Manual

Web-Thermograph NTC/PT100
Web-Thermograph 2x
Web-Thermograph 8x

US 1.29 09/2014

W&T

W&T

Introduction

The W&T Web-Thermograph includes all the function in one box for acquring, storing and displaying your temperature data. In addition, numerous alarm functions are provided which can be incorporated into your own applications or into existing systems.

In this manual you will find all the information you need to install, configure and operate the Web-Thermograph.

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1 Quick start / start-up

Only a few steps are required to place the W&T Web-Thermo-graph into operation and make it appear in your network.
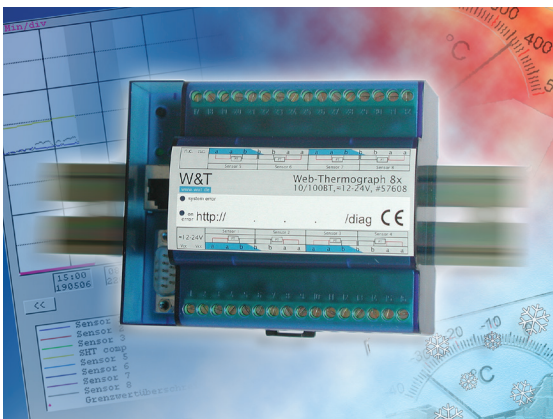
1.1.1 Connecting the power supply 57609/57610

Bottom 57609 / 57610

supply
voltage
12-24V =/~
screw terminal
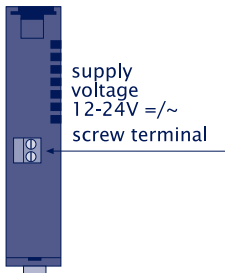
1.1.2 Connecting the power supply 57607/57608

Serial Port

≈12-24V
Vcc   Vcc   a   a   Sens

1   2   3   4
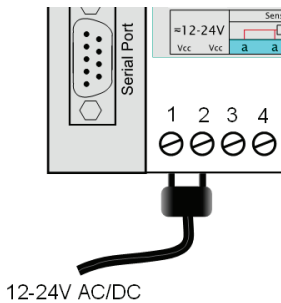
12-24V AC/DC

Connect the supply voltage of 12-24V AC/DC to the terminal provided using the AC adapter provided. Polarity does not need to be observed.

1.1.3 PoE power supply 57614 / 57615

The Web-Thermographs PoE 57614 and 57615 are designed for use in PoE (Power-over-Ethernet) environments in accordance with IEEE802.3af. Power is provided by the network infrastructure using the RJ45 terminal. The devices support both phantom power using data pairs 1/2 and 3/6 as well as power feed using the unused wire pairs 4/5 and 7/8.

To enable power management for the supplying components, the Web-Thermographs are identified as a Power Class 1 device with a power consumption of 0.44 to 3.84W.

As an alternative to PoE power supply, the Web-Thermographs PoE can also be powered by an external power supply connected to the screw terminals on the underside of the housing. 18-48V DC voltage of any polarity as well as 18-30V AC voltage may be used.

! *Use of the models Web-Thermographs PoE are also possible in networks without PoE power supply. In this case simply use an external power supply attached to the screw terminal as described above. No additional configurations or settings are necessary.*

1.2.1 Connecting the NTC sensor (57609, 57614) and PT100 sensor (57610, 57615)

Plug the sensor provided into the 9-pin IO port on the unit.

1.2.2 Connecting the PT100/PT1000 sensors 57607/57608

Sensor 1:
PT100 2-wire

Sensor 3:
PT100 4-wire

Sensor 4:
PT100 4-wire

12-24V AC/DC
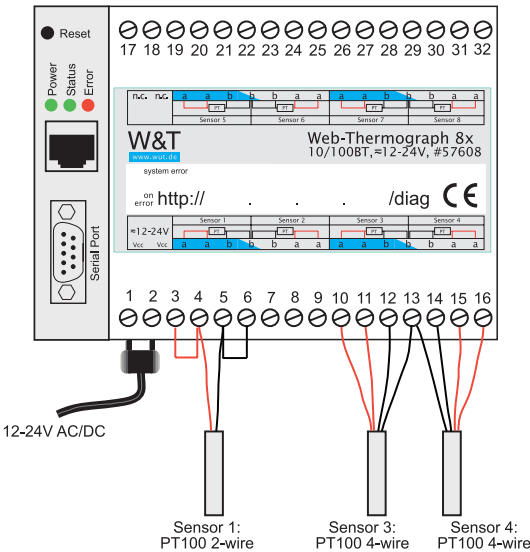
Die Zuleitung des PT100 4-wire sensor kann mit nahezu belie-biger Länge ausgelegt werden.

Connecting a PT100 3-wire sensor:
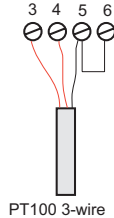
PT100 3-wire

When connecting a PT100 3-wire sensor the wire colors are matched with the color of the respective terminals. A jumper for the still unused terminal is needed for the individual wires.

Connecting a 2-wire sensor:
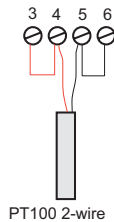
PT100 2-wire

When connecting a PT100 2-wire sensor one wire is connected to the red terminal and the other to the black terminal. Jumpers to the unused terminals must be put in place.

The supply for the connection in 4-wire technique can be almost any length. A shielded cable should be used and the shields of the individual sensors need to be brought together on the device. Furthermore, the cable should not be installed parallel to electric power lines to avoid inter-ferences.

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1.3 Ethernet connection

The Web-Thermograph incorporates an IEEE 802.3-compatible network interface on a shielded RJ45 connector. The pin assignments correspond to an MDI port, so that the connection to the hub or switch is accomplished using a 1:1 shielded patch cable.
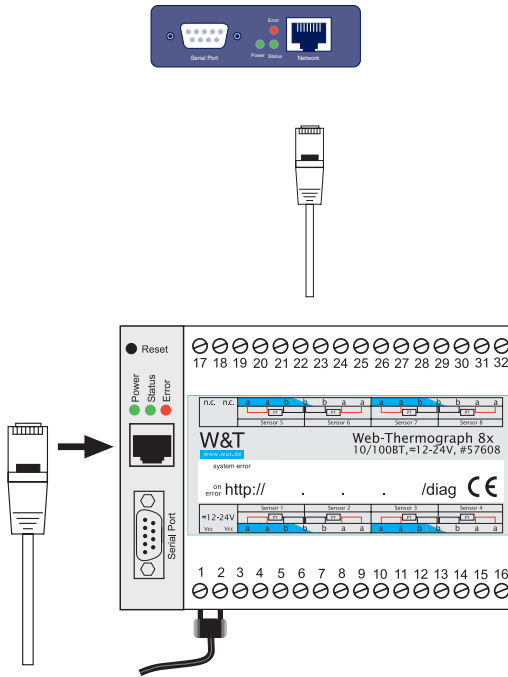
Power-over-Ethernet
The Web-Thermographs PoE 57614 and 57615 can obtain power as defined in IEEE802.3af/Power-over-Ethernet. Either the data pairs or the unused wire pairs in 10/100BaseT may be used (see also the section *PoE power supply 57614 / 57615*).

1.4 Assigning the IP address using „WuTility"

Once the hardware has been connected to the supply voltage as described above, you must assign the IP address needed for operation in a TCP/IP network. You can obtain the correct value for this parameter from your system administrator.

! *The IP address must be unique throughout the network.*

There are various ways of assigning the IP address. To make it as convenient as possible, we have developed the „WuTility" tool, which you can download from the WuT homepage at *http://www.wut.de.* This procedure is described in the following. A summary of the alternatives can be found in the Appendix to this manual under 7.1.

Be sure that the PC you are using to assign the IP address is located in the same sub-network as the module and that both the PC and the module are connected to the network.

When it starts, *WuTility* automatically searches the local network for connected W&T network devices and generates an inventory list. This search process can be repeated manually as often as desired by clicking the *Scan* button:

Select from the displayed list your Web-Thermograph based on the MAC address:

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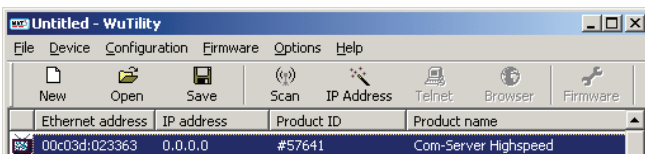
Click on the „IP address" symbol:

In the resulting window enter the desired network parameters
for the device and confirm by clicking on „Continue".

The DHCP client of the Web-Thermograph can be activated in
the following window.

Clicking on the *Continue* button assigns the network parame-
ters to the Web-Thermograph. All the columns in the device
list in WuTility are filled with information. After clicking on the
globe in the WuTility menu list your standard browser is ope-
ned and you will see the start page for the device.

1.5 IP assignment using DHCP protocol

Many networks use DHCY (Dynamic Host Configuration Proto-
col) or its predecessor BOOTP described in the following sec-
tion for centralized, dynamic assignment of network parame-
ters. By default DHCP protocol is activated, so that in network
environments with dynamic IP assignment you only need to
connect the Web-Thermograph to the network. The following
parameters can be assigned using DHCP:

· IP address
· Subnet mask
· Gateway address
· DNS server
· Lease time

⚠ *To prevent undesired address assignment
or address changes, we recommend deactivating
DHCP, BOOTP and RARP unless these are expressly used
in the respective network environment. Web-Thermo-
graphs with incorrectly assigned IP address can be conveni-
ently found and reconfigured after the fact using the scan
function of the WuTility management tool.*

1.5.1 Activating/deactivating DHCP

By default DHCP is activated. The following methods are avai-
lable for deactivating or later reactivating DHCP protocol.

• **Management tool WuTility**
  Select the desired Web-Thermograph from the device list
  and click on the *IP address* button. In the first dialog win-
  dow enter the new network parameters and then click on

In the following dialog window deactivate the options *BOOTP* and *DHCP*. Click on *Next* to send the new configuration data to the Web-Thermograph.

- **Serial interface**
  As part of serial IP assignment you can specify the following options for deactivating/activating the DHCP and BOOTP protocols directly following the address string:
  -0 → Deactivates DHCP and BOOTP
  -1 → Activates BOOTP/RARP
  -2 → Activates DHCP
  A detailed description of this procedure can be found in the section *Alternative IP address assignment 7.1*

- **Web Based Management**
In *Config → Device → Basic Settings → Network* you can alternately activate or deactivate both the protocols. Detailed information about this can be found in section *Assigning the basic network parameters 1.6*.

1.5.2 System Name

To support any automated updating of the DNS system by the DHCP server, the Web-Thermograph identifies itself within the DHCP protocol with its system name. The factory setting for this is *WEBIO-* followed by the last three places of the Ethernet address. For example, the default system name of a Web-Thermograph having Ethernet address 00:c0:3d:01:02:03 is *WEBIO-010203*. The system name of the Web-Thermograph can be changed using Web Based Management.

1.5.3 Lease time

The lease time determined and sent by the DHCP server spe-
cifies how long the IP address will remain in use. After half
the lease time has expired the Web-Thermograph attempts to
extend the time for the assigning DHCP server and to update
the address. If this is not possible by the time the lease time
expires, for example because the DHCP server can no longer
be reached, the Web-Thermograph deletes the IP address and
starts a cyclical search for alternative DHCP servers in order to
assign a new IP address.

Because the clock is missing, the lease time associated with
the current IP address is no longer available after a reset.
Therefore, after the restart an update query is generated for
the original DHCP server. If it is not available at this time, the
Web-Thermo-graph deletes the IP address and starts a cyclical
search for alternative DHCP servers.

If DHCP is activated, the remaining lease time together with
the current IP address is shown in seconds in the menu
branch *Home → Doc → Property.*

⚠️ *If after the assigned lease time has expired the DHCP
server cannot be reached, the Web-Thermograph deletes
its IP address. All existing TCP/UDP connections between the
Web-Thermograph and other network clients are closed. To
prevent disturbances of this kind, we recommend setting the
lease time in the DHCP server to infinite.*

1.5.4 Reserved IP addresses

The Web-Thermograph provides services which can make use of other clients in the network as needed. To open a connection they of course need the current IP address of the Web-Thermo-graph, so that in these applications it makes sense to reserve a particular IP address for the Web-Thermograph on the DHCP server. As a rule this is done by joining the IP address to the worldwide unique Ethernet address of the device, which can be found on the sticker on the housing.

```
5xxxx          [Typ]
EN=00c03d004a05          ─── Ethernet-address
OK xxxxxx
```
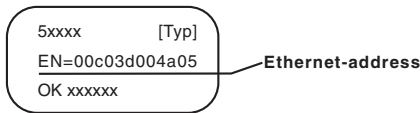
1.5.5 Dynamic IP addresses

Fully dynamic IP address assignment, in which the Web-Thermograph gets a different IP address after each restart or after the lease time has expired, is only useful in network environments with automatic cross-connection between the DHCP and DNS services. This means when a new IP address is assigned to the Web-Thermograph, the DHCP server then automatically updates the DNS system as well. The new address is assigned to the respective domain name. For detailed information about your network environment, consult your system administrator if in doubt.

Dynamic, changing IP addresses can also be used for time server queries, sending of e-mails or other client applications in which the device itself searches for active connection to server services located in the network.

1.6 Assigning the basic network parameters

At left in the configuration tree select the menu item „Config".
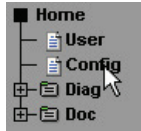
You are now prompted to enter a password. As shipped the unit requires no password, so that you can simply click on the Login button without entering any password.

Config

Password :

Login   Rücksetzen

Back to Web-Graph Thermometer Homepage

On the next page select the configuration path with the help of the profiles.

Login Rights:
Config
Admin
Navigate with the tree on the left side. Avoid the use of the buttons
"Next"and "Back" of your browser, this might cancel your changes
of configuration data.

The "profiles" provides an easy way to make the required
modifikation step by step.

Profiles   Expert mode

Select the profile „Basic network parameters" and click on the „Show profile" button".

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○ No profile (expert mode)

Basic configuartion:
◉ Basic network parameter
○ Configuration of port and device name
○ Local clock settings
○ Automatic clock settings with the network time service
○ Configuration of the data logger
○ Configuration of the graphics settings
○ Calibration

Direct user control:
○ HTTP access

Integration in exsisting systems:
○ Alarm via E-Mail
○ SNMP incl. alarm via trap
○ Alarm via TCP (client mode)
○ Syslog messages incl. alarm
○ Alarm via FTP (client mode)

Access from individual programms:
○ ASCII command strings via TCP port 80
○ ASCII command strings via UDP

[Highlight Profile]

Now the device automatically displays the necessary menu items for this profile. Therefore click on „Network" in the configuration menu.
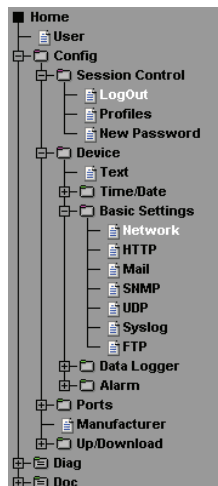
On the following page enter all the necessary network para-
meters and then click on the „Logout" button.

Finally clicking on the „Save" button stores the settings in
the unit and quits your configuration session. After changing
the network parameters the device automatically performs a
restart.

The device is now ready for use in your network. For conve-
nience, use the other profiles for adapting the unit to your

2 Online measurement storage inside the W&T Cloud

With the cloud service W&T offers a comprehensive solution that enables the backup of data in online storage in addition to the long-term documentation of temperature and humidity measurement data in the internal data logger. The measurement data will be sent directly from the measuring point to the cloud, and is available online.

2.1 Auto connect

The cloud functionality is enabled by default on delivery. If the device receives its network parameters via DHCP, or you allow the device Internet access by entering the network parameters, it immediately begins to contact the cloud.

The transmission of the measuring data begins when the device is assigned to a user account.

2.2 Create a user account

To transfer the measurement data, first a user account for the cloud access must be created. To do this, go to the cloud homepage

http://cloud.wut.de

and click on „create user account".

After entering your e-mail address and a password you will get access to the cloud.

2.3 Assign data by 4-digit access code in the cloud

Log in with your user account to http://cloud.wut.de and enter the access code included with the device. The collected data will be transfered to your account and are available for you immediately.

Alternative:

After you have created a cloud user account, open the configuration menu of your device and login as admin user. Navigate to the page

Config -> Device -> Basic Settings -> Cloud

and enter your user data for the cloud access. After clicking on the button „Bind" all measurement data of this device, from this moment, is stored into your user account.

By clicking on the button „Unbind" the allocation of the data from this moment is separated and no further values will be stored in your account.

Click again on „Bind" and a new series of measurements is created in the cloud for your user account.

3 Graph Display of the Measurements

3.1 Basic functions
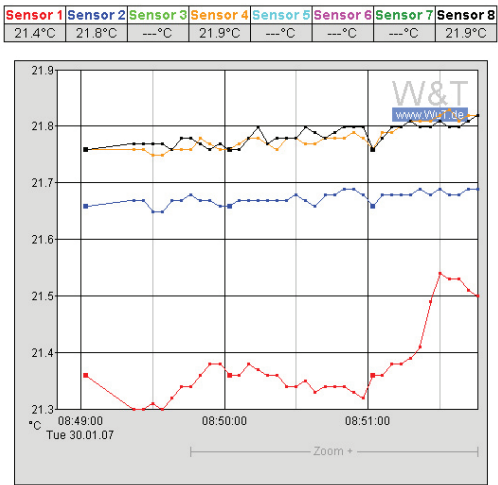
The device provides a table of the current values and a graph of the stored values.

By using the control buttons at the bottom of the page you can do the following.

	Scroll the graph to right or left by the size of the display interval, to within one
	Scroll left or right in the graph in increments of one unit of the X-axis.
	Zoom the area of the graph indicated at the lower right edge.
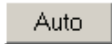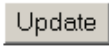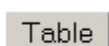
Zoom -	Zooms back to the previous zoom level.
Auto	Activates automatic refreshing of the graph.
Update	Refreshes the display
Config	Opens the configuration menu beneath the graph
Table	Displays the values currently displayed in the graph in table form.

Value visualization:

Large marker: This measured value is stored in the device data logger.

Small marker: This measured value is a volatile value which is used only for display but which is not stored in the data logger.

! *When exiting the zoom level, these measurements are lost. The connectinglines are only displayed in the zoom level which represents the memory.*

To print out the page containing the graph, it is necessary to activate printing of background colors and images in the Internet options. In Microsoft Internet Explorer this setting is found in

Tools -> Internet options -> Advanced
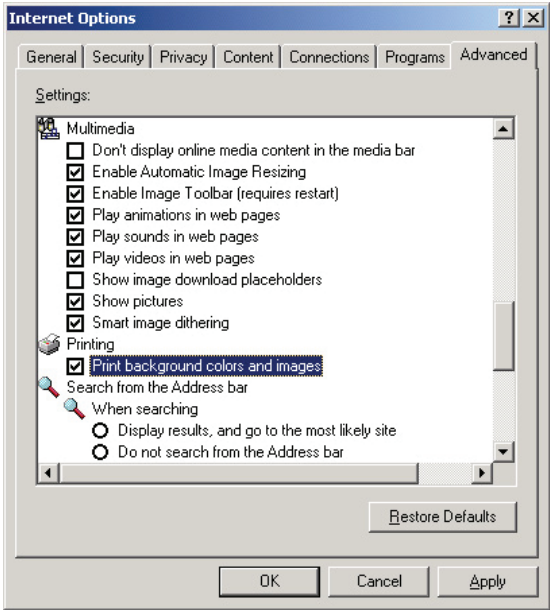
Design and positioning of the graph is configurable.

3.2 Config menu

Config

| Start | 30 | - | 1 | - | 2007 | ; | 6 | : | 0 | h |
| End | 30 | - | 1 | - | 2007 | ; | 12 | : | 0 | h |

Polling rate: 4 sec.

Active	Display	Active	Display
☑ Sensor 1	☐ Extreme	☑ Sensor 2	☐ Extreme
☑ Sensor 3	☑ Extreme	☑ Sensor 4	☐ Extreme
☑ Sensor 5	☑ Extreme	☑ Sensor 6	☐ Extreme
☑ Sensor 7	☐ Extreme	☑ Sensor 8	☑ Extreme

Apply changes
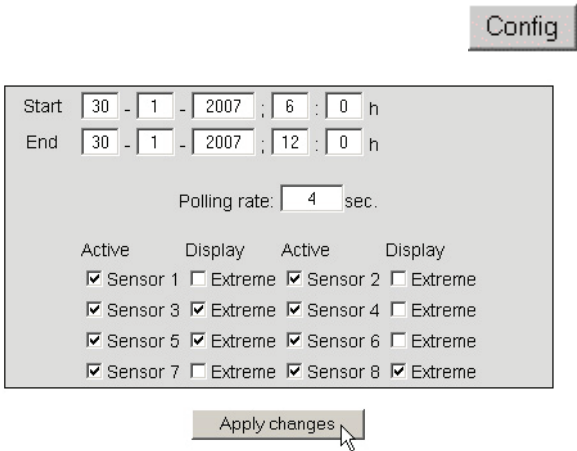
The following functions are available from the configuration menu beneath the graph:

Start: Here you specify the starting time for the X-axis.

End: Here you specify the ending time for the X-axis.

Polling Rate: Enter here the desired refresh rate for the graph. The device provides a new value no sooner than after 4 seconds. Entering a value of less than 4 is not useful.

Active: Use this to turn the individual sensors on or off.

Display, Extreme: If a zoom level is selected in the graph in which a display point represents a measuring interval and not an individual measuring point, this function is used to display the maximum and minimum measured in this interval. If the zoom level is selected such that every measured value is displayed, this function has no effect. If the function is deactivated, the average value of the displayed interval is displayed.

Apply changes: Immediately applies the changes made for the graph.

3.3 Table

Table

Report: Tue 30.01.07, 06:00:00 - Tue 30.01.07, 12:00:00

Date	Time		Sensor 1	Sensor 2
			°C	°C
Tue 30.01.07	07:21:49	Max	---	20.4
		Min	---	20.3
		Ø	---	20.4
Tue 30.01.07	07:30:00	Max	---	20.5
		Min	---	20.4
		Ø	---	20.5
Tue 30.01.07	07:38:11	Max	---	20.7
		Min	---	20.6
		Ø	---	20.6
Tue 30.01.07	07:46:22	Max	---	20.8
		Min	---	20.7
		Ø	---	20.7
Tue 30.01.07	07:54:33	Max	---	20.9
		Min	---	20.8
		Ø	---	20.9
Tue 30.01.07	08:02:44	Max	---	21.1
		Min	---	20.9
		Ø	---	21.0

This function is used to show the currently represented values in table format. As soon as not all stored values can be displayed, the following values are shown in the table for each sensor:

Max: The maximum value in the displayed interval

Min: The minimum value in the displayed interval

Ø: The average value of the displayed interval

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4 Additional settings

4.1 Configuring the port and device names
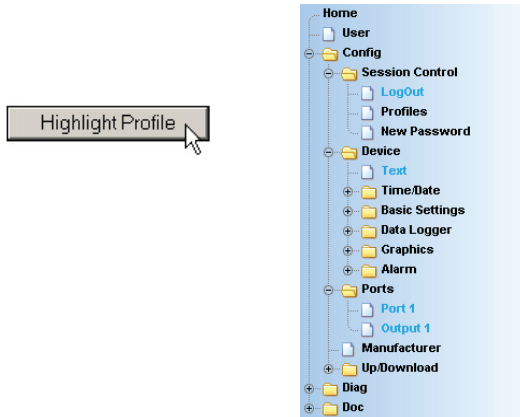
4.1.1 Text

Enter your personal data in the fields provided and then click on „Save".

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4.1.2 Ports

Here you enter a name for the sensor and a descriptive text.
Then click on „Logout" and save your configuration.

4.2 Local time setting

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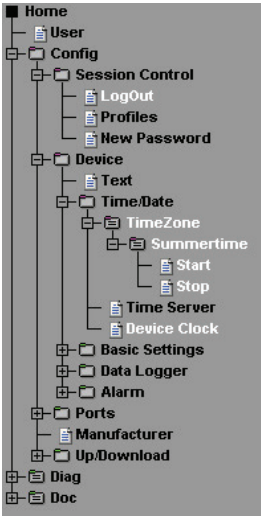
4.2.1 Time zone

Here you define the time zone in which the device is located. Your settings are referenced to UTC (Universal Time Coordinated). Then click on „Save".

4.2.2 Summertime

If you would like your device to automatically compensate for summer time, first enter the offset to UTC. The standard value (including for Germany) is two hours. Activate this optoin by checking „Apply Summertime" and save your settings.

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Start/Stop

Define when summer time begins and ends. The parameters are already pre-configured:

Start:

Last Sunday in March at 2:00 a.m.

Stop:

Last Sunday in October at 03:00 a.m.

Config >> Device >> Time/Date >> TimeZone >> Summertime >> Start

Month :	Summer time starts in
	March
Mode :	on
	last
Weekday :	Sunday
Time :	02 : 00

Free memory: 49421 bytes

Temporary Storage   Undo   Logout

4.2.3 Device Clock

If you do not want to use a timeserver, here you can set the clock manually. Then click on „Logout" and save your settings.

Config >> Device >> Time/Date >> Device Clock

Time : `10` : `30`

Day : `30`

Month : `08`

Year : `2004`

Free memory: 49421 bytes

[Temporary Storage]   [Undo]   [Logout]

🄳 Models 57607 and 57608 (Web-Thermograph 2x and 8x) have an internal, battery-buffered clock, so that the time is retained even when the unit is turned off.

[Highlight Profile]

- ■ Home
  - 📄 User
  - 🗁 Config
    - 🗁 Session Control
      - 📄 LogOut
      - 📄 Profiles
      - 📄 New Password
    - 🗁 Device
      - 📄 Text
      - 🗁 Time/Date
        - 📄 TimeZone
          - 📄 Summertime
            - 📄 Start
            - 📄 Stop
        - 📄 Time Server
        - 📄 Device Clock
      - 🗁 Basic Settings
      - 🗁 Data Logger
      - 🗁 Alarm
    - 🗁 Ports
    - 📄 Manufacturer
    - 🗁 Up/Download
  - 🗁 Diag
  - 🗁 Doc
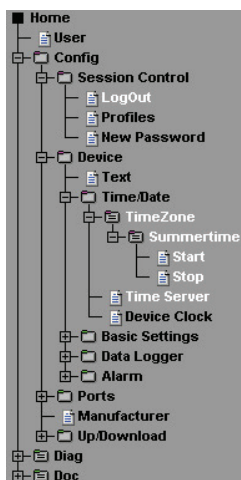
4.3.1 Time Server

If you want to compensate the time using a time server, enter here the necessary information.

The preset addresses are only an example and do not have to be used.

! *If you want to enter a name as an address, be sure that you have first confi-gured the Gateway and DNS server so that the device can resolve the addresses.*

4.4 Configuring the data logger
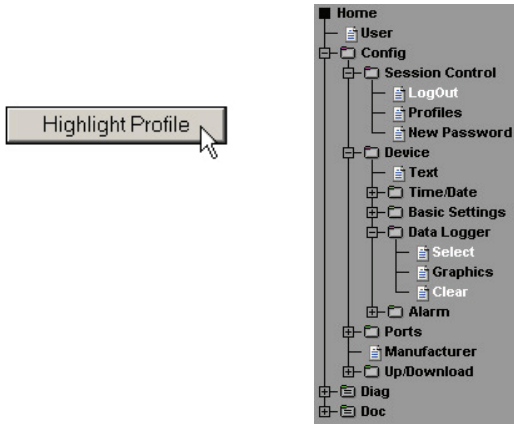
4.4.1 Select

Make the following settings:

Timebase: Defines at what time interval the measurements are stored in the data logger. The device itself measures a new value every four seconds.

! *Attention: If you change Timebase or Select Sensor the memory will be erased completely.*

Select Sensor: The sensor you select here is used for saving the values in the data logger.

Config >> Device >> Data Logger >> Select

Timebase :   [1 min ▼]

Select Sensor :   ☑ Sensor 1

Graphics selection : ☑ Sensor 1

Color Sensor 1 :   [0000FF] [🔴]

Memory size :   22 days, 18 hrs., 0 min.

Free memory: 49421 bytes

[Temporary Storage]   [Undo]   [Logout]

4.4.2 Clear

Clicking on the „Clear memory" button clears the entire con-
tents of the data logger.

    📄 **Clear**
    Alarm

Config >> Device >> Data Logger >> Clear

Erase all flash data.
[Erase Memory]

4.5 Configuration of the graphics settings
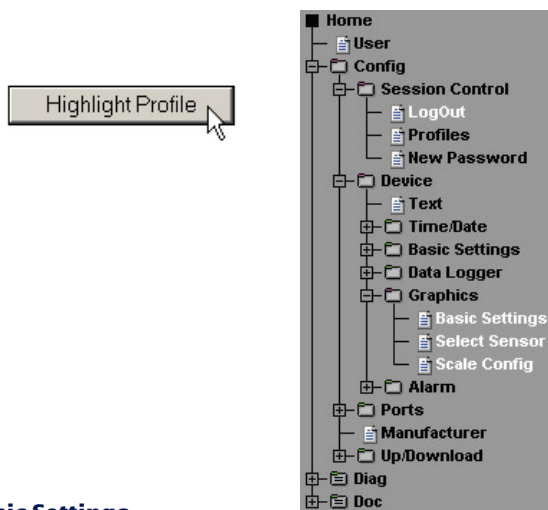
4.5.1 Basic Settings
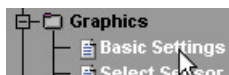
Config >> Device >> Graphics >> Basic Settings

Enable :
- ☑ Auto scroll enable
- ☑ Show table
- ☑ Show graph
- ☑ Show control buttons
- ☑ Show config menu
- ☑ Show Logo

Witdth : `500`

Height : `450`

Frame Color : `C6C6C6`

Background Color : `FFFFFF`

Polling Rate : Activ only with **auto scroll**. `15`

Enable:

Auto scroll enable: After opening the graphical representation, the measured values are automatically refreshed. The control buttons are not available when using the Auto Scroll function.

Show table: Shows the current values in table format as well.

Show graph: Activates graph representation of the measured values.

Show control buttons: Shows the control buttons.

Show config menu: Shows the configuration menu for the graph representation below the control buttons.

Show Logo: Shows the W&T logo inside the graph.

Width: Enter here the desired width of the graph display.

Height: Enter here the desired height of the graph display

Frame Color: Enter here the desired color for the border of the graph, or select a color from the color selector below:

Background Color: Select here the color for the background of the graph. This color is also used as a background for the table.

Polling Rate: Enter here the desired refresh rate for the graph. The device provides a new value no sooner than after 4 seconds. Entering a value of less than 4 is not useful.

4.5.2 Select Sensor
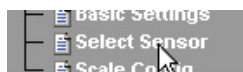
Config >> Device >> Graphics >> Select Sensor

Graphics selection :		Color	Show extrem values	Scale	1	2	3	4
Sensor 1	☑	FF0000	☑		●	○	○	○
Sensor 2	☑	0000FF	☐		○	○	●	○
Sensor 3	☑	00FF00	☑		○	●	○	○
Sensor 4	☑	FF9900	☑		○	●	○	○

Sensor 5	☑	00FFFF 🔵	☑		○	⦿	○	○
Sensor 6	☑	FF00FF 🔵	☑		○	⦿	○	○
Sensor 7	☑	339933 🔵	☑		⦿	○	○	○
Sensor 8	☑	000000 🔵	☑		⦿	○	○	○

Freier Speicher: 46318 Bytes

[Zwischenspeichern]   [Rücksetzen]   [Logout]

Graphics Selection:

You can set the following parameters for each sensor:

Activate/deactivate Sensor X: (Checkbox selected/deselected)

Sensor Color: Enter the desired sensor color, or use the color selector to choose.

Show extreme values: If a zoom level is selected in the graph in which a display point represents a measuring interval and not an individual measuring point, this function is used to display the maximum and minimum measured in this interval. If the zoom level is selected such that every measured value is displayed, this function has no effect. If the function is deactivated, the average value of the displayed interval is displayed.

Scale 1 2 ... x: For multi-channel devices you can show multiple Y-axes at the same time in the graph. These can be for example different temperature areas or measurands. Specify here which scale you want to assign the respective sensor to. For single-channel devices of course only one scale is available.

4.5.3 Scale Config

Config >> Device >> Graphics >> Scale Config

Scale :	unit	min	max	auto scale	auto fit
Scale 1	°C	0	40	☐	☑
Scale 2	°C	-10	40	☑	☐
Scale 3	°C	-20	100	☐	☑
Scale 4	°C	30	40	☐	☑

Free memory: 46368 bytes

[Temporary Storage]   [Undo]   [Logout]

Scale:

The graph can display four different scales. Each individual scale can be assigned the following parameters:

unit: The unit used for this scale.

min: The lowest displayed value on this scale

max: The highest displayed value on this scale

auto scale: The lower and upper values for this scale are selected automatically based on the measured values, so that an optimal, dynamic display is achieved. If this function is activated, the existing parameters „min" and „max" are ignored.

auto fit: If this function is activated, the scale is corrected so that only whole-number values are shown on the display grid. *Auto fit* automatically activates the *auto scale* function.

4.6 Calibration
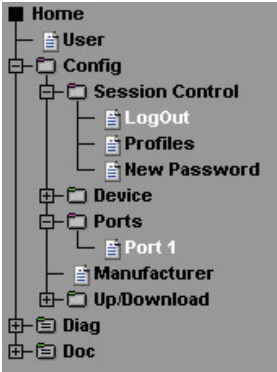
The sensor can be calibrated using single-point or two-point reference measurements and by making corresponding entries of offset values.

In single-point calibration the entered value is added to the measured temperature value, whereas in two-point compensation a straight line is calculated for compensating the entire measuring range. To note calibration procedures performed, the user can store a comment.

4.7 Access from a browser

4.7.1 HTTP

Startup: Here you specify which HTML page will be shown when the device starts up.

W&T

HTTP Port: You can access the device through this port. The
default is standard HTTP port 80. If you want to use a diffe-
rent port, it may have to be explicitly specified when opening
the page:

4.8 Sending alarma via e-mail
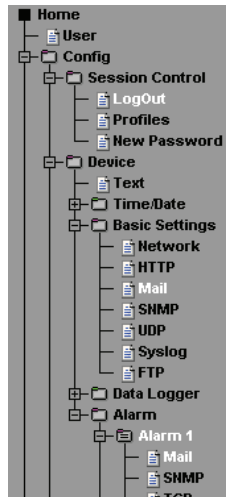
4.8.1 Basic Settings -> Mail

Here you make the basic settings for sending e-mail.

Config >> Device >> Basic Settings >> Mail

Name : Web-Thermograph

ReplyAddr : administrator@intranet.com

MailServer : Name or IP address of the mail server (format xxx.xxx.xxx.xxx).

192.168.0.5

Authentication :
- ☐ SMTP authentication off
- ☐ ESMTP
- ☑ SMTP after POP3

User : administrator

Password : ✱✱✱✱✱✱✱✱✱

Retype Password : ✱✱✱✱✱✱✱✱✱

POP3 Server : Name or IP address of the POP3 mailserver (format xxx.xxx.xxx.xxx) only for 'SMTP after POP3'

pop3.intranet.com

Enable : ☑ Mail enable

Free memory: 46368 bytes

[Temporary Storage]   [Undo]   [Logout]

The e-mail function allows you to send an information or alarm mail to one or more e-mail or SMS recipients.

Name: Enter the name you want the e-mail recipient to see.

ReplyAddr: The reply address identifying the device.

MailServer: In the next step you set the IP address of your mail server and its host name (for a Configured DNS server) you want the device to use. If the e-mail port is not the stan-

dard port 25, you can append the port to the address with a colon:

`mail.provider.de:476`

Authentication: If the mail server requires authentication, set the corresponding procedure for user identification:

SMTP authentication off: No authentication

ESMTP: A user name and a password are required for logging in on the mail server.

SMTP after POP3: For an SMTP access it is necessary first to access through POP3, so that the user can be identified. For this setting enter also an associated POP3 server.

Plain SMTP after POP3: Same as SMTP after POP3, only that a different logon command is used.

SSL TLS: Provides an encrypted connection to the mail server. Username and password are required.

Enable: Be sure that the checkbox „Mail enable" for sending e-mail is checked.

4.8.2 Alarm X

Here you configure the desired alarm conditions.

W&T

Config >> Device >> Alarm >> Alarm 1

Trigger :
- ☑ Sensor 1
- ☐ Timer
- ☐ Cold Start
- ☐ Warm Start
- ☐ Sensor lost

Min : Limit in °C (form: xx.xx).
`15`

Max : Limit in °C (form: xx.xx).
`20`

Hysteresis : Hysteresis in °C (form: xx.xx).
` `

Rate of change : Limit in °C/min (form: xx.xx, average over a period of 5 min).
` `

Delay Time : The alarm will be send after the alarm condition stay stable during this periode of time (time in minutes).
`1`

Interval : Sending interval in minutes
`E`

Timer : Clock triggered report

Field	Input [Number * , -]	Range of values
Minute	0,15,30,45	0-59
Hour	8-17	0-23 (0 is midnight)
Day_of_month	*	1-31
Month	*	1-12
Weekday	*	0-6 (0 is sunday)

Enable :
- ☑ Mail enable
- ☐ SNMP Trap enable
- ☐ TCP Client enable
- ☐ Syslog Messages enable
- ☐ FTP Client enable

Free memory: 45234 bytes

Subject to errors and changes

Trigger: Here you define the trigger for the alarm e-mail. Multiple selections are allowed.

For sending a message without an alarm state, check only the „Timer" box.

Min./Max.: Specifies the lower and upper limits. The range within these limits is considered „valid".

Hysteresis: You can also specify a hysteresis value which is used to reset the alarm state.

Example:

min. 10°C / max. 18°C / Hysteresis 2°C

After a limit is exceeded, the alarm state is reset when a value of 16°C (18-2) is reached, and after the value falls below a limit the alarm state is reset at 12°C (10+2).

This function also prevents „chattering" around the limit value.

Rate of change: Maximum allowed temperature change within five minutes (only 1-channel devices)

Delay Time: Triggering of the alarm is delayed by this time (in Min.) to compensate for brief limit violations.

Interval: Enter here the send interval (in minutes) at which a message should be sent when there is an active alarm. To send only a single message, enter „E".

Timer: The timer interval set here is based on the CRON ser-

vice as used in Linux/Unix systems. Valid characters are:

* : stands for all value values in the respective input field (e.g. all minutes or all seconds)

- : indicates a range of from...to. For example, „2-4" stands for Tuesday through Thursday, whereas an entry of „*" triggers the timer on all weekdays.

/ : Interval within an entered range, e.g. minute „0-45/2" triggers the timer in the range between the 0 and 45th minute every two minutes (0, 2, 4, 6 ,8, 10, ... , 44).

, : indicates an absolute value, e.g.: Minute 0, 15, 30 triggers the timer on the hour, on the quarter-hour and on the half-hour.

The „Timer" check box must be checked for this function.

Enable: Select the message type. For an e-mail alarm check the „Mail enable" check box.

4.8.3 Alarm X -> Mail

This menu item is used to specify the actual content of the e-mail.

Config >> Device >> Alarm >> Alarm 1 >> Mail

E-Mail-Addr : support@wut.de

Subject : Temperature too high!

Mailtext : Actual temperture: <T1> °C <T2> °C

Options : ☑ Attach Thermo.csv enable
☑ CSV-Data since last report

Alarm Clear Subject : This messages will be send if alarm state is cleared.
Temperature OK!

Alarm Clear Text : Actual temperture: <T1> °C <T2> °C

Free memory: 45584 bytes

[Temporary Storage]   [Undo]   [Logout]

E-Mail-Addr: Here you enter the e-mail address of the recipient. To send the e-mail to multiple recipients, separate the addresses with a semicolon.

Subject & Mailtext: Specify the subject line and the mail-text of the e-mail. In these text fields the following tags will be also accepted. The device exchanges these tags with the actual values.

W&T tag value		Function
comma spelling (##,#)	dot spelling (##.#)	
<T1>	<t1>	*Temperature:* Displays the current temperature.
<RC>	<rc>	*Rate of change:* Displays the rate of change from the last 5 minutes.
<AA>		*Alarm active:* Shows all alarms (numbers, komma separatet) which are currently active.
<AN>		*Alarm sensor number:*Shows all sensors (numbers, komma separated) which match with the configured alarm values per alarm.
<AS>		*Alarm sensor name:* see above, but with sensor names (komma separated)
<DN>		*Device Name: S*hows the device name.

W&T tag date + time	
<Z>	Displays the actual time and date as a string.
<$y>	*Year (####):* Displays the year.
<$m>	*Month (##):* Displays the month.
<$d>	*Day (##):* Displays the day.
<$h>	*Hour (##):* Displays the hour.
<$i>	*Minute (##):* Displays the minute.
<$s>	*Second (##):* Displays the second.

Attach thermo.csv enable: With the option „Attach thermo.csv enable" you can attach the complete contents of the data logger in Semicolon Separated CSV format as a mail attachment. The time base for the output corresponds to the data logger pre-settings.

! *The file is generated in the device dynamically, so that in case the logger contents is large it may take up to 30 seconds to assemble the CSV file. During this time no other mails can be sent. Pending alarms are executed immediately after the mail with attachment has been sent.*

CSV-Data since last report: This option causes that only the data is written into the CSV file, which is measured since the last transmission interval.

! *This function only works properly if only the timer function is selected and no limit values are configured.*

Alarm Clear Text: In addition an Alarm Clear message is sent when the temperature resumes valid range. Here you can use the same tags as for the alarm message.

W&T

4.9 SNMP incl. sending alarms via trap
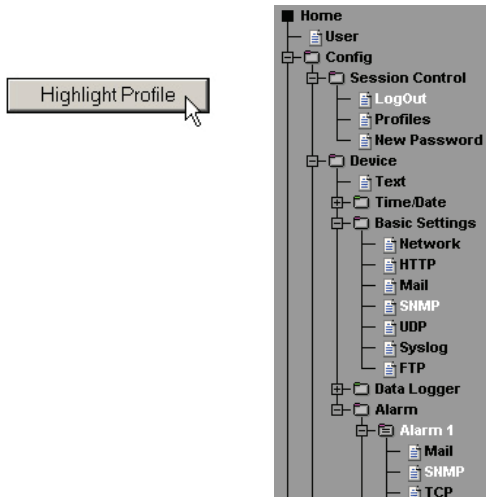
Send alarm messages as an SNMP trap.

4.9.1 Basic Settings -> SNMP

Here you define the basic settings needed for SNMP mode.

Community String: Read: By using this string you can read temperature values in your SNMP manager.

Community String: Write: By using this string you can both read and write temperature values in your SNMP manager.

Manager IP: Contains the IP address of your SNMP manager. The W&T unit sends the SNMP messages to this address.

System Traps: Two system traps can be generated.

Cold Start: When power is disconnected or fails

Warm Start: For device reset

SNMP Enable: Check this box to enable SNMP functionality.

Config >> Device >> Basic Settings >> SNMP

Community string: Read :	public
Community string: Read-Write :	public
Manager IP :	SNMP System Traps: Name or IP address of the SNMP manager (format xxx.xxx.xxx.xxx) 192.168.4.70
System Traps :	☑ Cold Start ☐ Warm Start
Enable :	☑ SNMP enable

Free memory: 49421 bytes

Temporary Storage   Undo   Logout

4.9.2 Alarm X -> SNMP

The actual contents of the SNMP trap is specified under this menu item.

Manager IP: Contains the IP address of your SNMP manager. The W&T unit sends the SNMP messages to this address.

Trap Text: Specifies the text of the trap. In this text field the following tags will be also accepted. The device exchanges these tags with the actual values.

Alarm Clear Text: In addition an Alarm Clear message is sent when the temperature resumes valid range. Here you can use the same tags as for the alarm message.

W&T tag value		Function
comma spelling (##,#)	dot spelling (##.#)	
<T1>	<t1>	*Temperature:* Displays the current temperature.
<RC>	<rc>	*Rate of change:* Displays the rate of change from the last 5 minutes.
<AA>		*Alarm active:* Shows all alarms (numbers, komma separatet) which are currently active.
<AN>		*Alarm sensor number:*Shows all sensors (numbers, komma separated) which match with the configured alarm values per alarm.
<AS>		*Alarm sensor name:* see above, but with sensor names (komma separated)
<DN>		*Device Name: S*hows the device name.

W&T tag date + time	
<Z>	Displays the actual time and date as a string.
<$y>	*Year (####):* Displays the year.
<$m>	*Month (##):* Displays the month.
<$d>	*Day (##):* Displays the day.
<$h>	*Hour (##):* Displays the hour.
<$i>	*Minute (##):* Displays the minute.
<$s>	*Second (##):* Displays the second.

4.10 Sending alarms via TCP (Client Mode)
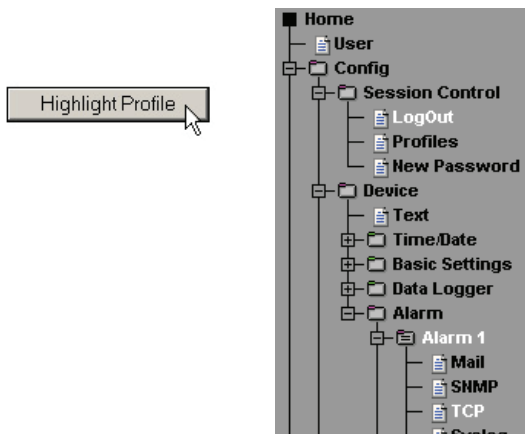
Send alarm messages as a TCP packet.

4.10.1 Alarm X -> TCP

IP Addr: The IP address you want to send the message to.

Port: There must be a TCP server service at the recipient on this port which can accept incoming connections.

TCP Text: The text corresponds to the same specifications as are used for the other message types.

Alarm Clear Text: see above

Config >> Device >> Alarm >> Alarm 1 >> TCP

IP Addr :   Name or IP address of the TCP server (format xxx.xxx.xxx.xxx)

192.168.4.56

Port :   8000

TCP Text :

Temperature too high! <T1>°C

Alarm Clear Text :

This messages will be send if alarm state is cleared.

Temperature OK! <T1>°C

Free memory: 49421 bytes

Temporary Storage   Undo   Logout

4.11 Sending alarms via FTP (Client Mode)

Highlight Profile
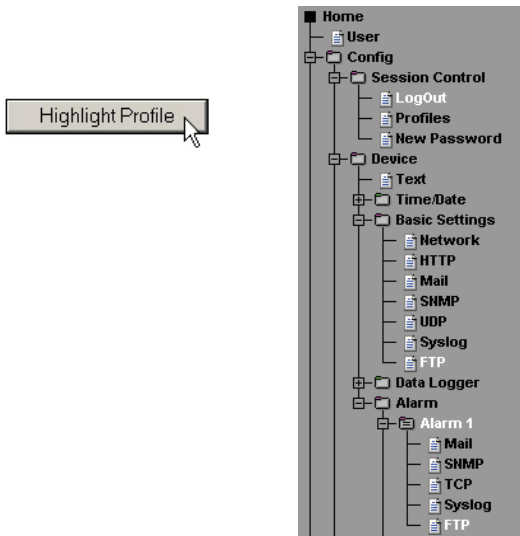
Write the temperature values directly to an FTP server.

4.11.1 Basic Settings -> FTP

Here you will find the basic settings needed for FTP mode.

FTP Server IP: Enter here the IP address or the host name of your FTP server to which you want to send the data.

FTP Control Port: This is the port needed for the connection. The standard port for FTP access is 21. This port is already preset and should function with no problem on most systems. If you require a different port, please notify your system administrator.

User: Enter here the user name needed for the FTP access.

Password: This is the password assigned to the user.

FTP Account: Some FTP servers require a special account entry for login. If this is true of your server, enter the Account Name here.

Options / PASV: If this option is enabled, the server is instructed to operate in passive mode. This means that the data connection is opened by the Web-Thermograph. If this option is disabled, the FTP server takes over opening of the data connection. If the server is protected with a firewall, you should enable the PASV option, since otherwise connection attempts may be blocked.

W&T

Config >> Device >> Basic Settings >> FTP

FTP Server IP :	Name or IP address of the FTP server (format xxx.xxx.xxx.xxx)
	192.168.0.5
FTP Control Port :	Port No.: 1...65536 (default 21)
	21
User :	user
Password :	password
FTP Account :	account
Options :	Switch FTP server into Passiv Mode.
	(possibly necessary in a firewall environment)
	☑ PASV
Enable :	☑ FTP enable
	Free memory: 49003 bytes

[Temporary Storage] [Undo] [Logout]

4.11.2 Alarm X -> FTP

FTP Local Data Port: This is the local port on the Web-Thermograph. Values between 1 and 65536 are valid. Entering „AUTO" causes the device to dynamically select the port.

File Name: Enter here the path to the file you want this device to access.

FTP Alarm Text: Specifies the text of the ftp content. In this text field the following tags will be also accepted. The device exchanges these tags with the actual values.

W&T tag value		Function
comma spelling (##,#)	dot spelling (##.#)	
<T1>	<t1>	*Temperature:* Displays the current temperature.
<RC>	<rc>	*Rate of change:* Displays the rate of change from the last 5 minutes.
<AA>		*Alarm active:* Shows all alarms (numbers, komma separatet) which are currently active.
<AN>		*Alarm sensor number:*Shows all sensors (numbers, komma separated) which match with the configured alarm values per alarm.
<AS>		*Alarm sensor name:* see above, but with sensor names (komma separated)
<DN>		*Device Name:* Shows the device name.

W&T tag date + time	
<Z>	Displays the actual time and date as a string.
<$y>	*Year (####):* Displays the year.
<$m>	*Month (##):* Displays the month.
<$d>	*Day (##):* Displays the day.
<$h>	*Hour (##):* Displays the hour.
<$i>	*Minute (##):* Displays the minute.
<$s>	*Second (##):* Displays the second.

If you want a line feed after each data transmission, insert a CRLF by pressing the RETURN key at the end of the line.

Alarm Clear Text: After ending the alarm state this message is sent. The above listed tags can be used here as well.

Options:

STORE: Stores a file and writes the data to it. If this file already exists, it is overwritten.

APPEND: Appends the data to an existing file. If the file does not yet exist, it is created.

W&T

Config >> Device >> Alarm >> Alarm 1 >> FTP

FTP Local Data Port : Port No.: 1...65536 or AUTO = assign next free port number.

AUTO

File Name : /folder/temperature.txt

FTP Alarm Text : <Z>: <T1>°C

Alarm Clear Text : This messages will be send if alarm state is cleared.

Options :
- ○ STORE
- ● APPEND

Free memory: 49003 bytes

Temporary Storage   Undo   Logout

4.12 Sending alarms via Syslog

IP Addr: The IP address where the message should be sent.

Port: The recipient must have a syslog server on this port which can accept incoming connections. (Standard: 514)

Syslog Text: The text conforms to the same specifications as apply the other message types.

Alarm Clear Text: see above

Subject to errors and changes

4.13 Check Alarm
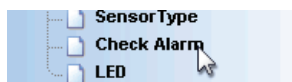
On this configuration page you can test the alarms you set.
Clicking on the „Trigger" button for the respective alarm si-
muloates the presence of an alarm, so that the configured
actions can be performed accordingly. Clicking on the „Reset"
button restores the alarm status to normal state.

4.14 ASCII command strings via TCP Port 80
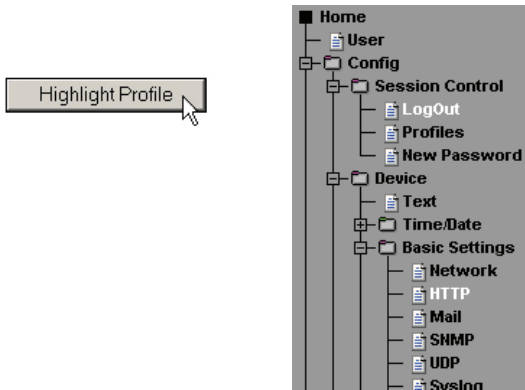
4.14.1 HTTP

When polled by an HTTP Get command, the device can also send a header with IP address and name of the device along with the temperature. To do this, check the corresponding box. If this function is disabled, only the temperature is sent.

The function *GET HTTP enable* causes that a complete HTTP-header is sent with a device answer. This is needed for example for mobile applications.

4.15 ASCII command strings via UDP

In addition to TCP/IP commands, the device can also reply to UDP datagrams. This requires setting the port the device should „listen" to. The default setting is 42279. The Enable

This also applies to the setting for the header, which can be attached to the temperature in messages.

4.16 UP-/Download
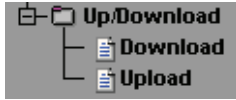
The Download area is where you can download the XML confi-
guration as well as the three user pages (home.htm, user.htm,
log.htm) for further editing.

In the case of XML-Download you can read the settings for the
Web-Graph Thermometer, make any changes, and save them
again in the unit using XML Upload.

*With some Web browsers the correct code is output
only using „View-> (Frame-) Show source text"-
after the „XML-Download" button has been clicked.*

For the XML Upload you create or change a text file with the
respective parameters and load this file into the device. The
Web-Thermograph configuration must begin with the expres-
sion

```
<io-AN1.3>
```
and end with the expression

```
</io-AN1.3>
```
Configuration of the Web-Thernograph 8x must begin with
the expression

```
<io-AN8.3>
```
and end with the expression

```
</io-AN8.3>
```

The sequence of the parameters you set corresponds to the order of the configuration menu starting with the item „Device".

The syntax of the configuration using XML is as follows:

```
<Option>
    <Parameter1> VALUE </Parameter1>
    <Parameter2> VALUE </Parameter2>
</Option>
```

The individual options and parameters correspond to the configuration items in the browser menu.

! *Plese note, especially for mass updates and configurations, that the IP address saved in the XML file is also sent and must only then be adapted.*

In the Upload area you can also exchange the user pages (user.htm, home.htm, log.htm).

An example can be found in the Appendix (6.2).

Use the menu item „Upload -> GIF" to replace the logo shown

4.17 RSS-Feed

The device supplies a RSS feed, which can be subscribed by feed readers. The configuration can be found under Basic Settings >> RSS..

Channel Title: Headline, which will be be indicated within the feed.

Cannel Link: This link will be called after a clicking the title.

Channel Description: Optional, additional information about the content of the feed.

Channel Image: Path to an image, which will be shown within the feed.

Image Title: Optional title for the image.

Image Link: This link will be called after a clicking the image.

Item Title: Headline for the seperate items.

Item Link: This link will be called after a clicking the item.

Item Description: Optional, additional information about the content of the item.

Item Quantity: Quantity of displayed items within the feed. These items are always the last available saved values.

In all textboxes the following tags can be used to display the measured values:

<Tx>   shows the temperature values (x= sensor number)

<Z>   shows the time and date information.

and all W&T-tags for date und time:

<$d>, <$m>, <$y>, <$h> , <$i>, <$s>

5 Single polling of temperatures

5.1 Temperature polling via TCP/IP

It is possible to manually poll current temperature values in CSV format using a socket connection. This function as well is sued to poll the individual data without the Web interface.

To do this, send the following string to Port 80 on the device:

```
GET /Thermo.csv
```
This expression may also be given additional parameters that determine the content:

```
start=ttmmyyyyThhmmss
```
Start date and time of the desired values.

```
end=ttmmyyyyThhmmss
```
End date and time of the desired values.

```
DTb=x&
```
Desired interval where x =

```
1  -> 1 min.
2  -> 5 min.
3  -> 15 min.
4  -> 60 min.
```
The expression must begin with „?" after the filename. Each variable must be separated with a „&" .

Example:

```
http://<ip-address>/thermo.csv?start=01012010T123000&end=30032010T200000&DTb=3&
```
This expression generates a CSV file containing the data from 01.01.2010, 12:30h up to 30.03.2010, 20:00h in 15 minute intervals.

W&T

To get the single, current temperature value, send:

```
GET /Singlex (x = Sensornumber)
```
To poll all temperatures at the same time, send:

```
GET /Single
```

5.2 Temperature polling via UDP

Open a UDP connection to the IP address of the unit or to the Net-ID as a broadcast and Port 42279 (setting variable).

Send the device one of the GET /Single expressions given under 4.1 and the device will return the value to the port you are using.

i *When using multiple units it may be helpful to have the name and IP address of the device output as well. To do this, activate „GET Header enable" under „Config >> Device >> Basic Settings >> HTTP".*

5.3 Temperature polling via SNMP

SNMP-Get instructions can be used to directly poll the sensor. You reach the sensors through the following path:

Web-Thermograph (NTC/PT100):

<IP-Address> 1.3.6.1.4.1.5040.1.2.8.1.3.1.1.1 = Temperature with one decimal place and comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.8.1.4.1.1.1 = Temperature value as 3-digit integer value, without comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.8.1.8.1.1.1 = Temperature with one decimal place and dot separation.

Web-Thermograph 2x:

<IP-Address> 1.3.6.1.4.1.5040.1.2.7.1.3.1.1.1 (last place = sensor number) = Temperature with one decimal place and comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.7.1.4.1.1.1 = Temperature value as 3-digit integer value, without comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.7.1.8.1.1.1 = Temperature with one decimal place and dot separation.

Web-Thermograph 8x:

<IP-Address> 1.3.6.1.4.1.5040.1.2.6.1.3.1.1.1 = Temperature with one decimal place and comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.6.1.4.1.1.1 = Temperature value as 3-digit integer value, without comma separation.

<IP-Address> 1.3.6.1.4.1.5040.1.2.6.1.8.1.1.1 = Temperature with one decimal place and dot separation.

> **!** *For polling, give the configured SNMP Read or Rea/Write Community.*

An MIB for incorporation into management applications can be downloaded from the data sheet page for the device at the WuT homepage http://www.wut.de.

If you want to make changes in the device via SNMP (IP address, subnet mask, etc.) you must first start a session on the device using your SNMP manager.

Entering the Administrator password in the variable

`wtWebioAN1graphSessCntrlPassword`

opens a session. Reading the variable

`wtWebioAN1graphSessCntrlConfigMode`

allows you to check whether the session was successfully opened.

1 = Session opened, device in configuration mode.
0 = Opening of the session failed. Check whether a password may have been entered incorrectly.

After successful opening of the session you can use the variables defined in the private MIB to make any desired configuration changes.

Once the configuration has been completed, write the variable

`wtWebioAN1graphSessCntrlLogout`

to close the session.

`wtWebioAN1graphSessCntrlLogout =`

1   All changes are saved
2   Quit without saving

If there is no SNMP communication in an open session during a period of 5 minutes, the device quits the session and all changes are cancelled.

Opening an SNMP session has priority over an HTTP login. This means: A user with Config or Administrator rights loses his browser access as soon as an SNMP session is opened.

The description for the individual SNMP variables OIDs etc. can be found in the private MIB.

6 Incorporating the temperature into your own Web site

It is possible to use an implemented Java applet to integrate the temperature on your own Web page. The applet is re-freshed every 60s. An example for this applet is already in the device:

```
http://172.0.0.10/app.htm
```

To incorporate the applet for temperature monitoring into the HTML page, the following HTMP tag must be inserted at the point where the applet will be incorporated:

```
<Applet Archive="A.jar" Code="A.class" Codebase="Http://WebTherm/"
Width="width" Height="height">
```

Now the following parameters may be optionally specified:

Background color:

```
<Param Name="BGColor" Value="#RGB-value">
```

Font color:

The RGB value is given as a 24-bit hex value. e.g.:Value="#2F3C09" This is not case-sensitive.

Specifying text alignment:

```
<Param Name="Align" Value="const">
```

const must be one of the following constants:

➵ Left
➵ Center
➵ Right

This is not case-sensitive.

If a parameter is omitted or incorrectly set, the following stan-dard values are used

BGColor	#FFFFFF (weiß)
FGColor	#000000 (schwarz)
Align	Right

The sensor is selected using the parameter

```
<Param Name="Sensor" VALUE="1">
```

The unit (for example for the humidity sensor) is specified by the parameter

```
<Param Name="unit" VALUE="% rel.">
```

The parameter is a string type. If it is not specified, a „C" is automatically set.

If you want to use your own Java functions which access multiple device applets, you can use the parameter

```
<Param Name="device" VALUE="0">
```

to number the applets for each device begining with 0.

Turning polling of the sensors off and on is accomplished using the parameter

```
<Param Name="sensorpolling" VALUE="on">
```

or „off". The default setting is „on".

If you use a different polling rate than the default 60 seconds, use the parameter

```
<Param Name="pollingrate" VALUE="60000">
```

in units of ms. Note that no sooner than every 4 seconds a new value is available.

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To output an error message when there are problems opening a connection, use the parameter

```
<Param Name="showerrors" VALUE="on">
```

or „off" to turn this on or off. The default value is „off".

Once all the parameters are defined, you must close the HTMP tag with </Applet>.

Example:

```
<Applet Archive="A.jar" CODE="A.class"
Codebase="http://192.168.0.10" Width="300" Height="100">
<Param Name="unit" VALUE="% rel.">
<Param Name="device" VALUE="0">
<Param Name="BGColor" Value="#0000FF">
<Param Name="FGColor" Value="#FF0000">
<Param Name="Align" Value="Center">
<Param Name="Sensor" Value="2">
</Applet>
```

The font size is automatically determined by the size of the applet.

6.1 Controlling the Java applet with JavaScript

To be able to use control of the Java applet with JavaScript, the addition „mayscript" must be specified in invoking the applet:

```
<Applet Archive="A.jar" CODE="A.class"
Codebase="http://192.168.0.10" Width="300" Height="100"
mayscript>
```
In order to work with the applet the corresponding JavaScript function must be declared in the header of the Web page.

The following reading function is used for this:

```
function sensorChanged( iDevice, iSensor, iVal )
  { Program code run when there is a change on the inputs
```

The above function is invoked by the applet when a tempera-
ture change on the sensors is detected. *iDevice* specifies for
which Web-Thermograph a value changed. *iSensor* is used to
indicate which sensor changed. The variable *iVal* transmits
the current temperature value.

! *Please note that the names of the functions are
case-sensitive*

The following source text shows a small example for
dynamic display of Sensor 1.

```
<html>
<head>
<script language="JavaScript" type="text/javascript">
        function Temp (iVal, iSensor)
         {
         document.getElementById('temptab').firstChild.data = iVal+'°C';
         }

        function sensorChanged( iDevice, iSensor, iVal )
        {
        Temp (iVal, iSensor);
        }
</script>
</head>
<body style="background-color: #79ACDF;
font-family: Arial, Helvetica, sans-serif;">

<div align="center"><noscript> JavaScript is not activated
or not supported </noscript>

  <p><applet name="Analog" archive="A.jar" code="A.class"
    codebase="http://192.168.0.5" height="0" width="0" mayscript>
```

Subject to errors and changes

```
    <param name="device" value="0">
    <param name="showerrors" value="off">
    <param name="sensorpolling" value="on">
    <param name="pollingrate" value="4000">
    Java is not activated or is not supported
  </applet></p>

  <table width="200" cellspacing="0" cellpadding="0" bordercolor="#FFFFFF"
 align="center">
  <tr bgcolor="#CCCCCC">
    <td id="temptab" align="center">0</td>
  </tr>
  <tr bgcolor="#999999">
    <td>
      <div align="center"><font size="2" color="#FFFFFF">Sensor 1</font></div>
    </td>
  </tr>
 </table>
</div>
</body>
</html>
```

i *A more complete example for use of the Javaapplet is on the Web page app.htm, which can be opened in the Web-IO.*

7 Display of measured values on smartphones
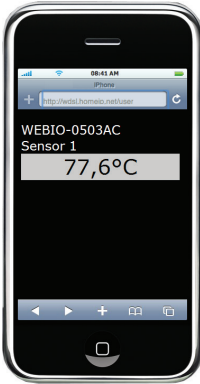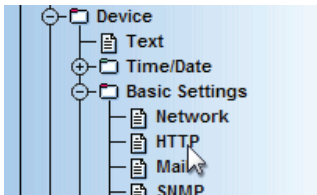
In order to view the values comfortably on mobile phones and smartphones, the device has a preconfigured web page that is adjusted to the specific proportions. This can be directly accessed from the configuration menu via the entry „Smart".
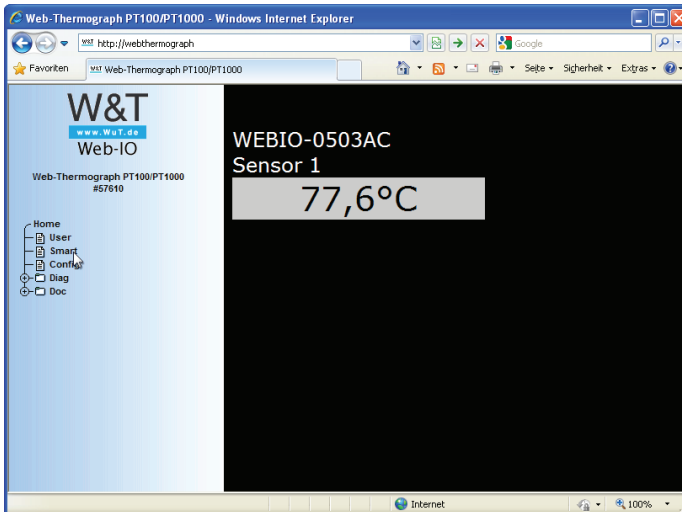
The right frame now shows the system name of the device. The names of the available sensors are displayed, including their values.

The page can be accessed directly through the browser via http://<ip-address>/smart.htm. With this call, the page will be displayed without the configuration menu.

The page smart.htm can be set as startup page. To do this, configure it in Config -> Device -> Basic Settings ->HTTP.

Config >> Device >> Basic Settings >> HTTP

Startup :

Startup page	
index.htm	Show navigation tree as well as page 'home'.
home.htm	Show page 'home' without navigation tree.
user.htm	Show page 'user' without navigation tree.
smart.htm	Show page 'smart' without navigation tree.

○ index.htm
○ home.htm
○ user.htm
◉ smart.htm

Enable : Device will send header with IP address and its name before each reply to any GET requets which do not come from a browser.

☑ GET Header enable
☐ GET HTTP enable

HTTP Port : Default. Port 80

80

Free memory: 43901 bytes

[Temporary Storage]   [Undo]   [Logout]

The page smart.htm can also be customized to your needs by selecting it via the menu Config -> Up / Download -> Download, editing it and uploading it back into the device via Config -> Up / Download -> Upload.
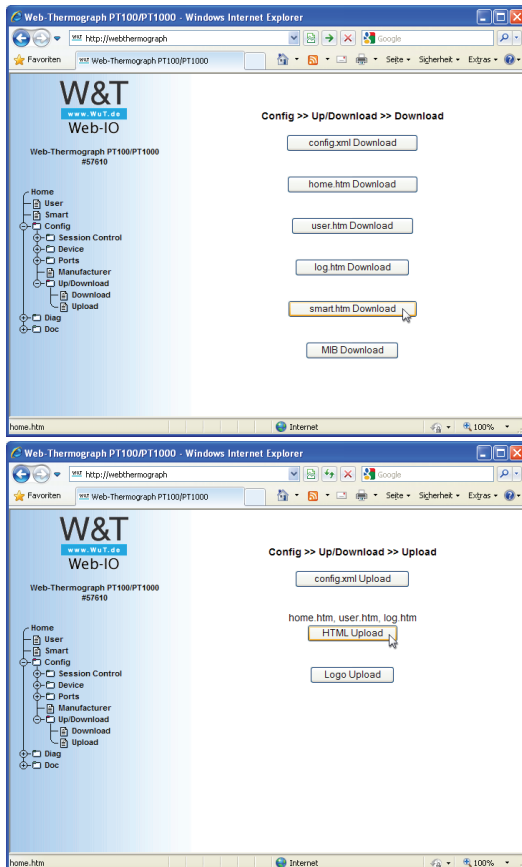
8 Data logger

The Web-Thermograph saves all measured values to a perma-
nent ring memory so that they remain even after disconnec-
ting the power or pressing the Reset button.

i *The measured data on the data logger are acquired
through the user page of the device (Home -> User or
http://*

xxx.xxx.xxx.xxx/user.htm).

Under *Config -> Device -> Data Logger -> Memory* you are gi-
ven the opportunity to clear the memory.

An interruptoin of the timeline, such as after a reset or a
subsequent time server synchronization is shown on the data
logger page as a yellow line.

14.10.2003	Di	08:48	23,1
14.10.2003	Di	08:47	23,1
14.10.2003	Di	08:46	23,1
14.10.2003	Di	08:45	23,0
01.01.2002	Di	12:08	23,0
01.01.2002	Di	12:07	23,0
01.01.2002	Di	12:06	22,9
01.01.2002	Di	12:05	22,9
01.01.2002	Di	12:04	23,0

Zeitliche Unterbrechung:
Zeile gelb markiert

*If alarm limits are set, temperatures which do not lie
in the valid range are highlighted in red.*

9 Appendix

9.1 Alternate methods of assigning the IP address

9.1.1 Using DHCP-/BOOTP protocol

Many network use DHCP (Dynamic Host Configuration Proto-col) or BOOTP for centralized and dynamic assigning of the IP addresses. For Web-Graph devices it makes no difference which of the two protocols is used, since DHCP is simply a downward-compatible extension of BOOTP. DHCP servers thus also make use of requests from BOOTP clients.

The following parameters can be assigned to the Web-Ther-mograph using these protocols:

➥ IP-Address
➥ Subnet-Mask
➥ Gateway-Address

It is not possible to transmit additional parameters or a lease time.

Function

To obtain an IP address, the device sends a corresponding BOOTP request as a broadcase to the network after each re-start. The reply then generated by the DHCP/BOOTP server contains the IP address as well as the subnet mask and gate-way address. The Web-Thermograph immediately stores this information in its non-volatile memory.

Subject to errors and changes

For starting up the device in DHCP/BOOTP networks, please consult with your system administrator. If the address is assigned using DHCP, you must also note that a reserved IP address is needed. To update the respective address database, the administrator will need the Ethernet address of the Web-Graph Thermometer, which can be found on the part label on the housing of the device.

After the necessary entries have been made, the device automatically gets the desired IP address after each reset. To ensure that the Web-Thermograph is also available should the DHCP/BOOTP server fail, the previous IP address is retained if a reply is not forthcoming.

! *In DHCP environments the IP address you assign must be reserved by means of a fixed link to the Ethernet-address of the Web-Thermograph. Under Windows NT his is done in the DHCP Manager under menu item „Reservations". Linux provides the file „dhcpd.conf" .*

! *If this option will be changed in the web-configuration the system change will first be updated after a device reset.*

9.1.2 ...Using ARP command

The prerequisite is a PC which is located in the same network segment as the Web-Thermograph and which has the TCP/IP protocol installed on it. Read the MAC address from the label on the device (e.g. EN=00C03D0012FF). Under Windows you first ping another network station and then use the command line described below to make a static entry in the ARP table of the computer:

```
arp -s <IP-Address> <MAC-Adresse>
```
e.g. under Windows:

```
arp -s 172.0.0.10 00-C0-3D-00-12-FF
```
e.g. under SCO UNIX:

```
arp -s 172.0.0.10 00:C0:3D:00:12:FF
```
Ping the device again (in our example ping 172.0.0.10). The IP address is now stored in non-volatile memory.

! *This method works only if no IP address has been assigned to the Web-Thermograph yet, which means the entry is 0.0.0.0. To change an already existing IP address hyou must open the configuration menu using your browser or use the serial method (see below).*

9.1.3 ...Using the serial port
In contrast to the procedure described above, you can use the serial port to change an already existing IP address for the Web-Thermograph.

Connect the RS232 port on the device to a PC (null modem cable; in the case of the Web-Thermograph NTC/PT100 (57609/57610) only pins 2, 3 and 5 are connected) and start a terminal program (e.g. Hyperterminal). Create a direct connection in the program through your COM port and set the serial properties to *9600 baud, no parity, 8 bits, 1 stopbit, no protocol.* Perform a reset by disconnecting power while holding down the „x" key until the reply *„IPno.+<Enter>"* appears. Now enter the IP address in dotted decimal notation (xxx.xxx. xxx.xxx) and finish your entry with *<Enter>*. You may also enter the subnet mask and gateway and turn off the BOOTP client directly if you use the following syntax after the input prompt (*IPno.+<Enter>*):

```
<IP-Address>,<subnetmask>,<gateway>-0
```

> **!** *If you make a typing mistake during your entry you cannot correct it with Backspace. The procedure must be repeated.*

If the entry was correct, the assigned parameters serve as the acknowledgement; otherwise the monitor shows the current IP address with the message „*FAIL*". This procedure can be repeated as often as necessary.

To turn off BOOTP (DHCP) functionality directly, enter the expression „-0" directly after the parameters (e.g. 192.168.1.2-0)

```
xxx
       -> Web-Thermograph
IP no.+<ENTER>:                                    <- Web-Thermograph 172.17.
231.99,255.255.255.0,172.17.231.1-0         -> Web-Thermograph
172.17.231.99,255.255.255.0,172.17.231.1-0            <- Web-Thermograph
```

To connect to a terminal you need a null modem cable:

Com-Server <> PC, 9pol.
W&T Art. Nr. 1199x

```
DB9/Buchse   1 <------ 4   DB9/Buchse
             2 <------ 3
             3 ------> 2
             4 ------> 1
             5 ------- 5
             6 <------ 6
             7 ------- 8
             8 <------ 7
```
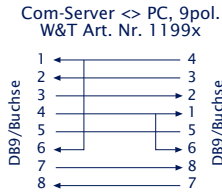
For a Web-Thermograph NTC/PT100 only pins 2, 3 and 5 are connected.

9.1.4 ...Using an RARP server (UNIX only)

Working with an RARP server activated under UNIX is based on entries in the configuraiton files */etc/ethers* and */etc/hosts.* First expand */etc/ethers* by one line with the assignment of the Ethernet address of the Web-Thermnograph to the desired IP address. In */etc/hosts* the link with an alias is then determined. Once you have connected the device in the network segment of the RARP server, you can use the network to assign the desired IP address to the device.

Example:

Your Web-Thermograph has MAC address EN=00C03D0012FF (sticker on the housing). You want to give it IP address 172.0.0.10 and the alias WT_1.

Entry in the file */etc/hosts:* 172.0.0.10 WT_1

Entry in the file */etc/ethers:* 00:C0:3D:00:12:FF WT_1

If the RARP daemon is not yet activated, you must start it now using the command „*rarpd -a*".

If you want to connect a sensor other than the delivered PT100/PT1000, the pin assignments are as follows:

2 = RxD
1 = do not connect
3 = TxD
4 = n.c.
5 = GND
6 = PT100/1000 (red)
7 = PT100/1000 (red)
9 = PT100/1000 (white)
8 = PT100/1000 (white)
I/O
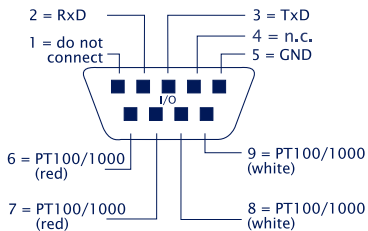
9.2 Example for creating your own Web pages

You have the ability to freely configure the standard display pages of the device (user.htm, home.htm, log.htm). Special control elements can be inserted into the page with the help of „tags". In the following you will find an example for creating the page „user.htm".

Create an HTML page that must begin with the expression

```
<user.htm>        (or log.htm or home.htm)
```
Then you enter the HTML code.

You have the ability to display the following parameters on your pages:

```
<w&t_tags=tx>
```
displays the current temperature, where x is the number of the sensor. (°C)

```
<w&t_tags=time>
```
inserts the current time.

```
<w&t_tags=steps>
```
inserts a list box for selecting the time intervals for display.

```
<w&t_tags=ok_button>
```
inserts an „OK" button which sends the selected parameters to the unit.

```
<w&t_tags=session>
```
inserts an invisible session control so that when the user leaves the page he is not logged out from the device. The expression is only needed if you want to design your own button for sending. Then insert this expression between *<form action>* and *</form>*.

Background color:

Background colors representing the sensor state can be used for the values shown in tables:

`<w&t_tag=bct>`
describes a background color (BGColor) which varies with the alarm state of the temperature sensor. If a limit violation is present, this color is red. Otherwise the tag does not describe an explicit color. This tag is needed for exaple to show limit violations in the log table in red. (°C)

`<w&t_tags=sensorx>`
inserts the name of Sensor x into the page and contains a link to the complete sensor description.

`<w&t_tags=device_name>`
inserts the assigned device name.

`<w&t_tags=device_text>`
inserts the freely configurable descriptive text for the device.

`<w&t_tags=location>`
`<w&t_tags=contact>`

inserts the respective text elements, which are configured under Config >> Device >> Text.

`<w&t_tags=reload_button>`

inserts a „Reload" button which reloads the current page.

`<w&t_tags=previous_button>`
`<w&t_tags=next_button>`
inserts a button for scrolling up or down respectively in the table.

W&T

> **!** *The „Previous" button and the „Next" button function only in the „log.htm" file.*

```
<w&t_tags=logtable>
```
inserts a table with the current measured values. You can navigate forward and backward in this table using the „Next" and „Previous" buttons only on the „log-page" (see above). On both the other pages (user.htm and home.htm) only the current measured values can be displayed.

Example for user.htm:

```
<user.htm>
<html>
<head>
<title>Untitled Document</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
</head>

<body bgcolor="#FFFFFF" text="#000000">
<p>Web-Thermograph</p>
<p>Zeit: <w&t_tags=time></p>
<p><w&t_tags=sensor1>: <w&t_tags=t1> °C</p>
<p> </p>

<form action="log.htm" method="POST">
    <p>Output format Data Logger:</p>
    <p><w&t_tags=steps></p>
    <p><w&t_tags=ok_button></p>
</form>
<form action="thermo.csv" method="POST">
    <p>Output format CSV-output:</p>
    <p><w&t_tags=steps></p>
    <p><w&t_tags=ok_button></p>
</form>

<form action="user.htm" method="GET">
```

Example for setting a background color in a table:

```
<tr>
    <td colspan="3" align="center">
    <table border="2">
        <tr>
            <th><w&t_tags=sensor1></th>
        </tr>
        <tr>
            <td <w&t_tags=bct>><w&t_tags=t1> &deg;C</td>
        </tr>
    </table></td>
</tr>
```

When there is a limit violation the temperature is highlighted in red.

To specify the output format of the data, insert the following line into your document:

```
<form action="log.htm" method="POST" >
....
</form>
```

CSV output can be specified by using the expression

```
<form action="thermo.csv" method="POST" >
....
</form>
```

! *Resetting the device to the factory defaults restores the original HTML pages.*

W&T

Example for log.htm:

```
<log.htm>
<html>
<head>
<title>Untitled Document</title>
<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
</head>

<body bgcolor="#FFFFFF" text="#000000">

<form action="log.htm" method="POST">
    <w&t_tags=previous_button>
</form>

<w&t_tags=logtable>

<form action="log.htm" method="POST">
    <w&t_tags=next_button>
</form>
</body>
</html>
```
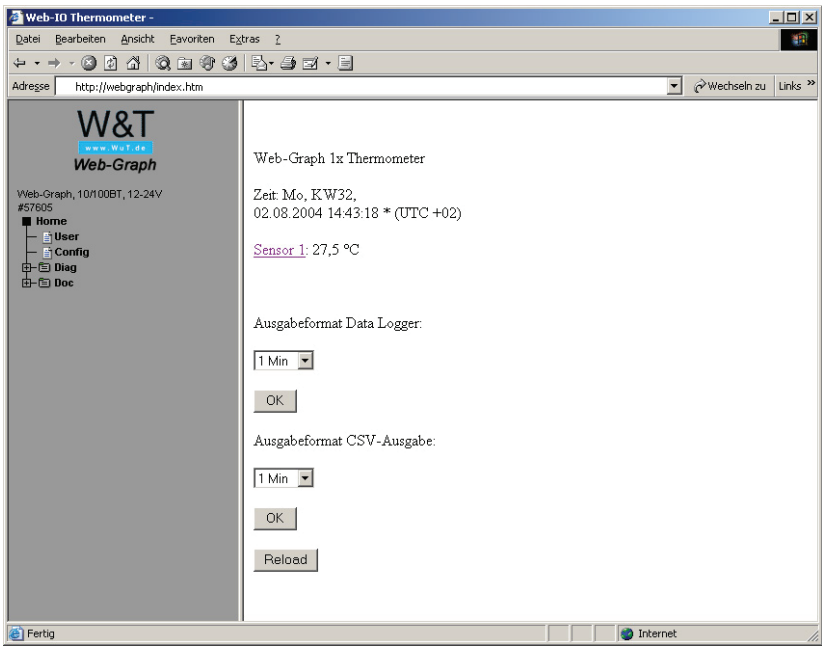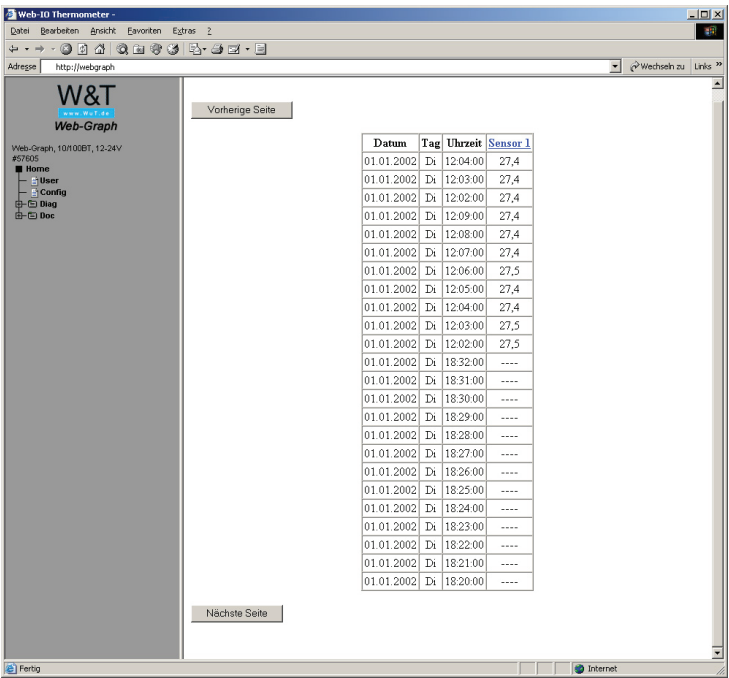
The Web-Thermograph displays this page in the Web browser as follows:

W&T

9.3 Firmware Update

We are continuously improving the Web-Thermograph opera-
ting software. The following section describes how to upload
a new version of the firmware.

■ Where can I get the newest firmware version?

■ Firmware update over the network running under Windows

9.3.1 Where can I get the newest firmware version?

The most up-to-date firmware including the available update
tools and a revision list is available on our Web site at: *http://
www.wut.de*

Before downloading, please first write down the 5-digit type
number printed on the Web-Thermograph label. From the Ho-
mepage you can access a product overview sorted by article
numbers, which takes you directly to the datasheet for the
respective device. Here you follow the link to the current ver-
sion of the firmware.

9.3.2 Firmware update over the network using Windows

The prerequisite is a PC running Windows 9x/NT/2000/XP
with a network connection and activated TCP/IP stack. For
the update process you will need two files, which as already
mentioned are available for downloading from our Homepage
http://www.wut.de.

·   The executable up-
date tool for loading the firmware into the
   Web-Thermograph

· The file with the new firmware for loading into the Web-
   Themograph

No specialy preparation of the Web-Thermograph is necessary for the firmware update.

The *WuTility* program used for the update recognizes the WuT devices already in your network and is for the most part self-explanatory. If you do have any questions or something is unclear, please refer to the accompanying documentation or use our online help.

! *Never intentionally interrupt the update process by disconnecting the power or pressing the Reset button.- After an incomplete update the Web-Thermograph will be inoperable.*

Never mix files with different version numbers in their file na-mes. This will result in malfunction of the device.

9.3.3 LED indicators

➥ Power-LED: Indicates that the power is on. If the LED does not come on, please check for proper connection of the power supply.

➥ Status-LED: Flashes when there is network activity by the Web-Thermometer. Periodic flashing indicates a ready state.

➥ Error-LED: The Error LED uses various flashing codes to indicate error conditions on the device or network port.

1x flashing of the Error-LED = Check network connection. The Web-Thermograph is not receiving a link pulse from a hub or switch. Check the cable or the hub/switch port.

2x or 3x flashing of the Error-LED = Force a reset by interrupting power. If this does not resolve the issue, reset the device to its factory defaults. Since all network settings will also be reset, you should write down your network settings before doing this.

```
Config -> Session Control -> LogOut -> Restore Defaults
```

After a reset the device is restored to its factory defaults Reconfigure your network settings.

Power-LED +Status-LED +Error-LED on = Self-test error

The self-test performed after every start or reset of the Web-Thermograph may not have been correctly finished - sometimes due to an incomplete firmware update. The device is no longer operational in this state. Please return it for service.

Additional LEDs (internal for model 57609/57610)

� on error http://xxx.xxx.xxx.xxx/diag -LED: Indicates internal errors in configuration. For troubleshooting, open the page http://xxx.xxx.xxx.xx/diag in the device.

➤ system error: Serious hardware error. Try to restart the device by interrupting the supply voltage. If the condition persists, return the unit to us for inspection.

! *If the Web-Thermograph has no IP address or if the address is 0.0.0.0, the LEDs remain on error and system error after a reset or new start! The system error LED flashes 3x after a short time. Only when an IP address is assigned do the LEDs turn off.*
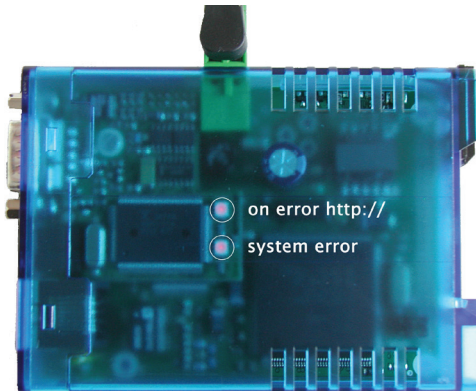
9.4 Emergency access

An emergency access function is available using the serial terminal (DTE). This is activated as follows:

Use a serial cable to connect the device to a PC (null modem cable; use only pins 2, 3, 5) and start a serial terminal program. Configure the program settings for

9600,8,N,1,no handshake

Connect the device to the network. Interrupt the supply voltage. Power on the device again and press the following letters in your keyboard 3x in the first three seconds for the individual accesses:

3x „u"   Opens the update port. A firmware update can now be performed.

3x „f"   Restores the device to its default settings. All configuration setting made previously (incl. IP address) are lost.

3x „p"   Deletes all assigned passwords.

By way of confirmation the system error and the on error http LEDs turn on multiple times one after the other.

3x „x"   (Directly after pressing the Reset key, enter before the audible tone) Assigning/changing the IP address. Enter the desired IP address when prompted.

Subject to errors and changes

9.5 Technical Data

Prod. No.:	57607, 57608, 57609, 57610, 57614, 57615
Network:	10/100BaseT autosensing
Supply voltage:	12-24V AC / DC with screw terminals
Supply voltage PoE:	Power-Over-Ethernet or
	18-48V DC or 18-30V AC via screw terminals
Measuring unit (57609, 57614)	
Sensor:	NTC 10k
Measuring range:	-45°C...75°C
Resolution:	1/10°C
Measuring error:	±0,3°C, ±5%
Storage frequency:	1, 5, 15, 60 min
Memory depth (832k):	min. 14 weeks, max. 16 years
Deviation of the internal clock:	max. 4,32 min. / Month
Housing:	Compact plastic housing, 105 x 75 x 22mm (lxwxh)
Current consumption:	AVG: 200mA @12VDC, 100mA @24VDC, 100mA @20VAC
	Max: 240mA @12VDC
	PoE Class 1 (0.44 - 3.84W)
Measuring unit (57610, 57615)	
Sensor:	Pt100, Pt1000 connection, 2-, 3- or 4-conductor
Measuring range:	W&T sensor: -50°C...180°C
	PT100/PT1000 measuring input: -200°C...650°C
Resolution:	1/10°C
Measuring error:	±0,3°C, ±0,2%
Storage frequency:	1, 5, 15, 60 min
Memory depth (832k):	min. 14 weeks, max. 16 years
Deviation of the internal clock:	max. 4,32 min. / Month
Housing:	Compact plastic housing 105 x 75 x 22mm (lxwxh)
Current consumption:	AVG: 200mA @12VDC, 100mA @24VDC, 100mA @20VAC
	Max: 240mA @12VDC
	PoE Class 1 (0.44 - 3.84W)
Measuring unit (57607, 57608)	
Sensor:	PT1000, PT100 connection, 2-, 3- or 4-conductor
Measuring range:	W&T sensor: -50°C...180°C
	PT100/PT1000 measuring input: -200°C...650°C
Resolution:	1/10°C
Measuring error:	±0,26°C, ±0,3%
Storage frequency:	1, 5, 15, 60 min
Memory depth (832k):	min. 4 weeks, max. 4. (57608) or 8 (57607) years
Deviation of the internal clock:	max. 4,32 min. / month
Power supply:	Supplied power adapter
	or 12..24 V DC/AC
Current consumption:	AVG: 200mA @12VDC, 100mA @24VDC, 100mA @20VAC
	Max: 240mA @12VDC
Configuration interface:	serial port RS232, 9600 baud, 8 data bits, 1 stopbit, no parity
Housing:	Compact plastic housing, 106.8mm x 87.8mm x 62.6mm (l x w x h)
Weight:	approx. 200g
Ambient storage temperature:	-40..+70°C
Ambient operating temperature:	0 .. +60°C

9.6 Disposal

This device contains a non-rechargeable lithium button battery type BR (lithium carbon monofluoride) for retaining the time even when the device is turned off. This battery must be disposed of after its useful life has expired. Take it to an official collection site for recycling.

First disconnect all cables and sensors from the device.

Screw the 6-pin screw terminal strip on and open the housing by gently pulling on the terminal.

Remove the screw joining the two circuit boards and remove the upper circuit board.

The button battery is located at the rear of the circuit board. Remove it from its holder and take it to a recycler.

side view

Battery