

TEMP LOGGER INFORMATION

Starting up

- After this information, read the manual on the CD-ROM first.
- Install the software, please refer to the manual on the CD-ROM!
- Connect the USB receiver to the computer.
- Start the program.
- Insert batteries in the sensors (P. 7).
- Consult the help function of the software if you have further questions.

Important information about the Temperature Logger

- The USB receiver which is connected to the computer receives the signals coming from the sensors.
- The temperature sensors transmit their temperature data to the receiver.
- Many temperature sensors can be connected to the system at the same time.
- Separate sensors for the Temperature Logger are available at your dealer.
- We have connected 60 sensors to one single USB receiver without any problems.
- The software graphically shows the temperature measurements of a longer period of time.
- Extra: Attractive screensaver software showing all sensors.
- ATTENTION: The sensors are not waterproof!
- If necessary, please put sensors which are positioned in a moist location in a waterproof plastic bag.
- The range of the sensors can vary as a result of environmental influences.

Depending on the material properties of the surrounding areas, sensors located inside refrigerator systems may not be able to communicate with the receiver.

The TL300 Temperature Logger System consists of a Temperature Logger Software application, a receiver module (TL-3BS) and two temperature sensors (TL-3TSN), each including a transmitter system. A USB-cable connects the receiver to the computersystem running the Temperature Logger application.

The temperature sensors are designed to registrate temperatures between -30 and $+80$ degrees Celsius. However the temperature range may also be limited by the design and/or state of the batteries.

The Temperature Logger application at the computer displays all temperature data, which have been transferred by temperature sensors to the USB-receiver.

Temperature sensors continuously registrate temperature and report new values to the USB-receiver at intervalls of ca. 45 seconds.

Each sensor in the sensorlist reports the date and time stamp for the most recent measurement data set. The right side window displays a continuous curve for the registered temperature for the selected sensor.

Sensors and receiver use a wireless communication system, working at 433MHz. This frequency is freely available for communication at transmitting powers under 10 milliwatts.

Depending on surrounding building constructions, the allowed 10mW power level allows a transmission range of 20-40 meters.

Temperature sensors may be located inside or outside buildings, at any place where an registered overview of temperature curves is desired.

Unreliable signal levels may be improved substantially by slightly modifying the sensor's or the receiver's location.

TL-500 Set with BS-500 USB receiver

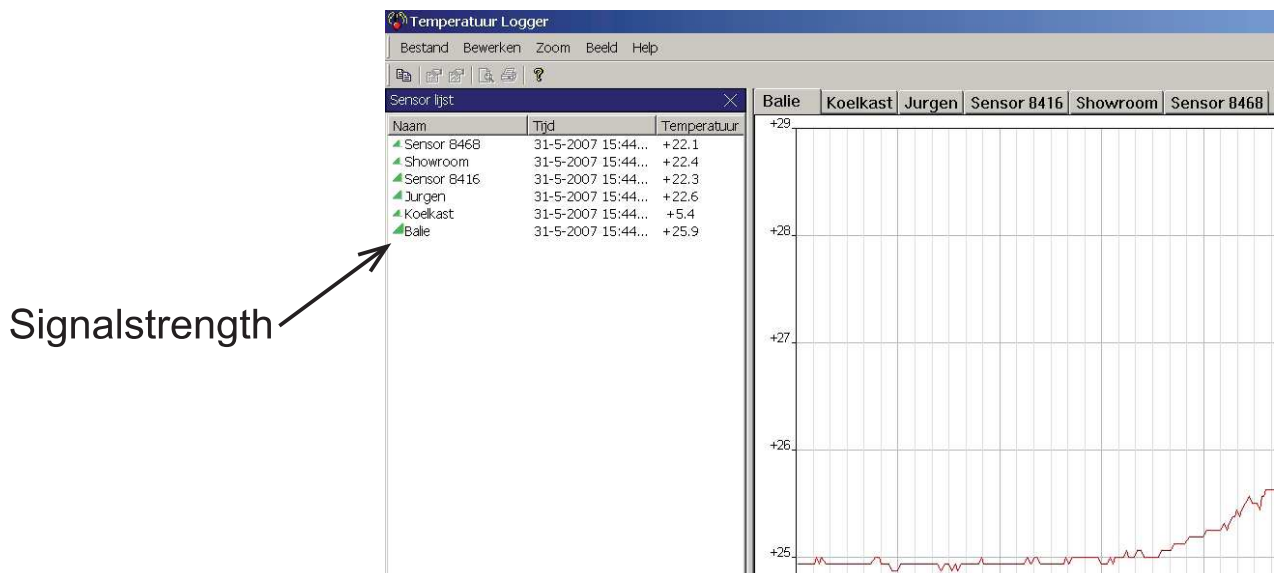
The TL-500 system contains an autonomous BS-500 USB receiver. During the time the computer is not on, this receiver saves all incoming data in a flash memory. For the power supply, an external net adapter is needed (not included).

If the PC is turned on again, all data which has been saved in the BS-500 memory, will automatically be sent to the PC.



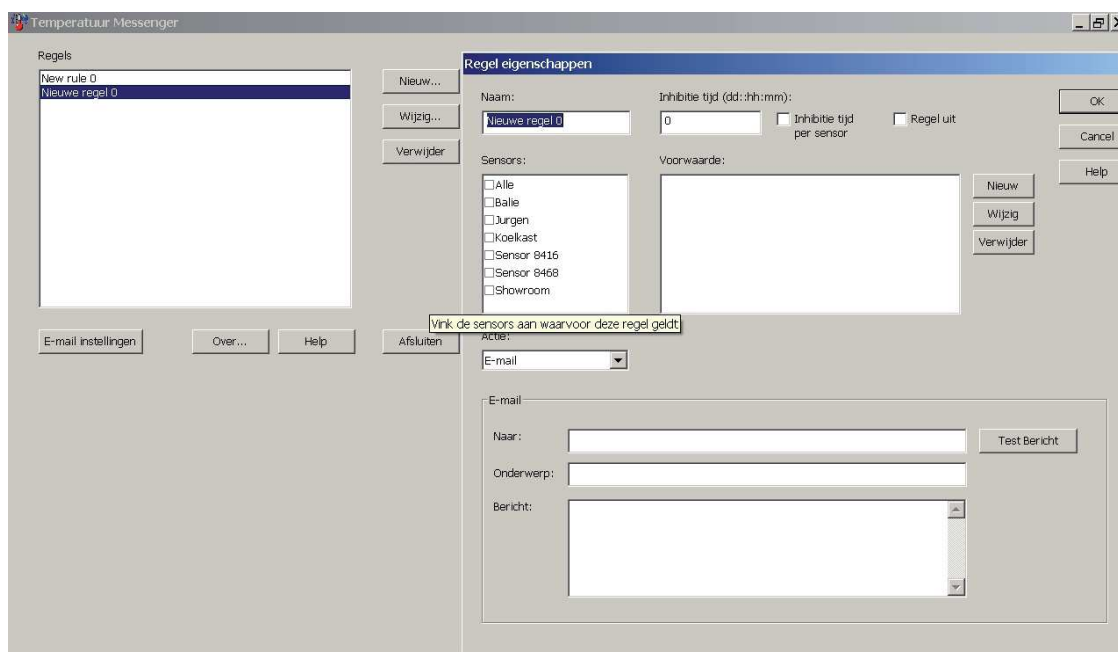
Yellow LED lightens when sensor data has been saved in the memory.

The BS-500 also contains a signal intensity indicator. This way it becomes clear what the signal strength of the sensors is.



TL-300/TL-500 MESSENGER SOFTWARE

The Temperature Messenger software makes it possible to automatically send the temperature information measured by the Temperature Logger through internet to every email address desired and/or to a certain webserver. The user sets up so-called lines so the Temperature Messenger generates and sends a message accordingly. The Messenger accepts lines with regard to time, date, temperature and sensor number. For example, it is possible to let the Messenger send temperature information of sensor no. 3 by e-mail every Thursday at 11.30 hrs.



IMPORTANT!

The complete user manual of the Messenger software is located in the program HELPFILE.

Using of the Messenger software (sending email data) does require some computer experience! We think that sending temperature logger data to a webserver can only be done by a person who has sufficient (IT) knowledge and experience with webserver and computers.

BS-500 SPECIFICATIONS

Product information:

- * The TL-500 Temperature Logging System contains a software application, a receiver (BS-500) and two wireless temperature sensors (TL-3TSN).
- * The receiver is wirelessly (USB) connected to the computer.
- * Suitable for temperature measurement from -30 to +80° Celsius, $\pm 0.5^\circ$.
- * The software supplies an overview of all temperature data which has been received by the USB receiver from the temperature sensors.
- * Every temperature sensors continuously updates the measured temperature and sends the USB receiver new temperature information every 45 seconds.
- * The LED's lighten when signals are being received and when data has been saved into the flash memory.
- * The sensor list shows date and time of all incoming temperature data from all sensors. It is also possible to give each sensor a name.
- * A graphical overview of all temperature information is compiled, which can be modified by the user with different options.
- * Memory of 110 days for one sensor, 11 days for 10 sensors, etc.

Technical Information:

Power consumption	
Base Station;	5V DC, by USB and 5V Net adapter
Current Base Station:	100 mA
Flash memory USB	
Receiver BS-500:	2MBytes
Power consumption	
Temperature Sensor:	2 Alkaline AAA Batteries (not included)
Communication:	USB, wireless 433 MHz
Dimensions Base Station:	88 (L) x 48 (W) x 28 (H) mm
Dimension Temperature Sensor:	66 (L) x 57 (W) x 21 (H) mm

Recommended Net Adapter: 5 Volt 200 mA

1. Transmission losses

Sometimes transmission losses may arise, indicated by missing temperature data in the sensor's curve display.

Data losses may be caused by:

1. Problems inside the USB-receiver
2. Problems in the temperature sensor module
3. Problems in the signal transfer between temperature sensor module and USB-receiver

1.1. Problems inside the USB-receiver

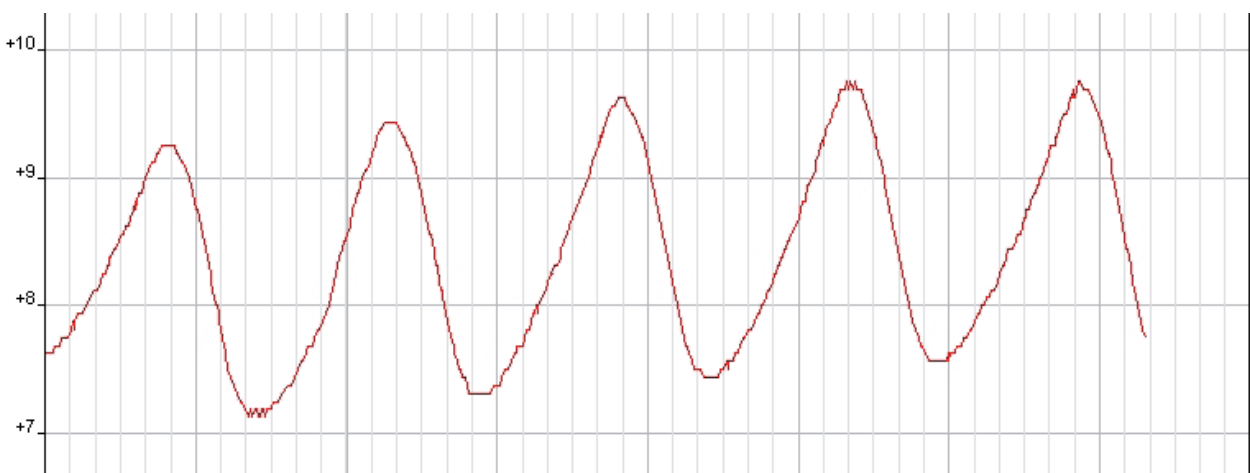
The receiver does not registrate a single data signal, even if the sensor is located at a minimum distance to the receiver.

Potential problems:

- USB-cable between receiver and computer is missing or defect
- Improper installation of the USB-module
- Unknown software problem in the computer system

Suggested solutions:

- Check the display window in the temperature logger display for a field in the lower left area. The field is to display the value 'ready' continuously. If the display intermittently displays 'RF_USB-Communication failure', the Windows operating system failed to find the USB-module.
- Remove the USB-cable, wait about ten seconds and reconnect the cable.
- Deinstall the temperature logger application software and reinstall it again.



1.2. Problems in the temperature sensor module

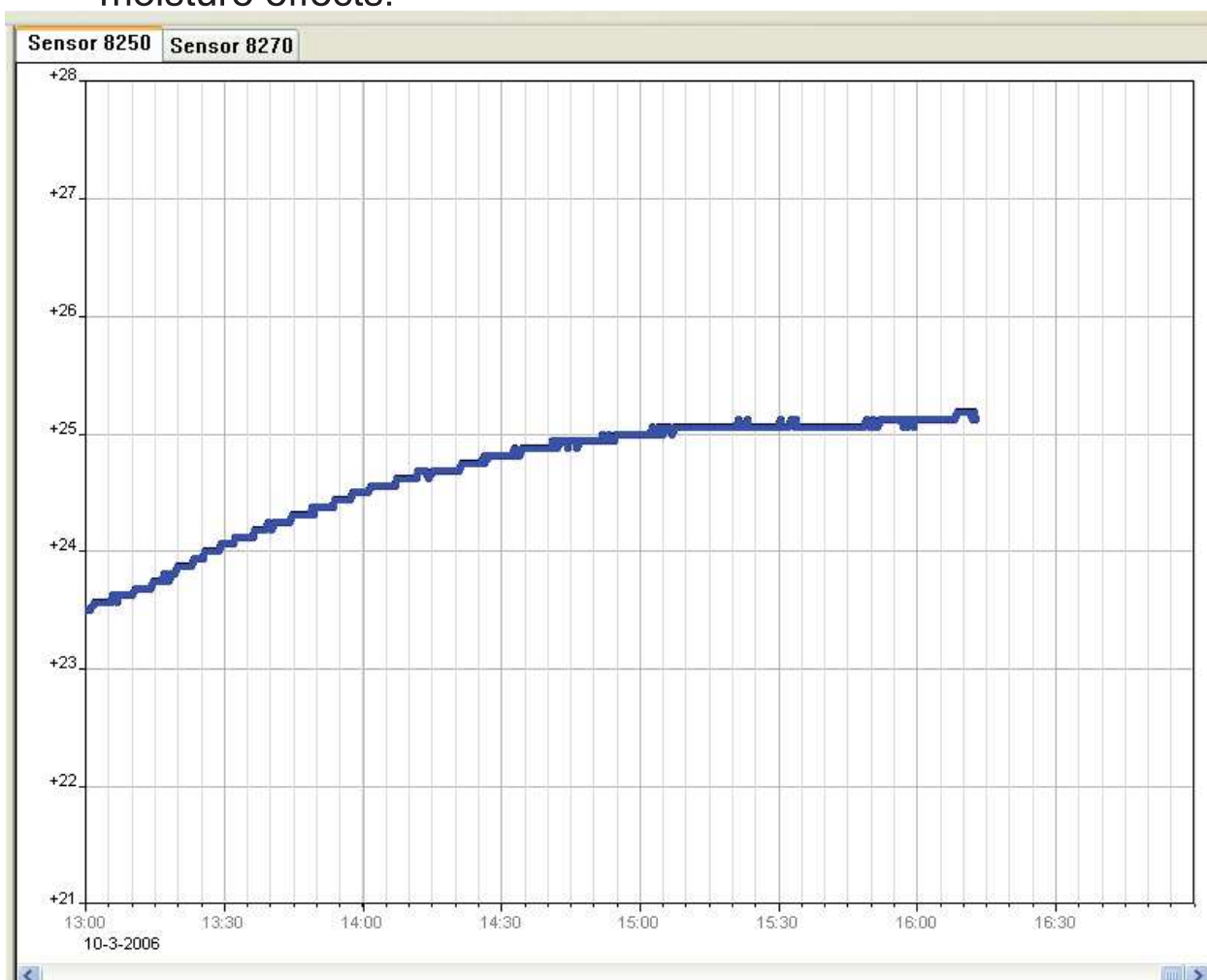
The receiver receives signals from sensors, but fails to register signals from one sensor in particular.

Potential problems:

- Batteries are missing or are at a low charging level
- Reversed polarity of the sensor's batteries
- The sensor's location is outside of the receiver's reception range
- Damage to the sensor (by corroded battery contacts, moisture or battery leakage)
- Problems in the radio signal communication

Suggested solutions:

- Insert fully charged batteries in the sensor and repeat the communication test (please check the polarisation of the batteries before inserting!!)
- Check the battery contacts and remove all corrosion and moisture effects.



1.3. Radio signal transfer problems

The receiver system is missing signals from one or more sensors, or only receiving a limited number of signals.

Potential problems:

- Walls or ceilings between sensor and receiver may contain metallic constructions.
- Sensors and/or receiver may be located on a metallic surface
- Sensor or receiver are situated in locations with high humidity
- Windows between sensor and receiver may contain several layers of glass or shielding materials or may be covered by humid moisture.
- Other 433MHz systems may be working within the 20m operating range
- Interference or jamming signals from radio or TV transmitters
- Electronic or electrical equipment (eg. computer equipment or magnetrons), operating within the 2-5m operating range
- Low power level of the sensor's batteries (see 2)

Suggested solutions:

- Modify the locations of the sensor and/or the receiver
- Remove the interfering equipment

2. Communication test

A simple test will check the communication channel between sensor and receiver:

1. Remove the batteries from the sensor
2. If an entry already exists: remove the sensor from the temperatur logger application (using the right mouse button)
3. Locate the sensor at ca. 1 m distance to the receiver
4. Insert the batteries in the sensor
5. A correctly working system will add the according sensor entry to the sensor list within 5 seconds.

Extra information and possible updates can be found on www.arexx.com (on the forum or through the Temp Logger menu). Further questions can also be put on our forum, see www.arexx.com