sensor.
- B3 Display:** Some applications treat B3 sensor as option. However, you can always monitor its values in those application, by selecting ON.

2.2.3 PS3 tab – Energy saving counter



- Flow pump 1:** The water flow rate of the pump that controlled by output Q1.
- Flow pump 2:** The water flow rate of the pump that controlled by output Q2.
- Cost:** The cost per kWh of energy.

These parameters allow you to know the cost equivalent of the stored solar energy, compare to conventional energy source (electricity, gas ...).

2.2.4 PS4 tab – Functions

PS1	PS2	PS3	PS4	Settings
Switching Diff. 1:	5	<input type="text"/>	<input type="text"/>	(2 to 20 K) <input checked="" type="checkbox"/> Visible
Q1 Min Off Time:	120	<input type="text"/>	<input type="text"/>	(0 to 900 sec.) <input checked="" type="checkbox"/> Visible
Q2 Min Off Time:	120	<input type="text"/>	<input type="text"/>	(0 to 900 sec.) <input checked="" type="checkbox"/> Visible
Minimum Charging:	40	<input type="text"/>	<input type="text"/>	(OFF, 30 to 90) <input checked="" type="checkbox"/> Visible
Maximum Tank1:	60	<input type="text"/>	<input type="text"/>	(30 to 130) <input checked="" type="checkbox"/> Visible
Maximum Tank2:	30	<input type="text"/>	<input type="text"/>	(30 to 130, OFF) <input checked="" type="checkbox"/> Visible
Frost Protect:	ON	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/> Visible
Gradient function:	ON	<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/> Visible
Delta SP:	6	<input type="text"/>	<input type="text"/>	(0 to 40K) <input checked="" type="checkbox"/> Visible

- Switching Diff. :** The hysteresis of the control loop(s).
- Min Off Time:** If relay is de-energized, it will be kept de-energized for this amount of time.
- Minimum Charging:** Charging takes place only when sufficient heat is available in the solar collector.
- Maximum Tank:** Limit the temperature to tanks.
- Frost Protect:** “ON”: if solar collector temperature drop down to 5°C, pump is switched on.
“OFF”: this function is not used.
- Gradient function:** “ON”: Pump will be periodically switched on.
“OFF”: this function is not used.
- Absolute Charging:** The control point of the second control loop.
- Delta SP:** The differential setpoint of the solar control loop.

2.2.5 Visible flags

It's possible to define which parameters are displayed by the controller for user access. Each parameter can be hide for user just by unchecking the related flag.

- Checked:** The parameter can be seen in the controller.
- Un-Checked:** The parameter cannot be seen in the controller. So user cannot change that parameter.

In the controller, user cannot change the flag status. However, if its application number is changed by key buttons, all parameters will be seen again. Download another application will also overwrite the previous visible flags in the controller.

2.3 Command buttons

2.3.1 Download button

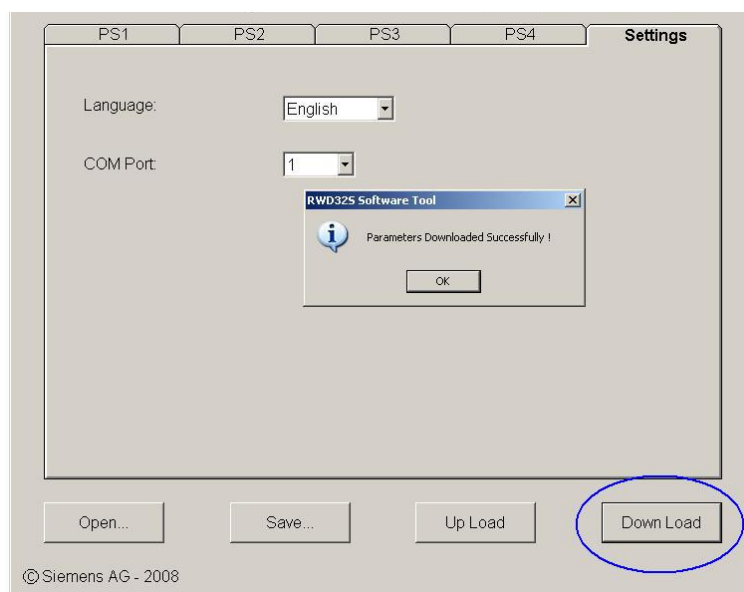
Transfer the parameters from this software to the controller.

Procedure

- Please connect a DB9 cable from the controller to the COM port of computer.
- Please select a COM port in the Settings Tab.
- The controller is powered on.
- Check that the parameters in the PS# tabs are the values you want.
- Click Down Load button. Data will be transferred to the controller. A pop up message will appear.

Precaution

Please note that after a new application is downloaded, it will start to run. To prevent unintended energizing of devices (Q1, Q2), please disconnect the devices (Q1, Q2). After download is completed, power off the RWD32S, connect the devices, then power the system.



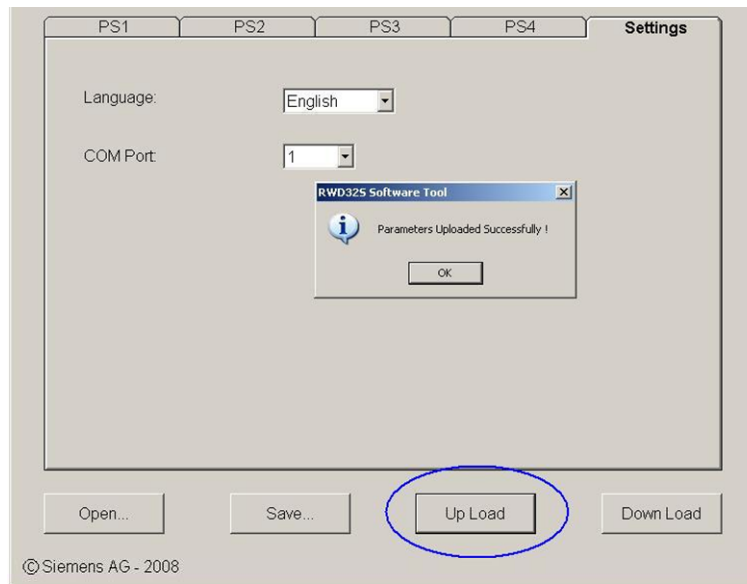
2.3.2 Upload button

If a new controller is powered up, it will be flashing PS1, prompting the user to set an application through its keyboard. If it is still in this state, it has nothing to be uploaded. So, we suppose the controller has been set an application and is running normally.

Procedure

- Please connect a DB9 cable from controller to the COM port of computer.
- Please select a COM port in the Settings Tab.
- The controller is powered on.

You can view or edit the data in PS# tabs.

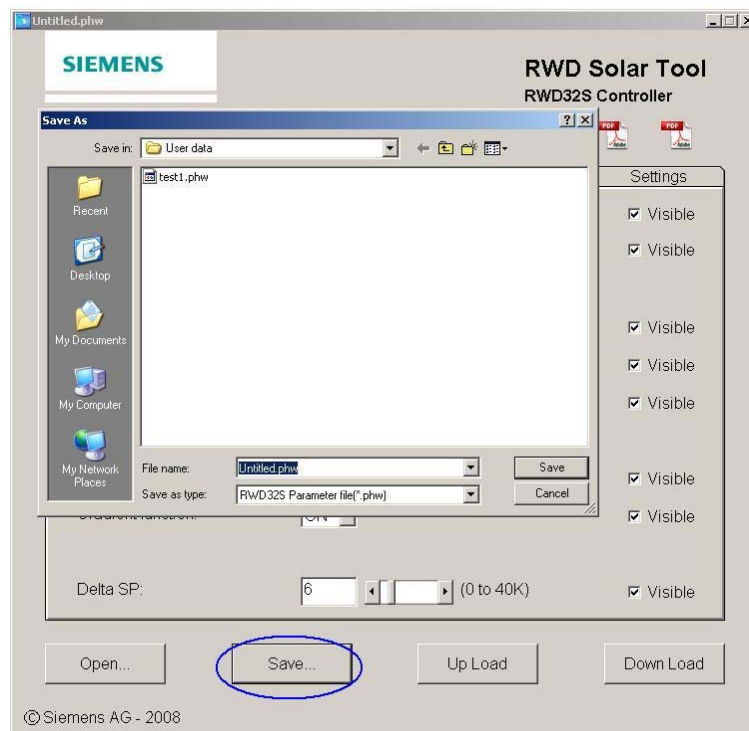


2.3.3 Save button

It writes all the values in PS# Tabs to the hard disk. So it can be used later.

Procedure

- Click Save button and the Save As dialog appears
- Fill in the filename. Then click the Save button inside the Save As Dialog box. An extension .phw will be added by the software to represent the file type.
- Click Save button

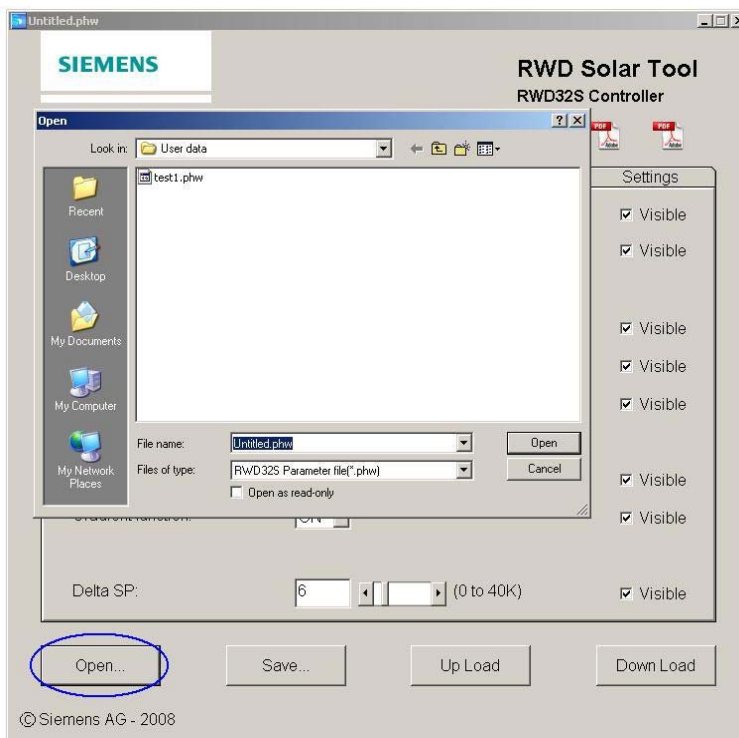


2.3.4 Open button

To read a data file to this software. You can view or edit them in the PS# tabs.

Procedure

- Click Open button and the Open dialog appears.
- Select a file from the file list, then click Open button inside the Open Dialog box.

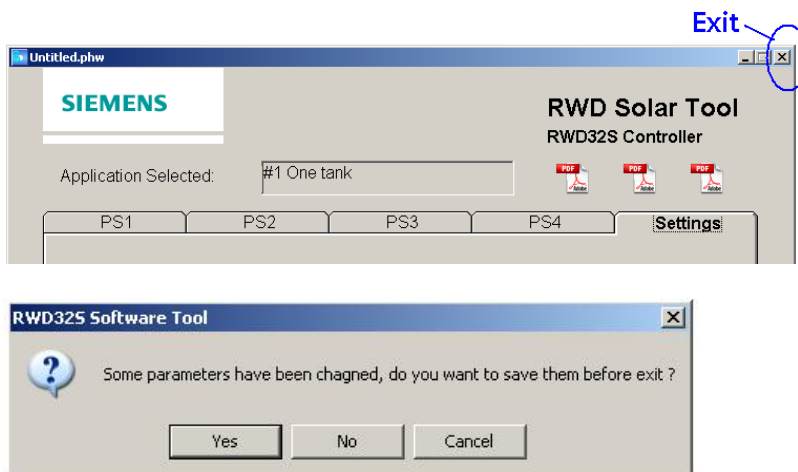


2.3.5 Exit

To exit and close the tool, you can use standard Microsoft windows command.

Procedure

- Click the cross to terminate this software.
- If there is any last change but not saved, it will pop up a selection box. Please select accordingly.



3 Applications

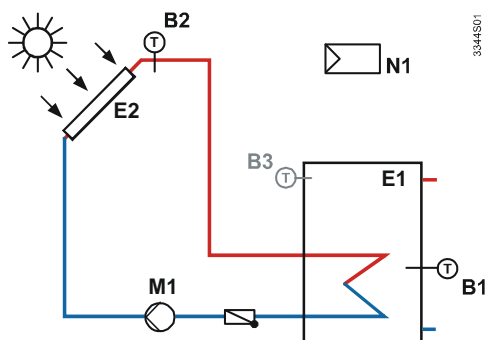
The tool provides the following applications:

Application #1

Basic differential temperature control of a storage tank.

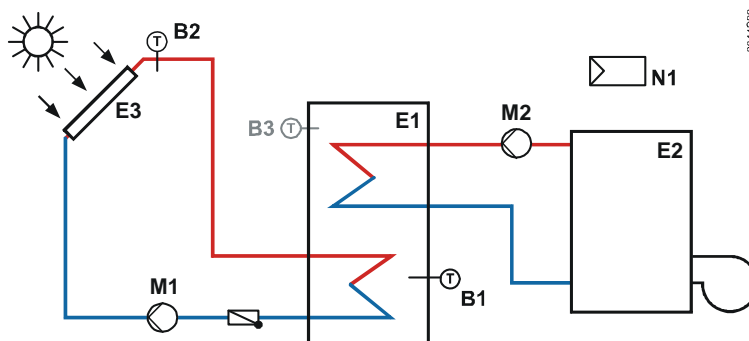
The temperature difference between the solar collector (measured by sensor B2) and the storage tank temperature sensor (B1) is compared with the Δt setpoint.

The charging pump M1 is activated when the set differential + half of switching differential is reached.



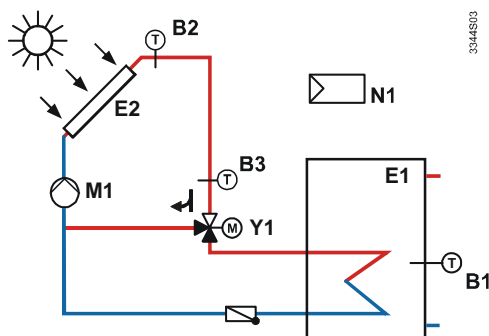
Application #2

Differential temperature control of a storage tank with changeover to a separate heat producer (typically a boiler or electrical heater) when the solar energy is not sufficient. The charging pump M2 is activated to maintain a fixed temperature in the tank with specific temperature differential for pump M2.



Application #3

Differential temperature control of a storage tank with an additional sensor (B3) in the flow from the collector and a bypass valve (Y1).



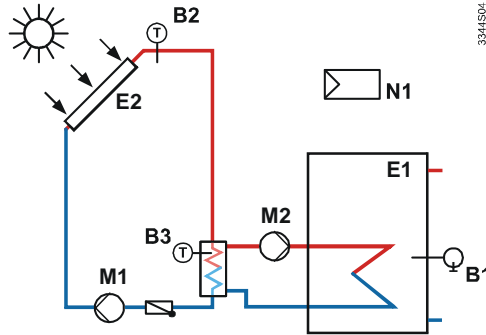
This application is used :

- Where the collector is a long way from the storage tank (e.g. on a high roof) and prevents cool water in the pipe work from being fed into the tank (typically on morning start up or after long periods without solar energy).
- When frost protection is important regarding external temperature

Application #4

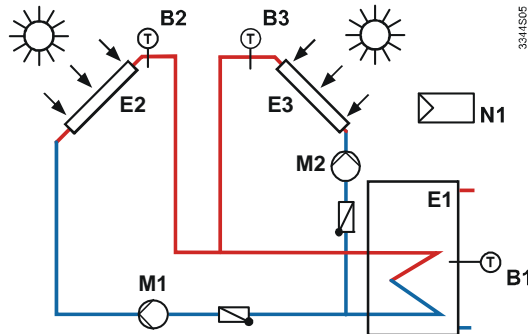
Differential temperature control of a storage tank with an additional buffer tank or heat exchanger used between the solar collector and main storage tank.

An additional sensor (B3) measures the temperature in the heat exchanger, and the storage tank is only charged when the exchanger temperature reaches the required setpoint.



Application #5

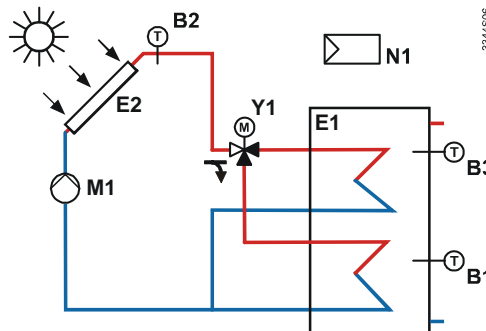
Differential temperature control of a storage tank by two independent solar collectors (e.g. east and west facing).



This application is used in very sunny areas to maximize the solar energy throughout the day.

Application #6

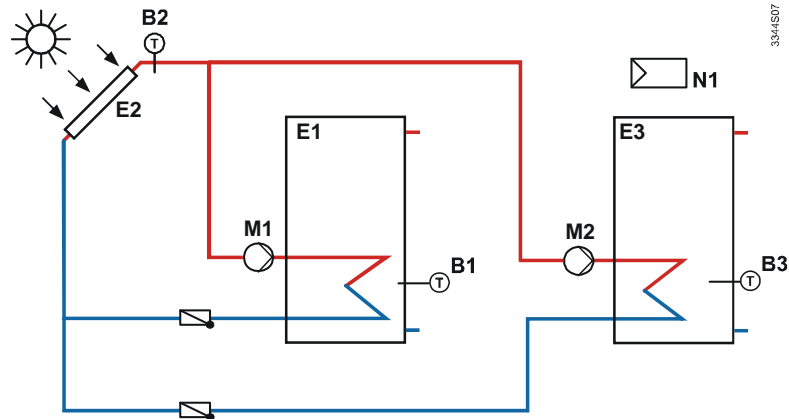
Differential temperature control of a layered storage tank. During periods of low solar energy this application maximizes the heat available by charging the lower part of the storage tank only. As the solar energy increases, the bypass valve (Y1) closes and the upper part of the tank is charged.



Application #7

This application uses a single solar collector to charge two storage tanks or other applications (e.g. swimming pool).

Tank 2 (E3) is only charged if first tank (E1) reached maximum temperature limit. It is typically used where the sun's energy is very high and for long periods. The second heating storage avoid to reach a too high temperature in solar panel.

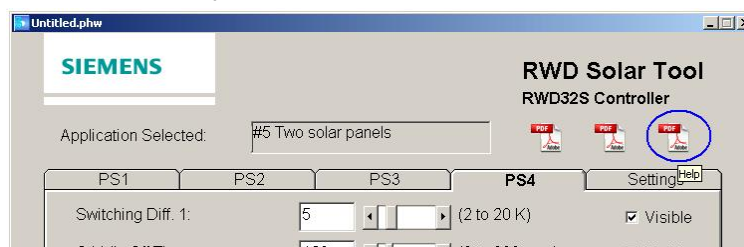


4 Documentation

There are three documentation icons :

- Controller datasheet
- Application sheets
- Software tool instructions (Help)

When mouse is positioned over icons, a text mentioning document type is displayed. Click on icons to open documents.



Note

Adobe Acrobat Reader software (version 8 or later) is required to open documents. Please refer to the Adobe website for free download.

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