

Eusotec®

***Web Server and Data Logger
with XML-Interface***



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1 Introduction

This documentation describes the Eusotec¹ Web Server and Data Logger control software which was developed for the Lantronix WiBox². In the following chapters it is called “**Eusotec Server**”.

Currently the following control software packages for the following devices are available:

- 1.) **Digital-Thermometer Voltcraft³ K204**
- 2.) **Weather Station Oregon WMR 928 NX⁴**
- 3.) **M-Bus Systems** (Remote readout of energy values like electricity, gas, water, heat flow volumes, etc.)
- 4.) **Professional Weather Stations Davis Vantage⁵ / Climate Control**
- 5.) **WENTO-IND Weather Sensor of W. Lambrecht GmbH, Göttingen**

With the shipment you will get the following articles:

- 1.) Lantronix WiBox with the original accessories (power supply, serial cable for configuration), loaded with the device specific Eusotec control software and standard web pages.
- 2.) USB / Serial adapter for configuration via PC
- 3.) Windows Open Source Terminal Emulator for configuration (USB stick)
- 4.) All sources of the standard web pages, which could be modified by the user
- 5.) User Manual in PDF format (USB stick)

Please have a periodic look at our web page www.eusotec.de to check if more tools or newer software are available.

Needed accessories for operating with **Voltcraft K204**:

- 1.) Digital-Thermometer Voltcraft K204, could be ordered at Conrad Electronic (order-No. 120585)
- 2.) Interface cable for the connection between Voltcraft K204 and Eusotec Server/PC, could be ordered at Conrad Electronic, PC-software is not needed.
- 3.) 9 Volt power supply for Voltcraft K204, could be ordered at Conrad Electronic (order-No. 518321)

Needed accessories for operating with **Oregon WMR 928 NX**:

- 1.) Weather station Oregon WMR 928 NX (it comes with the needed interface cable)

Needed accessories for operating with **M-BUS Systems**:

- 1.) Voltage level converter for 3, 20 or 60 M-BUS devices, could be ordered at Eusotec GmbH

Needed accessories for operating with **Davis Vantage Weather Stations**:

- 1.) Weather Station Davis Vantage, Davis Vantage Pro, Davis Vantage Pro 2 or Davis Vantage Vue.
- 2.) Davis WeatherLink **SERIAL**. (It comes with the needed RS232 interface cable).

¹ Eusotec is a registered trademark of Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg

² Lantronix and WiBox are registered trademarks of Lantronix, 15353 Barranca Parkway, Irvine, CA 92618 USA

³ Voltcraft is a registered trademark with distribution by Conrad Electronic SE, Klaus-Conrad-Str. 1, 92240 Hirschau

⁴ Oregon is a registered trademark of Oregon Scientific Limited

⁵ Davis Vantage is a registered trademark of Davis Instruments, Hayward CA

Needed accessories for operating with **WENTO-IND**:

- 1.) Weather Sensor WENTO-IND, optional with rain sensor (additional protocol is activated by Lambrecht)
- 2.) Power supply for WENTO operation and Lambrecht cable with connected 9-pin DSUB female connector for a connection to the Eusotec Server.

Needed accessories for operation:

- 1.) PC for first configuration
- 2.) Network (optional with WLAN) with a router internet connection, a flat rate is mandatory recommended because time is synchronized via internet every hour.

The Eusotec control software was developed with high quality standards by senior programmers with a master in computer science.

We tried to write this manual for “normal“ users who are not computer experts. If you have any questions or comments, please write an email to support@eusotec.de. Please understand that it could take some days until you will get an answer. Calls via telephone could not be answered. We will collect the questions and describe the solutions on our web pages www.eusotec.de. Please check first if there you will find an answer to your question. Please check also our web pages if a new manual or more software is available.

1.1 Features

- Data storage with the exact time every 5 minutes. All entries are done with UTC time synchronized via internet time servers. No correction due daylight saving time is needed. After power down all values remain in the flash memory.
- All measurement values could be displayed via standard web browsers (also on mobile phones). Easy display change to Fahrenheit. All values are shown with the local time of the calling device.
- Monitoring of configurable boundaries or operating states (for Voltcraft K204 with optional relays). Alarms are generated via Email (some providers have the possibility also to generate a SMS or a fax).
- Application EusoCharts: Online monitoring and trending via XML. All XML commands are described in the manual and could be used for own applications.
- Wide range of flexibility for transferring the data via cable or Wireless LAN (WLAN).
- Minimal size and weight of the server (94 x 72 x 23 mm, about 400 g) and minimal power consumption (max. 2 Watt). No maintenance needed, storage in flash memory, robust Lantronix hardware with metal case. Operating temperature -40°C until 70°C. (-40°F until 158°F)
- No PC or additional server needed for operation.

Features for Voltcraft K204:

- Storage up to 195.000 measurement values (48750 time entries every 5 minutes => more than 5 month)

Features for Oregon WMR 928 NX:

- Storage up to 558.000 measurement values (23250 time entries every 5 minutes => more than 2 1/2 month)

Features for M-BUS Systems:

- Alarm monitoring and storage of max. 30 configured measurement values, up to 157.500 measurement values (5250 time entries every 5 minutes => about 18 days)

Features for Davis Vantage Weather Stations:

- Storage up to 702.000 measurement values (14040 time entries every 5 minutes => about 48 days)

Features for WENTO-IND:

- Storage up to 240.000 measurement values (30000 time entries every 5 minutes => more than 3 month)

1.2 *Intended Use and Warnings*

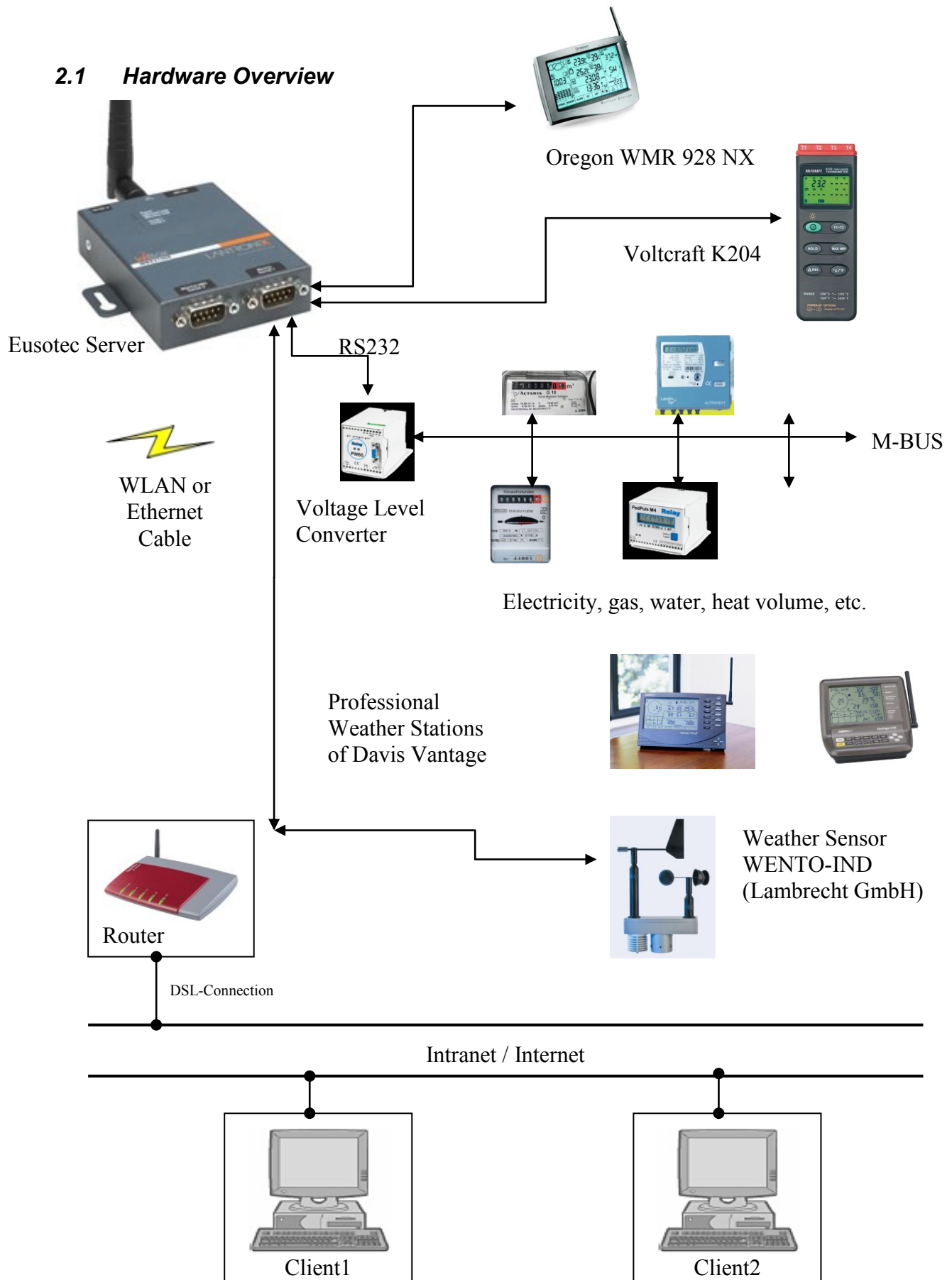
For the used hardware always the intended use of the manufactures should be considered. The Eusotec control software is only used for storing, reading and displaying measurement values. In any case it is not allowed to make decisions according to displayed values, which might dangerous for persons or properties. The delivered Eusotec Server should be used only with the mentioned device. Any change of the Eusotec control software is only allowed with a written agreement by Eusotec GmbH.

Please pay attention that children don't have any access to the devices. Also the packing material might have risks.

Any liability or warrant is excluded when the device was not used like the intended usage. In all cases the liability is limited to the purchasing price.






2 Installation

2.1 Hardware Overview



2.2 Eusotec Server: Led Controls

The Eusotec Server has 5 control LEDs.

LED	Label	Meaning
	Power	On when device is ready for operation
	Ethernet Link	On, when a connection over Ethernet cable is active
	Wireless Link	<p>This LED is control by the Lantronix radio driver:</p> <p>WLAN off: LED is on WLAN is searching an access point: LED is on WLAN connection establishment: LED is shortly blinking WLAN connected, power management off: LED is off WLAN connected, power management on: LED is off, when data is transmitted, otherwise LED is on</p>
	Serial 1	<p>LED is on during transmitting data from/to the connected device. LED is on, when no connection is established LED is blinking in the same frequency like LED serial 2: Activation key is not correct. Please change it.</p>
	Serial 2	<p>LED is on when somebody do an access over the network (calling web pages or access via XML). Here it could be controlled if other persons are using your Eusotec Server. If the LED is on at any time, it means that many users have access to it. Please keep in mind that the Eusotec Server is very powerful but it cannot be compared with normal servers with powerful CPUs where many users could be handled at the same time.</p> <p>The Eusotec Server was developed for the usage of only few users to get remote data.</p>

2.3 Eusotec Server Configuration

Before the first communication starts the Eusotec Server need to be configured.

In principal there are two possibilities of configuration:

- 1.) Configuration via **serial interface** (recommended)
- 2.) Configuration via **Telnet**

The **configuration via Telnet** could be done by an experienced user over a connected Ethernet cable. Here the configuration menu is called with the command

telnet 192.168.178.94 9999

We have used this IP address because it is available in the most AVM Fritz Routers which is very common in Germany.

Please keep in mind that the IP address must be in the same class of your network. Also telnet is not useable direct with Windows VISTA or higher. Here you have to activate the telnet client first with “system control” - “programs and functions” - “enable/disable windows functions”.

For most users we recommend the **configuration via serial interface** which is described with all details in the following chapters. This way is also necessary if any mistakes are done during configuration and network access is not possible anymore.

We know that the configuration for non computer experts is not easy and so we tried to explain everything step by step with a lot of background information. After the configuration is done we are sure that you have learned a little bit about networks.

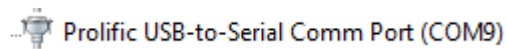
We are not able to give you a standard configuration because the settings depend on the used router. Every router has another configuration and so we have to adapt the Eusotec Server to these settings. If you read step by step of this manual you should be able to finish the configuration with success. In the case you have any problems please contact a person with more knowledge, have a look to our web pages www.eusotec.de or write an email to support@eusotec.de. We will try to solve your problem. Please understand if the answer could take some days and please also understand that we do not answer questions via telephone.

Please now follow the instructions in the next chapters:

2.3.1 Installation USB - RS232 Adapter

If your PC has no RS232 interface or you don't have already an USB/RS232 adapter, first you need to install the delivered USB/RS232 adapter. Please start the setup for your operating system of the Mini CD coming with the adapter. You will also find the software on the USB stick coming with the Eusotec server (directory `\configuration\RS232_USB\<your operating system>`, for example `\configuration\RS232_USB\Vista`).

Follow the instructions and when ready please connect the USB/RS232 adapter with a free USB port. The windows device manager shows the new COM port with the label "Prolific USB-to-Serial Comm Port" which should be used in the next step with the terminal program "Tera Term". In our example it is port COM9:



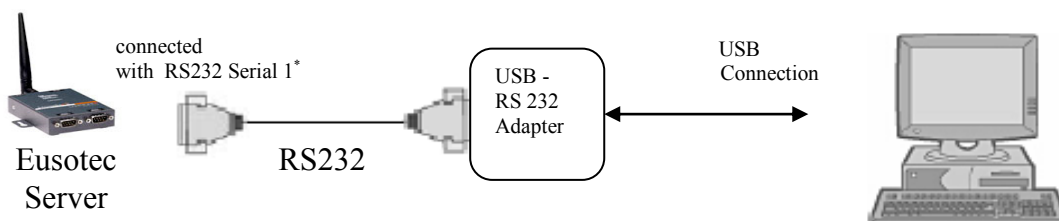
2.3.2 Installation of a windows terminal program (Tera Term)

If your PC has no "Hyperterminal" (this was part of the windows operating systems until Windows VISTA) or if you are not familiar with this program you should install the open source program **Tera Term** (Copyright T.-Teranishi and Tera Term Project). You will find the installation program **teraterm-4.60.exe** on the USB stick in directory `\configuration`. Follow the instructions and use the standard settings with Language "**English**". You should ignore error messages like missing fonts. Please click "**Ignore**" if requested.

2.3.3 Preparing the Eusotec Servers configuration

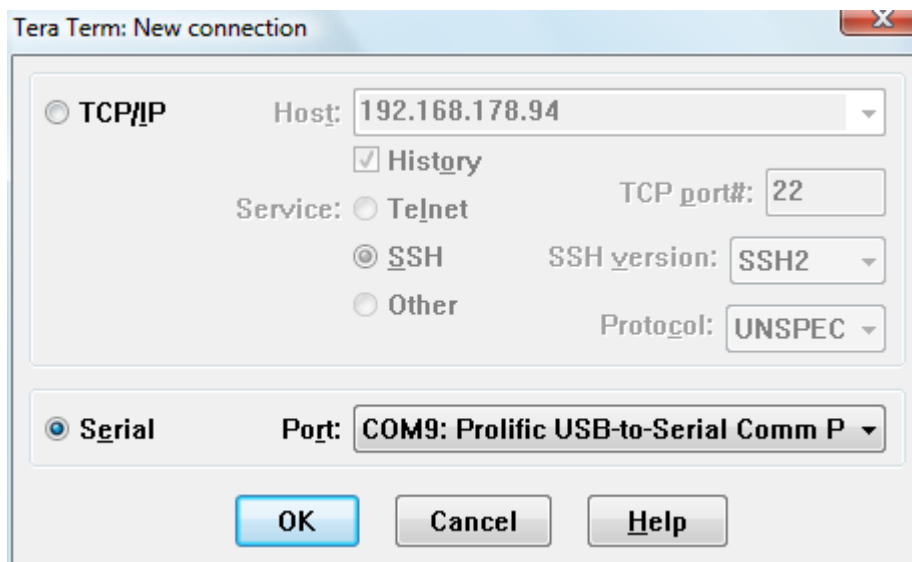
The Eusotec Server configuration needs to be done only once and keep stored in the device flash memory. We tried to use a standard configuration for users of an AVM Fritz Router and if you use such a device you may only change the WLAN settings. But anyway, don't get panic and follow the instructions:

First keep care that the **Eusotec Server (Lantronix WiBox) is shut off (no power)**. Now connect the Lantronix serial cable (Null Modem) with the USB/RS232 adapter of your PC and “**RS232 Serial 1**” of the Eusotec Server.



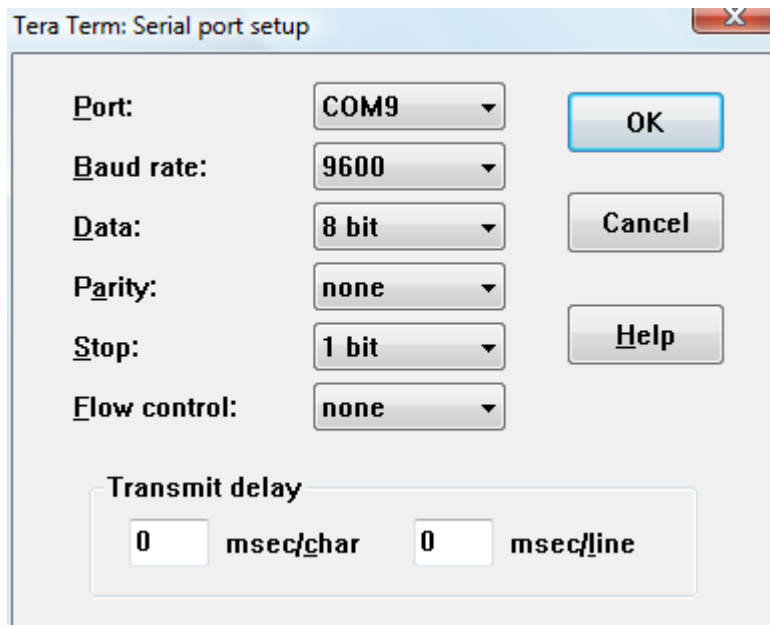
* Please pay attention to connect WENTO-IND to Serial 2 instead of Serial 1

Now please start on your PC the already installed program **Tera Term** with a double click and select the option “**Serial**” followed by the COM-Port which was created with the installation of the USB/RS232 adapter. In our example it was “COM9”.



Click on „**OK**“.

Per default Tera Term uses the following standard communication parameters which should not be changed.

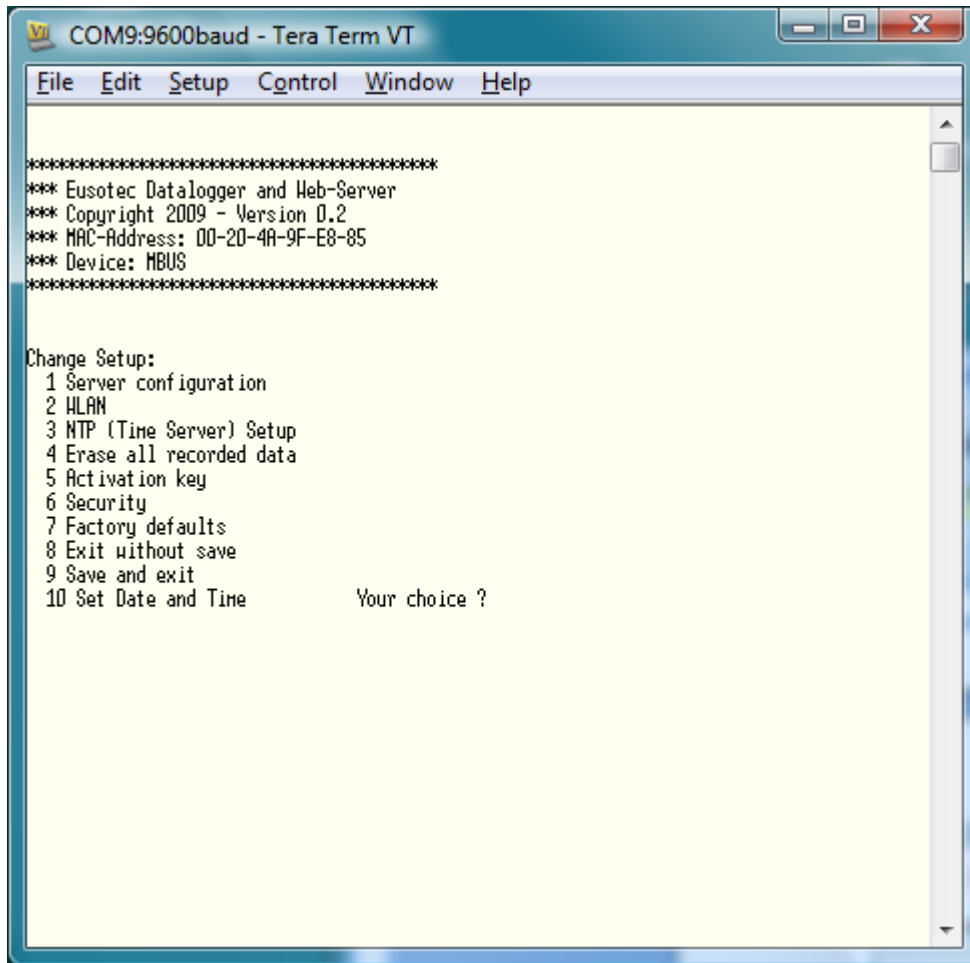


Important!

Now switch on the Eusotec Server (Power on) by connecting the power supply.

Press at the same time inside the Tera Term window the key **x** on your PC keyboard and keep it pressed until the configuration menu is displayed.

Note: The configuration menu might be a little bit different and depends on the control software of the Eusotec Server.



If you can see a similar menu like above you have done everything correct.
In the next step we are able to do the configuration of the Eusotec Server.

2.3.4 Configuration: „Server configuration“

Before the first usage the Eusotec Server needs to be configured once.

Enter inside the configuration menu number **1** and press enter.

After the output:

a.) Network mode: 0=Wired Only, 1=Wireless Only (1) ?

you are able to select a connection via an Ethernet cable (0=Wired only) or via WLAN (wireless only).

If you have an Ethernet cable, we recommend to select first the configuration “0=Wired Only”. Otherwise select the wireless mode (1=Wireless Only) by entering a **1**. Keep in mind that in this case you also need to configure “2 WLAN” of the configuration menu later, otherwise you will get no connection.

After pressing the enter key the setting is stored only temporary. Please don't forget to store all changes later by selecting the menu configuration “9 Save and exit”. This will store all changes permanent (also after power cycle) inside the flash memory.

b.) IP Address : (192) .(168) .(178) .(094)

The setting of the correct IP address is very important and should be done very carefully. Every IP address inside a network should be used only once and so first you have to find a free address. But what IP address is available ?

An easy way to find out is to call a command window with the following procedure:

1. Click Start
2. Click Run
3. Type **cmd** or **command** and press enter.
4. In the command window type **ipconfig** and press enter

The following window shows an example for the output:

```
Microsoft Windows [Version 6.0.6002]
Copyright (c) 2006 Microsoft Corporation. All rights reserved.

c:>ipconfig

Windows-IP-Configuration

Ethernet-Adapter LAN-Connection:

    IPv4-Address . . . . . : 192.168.178.19
    Subnet mask . . . . . : 255.255.255.0
    Standard gateway . . . . . : 192.168.178.1
```

With this information you will get the first three numbers of a valid IP address for your Eusotec Server. Here it is 192,168 and 178.

The last number must be a new one which is not used by any other network device and should be between 2 and 255. Please keep in mind that very often a “DHCP” service is activated inside the router which is able to distribute unique IP addresses to new network devices. Check the router if this is used.

Anyway, in our example we decided to use a high number “94” which is not used by other devices. The following example shows the router settings for “DHCP” in an AVM Fritz Router by entering the above standard gateway address (here: <http://192.168.178.1>) in a browser (firefox or internet explorer) window..

FRITZ!Box

Start Menu Settings

IP Settings

☒ All computers are located in the same IP network

Computers in the same IP network can browse the network in order to access computers that have been released for network sharing.

Enter the IP address at which FRITZ!Box can be reached in the local network.
Attention! Changes on this page may have the result that FRITZ!Box can no longer be reached before making any changes here.

IP address 192.168.178.1

Subnet mask 255.255.255.0

☒ enable DHCP server

DHCP server assigns IP addresses

from 192.168.178.20

to 192.168.178.90

Save

The IP address 192.168.178.94 in our example would be perfect because the used router allocates addresses between 20 and 90.

Note:

The router settings mostly could be displayed by entering the standard gateway address (see above command ipconfig) in a browser window.

Note for professional:

The WiBox also supports DHCP. We have disabled this functionality because it might make the port forwarding configuration with a lot of router types much more complicated.

c.) Set Gateway IP Address (Y) ?

This question should be answered with “y” (=yes) for setting the standard gateway address.

The Gateway IP Address must be mandatory set because otherwise no time synchronization with the configured time servers is possible and also no measurement values will be stored.

d.) Gateway IP Address : (192) .(168) .(178) .(001)

Like mention in issue c.) the gateway address must be entered in any case.

Under issue b.) you learned about the usage of the command ipconfig, which also displays the IP address of the standard gateway. Exactly this is the address which you should enter here.

In our example it was the address 192.168.178.1

e.) Netmask: Number of Bits for Host Part (0=default) (0)

Here you can enter the network mask. Normally you should let it unchanged with setting 0.

More information you will find under www.lantronix.com

f.) Change telnet config password (N) ?

Here you are able to set a 4 character telnet password if you want to protect your configuration over network.

Please keep in mind that the configuration could be changed also over internet if the router forwards any port to **Port 9999** of the Eusotec server. More information for port forwarding should be found in your router manual.

Normally port 9999 is not forwarded by the router and you might not to set this password.

If you will set a password then with calling telnet the following password question will be displayed.

*** Eusotec Datalogger and Web-Server ***

MAC address 00204A9FE61A

Software version V1.00 (090327) CPK6501_WBX

Password: _ _ _ _

Also with a password all web server files of directory /secure are protected.

For the first configuration we recommend not to set any password. You can do it later if required.

Important !

Please call at the end of your changes the menu “9 Save and exit” to save the made settings.

After entering the 9 the Eusotec Server stores the values and restarts. Any current network connections will be lost until a new connection is established.

2.3.5 WLAN Configuration

If you want to use a wireless connection to the Eusotec Server you have to configure the WLAN parameters according the used router settings.

Every router uses other parameters so that we are not able to deliver a common valid configuration.

Please keep in mind, that the WLAN configuration could be only done if in chapter 2.3.4.a) the Server was configured to “1 = Wireless Only”.

Call the main menu with **2** (=2 WLAN).

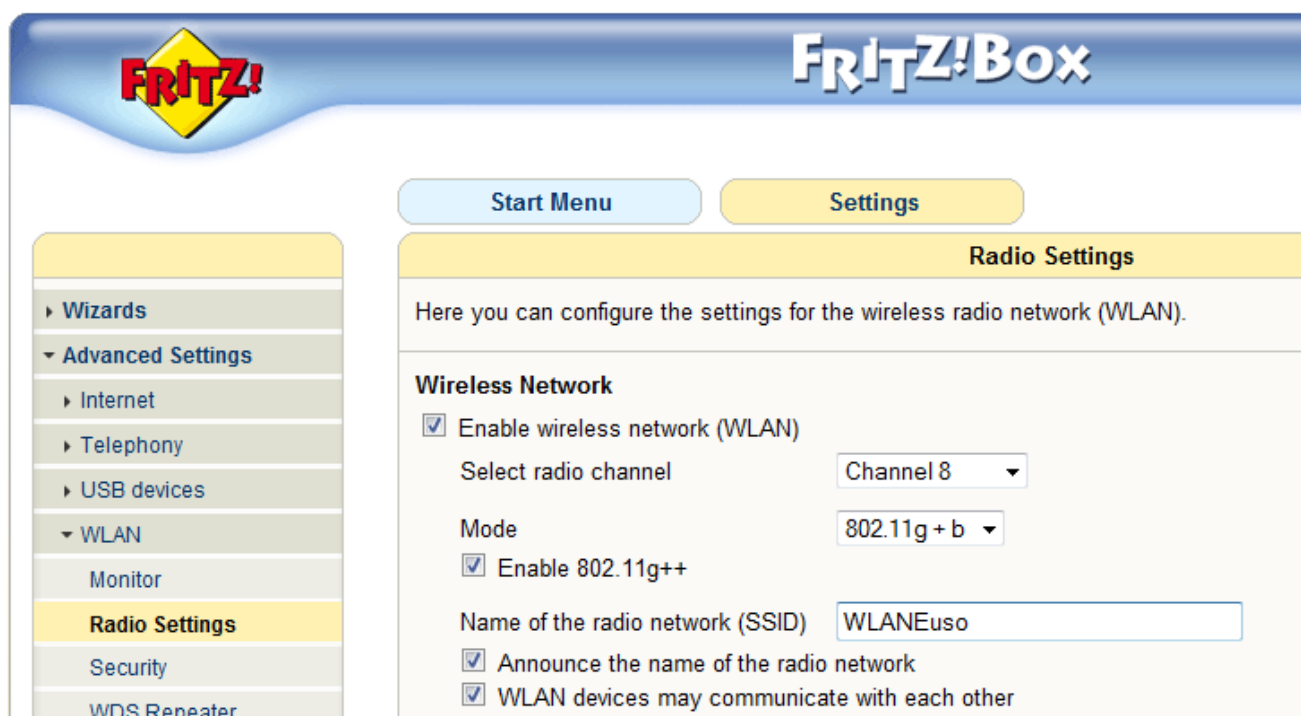
a.) Topology: 0=Infrastructure, 1=Ad-Hoc (0) ?

Very often the “Infrastructure” topology is used. If your router does not request another setting we recommend letting it unchanged at 0.

b.) Network name (SSID) (WLANEuso) ?

Here you have to enter the network name (SSID), which is set in your router.

The example below shows the router SSID “WLANEuso” which we should use for our setting. Please keep care for capitals.



Please have a look at your router setting and use the SSID which is set in your router.

c.) Security suite: 0=none, 1=WEP, 2=WPA, 3=WPA2/802.11i (3) ?

Also the security settings need to be the same like configured in your router.

Again you will see an example of our router:

In this case we should set **3** for WPA2/802.11i

In general we recommend the protocol WPA2 if your router is able to support it. It is much safer than other protocols.

d.) Display current key (N) ?

You should enter **Return** (=no) and go to next step.

e.) Change Key (N) ?

Please enter **y** for entering the network key.

Key type 0=hex, 1=passphrase (1) ?

Here you are able to decide if you want to enter normal (ASCII) characters (=passphrase) or hexadecimal numbers. Use it likes configured in your router. If you have a keyword like “secret” you should select **1** for passphrase.

Enter Key:

Now enter the key like defined in your router. For our example we would enter “geheim”.

f.) Encryption: 0=CCMP, 1=CCMP+TKIP, 2=CCMP+WEP, 3=TKIP, 4=TKIP+WEP (1) ?

Also this setting depends on your router. If you use WPA or WPA2 please select **1**. When you use WEP, please select **4**.

g.) TX Data rate: 0=fixed, 1=auto fallback (1) ?

Please select **1** for “auto fallback”. It means a reduction to a slower transmission rate when we have a poor wireless signal.

h.) TX Data rate: 0=1, 1=2, 2=5.5, 3=11, 4=18, 5=24, 6=36, 7=54 Mbps (7) ?

Here you should select the highest rate which your router supports. If your router supports more than 54 Mbps (for example 300 Mbps), please also select 7.

Today most routers support 54 Mbps and 7 should be the mostly used setting.

i.) Enable power management (N) ?

We recommend letting the setting unchanged to “N” so that you always have the best wireless signal.

Important !

Please call at the end of your changes the menu “9 Save and exit” to save the made settings. After entering the **9** the Eusotec Server stores the values and restarts. Any current network connections will be lost until a new connection is established.

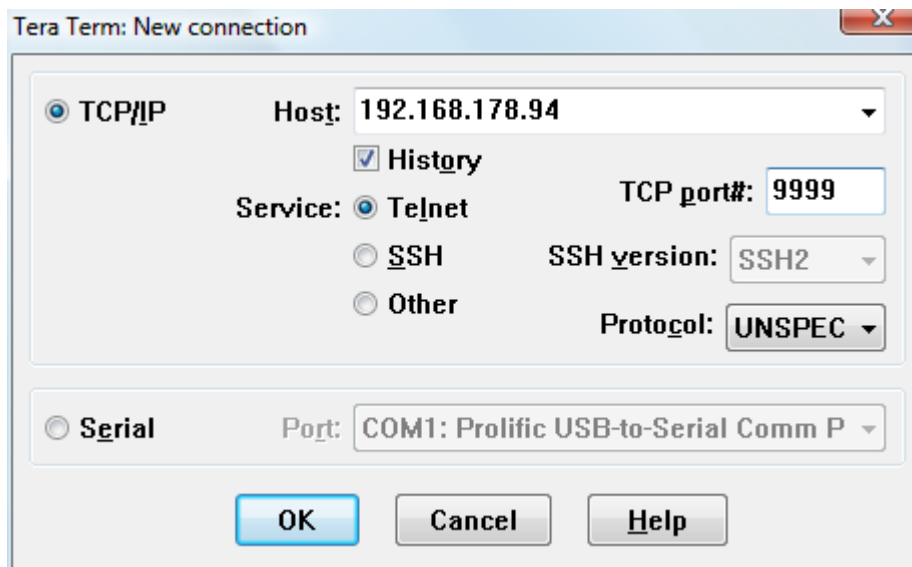
2.3.6 Checking Configuration Steps „Server Configuration and WLAN“

Now please check, if the settings you have done are correct:

Important !

If you are using Windows VISTA or higher on your PC, for the next step you need to activate “Telnet” first (in older windows version it is activated by default). This could be done with “**Start - System Control - Programs and Functions - Enable / disable Windows functions**“. Click on “**Telnet Client**” and “**TFTP-Client**” to activate the commands telnet and tftp. The TFTP-Client is needed later for transferring changed WEB-pages.

Now call the terminal program Tera Term and try a connection via telnet. Enter the configured IP address and use port 9999.



If you have done everything correct, you should see the configuration menu similar like the following:

```
*****
*** Eusotec Datalogger and Web-Server
*** Copyright 2009 - Version 0.2
*** MAC-Address: 00-20-4A-9F-E8-85
*** Device: MBUS
*****
```

```
Change Setup:
1 Server configuration
2 WLAN
3 NTP (Time Server) Setup
4 Erase all recorded data
5 Activation key
6 Security
7 Factory defaults
8 Exit without save
9 Save and exit          Your choice ?
```

If you see this menu, you have done most of the work. Congratulation!

If you don't see this menu, please return to the previous steps and check, if you have done everything like mentioned.

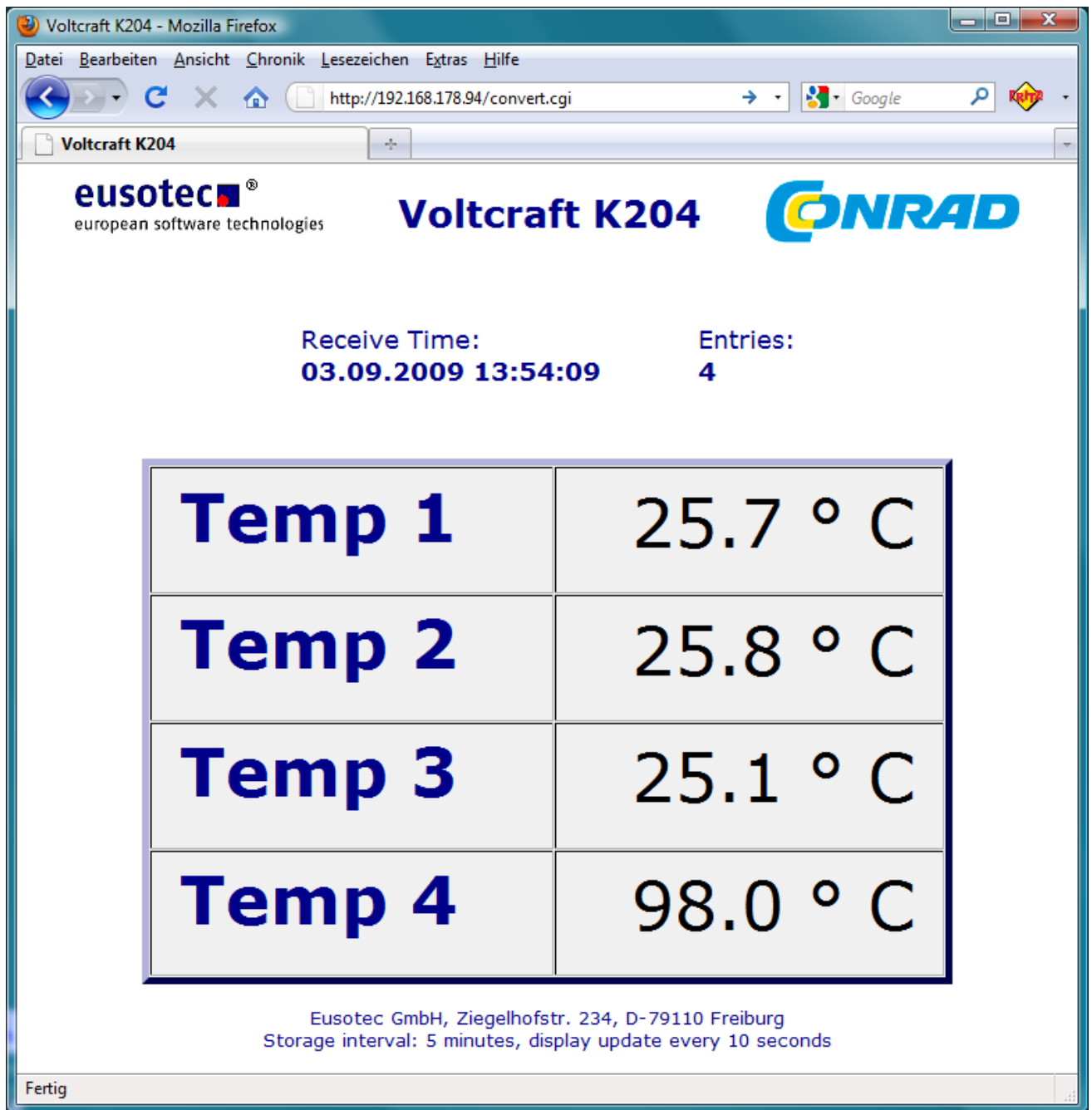
In the next chapter we explain, how to get a unique IP address which could be used worldwide.

Let us first check the Web functionality and the connection to your device.

Please check the “**Activation key**” in the Menu “**5**”. The code should be identical with the delivered one. Otherwise please enter the activation key and save it again with menu 9.

Now connect your device according the Eusotec control software with the Eusotec Server “RS232 Serial 1” and call on your PC your browser. We recommend the usage of firefox. Enter the configured IP address, in our example 192.168.178.94.

After some seconds you should see the first measurement values of your device which will be updated regularly. The following picture shows a web page for the Voltcraft K204 device.



The measurement values are stored every 5 minutes inside the flash memory, if the displayed receiving time is correct. With stored parameters you can have a look at the history by clicking on the measurement label.

We will explain later how to modify the web pages and how to set the sensor names you want to see.

Important!

If the displayed “receiving time” is not correct, it means that no internet time server was found. Please check your internet connection and also the configuration of the gateway address in menu 1. Check also if you have stored the configured parameters with menu 9 (save and exit). You should have an internet flat rate because every hour the time is synchronized again.

The correct time is an important condition for storing data.

2.3.7 Configuration: Advanced Configurations (for Professionals)

a.) NTP (Time Server) Setup

We already have coded a list of available time servers (NTPs). With Menu “**3 NTP (Time Server) Setup**” you have the possibility to enter another time server with UTC time. Normally you should let it at 0.0.0.0 for using the hard coded time server table.

Please keep in mind that the correct time is an important condition for storing measurement values.

b.) Erase all recorded data

Here you are able to erase all measurement values. For some devices (for example M-BUS) the erase is required when the configuration file config.txt was changed.

c.) Activation key

Here the delivered “Activation Key” which comes with the Eusotec Server should be entered. Only with correct key the Eusotec Server will work correct. With this activation key we are able to deliver software updates for your Eusotec Server.

d.) Security

Here you have the possibility to protect the Eusotec Server against unauthorized access. We want to mention it here only briefly. Please have a look at the Lantronix documentation (www.lantronix.com) if you need more information.

Disable SNMP (N) ?

The Simple Network Management Protocol allows access over network. Please do not disable this service.

SNMP Community Name (public):

The Simple Network Management Protocol requires a community name. Please let it unchanged to “public”.

Disable Telnet Setup (N) ?

Here Telnet access could be disabled.

In general we have to distinguish two ways of telnet access.

- 1.) Telnet access within the local network (intranet):

Example: telnet 192.168.178.94 9999

Here the configuration menu is called locally via port 9999. If you set “Telnet Setup” to disable, then this access is blocked.

- 2.) Telnet access over internet

Example: telnet myAddress.dyndns.org 29999

This access does work only if port 29999 is forwarded to port 9999 of the Eusotec Server in the local network. To block this access it is enough not to forward the port by changing the router settings.

In general we recommend not disabling Telnet Setup. Please keep in mind that you also have the possibility to set a password for telnet access (Menu 1).

Disable TFTP Firmware Update (N) ?

With the command tftp (for Windows VISTA or higher first you have to activate this command by enabling the tftp-Client with “System Control - Programs and Functions - Enable/disable Windows Functions”) you are able to load new firmware or changed web pages to the Eusotec Server.

You could do it also over internet when Port 69 (UDP protocol - used by tftp) is forwarded to the Eusotec Server.

In general we recommend not to disable TFTP Firmware Update. Instead of it you should disable the port forwarding in your router like mentioned before.

Disable Port 77FEh (N) ?

If required, please get the information from www.lantronix.com.

Disable Web Server (N) ?

Here you are able to disable the web server. This makes only sense if you want to get your data only via XML.

Disable Web Setup (N) ?

A Web setup is not supported in the Eusotec Server because the flash memory is used for the standard web pages. Please let this setting unchanged.

Disable ECHO ports (Y) ?

Please let it to “Y”.

Enable Enhanced Password (N) ?

It is possible to define a telnet password which is longer than 4 characters.

This password is also requested when web pages located in the directory /secure are called by a user.

e.) Factory defaults

With this menu the default configuration values are loaded back to the Eusotec Server.

Attention: With some versions also the Gateway IP address is set to 0.0.0.0. Please set it back to the used Gateway address, otherwise the Eusotec Server could not set the correct time for storing measurement values. Also the default values need to be stored with menu “9 Save and exit”.

f.) Exit without save

Exit configuration menu without saving the values into the EEPROM.

g.) Save and exit

All changes are stored into the EEPROM, so that they are also available after a power cycle.

If you want to make a **remote power cycle** you should also use this menu via telnet.

h.) Hidden menu: Set date/time manually

If you want to use the Eusotec only in an intranet without any internet connection, you also have the possibility to set the date and time manually by entering “11”. Please keep in mind that after a power cycle the date and time is set back to a date 2036.

Some versions of the Eusotec Server are able to get the date/time automatically from other devices (like M-BUS devices) if no internet connection is established. Otherwise we recommend using the Eusotec Server only with an active internet connection.

2.4 Router Configuration

Until now we have done the configuration of the Eusotec Server to get access inside the local network (intranet). For the worldwide internet access we will need a unique internet name. The following chapter describes how to get such a unique name.

2.4.1 Generating a unique IP address with DYNDNS

There are a lot of possibilities to install his own web server for internet access. An important condition for all solutions is an unique address, where users have access to it.

The problem is that most providers have only a pool of internet addresses where every member gets a new one when he connects. So we have to create a name which is forwarded to the actual IP address we got from our provider.

There are a lot of organizations who do this service for few names mostly for free. One of these companies is www.dyndns.com.

The following pages show how to create your own internet name. It could be only an example and help for you, which were created in March 2009. Maybe in the meantime the pages changed a little bit. We have no influence to it.

Please call in your PC browser www.dyndns.com .



In the upper right corner click on „Create Account“.

On the next page enter a new user name and a valid email address, where you will get later your activation information.

DynDNS.com - Account -- Account Registration - Mozilla Firefox

https://www.dyndns.com/account/create.html

Enterprise > Registry > Home/SMB > Corporate

DynDNS.com
by Dynamic Network Services Inc.

User: Pass: [Login](#)

[Lost Password?](#) - [Create Account](#)

About Services Account Support News

My Account

Create Account

Login

Lost Password?

Search

[Search](#)

Create your DynDNS.com account

User Information

Username: ✓

Email: ✓ Activation instructions will be sent here.

Retype Email: ✓

Password: ✓ Strong

Retype Password: ✓

Mailing Lists (optional)

Newsletters: ☐

Press-releases: ☐

Format: ☒ HTML ☐ Plain Text

Acceptable Use & Privacy Policy

Privacy Policy:
We [do not sell](#) your account information to anyone, including your email address.

☒ I agree to the [Acceptable Use Policy \(AUP\)](#), and my mailing list subscriptions.

[Create Account](#)

Fertig [www.dyndns.com](#)

Make a note for your "Username" and your "Password". This information you will need later again for your router configuration.
Click "Create Account".

Some seconds later you will receive an email where you have to click on the activation link.

DynDNS.com - Account -- Account... x DynDNS.com - Account -- Confir... x

Enterprise > Registry > Home/SMB > Corporate

DynDNS.com
by Dynamic Network Services Inc.

User: Pass:

[Lost Password?](#) - [Create Account](#)

About Services Account Support News

My Account

Create Account

Login

Lost Password?

Search

☒ **Account Confirmed**

The account **eusotec** has been confirmed. You can now [login](#) and start using your account.

Getting Started

- [Create a dynamic DNS host with your own domain name](#)
- [Create a dynamic DNS host within our Free domains](#)
- [Setup email services](#)
- [Register a domain name](#)

In the next step you could enter your worldwide unique internet name.
Click on „**Create a dynamic DNS host within our Free domains**“.

DynDNS.com
by Dynamic Network Services Inc.

User: Pass:

[Lost Password?](#) - [Create Account](#)

About Services Account Support News

Services

DNS Services

Custom DNS

Secondary DNS

Recursive DNS

Dynamic DNS

Readme

How-to

Account Upgrades

Standard Domains

Dynamic DNS

Dynamic DNS (DDNS) allows you to create a hostname that points to your dynamic IP or static IP address or URL. We also provide an update mechanism which makes the hostname work with your dynamic IP address. **We continue to offer this service free** to the Internet community as we have done so **for nearly 10 years**.

Capabilities and Features

Screenshot

New DynDNS Host

Hostname: Update Now


IP Address: Update Now

Service Type: Update Now

Click on “**Get Started**” and log in with your username and password..

Now enter the unique internet name. In our example we used „eusotecTest.dyndns.org“. Click on „**Use auto detected IP address...**“.

With this click your actual IP address which you got from your provider is assigned to your unique internet name (in our example 78.42.107.239). Later this assignment will be done automatically by our router.



Logged In User: **eusotecTest**

[My Services](#) - [My Cart](#) - [Log Out](#)

[About](#)
[Services](#)
[Account](#)
[Support](#)
[News](#)


My Account

My Services

- Account Upgrades
- SLA
- Premier Support
- Zone Level Services
 - Domain registration and transfer, DNS hosting, MailHop services
- Host Services
 - Dynamic DNS hosts, WebHop URL Forwarding
- Spring Server VPS
- MailHop Outbound
- Recursive DNS
- Network Monitoring
- SSL Certificates
- Renew Services
- Auto Renew Settings
- Sync Expirations

Account Settings

Billing


My Cart
[0 items](#)

Add New Hostname

[↑ Host Services](#)

Note: You currently don't have active [Account Upgrades](#) in your account. You cannot use some of our Host Service features. Paying for an Account upgrade will make this form fully functional and will add several other features.

Hostname: .

Wildcard: ☐ Create wildcard alias for "*.host.domain.tld"

Service Type:

- ☒ Host with IP address
- ☐ WebHop Redirect
- ☐ Offline Hostname

IP Address:

[Use auto detected IP address 78.42.107.239.](#)


TTL value is 60 seconds. [Edit TTL.](#)

Mail Routing: ☐ Yes, let me configure Email routing.

[Create Host](#)

Click on „**Create Host**“.

Now you have done all steps and you should click on “**Log Out**”.



by Dynamic Network Services Inc.

Logged In User: **eusotecTest**

[My Services](#) - [My Cart](#) - [Log Out](#)

[About](#)
[Services](#)
[Account](#)
[Support](#)
[News](#)

My Account

My Services

Account Settings

Billing

Active Services

Order History

Billing Profile

Search

Search

Billing Checkout

Hostname **eusotectest.dyndns.org** created.

Your cart contains **free services only**. You will not be asked for credit card information.

My Shopping Cart Contents

Free Dynamic DNS Account

You can add up to five free Dynamic DNS hosts to your account.
To add more, [buy an Account Upgrade](#). To get Dynamic DNS for your own domain, use [Custom DNS](#).

Dynamic DNS Hosts

eusotectest.dyndns.org	-	remove	\$0.00
--	---	------------------------	--------

Items Sub-Total: \$0.00

In the next step we have to give this data to our router, so that it will automatically do the assignment between internet name and actual IP address.

2.4.2 Router Configuration: DYNDNS

The following chapter describes the router configuration for having internet access to your own Eusotec Server.

Since we do not know which router you have, we could only describe the configuration as example for an AVM Fritz router. If you have another router please check your router manual for configuring DYNDNS. Please understand if we are not able to answer your router questions. If you have router questions please contact your router manufacture.

For the AVM Fritz router please first activate the “**expert view**”.



Click on „**Internet-Freigaben-Dynamic DNS**“

Now please enter the data which you have created in the previous step with www.dyndns.org:

The screenshot shows the FRITZ!Box web interface. At the top, there is a blue header with the 'FRITZ!' logo on the left and 'FRITZ!Box' on the right. Below the header, there are two tabs: 'Start Menu' and 'Settings'. The 'Settings' tab is active. On the left side, there is a sidebar menu with various categories: 'Wizards', 'Advanced Settings', 'Internet', 'Account Information', 'Child protection', 'Online Meter', 'Permit Access' (highlighted), 'DSL Information', 'Prioritization', 'Telephony', 'USB devices', 'WLAN', and 'System'. The main content area is titled 'Permit Access' and contains four sub-tabs: 'Port Forwarding', 'Remote Administration', 'Dynamic DNS' (active), and 'VPN'. The 'Dynamic DNS' section explains that through Dynamic DNS, applications and services can remain accessible at a fixed domain name even if the FRITZ!Box changes. It includes a checkbox for 'Use Dynamic DNS' which is checked. Below this, it asks to enter account information for a Dynamic DNS provider. The form fields are: 'Dynamic DNS provider' (a dropdown menu showing 'dyndns.org'), 'Domain name' (text input with 'eusotectest.dyndns.org'), 'User name' (text input with 'eusotec'), 'Password' (password input with four dots), and 'Password confirmation' (password input with four dots). There is a 'Register New D...' button next to the provider dropdown. At the bottom right of the form is an 'Apply' button.

Please pay attention to have the correct writing (also capitals are important) and click on the button for storing.

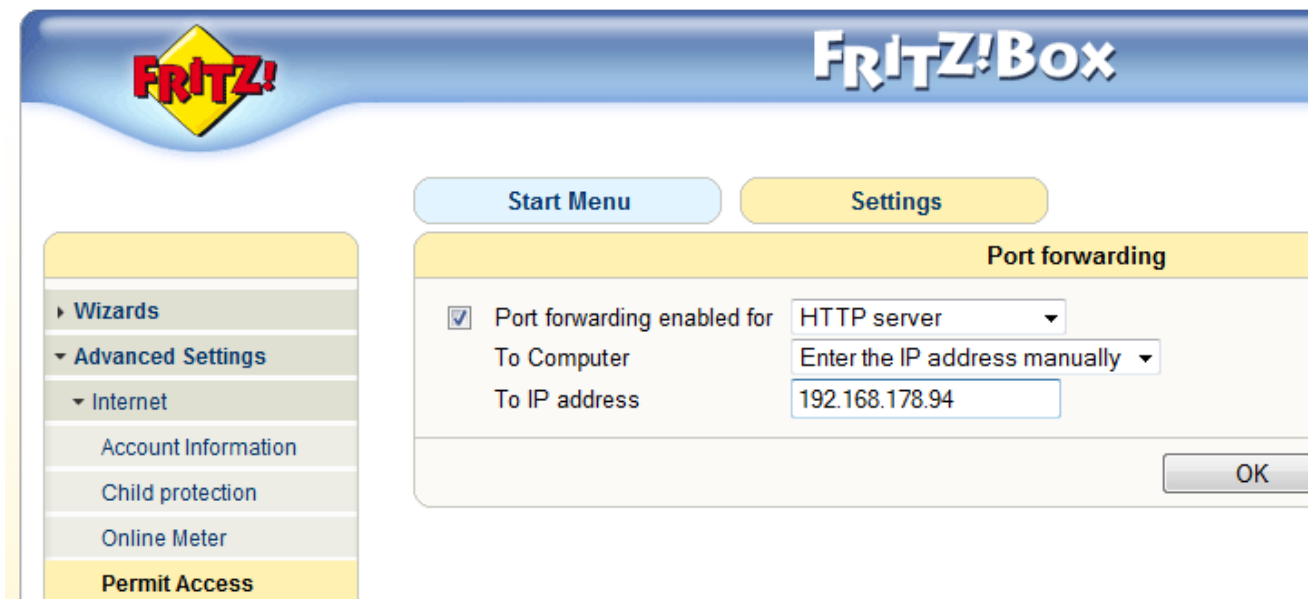
That's all for DYNDNS.

The next step describes to port forwarding, because you have to make clear which device of your local network is responsible for displaying the web pages.

2.4.3 Router Configuration: Port Forwarding

If you enter the defined internet name from previous chapter (for our example **eusotectest.dyndns.org**) in a browser window, then **port 80** is called at your router. This port must be forwarded to the Eusotec Server in your local network.

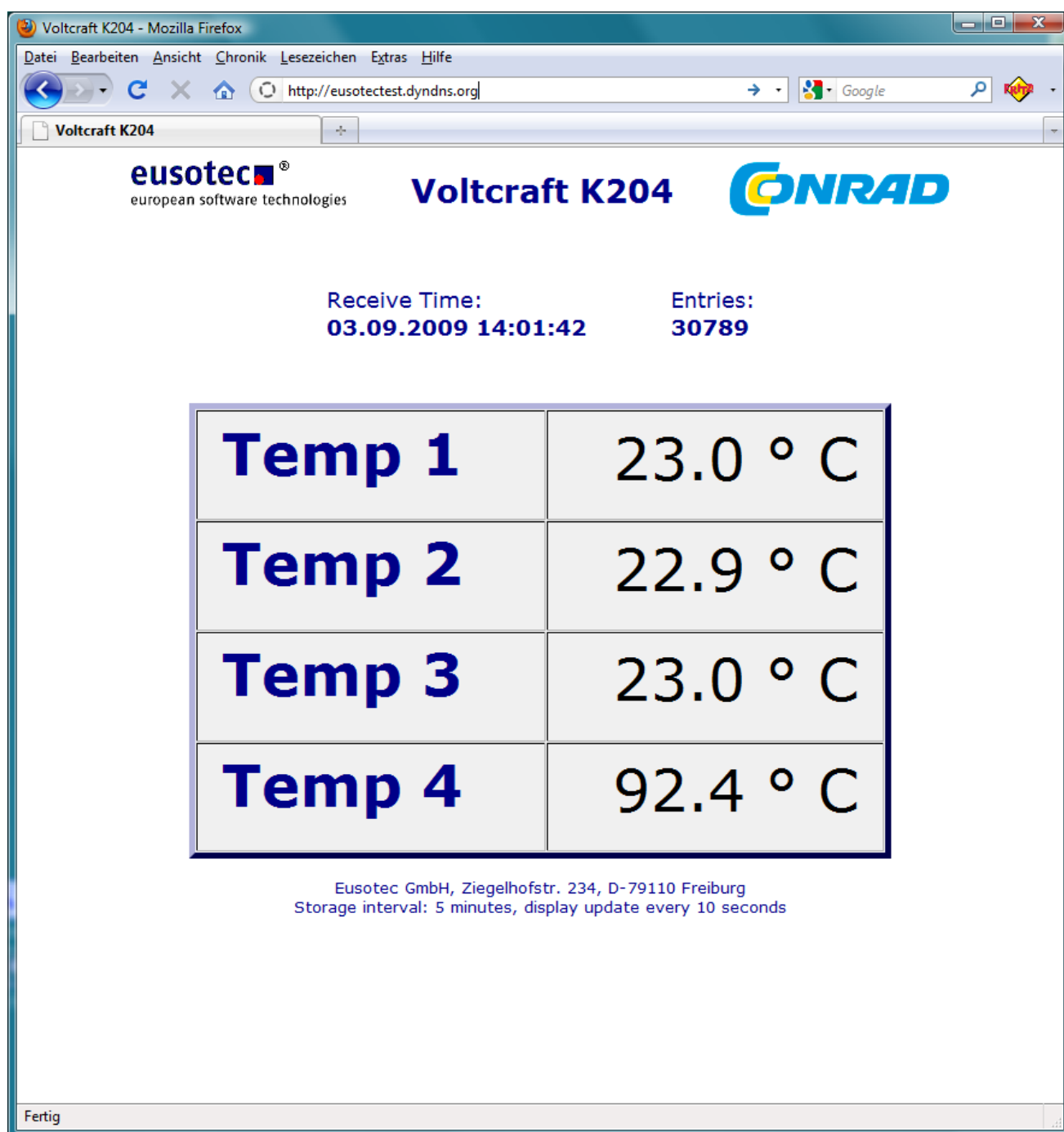
For a AVM Fritz router it is done in the menu „Erweitere Einstellungen - Internet - Freigaben - Neue Portfreigabe“:



Use the IP address of your Eusotec Server. In our example it was 192.168.178.94.

Click on “**OK**” and now everybody in the world has access to your Eusotec Server.
In our example it is accessible with the address <http://eusotectest.dyndns.org>

You should also try to restart your router for getting a new IP address. Check if the new IP address was transmitted to www.dyndns.com by calling again your internet name from a browser window.



We recommend also forwarding **port 10001** and if needed **Port 9999** and **Port 69** to your Eusotec Server.

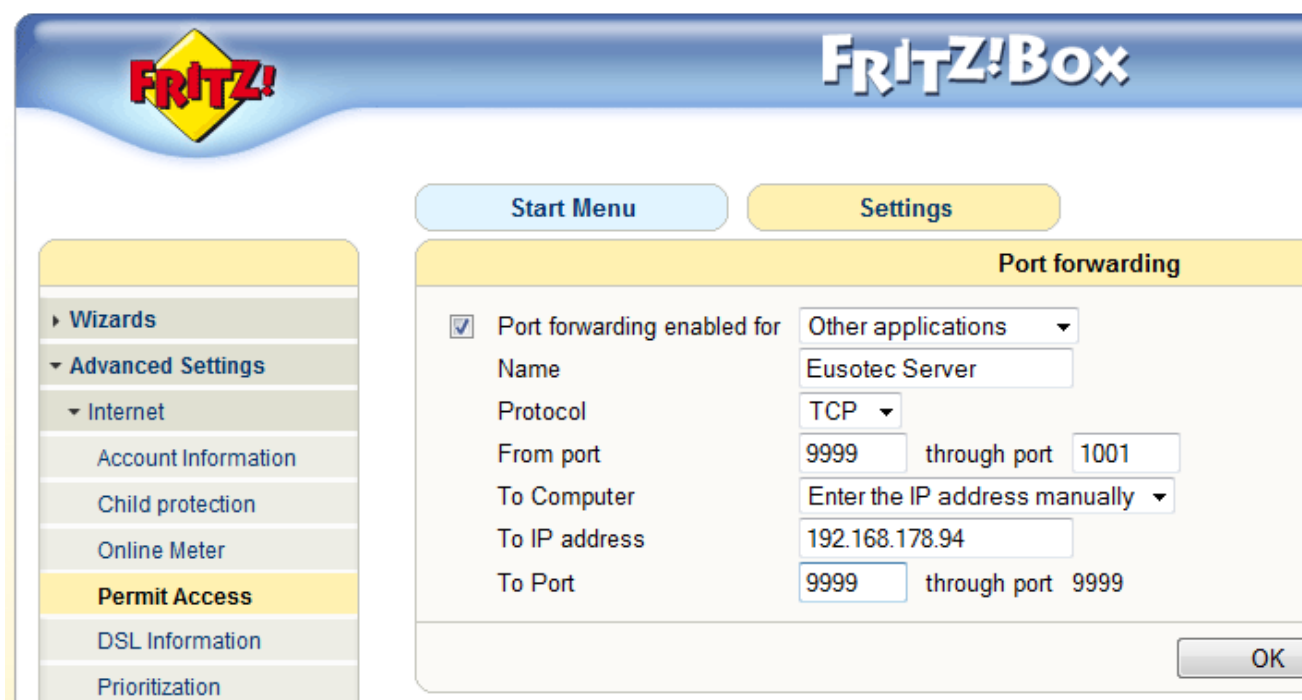
Port 10001 with protocol **TCP** allows internet access for applications via XML (like EusoCharts does it). This forwarding is needed if you want to use EusoCharts and other XML-applications.

Port 9999 with protocol **TCP** allows internet access via **telnet**.

Port 69 with protocol **UDP** allows remote transmission of new firmware and web pages via internet. You have to use the command **tfpt**.

Please forward this port only when required to permit unauthorized access.

For the AVM Fritz router you can forward the ports 9999 to 10001 only with one setting:



Hint for the usage of multiple Eusotec Servers:

If you want to use more than one Eusotec Server in one local network, you have to configure more ports.

Example:

1. Eusotec Server: IP: 192.168.178.94
2. Eusotec Server: IP: 192.168.178.95
3. Eusotec Server: IP: 192.168.178.96

Router Port Forwarding:

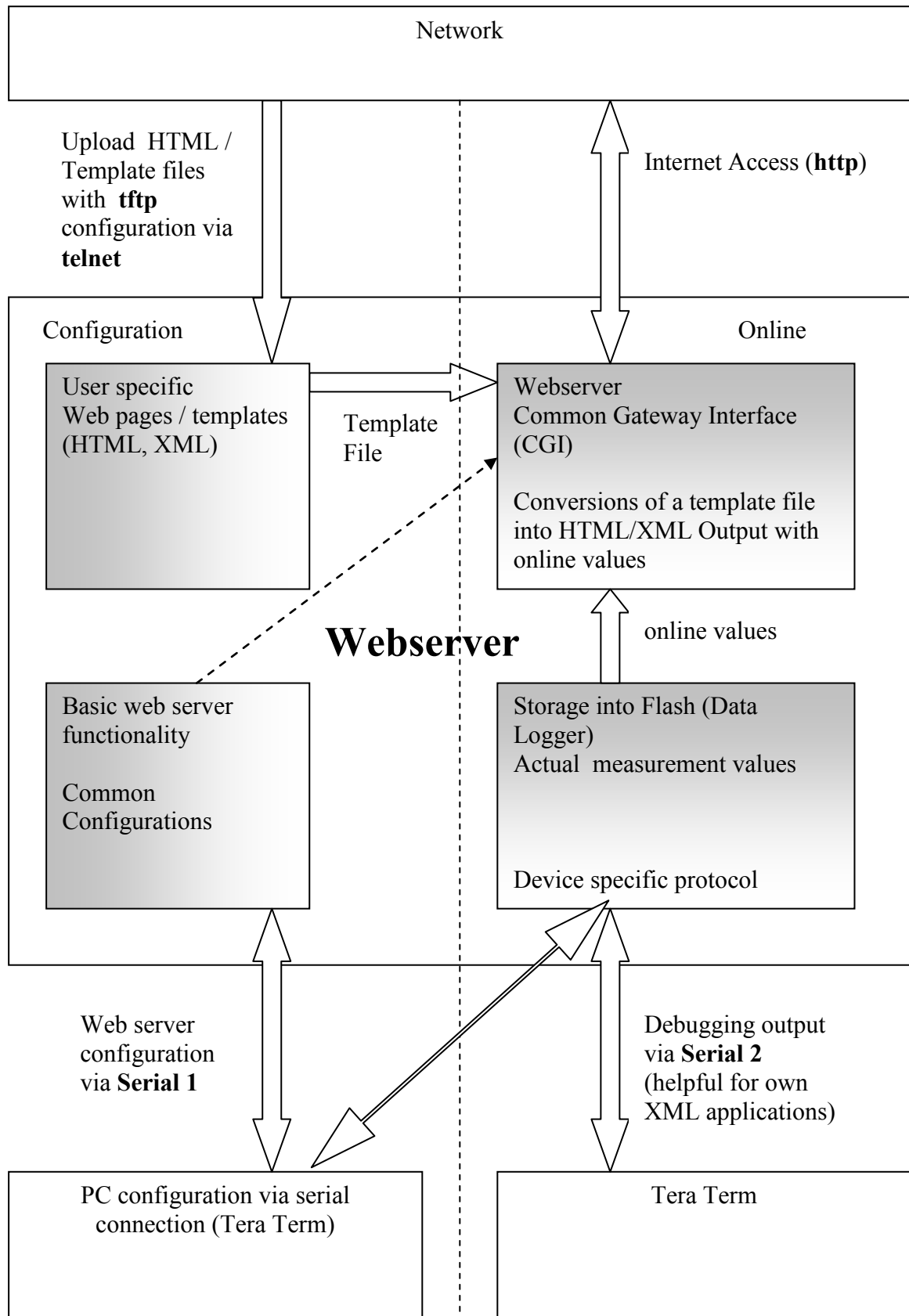
1. Port 8080 to 192.168.178.94
2. Port 8081 to 192.168.178.95
3. Port 8082 to 192.168.178.96

Calling from a browser:

1. <http://eusotectest.dydns.org:8080>
2. <http://eusotectest.dydns.org:8081>
3. <http://eusotectest.dydns.org:8082>

3 Changing the existing Web Pages

The following picture shows partly the functionality of the Eusotec Server.



3.1 *Web Pages of the Eusotec Server*

The Eusotec Server comes with some HTML pages, which are able to display actual and stored values in tables and graphics. For supporting multiple browsers most of the web pages were developed with Java script. So the browsers do not need any add-ons like PDF or Macroflash Plug-in. Also we do not use Java (keep care for the difference between Java and Java script), because many mobile phones do not support it.

We are pretty sure that the way we realized it gives the best performance for displaying the values.

The delivered web pages could be modified by users or could be used like they are.

Your pages could have another look and feel like developed by us. For the web pages you could use 256 Kbyte flash memory. Keep care that your pages will not exceed this size.

Normal web pages could be displayed direct. For getting measurement values you need to call a cgi interface which will fill in the needed values. It is described some chapters later in detail.

3.1.1 *Standard Web Pages*

The Eusotec Server comes with some standard web pages, which might be enough for most users. Small changes (like text) could be done easily.

All web pages are delivered with the complete source code. It is allowed to use this code also with modifications only on Eusotec Servers. Please keep care for the copyright hints. Usage on other systems is prohibited.

The following pictures show examples for the Voltcraft K204 which could be a little bit different from the actual implementation.

Receive Time:
03.09.2009 13:54:57

Entries:
30787

Temp 1	22.9 ° C
Temp 2	22.8 ° C
Temp 3	22.9 ° C
Temp 4	92.4 ° C

Eusotec GmbH, Ziegelhofstr. 234, D-79110 Freiburg
Storage interval: 5 minutes, display update every 10 seconds

Overview Chart Temp 1 Temp 2 Temp 3 Temp 4

<< 03.09.2009 14:38:40 >> 1 hour 3 hours 6 hours 12 hours 1 day 1 week 2 weeks 1 month

Last Value:
03.09.2009 14:39:28

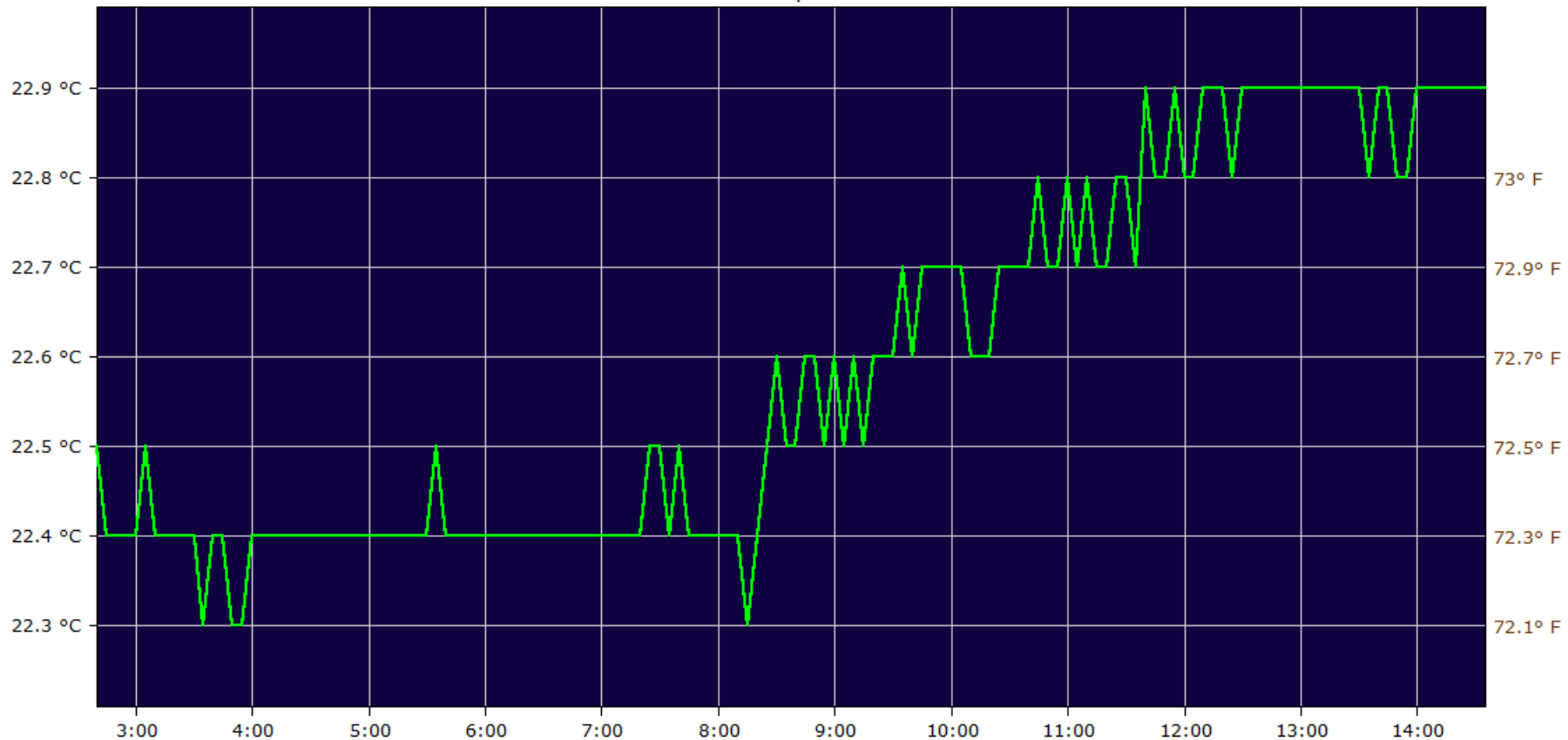
22.9 °C

Entries:
30796

Min: 22.3 °C
03.09.2009 08:15

Max: 22.9 °C
03.09.2009 14:35

Temp 2



Overview Diagram Temp 1 Temp 2 Temp 3 Temp 4

<< 03.09.2009 14:38:40 >> 1 hour 3 hours 6 hours 12 hours 1 day 1 week 2 weeks 1 month

Last Value:

03.09.2009 14:38:40

23.0 °C

Entries:

30796

Min: 22.5 °C

03.09.2009 09:15

Max: 22.9 °C

03.09.2009 14:35

Temp 2											
03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]	03.09. [°C]
14:35 22.9	13:35 22.8	12:35 22.9	11:35 22.7	10:35 22.7	09:35 22.7						
14:30 22.9	13:30 22.9	12:30 22.9	11:30 22.8	10:30 22.7	09:30 22.6						
14:25 22.9	13:25 22.9	12:25 22.8	11:25 22.8	10:25 22.7	09:25 22.6						
14:20 22.9	13:20 22.9	12:20 22.9	11:20 22.7	10:20 22.6	09:20 22.6						
14:15 22.9	13:15 22.9	12:15 22.9	11:15 22.7	10:15 22.6	09:15 22.5						
14:10 22.9	13:10 22.9	12:10 22.9	11:10 22.8	10:10 22.6	09:10 22.6						
14:05 22.9	13:05 22.9	12:05 22.8	11:05 22.7	10:05 22.7	09:05 22.5						
14:00 22.9	13:00 22.9	12:00 22.8	11:00 22.8	10:00 22.7	09:00 22.6						
13:55 22.8	12:55 22.9	11:55 22.9	10:55 22.7	09:55 22.7	08:55 22.5						
13:50 22.8	12:50 22.9	11:50 22.8	10:50 22.7	09:50 22.7	08:50 22.6						
13:45 22.9	12:45 22.9	11:45 22.8	10:45 22.8	09:45 22.7	08:45 22.6						
13:40 22.9	12:40 22.9	11:40 22.9	10:40 22.7	09:40 22.6	08:40 22.5						

Eusotec GmbH, Ziegelhofstr. 234, D-79110 Freiburg

Storage interval: 5 minutes, display update every 60 seconds

3.1.2 Changing Sensor Names and Location

Please first copy the complete content of the delivered USB stick to your PC in a new directory, for example c:\Eusotec. Remove the USB stick for avoiding any deletion of the original files.

For the user 4 files in the directory \web_pages\Html are important (in our example it is c:\Eusotec\web_pages\Html - maybe you want to use the English WebPages in c:\english\Eusotec\web_pages\Html):

secure/config.txt
astart.html
atabelle.html
agraphic.html

For changing the sensor names you only need the file **config.txt** of directory \secure. Open this file with a text editor (for example "notepad" which is located under Start - Programs - Accessories. Please do not use WORD, because it might store the file in a non ASCII file format.

Example: **Config.txt** for **Voltcraft K204**.

The format of config.txt for other devices is described in the Appendix.

```
Pool           ' Name of Sensor 1 (max 20 characters)
Solardach      ' Name of Sensor 2
Heizung        ' Name of Sensor 3
Au&szlig;en    ' Name of Sensor 4
Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg 'Location
Eusotec, Ziegelhofstr. 234, 79110 Freiburg ' Subject of email
smtp.lund1.com  ' SMTP email server smtp.lund1.com
alarm@eusotec.de ' email address "from"
alarmalarm      ' password for SMTP authentication
control@eusotec.de ' email address "to"
-32000 32000    ' Alarm 1 (always in Celsius * 10)
0 32000         ' Alarm 2
30 32000        ' Alarm 3
-32000 32000    ' Alarm 4
```

The first four lines list the sensor names. Comments in the same line are allowed and start with a '.

For displaying special characters we have to follow the HTML rules. The following special characters need to be replaced:

Character	Replacement
ä	ä
Ä	Ä
ö	ö
Ö	Ö
ü	ü
Ü	Ü
ß	ß
°	°
fixed blank	

If you want to change the 2. parameter to the German word “Hz-Rücklauf”, you have to change config.txt

```
Hz-R&uuml;cklauf      ' Name of Sensor 2
```

Please keep care that you **do not use more than 20 characters**.

The location could be entered in line 5 and should not exceed **45 characters** (starting with **Firmware Version 2.0 up to 100 characters** are allowed).

IMPORTANT !

After the changes you have to store, generate and load the file like described in the following chapter. **When changing secure/config.txt the Eusotec Server must be restarted (use the configuration menu 9 or do a power cycle).** With the new start the config.txt file is read again by the Eusotec Server.

3.1.3 Generating Alarm Emails

If configured boundaries of measurement values are exceeded, automatically alarm emails could be generated.

A lot of providers have also the possibility to generate an additional SMS or Fax. Also we are able to offer this service for a low charge.

Please always test your settings with generating alarm emails before you will be charged for other messages.

To avoid receiving a lot of emails we have implemented some restrictions:

Rule:

The measurement values are read normally every 10 seconds (some devices like for example M-BUS need a longer time for reading all parameters). If three values of the same sensor are out of the boundaries then an alarm message is generated. Short disturbances are ignored.

Before generating a new alarm message the measured values need to be in bound for about 15 minutes. If one value is again out of bound the 15 minutes waiting time is started again.

In worst case you could get every 15 minutes an alarm message of each sensor. Please keep it in mind when you use charging services like SMS or Fax.

We will not pay for these costs.

How we have to set these boundaries?

Like mentioned we have the configuration file **config.txt** in the directory „**secure**“. All files in the directory secure are protected by the telnet password. (see chapter: Configuration: Server Configuration - Change telnet config password)

The alarm boundaries are also described in **secure/config.txt** (here for the **Voltcraft K204** starting in line 6 - for other devices please see chapter "Appendix").

```
Eusotec, Ziegelhofstr. 234, 79110 Freiburg ' Subject of email
smtp.lund1.com      ' SMTP email server  smtp.lund1.com
alarm@eusotec.de    ' email address "from"
alarmalarm          ' password for SMTP authentication
control@eusotec.de  ' email address "to"
-32000 32000        ' Alarm 1 (always in Celsius * 10)
0 32000             ' Alarm 2
30 32000            ' Alarm 3
-32000 32000        ' Alarm 4
```

Explanations:

1. Line: This line describes the subject of the generated alarm message. We recommend mentioning the location as subject for identifying easily where the alarm happened. Please make the text as short as possible because also the value is added (like P4: 21.0 when parameter 4 is out of bound). The apostrophe is used for starting comments and should not exist in the location text. For saving memory pay attention to keep the comments very short.
2. Line: SMTP email server for sending emails. For test cases you can use temporarily our address, but later you should use your own SMTP server. If you have problems with resolving the SMTP server name, you can also enter the IP address. You will get it by using the command ping <server name> For smtp.lund1.com you could also enter 212.227.15.145. In general your router should be able to resolve the names.
3. Line: Email-Address, which is used for sending the alarm message. For test cases you can use temporarily our address **alarm@eusotec.de**. But keep in mind that we might delete this address without any hint when spammers are using the address too much. In this case you would not get any alarm message. So please later use your own address. Of course we also will offer the service to create your own email address for sending alarm message. Please contact us.
4. Line: Password for sending alarm messages. When you used temporarily our address alarm@eusotec.de, then you should enter here the password **alarmalarm**.
5. Line: Here you have to enter the receiving email address. The alarm message is sent to this address.
6. Line: Here the boundaries are starting for sensor 1.
Enter the lower boundary followed by a blank and then the upper boundary. All values for the Voltcraft K204 must be entered in ° **Celsius** (independent of the Voltcraft settings) and must be **multiplied with 10**, so that no comma exists.
Examples: 5.6 ° Celsius should be entered as 56, -12.3 ° Celsius as -123, 75 ° Fahrenheit as 239 => $(75-32)*5/9*10$ then round it.
If a value should not be monitored, please enter -32000 as minimum and 32000 as maximum for Voltcraft K204. For other devices please see the appendix.
7. Same like line 6 for sensor 2 (Example: Alarm when value < 0 °C)
8. Same like line 6 for sensor 3 (Example: Alarm when value < 3 °C)
9. Same like line 6 for sensor 4 /Example: No alarms set)

When using alarms please keep care for chapter „Intended Use and Warnings“

With a correct configuration and active internet connection you will get an alarm like the following email:

From: alarm@eusotec.de [mailto:alarm@eusotec.de]
Sent: Donnerstag, 23. April 2009 09:18
To: control@eusotec.de
Subject: Eusotec, Ziegelhofstr. 234, 79110 Freiburg P2: -0.1
Alarm Parameter 2: -0.1 C <= 0.0 C

Pay attention for a correct configuration. For resource reasons no plausibility checks are done inside the Eusotec Server.

After Generating and loading the changed configuration file, the Eusotec Server need to be restarted for reading the new parameters. Please check each alarm to be sure that the emails are generated and you have entered the alarm boundaries correct.

You can also use the terminal program TeraTerm connected to Serial 2 for checking the read parameters. There you can also see if the email sending server (SMTP) was resolved to the correct IP address.

3.1.4 Changing Celsius to Fahrenheit

The standard WebPages are prepared for displaying temperatures in Fahrenheit (currently not for M-BUS). Please change in the following files

astart.html
atabelle.html and
agraphic.html

the variable oFahrenheit to 1.

var oFahrenheit=1;

Store the changes, generate and load the changed WebPages like described in the following chapter.

3.1.5 Generate and Load changed Webpages

In the files copied from the USB stick you will find the file **ipaddress.bat** (in our example it is located in **c:\Eusotec\ipaddress.bat** or in **c:\english\ipaddress.bat**).

Load this file into a text editor (for example with Start - Programs - Accessories - Editor) and enter the configured Eusotec server IP address with the format "set ip=<ip-address>".

For our example the file has the entry

set IP=192.168.178.94

Now try to reload the WebPages. These are already installed on the Eusotec Server, but it show you how to load modified WebPages later.

For loading the WebPages change to the directory **\web_pages** and start with a double click the batch procedure **web2cob.bat**. With this procedure all WebPages of the directory \HTML are converted into the file cobox.cob. This file could be loaded with the command tftp:

If you have done everything correct the following should be displayed (the output depends on the operating system language):

```
C:\tmp\web_pages>call ..\ipaddress.bat
```

```
C:\tmp\web_pages>set ip=192.168.178.94
```

```
C:\tmp\web_pages>web2cob /d Html
Lantronix Web2CoB V1.40 (Jan 24 2005).
Convert web directory to CoBox web file.
Processing directory Html
Directory secure found!
40 files written to cobox.cob (113833 bytes).
```

```
C:\tmp\web_pages>tftp -i 192.168.178.94 PUT cobox.cob WEB1
Transfer successful: 113833 Bytes in 3 seconds, 37944 Bytes/s
```

```
C:\tmp\web_pages>pause
Press any key . . .
```

Note:

If you are using Windows Vista or higher and the command tftp is not working then you have to activate this command first like mentioned in chapter Checking Configuration Steps “Server Configuration and WLAN“

4 Create your own WebPages

This chapter is only for experienced WebPages programmers.

We want to explain the needed interfaces for generating own WebPages with measurement values.

Please understand if we do not offer any free support, if you want to use this possibility.

IMPORTANT!

Please pay attention that the generated WebPages do not need more than 256 kByte of memory.

There is no check in the system. If the file is bigger, all measurement values are deleted without any warning.

4.1 *HTML Pages with Online Values / WebPages Templates*

Our standard WebPages (Templates) are common HTML or XML files with some special characters.

These characters are converted by a CGI call and substituted with measurement values.

This procedure was developed by Eusotec.

The substitution is simple. The sequence of a percent character followed by a number (“%**nnn**”) is used for an online value and is replaced by the Eusotec Server.

%001 is used for example for the actual measurement values of the first sensor and is substituted from the CGI call by the value (for example 21.3).

For starting the substitution the CGI interface **convert.cgi** need to be called.

If you want to use a percent character on your Webpage you have to double the character like “%%”.

Example with Online Values:

Our example has two files:

File **index.html**:

```
<html>
<head>
  <title>Voltcraft Webserver</title>
</head>
<body>
  <form name="Update" method=post action="/convert.cgi" >
    <input type=hidden size=1 name="FILE" value="astart.html" >
  </form>
  <script language="JavaScript">
    document.Update.submit();
  </script>
</body>
</html>
```

File **aStart.html**:

```
<html>
<head>
</head>
<body>
  <table>
    <tr>
      <td>Heat:</a></td>
      <td><b>%001 &#176;C</b></td>
      <td>Return<br>Temp.:</a></td>
      <td><b>%002 &#176;C </b></td>
    </tr>
  </table>
</body>
</html>
```

Both files are copied into the **html** directory and are generated with **web2cob.bat**.
After calling the Eusotec Server address in a web browser you should see the following result:

Output:

Heat:	14.3 °C	Return Temp. :	23.3 °C
-------	---------	-------------------	---------

4.2 Assignment Table

The assignment table defines the possible variables for using in WebPages templates. It depends from the connected device and its protocol.

The assignment table for the **Voltcraft K204** defines the following variables:

Parameter	Variable	Quelle
Temperature Sensor 1 (° C)	%001	Voltcraft K204
Temperature Sensor 2 (° C)	%002	Voltcraft K204
Temperature Sensor 3 (° C)	%003	Voltcraft K204
Temperature Sensor 4 (° C)	%004	Voltcraft K204
Date and Time of the last received value	%005	UTC time if the Eusotec Servers when last data was received.
Number of stored entries. With every entry 4 measurement values (sensor 1 - sensor 4) are stored.	%006	Eusotec Server
Storage-Interval in minutes	%007	Eusotec Server (at this time always 5 minutes - not changeable)
Location	%100	secure/config.txt
Name of first sensor	%101	secure/config.txt
Name of second sensor	%102	secure/config.txt
Name of third sensor	%103	secure/config.txt
Name of fourth sensor	%104	secure/config.txt

For other devices you will find the Assignment Table in the appendix.

4.3 *Getting Measurement Values of given Time Windows*

It's a little bit more complicated when you want to get measurement values of a given time interval. The CGI convert.cgi does need some more parameters when it is called:

name="FILE"

Constant Keyword for converting Web Template files.

value="<filename><parameter>"

Here the file name with additional parameters, which describe the time interval are entered.

Parameter:

-snnn : Identifies the sensor name

- s001 means Temperature Sensor 1
- s002 means Temperature Sensor 2
- s003 means Temperature Sensor 3
- s004 means Temperature Sensor 4

-bYYMMDDhhmm : Start time (b=Begin) of requested time window

- YY : Year UTC time (only the last two digits)
- MM: Month UTC time
- DD: Day UTC time
- hh: Hour UTC time
- mm: Minute UTC time

-eYYMMDDhhmm : End time (b=Begin) of requested time window

- YY : Year UTC time (only the last two digits)
- MM: Month UTC time
- DD: Day UTC time
- hh: Hour UTC time
- mm: Minute UTC time

-w<Step Wide>: step wide

- w1: all values
- w2: values with minute time stamp 00, 10, 20, etc.
- w3: values with minute time stamp 00, 15, 30 or 45.
- w6: values with minute time stamp 00 or 30.
- w12: values with minute time stamp 00.
- w24: values with minute time stamp 00 and hour time stamp 00, 02, 04, etc.
- also allowed: -w48, -w72, -w144 and -w288

Please pay attention that values greater than -w12 the local time is important. For this reason we are only using value up to -w12.

The complete format is:

value=<filename>-s001-bYYMMDDhhmm-eYYMMDDhhmm-w1--

Please pay attention for the two minus characters at the end.

Example:

value=aStart.html-s002-b0905011007-e0905011035-w1--

Request the values of sensor 2 in UTC time and will deliver:

1.5.2009 10:10
1.5.2009 10:15
1.5.2009 10:20
1.5.2009 10:25
1.5.2009 10:30
1.5.2009 10:35

On the Web Page you should use a Java script with the following lines:

```
document.write("<form id='form1' method=post action='/convert.cgi'>");  
document.write("<input type=hidden size=1 name='FILE' value='astart.html-s002-  
b0905011007-e0905011035-w1--'></form>");
```

In the standard Web Pages the CGI is called with some more parameters. These parameters are not needed anymore because now all important values are also placed in the generated Web Page.

Trend=<0..3>

Trend=0 Values of Temperature Sensor 1
Trend=1 Values of Temperature Sensor 2
Trend=2 Values of Temperature Sensor 3
Trend=3 Values of Temperature Sensor 4

Time=<number of hours, which should be displayed>

Examples: Time = 1 => Values of 1 hour, Time=168 => Values of one week

SelTime=<Selected Time in ms since 1.1.970>

How are the values displayed ?

Therefore you enter only one line in a Java Script:

%P1;

This parameter delivers all needed values of the given time interval in the following format:

```
var WiBoxSensor=2;  
var WiBoxValues ="15.7|15.5|14.9|14.5|14.6|14.6";  
var WiBoxMinValue="14.5";  
var WiBoxMaxValue="15.7";  
var WiBoxMinTime="01.05.2009 10:20:00";//UTC  
var WiBoxMaxTime="01.05.2009 10:35:00";  
  
var WiBoxTimeStr="01.05.2009 10:35:00|01.05.2009 10:30:00|01.05.2009  
10:25:00|01.05.2009 10:20:00|01.05.2009 10:15:00|\"
```

```
01.05.2009 10:10:00";  
var WiBoxStatusStr="111111";  
var WiBoxStartDate="0905011007";//UTC  
var WiBoxEndDate  ="0905011035";  
var WiBoxStart=0; // index of last stored value  
var WiBoxEnd=6;
```

For splitting the delivered values WiBoxValue and WiBoxTimeStr you can easily use the split-function:

```
var TimesString = WiBoxTimeStr.split("|");
```

Please have a look at our standard Web Pages. You will learn a lot of tricks, which you can use for you own web Pages on our Eusotec Server.

5 XML Format for your own Applications

The abbreviation XML stands for “Extensible Markup Language” and means a language for the communication of structured text data.

You will find some tools on our web page www.eusotec.de which use the XML interface.

EusoScan : Filling Excel sheets with actual data

EusoLog: Reading the data logger into an Excel Sheet.

If you want to create your own application, you can use the following XML interface of the Eusotec Server.

The command has the following format:

<Cmd>1|Start Time|End Time|Step|Number of Parameters n|Par_1|Par_2|..|Par_n</Cmd>

Please pay attention that no blanks are between the parameters.

<Cmd>1 : The “1” is used for data request. In next versions maybe we will have other numbers for controlling the server or connected device.

Start Time: Start date and time of the requested time window.

End Time: End date and time of the requested time window

Format: YYMMDDhhmm

YY: last two digits for the year

MM: Month

DD: Day

hh: Hour

mm: Minute

All dates and times are entered with UTC time. The calling application needs to consider the actual daylight saving time.

If you want to get **actual values** you could use “0000000000” for start and end date and time.

Step:

Here you can use the same steps like mentioned in the previous chapter. If you want to get all values please use “1”.

Number of Parameters:

Here the number of requested parameters must be entered. For the Voltcraft K204 the maximum number is 4.

Parameter:

Enter the number of requested parameter (sensor) separated with a “|” character.

For example if you want to get the third sensor please enter a “3”.

</Cmd>:

Every command must be finished with this keyword.

Example:

Calling all values of sensors 1-4 (Eusotec Server for Voltcraft K204) for the time window 9.4.2009 8:39 to 9.4.2009 8:50 (summer time in Berlin).

<Cmd>1|0904090639|0904090650|1|4|1|2|3|4</Cmd>

You will get the following answer:

```
<?xml version='1.0' encoding='iso-8859-1'?>
<Response>
  <Prot>1</Prot>
  <Dev>Voltcraft K204</Dev>
  <Cmd>1</Cmd>
  <Start>0904090639</Start>
  <End>0904090650</End>
  <IntervalStep>1</IntervalStep>
  <Parameters>
    <Par No='1'>
      <Values>0904090650|8.9|1|0904090645|8.1|1|0904090640|7.6|1|</Values>
      <Min>0904090640|7.6|1</Min><Max>0904090650|8.9|1</Max>
    </Par>
    <Par No='2'>
      <Values>0904090650|22.9|1|0904090645|22.9|1|0904090640|22.8|1|</Values>
      <Min>0904090640|22.8|1</Min>
      <Max>0904090650|22.9|1</Max>
    </Par>
    <Par No='3'>
      <Values>0904090650|20.1|1|0904090645|20.3|1|0904090640|20.0|1|</Values>
      <Min>0904090640|20.0|1</Min>
      <Max>0904090645|20.3|1</Max>
    </Par>
    <Par No='4'>
      <Values>0904090650|21.5|1|0904090645|21.7|1|0904090640|21.6|1|</Values>
      <Min>0904090650|21.5|1</Min>
      <Max>0904090645|21.7|1</Max>
    </Par>
  </Parameters>
</Response>
```

Answer Format:

<?xml version='1.0' encoding='iso-8859-1'?>: Always at the beginning of the answer

<Response>: Keyword of answer

<Prot>1</Prot>: Protocol version 1

<Dev>Voltcraft K204</Dev>: Device name

<Cmd>1</Cmd>: Answer for command 1

<Start>0904090639</Start>: Start date and time of time window (UTC-Time)

<End>0904090650</End>: End date and time of time window (UTC-Time)

<IntervalStep>1</IntervalStep>: Step width

<Parameters>: Id for parameters

<Par No='1'>: Sensor No. 1

<Values>0904090650|8.9|1|0904090645|8.1|1|0904090640|7.6|1|</Values>:

Values with format YYMMDDhhmm (UTC-time) | Measurement value in Grad Celsius | State

The state for the Voltcraft K204 is always 1 for active and 2 for inactive.

<Min>0904090640|7.6|1</Min>: Minimum value of the requested time interval

<Max>0904090650|8.9|1</Max>: Maximum value of the requested time interval

</Par>: End key for sensor 1

Now the values for parameter 2, 3 and 4 are following

</Parameters>: End key for parameters

</Response>: End key of response

6 FTP Transfer and Direct Link Interface

6.1 FTP Transfer

Currently the FTP transfer is implemented for the following devices:

- a.) Devices of the series Davis Vantage (firmware V 2.0 or higher)
- b.) Oregon WMR-928 NX (firmware V 2.0 or higher)
- c.) WENTO-IND (all versions)

The FTP transfer of an Eusotec server stores every 5 minutes all measurement values on a user given FTP server. The transfer could be activated when needed.

The FTP server needs to support the passive mode, which normally is supported by most of current ftp servers.

6.1.1 FTP Transfers Configuration

Behind the alarm boundaries of the configuration file **config.txt** (see chapter 3) the ftp entries are added when needed like the following example:

```
ftp.eusotec.de      ' ftp server
p1234567            ' ftp user
top_secret          ' ftp password
davis.csv           ' ftp filename
```

The string length (until the apostrophe) is max. **100 characters**. The correct reading of the configuration file could be checked when TeraTerm is connected with 9600 Baud to “Serial 2” of the Eusotec Server (Debug Control).

Directories on the FTP side could be used only, when they already exist (e.g. „data/davis.csv“). We recommend using the extension **.csv** for the ftp filename.

With the first start the Eusotec server checks, if the given file name already exist. If not then all data of the internal data logger is transferred. This could take some minutes and should not be interrupted. If something goes wrong, you should delete the incomplete file on the ftp server and try again. In this case with the next 5 minute catch or with a power on cycle the complete transfer starts again.

When the data logger was transferred with success then every 5 minutes a new data set is transmitted. If the DSL or ftp connection is broken, all missing data are transmitted with the next reconnect. This only works, if the Eusotec server was not restarted in the meantime.

All time stamps of the FTP file use UTC time, because the Eusotec server does not know in which country the selected ftp server is located.

Please keep care of the measurement units which are partly depend of the current configuration. The units might be different from the XML values which you will get for example with Eusolog.

Example for an ftp-entry (UTC date; UTC time; Indoor temperature in °C, Humidity in %, etc.)

29.01.2010; 17:35:00;19,0;35;3;989;3;2,4;56;---;7,8;70;3;4,5;---;---;19,4;35;3;220;5,5;3,9;-5;411,9;0;

The last entry is always at the end of the file.

If you are using Microsoft Excel, with a double click on the ftp-file a Excel table will be displayed.

Starting with firmware **version 2.1** also a FTP transfer on a connected **USB memory stick** of the **Fritz Box** is supported.

You have to use the following settings in the file config.txt:

```
192.168.178.1      ' Address of Fritz Box
ftppuser          ' ftp user (always use „ftppuser“)
secret            ' ftp password like defined in the Fritz Box
Kingston-DataTraveler2-0-01/davis.csv ' ftp filename
```

For the ftp filename you have to add the USB memory stick name like showed in the Fritz Box.
Please do not use a “/” at the beginning of the filename.

6.2 Direct Link Interface

Currently the Direct Link is implemented for the following devices:

- a.) Devices of the series Davis Vantage (firmware V 2.2 or higher)
- b.) Oregon WMR-928 NX (firmware V 2.2 or higher)
- c.) WENTO-IND (all versions)

With Direct Link a cyclic http-transfer with configured parameters is done every 5 minutes. The call has the format:

http://destination?parameterlist

With the substitution of the parameter list during runtime the needed values are transmitted to the destination server. There the values could be stored and displayed.

The Direct Link interface should be preferred compared with a FTP transfer, because the login information is transferred direct in one command. Concerning the format and login information you should ask the administrator, who is responsible for the destination server.

6.2.1 Direct Link Configuration

The transfer entries should be placed in the file **/secure/directlink.txt**. The format of each line is:

http://destination?Parameter-list

Every http-address need to start in column 1 (http://). For the parameter list the specific unit variables are available. Example for devices of Davis Vantage: Use %004 for the outside temperature

Restrictions:

- 1.) After the substitution every line should have less than 250 characters.
- 2.) The file length of /secure/directlink.txt should be less than 1 Kbyte.

Example for www.awekas.at with weather station Davis Vantage:

Register your weather station with an user name on www.awekas.at.

Select in the field “**Datenübernahme**” the entry “**Eusotec**”.

After storing and calling again the registration page you will see the needed access code (“Zugriffscode”). Please copy it and use it instead of “access_code” in the following line:

```
http://www.awekas.at/eusotec_aw_input_values.php?val=username;access_code;%087;%088;%004;%023;%001;%036;%006;%007;;;dt;%086;%005;%033;%032;;;%031;Euso_1.11
```

If you are using for example the user name “testuser” and you got the access code „abcdef012345678901234567890123456”, then the file /**secure/directlink.txt** looks like the following line:

```
http://www.awekas.at/eusotec_aw_input_values.php?val=testuser;abcdef012345678901234567890123456;%087;%088;%004;%023;%001;%036;%006;%007;;;dt;%086;%005;%033;%032;;;%031;Euso_1.11
```

Please keeps care for the correct spelling and that you don’t use a carriage return or a line feed for the above line. For every device you will find an example in the delivered file /secure/directlink.txt1.

After transferring the file to the Eusotec Server, the configured http call will be executed every 5 minutes.

Please don’t forget to set a telnet password (Eusotec server: menu 1) that nobody could get your access data.

7 Appendix

7.1 Common Hints for Voltcraft K204

7.1.1 Configuration File secure/config.txt

```

Temperature 1      ' Name of Sensor 1 (max 20 Characters)
Temperature 2      ' Name of Sensor 2
Temperature 3      ' Name of Sensor 3
Temperature 4      ' Name of Sensor 4
Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg 'Location
Eusotec, Ziegelhofstr. 234, 79110 Freiburg ' Subject of email
smtp.lund1.com      ' SMTP email server smtp.lund1.com
alarm@eusotec.de    ' email address "from"
alarmalarm          ' password for SMTP authentication
control@eusotec.de  ' email address "to"
-32000 32000        ' Alarm 1 (always in Celsius * 10)
-32000 32000        ' Alarm 2 (always in Celsius * 10)
-32000 32000        ' Alarm 3 (always in Celsius * 10)
-32000 32000        ' Alarm 4 (always in Celsius * 10)

```

7.1.2 Assignment Table

Parameter	Variable	Quelle
Temperature Sensor 1 (° C)	%001	Voltcraft K204
Temperature Sensor 2 (° C)	%002	Voltcraft K204
Temperature Sensor 3 (° C)	%003	Voltcraft K204
Temperature Sensor 4 (° C)	%004	Voltcraft K204
Date and Time of the last received value	%005	UTC time if the Eusotec Servers when last data was received.
Number of stored entries. With every entry 4 measurement values (sensor 1 - sensor 4) are stored.	%006	Eusotec Server
Storage-Interval in minutes	%007	Eusotec Server (at this time always 5 minutes - not changeable)
Location	%100	secure/config.txt
Name of first sensor	%101	secure/config.txt
Name of second sensor	%102	secure/config.txt
Name of third sensor	%103	secure/config.txt
Name of fourth sensor	%104	secure/config.txt

7.1.3 Auto Start after Power Down

After a power down the Voltcraft K204 does not start automatically the measurement. It needs to be switched on again by pressing the key “Power” and “Hold” at the same time.

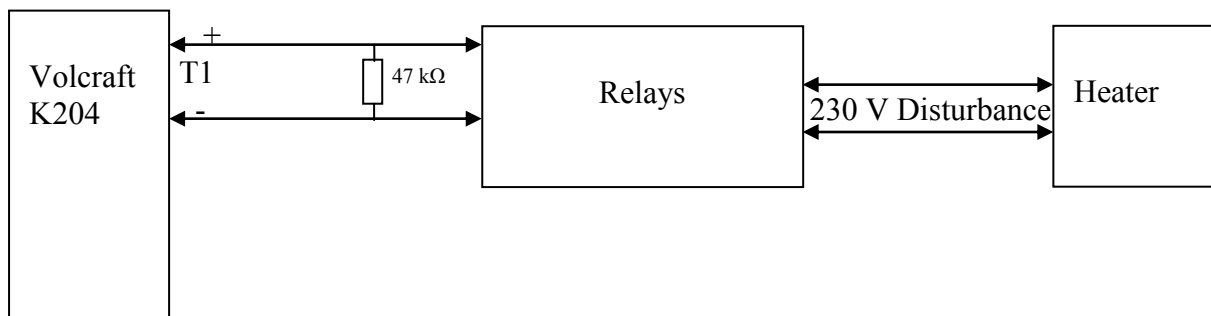
If you want to use the device as remote monitoring system this could be a problem. We have added in our system a soldering point on these keys for solving this problem.

Please keep in mind, that you will lose your warranty if you do any modification and that you do any modification at your own risk. We are not able to guarantee that this modification will work with any Voltcraft version and we will not be responsible for any liability.

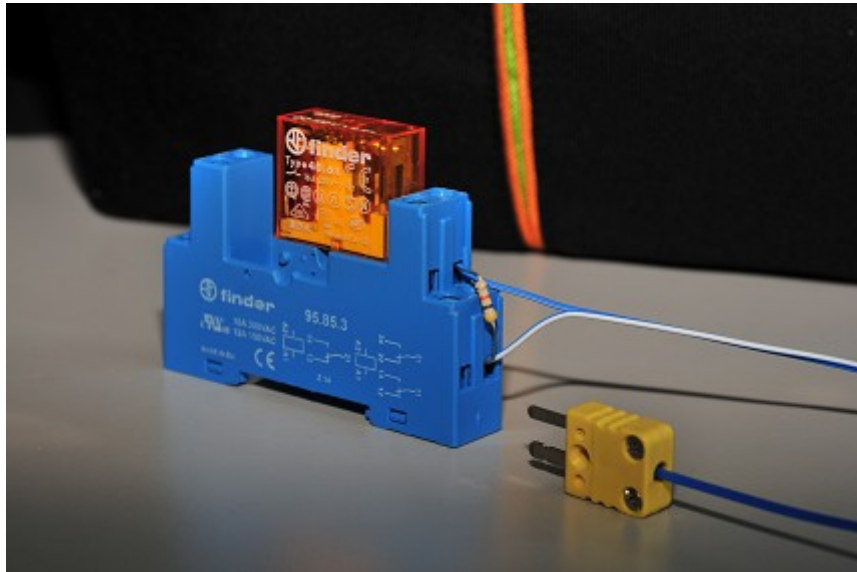
7.1.4 Tip for using digital Inputs

For heaters very often it is necessary to monitor disturbances. With a Voltcraft device it is very simple to realize it.

Very often a 230 Volt signal identifies such a disturbance. This could be connected with a relay, which gives two different temperature values to the Voltcraft device. We recommend the usage of a 47 kOhm resistor like showed in the following picture. Then you will get two values (about 25 °C and 90 °C), which could be displayed with different text on the web pages or could be monitored with alarm boundaries.



The connection of the relays should be done only by an expert.



On the web pages (file: astart.html) the values should be < 55 for disturbances and > 55 when the heater is working correct.

Please have a look at the following change:

```
<script language="JavaScript">
  if ((Number("%004") < 55) && ("%004"!="---"))
    document.write("<td align='right'><font size='7' color='red'>Disturbance</font></td>");
  else
    if ("%004"=="---")
      document.write("<td align='right'><font size='7'>No Sensor</font></td>");
    else
      document.write("<td align='right'><font size='7' color='green'>active</font></td>");
</script>
```

Das Result is shown in the next picture:

Heat	23.0 ° C
Return Temp.	22.9 ° C
Circulation	23.0 ° C
Operation	Disturbance

For an alarm message you should change the file config.txt with a minimum boundary of 550 (=55°C).

7.2 Common Hints for Oregon WMR 928 NX

7.2.1 Configuration File secure/config.txt

```

Indoor           ' Name of Sensor 1  (temp indoor)
Humidity In      ' Name of Sensor 2  (hum indoor)
Dew Point In     ' Name of Sensor 3  (dew indoor)
Pressure         ' Name of Sensor 4  (sea level pressure)
State            ' Name of Sensor 5  (status)
Outdoor          ' Name of Sensor 6  (temp outdoor)
Humidity         ' Name of Sensor 7  (hum outdoor)
Dew Point        ' Name of Sensor 8  (dew outdoor)
Temp 1           ' Name of Sensor 9  (temp 1)
Humidity 1       ' Name of Sensor 10 (hum 1)
Dew Point 1      ' Name of Sensor 11 (dew 1)
Temp 2           ' Name of Sensor 12 (temp 2)
Humidity 2       ' Name of Sensor 13 (hum 2)
Dew Point 2      ' Name of Sensor 14 (dew 2)
Temp 3           ' Name of Sensor 15 (temp 3)
Humidity 3       ' Name of Sensor 16 (hum 3)
Dew Point 3      ' Name of Sensor 17 (dew 3)
Wind Direction   ' Name of Sensor 18 (wind direction)
Gusts            ' Name of Sensor 19 (wind gust)
Wind Average     ' Name of Sensor 20 (wind average)
Chill            ' Name of Sensor 21 (chill)
Rain total       ' Name of Sensor 22 (rain)
Rain/h           ' Name of Sensor 23 (rain/h)
Rain yesterday   ' Name of Sensor 24 (rain yesterday)
Eusotec GmbH, Ziegelhofstr. 234, D-79110 Freiburg 'Location
Oregon Alarm     ' Subject of email
smtp.lund1.com   ' SMTP email server smtp.lund1.com
alarm@eusotec.de ' email address "from"
alarmalarm       ' password for SMTP authentication
alarm1@eusotec.de ' email address "to"
-32000 32000     ' Alarm of sensor 1 (°C * 10) - use -32000 for min and 32000 for max
if not used
-32000 32000     ' Alarm of sensor 2 (%)
-32000 32000     ' Alarm of sensor 3 (°C)
-32000 32000     ' Alarm of sensor 4 (mmHg sea level)
-32000 32000     ' Alarm of sensor 5
-32000 32000     ' Alarm of sensor 6 (°C * 10)
-32000 32000     ' Alarm of sensor 7 (%)
-32000 32000     ' Alarm of sensor 8 (°C)
-32000 32000     ' Alarm of sensor 9 (°C * 10)
-32000 32000     ' Alarm of sensor 10 (%)
-32000 32000     ' Alarm of sensor 11 (°C)
-32000 32000     ' Alarm of sensor 12 (°C * 10)
-32000 32000     ' Alarm of sensor 13 (%)
-32000 32000     ' Alarm of sensor 14 (°C)
-32000 32000     ' Alarm of sensor 15 (°C * 10)
-32000 32000     ' Alarm of sensor 16 (%)
-32000 32000     ' Alarm of sensor 17 (°C)
-32000 32000     ' Alarm of sensor 18 (degrees)
-32000 32000     ' Alarm of sensor 19 (m/s * 10)
-32000 32000     ' Alarm of sensor 20 (m/s * 10)
-32000 32000     ' Alarm of sensor 21 (°C)
-32000 32000     ' Alarm of sensor 22 (mm * 10)
-32000 32000     ' Alarm of sensor 23 (mm/h)
-32000 32000     ' Alarm of sensor 24 (mm)

```

7.2.2 Assignment Table

Parameter	Variable	Source
Temperature Indoor (° C)	%001	Oregon WMR 928 NX - Sensor ExtBTH
Humidity Indoor (%)	%002	Oregon WMR 928 NX - Sensor ExtBTH
Dew Point Indoor (° C)	%003	Oregon WMR 928 NX - Sensor ExtBTH
barometric pressure (mb - Sea Level)	%004	Oregon WMR 928 NX - Sensor ExtBTH
Status: 12 = sunny 6 = partly cloudy 2 = cloudy 3 = rain (No trend available in standard web pages)	%005	Oregon WMR 928 NX - Sensor ExtBTH
Temperature Outdoor(° C)	%006	Oregon WMR 928 NX - Sensor Mushroom
Humidity Outdoor	%007	Oregon WMR 928 NX - Sensor Mushroom
Dew point outdoor (° C)	%008	Oregon WMR 928 NX - Sensor Mushroom
Temperature 1 (° C)	%009	Oregon WMR 928 NX - Sensor Channel 1
Humidity 1 (%)	%010	Oregon WMR 928 NX - Sensor Channel 1
Dew Point 1 (° C)	%011	Oregon WMR 928 NX - Sensor Channel 1
Temperature 2 (° C)	%012	Oregon WMR 928 NX - Sensor Channel 2
Humidity 2 (%)	%013	Oregon WMR 928 NX - Sensor Channel 2
Dew Point 2 (° C)	%014	Oregon WMR 928 NX - Sensor Channel 2
Temperature 3 (° C)	%015	Oregon WMR 928 NX - Sensor Channel 3
Humidity 3 (%)	%016	Oregon WMR 928 NX - Sensor Channel 3
Dew Point 3 (° C)	%017	Oregon WMR 928 NX - Sensor Channel 3
Wind Direction(°)	%018	Oregon WMR 928 NX - Sensor Wind
Wind Gusts (m/s) Here we are storing always the maximum of all values during the last 5 minutes	%019	Oregon WMR 928 NX - Sensor Wind
Windspeed Average (m/s)	%020	Oregon WMR 928 NX - Sensor Wind
Chill Temperature (° C)	%021	Oregon WMR 928 NX - Sensor Wind
Rain total(mm)	%022	Oregon WMR 928 NX - Sensor Rain
Rain / hour (mm/h)	%023	Oregon WMR 928 NX - Sensor Rain
Rain yesterday (mm) No trend available in standard web pages - could be calculated by trend of rain total)	%024	Oregon WMR 928 NX - Sensor Rain
Parameters without trend		
Wind Gusts (km/h)	%043	parameter %019 calculated in km/h
Windspeed Average (km/h)	%044	parameter %020 calculated in km/h
Rain total of current day since 0:00 UTC (mm)	%045	only available if an entry at 0:00 UTC of current day is stored in datalogger (firmware V2.2 or higher)
Trend Barometer wie %050, jedoch mit anderen Werten	%046	0: gleichbleibend 1: leicht steigend

		2: stark steigend -2: stark fallend -1: langsam fallend sonst: kein Wert (firmware V2.2 or higher)
Date of last received	%047	Format: dd.mm.yyyy (firmware V2.2 or higher)
Time of last received	%048	Format: hh:mm (firmware V2.2 or higher)
Time of last received	%049	Format: hh:mm:ss (firmware V2.2 or higher)
Date and Time of last received	%050	UTC time of Eusotec Server when last data was received Format: dd.mm.yyyy hh:mm:ss
Number of stored entries (with every entry all available values are stored)	%051	Eusotec Server
Storage Interval in minutes	%052	Eusotec Server (at this time always 5 minutes - not changeable)
Location	%100	secure/config.txt
Name of 1. Sensor	%101	secure/config.txt
Name of 2. Sensor	%102	secure/config.txt
Name of 3. Sensor	%103	secure/config.txt
Name of 4. Sensor	%104	secure/config.txt
Name of 5. Sensor	%105	secure/config.txt
Name of 6. Sensor	%106	secure/config.txt
Name of 7. Sensor	%107	secure/config.txt
Name of 8. Sensor	%108	secure/config.txt
Name of 9. Sensor	%109	secure/config.txt
Name of 10. Sensor	%110	secure/config.txt
Name of 11. Sensor	%111	secure/config.txt
Name of 12. Sensor	%112	secure/config.txt
Name of 13. Sensor	%113	secure/config.txt
Name of 14. Sensor	%114	secure/config.txt
Name of 15. Sensor	%115	secure/config.txt
Name of 16. Sensor	%116	secure/config.txt
Name of 17. Sensor	%117	secure/config.txt
Name of 18. Sensor	%118	secure/config.txt
Name of 19. Sensor	%119	secure/config.txt
Name of 20. Sensor	%120	secure/config.txt
Name of 21. Sensor	%121	secure/config.txt
Name of 22. Sensor	%122	secure/config.txt
Name of 23. Sensor	%123	secure/config.txt
Name of 24. Sensor	%124	secure/config.txt

7.3 Common Hints for M-BUS Systems



The Eusotec Server is operating with the corresponding control software and the voltage level converter with 3, 20 or 60 M-BUS devices. Most of the DIN EN 1434-3, EN 13757, EN 61107 and EN 62056-21 regulations and advanced proposals are implemented.

Please pay attention that all devices need to be configured sending their data in the **variable data format with the normal operating mode**.

The Eusotec Server is used for data monitoring and not for any configuration.

Configuration:

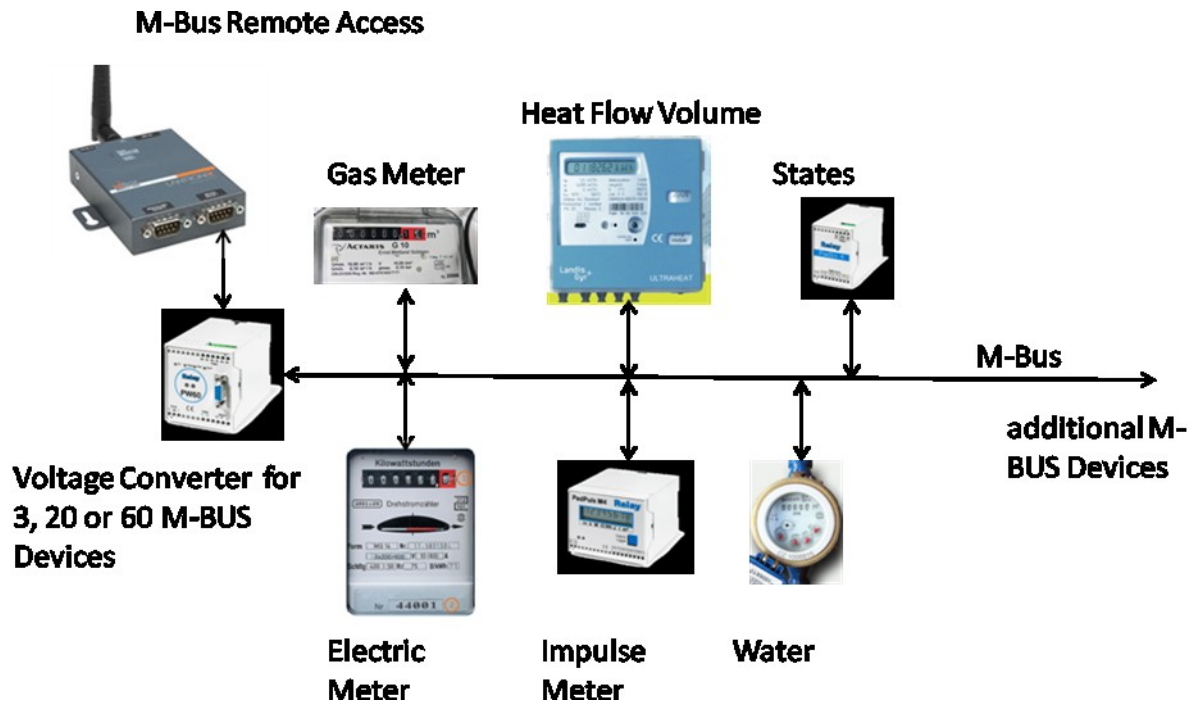
Baud rate: All devices should operate with the same baud rate. We recommend using **2400 Baud for all connected M-BUS devices**.. Operation with 300 Baud is also possible.

Hardware-Addresses:

For using up to 3 M-BUS devices, the hardware addresses 0,1 and 2 should be used.

For using up to 20 M-BUS devices, the hardware addresses 0 to 19 should be used.

For using up to 60 M-BUS devices, the hardware addresses 0 to 59 should be used.



Beside the remote access via WebPages the data could be also requested by XML commands. The XML protocol is the same like described in previous chapters.

Also up to 30 parameters are configurable by the user, which are monitored by alarm boundaries (alarm via email, SMS or Fax - precondition: no change in data format during operation time, only supported for integer values up to 4 bytes) and stored in the flash memory (every 5 minutes up to 18 days).

7.3.1 EusoScan - Automatic Filling of User defined Excel-Sheets

With the standard XML interface and the application **EusoScan** user defined Excel sheets could be filled with actual values. The application EusoScan is also available as service and could be started automatically by the windows task scheduler periodically at a given date and time.

Example of an user defined Excel sheet:

Server	Port	Name	Value	Unit	Name	Value	Unit
eusotec.dyndns.org	10001	Secondary Address	%S1003	%S1004	State	%S1006	%S1007
eusotec.dyndns.org	10001	Update Time	%1012	%S1013	Heating	%1015	%S1016
eusotec.dyndns.org	10001	Power	%1021	%S1022	Flow Volume	%1024	%S1025
eusotec.dyndns.org	10001	Return Temperature	%1030	%S1031	Temperature Diff.	%1033	%S1034
eusotec.dyndns.org	10001	Heating last year	%1039	%S1040	Fabrication number	%1042	%S1043

The first two columns are reserved for the Internet address of the Eusotec Server and his XML communication port. 10001 is used as standard port. For the internet address our example uses eusotec.dyndns.org. If you are getting the data from a local network you also can use the IP address (like 192.168.178.94).

Usage of variables:

- %S<No> : String of parameter <No>, e.g. %S1003 means the third M-BUS parameter located at hardware address 0 ((Number / 1000) - 1000)
- %<No>: Value of Parameter <No>. The delivered decimal point is converted to the local settings (might replace the decimal point with a comma)
Example: %1012 (=> 3.14 => 3,14 on a German PC)
- %t<nr>: Time of parameter <No> when it was read from the Eusotec Server (actual Eusotec Server UTC time converted to local time)

After the execution of EusoScan we will the get the following result:

Server	Port	Name	Value	Unit	Name	Value	Unit
eusotec.dyndns.org	10001	Secondary Address	64036641		State	#2 Info=0x00	
eusotec.dyndns.org	10001	Update Time	4	seconds	Heating	1258,876	kWh
eusotec.dyndns.org	10001	Power	1027	kW	Flow Volume	1,205	m³/h
eusotec.dyndns.org	10001	Return Temperature	67,3	°C	Temperature Diff.	7,3	K
eusotec.dyndns.org	10001	Heating last year	5684,5	kWh	Fabrication number	1557565	

7.3.2 Configuration File secure/config.txt

```
Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg 'Location
Eusotec, Ziegelhofstr. 234, 79110 Freiburg ' Subject of email
smtp.lundl.com ' SMTP email server smtp.lundl.com
alarm@eusotec.de' email address "from"
alarmalarm ' password for SMTP authentication
sms@eusotec.de ' email address "to"
1027 45 220 ' Alarm 1 - Par No, Min, Max
1030 45 220
2009 -2147483648 214783647 'Water
3009 -2147483648 214783647 'Gas Energy
```

The monitoring parameters are described below the field “email address to”.

Parameter number <Blank> Lower Limit <Blank>Upper Limit<Blank>optional comment starting with an apostrophe

It is not allowed to use a decimal point (or comma) for the limits. If the M-BUS value for example has two digits behind the decimal point then the value limit need to be multiplied with 100.

Example: Limit should be 40 °C, the value comes with two digits behind the decimal point
=> Limit should be set to 4000

An important condition for monitoring values is a constant data format coming from the M-BUS device. If for example a temperature sometimes comes with one digit behind the decimal point and sometimes with two digits behind the decimal point, then no alarm message is generated. (M-BUS DIF and VIF fields must be constant).

If a parameter should not be monitored please use for the minimum limit -2147483648 and 214783647 for the maximum limit. A parameter which should not generate any alarm message but logged in a trend should be defined with these values.

In our upper example the following parameters are monitored:

Parameter 27 at Hardware Address 0: Minimum limit: 45°C, upper limit: 220 °C

Parameter 30 at Hardware Address 0: Minimum limit: 45°C, upper limit: 220 °C

Parameter 9 at Hardware Address 1: no alarms, only stored in data logger

Parameter 9 at Hardware Address 2: no alarms, only stored in data logger

It is possible to monitor / store up to 30 parameters.

IMPORTANT!

If the configuration was changed (in file config.txt), the complete trend memory need to be erased. This could be done with menu 4 of the Eusotec Server (“Erase all recorded data“). Don’t forget to restart the Eusotec Server (menu 9 - Save and Exit or power cycle) for reading the new configuration file again.

7.3.3 Changing Web Pages for the Data Logger

File **astart2.html** needs to be adapted for showing trend information of stored parameters.

For our example we have to add the following lines:

```
var Datalogger = new Array(  
    1027,  
    1030,  
    2009,  
    3009,  
    0    // last entry=0 is needed when only one parameter is listed  
);
```

You also have the possibility to rename the standard labels of special parameters. Example: Instead of “Power, Storage No. 1” you want display “Power - last year”. Also it might make sense to use your local language.

The replacement is also defined in file **atart2.html** in field “ParNames”. After entering the unique device name (here “Heat: LUG 2”) all the labels for the delivered parameters are entered. Please keep care for special HTML code when you use special characters.

```
var ParNames = new Array(  
    "Heat: LUG 2", // Heat meter 2WR5 of Landis & Gyr  
    "Secondary Address",  
    "State",  
    "Update Time 1",  
    "Update Time 2",  
    "Heating",  
    "Volume Flow",  
    "Power",  
    "Flow Volume",  
    "Temperature",  
    "Return Temperature",  
    "Temperature Diff.",  
    ...  
);
```

7.3.4 Assignment Table

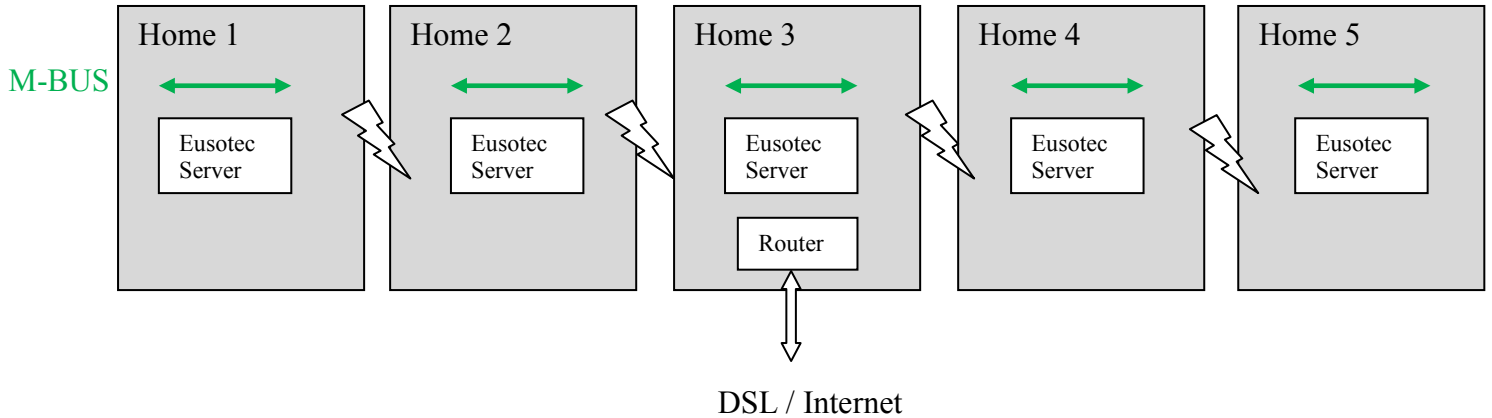
Parameter	Variable	Quelle
M-BUS device name at hardware address #0	%001	M-BUS
M-BUS device name at hardware address #1	%002	M-BUS
...
M-BUS device name at hardware address #59	%060	M-BUS
1. Parameter at M-BUS hardware address #0	%1000	Parameter label of 1. measurement value at hardware address #0
2. Parameter at M-BUS hardware address #0	%1001	Value of 1. measurement value at hardware address #0
3. Parameter at M-BUS hardware address #0	%1002	Unit of 1. measurement value at hardware address #0
....
1. Parameter at M-BUS hardware address #1	%2000	Parameter label of 1. measurement value at hardware address #1
2. Parameter at M-BUS hardware address #1	%2001	Value of 1. measurement value at hardware address #1
3. Parameter at M-BUS hardware address #1	%2002	Unit of 1. measurement value at hardware address #1
...
1. Parameter at M-BUS hardware address #59	%60000	Parameter label of 1. measurement value at hardware address #59
2. Parameter at M-BUS hardware address #59	%60001	Value of 1. measurement value at hardware address #59
3. Parameter at M-BUS hardware address #59	%60002	Unit of 1. measurement value at hardware address #59
Date and time of the last received value	%950	Eusotec Server UTC time Format: dd.mm.yyyy hh:mm:ss
Number of stored entries in flash memory	%951	Eusotec Server
Storage interval in minutes	%952	Eusotec Server (at this time always 5 minutes - not changeable)

Notes:

- 1.) The “secondary address” starts normally with parameter 1003 at hardware address #0, 2003 at hardware address #1, etc.
- 2.) Every M-BUS device needs its own hardware address. Two devices at the same hardware address and different secondary address are not supported.

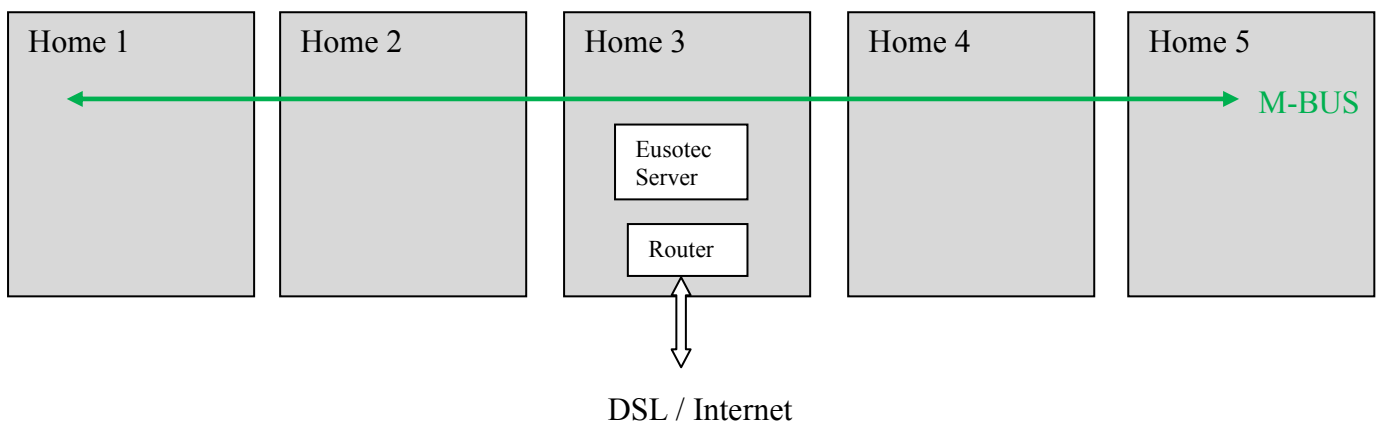
7.3.5 M-BUS: Typical Applications

7.3.5.1 Terrace House with one DSL Connection and WLAN



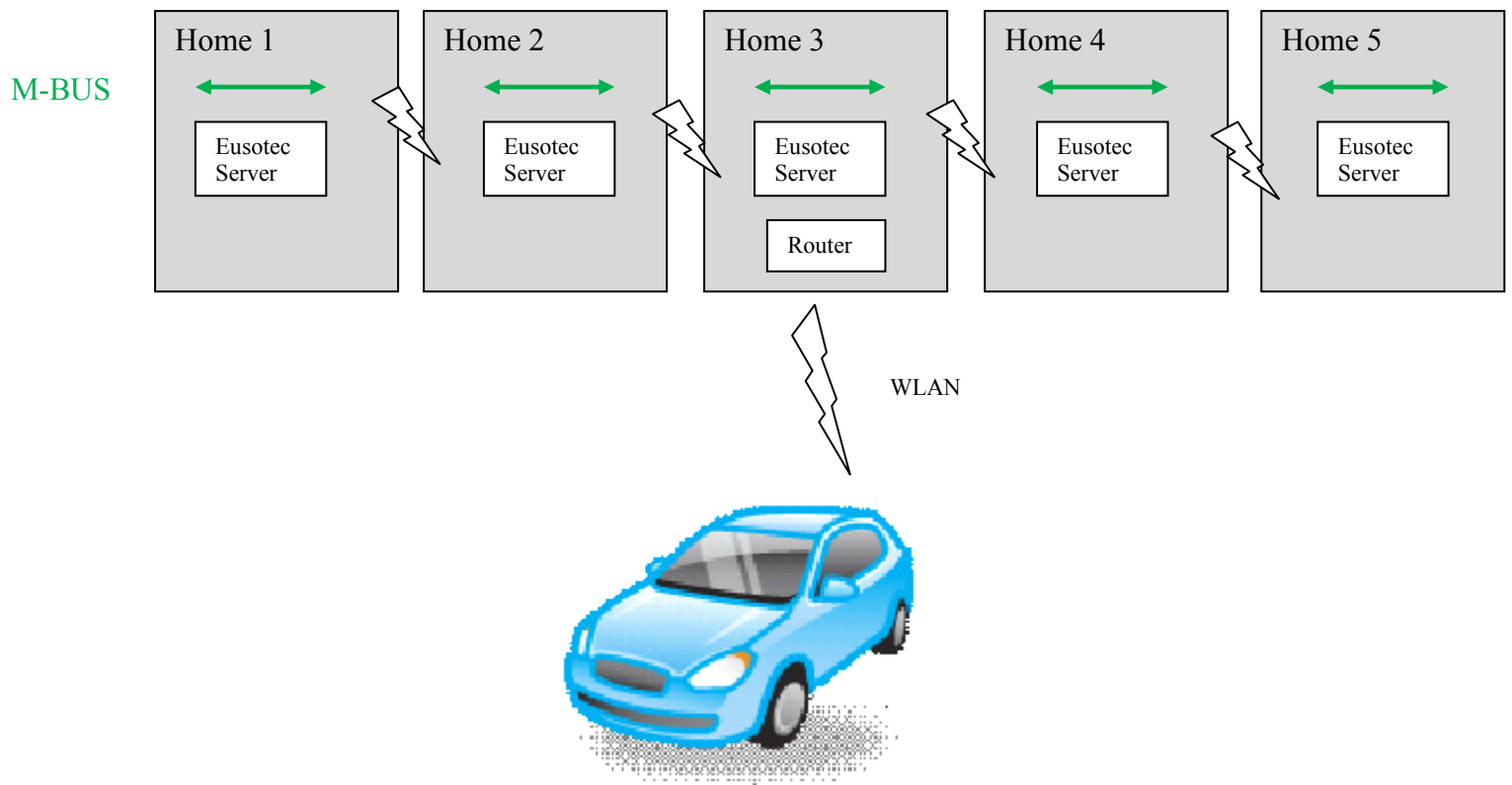
- Communication between houses wireless via WLAN
- **Only one DSL connection required**
- With the usage of repeater, WLAN bridges and Access Points the WLAN range could be expanded.
- Every home has its own M-BUS
- Remote values and alarms worldwide available

7.3.5.2 Terrace House with one DSL Connection and one Eusotec Server



- Communication between houses with a wired M-BUS
- **Only one DSL connection required, only one Eusotec Server required**
- Remote values and alarms worldwide available

7.3.5.3 Terrace House without DSL Connection



- Communication between houses wireless via WLAN
- **No DSL connection** required. Data access could be done inside WLAN areas, e.g. from a notebook inside a car.
- With the usage of repeater, WLAN bridges and Access Points the WLAN range could be expanded.
- The Eusotec Server time is fetched from the first M-BUS device with a Time Point field
- DSL connection could be installed later if needed - No more hardware required.

7.4 Common Hints for Davis Vantage Weather Stations

Please keep care, that the configured alarm boundaries of the Eusotec Server are working independent of local alarms settings of the basic station. For an automatically generated alarm email only the given boundaries of config.txt are responsible.

The default baud rate of the Davis station should be unchanged at 19200 baud.

The Eusotec control software for Davis Weather Stations has some additional features:

1.) Dynamic HTML pages according to connected Sensors

Depending on the connected sensors with the delivered standard web pages you will see a different number of measurement values.

The additional sensors are grouped as follow:

Temperature 1 - 7

Humidity1- 7

Soil Temperature 1- 4

Leaf Temperature 1- 4

Soil Moisture 1- 4

Leaf Wetness 1 - 3 (Leaf Wetness 4 is also available, but at the moment it is not displayed because a not connected sensor delivers always a value 0.

Evapotranspiration/day, Evapotranspiration/month, Evapotranspiration/year

If at least one sensor of the above groups is active then the complete group is displayed.

2.) Configuration String

In the configuration file (see next chapter) you will find at the beginning a configuration string "0000110" with the following meaning:

1. Char: Temperatures

0 = If conversion is enabled the temperatures are converted into °Celsius.

1 = Temperatures remain unchanged in ° Fahrenheit

2. Char: Rain

0 = If conversion is enabled rain values are converted into mm

1 = Rain values remain unchanged in inches.

3. Char: Pressure

0 = If conversion is enabled pressure values are converted into hPa

1 = Pressure values remain unchanged in inches Hg.

4. Char: Wind Speed

0 = If conversion is enabled wind speeds are converted into km/h

1 = Wind speed values remain unchanged in mph

5. Char: XML-Conversion enable / disable
 - 0 = No conversion for XML data
 - 1 = Conversion of XML data like mentioned in 1-4
6. Char: Alarm - Emails:
 - 0 = No measurement value conversion in alarm emails
 - 1 = Conversion measurement values in alarm emails like mentioned in 1-4
7. Char: HTML (Web-) Conversion enable / disable
 - 0 = No conversion for HTML tags. ATTENTION: This setting is used for the standard web pages to get better results for converted values.
- 8.-20. Chars: Free for using in your web pages, usage with %100 in HTML.

7.4.1 Configuration File secure/config.txt

Please keep care that the measurement values are delivered with one or with two bytes. For two byte values you have to use the values -32768 and 32767, for one byte value you have to use 255 when boundaries should not be supervised. Please use only integer values and no numbers with decimal point. Do not delete any line. Do not forget to restart the Eusotec Server after any modification (for example via telnet) and please control every alarm after every configuration change.

```

0000110      ' 0 config string like explained above
Pressure      ' 1 Baro
Indoor        ' 2 Temp. inside
Humidity In   ' 3 Humidity indoor
Outdoor       ' 4 Temp. outside
Wind Speed    ' 5 Wind speed
Wind Average  ' 6 Wind average
Wind Dir      ' 7 Wind direction
Temp1         ' 8 Temp 1
Temp2         ' 9 Temp 2
Temp3         ' 10 Temp 3
Temp4         ' 11 Temp 4
Temp5         ' 12 Temp 5
Temp6         ' 13 Temp 6
Temp7         ' 14 Temp 7
SoilTmp1      ' 15 Soil 1
SoilTmp2      ' 16 Soil 2
SoilTmp3      ' 17 Soil 3
SoilTmp4      ' 18 Soil 4
LeafTmp1      ' 19 Leaf 1
LeafTmp2      ' 20 Leaf 2
LeafTmp3      ' 21 Leaf 3
LeafTmp4      ' 22 Leaf 4
Humidity Out  ' 23 Humidity outdoor
Humidity1     ' 24 Humidity 1
Humidity2     ' 25 Humidity 2
Humidity3     ' 26 Humidity 3
Humidity4     ' 27 Humidity 4
Humidity5     ' 28 Humidity 5
Humidity6     ' 29 Humidity 6
Humidity7     ' 30 Humidity 7
Rain/h        ' 31 Rain per hour
UV Index      ' 32 UV Index
Sun Radiation ' 33 Solar Radiation
Storm Rain    ' 34 Storm Rain
since:        ' 35 Date of current storm rain, Bit 15-12:month, 11-7:day, 6-0:year-2000
Rain/Day      ' 36 Rain / Day
Rain/Month    ' 37 Rain / Month
Rain/Year     ' 38 Rain / Year

```

```

ET/Day          ' 39 Evapotranspiration/day
ET/Month        ' 40 Evapotranspiration/month
ET/Year         ' 41 Evapotranspiration/year
Soil Moistures1 ' 42 Soil Moisture 1
Soil Moistures2 ' 43 Soil Moisture 2
Soil Moistures3 ' 44 Soil Moisture 3
Soil Moistures4 ' 45 Soil Moisture 4
Leaf Wetness1   ' 46 Leaf Wetness 1 (0=very dry - 15=very wet)
Leaf Wetness2   ' 47 Leaf Wetness 2 (0=very dry - 15=very wet)
Leaf Wetness3   ' 48 Leaf Wetness 3 (0=very dry - 15=very wet)
Leaf Wetness4   ' 49 Leaf Wetness 4 (0=very dry - 15=very wet)
Trend           ' 50 Baro Trend (only Rev B)
Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg 'Location
Davis Alarm     ' Subject of email (for alarm emails)
smtp.lund1.com  ' SMTP email server smtp.lund1.com
alarm@eusotec.de ' email address "from"
alarmalarm      ' password for SMTP authentication
alarm1@eusotec.de ' email address "to" (please change it)
-32768 32767    ' 0 For future use! Don't change it
-32768 32767    ' 1 Baro in inches Hg*1000 Calculate: round(hPa*1000/0.254/133.322)
-32768 32767    ' 2 Temp. inside in F*10 Calculate: round(((Celsius*9/5)+ 32)*10)
255 255         ' 3 Humidity indoor in %
-32768 32767    ' 4 Temp. outside in F*10
255 255         ' 5 Wind speed in mph Calculate: round((kmPerHour)/1.609344)
255 255         ' 6 Wind avarage in mph
-32768 32767    ' 7 Wind direction in degrees
255 255         ' 8 Temp 1 in F+90 0:-90°F Calculate: round(((Celsius*9/5)+ 32 + 90))
255 255         ' 9 Temp 2 in F+90
255 255         ' 10 Temp 3 in F+90
255 255         ' 11 Temp 4 in F+90
255 255         ' 12 Temp 5 in F+90
255 255         ' 13 Temp 6 in F+90
255 255         ' 14 Temp 7 in F+90
255 255         ' 15 Soil 1 in F+90
255 255         ' 16 Soil 2 in F+90
255 255         ' 17 Soil 3 in F+90
255 255         ' 18 Soil 4 in F+90
255 255         ' 19 Leaf 1 in F+90
255 255         ' 20 Leaf 2 in F+90
255 255         ' 21 Leaf 3 in F+90
255 255         ' 22 Leaf 4 in F+90
255 255         ' 23 Humidity outdoor
255 255         ' 24 Humidity 1 in %
255 255         ' 25 Humidity 2
255 255         ' 26 Humidity 3
255 255         ' 27 Humidity 4
255 255         ' 28 Humidity 5
255 255         ' 29 Humidity 6
255 255         ' 30 Humidity 7
-32767 32767    ' 31 Rain per hour in inches * 100 Calculate: round((mm / 0.254))
255 255         ' 32 UV Index
-32767 32767    ' 33 Solar Radiation W/m2
-32768 32767    ' 34 Storm Rain in mm * 10
-32768 32767    ' 35 Date of current storm rain, NOT USEABLE, do not delete this line!
-32768 32767    ' 36 Rain / Day in mm * 10
-32768 32767    ' 37 Rain / Month in mm * 10
-32768 32767    ' 38 Rain / Year in mm * 10
-32768 32767    ' 39 Evapotranspiration/day in mm * 10
-32768 32767    ' 40 Evapotranspiration/month in mm * 10
-32768 32767    ' 41 Evapotranspiration/year in mm * 10
255 255         ' 42 Soil Moisture 1 in centibar
255 255         ' 43 Soil Moisture 2 in centibar
255 255         ' 44 Soil Moisture 3 in centibar
255 255         ' 45 Soil Moisture 4 in centibar
255 255         ' 46 Leaf Wetness 1 (0=very dry - 15=very wet)
255 255         ' 47 Leaf Wetness 2 (0=very dry - 15=very wet)
255 255         ' 48 Leaf Wetness 3 (0=very dry - 15=very wet)
255 255         ' 49 Leaf Wetness 4 (0=very dry - 15=very wet)
255 255         ' 50 Trend, Bit No: 0=rain, 1=cloud, 2=partly cloudy, 3=sun, 4=snow

```

7.4.2 Assignment Table

Parameter	Variable	Original-Unit or converted Unit
Air Pressure	%001	inch Hg <=> hPa
Temperature Indoor	%002	°F <=> °C
Humidity Indoor (%)	%003	%
Temperature outdoor	%004	°F <=> °C
Wind Here we are storing always the maximum of all values during the last 5 minutes	%005	mph <=> km/h
Wind Average	%006	mph <=> km/h
Wind Direction	%007	°
Temperature 1	%008	°F <=> °C
Temperature 2	%009	°F <=> °C
Temperature 3	%010	°F <=> °C
Temperature 4	%011	°F <=> °C
Temperature 5	%012	°F <=> °C
Temperature 6	%013	°F <=> °C
Temperature 7	%014	°F <=> °C
Soil Temperature 1	%015	°F <=> °C
Soil Temperature 2	%016	°F <=> °C
Soil Temperature 3	%017	°F <=> °C
Soil Temperature 4	%018	°F <=> °C
Leaf Temperature 1	%019	°F <=> °C
Leaf Temperature 2	%020	°F <=> °C
Leaf Temperature 3	%021	°F <=> °C
Leaf Temperature 4	%022	°F <=> °C
Humidity outdoor	%023	%
Humidity 1	%024	%
Humidity 2	%025	%
Humidity 3	%026	%
Humidity 4	%027	%
Humidity 5	%028	%
Humidity 6	%029	%
Humidity 7	%030	%
Rain Rate	%031	inch/h <=> mm/h
UV Index	%032	no Unit
Sun Radiation	%033	W/m ²
Storm Rain	%034	inch <=> mm
Date of last Storm Rain	%035	Bit 15-12: Month Bit 11-7: Day Bit 6-0: Year - 2000
Rain/Tag	%036	inch <=> mm
Rain/Month	%037	inch <=> mm
Rain/Year	%038	inch <=> mm
Evapotranspiration / Day	%039	inch <=> mm
Evapotranspiration / Month	%040	inch <=> mm

Evapotranspiration / Year	%041	inch <=> mm
Soil Moisture 1	%042	%
Soil Moisture 2	%043	%
Soil Moisture 3	%044	%
Soil Moisture 4	%045	%
Leaf Wetness 1	%046	0 (= very dry) to 15 (= very wet)
Leaf Wetness 2	%047	0 (= very dry) to 15 (= very wet)
Leaf Wetness 3	%048	0 (= very dry) to 15 (= very wet)
Leaf Wetness 4	%049	0 (= very dry) to 15 (= very wet)
Trend (no available in all Davis systems - Protocol Rev. B required)	%050	0: constant 20: rising slowly 60: rising rapidly 196: falling rapidly 236: falling slowly otherwise: no value
The following values are only available with current values (no trend)		Please have a look to Davis documentation
local Alarm Indoor	%051	Vantage Alarm
local Alarm Rain	%052	Vantage Alarm
local Alarm Outdoor 1	%053	Vantage Alarm
local Alarm Outdoor 2	%054	Vantage Alarm
local Alarm Temperature / Humidity outdoor	%055	Vantage Alarm
local Alarm Temperature / Humidity 1	%056	Vantage Alarm
local Alarm Temperature / Humidity 2	%057	Vantage Alarm
local Alarm Temperature / Humidity 3	%058	Vantage Alarm
local Alarm Temperature / Humidity 4	%059	Vantage Alarm
local Alarm Temperature / Humidity 5	%060	Vantage Alarm
local Alarm Temperature / Humidity 6	%061	Vantage Alarm
local Alarm Temperature / Humidity 7	%062	Vantage Alarm
local Alarm Soil- / Leaf-Temperature 1	%063	Vantage Alarm
local Alarm Soil- / Leaf-Temperature 1	%064	Vantage Alarm
local Alarm Soil- / Leaf-Temperature 1	%065	Vantage Alarm
local Alarm Soil- / Leaf-Temperature 1	%066	Vantage Alarm
Transponder Battery Status	%067	
Console Battery Status	%068	Volt = ((Data*300)/512)/100.0
Forecast	%069	Bit 0: Rain Bit 1: Clouds Bit 2: Partly cloudy Bit 3: Sun Bit 4: Snow
Forecast Rule Number	%070	Davis Forecast Number
Sunrise	%071	Hours * 100 + Minutes
Sunset	%072	Hours * 100 + Minutes
Trend Barometer wie %050, jedoch mit anderen Werten	%086	0: gleichbleibend 1: leicht steigend 2: stark steigend -2: stark fallend -1: langsam fallend sonst: kein Wert

		(firmware V2.2 or higher)
Date of last received	%087	Format: dd.mm.yyyy (firmware V2.2 or higher)
Time of last received	%088	Format: hh:mm (firmware V2.2 or higher)
Time of last received	%089	Format: hh:mm:ss (firmware V2.2 or higher)
Date and Time of last received	%090	UTC time of Eusotec Server when last data was received Format: dd.mm.yyyy hh:mm:ss
Number of stored entries (with every entry all available values are stored)	%091	Eusotec Server
Storage Interval in minutes	%092	Eusotec Server (at this time always 5 minutes - not changeable)
Configuration String	%100	secure/config.txt (max. 20 Chars)
Name of Sensor 1 to 50	%101- %150	secure/config.txt (max. 20 Chars)
Location	%200	secure/config.txt (max. 200 Chars)

7.5 Common Hints for WENTO-IND

If no adequate cable was delivered with the WENTO sensor, first the default Lambrecht cable need to be connected to a 9-pin DSUB female connector.

Pin 2 of the female connector need to be connected with the orange (4) WENTO cable.

Pin 8 of the female connector need to be connected with the red (4) WENTO cable.

The 9-pin female connector is connected to “RS232/RS485 **Serial 2**” of the Eusotec Server. Debugging output is provided on “RS232 Serial 1”.

The internal data rate of the WENTO is done every second. If you click on the “Update” button inside your browser, you will get every second new values.

7.5.1 Configuration File secure/config.txt

```

21          ' 0 config string (see table in next chapter)
Temperature ' 1 Temp. outside
Humidity     ' 2 Humidity outdoor
Dew Point    ' 3 Dew Point
Pressure     ' 4 Baro
Wind Speed   ' 5 Wind speed
Wind Dir     ' 6 Wind direction
Rain Rate/h  ' 7 rain rate during last hour
Rain Sum     ' 8 Rain sum
Eusotec GmbH, Ziegelhofstr. 234, 79110 Freiburg 'Location
WENTO Alarm  ' Subject of email (for alarm emails)
smtp.lund1.com ' SMTP email server smtp.lund1.com
alarm@eusotec.de ' email address "from"
alarmalarm     ' password for SMTP authentication
alarm1@eusotec.de ' email address "to" (please change it)
-32768 32767   ' 0 For future use! Don't change it!
-32768 32767   ' 1 Alarm: Temp. outside °C * 10
-32768 32767   ' 2 Alarm: Humidity outdoor % * 10
-32768 32767   ' 3 Alarm: Dew Point °C * 10
-32768 32767   ' 4 Alarm: Baro hPa * 10
-32768 32767   ' 5 Alarm: Wind speed m/s * 10
-32768 32767   ' 6 Alarm: Wind direction ° * 10
-32768 32767   ' 7 Alarm: rain rate during last hour mm/h * 10 / cup_size[cm^3]
-32768 32767   ' 8 Alarm: Rain sum current day mm * 10 / cup_size[cm^3]
               ' ftp server
               ' ftp user
               ' ftp password
wento.csv     ' ftp filename

```

7.5.2 Assignment Table

Parameter	Variable	Source
Temperature (° C)	%001	WENTO Sensor
Humidity (%)	%002	WENTO Sensor
Dew Point (°C)	%003	WENTO Sensor
Air Pressure (hPa)	%004	WENTO Sensor
Wind Gusts (m/s)	%005	WENTO Sensor
Here we are storing always the		

maximum of all values during the last 5 minutes		
Wind Direction (°)	%006	WENTO Sensor
Rain Rate / hour (mm/h)	%007	WENTO Sensor with additional rain sensor
Rain Sum	%008	WENTO Sensor with additional rain sensor
Not stored Parameter		
Wind Reference „R“ or „T“ (see description of Lambrecht)	%016	WENTO Sensor
Unit of Wind Speed M = m/s (Default) K = km/h N = Knots The unit could be only changed by Lambrecht	%017	WENTO Sensor
Unit of air pressure B = hPa (Default) I = inHg The unit could be only changed by Lambrecht	%018	WENTO Sensor
Wind Gusts (km/h)	%084	parameter %005, calculated in km/h
Rain total of current day since 0:00 UTC (mm)	%085	only available if an entry at 0:00 UTC of current day is stored in datalogger (firmware V2.2 or higher)
Trend Barometer wie %050, jedoch mit anderen Werten	%086	0: gleichbleibend 1: leicht steigend 2: stark steigend -2: stark fallend -1: langsam fallend sonst: kein Wert
Date of last received	%087	Format: dd.mm.yyyy
Time of last received	%088	Format: hh:mm
Time of last received	%089	Format: hh:mm:ss
Date and Time of last received	%090	UTC time of Eusotec Server when last data was received Format: dd.mm.yyyy hh:mm:ss
Number of stored entries (with every entry all available values are stored)	%091	Eusotec Server
Storage Interval in minutes	%092	Eusotec Server (at this time always 5 minutes - not changeable)
Configuration String: Currently only the first 2 characters are	%100	/secure/config.txt of Eusotec Servers

used Meaning:		
1. Character: Size of Rain Cup in cm ³ . Example: „2“ means 2 cm ³		
2. Character: Output format for ftp transfers: „1“ Numbers are transferred with comma. „2“ Numbers are transferred with decimal point.		
Name of 1. Sensor	%101	secure/config.txt
Name of 2. Sensor	%102	secure/config.txt
Name of 3. Sensor	%103	secure/config.txt
Name of 4. Sensor	%104	secure/config.txt
Name of 5. Sensor	%105	secure/config.txt
Name of 6. Sensor	%106	secure/config.txt
Name of 7. Sensor	%107	secure/config.txt
Name of 8. Sensor	%108	secure/config.txt
Location	%200	secure/config.txt

7.6 Common Hints for Climate Control

Please keep care, that the configured alarm boundaries of the Eusotec Server are working independent of local alarms settings of the receiver station. For an automatically generated alarm email only the given boundaries of config.txt are responsible.

The default baud rate of the receiver station should be unchanged at 19200 baud.

The receiver is configured with the optional software WeatherLink from Davis. Please configure only station TEMP/HUM, also if you are using only temperature stations.

When you will get our system we will make the configuration according to your wishes. Especially the elevation is needed for the correct barometric pressure.

Configuration String

In the configuration file (see next chapter) you will find at the beginning a configuration string "0000110" with the following meaning:

1. Char: Temperatures
0 = If conversion is enabled the temperatures are converted into °Celsius.
1 = Temperatures remain unchanged in ° Fahrenheit
2. Char: Rain
0 = If conversion is enabled rain values are converted into mm
1 = Rain values remain unchanged in inches.
3. Char: Pressure
0 = If conversion is enabled pressure values are converted into hPa
1 = Pressure values remain unchanged in inches Hg.
4. Char: Wind Speed
0 = If conversion is enabled wind speeds are converted into km/h
2 = Wind speed values remain unchanged in mph
5. Char: XML-Conversion enable / disable
2 = No conversion for XML data
3 = Conversion of XML data like mentioned in 1-4
6. Char: Alarm - Emails:
2 = No measurement value conversion in alarm emails
3 = Conversion measurement values in alarm emails like mentioned in 1-4
7. Char: HTML (Web-) Conversion enable / disable
1 = No conversion for HTML tags. ATTENTION: This setting is used for the standard web pages to get better results for converted values.
- 8.-20. Chars: Free for using in your web pages, usage with %100 in HTML.

7.6.1 Configuration File secure/config.txt

Please keep care that the measurement values are delivered with one or with two bytes. For two byte values you have to use the values -32768 and 32767, for one byte value you have to use 255 when boundaries should not be supervised. Please use only integer values and no numbers with decimal point. Do not delete any line. Do not forget to restart the Eusotec Server after any modification (for example via telnet) and please control every alarm after every configuration change.

```

0000110          ' 0 config string, 1 values are: Fahrenheit|Rain inch|Baro inch
Hg|mph|convert XML|convert Alarm|convert WEB
Baro             ' 1 Baro
Room 1           ' 2 Temp. 1 inside
Humidity 1       ' 3 Humidity 1 indoor
empty            ' 4 Do not change !
empty            ' 5 Do not change !
empty            ' 6 Do not change !
empty            ' 7 Do not change !
Room 2           ' 8 Temp 2
Room 3           ' 9 Temp 3
Room 4           ' 10 Temp 4
empty            ' 11 Do not change !
empty            ' 12 Do not change !
empty            ' 13 Do not change !
empty            ' 14 Do not change !
empty            ' 15 Do not change !
empty            ' 16 Do not change !
empty            ' 17 Do not change !
empty            ' 18 Do not change !
empty            ' 19 Do not change !
empty            ' 20 Do not change !
empty            ' 21 Do not change !
empty            ' 22 Do not change !
empty            ' 23 Do not change !
Humidity 2       ' 24 Humidity 3
Humidity 3       ' 25 Humidity 4
empty            ' 26 Do not change !
empty            ' 27 Do not change !
empty            ' 28 Do not change !
empty            ' 29 Do not change !
empty            ' 30 Do not change !
empty            ' 31 Do not change !
empty            ' 32 Do not change !
empty            ' 33 Do not change !
empty            ' 34 Do not change !
empty            ' 35 Do not change !
empty            ' 36 Do not change !
empty            ' 37 Do not change !
empty            ' 38 Do not change !
empty            ' 39 Do not change !
empty            ' 40 Do not change !
empty            ' 41 Do not change !
empty            ' 42 Do not change !
empty            ' 43 Do not change !
empty            ' 44 Do not change !
empty            ' 45 Do not change !
empty            ' 46 Do not change !
empty            ' 47 Do not change !
empty            ' 48 Do not change !
empty            ' 49 Do not change !
empty            ' 50 Do not change !
Eusotec GmbH, Ziegelhofstr. 234, D-79110 Freiburg 'Location
Climate Alarm    ' Subject of email (for alarm emails)
smtp.lund1.com   ' SMTP email server smtp.lund1.com
alarm@eusotec.de ' email address "from"
alarmalarm       ' password for SMTP authentication
alarm1@eusotec.de ' email address "to" (please change it)
-32768 32767     ' 0 Do not change ! Do not use a decimal point for the following
numbers !

```

```

-32768 32767      ' 1 Baro in inches Hg*1000 Calculate: round(hPa*1000/0.254/133.322)
-32768 32767      ' 2 Temp. 1 indoor in F*10 Calculate: round(((Celsius*9/5)+ 32)*10)
255 255           ' 3 Humidity 1 indoor in %
-32768 32767      ' 4 Do not change !
255 255           ' 5 Do not change !
255 255           ' 6 Do not change !
-32768 32767      ' 7 Do not change !
255 255           ' 8 Temp 2 in F+90 0 means -90°F Calculate: round(((Celsius*9/5)+ 32
+ 90))
255 255           ' 9 Temp 3 in F+90 0 means -90°F Calculate: round(((Celsius*9/5)+ 32
+ 90))
255 255           ' 10 Temp 4 in F+90 0 means -90°F Calculate: round(((Celsius*9/5)+ 32
+ 90))
255 255           ' 11 Do not change !
255 255           ' 12 Do not change !
255 255           ' 13 Do not change !
255 255           ' 14 Do not change !
255 255           ' 15 Do not change !
255 255           ' 16 Do not change !
255 255           ' 17 Do not change !
255 255           ' 18 Do not change !
255 255           ' 19 Do not change !
255 255           ' 20 Do not change !
255 255           ' 21 Do not change !
255 255           ' 22 Do not change !
255 255           ' 23 Do not change !
255 255           ' 24 Humidity 2 in %
255 255           ' 25 Humidity 3 in %
255 255           ' 26 Do not change !
255 255           ' 27 Do not change !
255 255           ' 28 Do not change !
255 255           ' 29 Do not change !
255 255           ' 30 Do not change !
-32768 32767      ' 31 Do not change !
255 255           ' 32 Do not change !
-32768 32767      ' 33 Do not change !
-32768 32767      ' 34 Do not change !
-32768 32767      ' 35 Do not change !
-32768 32767      ' 36 Do not change !
-32768 32767      ' 37 Do not change !
-32768 32767      ' 38 Do not change !
-32768 32767      ' 39 Do not change !
-32768 32767      ' 40 Do not change !
-32768 32767      ' 41 Do not change !
255 255           ' 42 Do not change !
255 255           ' 43 Do not change !
255 255           ' 44 Do not change !
255 255           ' 45 Do not change !
255 255           ' 46 Do not change !
255 255           ' 47 Do not change !
255 255           ' 48 Do not change !
255 255           ' 49 Do not change !
255 255           ' 50 Do not change !
climate.csv      ' ftp server name
                  ' ftp user
                  ' ftp password
                  ' ftp filename

```

7.6.2 Assignment Table

Parameter	Variable	Original-Unit or converted Unit
Air Pressure	%001	inch Hg <=> hPa
Temperature Indoor	%002	°F <=> °C
Humidity Indoor (%)	%003	%
Temperature 2	%008	°F <=> °C

Temperature 3	%009	°F <=> °C
Temperature 4	%010	°F <=> °C
Humidity 2	%024	%
Humidity 3	%025	%
Date of last received	%087	Format: dd.mm.yyyy (firmware V2.2 or higher)
Time of last received	%088	Format: hh:mm (firmware V2.2 or higher)
Time of last received	%089	Format: hh:mm:ss (firmware V2.2 or higher)
Date and Time of last received	%090	UTC time of Eusotec Server when last data was received Format: dd.mm.yyyy hh:mm:ss
Number of stored entries (with every entry all available values are stored)	%091	Eusotec Server
Storage Interval in minutes	%092	Eusotec Server (at this time always 5 minutes - not changeable)
Configuration String	%100	secure/config.txt (max. 20 Chars)
Name of Sensor 1 to 50 (not all sensors are used)	%101- %150	secure/config.txt (max. 20 Chars)
Location	%200	secure/config.txt (max. 200 Chars)

Technical Data

Serial Interface:

1 x RS 232 for connection to specified devices
1 x RS 232/422/485 for debugging (helpful for configuration and developing own XML applications)

Security:

IEEE 802.11i - PSK with AES-CCMP Encryption
WPA - PSK
TKIP Encryption
128-256 Bit Rijndael AES Encryption, NIST AES FIPS-197 CERT#120
64/128-bit WEP

Network Interface:

WLAN 802.11 b/g with antenna (RP-SMA)
Standards: WPA, WEP, ARP, UDP/IP, TCP/IP, ICMP, SNMP, TFTP, Telnet and HTTP
1 x RJ45 connector for 10/100 Ethernet

Leds:

Power
Ethernet Link
Wireless Link
Serial 1
Serial 2

Hardware:

CPU: DSTni-EX (enhanced 80186, 88 MHz)
Memory: 256 kByte SRAM, 2 MByte Flash

Power:

Input: 9-30 VDC, max. 2 W
AC Adapter for Eusotec Server included

Environmental:

Operating temperature range: -40°C to 70°C
Operating humidity: 0 to 95%, non-condensing
Storage temperature range: -40°C to 85°C

Device Packaging:

Material: Metal case with flange mount
Dimensions: (LxWxH): 9,5 x 7,2 x 13,97 cm (3,7 x 2,8 x 5,5 in)
Weight: 0,4 kg (09 lbs)

Agency Approvals:

FCC-B, C/UL, CSA, CE, TÜV, CTick, Japanese Radio Certification (Type Certification of Specified Radio Equipment), RoHS (Class 3)

Warranty:

2 years