Version: 2016-09-01

SENSORMANAGER

Environmental Data Monitoring Device

Installation Manual

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Contents:

Standard SENSORMANAGER 2 Version 2.05 contents:

- 1 SENSORMANAGER Box
- 1 External Power Supply 12 VDC, 500 mA
- 1 SM_T Temperature Sensor analog with RJ12 cable

Measurement Range:	0°C - +100°C, +/- 1%
Power Supply Voltage:	15 - 24V DC
Output Signal:	0 - 10V DC
Additional Inputs:	1x Digital
Special Features:	Connection for other sensors
Connection Cable:	RJ12/6_5, 5m, (Included in delivery)
Dimensions:	70 x 70 x 27 mm (W x L x H)

Other Sensors, RJ12 cables are not included and have to be purchased separately
Connection cable from COM2 to the CS121/CS141 is in the scope of delivery.

The calibration values for GENEREX sensors in the sensor manager are as follows:

- Generex temperature sensor	2.55
- Thermocon humidity sensor	2.55
- E+E temperature and humidity	5.1, 2.55
- Humidity only	2.55

Description:

The SENSORMANAGER is a data measurement and collecting unit which allows the individual measurement and monitoring of 8 analog measurement devices (0-10V) and 4 digital alarm inputs or 4 outputs (open collectors).

Purpose:

- Monitoring of temperatures, humidity and other analog data in computer rooms with automated response to system alarms.
- Alarms can be individually configured and defined for contacts (optoisolated or dry contact) such as fire, smoke and intrusion, and minimum/maximum thresholds values can be set for analog devices such as humidity, temperature and pressure.
- Data logging, logging of alarms, automatic shutdowns of network computers, and other actions can be set as reactions to critical alarms.
- All system operating and configuring can be done remotely via Web browser. The EVENT driven alarm management system of the CS121/CS141 informs the administrator of problems and may automatically switch off computers and other devices (Optional extensions: SITESWITCH 4 or SITEMANGER).

The SENSORMANAGER is an extension to the CS121/CS141 Webmanager. If you want to connect any other computing device, please download the RS-232 protocol for the SENSORMANAGER from our website and adjust your software to this communication type.

IMPORTANT:

- The SensorManager configuration will be done via CS121/CS141, but the SensorManager configuration has to be written down also on the PIC processor of the SensorManager. This will be done by pressing the “apply” buttons in the SensorManager configuration menus. If an already configured SensorManager hast to be changed by a new one it’s necessary to write down the SensorManager configuration on the SensorManager PIC of the new one again. After this you have to restart the CS121/CS141 with “save, exit & reboot”.
- The SENSORMANAGER is compatible to the former TEMPMAN MI4. Users wishing to manage more than 4 temperatures must update the CS121/CS141 to Firmware 2.53 or higher. New firmware for your CS121/CS141 is available for download at: http://www.generex.de/e/contact/cs12x-flash-links_p2.html

Pin layout of INPUT Socket the SENSORMANAGER Box:

INPUT 1:

Pin 1	Voltage 9-24Volt +
Pin 2	Analog Channel 1 (0-10V+)
Pin 3	Analog Channel 5 (0-10V+)
Pin 4	Ground
Pin 5	OUTPUT: Open collector OUT 9-24 V, max. 30mA
Pin 6	INPUT: Digital Input 9-24V

INPUT 2:

Pin 1	Voltage 9-24Volt +
Pin 2	Analog Channel 2 (0-10V+)
Pin 3	Analog Channel 6 (0-10V+)
Pin 4	Ground
Pin 5	OUTPUT: Open collector OUT 9-24 V, max. 30mA
Pin 6	INPUT: Digital Input 9-24V

INPUT 3:

Pin 1	Voltage 9-24Volt +
Pin 2	Analog Channel 3 (0-10V+)
Pin 3	Analog Channel 7 (0-10V+)
Pin 4	Ground
Pin 5	OUTPUT: Open collector OUT 9-24 V, max. 30mA
Pin 6	INPUT: Digital Input 9-24V

INPUT 4:

Pin 1	Voltage 9-24 Volt +
Pin 2	Analog Channel 4 (0-10V+)
Pin 3	Analog Channel 8 (0-10V+)
Pin 4	Ground
Pin 5	OUTPUT: Open collector OUT 9-24 V, max. 30mA
Pin 6	INPUT: Digital Input 9-24 V

Example:

Alarm INPUT contact:

If the alarm contact INPUT is used, you may connect your alarm contact e.g. to INPUT 1 Pin 6 and Power supply Pin 1. In the CS121/CS141 you can configure that as a HIGH signal to the alarm is set – or the other way round.

OUTPUT contact:

If you want to switch any relays or send high signals to the OUTPUT, you may connect your OUTPUT contact e.g. to INPUT 1 Pin 5 to your relays and configure the CS121/CS141 as “OUTPUT” for this signal. Now you may configure your Events in the CS121/CS141 to set the OUPUT to HIGH or LOW.

Sensor connection:

The sensor has to work within 0-10Volts, this may be connected directly to Channels 1-8, and the CS121/CS141 will now show the values in its Web browser. Alarm thresholds and actions may be configured via the EVENT manager of the CS121/CS141.

Connecting the SENSORMANAGER Box

The SENSORMANAGER has to be connected with the original configuration cable of the CS121/CS141 to COM 2.

The sensors for the SENSORMANAGER may be connected direct to the socket Inputs 1-4 using an RJ12 cable. In this configuration you can only use up to 4 sensors. If you want to use all 8 analog inputs, you have to use a splitting plug (optional) or connect the sensors directly to the Channel Inputs as described above.

If you use the sensor type SM, you may connect a second SM sensor to the input of the first SM. You can not connect more than 2 SM sensors in line.

For connecting an alarm contact to the SM sensor, you may use the first or the second SM contact input/output, but not both. Only one digital input/output is available per socket.

OTHER SENSORS: If you use other sensors than SM, EE or TM, you must use a splitting plug in order to connect more than one sensor to a single INPUT of the SENSORMANAGER.
For setting up the sensors in the SENSORMANAGER make sure your configuration matches your sensor type, e. g. see example:

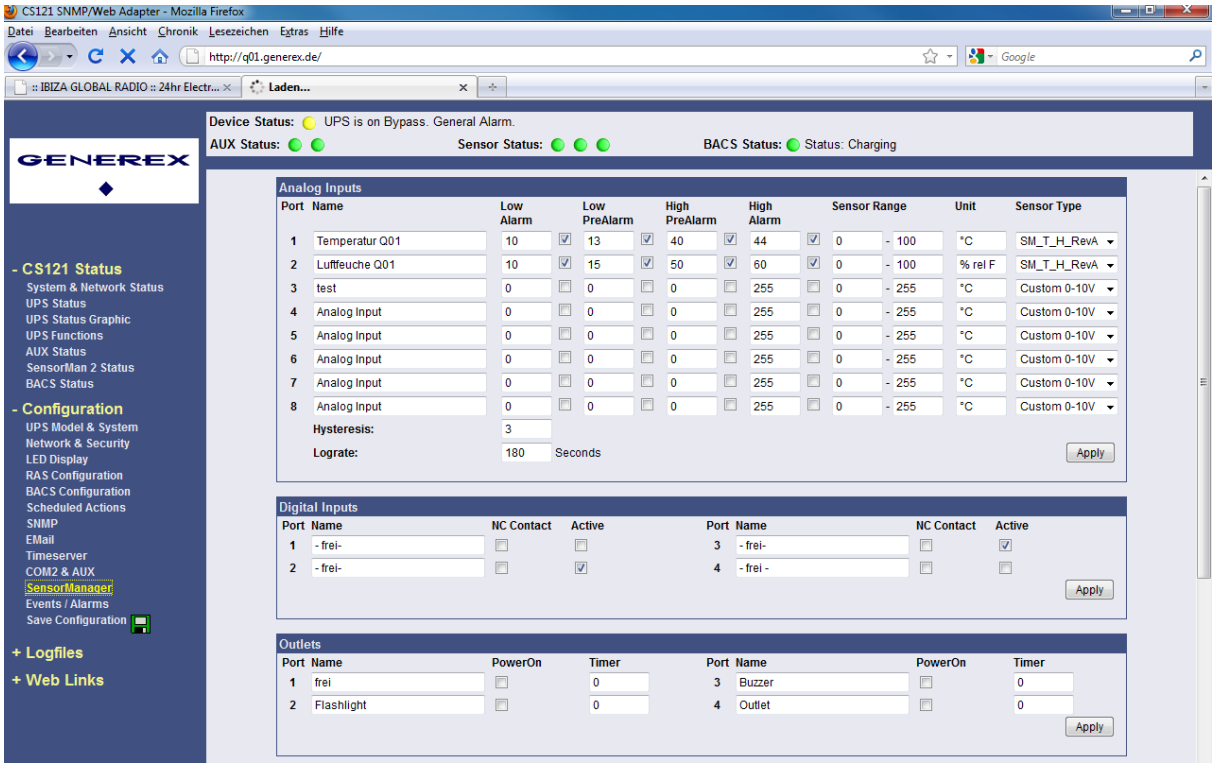

Figure: SENSORMANAGER Settings
Using the splitting plugs it is possible to connect up to 8 sensors and 4 contacts to the SENSOR-MANAGER. A MOUNTING KIT (sold separately) is available for affixing the SENSORMANAGER to walls and railings.

The power supply for the SENSORMANAGER may also supply an external CS121/CS141 using a SM-CS121/CS141 type cable (sold separately) by simply connecting the POWER OUT of the SENSORMANAGER with the POWER IN of the CS121/CS141 external.
Note: The SENSORMANAGER should not be exposed to direct sunlight or extreme temperatures.

Startup the SENSORMANAGER

Connect the sensors to the SENSORMANAGER. Connect the SENSORMANAGER using the Mini8-DBSub9 cable to the COM 2 port of the CS121/CS141. Finally, plug the power supply into one of the UPS power outlets. Check the LEDs on the bottom of the SENSORMANAGER; the right one should be flashing (reading request from CS121/CS141 COM2) and the left one should be constantly lit (power supply on). The flashing LED shows the requests from the CS121/CS141, the other LED shows that the device has started.

Figure: SENSORMANAGER LEDs

Note: You have to configure the CS121/CS141 COM2 port to “SensorMan” (for SENSORMANAGER II “SensorMan 2”) – otherwise the CS121/CS141 will not start making requests to the SENSOR MANAGER.

See the CS121/CS141 user manual for instructions on how to configure the CS121/CS141 for operation with the TEMPMAN/SENSOR MANAGER and how to manage and set the alarms.
The latest version of CS121/CS141 user manual is available for download at:
http://www.generex.de/wwwfiles/dokus/1/CS121/CS141/german/pdf/CS121/CS141.pdf

When the SENSOR MANAGER is running, you will see the values in the AUX section of the CS121/CS141 Web browser.

Detection of the analog temperature values via variables:

#TEMP1
#TEMP2
#TEMP3
#TEMP4
#TEMP5
#TEMP6
#TEMP7
#TEMP8

!!! NEW !!! Special Features of the SENSORMANAGER II !!! NEW !!!

Unlike the CS121/CS141 and the older SENSORMANAGER type, the new SENSORMANAGER II configuration data will be stored in the device itself on a non-volatile chip. This result in a different behaviour of the SENSORMANAGER II compared to the older SENSORMANAGER:

- Acknowledged alarms are displayed in yellow in the status bar of the SENSORMANAGER II. Not confirmed alarms are displayed in red (at older SENSORMANAGER always in yellow).
- After clicking the “Apply” button no rebooting is required, because the SENSORMANAGER II saves it configuration data in its internal ROM.
- The 3 status diodes will be displayed in blue, if the communication between the CS121/CS141 and the SENSORMANAGER II is lost.

The status site of the SENSORMANAGER II was changed. The analog measurement values will be displayed vertical.

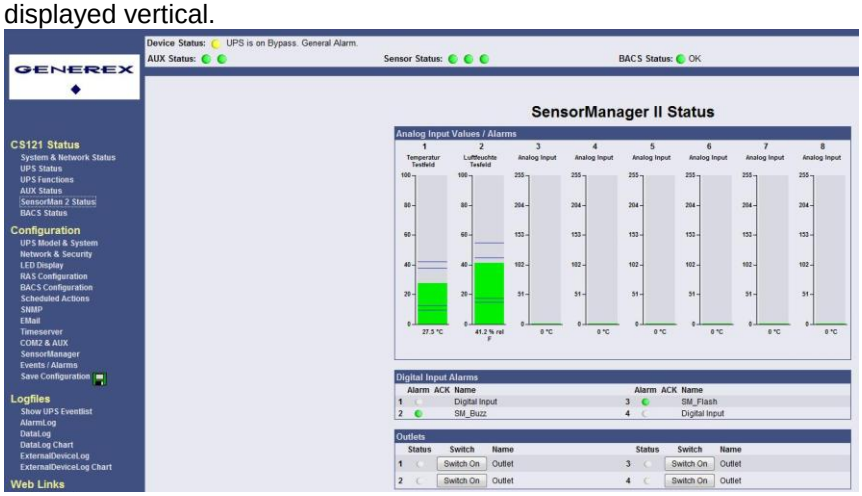

Figure: SENSORMANAGER II Status Site

Configuration of the SENSORMANAGER II

The SENSORMANAGER II provides the opportunity of the definition of pre-alarm-thresholds.

Beside the name of the input you also define here as shown above the alarm tresholds, the sensor range and the measurement unit. Note, that the alarm values (low and high) are only active if the fields beside the alarm values are enabled. In the drop down menu “Sensor Type” some basic sensor models are already listed, which you can choose to set predefined values for these types (select “Custom” to make divergent or individual settings).

You can calibrate every sensor with the Sensor Range, that means if you want to rise a measured value for 5°C, just modify the default range from 0-100 to 5-100. Therefore you are able to adjust the measurement values like a gauged thermometer.

With the field “Hysteresis” you define the scope within the defined value can oscillate without releasing an alarm. This is important e.g. for temperature measurements, which are not increasing/decreasing continuously.

At “Lograte” you can set the loop time (in sec) in which the measured values will be written into the logfile.

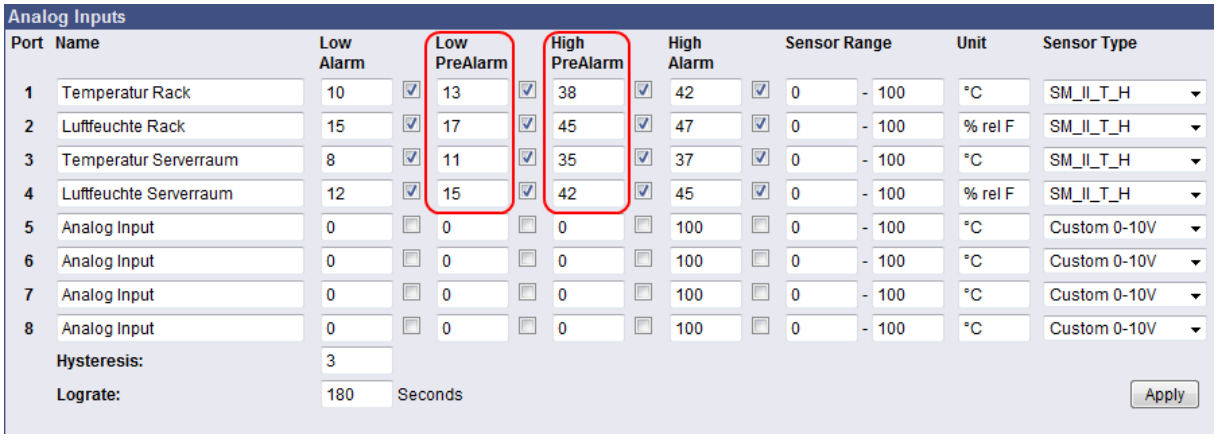

Figure: SENSORMANAGER II Configuration Analog Inputs

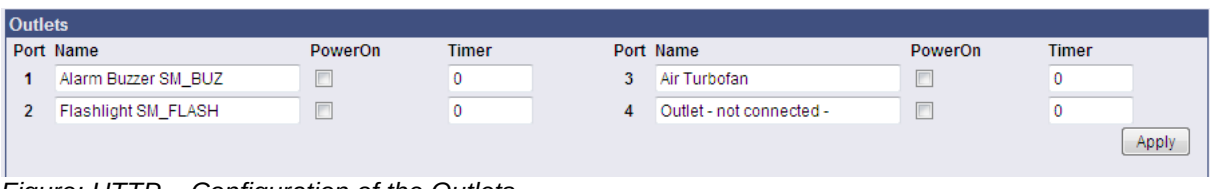

Figure: HTTP – Configuration of the Outlets

Furthermore it is possible to attach a timer value to each Outlet. This determinates how long an outlet will be switched (in seconds). Set the timer value to “0” if the outlet is to be switched without any time limit.

Note: If you do not want to use a name for the Analog-, Digital Inputs or rather the Outlets, please set the following into the single name area: ` `

Alarm Matrix of the SENSORMANAGER II

The following “Alarm Matrix” gives you numerous possibilities to configure dependencies between different alarm states and to join them to different outlets. This makes it possible to process an alarm szenario in dependency of the state of several input sensors. (For example: An alarm szenario is to be released only if two temperature sensors are out of range or if the air condition is not active.)

Alarm Matrix

	Marker Inverted	Logic	Digital Inputs 1	2	3	4
Marker 1	☐	Or	☐	☐	☐	☐
Marker 2	☐	And	☐	☑	☐	☐
Marker 3	☐	And	☐	☐	☐	☐
Marker 4	☐	And	☐	☐	☐	☐
Marker 5	☐	And	☐	☐	☐	☐
Marker 6	☐	And	☐	☐	☐	☐
Marker 7	☐	And	☐	☐	☐	☐
Marker 8	☐	And	☐	☐	☐	☐

	Low Alarms 1	2	3	4	5	6	7	8	Low PreAlarms 1	2	3	4	5	6	7	8
Marker 1	☑	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 2	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

	High PreAlarms 1	2	3	4	5	6	7	8	High Alarms 1	2	3	4	5	6	7	8
Marker 1	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	☐
Marker 2	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐
Marker 3	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 4	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 5	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 6	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 7	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Marker 8	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Figure: Alarm matrix – Marker configuration

In the figure above is shown the alarm matrix with its 8 markers to be set or unset. Each marker thereby is a new state on which specific alarm szenarios can be released.

For example: In the figure above is configured that the Marker1 will be set, when at the analog input 1 or 3 an alarm occurs. (Enabling the field “Marker Inverted” causes that Marker1 will be unset in case of an alarm at analog input 1 or 3.) Furthermore marker 2 will be set, when at the digital input 2 and at the analog input 2 an alarm state occurs at the same time. (Means that an alarm at just one input is not sufficient for setting marker 2) Accordingly it is possible to set (or unset) each marker in dependency of different digital and/or analog input states.

After having defined the conditions when markers are to be set resp. unset, you can specify the actions to be executed when a marker will be set/unset. Therefore you have two possibilities: The first is to handle the actions through the event configuration, described later in chapter 3.2.5 Events / Alarms. This is possible because each marker has its own event “Alarm Marker x”, which can be configured through the event configuration.

The second possibility is to switch an relay output in dependency of the statue of one or several markers. Therefore you have the output matrix, figured as below. In this example is configured that Output 4 is to be switched on when Marker 1 or Marker 2 is set (or the opposite way around in case

“Output Inverted” is enabled). Using the “Alarm Matrix” offers you numerous possibilities to switch Outputs in dependency of input alarms.

Figure: Alarm Matrix – Switching of relay outputs

If Outputs were linked in dependency of input alarms into the “Alarm Matrix”, the buttons for the manually switching are no longer present. Instead the advice “set by marker” is displayed.

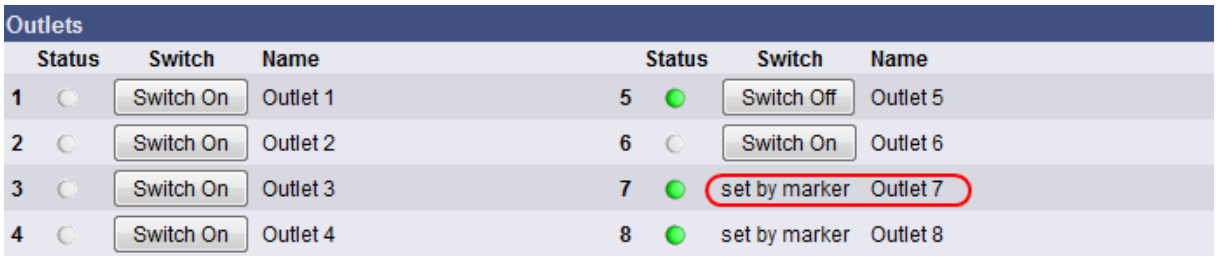

Figure: Alarm Matrix – Switching of relay outputs

Detection of the analog temperature values via variables:

#SM2_ANALOG0
#SM2_ANALOG1
#SM2_ANALOG2
#SM2_ANALOG3
#SM2_ANALOG4
#SM2_ANALOG5
#SM2_ANALOG6
#SM2_ANALOG7