

USER MANUAL
WebSensys

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-  Usage of this symbol indicates a warning that should carefully be observed.

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1 Introduction

1.1 WebSensys, WiSensys® web interface

WebSensys is the web interface of WiSensys®, the wireless sensing system. WebSensys consists of a web interface, internet application in PHP and internet database in MySQL format.

1.2 Sensors

Available sensors are:

- Any available sensor in the WiSensys® system.

The sensors measure input values and transmit data to the base station. Sensing is done using a variety of sensors.

The intervals for sensing and transmission are set at installation time. Values can be changed using the WiSensys® PC software.

Each sensor has a unique identity. Optionally the following values can be assigned to each sensor: Friendly Name, Minimum Trip Value and Maximum Trip Value. Trip values are used to signal an alarm condition to the base station when these values are exceeded.

1.3 Base station

WS-BU is the base station that receives the data from all WiSensys® sensors. The received data is either stored in the base station's optional non-volatile memory or is forwarded to the WebSensys internet application.

WS-BU is also used when installing and changing the WiSensys® network. The base station receives settings for the sensors from the WiSensys® PC software and forwards these settings to all sensors in the network.

The base station is available in several versions with different communication capabilities. For WebSensys these include:

- WS-BU-ethernet with TCP/IP communication
- WS-BU-gprs with GPRS communication

1.4 Compatibility

This version of the manual is compatible with release R2 of the WiSensys® system and describes version R1D of WebSensys.

2 Installing the system

Please refer to the WiSensys user manual for installation and configuration of your base station and sensors.

3 Installing WebSensys

WebSensys is a web application and does not require installation on your PC. Please refer to the user- and installation manual of the WiSensys® Wireless Sensing System for instructions on installing and configuring your base station and sensors.

3.1 Requirements

You need a modern web browser to run the WebSensys application. Some features of the site require you to have JavaScript turned on. Only Internet Explorer 6 and 7 browsers are tested and supported. Older versions of Internet Explorer are not supported and will probably not work correctly. Other browsers like Firefox, Opera and such will probably work if you are using a recent version.

4 Using the System

4.1 Logging in

The WebSensys application requires you to login. You will have to obtain the required information from your distributor. Go to the URL supplied by your distributor. A login page will be presented to you.

WebSensys®

Welcome to WebSensys.

Please login to continue.

You can retrieve your password by filling in your username
and then click on "Retrieve password".

Username:

Password:

Figure 1: WebSensys login page

Fill in your username and password to login. It is possible to retrieve your password if you lost it. Just enter your username and click on the **Retrieve password** button. Your password will be sent to your e-mail address within a couple of minutes.

4.2 WebSensys website

After login you will be redirected to the WebSensys main website. The website is arranged in multiple tabs in the top. Also you will see the status of your alarms in the top right corner of the website. This status is updated automatically with an interval of 1 minute. A brief description of the different tabs follows.

4.2.1 Real-time data

Here you will see the most recent measurements of your sensors. The graphs are arranged in tabs and are updated automatically every minute.

4.2.2 Archived data

Here you can access archived data.

4.2.3 Sensors

You will find brief information about your sensors here. You can also set the color, style and visibility.

4.2.4 Views

Here you can create your own custom graphs and equations.

4.2.5 Alarms

Used for managing alarms.

4.2.6 Rules

Used for managing rules.

4.2.7 Configuration

Here you can configure the settings of your base stations and sensors.

4.2.8 About

Here you can find the version of WebSensys and information about Wireless Value.

4.2.9 Logout

You can cleanly logout on this page.

4.2.10 Administrator

Used for system administrators for managing users and hardware. You can also change your password here if you have the right to.

4.3 Real-time data



Figure 2: Real-time data tab

The most recent measurement values of your sensors are shown in the Real-time data tab. Different types of values are shown in different tabs. Also you will see your own graphs in this view. The graphs in this view are refreshed automatically every minute.

You can change the period for which data is displayed by changing the period length in the 'Period length' combo box. The default value is 1 hour. The maximum setting is 1 week.

4.4 Archived data

Here you can access older data that is archived in the database. You have to specify the start and end time of the period you want to see.

CAUTION: It can take an unusual long time to generate graphs if you choose a very long period.

If you have chosen a desired start and end time you can click on the **Load** button to load the data from the database. The data will appear in graphs similar to the graphs in the *Real-time data* tab.

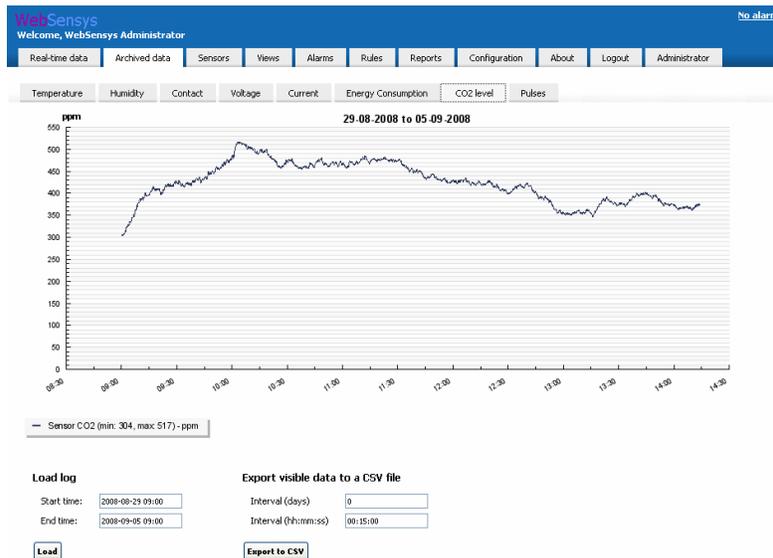


Figure 3: Archived data

In addition to the graphs, you can also generate a formatted text file. This is a comma separated file which can be opened in Microsoft Excel. Using Excel and the CSV file, it is possible to generate your own graphs. For that you also have to specify an interval. This interval specifies over which period the average measurements of all sensors are calculated.

Click on the **Export to CSV** button to generate a CSV file. A download dialog will appear and you will be able to download the generated file to your hard disk.

4.5 Sensors

You can get a quick and more precise overview of the most recent measured values in the *Sensors* tab. These values plus the dates and the times of the values are refreshed every minute.

You can also assign an equation (refer to 4.6 for more information) to a sensor and change the appearance of a sensor in the graphs. You can also hide a particular sensor by un-checking its visibility box.

If you want to change a color of a particular sensor, click the colored square. A color chooser will pop up where you can choose a desired color.

Extra: 91 / 2	24 °C	2008-09-05 09:01:57	Temperature - °C	<input checked="" type="checkbox"/>	100%	Thin	
Extra: 91 / 3	23.7 °C	2008-09-05 09:01:46	Temperature - °C	<input checked="" type="checkbox"/>	100%	Thin	
Test: 1	22.2 °C	2008-09-05 09:01:53	Temperature - °C	<input checked="" type="checkbox"/>	100%	Thin	
Test: 10	0.001 V	2008-09-05 09:01:58	Low voltage - V	<input checked="" type="checkbox"/>	100%	Thin	
Test: 11	-0.00035 kWh	2008-09-05 09:01:39	Energy consumption - kWh	<input checked="" type="checkbox"/>	100%	Thin	
Test: 12	21.8 °C	2008-08-29 12:32:54	Temperature - °C	<input checked="" type="checkbox"/>	100%	Thin	
	64.2 %RH	2008-08-29 12:32:54	Humidity - %RH	<input checked="" type="checkbox"/>	100%	Thin	
	384 ppm	2008-08-29 12:32:54	CO2 - ppm	<input type="checkbox"/>	100%	Thin	
Test: 13	1166 pulses	2008-09-05 09:01:55	Pulses - pulses	<input checked="" type="checkbox"/>	100%	Thin	
Test: 3	22.9 °C	2008-09-05 09:01:38	Temperature - °C	<input checked="" type="checkbox"/>	100%	Thin	
	53 %RH	2008-09-05 09:01:38	Humidity - %RH	<input checked="" type="checkbox"/>	100%	Thin	

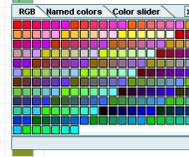


Figure 4: Sensors tab

Do not forget to save the settings if you modified them by clicking on the **Save settings** button.

4.6 Views

With WebSensys it is possible to present certain data different from the standard presentation. You can present temperature data, which is measured in Celsius normally, in Kelvin or Fahrenheit. You can create custom equations to do this.

4.6.1 Manage Graphs

Here you can create a graph in which a custom presentation will be shown. Also you can edit your Graphs in this screen. You have to insert a name for the graph. It is recommended that you assign a meaningful name to a graph, for example: Temperature in Fahrenheit.

You can also choose to always show the zero value in the value axis. This makes the graph more proportional, but less detailed.

Also you can choose if the graph should show all the available data or just a trend for the given period.

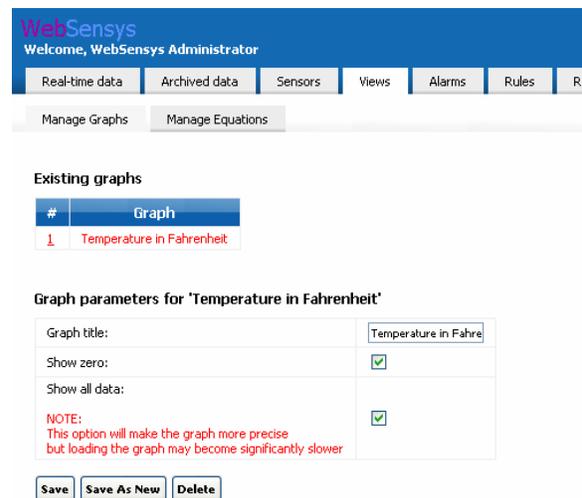


Figure 5: Graphs

Just click on the graph name in the Existing graphs section to edit that graph. You can then save the graph by clicking the **Save** button, save a new copy of the graph by clicking the **Save As New** button and delete the graph by clicking the **Delete** button.

4.6.2 Manage Equations

You have to create an equation to actually convert the data to your desired presentation. Currently only linear equations are possible.

First you have to choose the graph the converted data will be shown in. You can choose both your own graphs that you created as explained in 4.6.1 and the standard graphs already available. If you assign more than two equations to the same graph, additional value axis will be created for each equation.

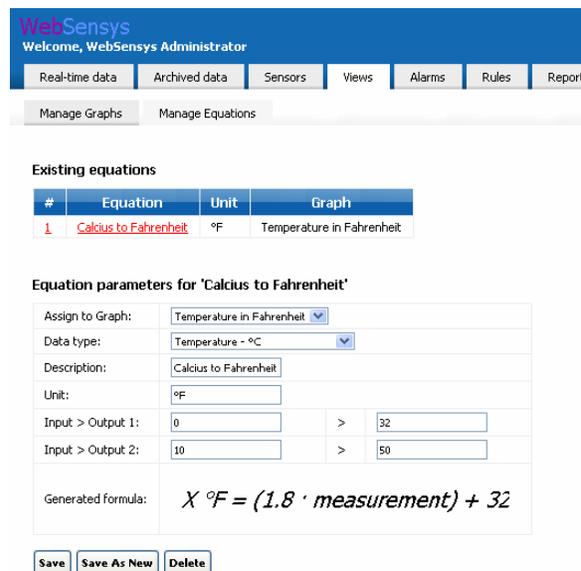
Then you need to choose the data type the equation will apply to. This is needed so you will not be able to accidentally choose a wrong equation for a sensor in the Sensor tab.

Also a name and the unit the data has to be shown in have to be inserted.

The last step is to insert two input and two corresponding output values. WebSensys uses these two values to generate a formula, which is then used to convert the values. To convert temperature given in Celsius to Fahrenheit we can insert the following values:

- Input 1: 0
- Output 1: 32
- Input 2: 10
- Output 2: 50

This means that 0 °C equals 32 °F and that 10 °C equals 50 °F. The formula generated by WebSensys is shown below the input fields for your verification. Look at the figure below to see this example being made.



The screenshot shows the 'WebSensys Administrator' interface. The 'Sensors' tab is active. Below the navigation bar, there are buttons for 'Manage Graphs' and 'Manage Equations'. The 'Existing equations' section contains a table:

#	Equation	Unit	Graph
1	Calcius to Fahrenheit	°F	Temperature in Fahrenheit

Below the table, the 'Equation parameters for 'Calcius to Fahrenheit'' form is shown:

- Assign to Graph: Temperature in Fahrenheit
- Data type: Temperature - °C
- Description: Calcius to Fahrenheit
- Unit: °F
- Input > Output 1: 0 > 32
- Input > Output 2: 10 > 50
- Generated formula: $X \text{ } ^\circ\text{F} = (1.8 \cdot \textit{measurement}) + 32$

At the bottom of the form are buttons for 'Save', 'Save As New', and 'Delete'.

Figure 6: Manage Equations

Save the equation by clicking on the **Save as New** button. You can also edit an existing equation by clicking on it in the Existing equations section. Then click the **Save** button to save the changes, **Save As New** button to create a new copy of the edited equation or **Delete** button to delete the equation.

You can assign equations to a sensor in the *Sensors* tab.

4.7 Alarms

In WebSensys, it is possible to configure alarms. Alarms can be assigned to any sensor type supported by WebSensys.

4.7.1 Creating an alarm

Go to the *Alarms* tab to create an alarm. You will see a tree with your base stations and sensors on the left side of the screen. Click on the desired channel of a sensor (ex: Temperature) to create an alarm for that channel. Then click on the **Create alarm** button. You will see a similar screen to the image below.

The screenshot shows the 'Edit alarm' configuration page. At the top, there is a navigation bar with tabs: Views, Alarms, Rules, Reports, Configuration, and About. Below this is the 'Edit alarm' header. The main content is divided into two sections: 'Alarm settings' and 'Settings new action'.

Alarm settings:

- Description:
- Active:
- Priority:
- Active from (hh:mm:ss):
- Active to (hh:mm:ss):
- Active on: (dropdown menu open showing: monday, tuesday, wednesday, thursday, friday, saturday, sunday)
- Trigger value: °C
- Trigger relation:
- Alarm delay (hh:mm:ss):

Settings new action:

- Action description:
- Escalation level:
- Show on website:
- E-mail:
- Switch 1:
- Switch 2:
- Switch 3:

Buttons at the bottom:

Figure 7: Creating an alarm

Now you will have to insert your desired alarm settings in the input fields.

Insert a meaningful description in the Description field (for example: 'Temperature too high!').

Choose if the alarm has to be enabled or not. If you choose not to enable the alarm, the alarm will be ignored when new measurements are processed.

Choose the priority of the alarm. The priority is useful when you configure more than one alarm with actions for the same target. The alarm with the highest priority will win.

You can configure when the alarm will be active by choosing a start- and end time and the desired day.

The trigger value is the value on which the alarm will be triggered. The trigger relation will tell WebSensys how to compare measured values against the trigger value.

You can also specify a delay. The delay makes sure that configured actions for an alarm will not be performed immediately but after the alarm situation is present for a specified amount of time.

4.7.2 **Configuring an action**

You need to specify at least one action for each alarm. Insert a meaningful description in the description field and an escalation level.

You can use the escalation level to control the type of actions that will be performed if the alarm is active for a longer time. For example: you can choose to receive a notification about an alarm via e-mail by choosing escalation level of 1. If a critical value persists for too long, you can choose to send a SMS by choosing escalation level of 2 for the second action. That way you will first receive an e-mail and then an SMS.

After you configured your action you can click on **Save alarm** to save the alarm or **Save alarm & Create new action** to add a second action to the alarm.

4.7.3 **Editing and deleting alarms**

If you click on the *Alarms* tab, you will be presented with all the configured alarms for all your sensors. You can edit the alarm by clicking the [Edit](#) link.

You can also click on the channel of a desired sensor. Now only the alarms for that channel will show up and you can edit the alarm by clicking the [Edit](#) link.

You can delete one or more alarms by checking the checkboxes of the alarms you want to remove and then click on the **Delete alarm(s)** button.

4.8 Rules

The Rules tab works exactly the same as the Alarms tab on the WebSensys website. You can add, edit and delete rules in the same way. There are a few differences between alarms and rules though.

- If a rule is triggered, you will not be notified about it on the website, if an alarm is triggered you will.
- An alarm has to be reset manually by confirming it on the website. A rule is reset automatically.

These two differences make both alarms and rules suitable for different tasks. Some examples for alarms:

- Notify when the temperature in a refrigerator rises above a specified value
- Notify when a door is opened for a long time.

Examples for rules:

- Automatically control a refrigerator by monitoring the temperature in it. That way you can overrule the devices built-in control unit
- Automatically power on and off lamps at specified times

4.9 Reports

It is possible to create reports in PDF format which you can send automatically at daily, weekly, or monthly basis. These reports can contain all the generated alarms, sample values in table form, energy usage and graphs similar to the graphs on the WebSensys web site.

4.9.1 Creating a report

Go to the Reports tab and click on the New Report icon.

Report settings

Report type:

Report title:

Start time: (yyyy:mm:dd) (hh:mm)

End time: (yyyy:mm:dd) (hh:mm)

Features:

- Automatic
- Alarms
- Measurements table
- Total energy consumption
- Graphs

Sensors:

Own sensors

- PrGr91 - Test: 13
- PrGr91 - Test: 3
- PrGr91 - Test: 3
- PrGr91 - Test: 12
- PrGr91 - Test: 10
- PrGr91 - Test: 1
- PrGr91 - Test: 7
- PrGr91 - Test: 11

Sensors of sub-clients

- HaHo86 - HH34 Low Volt
- HaHo86 - Sensor CO2
- HaHo86 - Sensor CO2
- HaHo86 - Sensor CO2
- HaHo86 - HH37 Contact
- HaHo86 - HH33 (H/T)
- HaHo86 - HH33 (H/T)
- HaHo86 - HH35 current
- HaHo86 - HH38 Low Volt
- HaHo86 - EnergyConnect

Target:

Own users

- WebSensys Administrator (admin)

Users of sub-clients

- Han Hoekstra (haho)

and/or

e-mail (separated by ','):

Measurements table settings

Interval:

Features:

- Show lowest measurements
- Show average of measurements (or energy consumption in case of energy sensors)
- Show highest measurements

Figure 8: Creating a report

You can then set the report parameters.

You can change the report type to daily, weekly, monthly or custom. The daily, weekly and monthly type can generate automatic reports that can be sent do a specified e-mail address.

Start time and end time can only be used in the custom report type.

You can select the features that the report must include.

Then you can select the sensors that the report must include.

If you select a target or input an e-mail address, the report will be sent to the selected target and/or e-mail address. This only works if you selected 'Automatic' in the features.

Also you can configure the measurement table by selecting the interval at which new table columns have to be created and which values have to be included in the report.

4.9.2 Editing a report

You can edit a report by clicking on the report icon at the left side of the screen. Click on the **Save** button to save the changes.

4.9.3 Deleting a report

You can delete a report by clicking on the report icon at the left side of the screen and then clicking the **Delete** button.

4.10 Configuration

The *Configuration* tab is used to configure the hardware. To configure a device click on it, and all the available configuration options will be shown. If you click on a base station, the settings of the I/O board will also be visible.

Edit sensor 'Test: 1'

Sensor settings		
Display name:	<input type="text" value="Test: 1"/>	
Device type:	Temperature Sensor	
Device id:	1	
Data type:	Temperature	
Sensor parameters		Last time updated
Friendly name (max. 15 characters)	<input type="text" value="Test: 1"/>	2008-09-03 16:12:52
Maximum temperature trip value	<input type="text" value="3276.7"/>	2008-09-03 16:12:52
Minimum temperature trip value	<input type="text" value="-3276.8"/>	2008-09-03 16:12:52
Sample interval (1-200 sec.)	<input type="text" value="20"/>	2008-09-03 16:12:52
Software version	<input type="text" value="R21"/>	2008-09-03 16:12:52
Transmit interval (number of samples 1-10)	<input type="text" value="1"/>	2008-09-03 16:12:52
Transmit missed values	<input checked="" type="checkbox"/>	2008-09-03 16:12:52

* = setting not yet sent to the base station

Activity

	Always	M	T	W	T	F	S	S
00:00 - 00:30	<input checked="" type="checkbox"/>							
00:30 - 01:00	<input checked="" type="checkbox"/>							
01:00 - 01:30	<input checked="" type="checkbox"/>							
01:30 - 02:00	<input checked="" type="checkbox"/>							

Figure 9: Sensor configuration

You can save the settings by clicking the **Save settings and parameters** button. The settings will be sent to the base station.

To update the settings stored in the database you can click the **Get settings from sensor** or **Get settings from base station** button. The settings will then be sent from the base station to WebSensys.

4.10.1 Activity manager

Sensors also have the *Activity manager*. There you can specify in blocks of 30 minutes when a sensor should generate alarms (in addition to the alarm and condition settings). Save the settings by clicking on the **Save activity** button. You can also copy the configured activity matrix to all other sensors attached to the same base station by clicking the **Save and copy to all sensors** for this base station button.

4.11 Administrator

The *Administrator* tab is used for maintenance of the WebSensys system. Only the main administrator can use all the functions of this tab.

If you click the Administrator tab, you will see all the clients that are available in the database.

4.11.1 Adding a client

At least one client is always present in the WebSensys system which is not removable. Click on the [Create](#) link in the *Create* column to create a sub-client for the desired client. You will be presented with several input fields which all have to be filled in. Refer to Appendix A for explanation about privileges.

4.11.2 Deleting a client

Check the checkbox under the *Delete* column of each client you want to delete and then click on the **Delete client(s)** button.

CAUTION: ALL SUB-CLIENTS WILL BE DELETED AUTOMATICALLY

4.11.3 Editing a client

You can edit a client by clicking in the [Edit](#) link of the client you want to edit. Click the **Save client** button to save the changes.

4.11.4 Adding an user for a client

A user has to be created for each client for the user to be able to login on the website. It is possible to add more than one user for each client and give them different privileges.

To add a user click on the [Show](#) link under the *Users* column of the client you want to add a user to. You will be presented with all the already existing users for the client. Click on the **Create user** button to add a user. Now you can enter the data for the user and assign privileges.

4.11.5 Deleting a user

To add a user click on the [Show](#) link under the *Users* column of the desired client. Now check the checkbox of the user you want to delete under the *Delete* column. Click on the **Delete user(s)** button to delete the selected user(s).

4.11.6 Editing a user

To edit a user click on the [Show](#) link under the *Users* column of the desired client. You can edit a user by clicking in the [Edit](#) link of the user you want to edit. Click the **Save user** button to save the changes.

4.11.7 Adding a base station to a client

To add a base station to a client, click on the [Show](#) link under the *Base stations* column of the client you want to add a base station to. You will be presented with already existing base stations. Click on the **Create base station** button to add a base station.

The most important field is the 'worldwide ID'. This is a unique ID for each base station and is used to identify a base station. The network ID, device type and device ID can be left at the default values unless specified otherwise by Wireless Value.

Click on **Save base station** to save the base station. You do not need to add sensors to the WebSensys website, since sensors will be added automatically.

4.11.8 Editing a base station

To edit a base station, click on the [Show](#) link under the *Base stations* column of the client you want to edit a base station of. Click on the [Edit](#) link of the base station you want to edit and click on the **Save base station** button to save the changes.

4.11.9 Deleting a base station

To remove a base station, click on the [Show](#) link under the *Base stations* column of the client you want to remove a base station of. Check the checkbox of the base station you want to delete under the *Delete* column and click on the **Delete base station(s)** button to remove the base station(s).

CAUTION: SENSORS ATTACHED TO THE BASESTATION WILL ALSO BE REMOVED

4.11.10 Deleting sensors from a base station

To remove one or more sensors from a particular base station, click in the [Show](#) link under the *Base stations* column. Then click on the [Show](#) link of the base station you want to remove sensors from under the *Sensors* column. Now check the checkboxes of all the sensors you want to remove and click on the **Delete sensors(s)** button to delete the sensors.

5 Appendix A: User privileges

Only the main administrator can create and administer new clients and base stations. For the other users there are several privileges to define which tasks a user can perform.

Sensor settings

The user can change equations that a sensor uses in the Sensors tab.

Graphs and equations

The user can create and manage custom graphs and equations.

Alarms

The user can create and manage alarms.

Rules

The user can create and manage rules.

Hardware configuration

The user can change the hardware configuration and sensor activities.

Reports

The user can create and manage reports (not available yet).

Confirm alarms

The user can confirm alarms.

Can edit himself

The user can change his password and e-mail address.

Administrator

The administrator has all the above privileges and is privileged to create new users.