

# **Manual**



## **WATERMANAGER SOLUTION**

**State 01/2020**

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# **1 General Information**

Our data loggers and measurement network software have been produced and tested with great care. All application modules were also tested for vulnerabilities and were taken in operation only after being tested successfully by STS. However, it is possible that malicious code can be infiltrated by emerging vulnerabilities.

a) Running the software on a customer's server: You will of course be provided with the latest updates for our applications if any vulnerabilities are found. We also offer a maintenance service for the software. However, please make sure to keep your operating system and components up to date (i.e. with automatic updates).

b) Running the software on the servers of STS: If you have charged us with data management and operation of the data processing, updates are performed by us and there is no need for you to take care of system maintenance.

## **2 Data logger**

### **2.1 About the product**

One aspect of the logger is its high quality housing (V4A steel sleeves, corpus made of Delrin). The logger can be fitted in small pipes of 2". It is safe from overflow and can be operated for more than 2 years with alkaline-manganese batteries or even more than 10 years with lithium batteries. The device can as well be fitted in pipes with a larger diameter using adapter rings or overhead suspensions. It has two input channels that are reserved for the water pressure and the water temperature.

The GPRS-water level data logger has an internal digital temperature and humidity sensor (with an accuracy of approximately  $\pm 0.4^{\circ}\text{C}$  and about  $\pm 2\%$  RH). This sensor is intended for security monitoring. If the device is not entirely hermetically sealed (i.e. due to seals being damaged during assembly or battery change, ...), moisture might get into the housing. For this case, a small packet of desiccant, which can absorb moisture for a while, is placed inside the logger. Thus, the user has enough time to take actions.

### **2.2 Communication**

For communication on the location, the logger is equipped with a 433 MHz near field radio interface. Thus, the logger doesn't need to be opened for configuration. For remote data transmission, the logger transmits its data using GPRS (General Package Radio Service). Therefore the data is transmitted directly to the server via cellular network. Using that technology it becomes possible to set up even large monitoring networks which can still be handled comfortably and require just low maintenance. When making a GPRS transmission, the logger always synchronizes its clock using the GPRS network to avoid time errors. Furthermore, using the GPRS network is a cost-saving way to transfer the data, as it doesn't require any further hardware to be installed in the field.

## 2.3 Mechanics

The housing consists of two V4A-steel casing pipes and a plastic fitting inside, in which the battery and the electronic system are located.

The joints and gaskets must not get dirty or damaged!

Prior to assembling the device, joints and gaskets must be checked and lubricated (silicone grease or O ring grease). **ATTENTION:** Don't use force!

Replace the desiccant (i.e. Silica gel(R)) as necessary. The desiccant bag is located at the cover panel of the electronics.

Important: Check the O-ring seal every time the device is reassembled. Any damaged seal must be replaced! Depending on which type of desiccant is used, the humidity should be not higher than 20%. Humidity above 20% might indicate broken seals. At a humidity higher than 50% the electronic is at risk! Advice: most of desiccants can be re-generated by drying at 120°C-150°C for 20 minutes.

## 2.4 Electrostatics

### Important:

Inputs and outputs of the device are protected against electric discharges and surges (so-called ESD). But please do not touch any part of the electronic components. If you need to touch any part, please discharge yourself, i.e. by touching grounded metal parts.



## 2.5 Initial Commissioning

Due to European law, devices will be shipped deenergized only. See chapter 2.6 „Assembling and Changing Batteries“ on how to fit the batteries.

## 2.6 Assembling and Changing Batteries

Possible types of batteries are 2 mono-D-cells with 1.5 Volt or 1 lithium DD 35Ah with 3.6V.

To avoid damage, use appropriate batteries only!

To assemble the battery, remove the steel casing pipe which covers the battery compartment. For this, twist off the ring nut and pull off the casing pipe.

**Attention:** Please mind the polarity of the batteries. Inserting the battery incorrectly may blow the fuse (which can only be repaired at the factory) or even damage the electronics.

The electronic comes with a backup capacitor which can compensate a power outage for a short time (i.e. during a battery change), so it doesn't lose data like date and time.

If the outage was too long, the device will reboot, which is indicated by the green LED blinking about 10 times. After that the device is ready to use. The time has to be synchronized again.

## 2.7 Fitting the SIM card

Important: To open the card holder, press your finger on the drawer slightly and push it in the direction which is marked "Push Open", so that the latch releases the drawer. To lock, simply press your finger on the drawer slightly again and push it in the other direction which is marked "Push Open" until the latch closes.

## 2.8 Fitting the antenna

Note: The device comes with a standard GSM-plug (FME) for the antenna. Various antennas can be connected using the FME plug. A magnetic rod antenna or alternatively a helical antenna for mounting on measuring caps is included in the delivery. Your cable may be brought

out through a small hole or a small notch. It is recommended to mount the antenna on a metallic surface. Alternatively, different antenna types using FME plugs are available.

When connecting the antenna, plug in the plug as far as possible for optimal contact. Please do not unnecessarily tighten the knurled screw. Note: In case of low signal strength a slight change of the antenna position can cause a significant improvement in signal strength (just a few cm). If the signal is too low at all, antennas with higher transmitting / receiving power or directional effect can be a good solution. We will be glad to help you finding the optimum antenna for your area!



The circular antenna "Helical" can be installed easily into any cap. The antenna is made of tough, weather-resistant ABS material and has a standard FME connector plug.

To fit the antenna onto a cap, fasten it on top through a hole in the center of the cap and seal it with silicone. Do not seal the inside of the antenna housing through the cable entry, as this can cause interferences. Fit the cable in a way that it will not be clamped when closing the cap. Some level caps are very thick, so the nut (M16 / 12) and screw no longer interlock. In that case, we recommend to omit the nut and glue the antenna to the cap with silicone.

## **2.9 Fitting into measuring tube**

For installation in a 2 " tube, the border of the cap of the data logger is placed on the edge of the tube.

To fit the logger into a 3" or 4" tube, an adapter ring is required. Adapter rings of 3" or larger have an opening for light plummets. The antennas are fitted individually: For underfloor installations underfloor antennas are available. Those are clamped between the frame and the lid.



Helical antennas are fitted onto the lid for above-floor measuring points. For fitting the antenna, the lid is pierced with an appropriate drill bit in the center. Using that hole the antenna can be screwed onto the lid. Inside buildings, a stub antenna can be screwed onto the logger. Once the logger is fitted, a comparative measurement should be performed using a light plummet.

## **3 STS GP-Shell**

### **3.1 About the product**

The software STS GP shell is used for local communication between a PC and a GPRS data logger. For the communication, a 433 MHz radio link is used.

Using STS GP shell, the parameters of the logger can be configured and measured values are shown directly.

### **3.2 Installation**

Please install the STS GP shell before you connect the dongle to the PC for the first time! The drivers needed for the installation of the dongle are installed with the STS GP shell.

Please use the supplied CD or download the latest version of the software from the customer homepage. Double-click the \*. Exe file to start the installation. When the installation was successful, click "Exit Installation".

### **3.3 Functions / Settings**

The start window of the shell is divided into 3 areas:

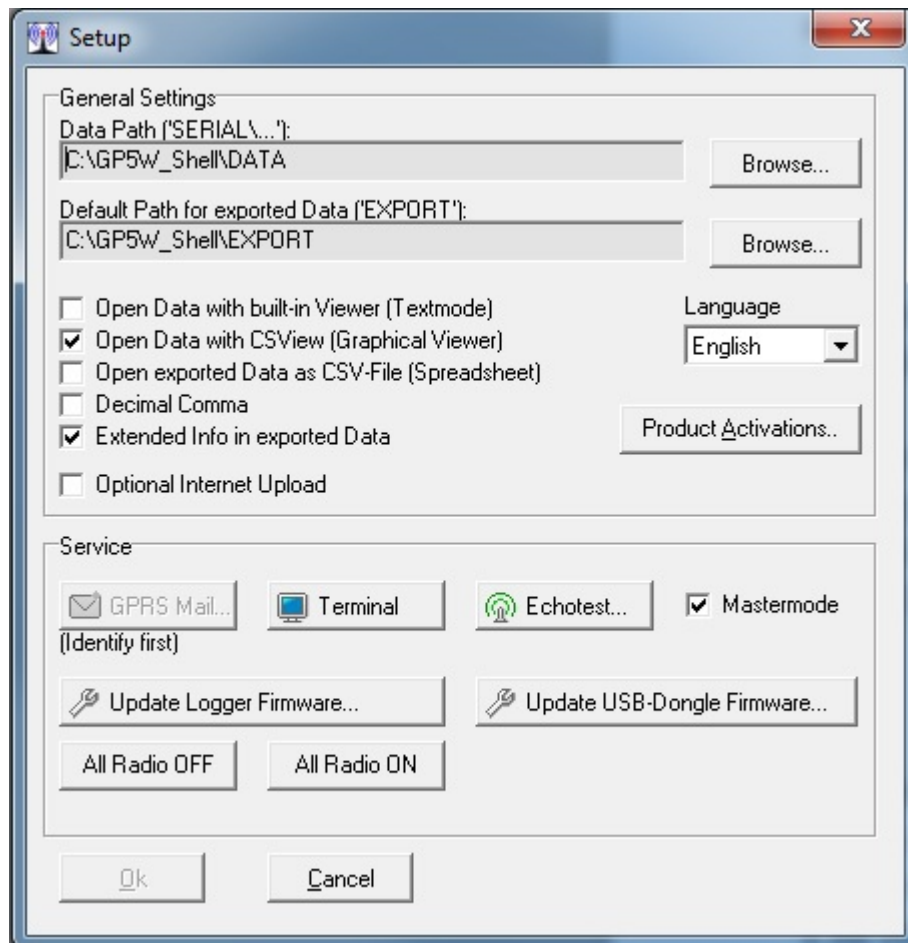
- Menu with buttons

- Main window with current information

- List of available loggers

#### **3.3.1 Setup:**

## General settings



**Data Path ('SERIAL'):** At this path, one folder for each new logger will be created. Each Folder will be named after the serial number of the logger. Parameters / Settings and all raw data will be saved in each folder.

**Path for data export ('EXPORT'):** All exported data (i.e. MS Excel) will be stored to the folder entered in that field.

**Open Data with built-in Viewer (Text mode):** The measured values will be shown as Text files.

**Open Data with CSVies (Graphical Viewer):** The measured values will be shown as hydro-graph and table.

**Open exported Data as CSV-File (Spreadsheet):** The measured values will be shown as CSV File (Comma separated values).

**Decimal Comma:** Use comma (,) as decimal separator when exporting data.

**Extended Info in exported Data:** Check this option, if you want additional Information on actions (i.e. GPRS-transmissions, parameter adjustment) to be added to your export-file.

**Optional Internet Upload:** Enabling this option, data from loggers that do not have a modem (i.e. Aquatos) can be transmitted to the server.

**Language:** Language for the user interface can be chosen from a drop down menu.

**Product activation:** Additional features can be activated by entering serial numbers. Further information on these features can be found in the features separate manuals.

## Service

**GPRS Mail:** By clicking this button, a test mail will be sent to the server in order to check the GPRS connection. The Logger has to be identified by the software before this option becomes available. Once the button is clicked, a terminal window shows all steps of the GPRS-transmission.

**Terminal:** Opens a terminal window. The terminal mode offers the option of showing text output of the logger. This option can be useful for monitoring data transmissions to the server, as every step of the transmission will be listed. Under normal circumstances, this option will not be needed. As the data is not coming from STS GP-Shell but directly from the logger, the language settings of GP-Shell will be ignored. The output will always be in English.

## MANUAL

**Echotest:** Clicking this button, the signal strength of the 433 MHz near field radio connection will be tested. Data packages will be sent, until the test is aborted manually by the user.

**Update Logger Firmware:** Perform an update of the loggers firmware. After a security prompt, new firmware files can be selected and transferred to the logger. Please refer to the chapter „Updates“ for further information.

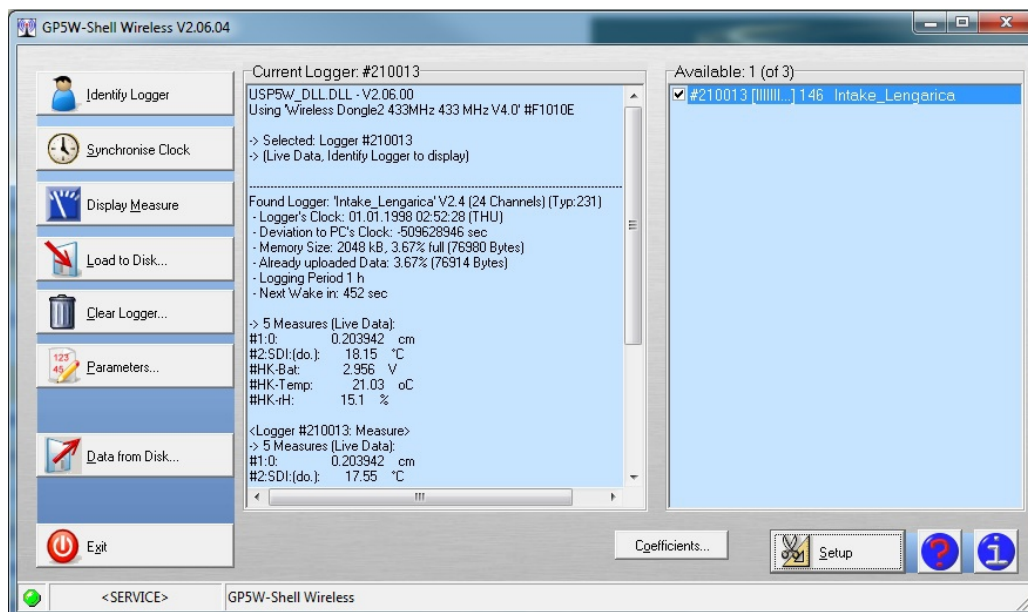
**Update USB-Dongle Firmware:** Perform an update of the USB-dongles firmware. After a security prompt, new firmware files can be selected and transferred to the USB-dongle. Please refer to the chapter „Updates“ for further information.

**All Radio OFF:** All loggers in range of the dongle will be set to 'flight mode', so they will not send any more data.

Important: The loggers will also disappear from the list in GP-Shell.

**All Radio ON:** All loggers in range of the dongle will be set from 'flight mode' back to 'normal mode'.

### 3.3.2 Main window



**Identify Logger:** Establishes a connection to a logger. To connect to a logger, select a logger from the list before clicking „Identify Logger“,

**Synchronize Clock:** Synchronizes logger time with time of the current system.

**Display Measure:** Show current measurement values (status of logger and measured values of the activated measuring probe). The values measured when clicking this button will not be stored and not be transmitted to the server, but can be used for local calibration of data loggers.

**Load to Disk:** Download measured values from the data logger to your local computer. You can choose between incremental download (only values that have not been transmitted to the server yet will be downloaded) and full download (all values stored on the logger will be downloaded). The local path for saving the data can be set in the setup menu(see chapter setup).

**Attention:** If the modem of the logger is switched off, any data downloaded to your computer will be marked as sent and will not be transmitted during the next GPRS-transmission. In doing so, the loggers can be operated even without the use of the GPRS-connection.

**Clear Logger:** By clicking this button, the whole memory of the logger will be cleared. (All measured data will be deleted!)

**Parameters:** Opens a menu for configuring a logger. The logger must be identified first (see chapter 3.3.3).

**Data from Disk:** Open Files that have been downloaded to the local computer previously, i.e. measured values (i.e. \*.g2p files).

**Exit:** Closes the application.

## Parameters

## MANUAL

**Global Parameters:** The measuring time intervals are set here.

**Period:** Enter measuring interval. The minimum for this parameter is 1 minute for GPRS-transmission. If Monitoring on the site, a 2 second interval can be used in combination with the live mode (i.e. pumping tests). If the interval is set as min, sec or hour can be selected from the drop down menu next to the field. If you set an interval of less than 1 minute, the program will refuse to transfer the parameters to the logger if the transmission intervals are too large to all data measured in the interval to be sent in a single transmission.

**Period-Offset:** From a period of 5 minutes or more, the logger automatically selects the first measurement, the next "modular" time, i.e. at a period of 1 h, this would be the next full hour. If for example a period of 12 hours is selected, the measurements would be made, at 0:00 and 12:00. With the "Period Offset" the time of measurement can be postponed. If an offset of 2 hours is selected for example, the measurements would be made at 2:00 am and 2:00 pm.

**Alarm period:** Interval of measurements in case of an alarm

**Name:** Custom name for each logger (for example, tag number, street name). The name will be displayed in the online interface.

**IMPORTANT:** The name can not contain special characters.

### Real-time mode

The live mode is used for continuous local transmission of data via radio to a receiver. When the real time mode is active, the device sends the currently measured data to the shell software which displays this data in the main window. This allows to monitor the water level in real-time, for example when changing water levels by pumping. The shortest possible measuring period is two seconds.

There are 3 modes for the live mode:

- **Intelligent:** Logger detects when a receiver is in range and then sends data automatically in the measuring interval set.
- **Always:** The logger will always send data, not matter whether there is a receiver in range or not. This setting requires continuous power!
- **Off:** The logger does not send any data.
- 

**HK-Counter:** Set transmission interval of internal self-monitoring values. 1 = with every normal transmission. 10 = with every 10<sup>th</sup> transmission. In case of alarm the self-monitoring values will be collected at each measurement.

**Log HK:** Select, which self-monitoring values shall be collected. The following options can be selected: Supply (battery), temperature (Housing temperature) and humidity (Housing inside humidity).

**Parameter Set:** Shows which set of parameters is currently selected and can not be changed. The number contains the logger ID, year, month, day, hour, minute, second (e.g. 100012\_20090812080050: Logger Nr 100012 \_ 12. August 2009 at 08:00:50) The number is set every time parameters are sent to the logger.

**GPRS / GSM Setup:** Opens the window for transmission and modem settings (see 3.3.5).



## MANUAL

**Channel Parameters:** Settings of the channel parameters can be changed here. Channel 1 is for the measurement of water level / tapping, channel 2 is for measuring the water temperature. # 1: means channel 1 is selected. Switch the channel to be edited by clicking the arrow up / down buttons.

**Type:** indicates which value is measured in this channel and can not be changed manually.

**Unit:** Choose the Unit to be measured.

**ID:** This parameter is intended to mark the measuring point, for example, in a database. As long as "0" is set, this value has no effect. Values from 1 to 65535 can be entered. The value entered here will be listed in the table headings of the exported data. Whether and how this information will be taken into consideration when importing the data is the responsibility of the importing software.

**Action:** Each action can be activated by checking.

- **Log channel:** Measured data of this channel will be saved when this option is checked.

- **Check alarms:** Check this option if you want to set special alarm events (e.g. shorter measuring and transmissions intervals).

## **Scale**

**Offset:** Offset (available if no pressure sensor is used for the water level): This value will be subtracted from the measured value (e.g. if the value should be displayed as height above sea level). Note: positive numbers are subtracted from the measured value, negative numbers are added!

## MANUAL

**Multi:** Default setting is 1.000000. If a minus (-) is set before the first digit, the value entered becomes negative. Use this to select whether water column or tapping should be measured. The adjustment value can also be calculated under the tare button. Furthermore, the density of the water can be set here. The value 1.000000 is calibrated for fresh water. Depending on the salinity, the value has to be reduced (i.e.: 3% salt content = 0.997000).

**Tare:** Opens the tare window (see 3.3.4).

**Alarm:** If the thresholds entered here are exceeded or fallen below, the device will switch to alarm mode.

**High:** If the measured value falls below the value entered here, the alarm is activated.

**Low:** If the value entered here is reached or exceeded, the alarm is activated.

**Power Up Wait:** warm-up time for the sensor (enter 1000 msec for PTM/N from STS)

**Sensor min / max.:** Not required if a pressure sensor is used. If slower sensors are used, a period of time can be set for the measuring time. Settings depend on the sensor type.

**Type:** Drop Down Menu. Choose between SDI (for general SDI sensors i.e.. temperature), SDI12-Pressure (STS) (for the pressure channel of the iLog and wireless sensor (to connect more sensors via near field radio)

**No measure, use cached values:** must be enabled if a sensors sends multiple values (i.e.. pressure and temperature)

**Index:** Numbers of sensor channels (i.e.. pressure = 0 as first channel and temperature = 1 as second channel.y y

**S.Nr.:** SDI 12 address of the selected sensor (default is 0)

**Cmd.:** 0 means SDI command m!, which triggers measuring

## **More Buttons**

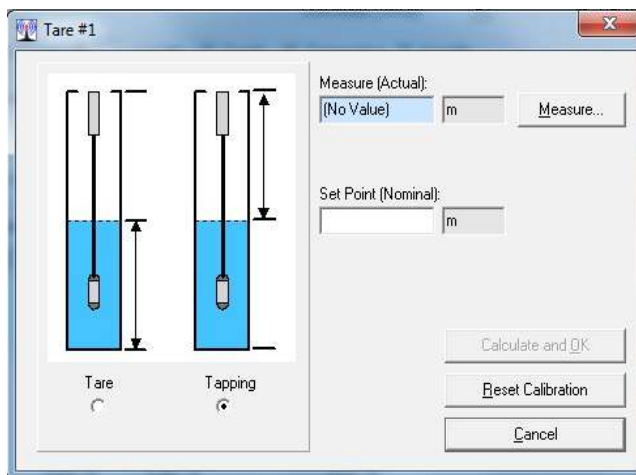
**Transfer:** Transfers the new Parameter Set to the logger.

**Cancel:** Cancel without transferring the new parameter set to the logger.

**Write Par...:** Save the new parameter set to the local computer without transferring it to the logger.

**Read Par...:** Read a parameter set that has been saved to the local computer before.

### **3.3.3 Tare**



Choose, if tare or tapping should be indicated

**Measure (Actual):** If a current measured value is available, it will be shown here. If not, it will display „No value“. In that case, the current value can be measured and displayed by clicking the button „Measure...“

**Set Point (Nominal):** Enter the required current value. This can be a currently measured tapping or the water level taking the main sea level into account.

## MANUAL

**Calculate and OK:** If all settings are completed, click „Calculate and OK“. The software now calculates the values for the data fields „Offset“ and „Multi“.

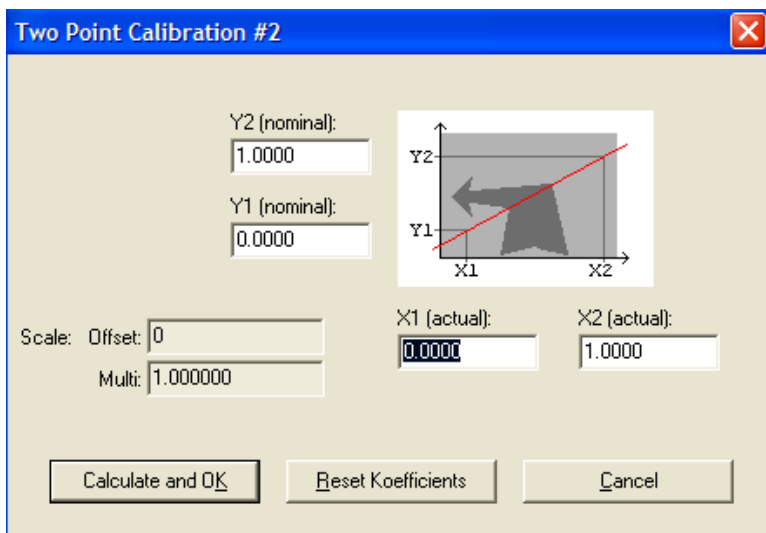
### Reset calibration:

Set the values for Multi and Offset to the default settings ( Offset = 0.00, Multi = 1.00)

**Cancel:** Close the windows without changing any settings.

### 3.3.4 Two Point Calibration

Perform a linear calibration of a sensor. Therefore, 2 points need to be calibrated. The points can be calibrated one after on or both at on time.



The dialog box titled "Two Point Calibration #2" contains the following fields and controls:

- Y2 (nominal):** Input field with value 1.0000
- Y1 (nominal):** Input field with value 0.0000
- Scale:** A group containing:
  - Offset:** Input field with value 0
  - Multi:** Input field with value 1.000000
- X1 (actual):** Input field with value 0.0000
- X2 (actual):** Input field with value 1.0000
- Graph:** A coordinate system showing a red line passing through points (X1, Y1) and (X2, Y2). The axes are labeled X1, X2, Y1, and Y2.
- Buttons:** "Calculate and OK", "Reset Koefficients", and "Cancel".

**Y1,Y2 (nominal):** Enter the measured value of the sensor

**Y1,Y2 (actual):** Enter a measured value of a reference.

**Calculate and OK:** Save the settings to the parameter set.

**Reset Coefficients:** Restore the original parameters of the sensor.

### 3.3.5 GPRS / GSM Setup

**GSM/GPRS Setup**

**General Settings:**  
 GSM/GPRS Mode:  GSM PIN:  Min. Temp. (°C):   
☐ Allow Roaming  
☐ Stay Online  
☒ Verbose  
 GSM Period:  hr  min GSM Offset:  hr  min GSM Alarm Period:  sec

**Network Parameters:**  
 GPRS APN:  PPP User:  PPP Password:   
☐ GPRS Retries

**Internet Parameters:**  
 Internet Server:  Port:  Script:  E-MAIL Format:   
 Receiver's E-MAIL:  ☒ GPRS Sync. ☒ Auto Clear  GPRS Offset (sec)  [Format](#)

**Alarm Recipients:**  
 Alarm: E-MAIL address #1:  Alarm: E-MAIL address #2:   
 Alarm: E-MAIL address #3:  Alarm: E-MAIL address #4:

#### General Settings

**GSM/GPRS Mode:** Switch the modem on or off. By default, the modem is switched on.

**GSM PIN:** Enter the PIN of the SIM-card here, if required.

**Min. Temp (°C):** Enter the temperature until which the modem should remain active. The default is -10 ° C for alkaline manganese batteries and -25 ° C for lithium batteries. It is not recommended to enter temperatures lower than the default temperatures. If the temperature falls below the temperature entered here, the logger will keep measuring, but send the data not until the temperature exceeds the limit entered here.

**Allow Roaming:** When enabled, the modem is allowed to use foreign networks. When disabled, only the home network will be used. This option becomes important when the device is operated in regions close to the border.

**Stay online:** The modem will be operated continuously, so data can be sent every minute.

**Attention:** This feature increases the power consumption!

**Verbose:** Show detailed information about the internet connection. Useful for finding connection errors.

**GSM period:** Set the transmission intervals in which the data is transmitted. The minimum for this setting is five minutes. Use the drop down menu to switch between seconds, minutes and hours.

**GSM Offset:** Sets the time for the data transmission to the server. If, for example, the interval is set to 24 hours and the offset is set to 6 hours, a transfer is performed daily at 6 clock. If the interval is set to 12 hours and the offset to 6 hours, a transfer is performed at 6 clock and 18 clock.

**GSM alarm period:** Set the transmission intervals in which the data is transmitted in case of an alarm. The minimums for this setting is five minutes. Use the drop down menu to switch between seconds, minutes and hours.

### **Network parameter**

**GPRS APN:** (Access Point Name) The GSM Access point provided by the GSM network provider.

**PPP-User and PPP-Password:** Also provided by the GSM provider. Can be left empty often.

**GPRS repeat:** By activating the check box the logger is allowed to repeat transmissions up to 3 times in case a transmission has failed. For different reasons, such as high network load, transmissions can fail from time to time. If this option is enabled, waiting for the repeated transmission and sending again, consumption battery power. Therefore it can make sense to disable the option. If disabled, the collected data will be transmitted during the next planned transmission.

### **Internet-Parameter**

**Internet Server:** Enter the address or the ip number if the server to which the data should be sent.

**Important:** Always enter the address without 'www' at the beginning. For example enter sensormanager.net instead of www.sensormanager.net.

**Script:** Enter the location of the PHP script which receives the information on the server.

**E-MAIL Format:** When the data is transmitted to the sever, the server can send the data to an e-mail address. You can choose between plain text e-mails or html formatted e-mails. The data is attached to the e-mail either as a binary file or as a plain text file.

**E-MAIL address:** If you want to receive the data via e-mail, enter the e-mail dress to which the data should be sent here.

**GRPS Synchro.:** When enabled, the logger will synchronize its clock with the server every time a transmission is performed.

**Auto Delete:** When enabled, the logger will delete all logged data when 95% of the memory is used. This will happen only if all data has been transmitted successfully.

**GPRS Offset (sec):** Time difference between the logger and the server in seconds. The servers clock is mostly operated in GMT mode (Greenwich without summer time). When using a logger in another time zone (e.g. Berlin, Rome = GMT+1) the value to be added to the time must be entered here. For example GMT+1 requires a value of 3600 seconds to be entered here.

### **Alarm receiver**

**Alarm: E-Mail Address #1 - #4:** You can enter up to four e-mail addresses to which a mail will be sent in case if an alarm.

**WICHTIG:** The alarm set here is performed by the logger via a script on the server. It works independently from the alarm management of the web interface described in chapter 4.10. The alarm management of the web interface is another alarm tool.

**OK:** Confirm the new settings by pressing the OK button and then transfer it by clicking the Transfer button.

**Cancel:** Close the current dialog without saving any changes.



## 4 Online software

### 4.1 About the product

The Online software is developed for fast and directly accessing the monitoring network. It provides an overview of the values and of the current state of the devices in the field.

### 4.2 First start

Usually, the software is installed by STS or another qualified person. No further configurations by the user are required.

### 4.3 Login

You can log into the online software with the user name and password you were provided with. Enter the login data at the login page. All data will be transferred encrypted. To log in automatically, the login data can be saved in a cookie on the local computer by activating the save password check box.

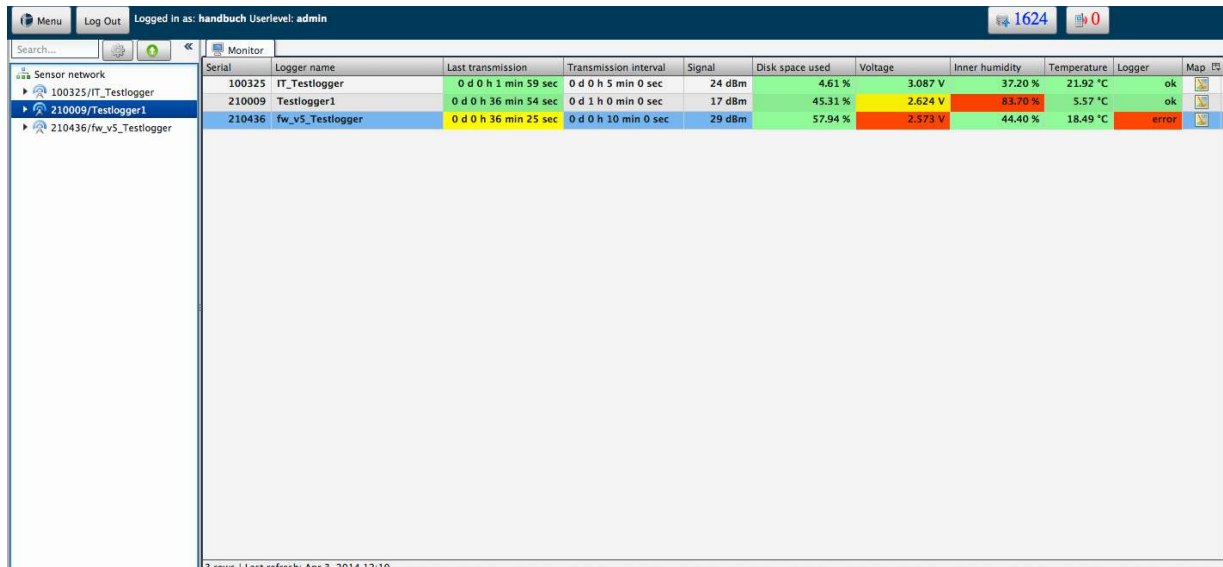
**Attention:** Saving the password locally can be a security risk. Please make sure that no unauthorized person can access the computer.



The screenshot shows a login window titled "Anmelden". It contains two input fields: "Benutzername" with the text "Testuser" and "Passwort" with masked characters ".....". Below the password field is a checkbox labeled "Passwort speichern" which is checked. At the bottom right is a button labeled "Anmelden".

## 4.4 Start window of the online portal

The online portal is divided into three sub areas. On the left side, there is an overview of the measuring network. On the right side, the status monitor and different graphs and diagrams can be visualized using different tabs. On the top left side of the page, there is a button to open the menu, to change the language and to log off.

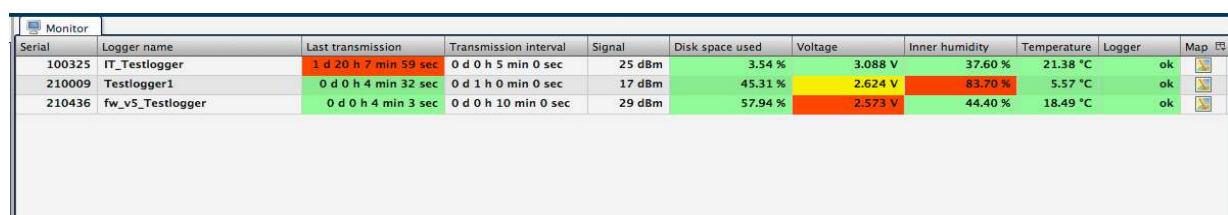


The screenshot shows the 'Monitor' tab of the online portal. At the top, there is a navigation bar with 'Menu', 'Log Out', and 'Logged in as: handbuch Userlevel: admin'. A search bar is also present. The main content area displays a table of sensor network data. The table has columns for Serial, Logger name, Last transmission, Transmission interval, Signal, Disk space used, Voltage, Inner humidity, Temperature, Logger, and Map. Three rows are visible, each representing a different logger.

| Serial | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature | Logger | Map |
|--------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|--------|-----|
| 100325 | IT_Testlogger    | 0 d 0 h 1 min 59 sec  | 0 d 0 h 5 min 0 sec   | 24 dBm | 4.61 %          | 3.087 V | 37.20 %        | 21.92 °C    | ok     |     |
| 210009 | Testlogger1      | 0 d 0 h 36 min 54 sec | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57 °C     | ok     |     |
| 210436 | fw_v5_Testlogger | 0 d 0 h 36 min 25 sec | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49 °C    | error  |     |

## 4.5 Status Monitor

This module provides quick status information, such as signal strength, memory, and other parameters about the devices. Critical values will be displayed yellow or red.



The screenshot shows the 'Monitor' tab with a table of device status information. The table has columns for Serial, Logger name, Last transmission, Transmission interval, Signal, Disk space used, Voltage, Inner humidity, Temperature, Logger, and Map. Three rows are visible, each representing a different logger. The 'Last transmission' and 'Voltage' columns are highlighted in red, indicating critical values.

| Serial | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature | Logger | Map |
|--------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|--------|-----|
| 100325 | IT_Testlogger    | 1 d 20 h 7 min 59 sec | 0 d 0 h 5 min 0 sec   | 25 dBm | 3.54 %          | 3.088 V | 37.60 %        | 21.38 °C    | ok     |     |
| 210009 | Testlogger1      | 0 d 0 h 4 min 32 sec  | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57 °C     | ok     |     |
| 210436 | fw_v5_Testlogger | 0 d 0 h 4 min 3 sec   | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49 °C    | ok     |     |

- Green: Parameter is optimal.
- yellow: Parameter is acceptable.
- Rot: Parameter is critical.

In the right part of the window, all diagrams of the measured values are displayed. If you want to visualize more than one diagram, you can use different tabs.

## MANUAL

There is a map containing the position of each sensor in the column „map“.

| Monitor                                  |                  |                       |                       |        |                 |         |                |             |               |                         |
|--|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|---------------|-------------------------|
| Serial                                   | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature | Logger        | Map                     |
| 100325                                   | IT_Testlogger    | 1 d 20 h 5 min 59 sec | 0 d 0 h 5 min 0 sec   | 25 dBm | 3.54 %          | 3.088 V | 37.60 %        | 21.1        | No.           |                         |
| 210009                                   | Testlogger1      | 0 d 0 h 2 min 32 sec  | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.1         | ✓ Serial      |                         |
| 210436                                   | fw_v5_Testlogger | 0 d 0 h 2 min 3 sec   | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.1        | ✓ Logger name |                         |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Last transmission     |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Transmission interval |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Signal strength       |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Disk space used       |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Voltage               |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Inner humidity        |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Temperature           |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Logger status         |
|  |                  |                       |                       |        |                 |         |                |             |               | Position                |
|  |                  |                       |                       |        |                 |         |                |             |               | ✓ Map                   |
| 3 rows   Last refresh: Apr 3, 2014 11:36 |                  |                       |                       |        |                 |         |                |             |               |                         |

The last column of the status monitor contains a menu with which other columns can be set invisible or visible.

- The state of the last transmission depends on the transmission interval that has been set.
  - o < 3 transmission intervals = green
  - o 3-6 transmission intervals = yellow
  - o >6 transmission intervals = red
  - o if no transmission interval is set, no color will be displayed.

## 4.5.1 Logger Status

The column logger status of the status monitor shows if there have been errors importing measured values into the database. If the import was successful, the column „logger“ will become green. In case of an error it turns red.

| Serial | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature | Logger | Map |
|--------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|--------|-----|
| 100325 | IT_Testlogger    | 0 d 0 h 1 min 26 sec  | 0 d 0 h 5 min 0 sec   | 21 dBm | 4.55 %          | 3.087 V | 38.20 %        | 21.72 °C    | ok     |     |
| 210009 | Testlogger1      | 0 d 0 h 33 min 53 sec | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57 °C     | ok     |     |
| 210436 | fw_v5_Testlogger | 0 d 0 h 33 min 24 sec | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49 °C    | error  |     |

By clicking a column, a window showing the status messages (successful and failed imports) will open.

If you have fixed the import error, you can check the box in the "Fixed Errors" column. Only when all error messages are fixed, the column "Status Logger" is shown green in the status monitor.

**Logger status: 210436**

| Date                | Status code | Status message                               | Fixed Errors                        |
|---------------------|-------------|--|-------------------------------------|
| 28.08.2013 14:30:47 | 0           | Data import ok. 5 written                    | <input type="checkbox"/>            |
| 28.08.2013 14:25:37 | 0           | Data import ok. 5 written                    | <input type="checkbox"/>            |
| 28.08.2013 14:20:35 | 0           | Data import ok. 5 written                    | <input type="checkbox"/>            |
| 28.08.2013 14:15:13 | 0           | Data import ok. 60 written                   | <input type="checkbox"/>            |
| 28.08.2013 12:10:59 | 0           | Data import ok. 49 written, 5 double igno... | <input type="checkbox"/>            |
| 28.08.2013 11:01:45 | 0           | Data import ok. 96 written (3 no value)      | <input type="checkbox"/>            |
| 27.08.2013 12:26:09 | 0           | Data import ok. 12 written                   | <input type="checkbox"/>            |
| 27.08.2013 12:22:45 | 2           | Channel mismatch                             | <input checked="" type="checkbox"/> |

1 of 8113 rows

☐ View fixed logger status errors

Date

27.08.2013 12:22:45

Status code

2

Status message

Channel mismatch

### Status message (Import successful)

Data import ok. 100 written (20 no value), 20 double ignored

- 100 values have been saved to the database,
- 20 of them where empty. They will not be shown in the diagram, but will be saved in the g2D file for data consistence.
- 20 double values: those values will be filtered out and will not be saved to the database. Double values can occur, when a g2d file is attempted to be imported multiple times.

### Status messages (Import failed)

- **'Logger not found in Database'** : The logger has to be set up in the online portal first. If this error occurs, a logger that has not been registered yet has tried to send data to the database. For registering the logger see. 4.11.3 Logger administration.
- **'Channel mismatch'**: Channels are wrong assigned. This error occurs when the number of channels that has been registered in the online portal is different from the number of channels that has been activated in the logger.
- **'No data'**: The logger has sent an empty g2d file. This can happen when for example a transmission is triggered manually before a measurement has been made.
- **'Cannot read HKHum'**: This is not an error but a status message (green). But it is caused by the no data error, because through this error the value 0 will be saved as humidity value. Please note that some loggers, i.e. Aquatos can not measure the inside humidity. In case one of these loggers is used, this status message can be ignored.
- **'Cannot read HKTemp'**: This is not an error but a status message (green). But it is caused by the no data error, because through this error the value 0 will be saved as temperature value. Please note that some loggers, i.e. Aquatos can not measure the inside temperature. In case one of these loggers is used, this status message can be ignored.

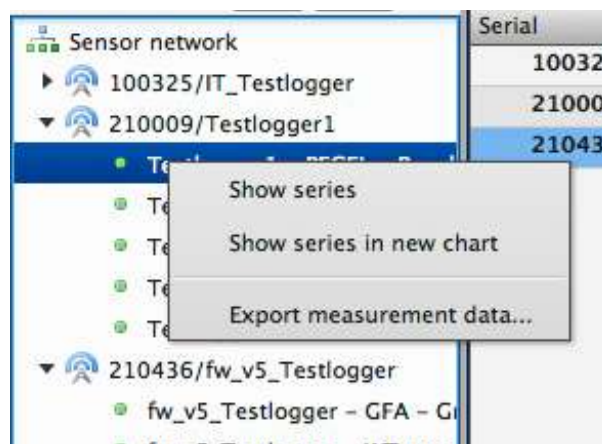
- **'Cannot read HKBat'** : This is not an error but a status message (green), but it is caused by the no data error. Therefore the value 0 will be displayed in the column Voltage of the status monitor.
- **'Cannot read transmission interval'** : This is not an error but a status message (green). But it is caused by the no data error, because through this error the value 0 will be saved as transmission interval. Please note that some loggers can not make transmissions. In case one of these loggers is used, this status message can be ignored.

## 4.6 Measured values

In the **left window**, the whole measuring network is displayed. Further settings for each device can be found here. By clicking the small triangle beside each device, the extended view containing the different measuring categories can be opened.

| Serial | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature |
|--------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|
| 100325 | IT_Testlogger    | 0 d 0 h 2 min 16 sec  | 0 d 0 h 5 min 0 sec   | 20 dBm | 4.66 %          | 3.087 V | 36.90 %        | 21.99       |
| 210009 | Testlogger1      | 0 d 0 h 39 min 24 sec | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57        |
| 210436 | fw_v5_Testlogger | 0 d 0 h 38 min 55 sec | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49       |

When clicking on one of the devices using the right mouse button, 3 options are shown.

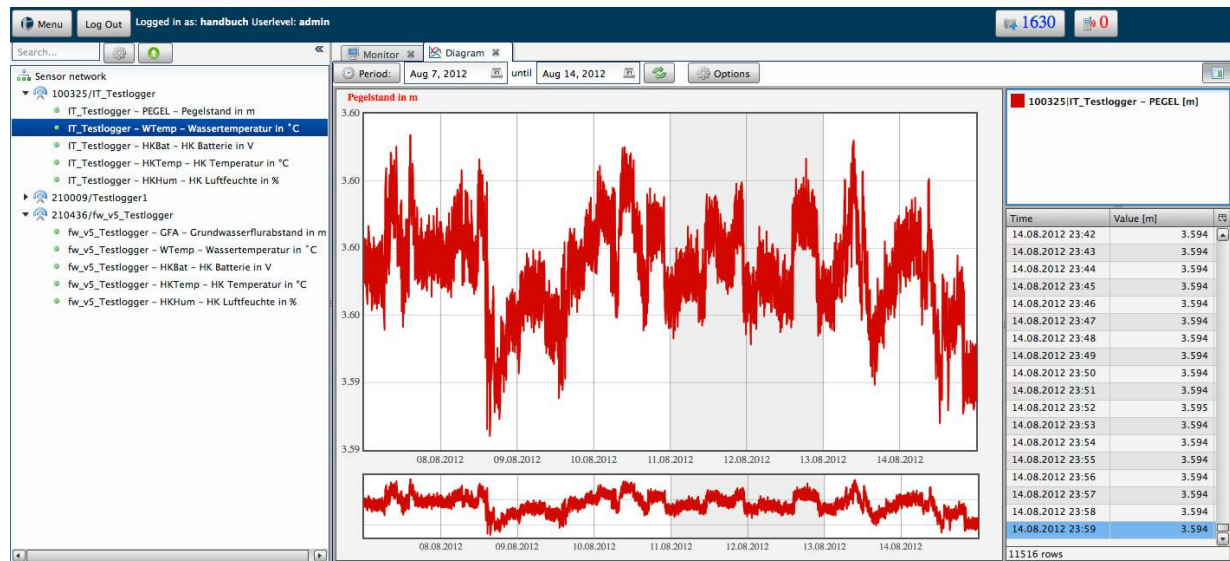


- Show series:** Shows a diagram in the right window.
- Show series in new diagram:** Displays the data in a new diagram, if you don't want to add the data to an existing diagram.
- Export measurement data:** Opens a dialog in which the export parameters i.e. time or format can be set.

## 4.6.1 Diagram view

### Select type of diagram view

Double click the device in the list for which you want to display a diagram. A tab named Diagram will open.

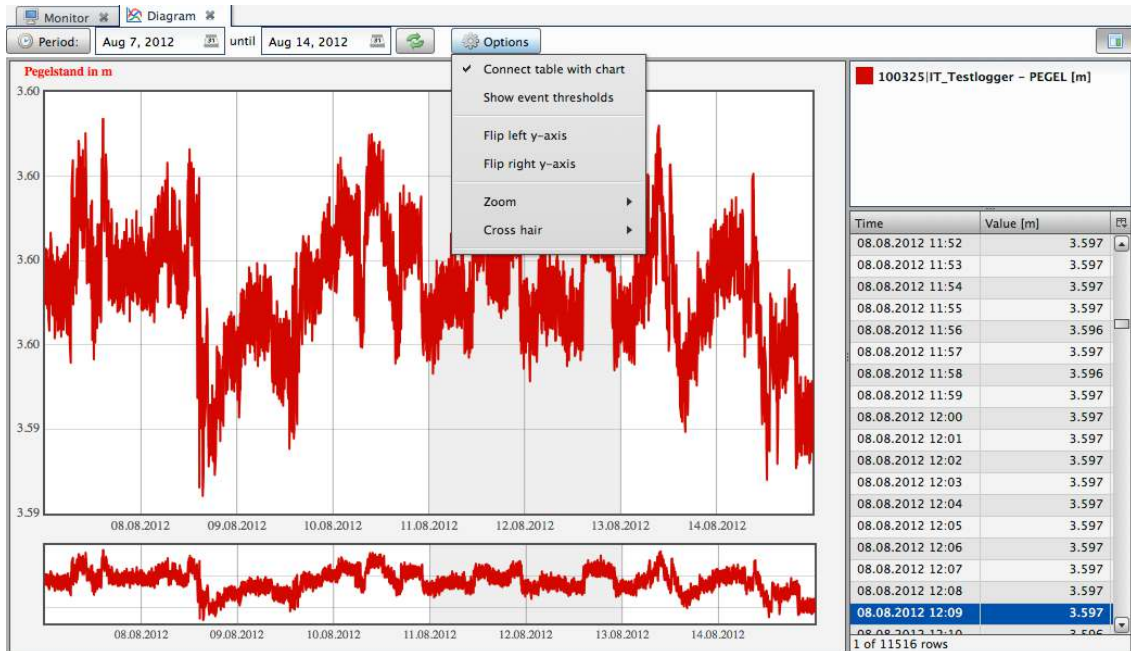


The diagram contains the latest measured values. If you want to display older data, you can select a time period for which the data should be displayed. To do so, click the button period and select one of the options (i.e. Last 7 days, Last month, etc.). You can also enter a period of your choice using the input fields provided. Whenever another time period is selected, click the green button next to the input field, to redraw the chart. The default setting for the time period is the last month. To change the period, you can use the calendar widget by clicking the small calendar icon in the date input field. Using the button in the top right corner, the table showing the measured values in the right side can be switched off and on.



### 4.6.1.1 Diagram Options

Click the Options button to see the options provided.

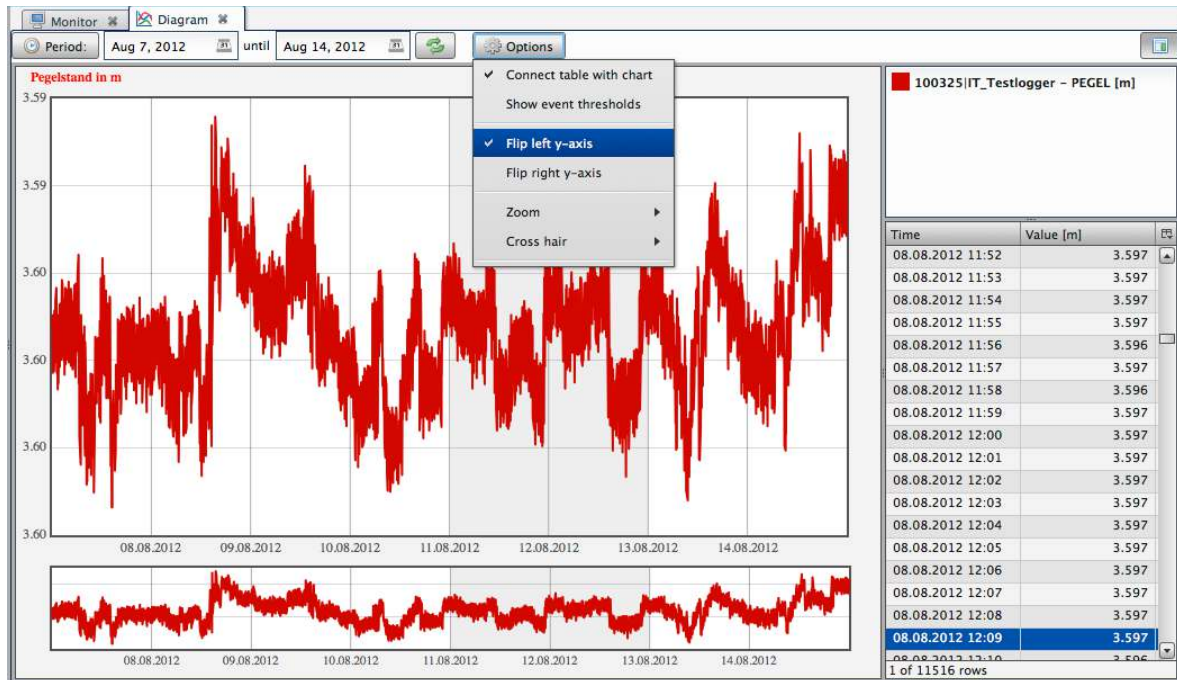


#### 1. Connect table with chart:

If this option is enabled, a value in the table will be highlighted if you move the mouse to the corresponding point in the chart. This should help to get a quick overview of the values.

#### 2. Flip left y-axis:

The y-axis will be reversed.



### 3. **Zoom:** Select different types of zoom:

- Off
- In x-direction
- In y-direction
- In both directions

### 4. **Cross hair:** There are different types of cross hair available:

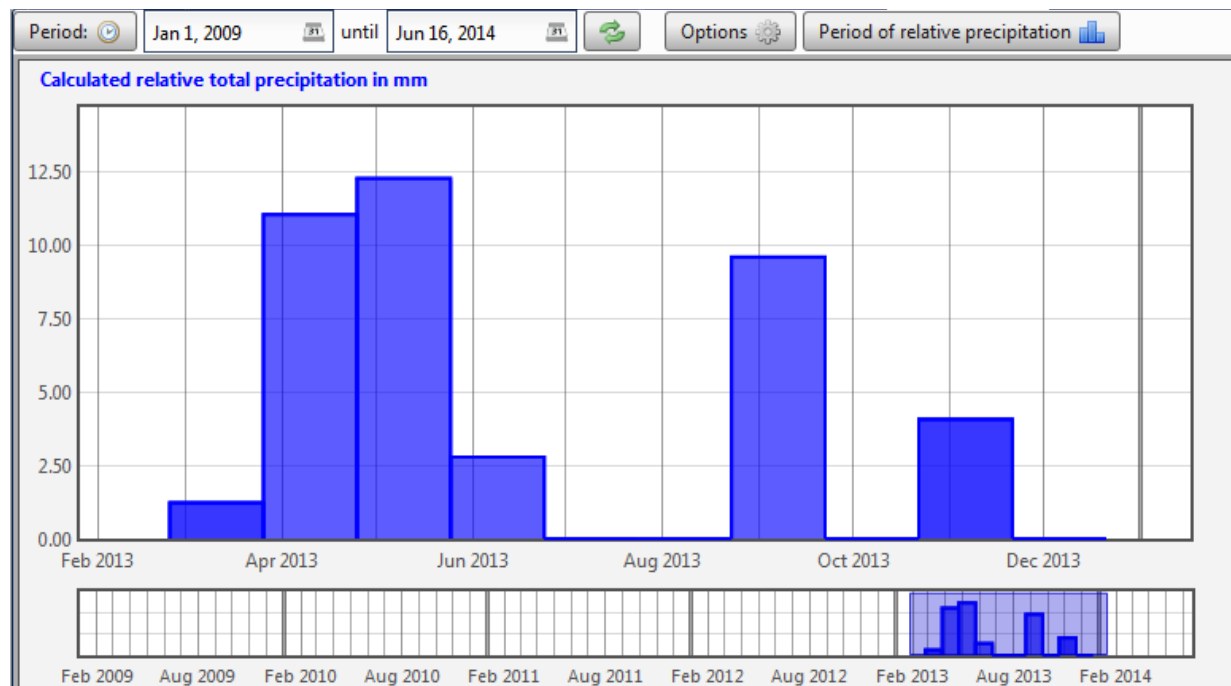
- Off
- Vertical line
- Horizontal line
- cross

## Displaying Diagrams of Precipitation

If the selected sensors data type is relative precipitation (PRECIPRel), a new button

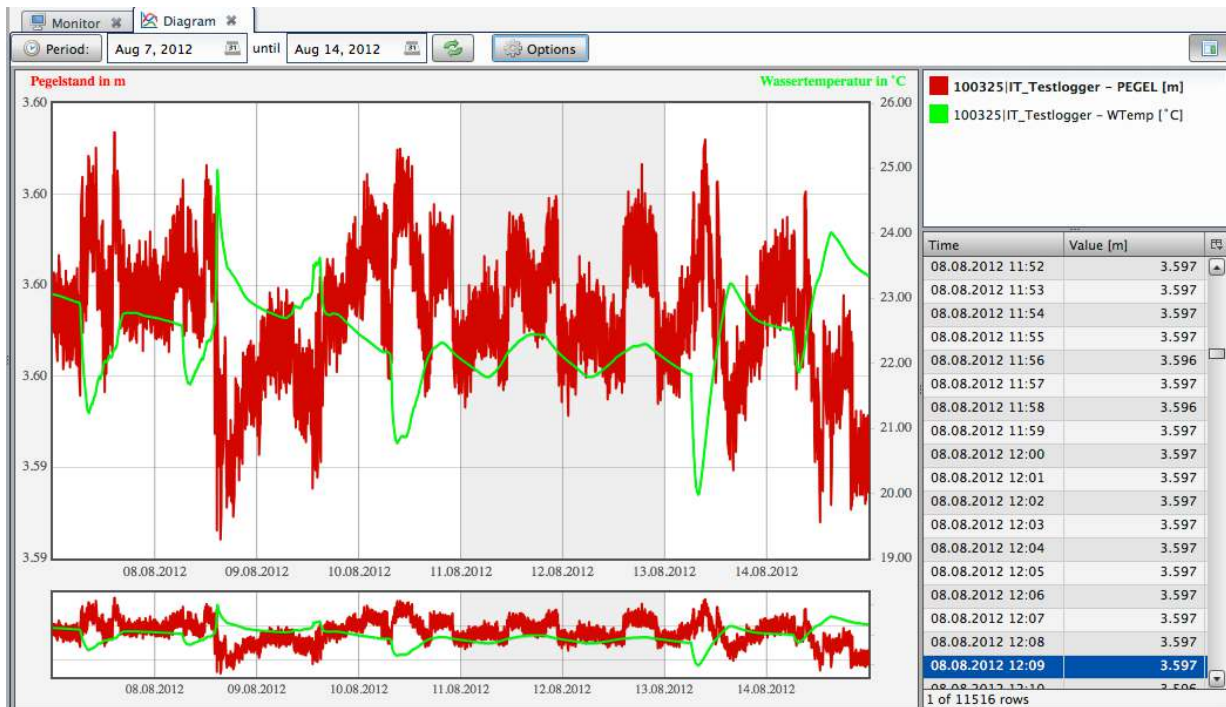
 will be displayed. Clicking this button will display the

relative precipitation data as a bar chart.



## 4.6.1.2 Displaying multiple values

In the chart, two values of the same device can be displayed at once (i.e. water level and water temperature). To do so, click another measuring category of the same device from the list on the right side. If you want to switch the category displayed in the table on the right side, just click the category in the box above the table.



## 4.6.1.3 Edit visualization of modules

All modules (e.g. diagrams, user management) are modular and can be moved within the application.

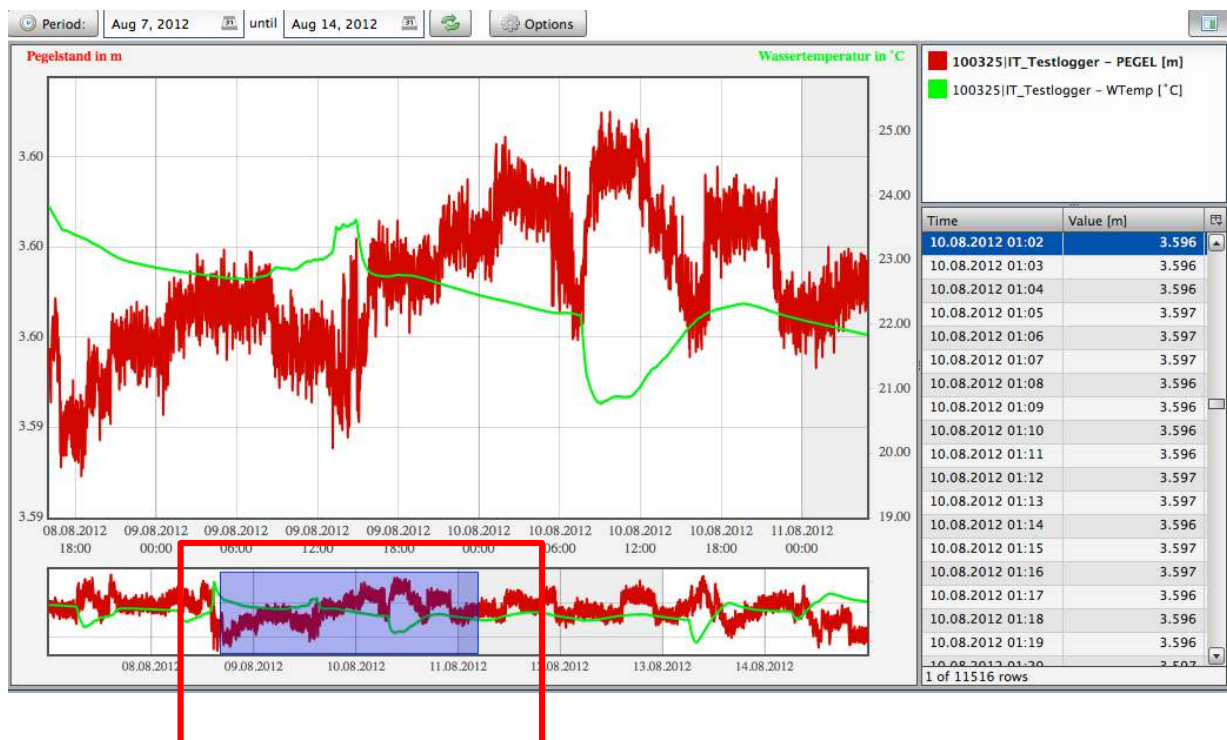
This can be useful, for example if two (or more) diagrams should be compared.

To move a module, click the title of the tab with the left mouse button. Keep the mouse button pressed and move the module to a place of your choice. Then release the mouse button.



#### 4.6.1.4 Zoom

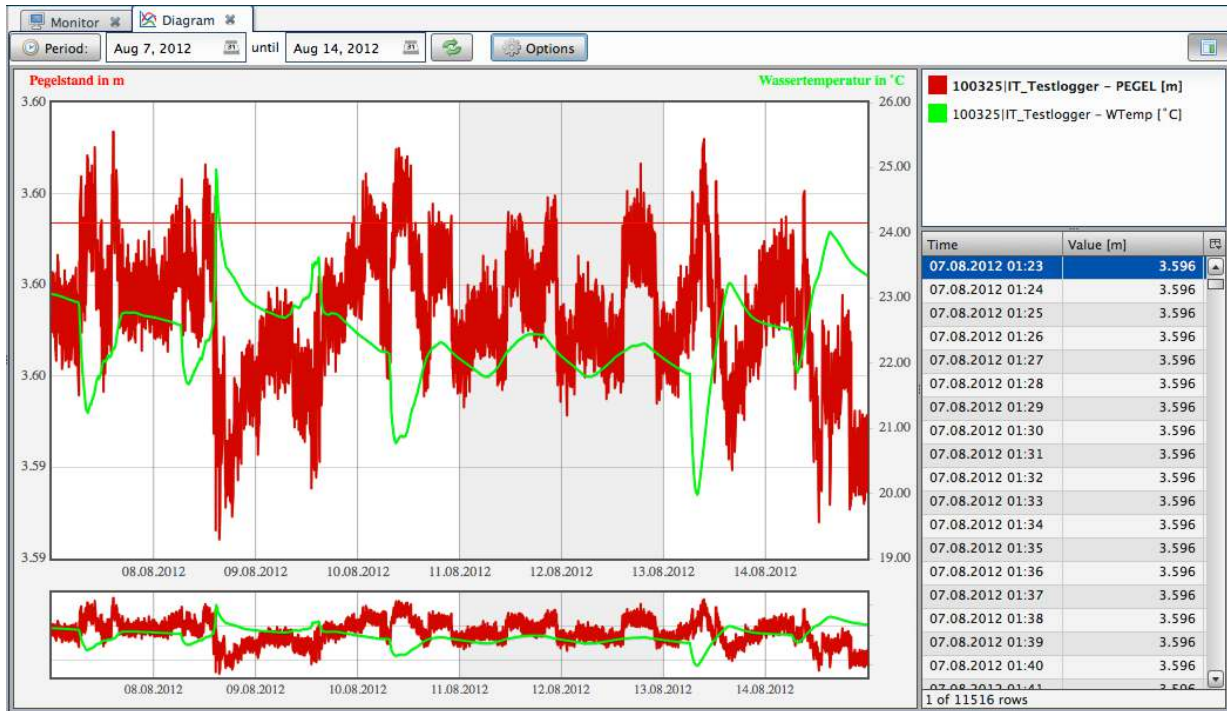
The diagram shows the measured values of the selected channel for the time period chosen. The Scale of the Graph can be adjusted manually. The small window below provides an overview. Both, the main chart and the overview chart below can be zoomed. To select the area to be zoomed, hold the left mouse button and place a rectangle on the area that should be zoomed.





## 4.6.1.5 Visualization of thresholds

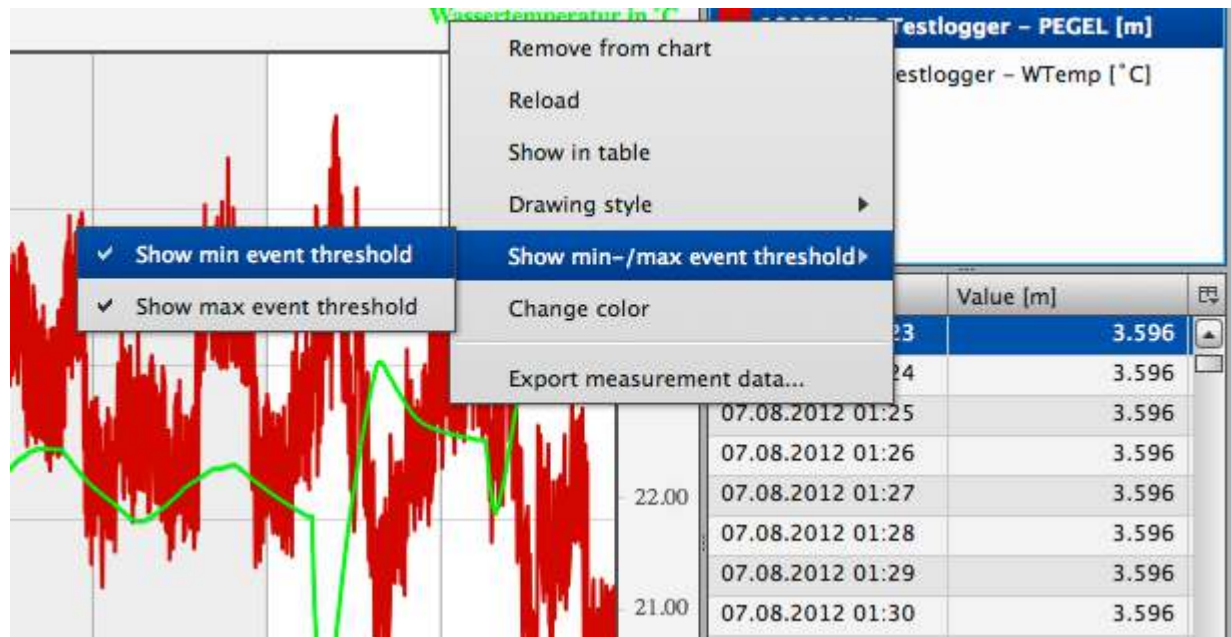
To visualize any limits being exceeded, thresholds can be defined for each sensor. The threshold will then be displayed in the chart as a horizontal line. See chapter 4.11.3.2 and 4.11.3.3 on how to define thresholds.



### **Enable / Disable event threshold**

To enable or disable the visualization of the event threshold in the graph, click options → show event threshold.

To enable or disable the thresholds separately for each sensor, click the sensor with the right mouse button in the box on the right side. You can then check or uncheck the thresholds you want to enable / disable.

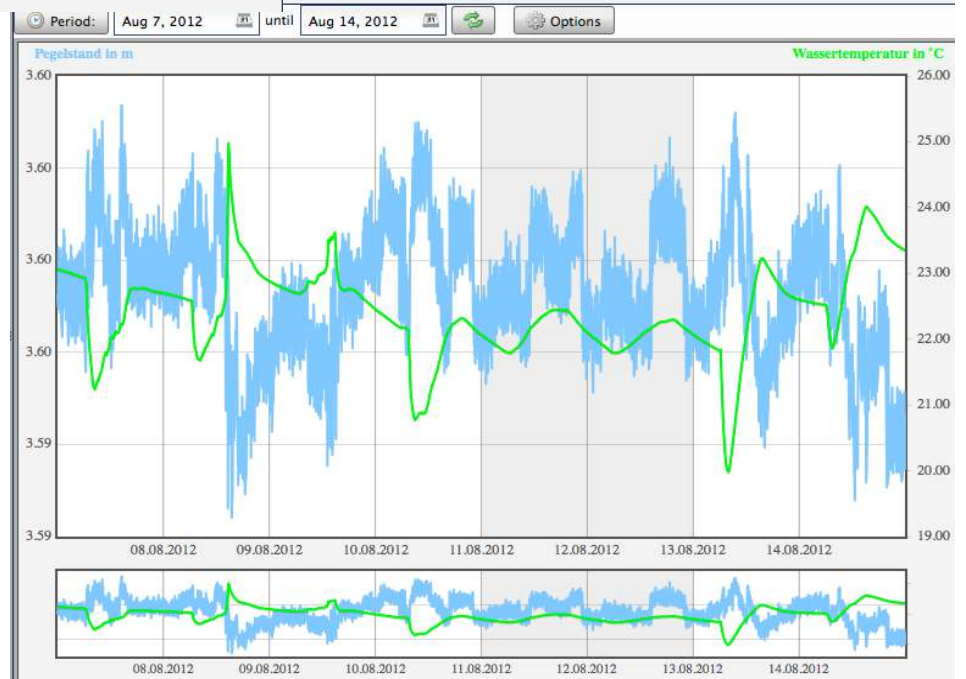
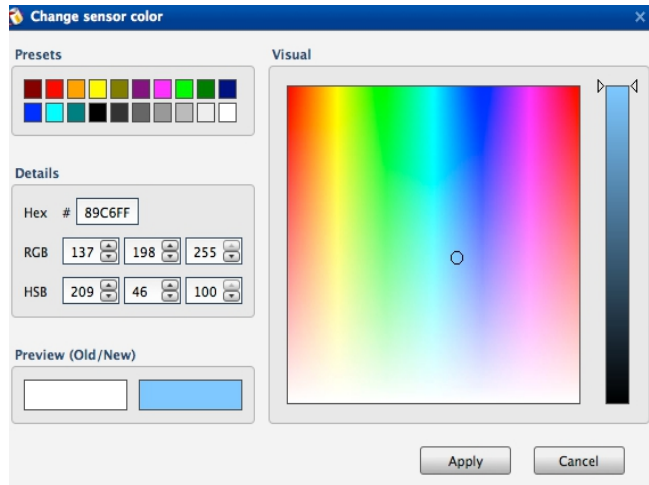


^



## 4.6.1.6 Adjust sensor color

To change the color for each sensor in the diagram, click the sensor with the right mouse button in the box on the right side and select „Change Color“ from the drop down menu. You can then choose a color from the window which has opened.



**Attention:** The color will not be changed permanently. When starting a new session, the colors will be restored to the default values.

## 4.6.2 Data Export

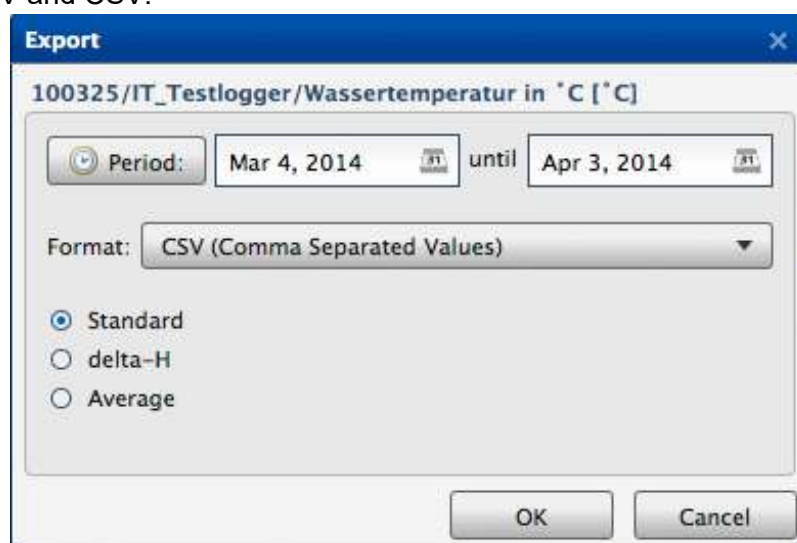
To export data, select the time period, the export mode and the file type. The following export modes are available:

Standard: Export all measured values for the selected time period

delta-H: Export the slope of the values for the selected time period

Average: Export the average values for the selected time period

Furthermore, you can select the file type of the export data from the „Format“ drop down menu. The following file types are available: HydroPro, Hydras3, WISKI, Aquainfo, HygrisC, TMCSV, RVCSV and CSV.



### CSV

CSV files can be used for further local analysis in a spreadsheet analysis software (i.e. Microsoft Office Excel or OpenOffice Calc) or statistics software (i.e. STATSTICA or SPSS).

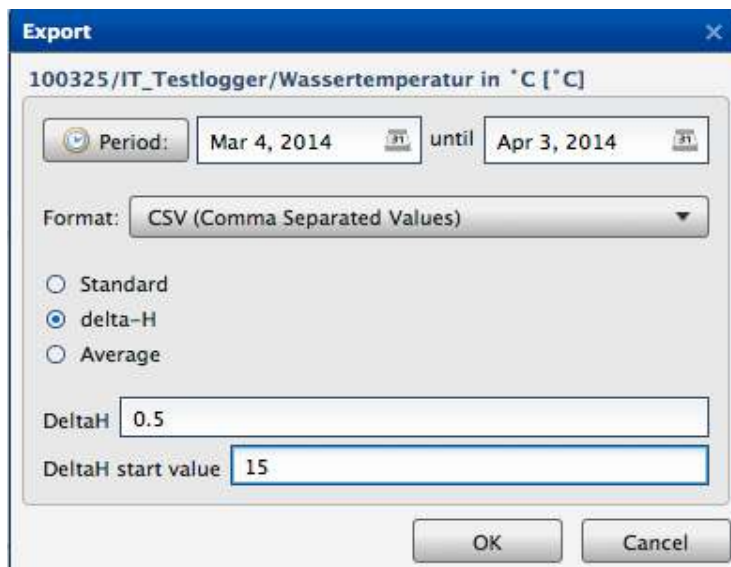
The file contains two heading rows.

(1: row Logger serial number and Logger name;  
2: row value type | measuring unit) and two columns  
with a heading. The first column contains the measuring  
time (data\_timemeas) and the second column  
contains the measured value (data\_valueend).

|                     | 100062 TEST_100062 |
|---------------------|--------------------|
| GFA                 | m                  |
| data_timemeas       | data_valueend      |
| 2012-01-02 00:00:00 | 0,200826           |
| 2012-01-02 00:15:00 | 0,201178           |
| 2012-01-02 00:30:00 | 0,200472           |
| 2012-01-02 00:45:00 | 0,201267           |
| 2012-01-02 01:00:00 | 0,200824           |
| 2012-01-02 01:15:01 | 0,198586           |
| 2012-01-02 01:30:01 | 0,197826           |
| 2012-01-02 01:45:00 | 0,198037           |

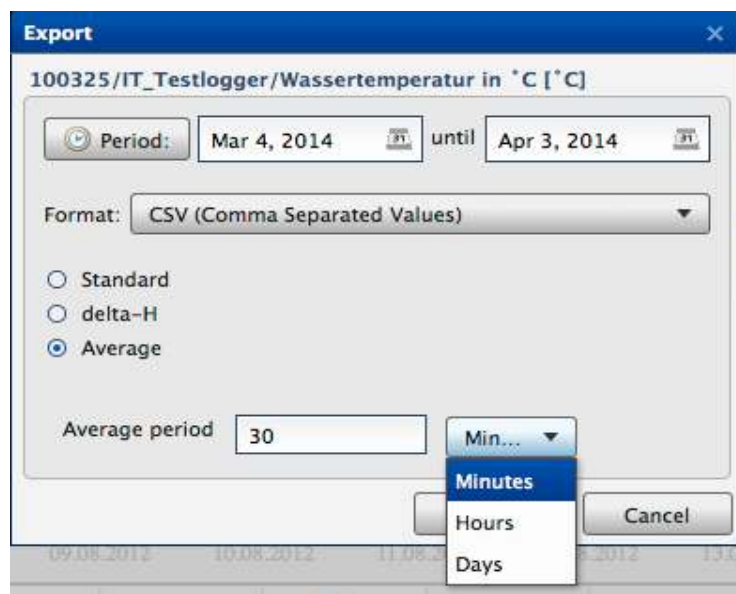
## **ΔH- Export**

Using the delta-H export, only values with a predefined slope (DeltaH) will be exported. Using the DeltaH start value, an optional threshold can be defined. If a DeltaH start value is set, only values above this value will be exported. The ΔH Export option is also available for automated exports and group exports (see chapter 4.12, 4.13).



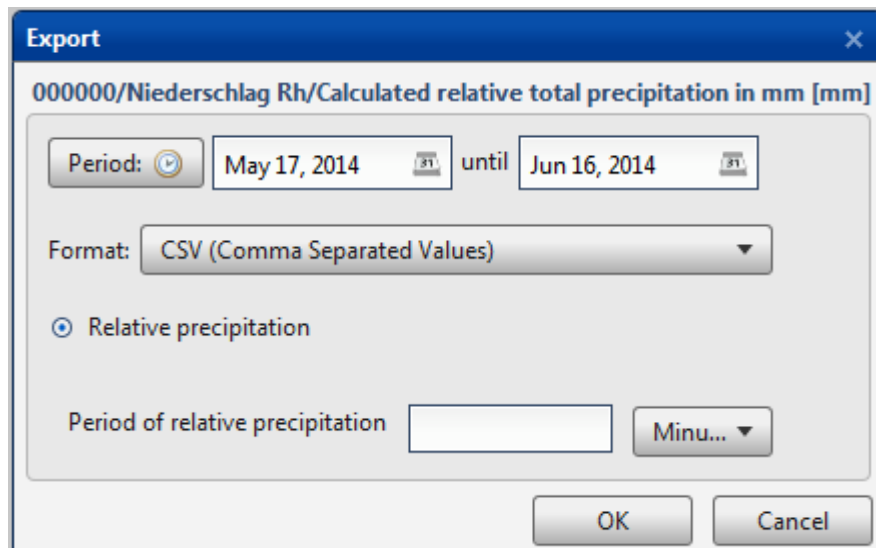
## **Average-Export**

This option will export average values for a selected time period (i.e. minutes, hours, days).




### Relative precipitation

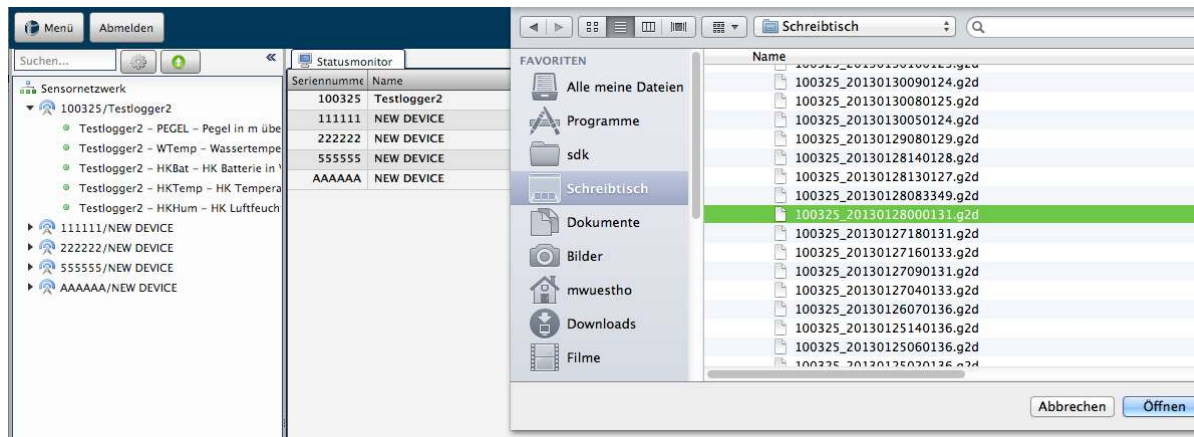
When exporting data from a precipitation sensor NIEDrel (German) and PRECIPrel (English and dutch), the option „Relative precipitation“ will be displayed automatically.



### 4.6.3 Importing measured values

Raw data (G2D- Files) can be imported using the import interface.

Clicking the  button, which is located above the list on the right side, will open a dialog box. Using this box, a file for the import can be selected.

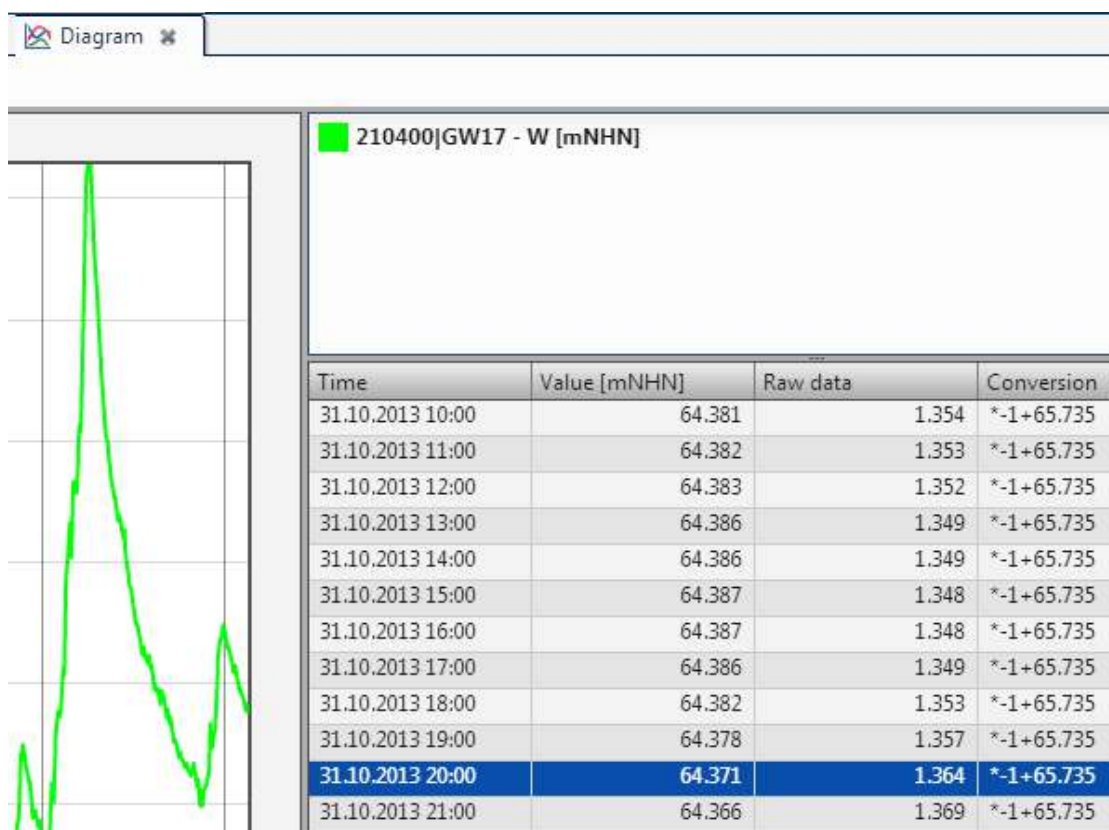


If the logger the data belongs to doesn't exist in the system yet, the files will be saved on the system, but the logger still needs to be registered in the logger management. Otherwise the logger will not appear in the system.

**Attention:** When importing data for a logger, the data for that logger in the online interface will be overwritten. If any values have been edited manually, they will be set back to their original state. See chapter 4.6.4 for further information.

#### 4.6.4 Editing, deleting, restoring measured values

Any measured values can be edited using the web interface. To do so, open the diagram view and right click the value to be edited in the table on the right side and select, Edit value/s, Delete value/s or Restore raw data. If multiple values should be edited at the same time, they can be selected by keeping the SHIFT or the Strg button pressed while clicking the values to be selected with the left mouse button.



#### **Attention:**

The raw data will remain unchanged. If raw data is imported (see chapter 4.6.3), all changes will be overwritten.

#### Deleting values

After selecting the values, you will be asked if you really want to delete them.

All selected values will be deleted.

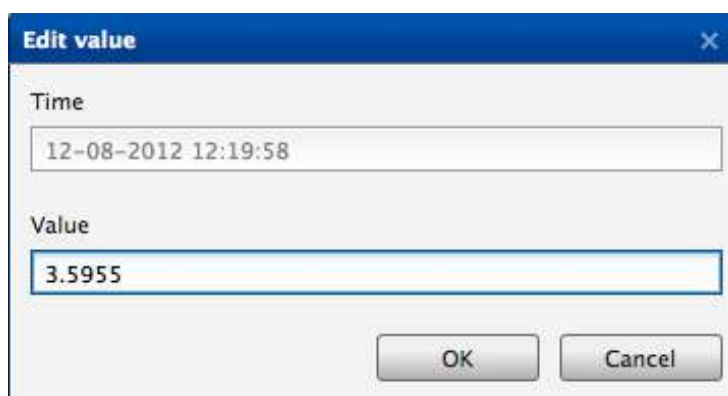
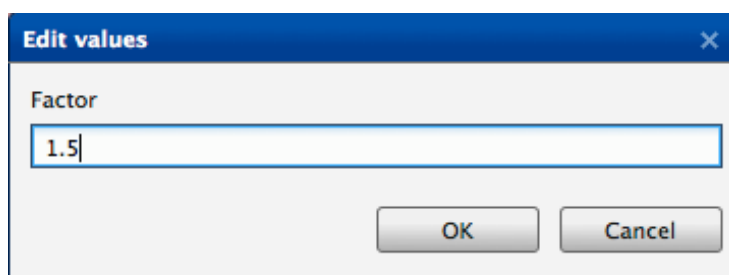
### Restore raw data

After selecting the values, you will be asked if you really want to restore them. Only measured values that have been edited will be restored. If you want deleted values to be restored, please use the import function (see chapter 4.6.3).

**ATTENTION:** If a conversion has been set (see chapter. 4.11.3.3) the conversion will be performed on the imported raw data.

### Editing values

When editing a single value, a dialog box in which an new value can be entered will open. If multiple values are selected for editing, another dialog box will open. In that box, a factor that will be added or subtracted to / from all selected values can be entered.



## 4.7 Document management

The document management can be opened by right clicking on of the sensors from the list on the right side and selecting the option „Document Management“.

The document management can be used for saving / deleting or displaying files related to the measuring site, such as maps, photographs, or pictures. PDF, JPG and PNG files will be accepted.

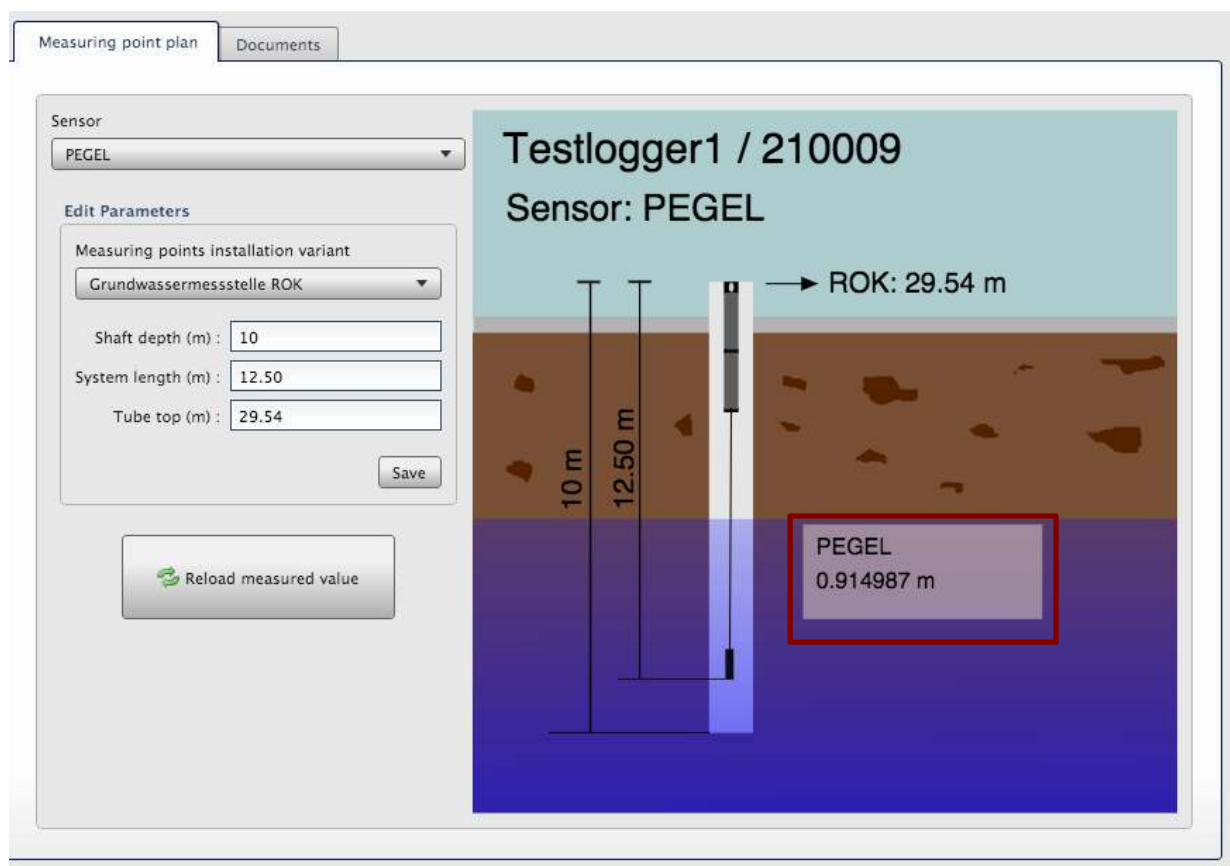
Furthermore, a schematic plan of the measuring site can be displayed.

Therefore, three different settings are available:

Water level, Groundwater from top of pipe, Groundwater from top of terrain.

Parameters can be changed and saved and are then automatically applied to the plan.

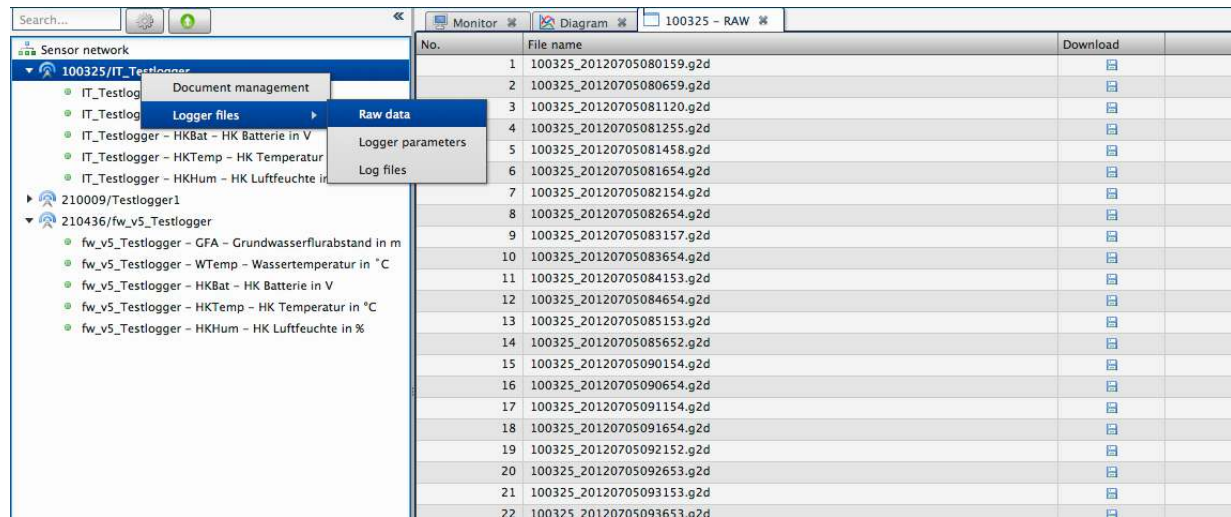
The current measured value of the sensor is displayed in the plan. To refresh this value, click the „reload measured value“ button.





## 4.8 Logger Files




Raw data files (RAW), Logger parameter files (PAR) and log files (LOG) can be displayed in a new tab. Click the button in the „Download“ column. Raw data can be displayed with CS View (GP-Shell) and Parameter files can be edited using GP-Shell.



| No. | File name                 | Download |
|-----|---------------------------|----------|
| 1   | 100325_20120705080159.g2d |          |
| 2   | 100325_20120705080659.g2d |          |
| 3   | 100325_20120705081120.g2d |          |
| 4   | 100325_20120705081255.g2d |          |
| 5   | 100325_20120705081458.g2d |          |
| 6   | 100325_20120705081654.g2d |          |
| 7   | 100325_20120705082154.g2d |          |
| 8   | 100325_20120705082654.g2d |          |
| 9   | 100325_20120705083157.g2d |          |
| 10  | 100325_20120705083654.g2d |          |
| 11  | 100325_20120705084153.g2d |          |
| 12  | 100325_20120705084654.g2d |          |
| 13  | 100325_20120705085153.g2d |          |
| 14  | 100325_20120705085652.g2d |          |
| 15  | 100325_20120705090154.g2d |          |
| 16  | 100325_20120705090654.g2d |          |
| 17  | 100325_20120705091154.g2d |          |
| 18  | 100325_20120705091654.g2d |          |
| 19  | 100325_20120705092152.g2d |          |
| 20  | 100325_20120705092653.g2d |          |
| 21  | 100325_20120705093153.g2d |          |
| 22  | 100325_20120705093653.g2d |          |

## 4.9 Map Tool

The Map Tool can be loaded by clicking the map link in the status monitor. A map which is centered to the selected logger will open.

| Monitor |                  |                       |                       |        |                 |         |                |             |        |   |
|---------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|--------|---|
| Serial  | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature | Logger | Map   |
| 100325  | IT_Testlogger    | 0 d 0 h 0 min 19 sec  | 0 d 0 h 5 min 0 sec   | 26 dBm | 5.53 %          | 3.087 V | 36.30 %        | 21.93 °C    | ok     |  |
| 210009  | Testlogger1      | 0 d 1 h 11 min 52 sec | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57 °C     | ok     |  |
| 210436  | fw_v5_Testlogger | 0 d 1 h 11 min 23 sec | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49 °C    | error  |  |

### Navigation:

To navigate the map the navigation panel on the top left side of the map field can be used.

Navigating using the mouse is also possible after clicking the map field. Using the mouse wheel, the map can be zoomed in and out. Moving the mouse while keeping the left mouse button pressed will move the map view.

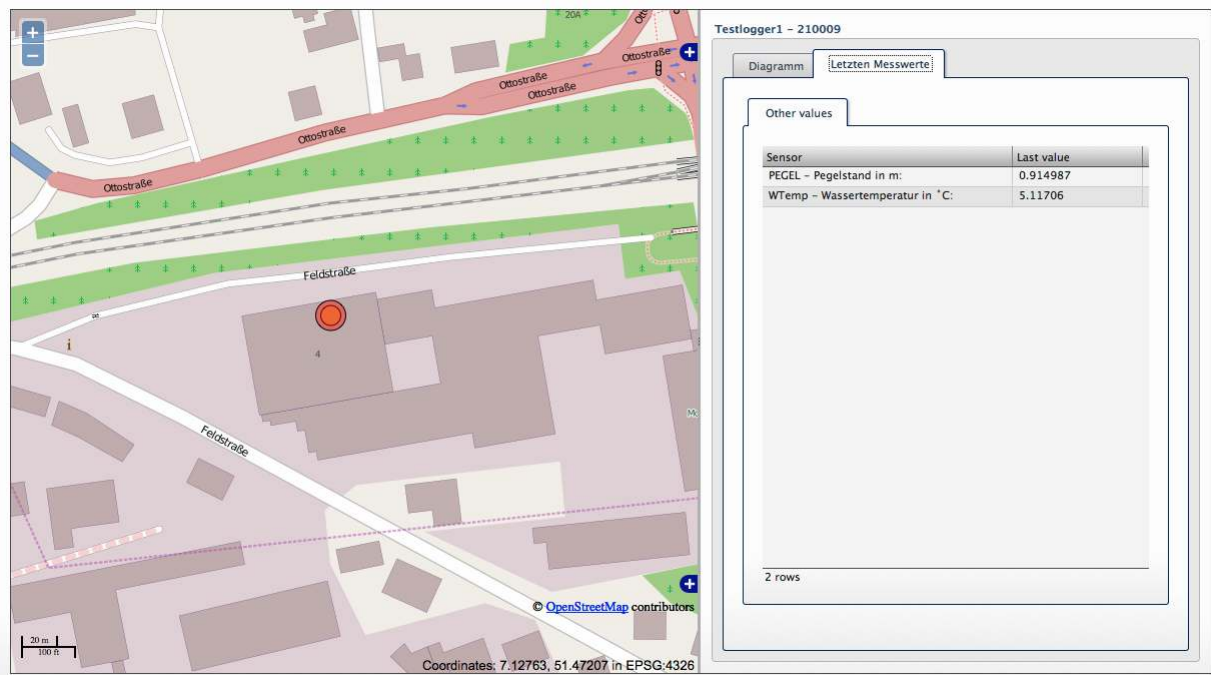
### Displaying measured values.

To see measured values click a logger in the map. The latest measured values and a diagram history will then be displayed on the right side.

## MANUAL

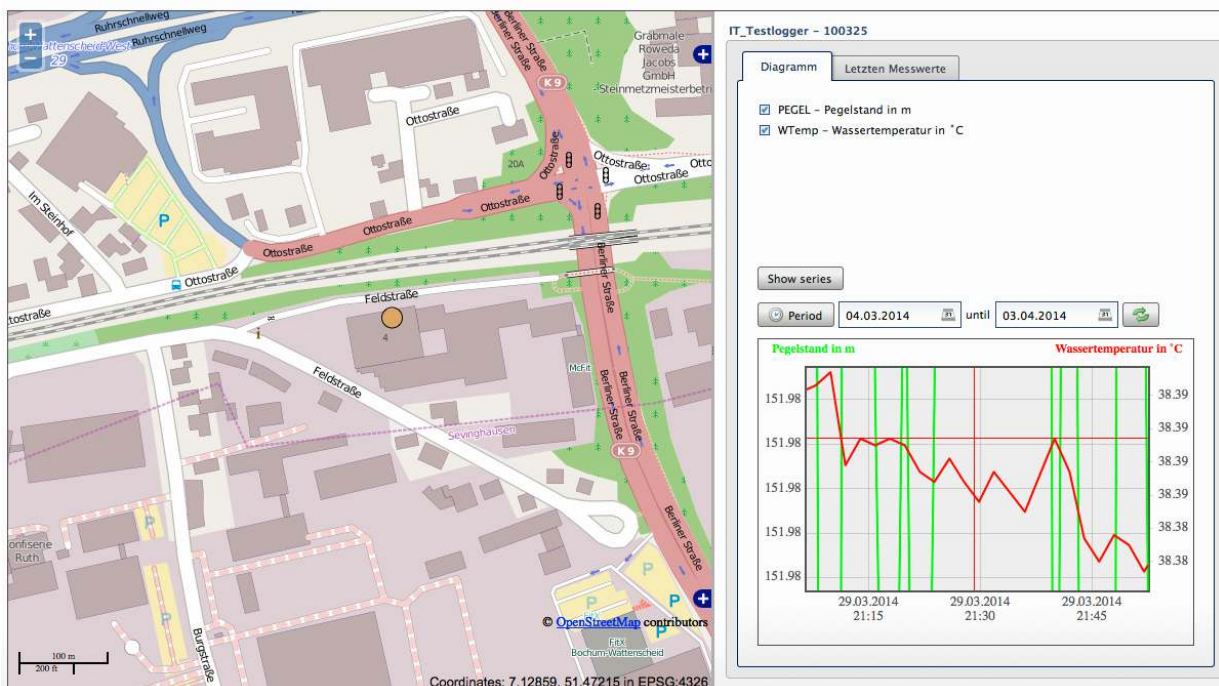
### 1) Latest measured values

The latest measured values will be displayed

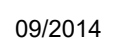


### 2) History diagram

In the diagram view, measured values of one or two sensors can be displayed.



<http://www.yourHomepage.com/onlineportal?username=username&password=password>



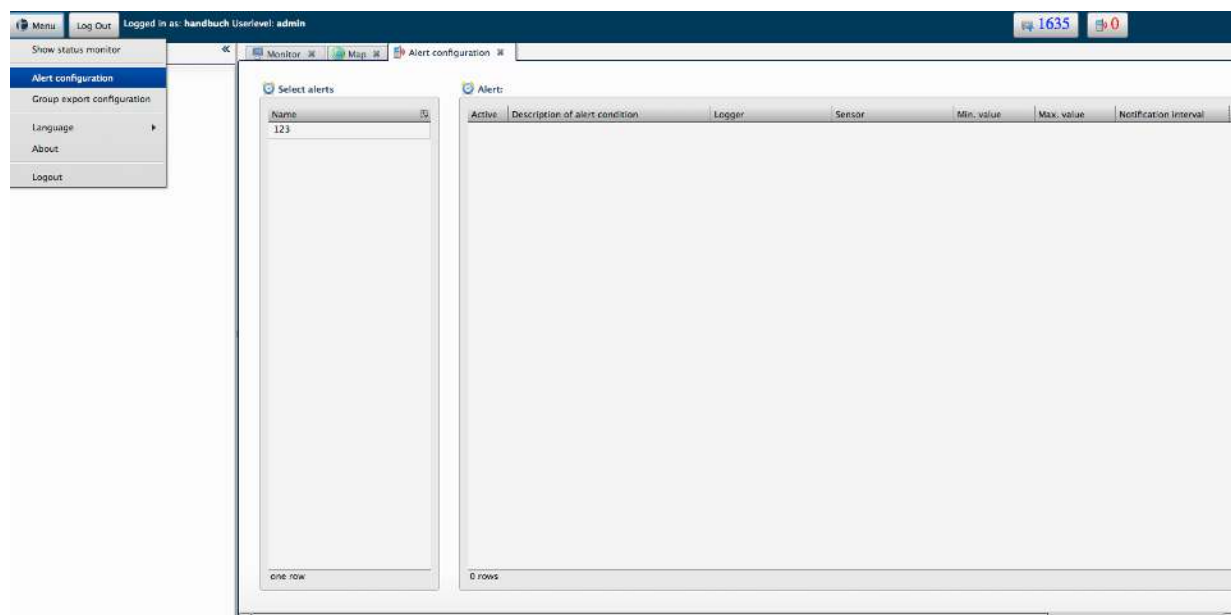
## 4.10 Alert-Management

The alarm management provides SMS or email notifications in case a measured value falls below a defined threshold exceeds a threshold. The following chapter explains how to define, delete, or edit alerts.

Using alarm groups, the alarms in the list can be grouped and sorted.

### 4.10.1 Create alerts

To open the alarm management, click Menu and alert configuration.



If no alarm has been created yet, select the green + Button to create a new alert group. Therefore, you will see a dialog box that will ask you to enter an alert name and an alert description.

Create new alert group

Group name:

Test

Group description

Test group

OK

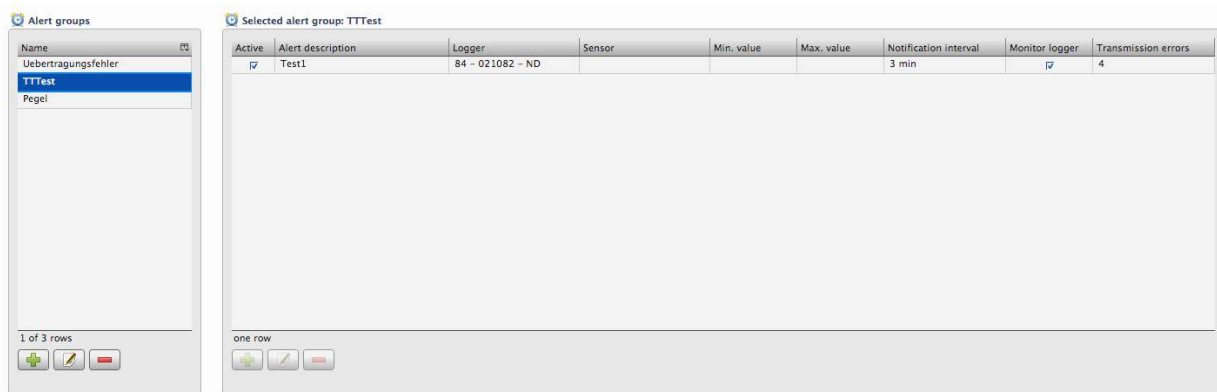
Cancel

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The alert group description is **optional**, but it can help to organize different alarms. Confirm the dialog by clicking OK.

Afterwards you will be taken to the alarm condition configuration automatically. See chapter 4.10.1.1, 4.10.1.2 and 4.10.1.3. to find out how to configure an alarm condition.

After configuring the alarm condition, click save. The **alert group** and the **alert** will now be created and you will be provided with an overview of the alarms.



| Active                              | Alert description | Logger           | Sensor | Min. value | Max. value | Notification interval | Monitor logger                      | Transmission errors |
|-------------------------------------|-------------------|------------------|--------|------------|------------|-----------------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | Test1             | 84 - 021082 - ND |        |            |            | 3 min                 | <input checked="" type="checkbox"/> | 4                   |

### 4.10.1.1 Configuring an alert

The alert configuration provides monitoring measured values or monitoring the logger itself. Monitoring the logger will send a notification message in case the transmission interval is exceeded. Sensor monitoring means, that a notification message will be sent in case the measured value reaches a threshold.

#### Sensor Monitor

The screenshot shows the 'Alert group: TTTest - Alert: Test1' configuration window. It includes a checkbox for 'Activate alert' which is checked. Below it, a red warning message states: 'The SMS delivery costs money. Please call up informations by the customer support: support@terratransfer.de'. There are two dropdown menus: 'Select logger' with the value '3 - 100325 - IT\_Testlogger' and 'Select sensor' with the value '7 - WTemp - Wassertemperatur in °C - °C'. To the right is a text box for 'Alert Description' containing 'Test1'. Below these are tabs for 'Alert parameter:', 'SMS messages', and 'Email messages'. The 'Alert parameter:' tab is active, showing a 'Monitor logger' checkbox (unchecked), 'Min. value' (20), 'Max. value' (30), 'Notification interval' (1 min), and 'Transmission errors' (empty). At the bottom are 'OK' and 'Abbrechen' buttons.

#### 1) Alert description

- Describes the alert

#### 2) Select Logger: Select the logger to be monitored

The loggers are ordered by serial number.

Schema : „Id – Serial number– Logger name“


#### 3) Select Sensor: Select the sensor to be monitored

Schema: „Id – Data type – Data type Description – Unit“

The screenshot shows a dropdown menu for selecting a sensor. The selected item is '1520 - WTemp - Wassertemperatur in °C - °C'. Other visible items include '1521 - HKBat - HK Batterie in V - V', '1519 - WSauele - Wassersaeule in mm - mmWS', '1521 - HKBat - HK Batterie in V - V', '1522 - HKTemp - HK Temperatur in °C - °C', and '1523 - HKHum - HK Luftfeuchte in % - %'.



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- 4) The minimum and maximum thresholds must be set in the alert parameters.
- 5) Different notification intervals are available. It can be specified in hours or minutes. For further information on the notification intervals click the help button. 
- 6) SMS- an E-Mail notification

### Logger Monitoring

Alert group: TTTest - Alert: Test1

☒ Activate alert

The SMS delivery costs money.  
Please call up informations by the customer support: support@terratriansfer.de

Select logger: 3 - 100325 - IT\_Testlogger

Select sensor: 6 - PEGEL - расход водослива Томсона (вычисленный) в м3/ч - ...


Alert Description: Test1

Alert parameter: SMS messages | Email messages

☒ Monitor logger


Min. value:

Max. value:

Notification interval: 1 min 

Transmission errors: 3 Transmission interval: 0 d 0 h 15 min 0 sec

OK Abbrechen

- 1) **Alert description:** Short description for alerts
- 2) **Select logger:** Select the logger that should be monitored
- 3) **Select sensor:** No logger needs to be selected here
- 4) **Min-/Max- Values:** Can be left blank
- 5) Different notification intervals are available. It can be specified in hours or minutes. For further information on the notification intervals click the help button. 
- 6) **Transmission errors:** Specifies how many times the transmission interval can be exceeded before an alert notification is sent.
- 7) **SMS- an E-Mail notifications**



### 4.10.1.2 SMS-Notification

**Please note:** The SMS Notification is an optional feature which can be booked separately. There will be additional costs for each SMS. Please refer to [alese@sts-ag.ch](mailto:alese@sts-ag.ch) for further information.

- Enter a mobile phone number (without + i.e. 0049XXXXXXX)
- To send a customized text that contains the values that triggered the alarm, wild cards can be used.
  - To see the available wild cards, right click the SMS text field and select the wild cards from the drop down menu.
  - You can also select „Read standard text“ to insert a predefined standard message.
  - If an alarm message is sent, the wild cards will be replaced by the corresponding current values.



**SMS text**

```

alert: #l #s at #d measured value: #v #u is out of tolerance (#n #u -
#m #u)!
```

- Multiple recipients for an alarm can be defined.

The screenshot shows the 'SMS messages' tab selected. It features a table with two rows for defining recipients. Each row has an 'Activate' checkbox, an 'SMS number' field, and an 'SMS text' field. The first row is populated with a checkbox, the number '00491214XXXXXX', and a text template: 'alert: #l #s at #d measured value: #v #u is out of tolerance (#n #u - #m #u)!'. To the right of each text field are two buttons: a green plus sign for adding and a red minus sign for deleting the recipient.

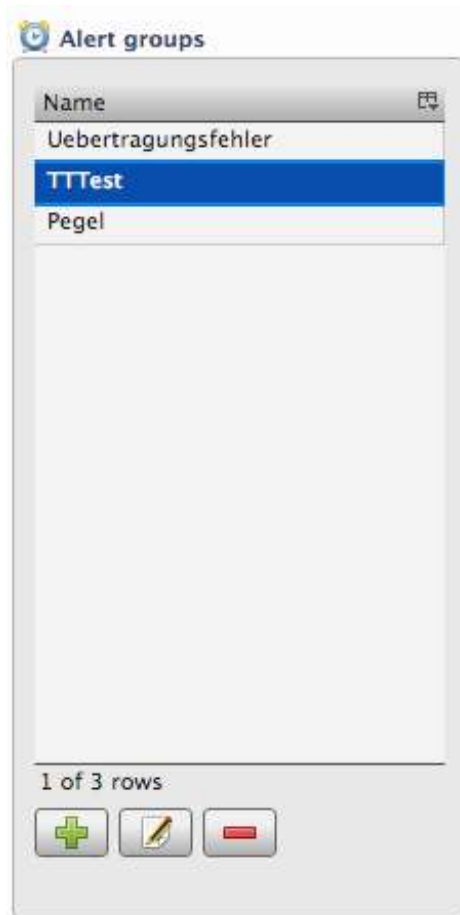
- To add a recipient, click the  button.
- To delete a recipient, click the  button.
- If a recipient should not receive messages temporarily, just uncheck the „activate“-box.
- If the same alarm text should be used for other notifications, just right click the text field and select „Copy text for all messages“.

### 4.10.1.3 Email-notification




The only difference between the SMS and the e-mail notification is, that the e-mail notification requires a subject for the e-mail.

The screenshot shows the 'Email messages' tab selected. It features a table with one row for defining a recipient. The row has four columns: 'Activate' (checkbox), 'Email address' (text field with 'test@terratriansfer.de'), 'Subject' (text field with 'alert: #d (#l,#s)'), and 'Email text' (text field with 'Attention, an alert triggered at #d! Location: (#l #s)'). To the right of the 'Email text' field are two buttons: a green plus sign for adding and a red minus sign for deleting the recipient.


## 4.10.2 Editing and deleting alarms



On the left side there is an overview of the alert groups that have been defined. You want to edit, delete, or create an alert group select one of the alert groups and select one of the following buttons:


- Create alert group 
- Edit alert group 
- Delete alert group 


If you select an alarm group with the left mouse button, the corresponding alarms are automatically loaded and displayed in the right table.

To edit an alarm, select the alarm in the table and click the  button and edit the alarm as described in sections 4.10.1.1, 4.10.1.2, 4.10.1.3.


Selected alert group: TTTest

| Active                              | Alert description | Logger           | Sensor | Min. value | Max. value | Notification interval | Monitor logger                      | Transmission errors |
|-------------------------------------|-------------------|------------------|--------|------------|------------|-----------------------|-------------------------------------|---------------------|
| <input checked="" type="checkbox"/> | Test1             | 84 - 021082 - ND |        |            |            | 3 min                 | <input checked="" type="checkbox"/> | 4                   |

To delete an alarm, select it from the list and click the  button.

Click the  button to add a new alarm.

## 4.10.3 Alarm notification

The Symbol in the top right corner  shows the number of alarms that have been triggered.

Menu

Log Out

Logged in as: handbuch Userlevel: admin\_sms

1636

2

Search...

Monitor

Alert configuration

Sensor network

100325/IT\_Testlogger

210009/Testlogger1


210436/fw\_v5\_Testlogger

| Serial | Logger name      | Last transmission     | Transmission interval | Signal | Disk space used | Voltage | Inner humidity | Temperature |
|--------|------------------|-----------------------|-----------------------|--------|-----------------|---------|----------------|-------------|
| 100325 | IT_Testlogger    | 0 d 0 h 14 min 50 sec | 0 d 0 h 5 min 0 sec   | 25 dBm | 5.81 %          | 3.087 V | 36.50 %        | 21.93 °C    |
| 210009 | Testlogger1      | 0 d 1 h 36 min 21 sec | 0 d 1 h 0 min 0 sec   | 17 dBm | 45.31 %         | 2.624 V | 83.70 %        | 5.57 °C     |
| 210436 | fw_v5_Testlogger | 0 d 1 h 35 min 52 sec | 0 d 0 h 10 min 0 sec  | 29 dBm | 57.94 %         | 2.573 V | 44.40 %        | 18.49 °C    |

By clicking the symbol you will be provided with further information on the alarm notifications.

| Alert notifications                                  |                          |                   |                                     |
|--|--------------------------|-------------------|-------------------------------------|
| Notified at  | Logger / Sensor          | Notification type | Read                                |
| 21.01.2014 09:01:03                                  | fw_v5_Testlogger - GFA   | email             | <input type="checkbox"/>            |
| 21.01.2014 09:01:03                                  | fw_v5_Testlogger - GFA   | email             | <input checked="" type="checkbox"/> |
| 21.01.2014 09:01:02                                  | fw_v5_Testlogger - GFA   | email             | <input type="checkbox"/>            |
| 21.01.2014 06:46:02                                  | fw_v5_Testlogger - GFA   | email             | <input checked="" type="checkbox"/> |
| 21.01.2014 06:46:02                                  | fw_v5_Testlogger - GFA   | email             | <input checked="" type="checkbox"/> |
| 21.01.2014 06:46:01                                  | fw_v5_Testlogger - GFA   | email             | <input checked="" type="checkbox"/> |
| 21.01.2014 04:46:02                                  | fw_v5_Testlogger - GFA   | email             | <input checked="" type="checkbox"/> |
| 1 of 372 rows  |                          |                   |                                     |
| Mark all as read                                     |                          |                   |                                     |
| <input checked="" type="checkbox"/> Show read alerts |                          |                   |                                     |
| Number/Address                                       | server@terratriansfer.de |                   |                                     |
| Subject  | test2                    |                   |                                     |
| Text   | test2                    |                   |                                     |

If you do not want an alarm message to be displayed anymore, just check the box in the „Read“ column. TO do so for all messages at once, click the „Mark all as read“ button.

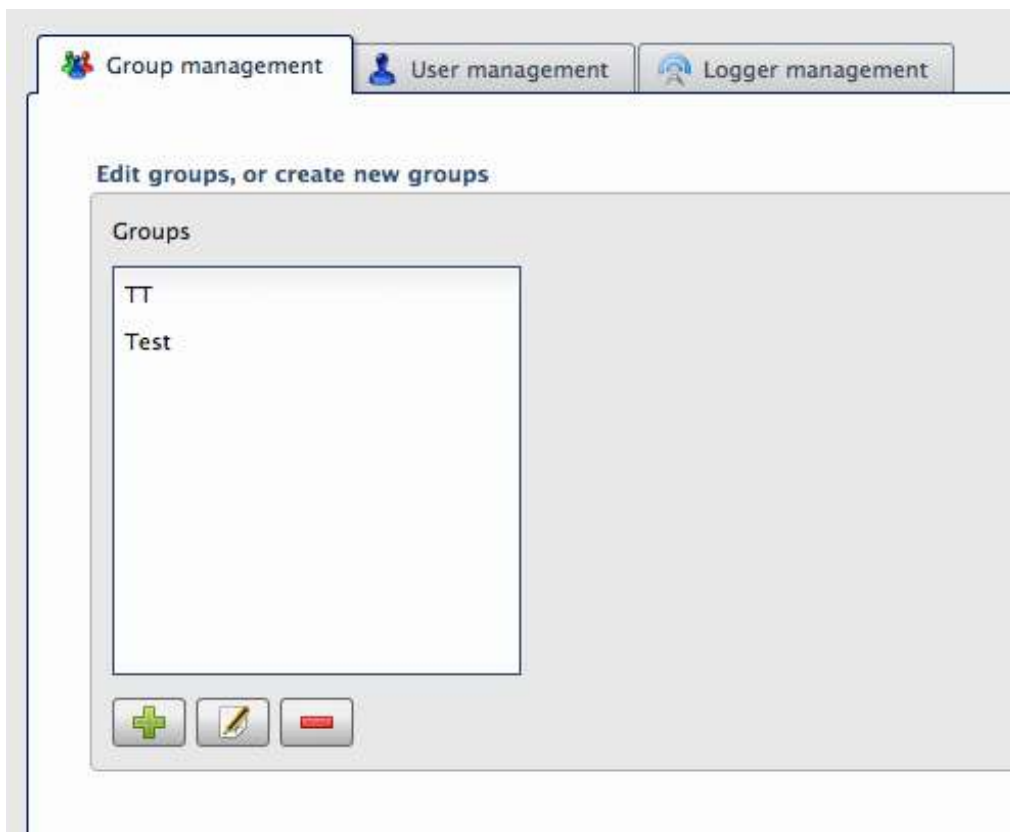
**Please note:** Alarm notification will just be set invisible and not be deleted. To view messages that have been set invisible, check the „Show read alarms“ box. The symbol showing the number of alarm notifications only shows alarms that have not been set as „read“ 

## 4.11 User,- Group and Logger management

To open the user, group and logger management, click menu → user, group and logger management.




The following tab will open and provide you with different settings.

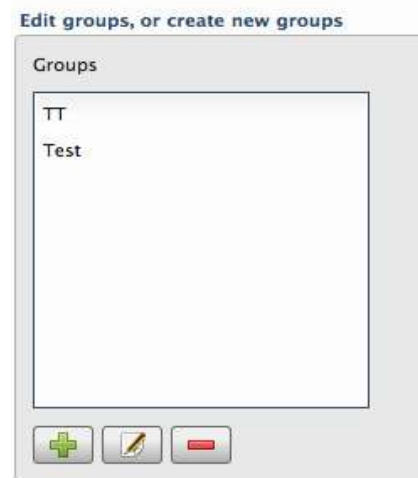
The subcategories of the settings can be opened by using the tabs of the setting interface.



### 4.11.1 Group management

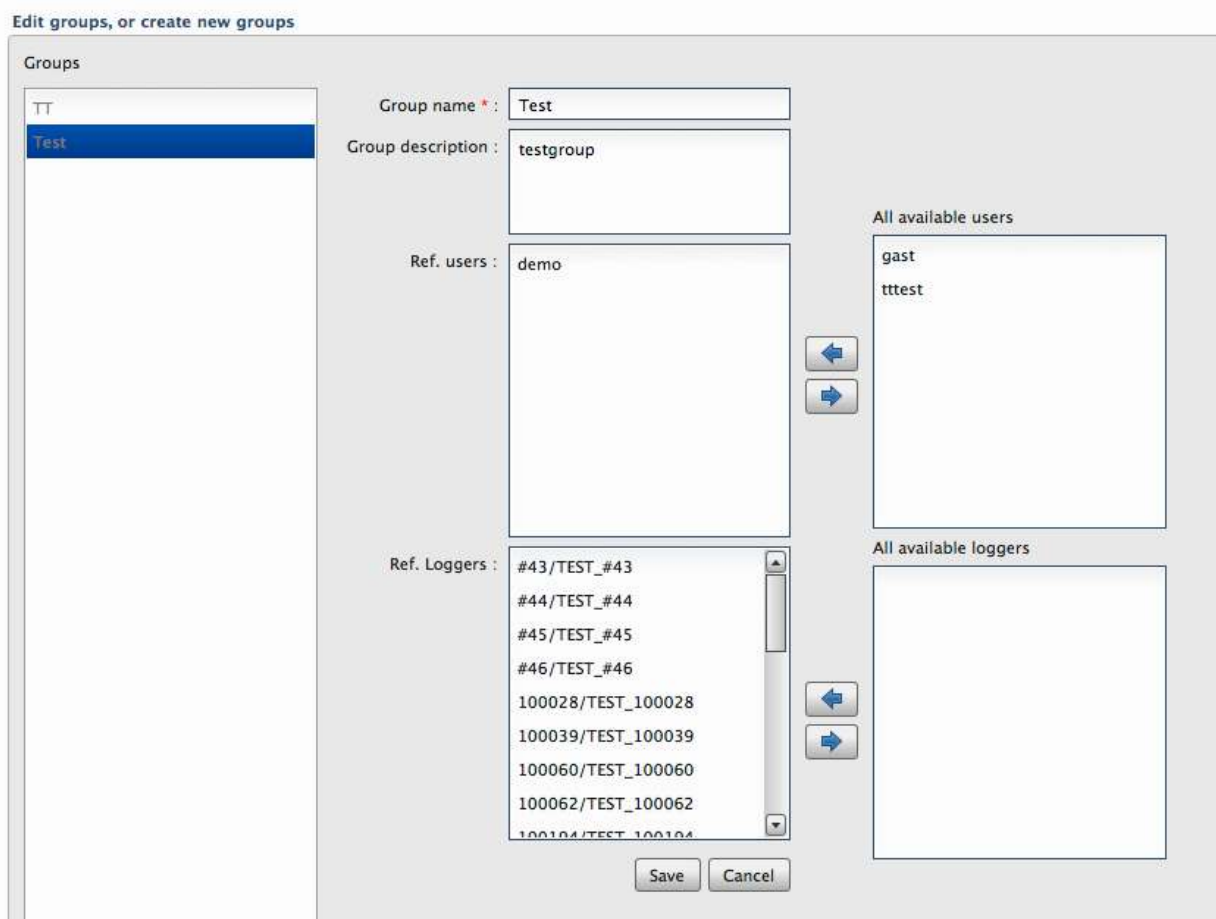
Using the group management, users and loggers can be grouped. It defines, which users belong to which group and which loggers can be accessed by this group.

- To create a new group, click 
- To edit a group, select a group and click 
- To delete a group, select a group and click 



In the following, an example how to create a group is given:

1. After clicking the  button, a new window will open.



The window is titled "Edit groups, or create new groups". It contains a "Groups" list on the left with "TT" and "Test" (selected). The main area is divided into several sections:

- Group name \***: Text input field containing "Test".
- Group description**: Text input field containing "testgroup".
- Ref. users**: Text input field containing "demo".
- Ref. Loggers**: A list box containing the following entries:
  - #43/TEST\_#43
  - #44/TEST\_#44
  - #45/TEST\_#45
  - #46/TEST\_#46
  - 100028/TEST\_100028
  - 100039/TEST\_100039
  - 100060/TEST\_100060
  - 100062/TEST\_100062
  - 100104/TEST\_100104
- All available users**: A list box containing "gast" and "tttest".
- All available loggers**: An empty list box.

Navigation buttons (left and right arrows) are located between the "Ref. users" and "Ref. Loggers" sections, and between the "All available users" and "All available loggers" sections. At the bottom right, there are "Save" and "Cancel" buttons.

2. Enter the name of the group
3. Enter a description for the group (**optional**)
4. Assign Users and logger to the group.
  - Select the loggers / users from the list and click the arrow button.
  - The number of loggers and users that can be assigned to a group is not limited.
  - If there are no loggers or users in the system yet, save the group and create users and loggers. Afterwards the saved group can be edited.
5. Save the group configuration.

## 4.11.2 User management


User accounts are used to log into the online interface. Using the user management, new user accounts can be created.

Similar to the group management, the following options are available

- add user
- edit user
- delete user



In the following, an example on how to add an user is provided.

1. After clicking the  button, the following window will open.

Edit users or create new user

Users

- demo
- gast
- tttest**

User name \* :

Password \* :

Password \* :

User level :

Description :

Ref. groups :

All available groups :

Title :  Phone :

First name :  Mobile :

Last name :  Fax :

Language :  Mail :

The fields that are marked with a \* are mandatory



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2. Enter a username and a password

The password must consist of at least 6 characters

3. Choose a userlevel. The user level defines which functions will be allowed for the user (see table on next page, green=allow, red=not allowed).




|                |                                | Benutzergruppen |           |       |      |       |         |
|----------------|--------------------------------|-----------------|-----------|-------|------|-------|---------|
|                |                                | sysadmin        | admin_sms | admin | user | guest | mapview |
| Basefunktionen | Map                            |                 |           |       |      |       |         |
|                | Diagram                        |                 |           |       |      |       |         |
|                | Export from legend             |                 |           |       |      |       |         |
|                | Export Button                  |                 |           |       |      |       |         |
|                | manuel Export (X-Sensoren)     |                 |           |       |      |       |         |
|                | Logger RAW-Dateien             |                 |           |       |      |       |         |
|                | Logger LOG Dateien             |                 |           |       |      |       |         |
|                | Logger Parameter-Dateien       |                 |           |       |      |       |         |
|                | Documentmanagment              |                 |           |       |      |       |         |
|                | Import                         |                 |           |       |      |       |         |
|                | Measuring values edit/delete   |                 |           |       |      |       |         |
|                | Alertmanagment                 |                 |           |       |      |       |         |
|                | Alertmanagment SMS Versand     |                 |           |       |      |       |         |
|                | User,group and loggermanagment |                 |           |       |      |       |         |
|                | Automatic Export               |                 |           |       |      |       |         |
| Monitor        | Last transmission              |                 |           |       |      |       |         |
|                | Transmission interval          |                 |           |       |      |       |         |
|                | Signal                         |                 |           |       |      |       |         |
|                | Disk space used                |                 |           |       |      |       |         |
|                | Inner humidity                 |                 |           |       |      |       |         |
|                | Voltage                        |                 |           |       |      |       |         |
|                | Temperature                    |                 |           |       |      |       |         |
|                | Koordinates                    |                 |           |       |      |       |         |


The main account you will log in with the first time has the userlevel „sysadmin“.


New users with the level „**sysadmin**“ can not be created.

4. Choose one or more group to associate with the new user.
5. Save the configuration.

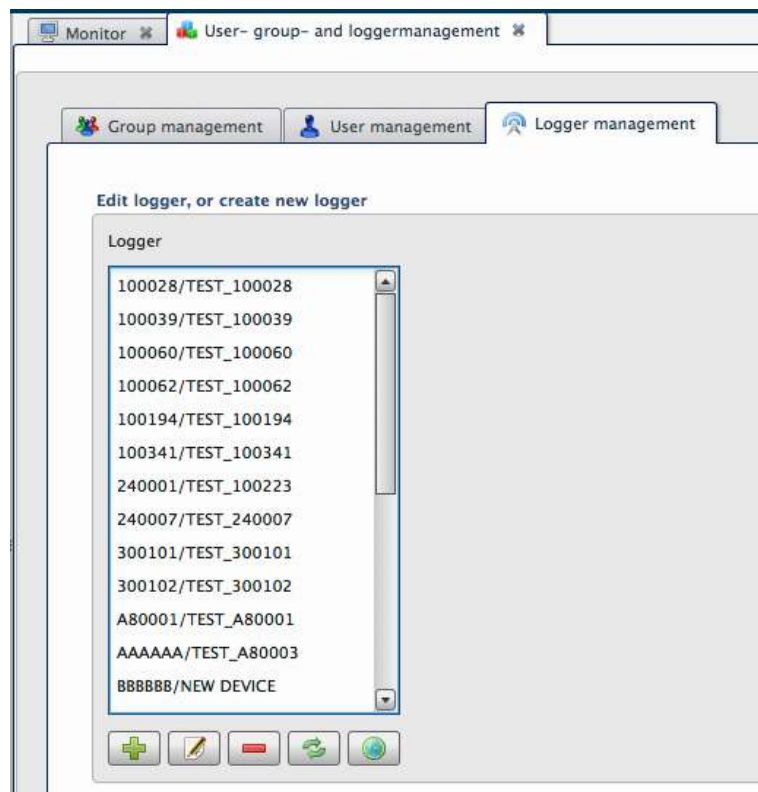
### 4.11.3 Logger management


In the logger management, new loggers can be created , edited  and deleted .

See chapter 4.11.5. to find out how to configure  a measuring site.

By clicking the  button, the coordinates of the logger can be edited. (see chapter 4.11.4)

#### 4.11.3.1 Create default logger



1. Click  to create a new logger
2. Select the **Logger class** GPRS-Logger or Radio-Logger. The Radio-Logger is created the same way as the GPRS-Logger.

Language : English

Logger class : GPRS-Logger

Logger type : Default GPRS-logger: (Gauge in m, WT...

Battery type : 3V Alkaline

Number of loggers : 1

Number of sensors : 0

Sensors :

Ref. groups : TT

All available groups

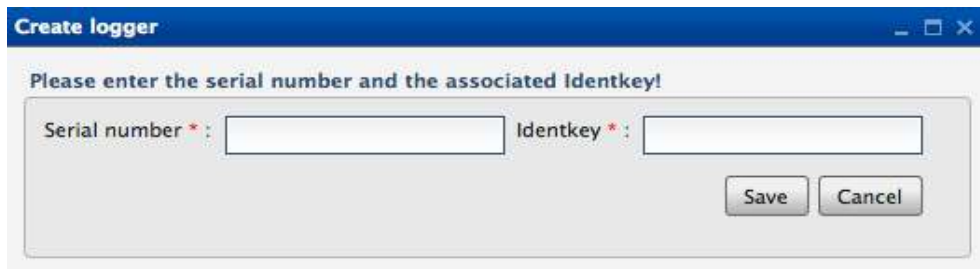
Test

Save Cancel

3. Select your **Logger Type**. 8 German, 8 Dutch and 8 English standard logger and the option to create a user defined logger are available (see chapter 4.11.3.2).
4. Select your **Battery type**
  - 3V Alkaline (default)
  - 3,6V Lithium
  - 12 V
5. Select the number of loggers you want to configure with these settings at the same time. Up to 24 Logger can be created at the same time.
6. **Assign group**: The logger can be assigned to a group when it's created.

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7. Now save your configurations. After clicking the save Button, a new window asking for Serial number and Identkey opens.

A screenshot of a Windows-style dialog box titled "Create logger". The dialog has a blue title bar with standard minimize, maximize, and close buttons. Below the title bar, the text "Please enter the serial number and the associated Identkey!" is displayed. There are two input fields: "Serial number \*:" and "Identkey \*:". To the right of the input fields are two buttons: "Save" and "Cancel".

Enter the Serial number and the identkey here.

- Both were given to you by STS
- If you have any questions, please contact the support at:

[alese@sts-ag.ch](mailto:alese@sts-ag.ch)

8. Click the save button.

#### 4.11.3.2 Create a user defined logger

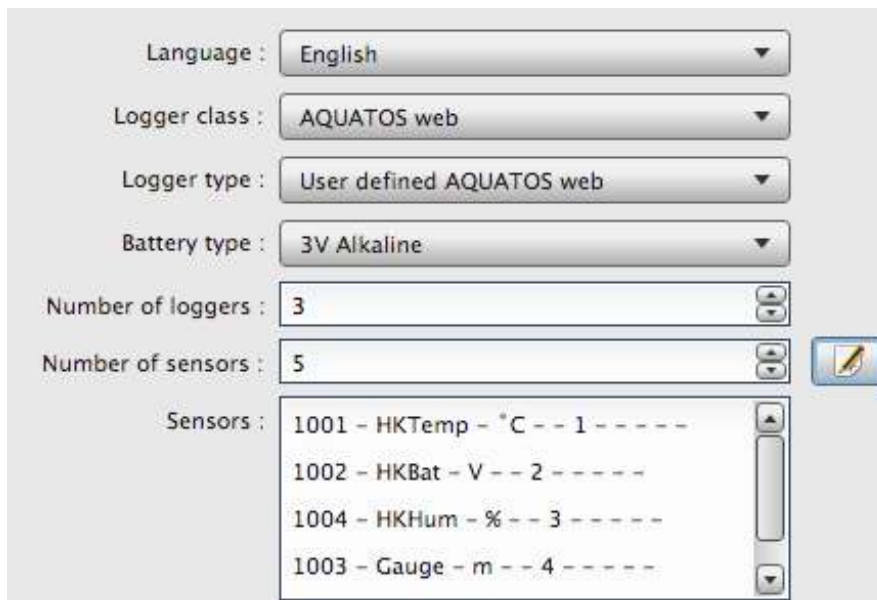
First, set the logger class, battery type and the associated group.

Select user defined **AQUATOS web** or **AQUATOS mini** as Logger type.

Select the number of sensors . Then click 

In new window for the configuration of the sensors will open.

**Attention:** The loggers from STS have sensors for self monitoring, like temperature, humidity and battery power. Please add these channels to the number of channels you want to add. The self monitoring channels must be configured the same like the other channels.



The screenshot shows a configuration window with the following fields and options:

- Language : English
- Logger class : AQUATOS web
- Logger type : User defined AQUATOS web
- Battery type : 3V Alkaline
- Number of loggers : 3
- Number of sensors : 5
- Sensors :
  - 1001 - HKTemp - °C -- 1 -----
  - 1002 - HKBat - V -- 2 -----
  - 1004 - HKHum - % -- 3 -----
  - 1003 - Gauge - m -- 4 -----

There is an edit icon (pencil) next to the 'Number of sensors' field.

**Edit sensors for custom loggers** [X]

| Id | sensor Description | Sensor type        | channel position |
|----|--------------------|--------------------|------------------|
| 1  | Gauge Demo         | 1003 - Gauge - m   | 1                |
| 2  | WTemp Demo         | 1011 - WTemp - °C  | 2                |
| 3  | HKBat              | 1002 - HKBat - V   | 3                |
| 4  | HKHum              | 1004 - HKHum - %   | 4                |
| 5  | HKTemp             | 1001 - HKTemp - °C | 5                |

1 of 5 rows

☐ Activate advanced sensor properties  
☐ Conversion groundwater level in NHN  
☐ Addition constant  
☐ Thomson Weir angle in degrees

- Sensor-ID will be assigned automatically
- Enter a sensor description.
 

**Attention:** When clicking commit after entering a sensor description, it can happen that the description will not be saved. To avoid this, click another field than the sensor description before clicking commit.
- Assign channels
 

**Attention:** The self monitoring sensors must always be assigned to the last channels. If for example 5 channels will be assigned, the self monitoring sensors must be assign to channels 3,4 and 5.
- Optionally, further sensor properties, like event thresholds, measuring range, precision or resolution can be defined.

#### 1. Groundwater lever (mean sea level)

Enter a value for the terrain level (main sea level) or for the upper edge of the tube. Afterwards, the groundwater level is determined by the calculation: measured value\* - 1 + terrain- or tube level.

**Note** :The raw data will remain unchanged at any time.

**Note** : If the calculation for the groundwater level has already been configured in the loggers system, it doesn't need to be configured here again. The raw data and values in the diagram are already the correct groundwater level values.

## 2. Addition constant

The measured value is recalculated by adding the value of Addition Constant to it.

Measured Value = Measured Value + Addition Constant

| Addition constant |
|-------------------|
| +100              |
| -100              |
| 100               |
| 100               |
| 100.0             |

## 3. Min-/Max. Event threshold

Enter a minimum and maximum threshold for defining events, as explained in chapter “4.6.1.5 Visualization of thresholds”.

## 4. Thomsonwehr Angle

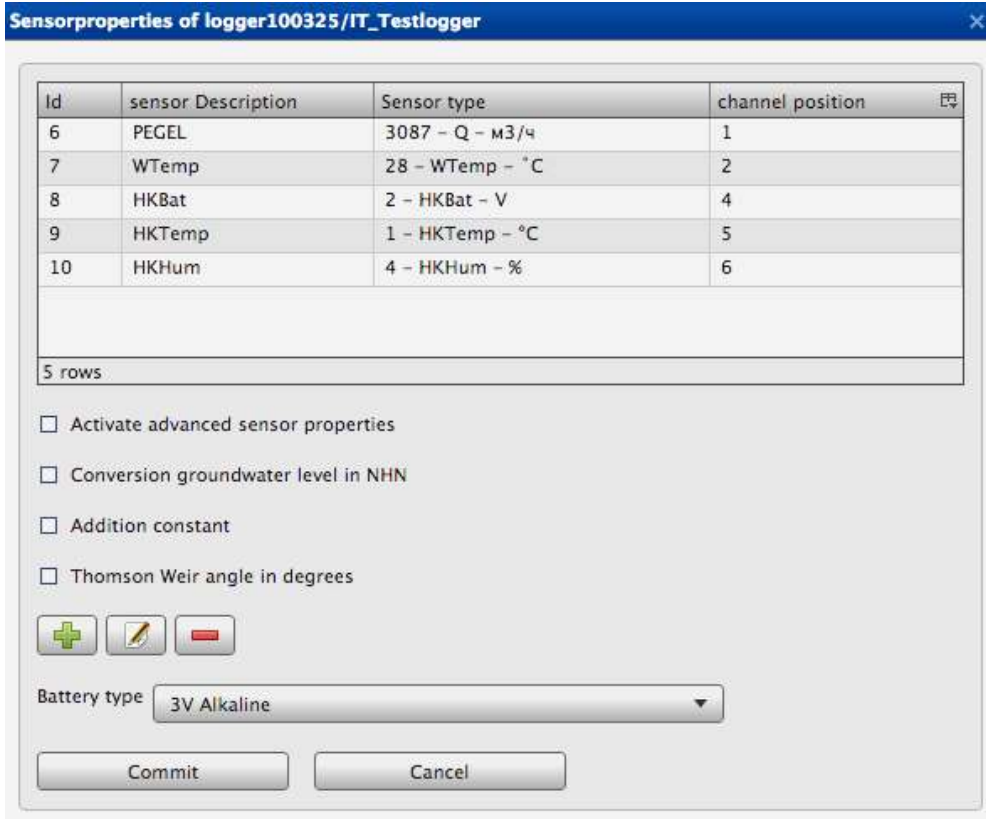
Enter an angle (degrees) to calculate the discharge.

When the configuration is finished, the configuration parameters and the sensors will be listed. The user defined logger can now be saved. To do so, follow the procedure of creating a new logger.

|                     |   |
|---------------------|---|
| Language :          | English   |
| Logger class :      | AQUATOS web   |
| Logger type :       | User defined AQUATOS web  |
| Battery type :      | 3V Alkaline   |
| Number of loggers : | 3   |
| Number of sensors : | 5   |
| Sensors :           | <div> 1001 - HKTemp - °C -- 1 -----<br/> 1002 - HKBat - V -- 2 -----<br/> 1004 - HKHum - % -- 3 -----<br/> 1003 - Gauge - m -- 4 ----- </div> |

### 4.11.3.3 Edit Logger




After selecting a logger and clicking the  button, the following dialog will open:



| Id | sensor Description | Sensor type     | channel position |
|----|--------------------|-----------------|------------------|
| 6  | PEGEL              | 3087 - Q - m3/4 | 1                |
| 7  | WTemp              | 28 - WTemp - °C | 2                |
| 8  | HKBat              | 2 - HKBat - V   | 4                |
| 9  | HKTemp             | 1 - HKTemp - °C | 5                |
| 10 | HKHum              | 4 - HKHum - %   | 6                |

5 rows

☐ Activate advanced sensor properties  
☐ Conversion groundwater level in NHN  
☐ Addition constant  
☐ Thomson Weir angle in degrees


Battery type: 3V Alkaline

Commit Cancel

The following sensor parameters can be edited


- sensor description
- channel assignment
- further sensor properties

**Attention:** When clicking commit after entering a sensor description, it can happen that the description will not be saved. To avoid this, click another field than the sensor description before clicking commit.

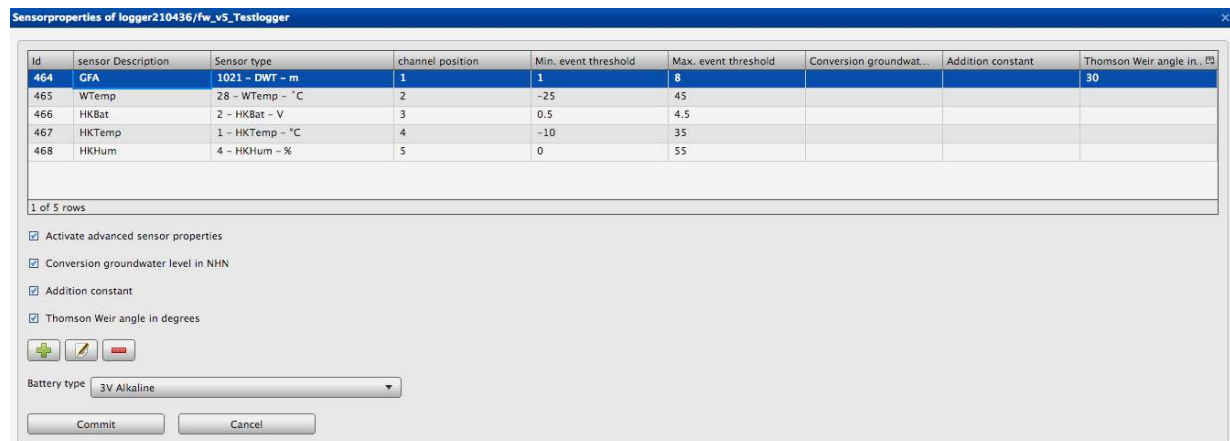
**Create sensor:** clicking the  button will add a new sensor to the table. After adding the sensor, enter a description and assign the channels.



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**Delete sensor:** To delete a sensor, select it from the list and click the  button. If there are any references to the sensor in the system, it might not be possible to delete the sensor. Please see chapter Fehler: Referenz nicht gefunden for more information on that topic.




### Advanced sensor properties



| Id  | sensor Description | Sensor type     | channel position | Min. event threshold | Max. event threshold | Conversion groundwat... | Addition constant | Thomson Weir angle in... |
|-----|--------------------|-----------------|------------------|----------------------|----------------------|-------------------------|-------------------|--------------------------|
| 464 | GFA                | 1021 - DWT - m  | 1                | 1                    | 8                    |                         |                   | 30                       |
| 465 | WTemp              | 28 - WTemp - °C | 2                | -25                  | 45                   |                         |                   |                          |
| 466 | HKBat              | 2 - HKBat - V   | 3                | 0.5                  | 4.5                  |                         |                   |                          |
| 467 | HKTemp             | 1 - HKTemp - °C | 4                | -10                  | 35                   |                         |                   |                          |
| 468 | HKHum              | 4 - HKHum - %   | 5                | 0                    | 55                   |                         |                   |                          |

1 of 5 rows

☒ Activate advanced sensor properties  
☒ Conversion groundwater level in NHN  
☒ Addition constant  
☒ Thomson Weir angle in degrees

Battery type: 3V Alkaline

#### 1. Groundwater lever (mean sea level)

Enter a value for the terrain level (main sea level) or for the upper edge of the tube.

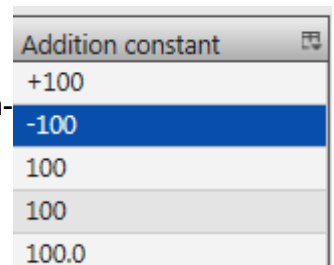
Afterwards, the groundwater level is determined by the calculation: measured value\* - 1 + terrain- or tube level.

**Note** : The raw data will remain unchanged at any time.

**Note** : If the calculation for the groundwater level has already been configured in the loggers system, it doesn't need to be configured here again. The raw data and values in the diagram are already the correct groundwater level values.

#### 2. Addition constant

The measured value is recalculated by adding the value of Addition Constant to it. Measured Value = Measured Value + Addition Constant



Addition constant

- +100
- 100
- 100
- 100
- 100.0

#### 3. Min-/Max. Event threshold

Enter a minimum and maximum threshold for defining events, as explained in chapter "4.6.1.5 Visualization of thresholds".

#### 4. Thomsonwehr Angle

Enter an angle (degrees) to calculate the discharge.

#### 4.11.3.4 Delete / Disable logger

After selecting a logger and clicking the  button, the following dialog will open:



The following options are available

- **Disable logger:** Logger and data will remain in the system but become invisible. Only a user with the user level sysadmin will be able to see or access the logger. See chapter 4.11.3.4 to find out how to enable the logger again.
- Only delete values  
All measured values will be deleted, but the logger will remain in the system.
- Delete logger and measured values.

**Attention!** Measured values will be deleted permanently! They can be imported again using the import function (see chapter 4.6.3). Make sure the required raw data is available for the import. Before anything can be deleted, the „Confirm“ box must be checked. Click yes to start deleting. Deleting can take several minutes. Please do not abort this process. If there are any references to the logger in the system, it might not be possible to delete the logger.

#### 4.11.3.5 Reference Check

Before a logger or a sensor can be edited or deleted, the system will check for references, such as automatic export or alarms that are associated with a logger / sensor. This reference must be deleted first.

The dialog window shows which Group exports and alarms are associated to the logger. Information on how to delete exports and alarms can be found in these chapters:

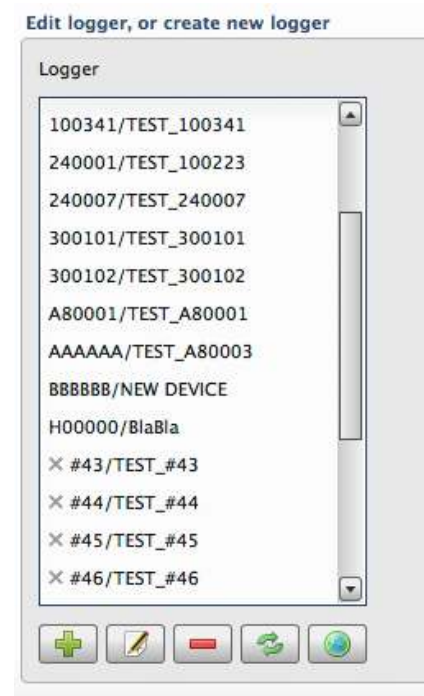
- 4.10 Alert-Management
- 4.12 Automatic Exports
- 4.13 Group exports




#### 4.11.3.6 Enable a Logger

If a logger has been disabled, it will be marked with a **×** symbol.

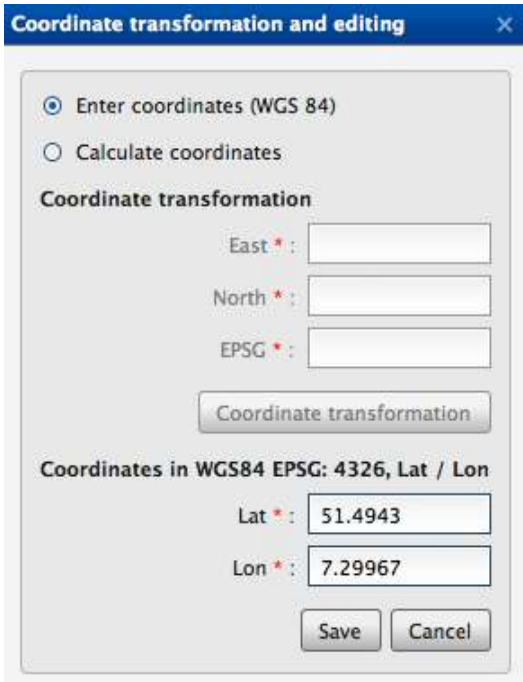
When selecting a disabled logger with the mouse, a dialog providing the option to enable the logger again will appear. Confirm the dialog by clicking yes to enable the logger and make it available for all associated users.



#### 4.11.4 Logger coordinates

If you want to enter the coordinates of a loggers position in the field, select the logger from the list and click the  Button. A new window will open.

The following option will be available.



**Coordinate transformation and editing** [X]

☒ Enter coordinates (WGS 84)  
☐ Calculate coordinates

**Coordinate transformation**

East \* :   
 North \* :   
 EPSG \* :

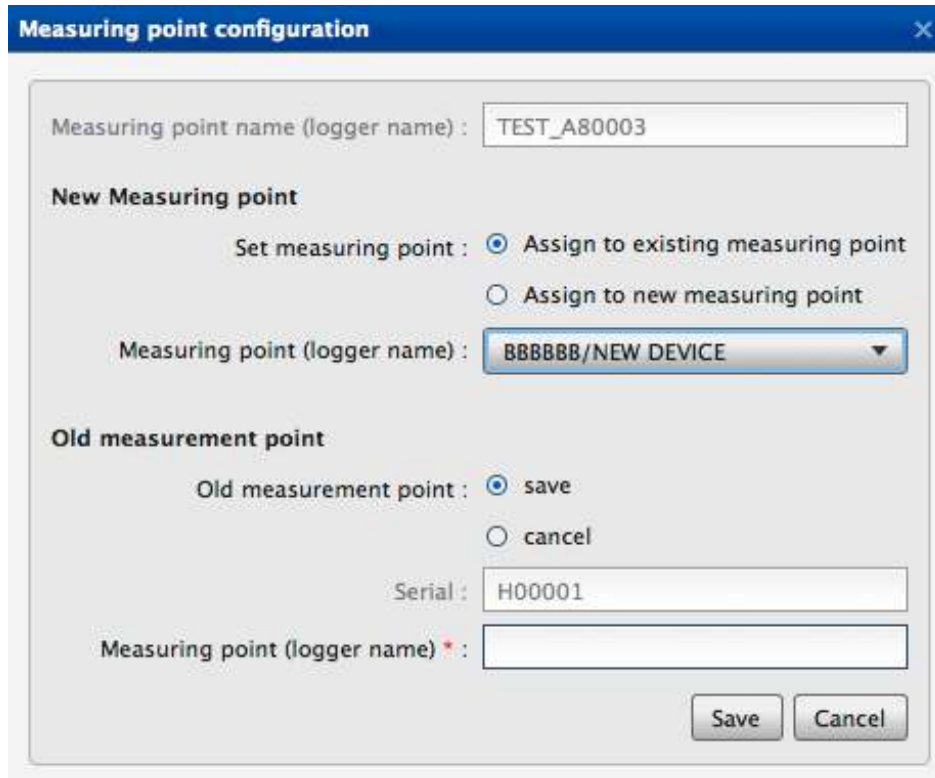
Coordinates in WGS84 EPSG: 4326, Lat / Lon

Lat \* :   
 Lon \* :

- 1.) Coordinates in the world coordinate system  
 WGS84 is selected as default.  
 Just enter the Lat/Lon coordinates of the logger and click save.
- 2.) If another coordinate system should be used, select „calculate coordinates“. To process the calculation, the EPSG code of the coordinate system an the postGIS database extension are required. Enter the coordinates and the EPWS code and click „Coordinate transformation“. After the transformation, click „Save“.

#### 4.11.5 Measuring Point Configuration

The Measuring Point Configuration can be used to assign a logger to a measuring point. After selecting a logger and clicking the  button, a configuration window will open.




The dialog box titled "Measuring point configuration" contains the following fields and options:

- Measuring point name (logger name):** A text box containing "TEST\_A80003".
- New Measuring point:**
  - Set measuring point:** Two radio buttons: "Assign to existing measuring point" (selected) and "Assign to new measuring point".
  - Measuring point (logger name):** A dropdown menu showing "BBBBBB/NEW DEVICE".
- Old measurement point:**
  - Old measurement point:** Two radio buttons: "save" (selected) and "cancel".
  - Serial:** A text box containing "H00001".
  - Measuring point (logger name) \*:** An empty text box.
- Buttons:** "Save" and "Cancel" buttons at the bottom right.


The following cases can be configured.

1. An **existing** logger will be assigned to an **existing** measuring point.
  - a) The old measuring point will be deleted
  - b) The old measuring point will be saved.
2. An **existing** logger will be assigned to an **new** measuring point.
  - a) The old measuring point will be deleted
  - b) The old measuring point will be saved.
3. An **new** logger will be assigned to an **existing** measuring point.
  - a) The old measuring point will be deleted
4. An **new** logger will be assigned to a **new** measuring point.
  - a) The old measuring point will be deleted


**Case 1: An existing logger (A) will be assigned to an existing measuring point (B).**

1. Select Logger (measuring point A)
2. Click 
3. Select measuring point → Assign to existing measuring point → Measuring point B.
4. Select if the old measuring point should be kept or deleted.


**Case 2: An existing logger (A) will be assigned to a new measuring point (B).**

1. Select Logger (measuring point A)
2. Click 
3. Select measuring point → Assign to new measuring point → Measuring point B (enter logger name – no special characters).
4. Select if the old measuring point should be kept or deleted.

**Case 3: A new logger (A) will be assigned to an existing measuring point (B).**

1. **Attention:** The new logger must be created before it can be assigned to the measuring point. See chapters 4.11.3.1 or 4.11.3.2 to find out how to create a logger.
2. After creating the logger, select it from the list (logger A)
3. Click 
4. . Select measuring point → Assign to new measuring point → Measuring point B.
5. Select if the old measuring point should be kept or deleted.

**Case 4: A new logger (A) will be assigned to a new measuring point (B).**

1. **Attention:** The new logger must be created before it can be assigned to the measuring point. See chapters 4.11.3.1 or 4.11.3.2 to find out how to create a logger.
2. After creating the logger, select it from the list (logger A)
3. click   
Select measuring point → Assign to new measuring point → Measuring point B (enter logger name – no special characters).
4. Select if the old measuring point should be kept or deleted.

The following list describes the effect of these settings on the data and loggers.

### **New measuring point:**

- ***Assign to existing measuring point***
  - The existing measuring point B will get the serial number of the old measuring point A.
  - The name of measuring point B will remain unchanged.
  - The measured values of measuring point B in the database will remain unchanged.
  - The measured values of measuring point A can be deleted.
  - As measuring point B will get a new serial number, the old raw data (measuring point A) will be assigned to the new serial number (measuring point B), but the old raw data **can not be imported** again any longer, because there is no more reference. All new raw data (measuring point b) that will be created in the future can be imported the normal way.
- ***Assign to new measuring point***
  - Measuring point B will be created by the system automatically.
  - Afterwards, the new created measuring point will get the number of the old measuring point (A).
  - There is no measuring data for measuring point B yet.
  - The measured values of measuring point A can now be deleted (or kept).
  - As measuring point B will get a new serial number, the old raw data (measuring point A) will be assigned to the new serial number (measuring point B), but the old raw data **can not be imported** again any longer, because there is no more reference. All new raw data (measuring point b) that will be created in the future can be imported the normal way.

### **Old measuring point:**

- ***Deleting the old measuring point***
  - measuring point A will entirely be deleted from the database.
  - The raw data will be deleted as well.
- ***Saving the old measuring point***

- The old measuring point will get a new serial number. This number is created by the system and always starts with an H, i.e. H00001.
- The measured values of measuring point a will be assigned to the backup measuring point i.e. with the logger serial number H00001.
- The raw data will also be assigned to the backup measuring point i.e. with the logger serial number H00001.

**Attention:** The name of the raw data can not be changed. That means that the raw data can not be imported to the database again, because there is no more reference.

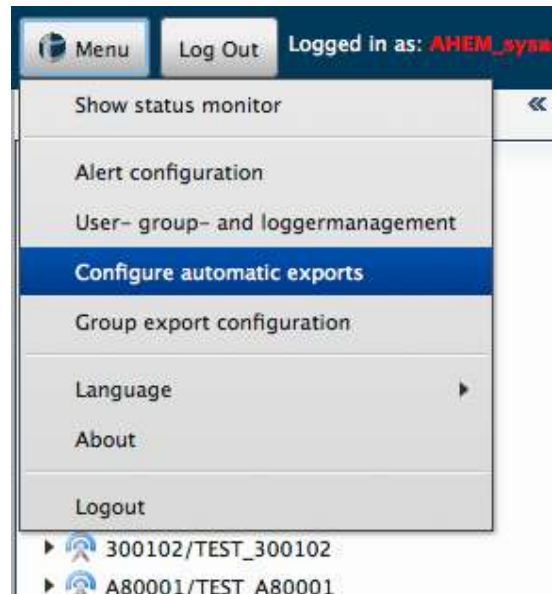


## 4.12 Automatic Exports

Using automatic exports, the measured values can be transferred to a FTP-Server of your choice every time a logger is sending data.

Different data- and file types are available.

To configure automatic updates, Click  
Menu → Configure automatic exports.





A list containing existing exports will be displayed. They are sorted by their name in an alphabetic order.

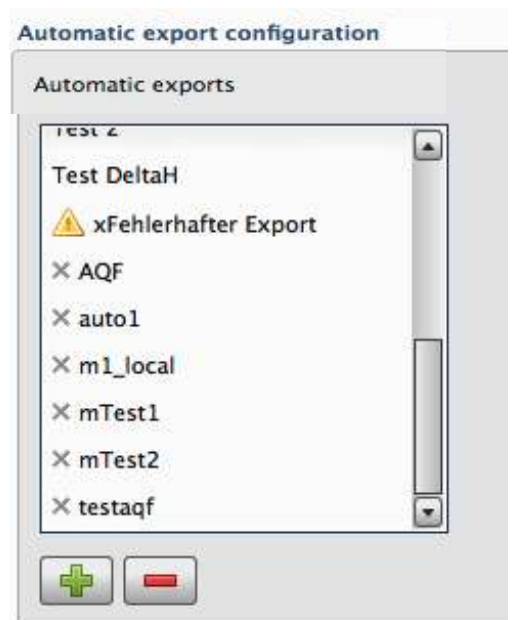
- Automatic exports can be

added 

deleted 

edited 

- Exports that have been disabled are marked with a . If an export is disabled it will not be listed.
- Exports that are marked with  have caused an error and were therefore disabled automatically. To enable the export again, the error needs to be fixed first (See chapter 4.12.2 ).



## 4.12.1 Create automatic export

The options of the automatic export setting will be described below.

☒ Activate automatic export

**General configuration**

Description \*:

Project/measuring point name:

Sensor:

Export option: ☒ Standard  
☐ delta-H  
☐ Average  
☐ Relative precipitation

**File configuration**

Columns exports: ☐

Export format:

Use default file name: ☒

Export file \*:

Number of target files: ☒ One target file  
☐ Multiple target files

Write options: ☒ Expand file  
☐ Overwrite file

**Connection parameters**

Location: ☒ FTP  
☐ local

Server address \*:

User name \*:



Password \*:

Available Sensors

Filter sensors:

Save Cancel

### General Configuration

- **Description** : Enter a description for the automatic export (**mandatory**)
- **Project-/Logger Name**: Only valid for RVCSV and KH-15
- **Sensor**: Select a sensor If the export format Aquafin has been selected, multiple sensors can be selected. Select one ore more sensors from the list and click  .  
To remove a selected sensor from the list select it and click  .

By using the menu „Filter sensors“ the list of available sensors can be limited to sensors of a certain type, which can make searching easier.

- **Export Options**

**ATTENTION:** The export format Aquafin is only available as standard export. Other options will not be available when selecting Aquafin.

- **Standard:** All measured values will be exported
- **DeltaH and DeltaH-Start value:** Only that exceed a user defined slope (Delta-H) will be exported. Optionally, a Delta-H start value can be entered. Only values that exceed this start value and the user defined slope will then be exported. To execute a Delta-H export, just enter a Delta-H value and, optionally, a Delta-H start value.

Export option : ☐ Standard  
☒ delta-H  
☐ Average

DeltaH :

DeltaH start value :

Average period :

Minutes

- **Average:** The average values of a user defined time interval (minutes, hours or days) will be calculated and exported

DeltaH :

DeltaH start value :

Average period :

Minutes

File configuration

Columns exports :

Minutes

Hours

Days

### File configuration:

- **Column export:** Exports will be executed column by column
- **Export format:** Select one of the export formats that are available:

HydroPro, CSV, Hydras3, WISKI, Aquainfo, HygrisC, TMCSV, Aquafin, KH-15 and RVCSV

- **Export file:** Name of export file.
- **Use default file name:** When enabled, the file will be named automatically
- Number of target files: Two options are available:

- **One target file:** All measured values will be exported to a file

The screenshot shows the 'File configuration' dialog box. It includes the following settings:

- Columns exports:** ☐
- Export format:** HydroPro (selected in a dropdown menu)
- Use default file name:** ☒
- Export file \*:** AAAAAA\_PEGEL.txt
- Number of target files:**
  - ☒ One target file
  - ☐ Multiple target files
- Write options:**
  - ☐ Expand file
  - ☒ Overwrite file

Options:

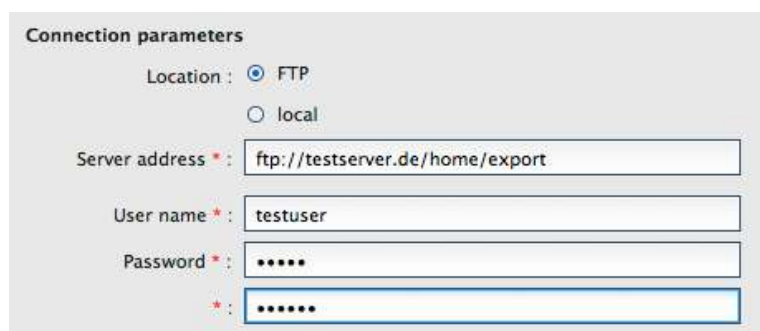
1. **Expand file:** Existing export file will be expanded.
  2. **Overwrite file:** Existing export file will be overwritten.
- **Multiple target files:** A new file will be created for every transmission.

The screenshot shows the 'File configuration' dialog box with the following settings:

- Export format:** HydroPro (selected in a dropdown menu)
- Use default file name:** ☒
- Export file \*:** AAAAAA\_PEGEL\_#dateddMMyyyy\_hh.txt
- Number of target files:**
  - ☐ One target file
  - ☒ Multiple target files
- File time format:** hour (selected in a dropdown menu)

**File time format:** Defines, how the file will be named. The options minute, hour and day are available. The name of the export file will automatically be adjusted to the selected time format. If for example a transmission is made every hour, the time format „hour“ should be selected.

## Connection parameters:



The screenshot shows a dialog box titled "Connection parameters". It has two radio buttons for "Location": "FTP" (selected) and "local". Below this, there are four text input fields: "Server address" with the value "ftp://testserver.de/home/export", "User name" with "testuser", "Password" with "\*\*\*\*\*", and another "Password" field with "\*\*\*\*\*".




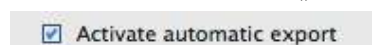
The screenshot shows the same "Connection parameters" dialog box, but with the "local" radio button selected. The "Directory" field is visible with the value "/example/home".

- **Location:** Select is the file should be saved locally or on an FTP server.  
**Attention:** The option „local“ can only be selected by STS and can not be changed. If files should be saved locally, please contact STS.
- **Server address:** Enter a valid FTP server address
- **User:** FTP user name
- **Password:** FTP password

Please click the save button to save all settings. The new export will be listed on the left side. The automatic export can not be executed manually, but will be executed every time the selected sensor makes a transmission.

## Activate /Deactivate automatic exports

If an automatic export should be deactivated temporarily, select the export and click . Now uncheck the box „Activate automatic export“ and click save.



The screenshot shows a checkbox labeled "Activate automatic export" which is currently checked.



### 4.12.2 Export notification

An automatic export can fail for different reasons.

Possible reasons are:

1. Wrong FTP user or password
  - User or password might have been misspelled.
  - User or password might have changed without changing the automatic export settings.
  - User doesn't exist any more.
2. Wrong FTP server address
  - Address might have been misspelled
    - Address might have changed without changing the automatic export settings.
3. Server failure

Wrong user names, passwords a server addresses can be fixed in the sensormanager.

1. If an export has failed, it will be marked with a  and will be deactivated automatically.  
Before the export can be activated again, the errors must be fixed first. To fix the error, enter the correct username / password / server address, then activate the export again (see chapter 4.12.1).
2. To fix errors of past exports, click the  button on the main page. The button shows how many exports have not been executed successfully. After clicking, a dialog box listing the unsuccessful exports will open. The column „Faulty transmission attempts“ shows how many transmission attempts have failed. An export will be marked unsuccessful after five unsuccessful attempts.

Incorrect Export

| Invoked on          | Logger / sensor       | Faulty transmission attempts | Export description |
|---------------------|-----------------------|------------------------------|--------------------|
| 30.09.2014 09:21:01 | Hafenpegel – PEGEL    | 5                            | KH-15              |
| 30.09.2014 09:21:01 | IT_Testlogger – WTemp | 5                            | FailureExp         |
| 30.09.2014 09:15:01 | Demologger – U        | 5                            | RV2                |
| 30.09.2014 09:15:01 | Demologger – U        | 5                            | RVCSV              |
| 30.09.2014 09:15:01 | Sylt – GFA            | 5                            | MultichannelAQ     |
| 30.09.2014 09:15:01 | Demologger – U        | 5                            | AQF                |
| 30.09.2014 04:20:01 | Demologger – U        | 5                            | RV2                |
| 30.09.2014 04:20:01 | Demologger – U        | 5                            | RVCSV              |

1 of 242 rows

Invoked on :

30.09.2014 09:21:01

Export description :

FailureExp

Server :

ftp://ftp.sensormanager.net

User :

sensormanager

Password :

.....

Password :

.....

Save

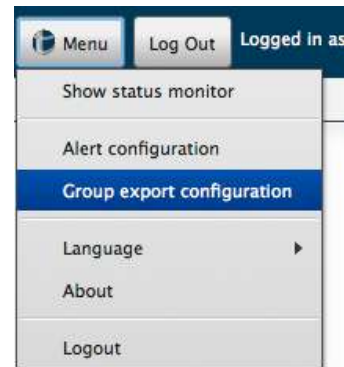
Delete export

When clicking one of the exports in the list, export parameters such as username, password and server address will be displayed and can be edited. After editing and saving the parameters, the system will try to connect to the server and execute the export. If the export is no longer needed, it can also be deleted. To cancel, click the X in the top right corner.




## 4.13 Group exports


Group exports provide exports for multiple sensors at once.

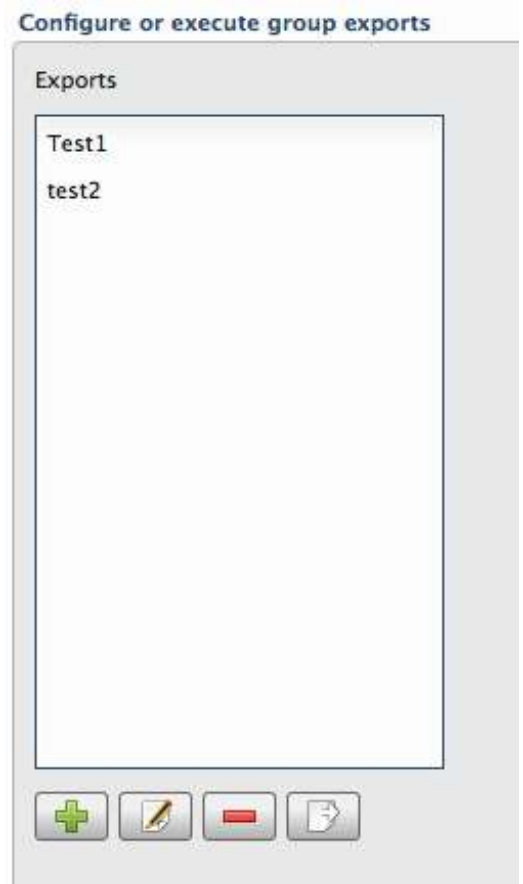
To create a group export, select Menu → Group export configuration.



A list containing existing group exports will be displayed.

- Using the buttons below the list, you can
  - create a new group export 
  - delete a group export 
  - edit a group export 

After a new group export has been created, it can be executed by clicking the  button.





**General configuration**

Description \* : test

Project/measuring point name :

Export format : AquaZIS

Columns exports : ☐

Start time : Oct 17, 2012

End time : Nov 16, 2012

Export option : ☒ Standard  
☐ delta-H  
☐ Average

DeltaH :

DeltaH start value :

Average period :  
 Minutes

**Sensor configuration**

Filter sensors : All sensors

Sensors : 000000\_Niederschlag Rh / NIED / PRECIPRel / mm

**Available Sensors**

- H00002\_demo\_sicherung / HKBat / HKBat / V
- H00002\_demo\_sicherung / HKTemp / HKTemp / °C
- H00002\_demo\_sicherung / HKHum / HKHum / %
- H00003\_gw16\_sicherung / W / Wasserstand / mNHN
- H00003\_gw16\_sicherung / WTemp / WTemp / °C
- H00003\_gw16\_sicherung / HKBat / HKBat / V
- H00003\_gw16\_sicherung / HKTemp / HKTemp / °C
- H00003\_gw16\_sicherung / HKHum / HKHum / %
- 021034\_test / GFA / GFA / m

Save Cancel



## General configuration

- **Description** : Enter a description for the export (mandatory)
- **Project-/Logger Name**: Only valid for RVCSV and KH-15
- **Export format**: Choose a format:
  - CSV
  - AquaZIS
  - KH-15
- **Start-/End time** (mandatory):
- **column export**: Export will be executed column by column
- **Export Options**
  - **Standard**: All values will be exported
  - **DeltaH** and **DeltaH-Start value**: Only that exceed a user defined slope (Delta-H) will be exported. Optionally, a Delta-H start value can be entered. Only values that exceed this start value and the user defined slope will then be exported. To exe-

cute a Delta-H export, just enter a Delta-H value and, optionally, a Delta-H start value.

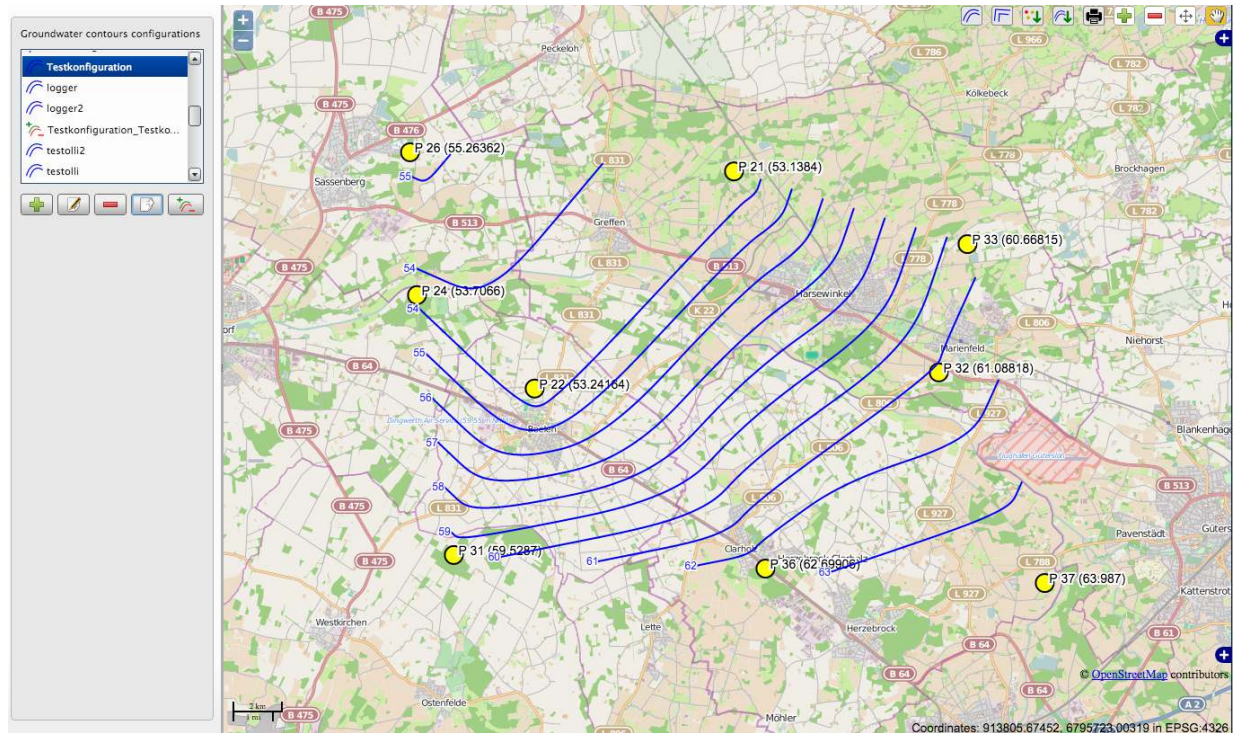
- **Average:** The average values of a user defined time interval (minutes, hours or days) will be calculated and exported

### Sensor configuration:

- **Sensor:** Select a sensor If the export format Aquafin has been selected, multiple sensors can be selected. Select one ore more sensors from the list and click  . To remove a selected sensor from the list select it and click  . By using the menu „Filter sensors“ the list of available sensors can be limited to sensors of a certain type, which can make searching easier.


## 4.14 Contour lines



Click Menu → Contour Lines to start the contour line module.



You will see a list of your existing contour line configuration data sets.

- Data sets can be
  - Created 
  - Deleted 
  - Edited 

After a new configuration has been created, it can be added to the map by clicking  button.

To create a map showing the difference between two configuration data sets, select one data set and  the  button. In the next dialog, select another data set for comparison. A new data set containing the difference values will be created and will be added to the map.

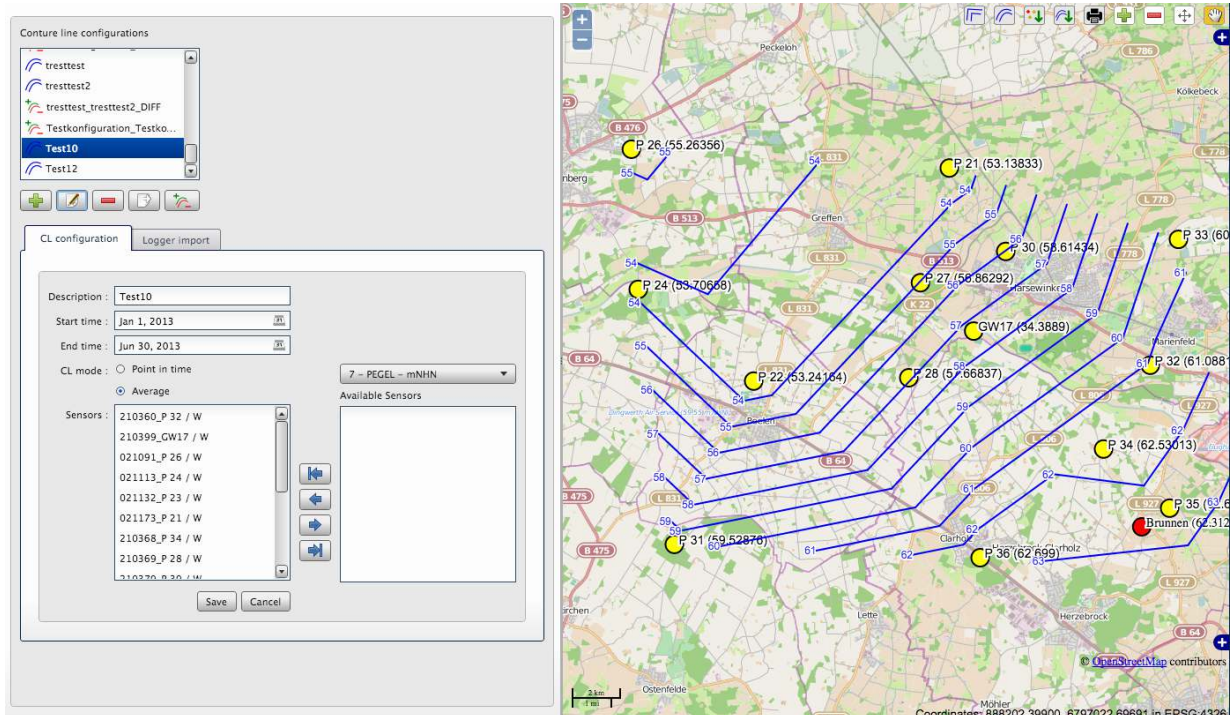
## MANUAL

### ATTENTION:



Differences can only be calculated from configuration data sets with the same sensor types.

### Contour Line Configuration

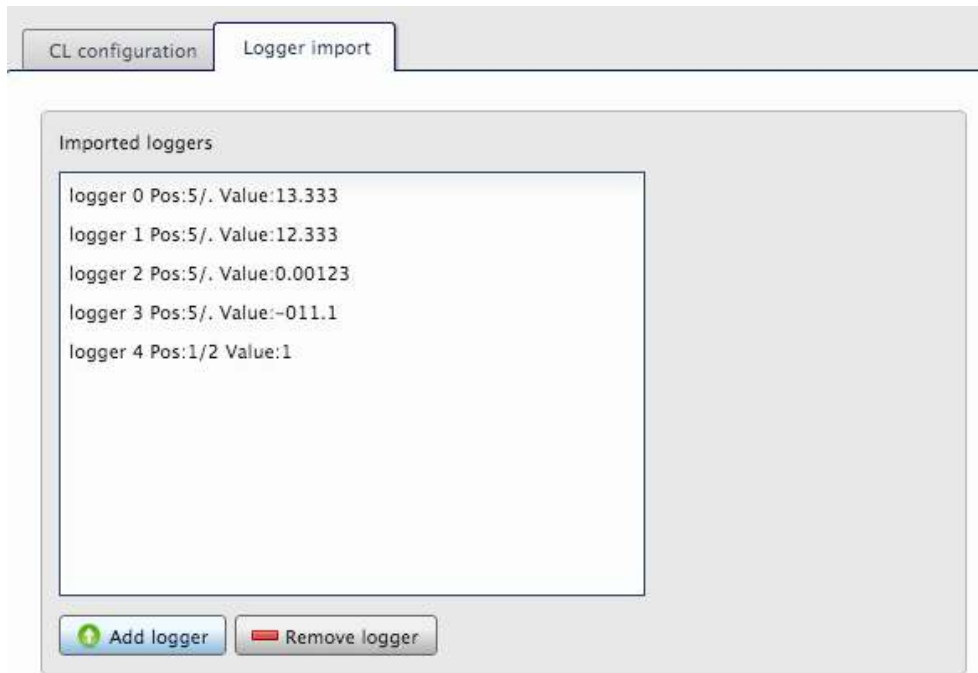
After clicking the edit button, the following menu to edit the settings will appear.



### Contour Line Configuration:

- **Description** : Enter a description
- **Start-/End time**: Select the period of time for which the contour lines should be generated
- **CL-mode**: Select **Average** To load the average measured value for the selected time period. Select **Point in time** to load the average measured value for the selected day.
- **Available Sensors**: Select the sensors you want to be added to the map by marking them and then clicking the  button. To unselect a sensor, mark it and click the  button.
- Select the sensor type from the select box. All available sensors of the selected type will then be shown in the list.

### Logger import:




More loggers can be added to the map using the import tool. Therefore, a csv file is required. Below, an example of how the file needs to be formatted is given. Please note that the column names must be specified exactly as in the example below (name, lat, lon, value).

```
name;lat;lon;value
logger Imp0;51.596311;6.958117;22.33
logger Imp1;51.596411;6.959117;34.87
logger Imp2;51.596511;6.957117;0.00123
```

To import the values, click the Add logger button. A prompt asking for the EPSG code of the data will appear. The EPSG code specifies the spatial system of the coordinates. The coordinates will then automatically be converted to WGS 84 (EPSG: 4326) and then be added to the current data set.

### Contour line Map










After clicking the  button, all loggers of the data set, including imported loggers, will be added to the map.



## MANUAL

Using the buttons on the top right side of the map, contour lines can be calculated, smoothed, edited, printed, exported, etc.



1.  Generate contour lines
2.  Smooth contour lines
3.  Export contour lines as shapefile
4.  Export loggers as shapefile
5.  Print map
6.  Move manually added points
7.  Pan map
8.  Manually add a point to the map
9.  Remove a manually added point from the map

To edit the values of a point that has been added to the map manually, select the map pan tool and click the point you want to edit. A new prompt will appear in which the name and the value of the point can be edited.

## **5 Maintenance**

### **5.1 Loggers**

Our loggers only require very low maintenance. Do not use any sharp tool or any aggressive cleaning agent to clean the hardware. Replace batteries only if necessary. Do not open the battery case during wet weather conditions. Humidity can cause system failure.

### **5.2 STS GP-Shell – local Software**

The software „STS GP-Shell“ does not require any maintenance by the customer. If an updated version is released, it will be available in the download area of the online software.

### **5.3 Online Software**

The online software does not require any maintenance by the customer. Updates will be performed by STS.

If the online software is running on a customers server, remote access must be provided for STS to install updates. If no remote access is provided, an update package and instructions will be sent to the customer.

## 6 FAQ – Frequently asked questions

### 6.1 Data logger

- The housing is damaged:
  - Please contact the customer support and send in the device for maintenance.
- The cable is damaged:
  - Please contact the customer support and send in the device for maintenance.
- The inside humidity increases:
  - If the humidity inside the device rises, the drying agent is used up. The bags of drying agent (bags of 2g Silica-Gel) should be replaced. The drying agent can be purchased from your local reseller or from a specialist shop.
  - If the humidity inside the device rises rapidly within a very short time, the hermetic sealing might be damaged. This can happen due to material expansion caused by big temperature difference. Please replace O-rings and cable couplings to avoid damage. Please contact the customer support.

### 6.2 STS GP-Shell – local Software

- Error message during installation: No Interface 'Wireless Dongle' found
  - A USB Near Field Radio dongle is required by the software to start. Make sure the USB dongle is connected to your computer properly and start the software again.
- Access code
  - All loggers are protected with an access code which consists of four characters. This code is delivered with the loggers and must be entered in GP Shell before a logger can be identified and accessed by the software.



## 6.3 Online Software

- How can I change the thresholds for coloring the logger status values?
  - This option is currently not available and can only be changed by the customer support.
- How can I open raw data files?
  - To open the files, STS GP Shell software must be installed on the system.
- The online software can not be started.
  - Please activate cookies:

The software uses cookies to store your session. If cookies are disabled, a login to the server is not possible. Please check your browser settings and enable cookies.
  - Check internet connection:

If you are using a wireless or a mobile connection the signal strength might be not strong enough. If the connection is too slow, it might happen that requests can not be processed properly.
  - Delete Browser Cache

If data can not be updated, it might help to delete the browser cache. Please check your browser settings and delete the cache. Please note that other homepages might also store information in the cache which will also be deleted.

## **7 Imprint**

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<http://www.sts-ag.com>

## 8 Appendix

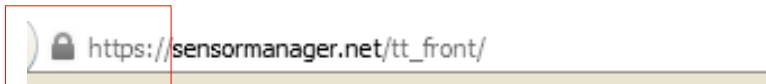
### 8.1 Encrypted connection

We provide a 256 bit encryption. For encrypted communication, open the online portal by entering **https://** at the beginning of the address.

→ **https://www.sensormanager.net**

Check your browsers address bar to see if the connection is secured.

Mozilla Firefox



Opera



Safari



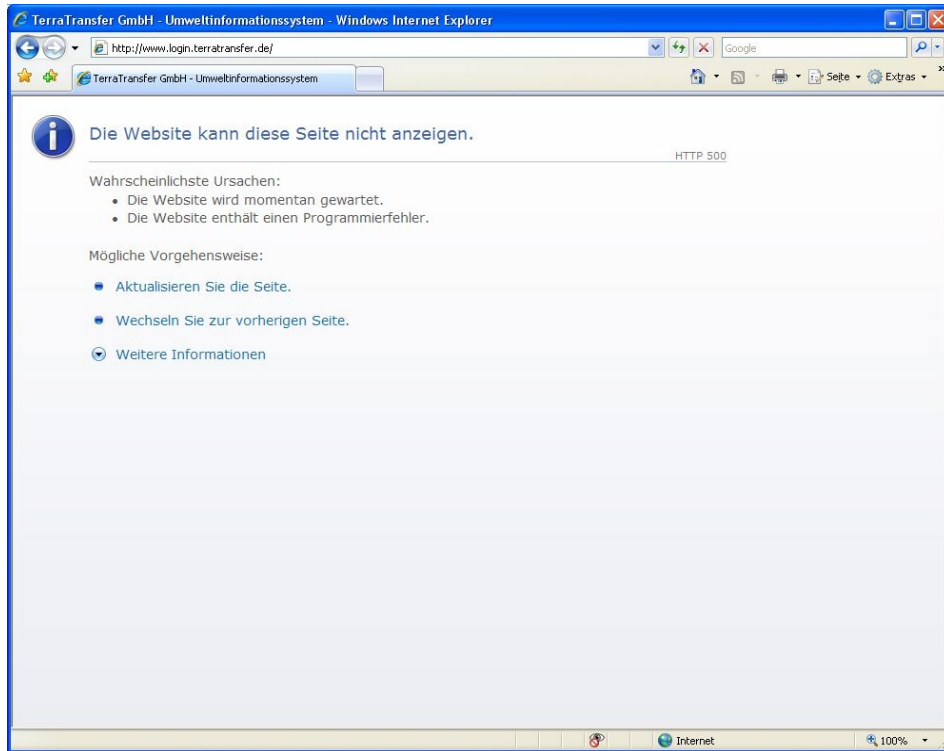
Google Chrome



Internet Explorer



## 8.2 Notes on using Microsoft Internet Explorer

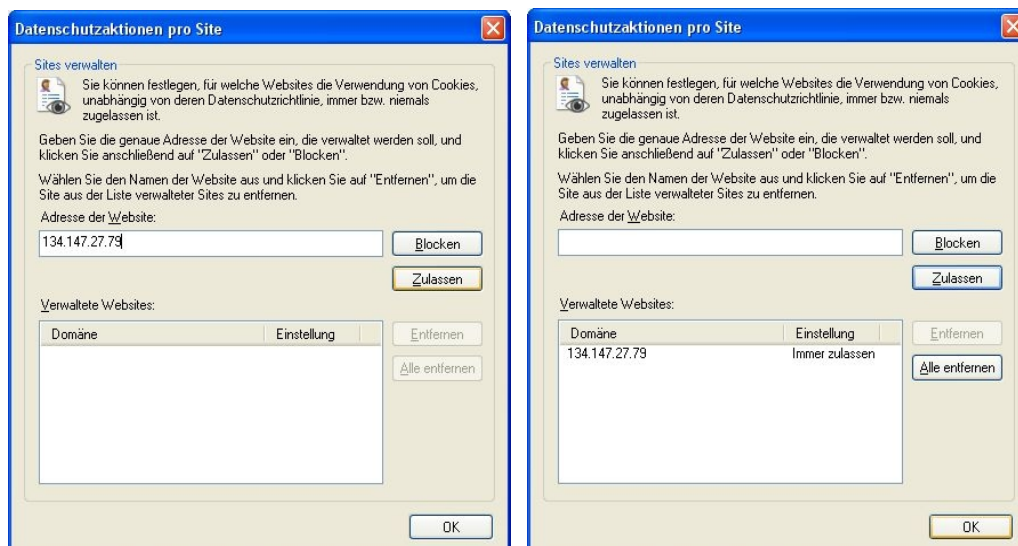


When using Microsoft Internet Explorer Version 6 or later, the browser's default security settings can cause problems when trying to request the login page. Please follow the following steps to solve the problem:

Please click Extras → Internet options



A new window will open. Please select the privacy tab and click the button „sites“.



A new window will open. Please enter the following IP-address in the blank line:

**Old Server: 134.147.27.79**  
**or new Server: micromanagement**

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and click allow. The address will now appear on the list of allowed websites. Confirm by clicking the OK button.



Confirm these settings again by clicking the OK button of the internet options window..

### Recommendation:

To access our Homepage, we recommend using the following browsers:

- Firefox by Mozilla Foundation → <http://Mozilla-europe.org/DE/>
- Chrome by Google → <http://www.google.de/intl/de/chrome/browser/>
- Opera <http://de.opera.com/>

These browsers are free, stable and safe.