STULZ

CLIMATE. CUSTOMIZED.

WIB8000

Original instructions

Web Interface Board

Index G67C
Issue 11.2018

ABOUT STULZ

Since it was founded in 1947, the STULZ company has evolved into one of the world's leading system suppliers of air-conditioning technology.
Since 1974 the group has seen continual international expansion of its air conditioning technology business, specialising in A/C for data centres and telecommunications installations.
STULZ has ten production plants (2 in Germany, Italy, the USA, Great Britain, Spain, 2 in China, Brazil and India) and twenty subsidiaries (in Germany, France, Italy, Great Britain, Belgium, Brazil, the Netherlands, New Zealand, Mexico, Austria, Poland, Spain, Singapore, China, India, Indonesia, South Africa, Sweden, Australia and the USA).
The company also co-operates with sales and service partners in over 140 other countries, and therefore boasts an international network of air-conditioning specialists.

Editor

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This manual refers to the software version WIB8000 v2.00.

Subject to technical modifications.

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1. Safety

Connection to the internet

The WIB8000 (**W**eb **I**nterface **B**oard) may not be connected directly to the internet, but must be protected by a firewall or a VPN tunnel.

So choose an IP address for the WIB from the private address ranges according to RFC 1918.

10.0.0.0 - 10.255.255.255
172.16.0.0 - 172.31.255.255
192.168.0.0 - 192.168.255.255

Find details for the IP address setting on page 15.

Settings

A password with administrator authorization for the first access is printed on the adhesive label.
Find details for the password setting on page 27.

NOTICE

All three passwords must be modified by the administrator during start-up (possibly specifically for each WIB module) !

ESD NOTE

Notice the country specific ESD standards when opening the unit.

IMPORTANT NOTE:

Some software versions have alterations in the file structure for parameter settings.
This was necessary to add new parameters.
New software versions are always capable of reading and interpreting older files of settings.
Older software versions can not read and interprete new files of settings.
Thus any downgrade (loading an older software than the currently loaded one) should be avoided because it might lead to loss of settings.

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2. Operation modes

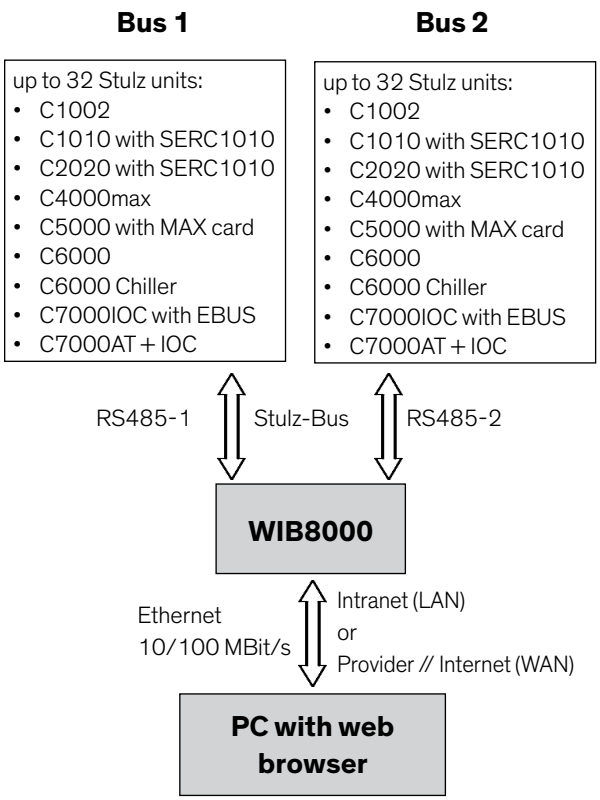
The WIB (Web Interface Board) is an interface between STULZ air conditioning units and the intranet or internet via an ethernet connection.
This connection allows monitoring and control of A/C units. On the operators's side the appropriate hardware (PC or server) and the appropriate software (SNMP client and/or web browser) are necessary.
The STULZ controllers in A/C units are sequentially scanned on occurred alarms and availability. In case a controller detects an error or a controller is not available (power failure at the A/C unit), the webside displays this error, an alarm email is sent and a SNMP trap message is sent to each of the max. 6 configurable SNMP trap receivers.
The corresponding Stulz controller provides a read out of all operating data simultaneously with the network request (SNMP GET function or opening of a website).
In case values are changed via the website or the SNMP client, these values are immediately transferred to the corresponding controller.
Every single user can individually choose between the temperature display in °C or °F as well as among different user languages when the data is displayed on the website (http). For website display it is not necessary to allow Javascript or cookies. The individual user settings (temperature, language) are saved simply by creating a bookmark in the browser.
It is also possible to assign a sequencing function via the Stulz bus; i.e. the controller receives on/-off commands via the Stulz bus. The sequencing function includes an alarm monitoring and an A/C unit start when limit values are exceeded.

Following protocols are supported:

- SNMPv1/v2c (Simple Network Management Protocol, Version 1, Version 2c), IPv4
  Port 161
- HTTP (Hyper Text Transfer Protocol), IPv4
  Port 80

The WIB exists, as far as the hardware is concerned, in two versions:

1. installed in the electrical box of an A/C unit, where it is supplied by the 24 VAC voltage already present in the A/C unit.
2. installed in a separate box with individual power supply.



Furthermore necessary for the start-up:

1. PC or notebook with network connection
2. Cross-over cable or patch cable + switch/hub
3. Web browser as e.g.
   - Internet Explorer from version 9
   - Mozilla Firefox from version 2
   - Opera from version 9
   - Safari from version 3

In addition to this you should have your system administrator provide you with all necessary data for the start-up. In appendix A6 there is a form which you should have filled in for this purpose.

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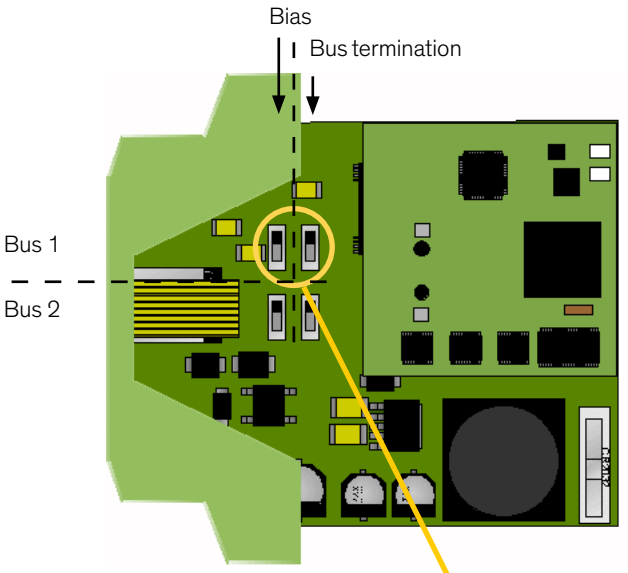
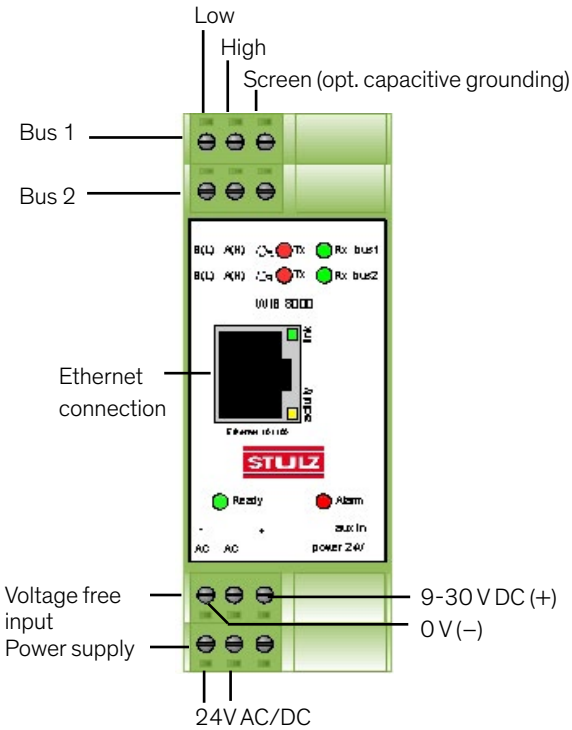
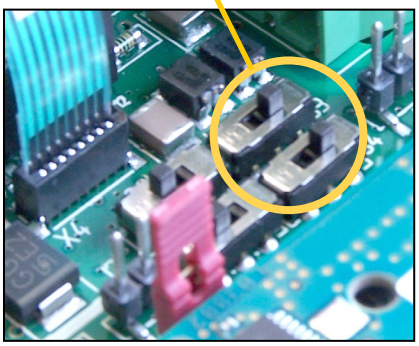
3. The Hardware

3.1 WIB8000 board



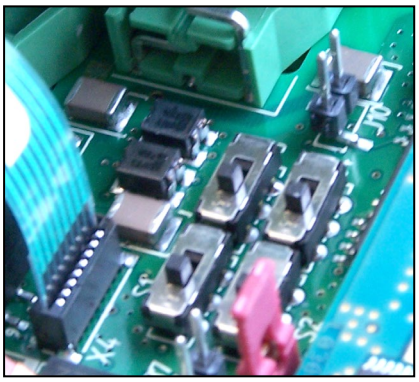


Setting at the end of the bus:



Bias: high
Bus termination: on

Setting in the middle of the bus:



Bias: low
Bus termination: off

Technical data:

Supply voltage:	24V AC/DC ± 10%
Frequency:	50/60 Hz ± 1%
Power consumption:	on request
Operating temperature:	5 ... 40°C
Stockage temperature:	-30 ... 60°C

The voltage-free input can be used to send an e-mail with up to 255 characters when the voltage at this input rises from 0 to at least 9V or drops from at least 9V to 0V.

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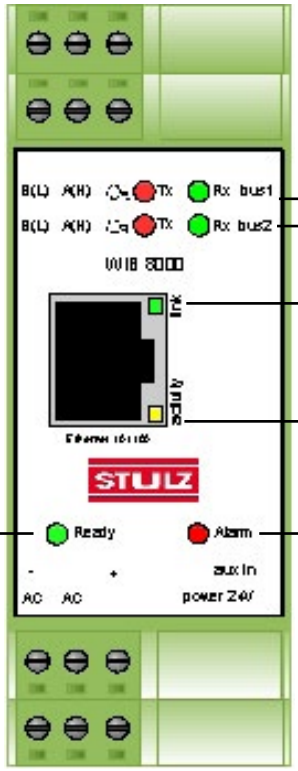
Function of LEDs



Bus activity:
Bus 1, } red LED when sending data,
Bus 2, } green LED when receiving data, but also when data is sent, as the WIB checks outgoing data.

Network: Connection established, when LED illuminates

Network: Data transmission, when LED illuminates

State indication illuminates:
WIB ready

blinks:
Data is being saved, please wait.

Alarm indication illuminates:
Alarm on at least one controller

blinks:
internal WIB alarm (e.g.: e-mail cannot be sent), such an alarm is shown in the eventlog, but not in the alarm window

- Data management of up to 2× 32 Stulz controllers (A/C units)
- stand alone unit
- no display or keyboard, configuration and service exclusively with a PC via network
- independent real time clock.
- The software is saved in a Flash ROM. New software can be downloaded from a notebook or PC without the need of changing hardware.
- LED's show current bus activity and operating state of the board.
- The termination resistors for the RS485 busses are activated by internal switches.

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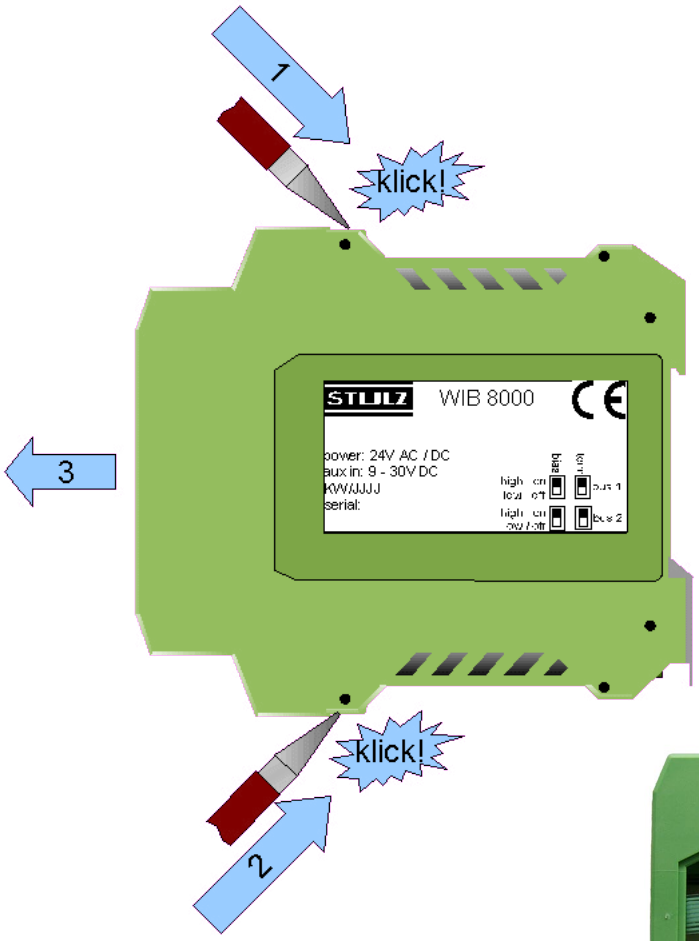
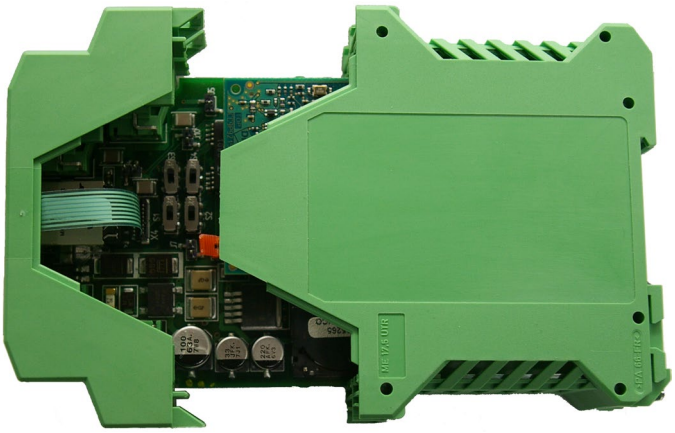
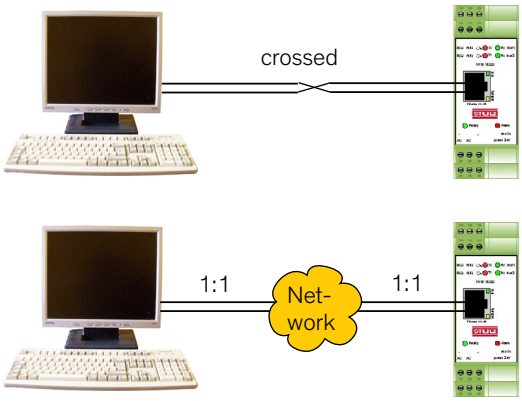


The WIB8000 housing can be opened best with a screw driver by pressing down the latchings.
The front part of the housing at which the board is fixed can be drawn out to the front.



3.2 Ethernet patch cable
(not included)

With a 1:1 network (Notebook or PC + WIB, no switch, no hub) a cross type cable is necessary.
The cable length should not exceed 100 m according to the Ethernet standard.
When installing the cable take care of not installing it in the proximity of power cables.



Note:
In chillers with a C6000, no sequencing at the chiller itself may be activated when a WIB8000 connection exists or is planned. Otherwise a communication with the WIB8000 is not possible, as the BMS bus is already used for the chiller sequencing.

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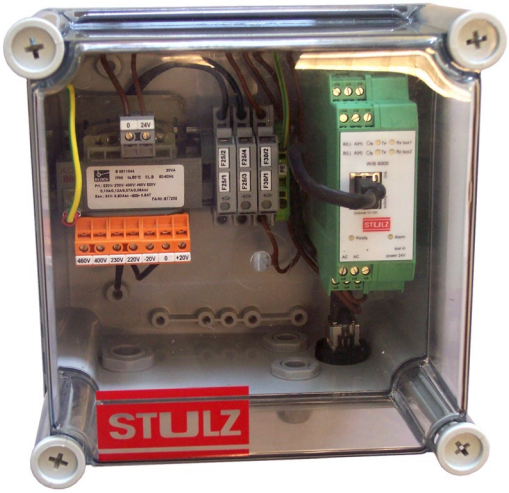
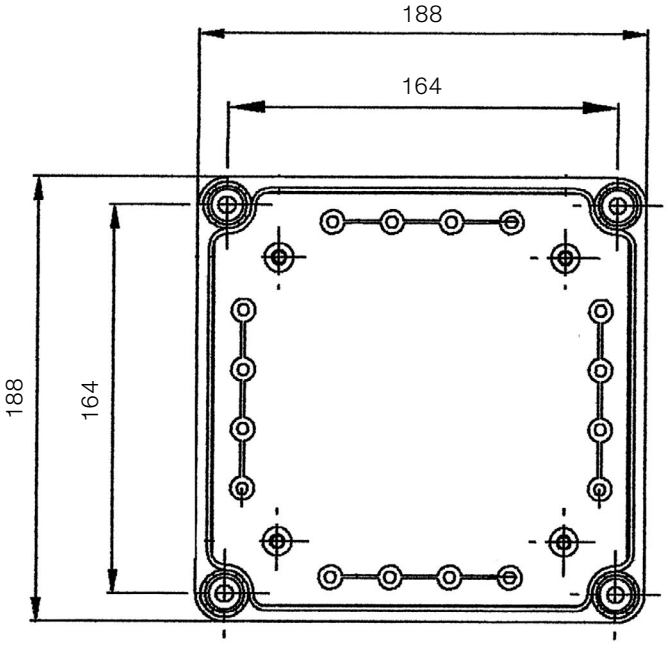
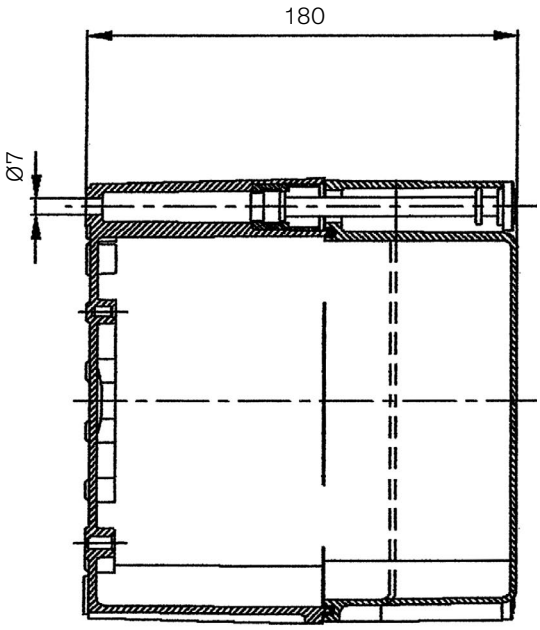
3.3 WIB8000 in separate box (option)

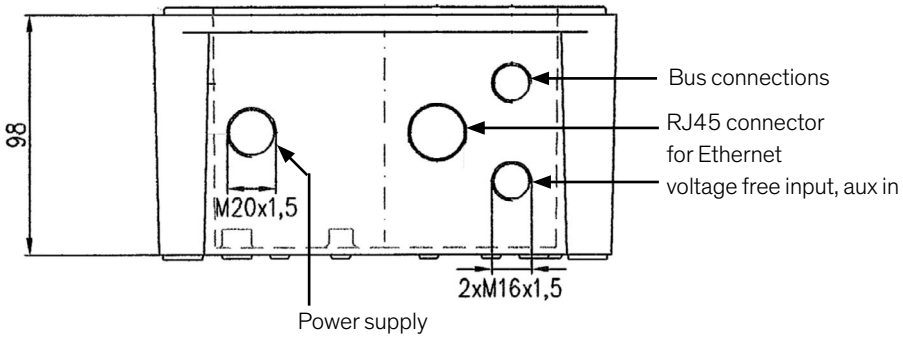


Technical data:

Supply voltage:	200/220/230/400/ 415/460 V CA ±10%
Frequency:	50/60Hz ±1%
Protection class:	IP 66/67
UV resistency:	UL 508
Fire classification:	UL 94 5V







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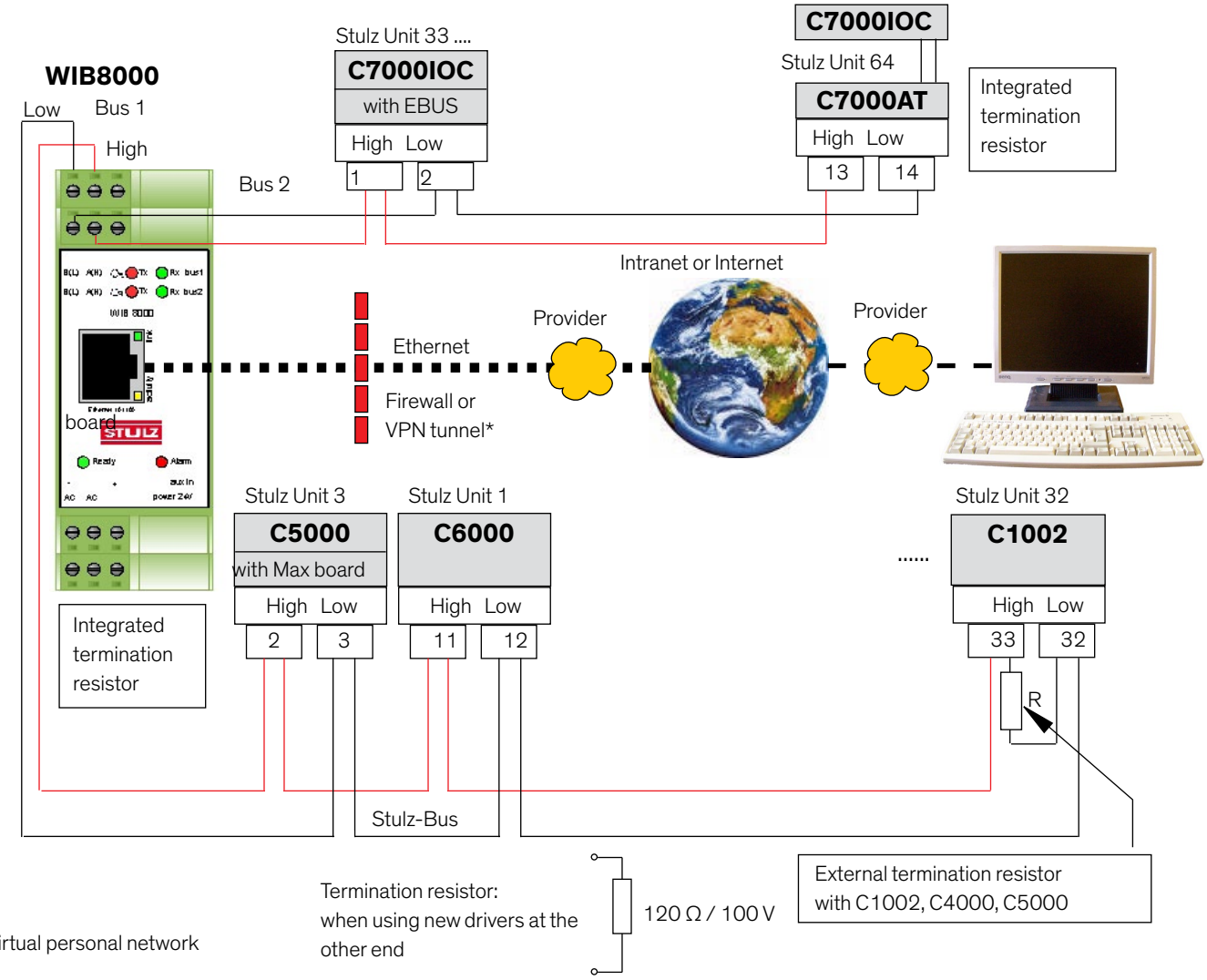
4. Connection / Wiring

4.1 The Stulz bus

The STULZ bus is a RS485 bus where up to 32 STULZ controllers can be connected with a WIB. The Stulz bus is an RS485 bus with fixed transmission parameters such as baud rate 9600 Baud, 8 data bits etc.

Following values are valid for the RS485 bus:
- Differential signal is transmitted via HIGH/LOW connection
- Maximum length: ca. 1000m (3300 feet)
- Maximal bus participant distance: ca. 35m (114 feet)
- Maximal bus participant number: 32
- Connection: 2 pole shielded data line, twisted in pairs with an impedance of 120 Ω
- Controllers wired in series, not in star
- Data bus termination resistor (R: 120 Ω) at the beginning and end of bus



*VPN: virtual personal network

The WIB has its own integrated termination resistor (R). This resistor must be activated by setting the switches S1 - S4, when the WIB is at the beginning or end of the Stulz bus.
The Stulz bus is a two wire connection with a screen which must be twisted in pairs. The screen must only be

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connected on one side of the cable to the provided terminals. Connecting the screen at both sides will lead to problems with different potentials.
All types of STULZ controllers can be connected in the STULZ bus.
- Controllers of type C5000 must be equipped with a MAX-Board.
- C4000 controller must be of the C4000max version.

4.2 Commissioning of the WIB module

To save the battery for the real time clock, the battery is not connected at the delivery. The connection is done by the jumper J1. See detailed description in appendix A2.

4.3 Adjustments to build up the STULZ bus

All units need their own CPU address/global address (C7000), without any duplicates, so that they can communicate in the bus line (Exception C6000 Supervisor/Controller). They are configured for each controller type as follows:

- C7000AT: command; globadr <globadr> or globid <globid> or menu BMS/Glob. address
- C7000 IOC: command: globadr <globadr> or globid <globid> or menu Config/Password/System
- C6000: Service / Password / Gen. Settings / Interfaces / CPU-addr:
- C6000 Chiller: Service/Password/Settings/System/Address
- C5000: Service / Password / Gen. Settings / Interfaces / CPU-addr:
- C1002: Menu point CPU-Address chosen with arrow keys
- C4000: Ring C configuration / interface
- C1010: see C1010 manual
- C2020: see C2020 manual

In case of a controller/supervisor combination the following must be observed:

- In a C5000 supervisor/controller combination both controllers receive their own address.
  Both controllers can be queried separately. Since both controllers have their own sensors they receive the corresponding actual values from both sensors. When the supervisor does not control you won't receive any alarms when querying the supervisor.
- In a C6000 Supervisor / Controller combination both controllers have the same address and only the currently active controller responds. You will always receive all alarms and the correct status of the components.
- For the chiller (C6000 Chiller) a configuration with a supervisor is not possible.

After all controllers have received an address and the protocol and gateway addresses have been assigned, the WIB8000 board must be configured.
This tells the board, which controller can currently be accessed.

The WIB8000 board has an automatic Stulz bus unit recognition system.
With this function all connected Stulz units are automatically recognized and the configuration is registered.
The function is called up by the HTTP interface (browser) in the menu "Web interface/bus", paragraph "scan", menu item "start" by pressing the "Send" button.

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5. Configuration

You installed the Stulz bus by connecting the controllers by means of bus lines and setting the global addresses. You also linked the WIB8000 module in the Stulz bus and supplied it with power.

Before you connect the WIB8000 with the customer network, it is necessary to adjust the network parameters which are provided by the customer. For this connect the WIB8000 to your PC/laptop first and configure the WIB. The adjusted parameters are updated after a WIB8000 reboot.
To connect the WIB8000 to your PC/laptop the following network parameters are adjusted as default settings:

DHCP: off
IP address: 192.168.50.52
Subnet mask: 255.255.255.0

Important: If the settings which are desired by the customer differ from the settings above, you can not reach the WIB8000 anymore by your PC/laptop after a reboot. It has now been set up for the customer network.

Now you can switch on the PC, which also provides a network connection, start the internet browser and call the html pages stored in the WIB module by typing the address http://192.168.50.52 into the command line. Via the html pages you can configure the WIB module.
First you are asked to enter the password. Three passwords for different authorizations exist:

1. ..... (highest authorization, administrator)
2. ..... (medium authorization, read and write, only levels "Info" and "Operate")
3. ..... (lowest authorization, read only, only levels "Info" and "Operate")

A password with administrator authorization for the first access is printed on the adhesive label.
After you have entered the password and confirmed it by Enter/Return the authorization is shown for a short time.

Special case: Chiller with C6000

To get a write access for a chiller (CSO, CLO, CSI, CPI), equipped with a C6000 controller, introduce the password of the C6000 control level in the menu Config/Web Interface.

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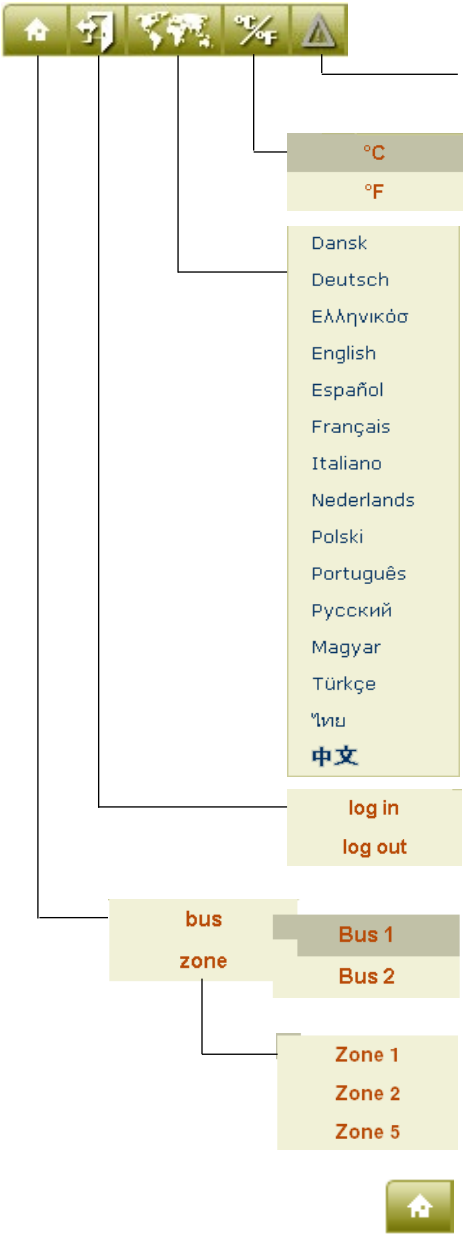
The menu line contains five icons to comfortably call up frequently used functions:



Pressing this icon displays the alarm list.

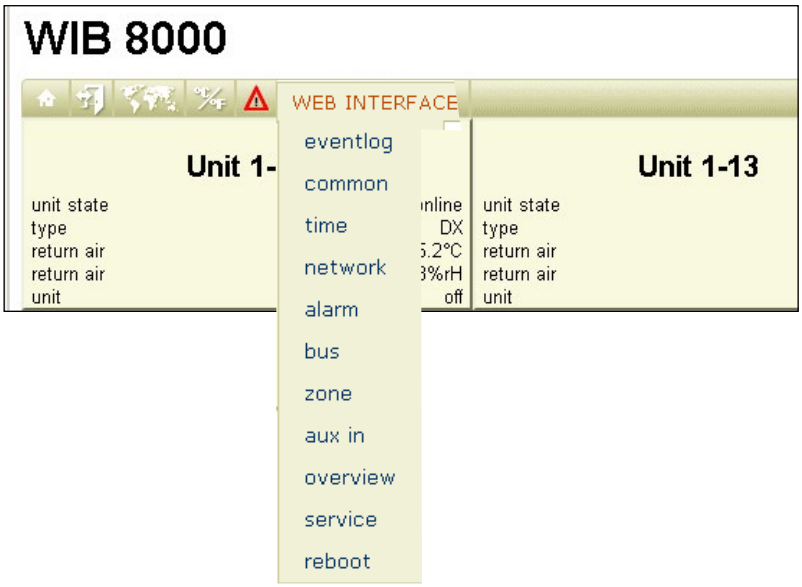
Here you set the temperature unit in °C or °F. The temperatures are displayed according to this setting in all menus.

Here you adjust the language for the display of all WIB pages.

This icon serves to log in when you want to change the authorization and to finish the dialogue.

Moving the cursor on this icon opens a menu, in which you can select whether to display the units by bus or by zone participation.
Choosing the bus view, a submenu is displayed in which you can select bus 1 or bus 2.
If you select the zone view, a submenu opens, in which only the zones appear which contain at least one unit.

If you click on this icon, the bus view of the two busses is displayed. This represents a possibility to get to the top menu "Web Interface".



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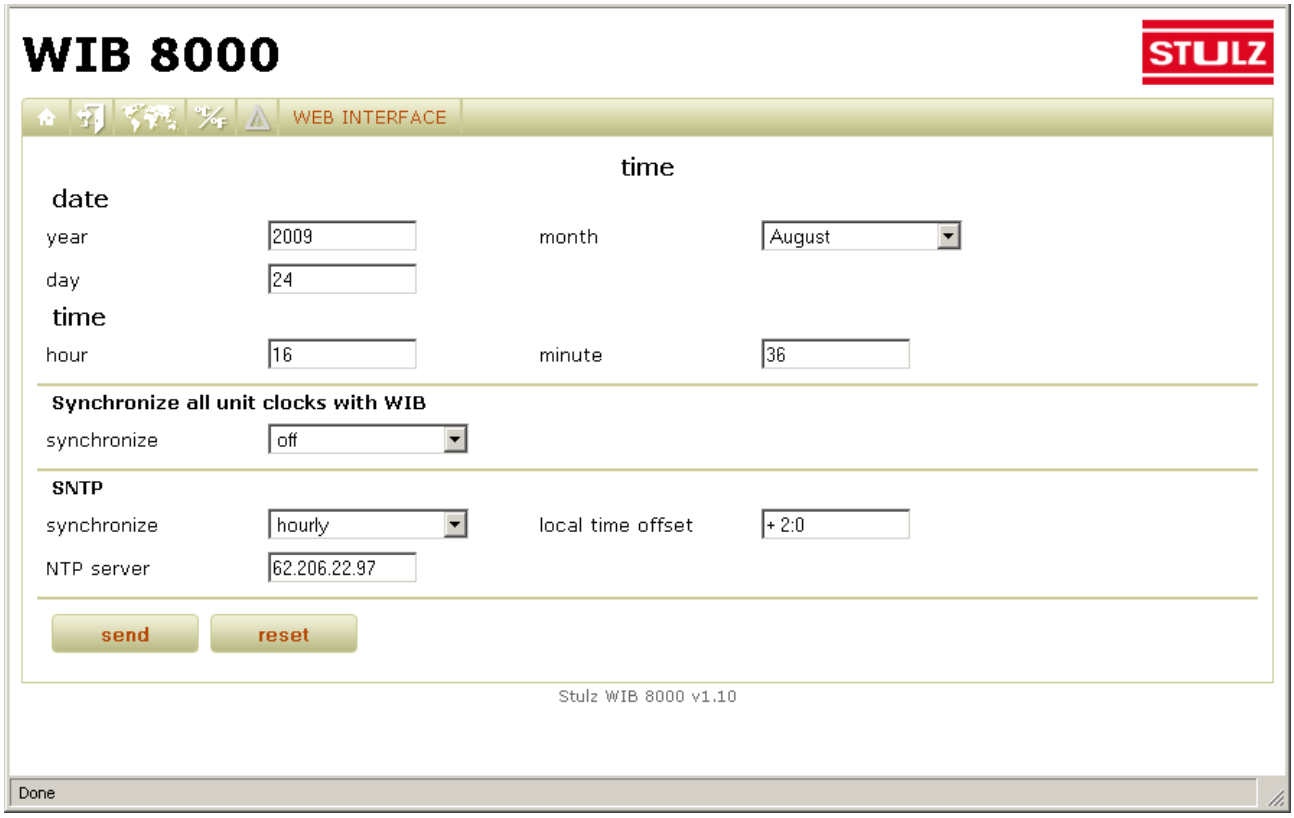
5.1 Settings for the service technician

(Menu: Web Interface/time)

First you should set the local time. This can be done in the menu "time". The settings done are transmitted to the system and will then be effective by clicking on the "Send" button. Clicking on the "Reset" button resets the parameters to the default settings. This is also valid for all following menus.
Before setting the time you should connect the battery on the board (see A2. RTC battery change). Otherwise your settings will get lost with a power failure.



The internal clocks of all units, which are connected to the WIB8000 by the Stulz bus can be synchronized. In case of an indirect connection (e.g. connection of a C7000AT to a C7000IOC by the IO bus) the C7000AT system clock is not synchronized.
The synchronization of the system clocks of all connected units enables the comprehension of the chronological context of the unit/controller eventlogs and simplifies the elimination of complex error causes.

The WIB can update its own system clock by sending requests to a NTP server (SNTP - Simple Network Time Protocol).
The synchronization of the connected controllers as the update of the WIB system clock by SNTP request via network, is done at once after the activation of the corresponding function and then with the cycle of the adjusted interval.
The following parameters have to be adjusted. A valid NTP server address (server name or IP address), two time intervals (hourly/daily/weekly) and the relative time difference of the local time to UTC time.

On one hand a time interval can be adjusted, in which the WIB updates its system clock, on the other hand you can adjust a time interval, in which the WIB synchronizes the system clocks of all connected controllers with the WIB clock.
The UTC time is also called "coordinated universal time" and is edited by the NTP server.

Examples:

CET	+1:00
CEST	+2:00
Sydney	+10:00
Canada	-3:30
USA, Frederick	-5:00

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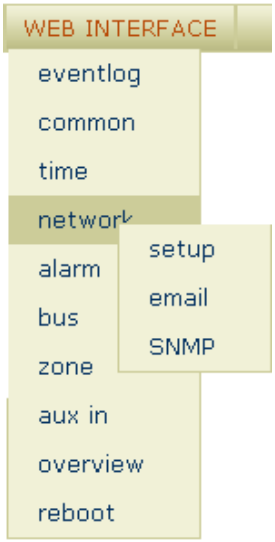
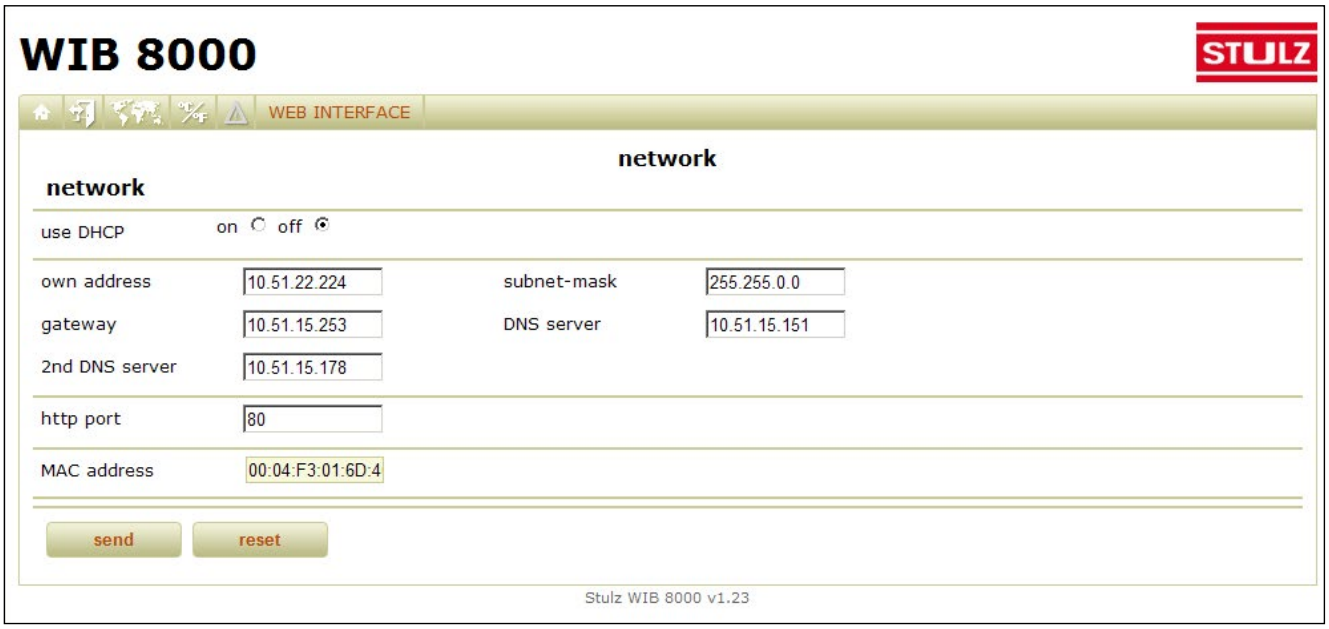
This parameter must be entered with the following format: <algebraic sign><hours>:<minutes>
CET - Central European Time
CEST - Central European Summer Time



The entries for the following three menu windows are defined by the network administrator. In the appendix a form is printed which must be sent to the network administrator before the WIB system start-up so that this data is available for start-up.

Settings for the network (Menu: Web Interface/Network/Setup)

All network modifications are effective only after a reboot of the WIB. You can comfortably reboot the WIB by clicking on the menu item "reboot" in the menu "WEB INTERFACE".



The indication of a DNS address (only IP address possible) is compelling, if server names for other servers (mail, NTP, SNMP Trap) shall be entered instead of their IP addresses.
The http port can be individually set. At the delivery the standard http port 80 is used.

DNS: Domain name server, network address data base

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Settings for sending an e-Mail (Menu: Web Interface/network/email)

Fill in the choice boxes according to the information given in the network check list in the appendix A6. item 3.

By the setting "date in smtp header" a date field (date / time of the email creation) which is required according to newer email specifications, can be inserted in the header of each email.
Tests have proved, that there are email systems, which accept messages without this field, but which on the other side, reject messages which do have this field containing a not plausible date.

For this reason this function should only be enabled, if you can ensure that the internal clock of the WIB8000 is correctly set and the WIB8000 battery is sufficiently charged to bridge over a power failure.

Alternatively, the SNTP (Simple Network Time Protocol) synchronization of the internal clock of the WIB8000 can be enabled. Then, even with a faulty battery and after a power failure, the internal clock of the WIB is synchronized over the network. The correct setting of the WIB's internal clock is always ensured when using SNTP.

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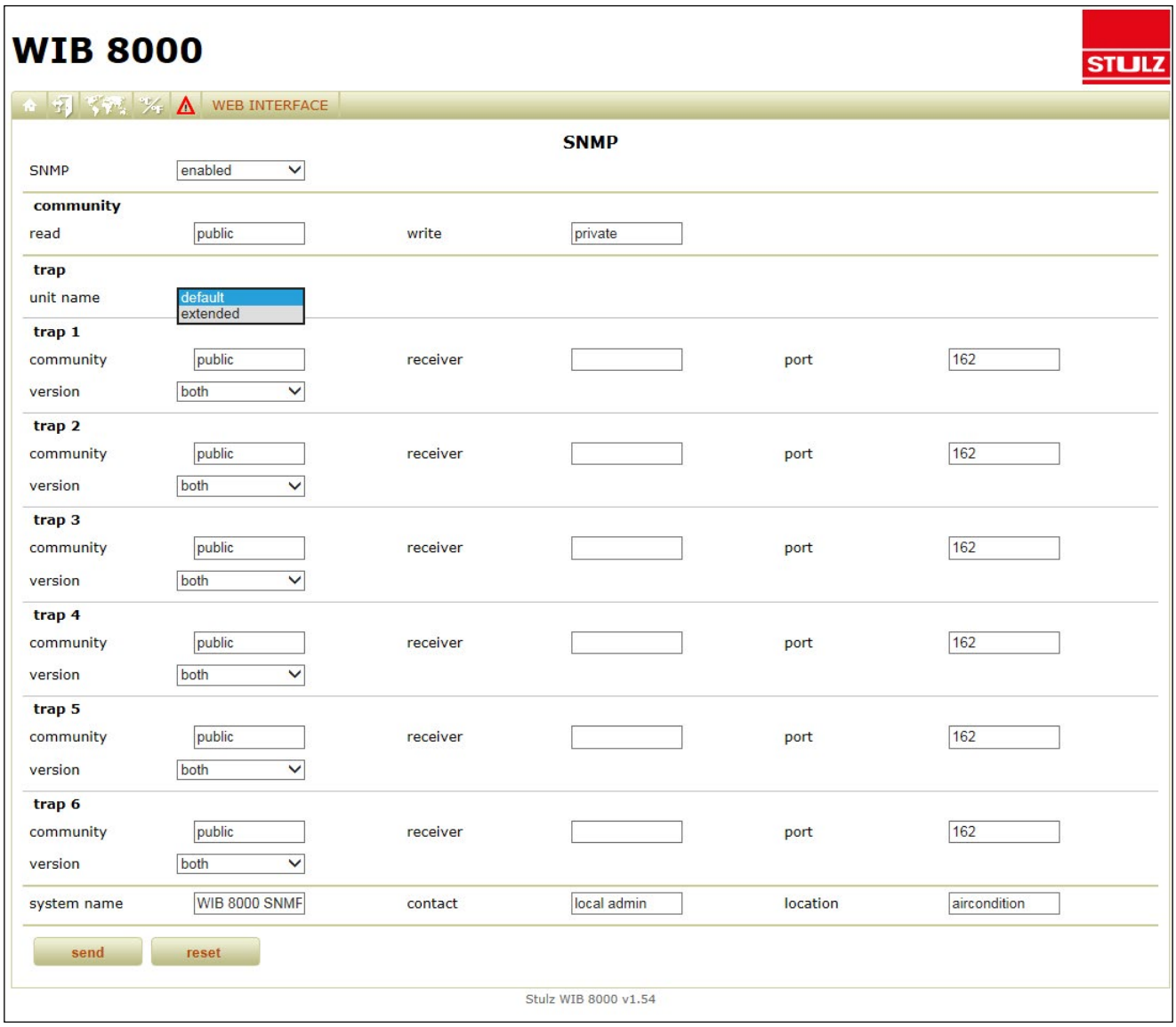
Settings for using the SNMP protocols (Menu: Web Interface/network/SNMP)



SNMP

For safety reasons you can block the SNMP access (setting: disabled).

Community

Set the community, which has read-only access to SNMP messages and the community, which has write access.

Trap

There are the following settings for specifying the unit name in the SNMP message:

Standard:
the designation is automatically generated following the pattern "bus x, unit y".
x = bus number of the WIB8000
y = global address of the unit, which caused the alarm (trap).

extended:
The unit name which was adjusted by the customer in the menu "Config/web interface" is used.
This field also allows UTF-8 encoding (all international character sets). If you enter a name here, which contains

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non-ASCII characters, make sure that, enabling the trap unit name option "extended", all trap receivers, which receive messages from the WIB8000, support UTF-8 encoded trap value fields. Otherwise, there will be display problems at the SNMP client.

Trap 1 - 6

The SNMP host of the WIB8000 can be reached at the SNMP standard port 161.
The complete OID of a unit data point is assembled as follows:

<prefix>.<OID according to list>.<bus number>.<global unit address>.<module number>

<prefix>:	1.3.6.1.4.1.29462.10.2	(iso.org.dod.internet.private.enterprises.stulz.stulzWIB.wibUnits)
<OID acc. to list>:	1.1.1.1.1.1.1.1170	(example: unit temperature)
<bus number>:	1 or 2	(WIB8000 bus, by which the unit is connected)
<global address>:	0 to 65535	(adjusted at the unit)
<module number>:	1 to 6	(always "1" for C7000 IOCs)

The OID of the unit temperature of a C7000 controller with the address 15 on bus 2 would be:

1.3.6.1.4.1.29462.10.2.1.1.1.1.1.1.1.1170.2.15.1

Up to six traps can be configured, for each of which the community, the receiver the output port and the version must be adjusted. Concerning the version you can choose among three options:

- v1:	Trap messages are sent to this receiver in the SNMP format 1.
- v2c:	Trap messages are sent to this receiver in the SNMP format 2c.
- both (default):	The receiver gets each trap message in format 1 and in format 2c. (two messages for one event in total.)

NOTICE

In case of problems with the connection see chapter 7.1**.**

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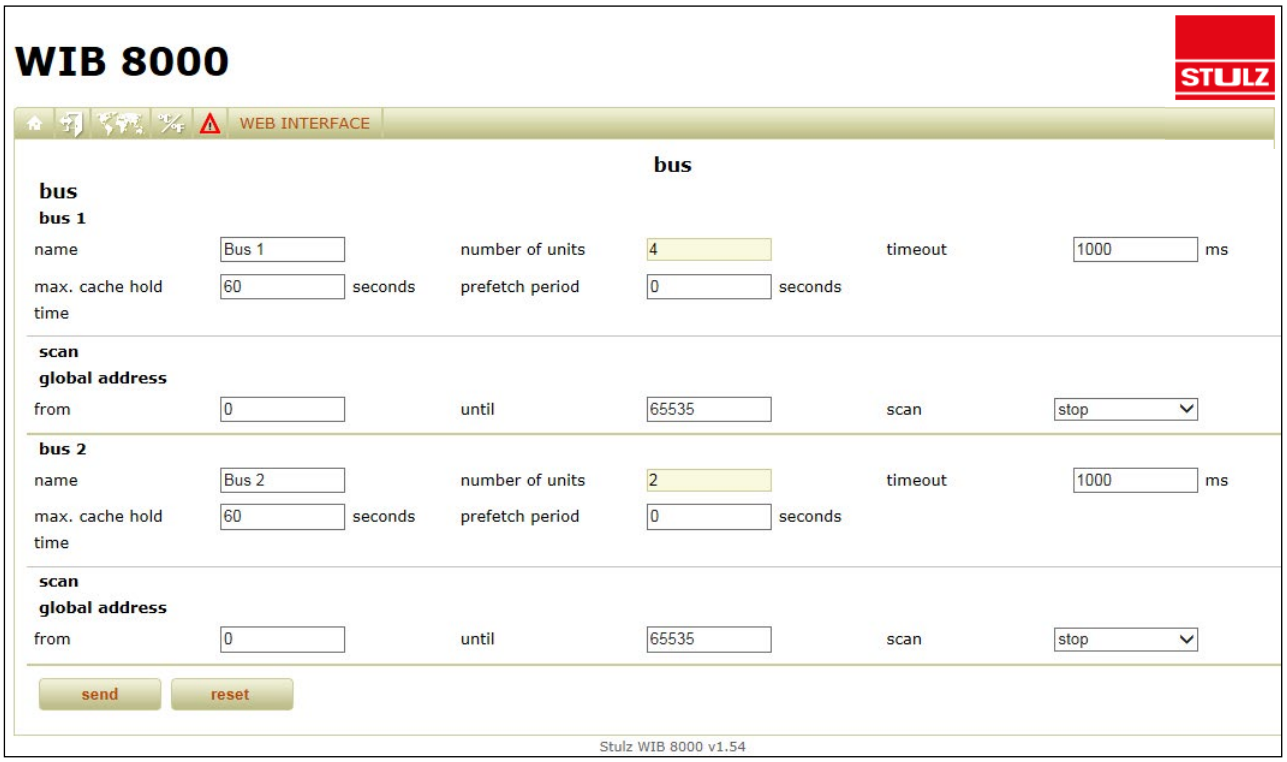
Bus configuration (Menu: Web Interface/Bus/Setup)



The bus will be configured automatically, when you initiate the WIB module to scan the bus and to record all units found in the bus configuration.

Section: Scan

For this purpose select for one or the two busses the menu item "Start" of the "scan" function and click on the "Send"-Button. The number of units found is updated each time when a unit has been found.
You can abort the scan at any time, when e.g. the actual number of existing units in the bus appears in the choice box "number of units", by selecting the menu item "Stop" and clicking again on the "Send"-Button.
You can limit the global address range which is scanned to save time. Scanning 1200 addresses takes approximately one hour.

Section: bus 1 / bus 2

To indicate the bus you can give it a name, which refers for example to the location where the units are placed.

In "Timeout" you can set the time how long the WIB waits for a response of connected units. Exceeding this time is evaluated as a communication error. The maximum cache holding time indicates how long data points are available in the cache memory as valid data points.
A short cache holding time guarantees actual data but causes high data traffic on the bus. A longer cache holding time reduces the traffic but bears the risk that the data might not be up to date.

With the pre-fetch period you can set a time interval, in which the WIB reads and buffers all data points that are configured for each single unit for the unit overview (menu: config/web interface). Data points which are cached in this way, are read from the WIB cache, instead of being directly read from the unit during http/ SNMP queries to the WIB. The setting "0" switches the pre-fetching off.

With a properly tuned pre-fetch period the (up to 20) data points per unit will be provided faster at the http and SNMP interface.
For this purpose the pre-fetch period must be set so that all data points can be read before the maximum

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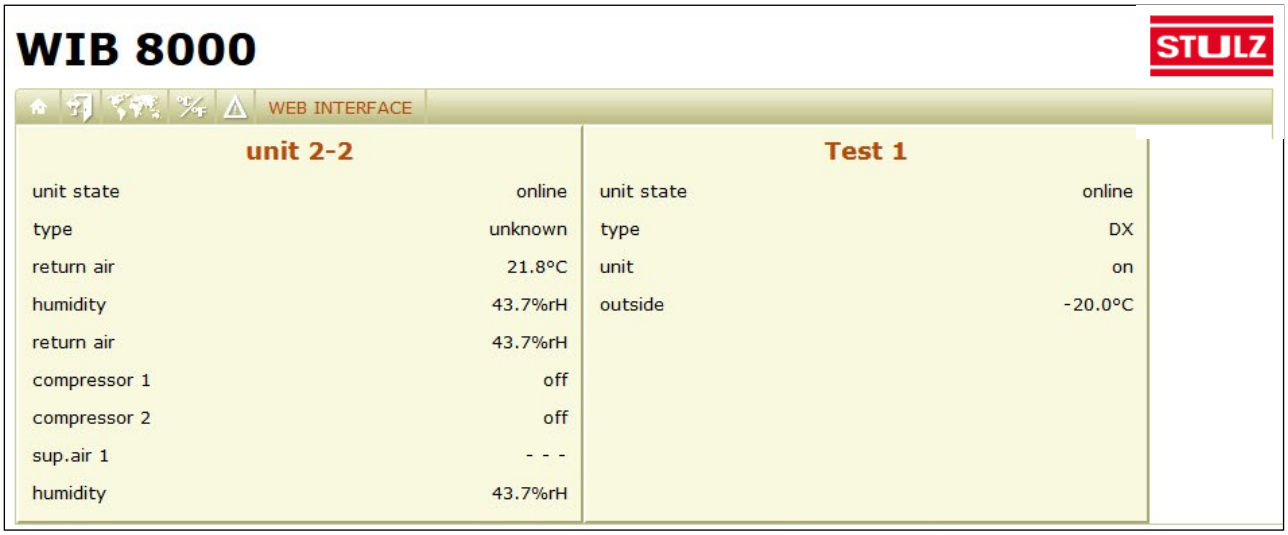
cache holding period has expired. Taking into account the bus performance (number of units, connection type Ebus via C7000AT, response times of units), the pre-fetch period may not be set too small, because otherwise the bus queue will be overloaded. In this case not all data points can be read.

The names of the units found are generated automatically by adding the bus number to the expression "Unit" in the adjusted standard language and after the insertion of a hyphen the global address of the unit. For C7000 IO controllers the unit name saved in the controller, if it is not the default setting "unit name", will be taken.
So the unit names are displayed in the bus and zone view as represented below.
This name can be modified in the menu "Config/Web interface" for each unit.

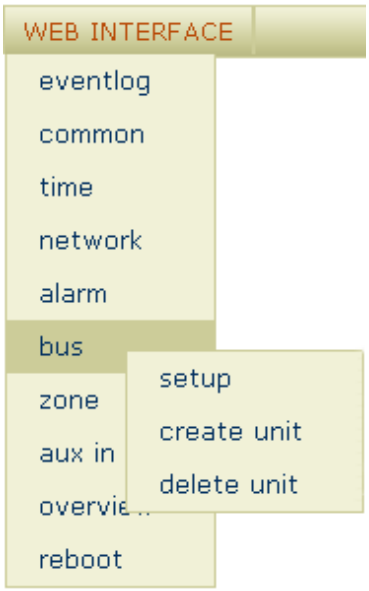


Up to 20 freely selectable parameters can be displayed for each unit in the bus or zone overview. These parameters can be defined in the menu "config/web interface". The size of the unit blocks conforms to the largest block in a line.

Manual configuration of units within the bus configuration

Under certain circumstances an automatic unit detection by the "scan" function in the bus menu is not possible. This is the case if a unit/controller can not be provided with voltage at the time.
By menu item "create unit" in the menu "Web Interface/bus" you have the possibility to manually create units.

By menu item "delete unit" in the same menu you can remove a unit from the bus configuration, without cutting the bus wiring. Such could be the case if you want to operate the A/C unit temporarily as an individual A/C unit e.g. for test purposes.



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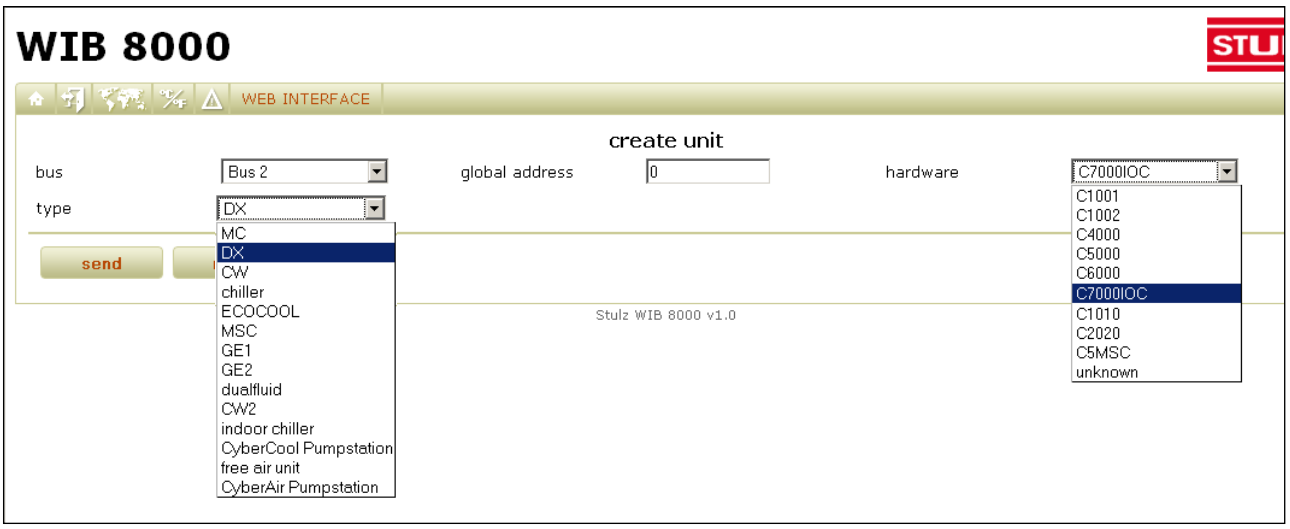
Manual creation of a unit in the bus configuration (Menu: Web Interface/bus/create unit)



You can define the A/C unit which you want to add to the bus configuration by four parameters:

1. bus (bus 1 or bus 2), if you changed the bus designation, the new designations appear in this menu.
2. global address
3. hardware (controller selection, influences the number of represented parameters the same as the protocol volume and the unit commands which are used for the communication between WIB and the unit/controller.)
4. type: MC, MSC - these types represent special software versions of the C5000 controller. ECOCOOL: use this setting, if the A/C unit features a C5000 controller with the special EcoCool software.

Manual removal of a unit from the bus configuration (Menu: Web Interface/bus/delete unit)

In the same way you can manually remove a unit from the bus configuration. For this you only need to specify the bus and the global address.

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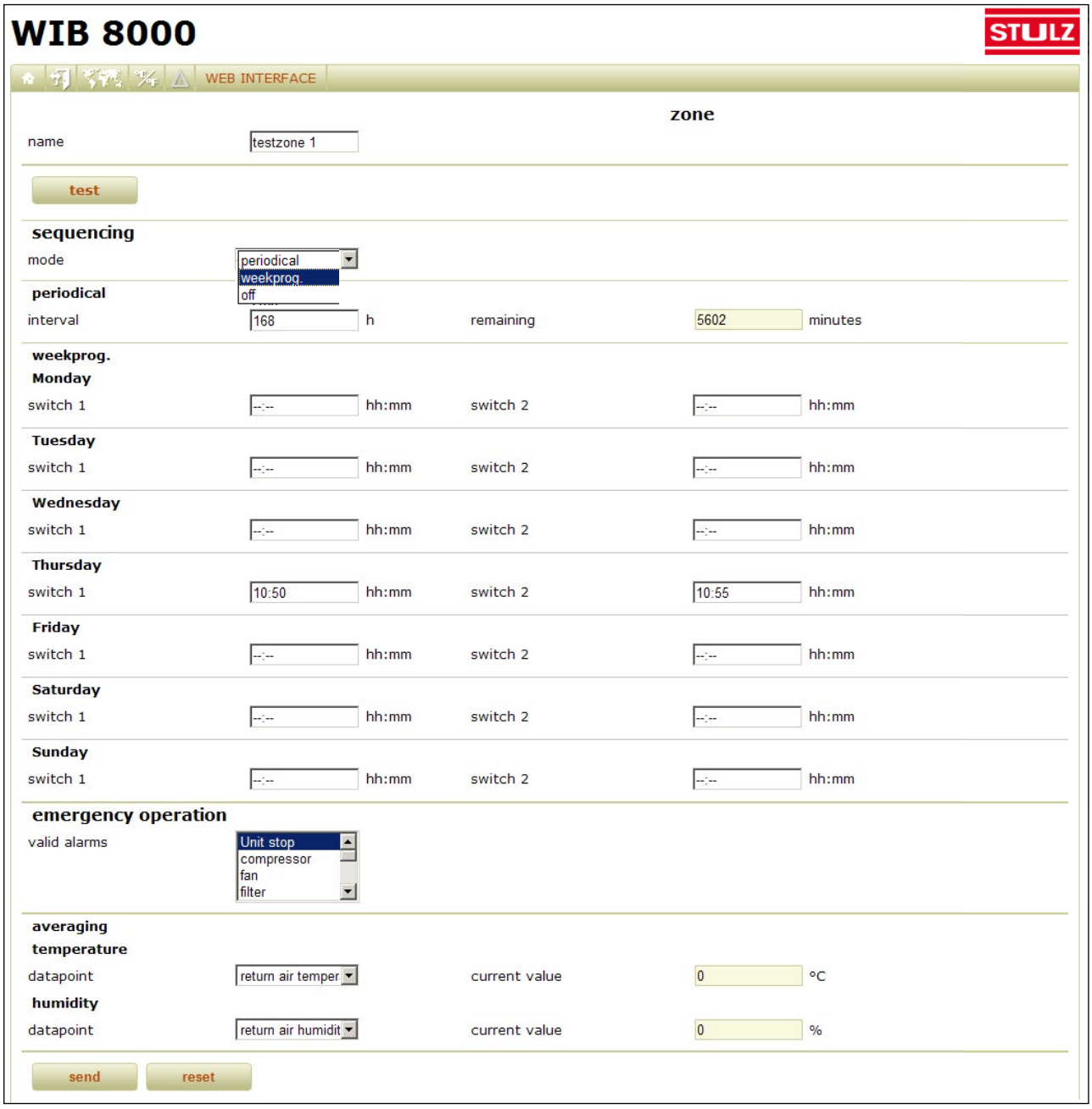
Zone configuration (optional) (Menu: Web Interface/zone)



The possibility to configure a zone in which A/C units are sequenced, has been designed in the first instance for units which do not have a proper sequencing function or for which a sequencing can only be realized intricately. (C1002, C4000, C5000, C6000). You can define 20 zones maximum.
The WIB zones 15 - 20 can be used for C7000 IOCs, which are also assigned to a C7000 IOC zone. This may be necessary e.g. in case of DFC control and a simultaneous sequencing by the WIB.

In this window you can configure such a zone by entering a name for it and adjusting a sequencing. Setting the sequencing you can choose among three options:

1. periodical:
After the setting of the sequencing interval, a commutation among the units is carried out at the end of each cycle. The remaining period to the next commutation is displayed in minutes.

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Example:	state 1:	unit 1 on, unit 2 off (standby), unit 3 on
	state 2 (after the first commutation):	unit 1 on, unit 2 on, unit 3 off (standby)

With the "test" button you can produce a manual commutation to check the function.

2. Week program

By the week program you can adjust two sequencing points to the minute for each day of the week. The time of commutation must be entered in the format hh:mm. The setting "--:--" means that no commutation will be done. For this it is sufficient to enter "--". If the WIB8000 ist not switched on at the time of commutation, the concerned commutation will not be carried out.

3. off

With this setting no time dependent sequencing will be carried out. Only the commutation by failure (adjustable in the section "Emergency operation") and the additional unit start by overload (adjustable in menu "Config/Web Interface", section "overload start") will further be functioning.

The assignment of units to a zone and the determination whether the corresponding unit shall be in standby, when the sequencing starts, has to be done individually for each unit in the menu Config/Web interface.

However the standby units can also be switched on by running units if alarms occur at these units. In the choice box "valid alarms" you can adjust which alarms trigger the start of a standby unit and the cut off of the faulty unit.
Several alarms can be marked by mouseclick while keeping the CTRL key pressed.

Moreover you can define the kind of temperature and humidity values, of which the zone average value is calculated. In menu "Config/web interface" (see next page) you can determine whether the measured data of standby units is taken into account for the calculation of the average or not.

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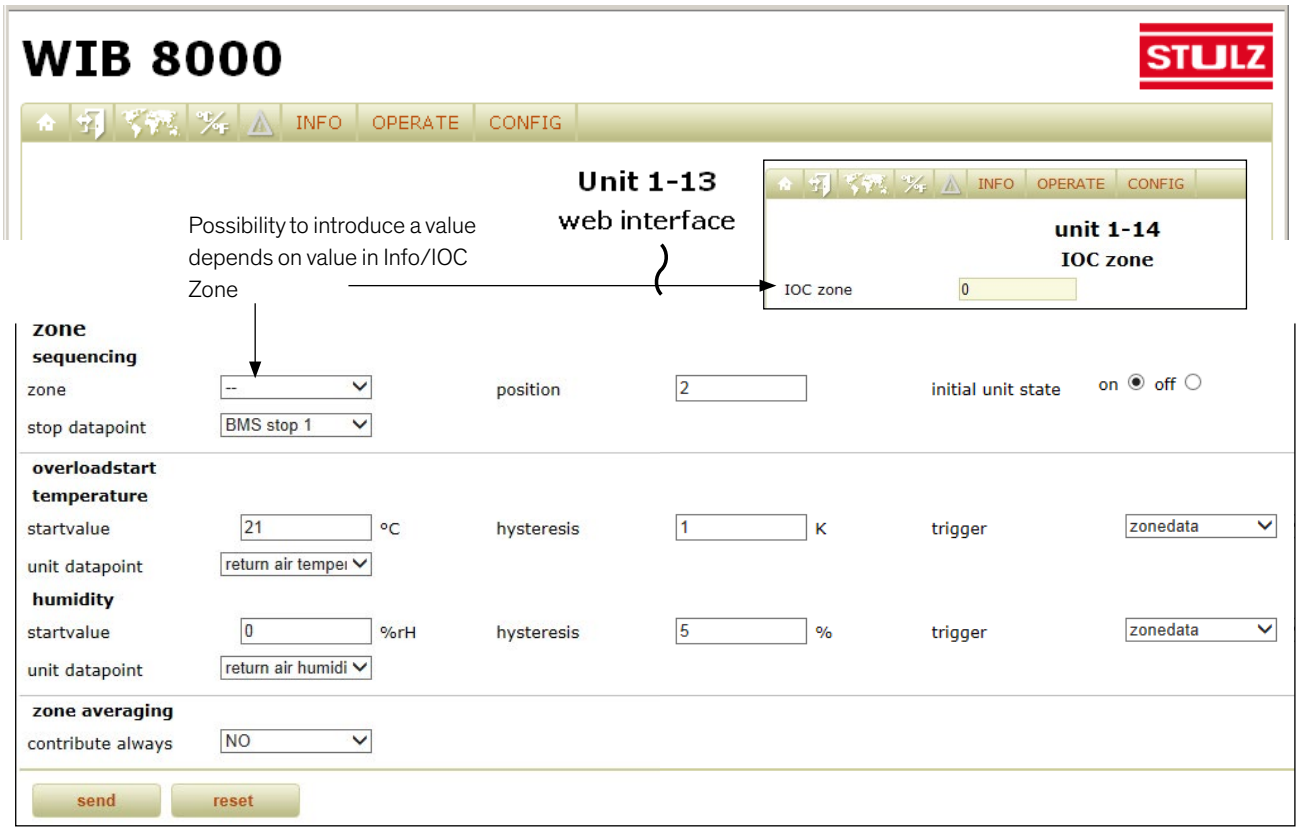
Zone configuration for each unit in menu "Config/Web interface"



In the lower part of the menu, there are displayed parameters which can be adjusted individually for each unit to use the WIB zone functionality.
These parameters enclose the assignment to a zone (by the assignment of a unit to a zone the zone is created.), the determination of the position within the sequencing, the definition of the operating state at the beginning of the sequencing (on/off) and eventually the parameters for an overload start.

Choice box: Zone
To avoid problems which result from assigning a unit to different zones (WIB zone and IOC zone), the following check is carried out. If the parameter "IOC Zone" in the menu "Info/IOC zone" (data point myZone) is different from "0", you can not introduce a value for the WIB Zone in menu "Config/Web Interface". If an IOC, which has already been assigned to a WIB zone before, is added to an IOC zone (by IOC or AT), this IOC is removed from the WIB zone as soon as the WIB detects it. An IOC zone can only be configured for C7000 controllers.

Choice box: Position
In this box you can set the unit order for the sequencing. The sequencing runs in an ascending numerical order. Each position number may only be assigned once.
Before this setting existed, the sequencing order was determined by the global address (also across the bus). Now you can define an order, independantly on the global address, which corresponds for example to the local installation of units.

Choice box: Stop datapoint
For C7000IOC controllers you can set a data point, which the WIB also uses (besides the commutation point or elapsed interval or valid alarm) in the course of the sequencing to switch off a C7000IOC.
Two settings are available "BMS stop 1" and "BMS stop 2".

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BMS stop 1: This setting does not allow switching on and off the unit by the Start- and Stop buttons.
BMS stop 2: With this setting switching off the unit by the Stop button has the effect that it is treated like a valid alarm. A standby unit is then started within the zone.

Start window

Overload start

An overload start for a unit, for which you adjust this, is carried out if the adjusted temperature is exceeded or if the adjusted humidity is higher than the measured humidity. To determine the overload operation stop you can set a hysteresis for the temperature and humidity each.
For both parameters you can specify which measured value shall trigger the overload start (the average zone value or the measured unit value).

You can choose among the following temperatures:

- temperature
- return air temperature
- supply air temperature
- outsidetemp.
- watertemp. in
- watertemp. in2
- watertemp.out
- watertemp.out2
- universal temp.

For the humidity four settings are available:

- humidity
- return air humidity
- supply air humidity
- outside hum.

In the category "zone averaging" you can determine, whether the A/C unit sensor data which is actually in standby is taken into account for calculating the zone average value (setting "YES") or not (setting "NO", default).

After having done the settings click the "Reboot" button to put the settings into effect. The WIB8000 can now be connected to the internal network by means of the Ethernet connection.

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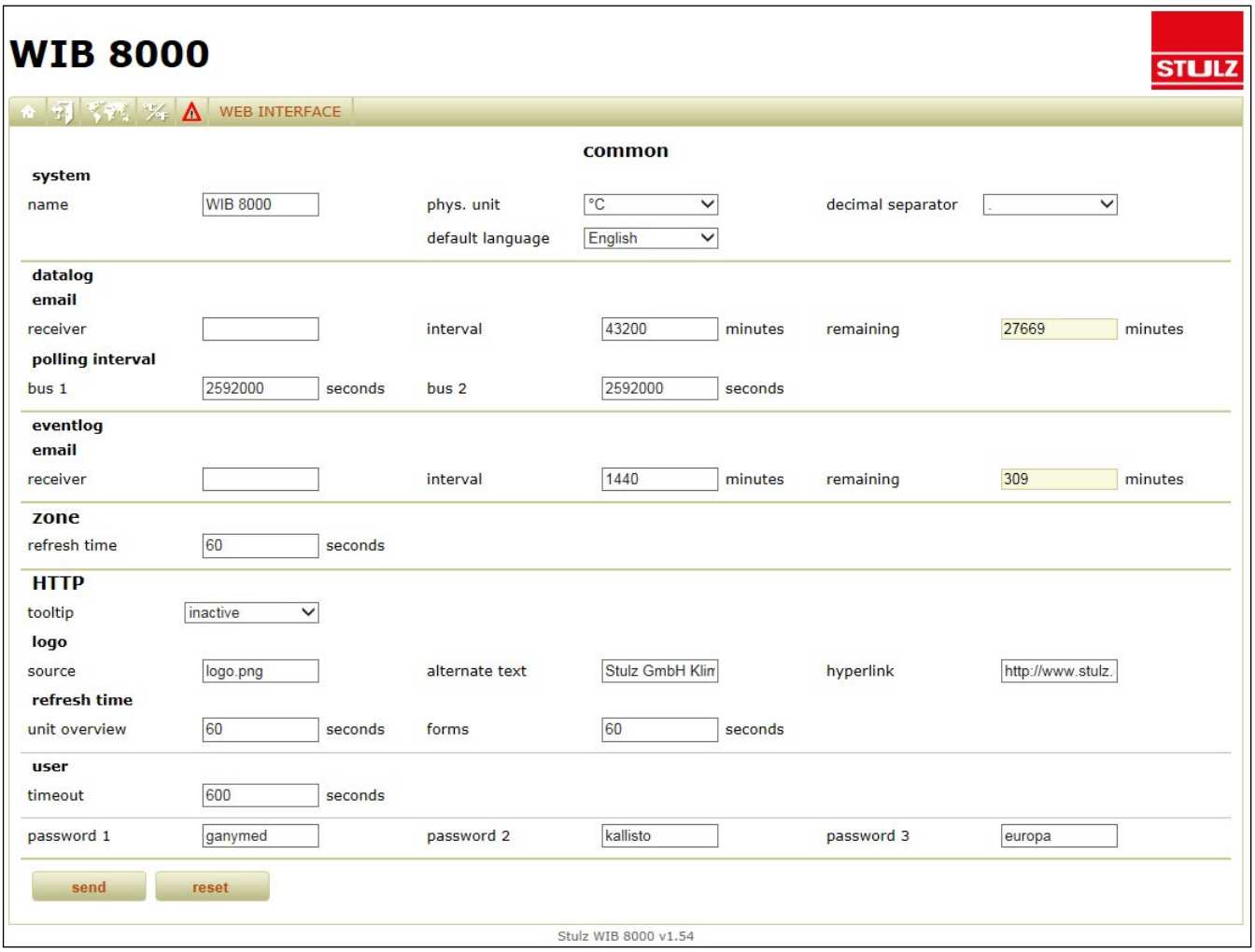
5.2 Settings for the customer (Menu: Web Interface/common)



This is the window for general settings.

System

The physical unit (°C or °F) and the decimal separator are important if you use files which are generated with the data logging, in other programs.
The default language is English. By setting the standard language other than English you can have the WIB opened in the language of your country.
The default language is also valid for all emails automatically sent, as for their attachment.

Datalog

Using the datalog function you can have e-mails sent to yourself in the cycle of an adjustable interval. The e-mails contain the recorded data, which you can determine in detail in the next menu window, as a csv-file. The polling interval can be set individually for each bus.

Eventlog

The same way you can have e-mails of the record of all events (eventlog) sent to yourself in the cycle of an adjustable interval. In case of lack of memory in the WIB these e-mails are sent automatically to the adjusted address.

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Zone

Here you can set the time between update procedures for the WIB zone. During an update procedure the zone values (temperature/humidity) are calculated and, if necessary, units are switched on/off based on these values. This procedure is also carried out after each alarm query (query interval adjustable in menu "web interface/alarm").
The time-controlled sequencing is not affected by this parameter.

Note:
For heavily loaded systems (continuous query via SNMP for slow connection of units and at the same time maximum unit number), a low refresh time (less than 3 seconds) can cause problems with the time-controlled sequencing.

HTTP

You can have displayed a freely selectable logo in the top right corner of each page. In the choice box "source" you can enter the path, which describes the location where the logo is saved. The memory location can be on a server and must be indicated by a link as "http://..." then. By clicking on the logo the adjustable hyperlink is executed.

User

Setting the "Timeout" you determine the delay after which you are automatically logged out when the browser has been closed.

Password

In this menu you can define the passwords for different authorizations. Password 1 allows the access to the highest authorization level. Password 2 allows except the modifications of setpoints only the display of all parameters of the menu levels "Info" and "Operate". Password 3 includes the authorization to read all parameters of the menu levels "Info" and "Operate".

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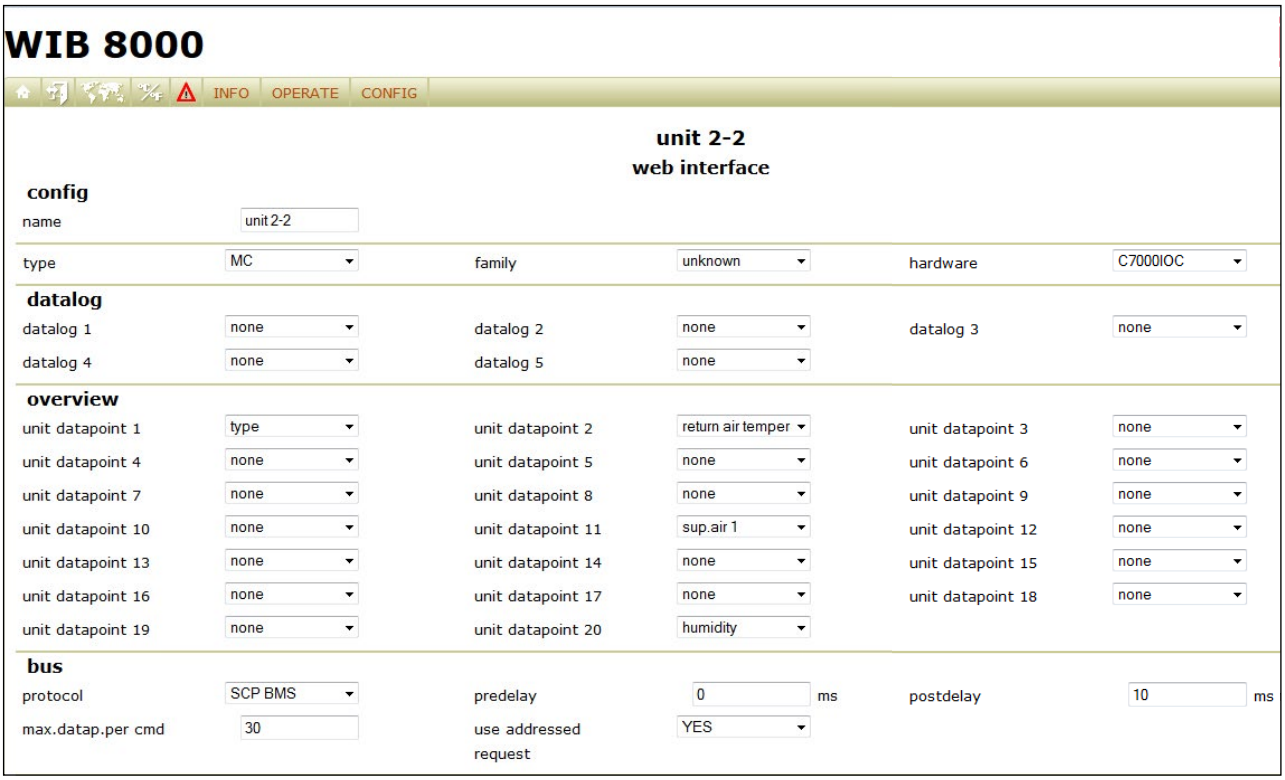
Config/Web Interface



Although these parameters appear in a menu which is specific for each unit, the data logger is a special function of the WIB. The data is not requested and recorded by the controller but by the WIB.

You get to this window by selecting the bottom item in the config menu of each unit.

Section: Config

Here you can provide the unit with a name, which also will appear in the bus and zone view. With the automatic bus scan the unit preliminarily receives an automatically generated designation.

Section: Datalog

With the datalog function you can record the chronological course of single measured values. Up to five measured values per A/C unit can be protocoled this way.

You receive the recorded data in csv format in the shape of an e-mail according to the settings done in the previous menu or displayed in the menu "Info/data/datalog" with the possibility for downloading.

Maximum 5000 lines can be logged for each bus. A line contains 1× timestamp and 5× data points (sensor data). If there is only one unit in the bus 5000 intervals are logged. With 2 units 2500 intervals (2 lines are written per interval, one for unit1 and one for unit2), with 5 units 1000 intervals.

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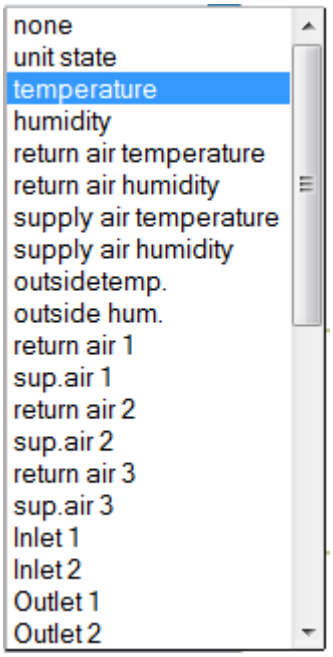
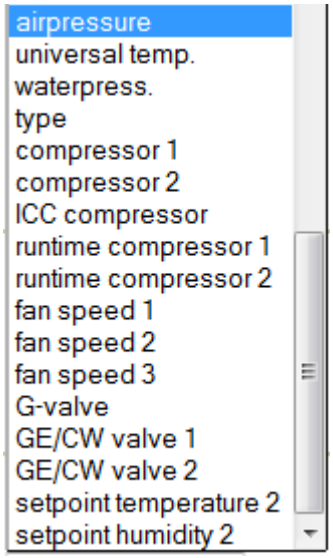
Section: Overview
Here you can set the parameters, which will be displayed in the bus overview. Up to 20 parameters can be set. The available parameters are shown right.





Section: Bus
The protocol displayed here is automatically determined when the WIB scans the bus for units. Only change it in exceptional cases according to the controller type and upon consultation of the Stulz support:

C7000: SCP BMS
C6000: SDC
C5000: SDC
C1002: SDC
C1010/C2020: SCP BMS or SDC (depending on the C1010/C2020 software version and the parameters adjusted there)

The adjustable predelay is a delay which is inserted before a command is sent to an A/C unit and serves to eliminate interference in bus communication when different controller types participate (e.g. C5000 and C7000, in this case the predelay must be set for the unit with the C7000). However, a predelay decelerates bus communication.

The adjustable postdelay is a pause after the response of the unit/controller has been received. During this time the bus is not used. This parameter serves as the predelay to eliminate interference in bus communication. For the individual case it must be tested which setting is more effective.

In another box you can determine the maximum number of datapoints which is transmitted in a command. The value which is displayed here has been adjusted by the WIB due to the detected controller type according to the buffer size of the controller. In case of hardware modifications of existing controllers you have the possibility to manually adapt the value.

Meaning of the possibles settings "use addressed request":

No: only data package requests are raised. This is appropriate for C7000 IOCs with software version IOC-V3.xx and older.
Yes: data package requests or addressed requests are raised (automatic selection of the best procedure at each request). Only for C7000 IOCs with software version IOC-V4.00 and newer.
Always: only addressed requests are raised. this is necessary for C1010/C2020 controllers with SCP BMS protocol.

This parameter is not relevant for the protocol "SDC" (C6000 and older controllers or C1010 with older software).

The other menu items (zone, overload start etc.) have already been explained in the context with the zone configuration.

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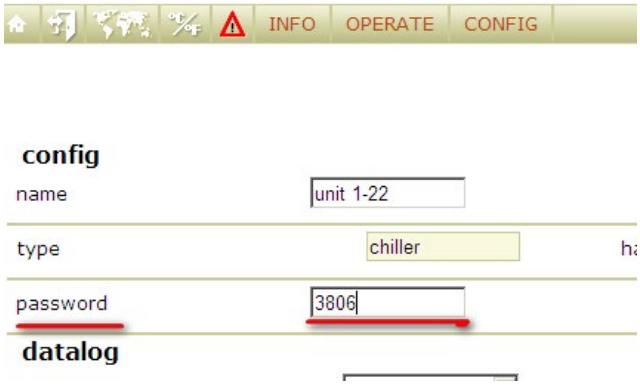
Config/Web Interface - continued



Special case: Chiller with C6000

To get a write access for a chiller (CSO, CLO, CSI, CPI), equipped with a C6000 controller, introduce the password of the C6000 control level in the menu Config/Web Interface.

Info/Data/Datalog

In the items of this menu a graphical presentation of the acitvated data loggers (maximum 5) is displayed. You can limit the time space to be displayed by selecting the appropriate menu item. The following items are available:

1. all,
2. last hour,
3. last 24 hours ,
4. last 7 days ("last" always in the meaning of "recent")

Vertical grey lines in the diagram mark the beginning of each day. The corresponding day of the week is indicated by an abbreviation to the right of the line.
Below the curves the measured values are displayed chronologically in tabular form with date and time.

When the datalog is sent via email (automatically or manually by the download dialogue) all data in the datalog is deleted. When the web page is saved the data in the datalog is maintained.

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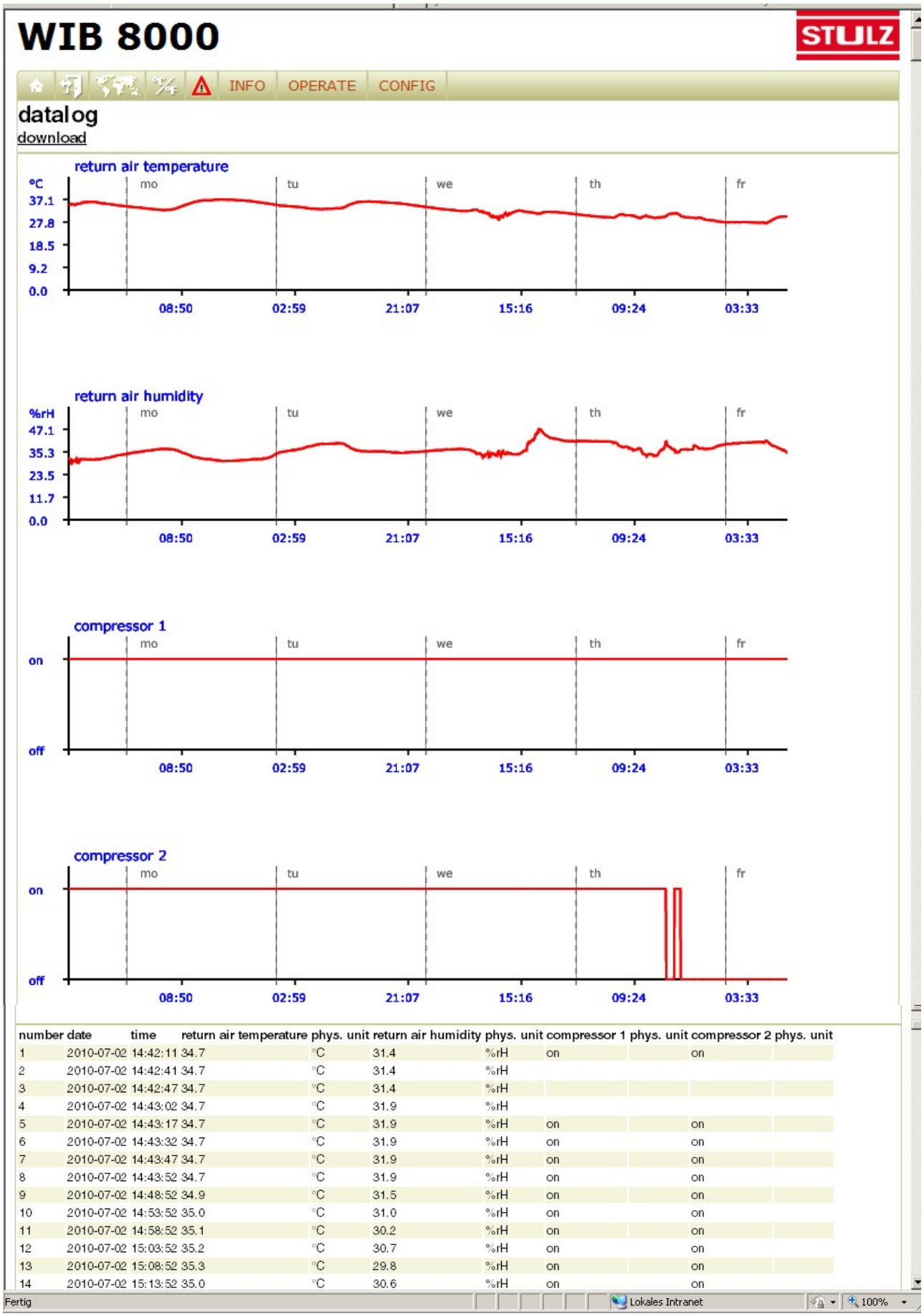
Info/Data/Datalog - Example



number	date	time	return air temperature	phys. unit	return air humidity	phys. unit	compressor 1	phys. unit	compressor 2	phys. unit
1	2010-07-02	14:42:11	34.7	°C	31.4	%rH	on		on	
2	2010-07-02	14:42:41	34.7	°C	31.4	%rH				
3	2010-07-02	14:42:47	34.7	°C	31.4	%rH				
4	2010-07-02	14:43:02	34.7	°C	31.9	%rH				
5	2010-07-02	14:43:17	34.7	°C	31.9	%rH	on		on	
6	2010-07-02	14:43:32	34.7	°C	31.9	%rH	on		on	
7	2010-07-02	14:43:47	34.7	°C	31.9	%rH	on		on	
8	2010-07-02	14:43:52	34.7	°C	31.9	%rH	on		on	
9	2010-07-02	14:48:52	34.9	°C	31.5	%rH	on		on	
10	2010-07-02	14:53:52	35.0	°C	31.0	%rH	on		on	
11	2010-07-02	14:58:52	35.1	°C	30.2	%rH	on		on	
12	2010-07-02	15:03:52	35.2	°C	30.7	%rH	on		on	
13	2010-07-02	15:08:52	35.3	°C	29.8	%rH	on		on	
14	2010-07-02	15:13:52	35.0	°C	30.6	%rH	on		on	

Note:

For a better presentation a record from a non-air-conditioned room has been used here.

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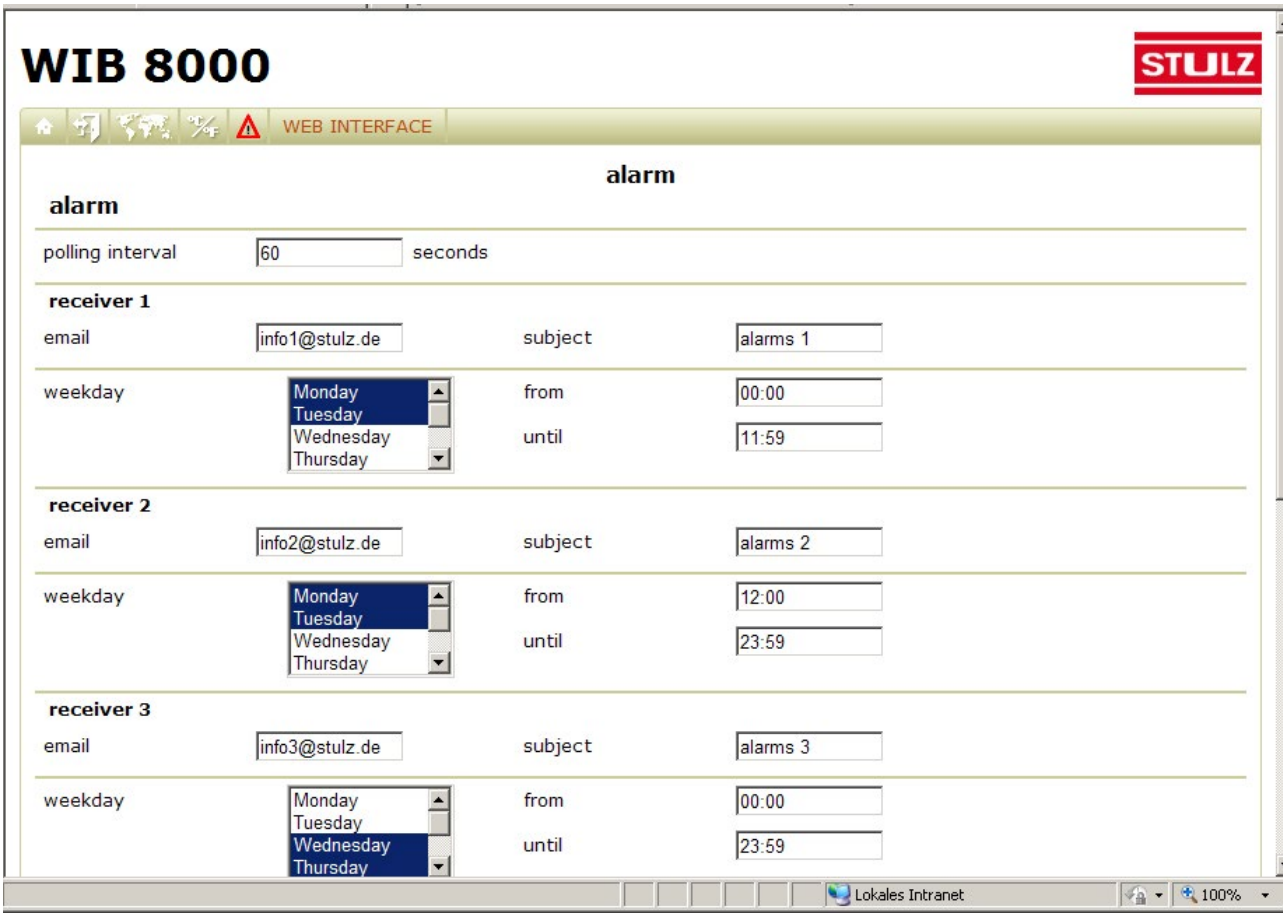
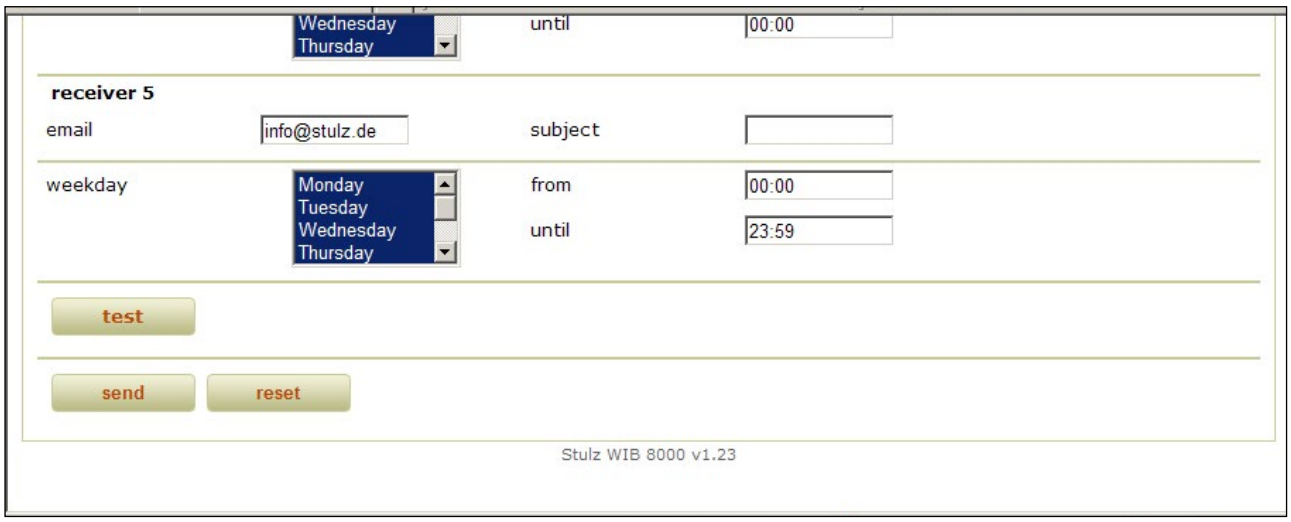
Alarm notification (Menu: Web Interface/Alarm)



You can enter up to five receivers or time spaces for the notification via e-mail when alarms occur. You can set the days at which this shall happen individually for each receiver (for several days by mouseclick while keeping the Ctrl-key pressed). The time spaces can also be set specifically for each receiver.

SMS notification

When alarm messages shall be sent to an e-mail/SMS service, set the receiver and the subject according to the specifications of the provider.



By the "Test" button you can send a test email to all registered alarm-email receivers.

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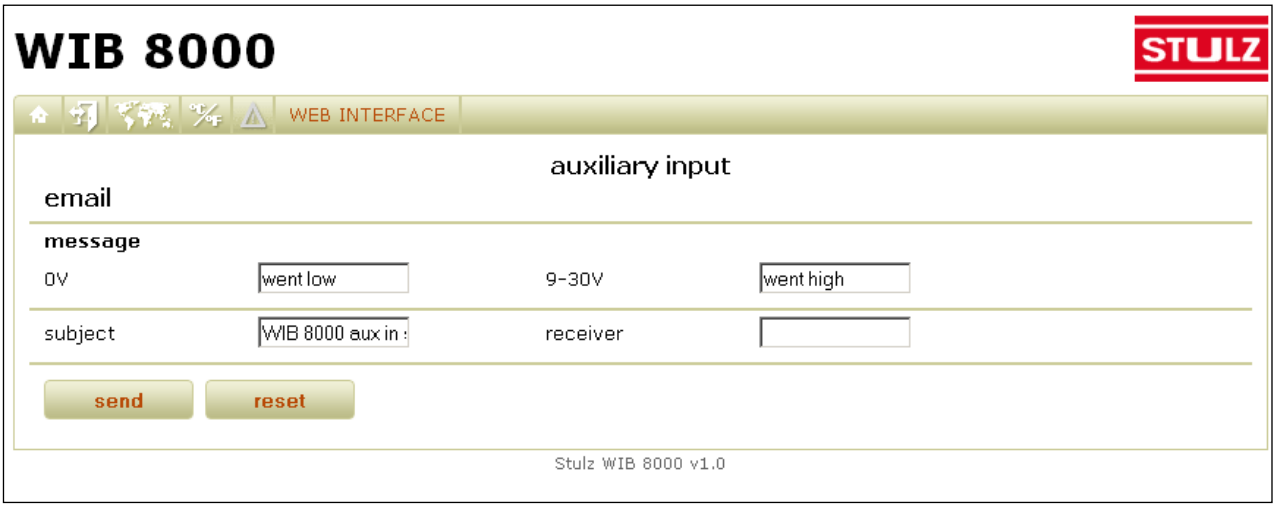
Using the potential free contact (Menu: Web Interface/aux. in)



If the voltage at the provided contacts changes in a way that 9V are exceeded or are passed under, an e-mail will be sent to an adjustable address. The e-mail will contain the text in the input box following "0V" when 9V at the auxiliary input are passed under and the text in the input box following "9-30V" if 9V are exceeded.
The text can be individually modified and may consist of up to 255 characters.

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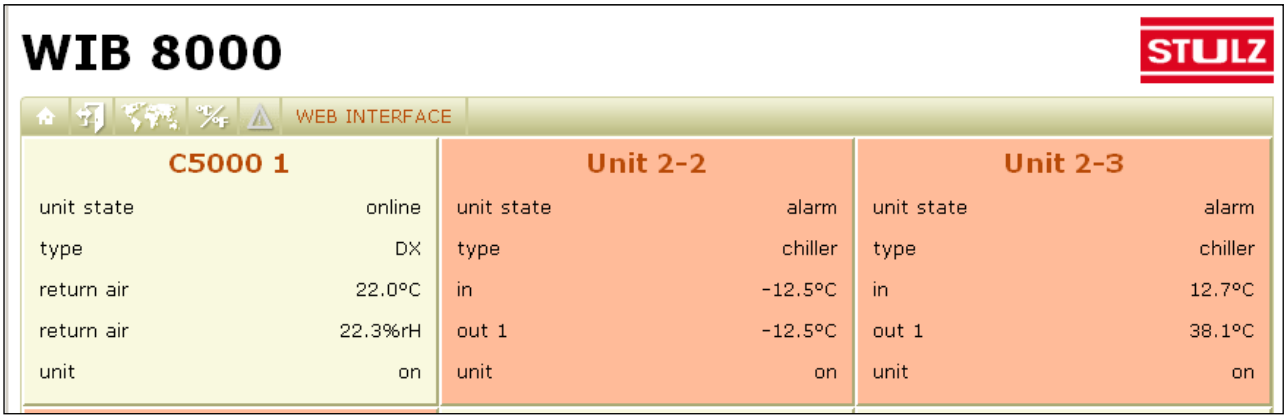
6. Operation

6.1 Bus view

The start point when setting unit parameters via the WIB module is the bus view or if existant the zone view. By the bus view the parameter which characterize the unit and give a quick overview of the unit state are displayed box-shaped, where each box represents a unit/controller/bus participant.

1. Unit name		
2. Unit state	(online, offline, alarm)	
3. Unit type	(DX, GE, CW, Chiller)	Up to 20 parameters can be individually set for each unit in the menu Config/web interface.
4. Return air temperature actual value	(for unit type DX, GE, CW)	
Flow water temperature	(for unit type Chiller)	
5. Return air humidity actual value	(for unit type DX, GE, CW)	
Return water temperature	(for unit type Chiller)	
6. Operating state	(on/off)	

If an alarm has occurred for a unit, the unit box is displayed alternately with a normal and a reddish background. Simultaneously the alarm icon in the menu line blinks.

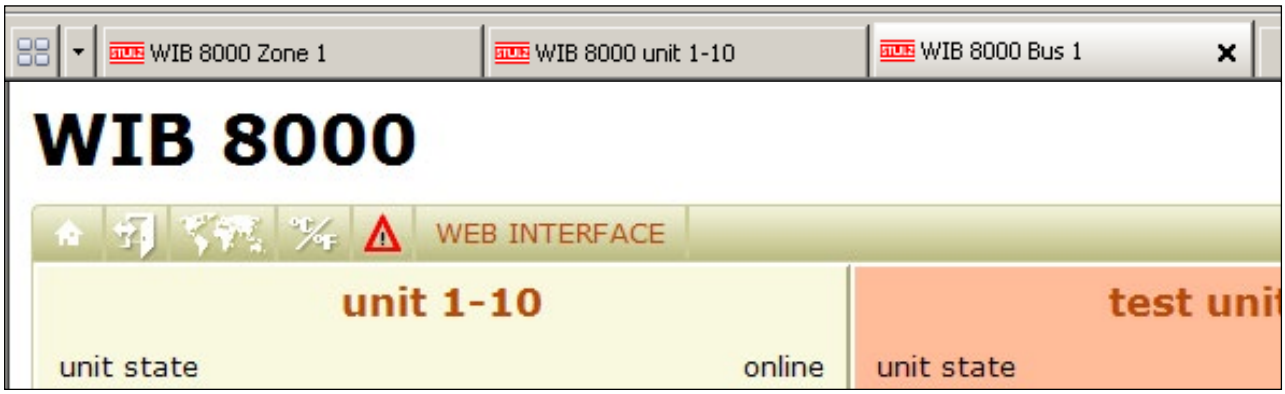


Browser tabs (dependant on browser)

For the naming of browser tabs the WIB8000 provides texts depending on the chosen view according to the following principle:

1. system name followed by unit name
2. system name followed by bus name
3. system name followed by zone name

Below you see three examples for the naming of tabs. The view of bus 1 is being displayed. The view of zone 1 and view of unit 1-10 are covered by the tab "WIB8000 Bus 1".



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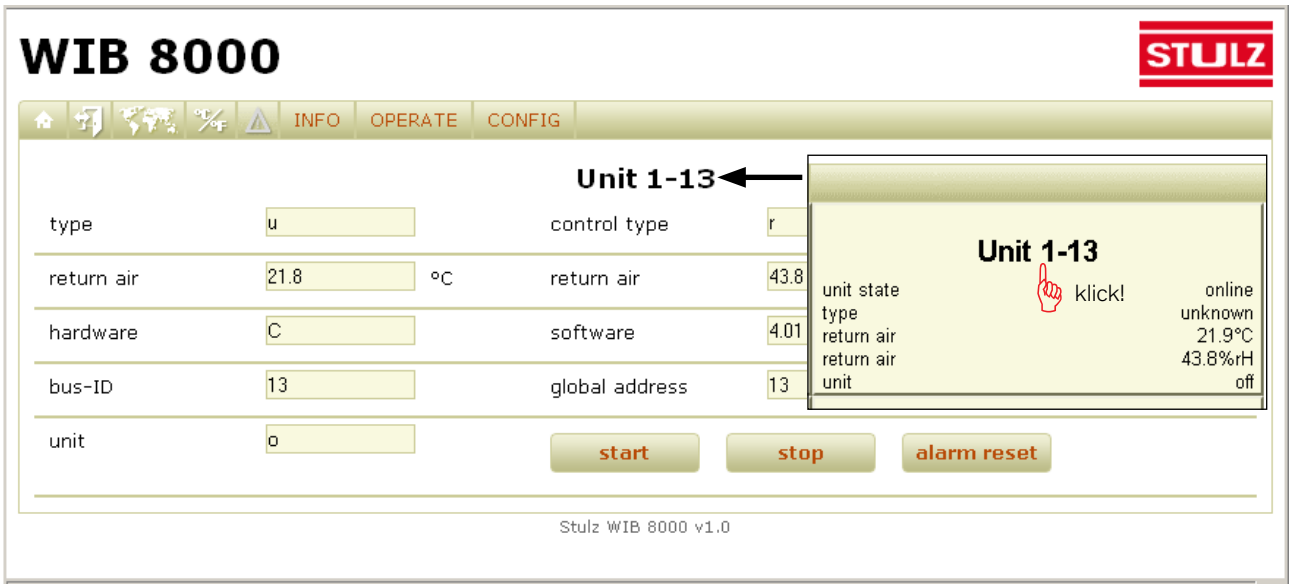
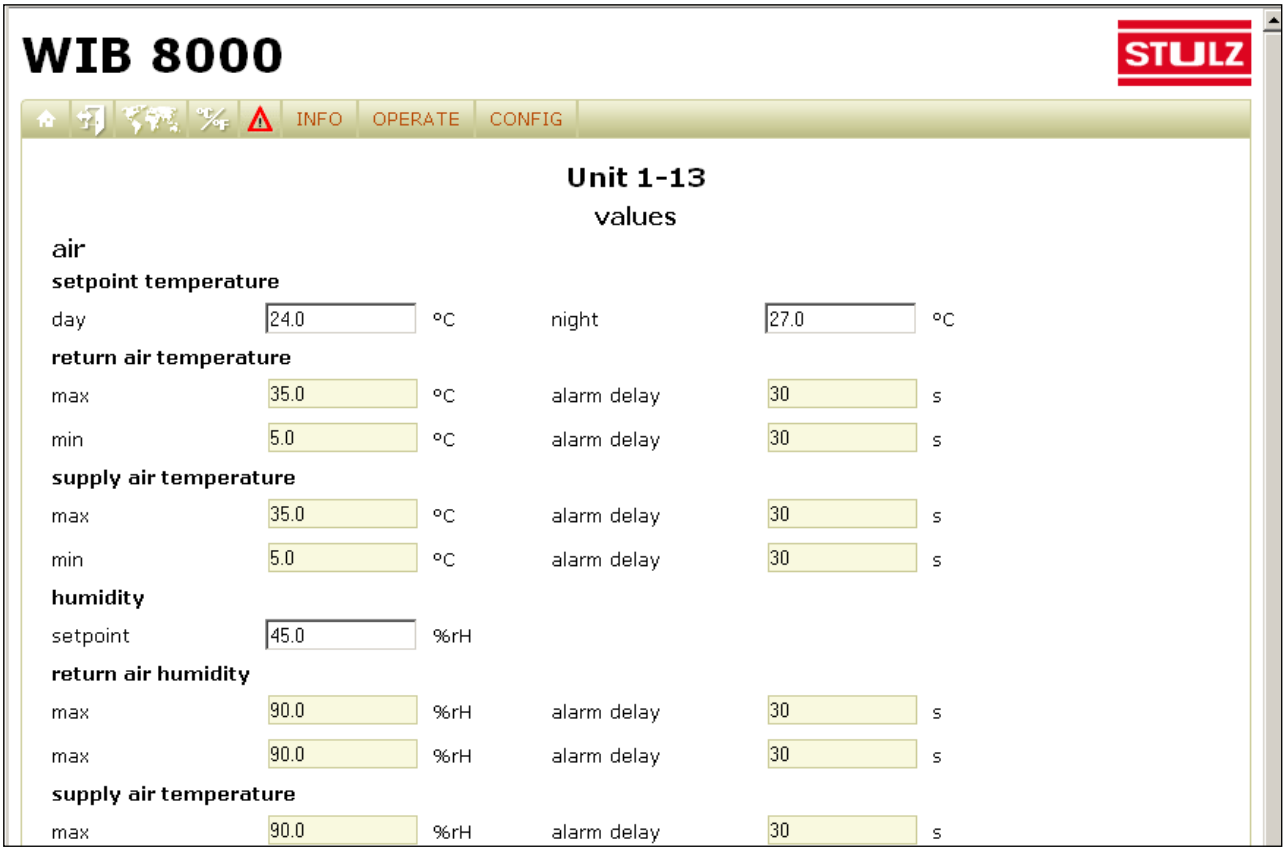
6.1.1 Start window

By clicking on the Unit name in the bus view, you get to the start window of the selected unit. Except the information which appear in the bus view, the control type, the controller type (hardware), the software version, the bus address and the global address are displayed in the start window.

Start window



All parameters which are not displayed on a grey background, can be modified by marking the value and typing the new value. The modification will be effective when you confirm it by clicking on the "Send" button.



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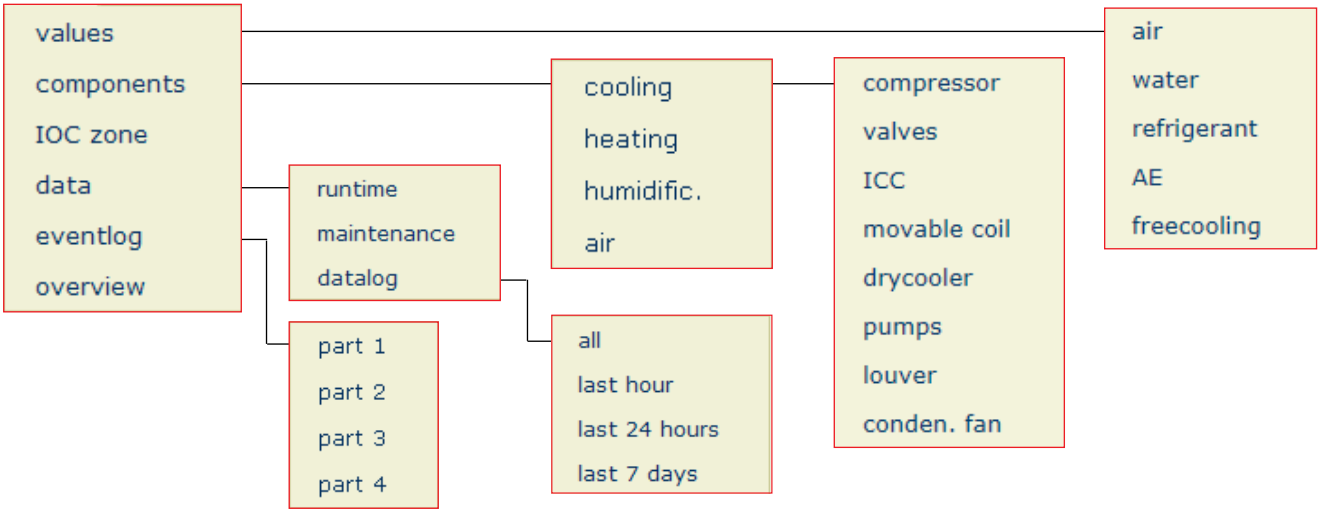
6.2 Menu structure

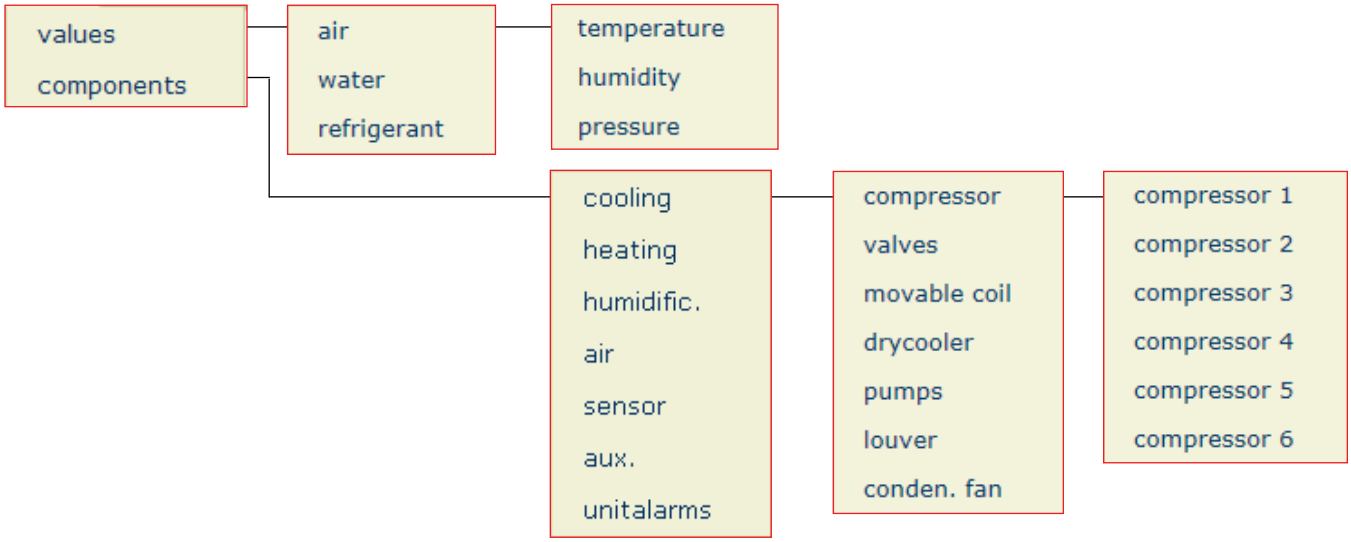
The menu structure is based on the menu structure which has been applied for the C7000 redesign. The menu line displays three main menus "Info", "Operate" and "Config".
In the menu line for controllers which can control several modules, the single modules are displayed (module 1, module 2, etc), the above mentioned structure is displayed on a level below after you have selected a module. The menu structure of the C7000 redesign is however reduced by some menu items for the controllers C1002, C4000, C5000 and C6000.

6.2.1 Menu structure for DX/CW units

Info menu



Operate menu



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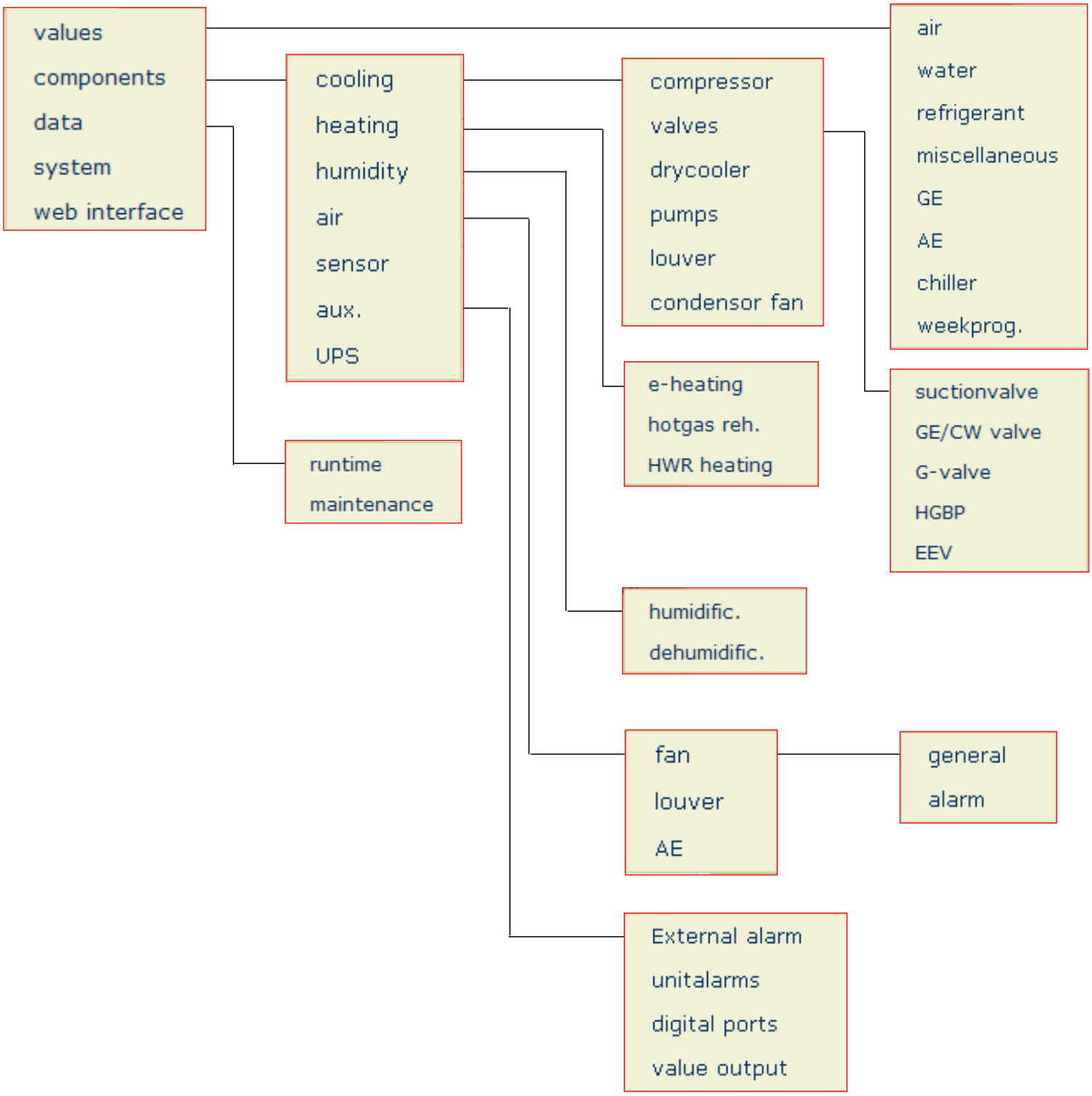
Config menu



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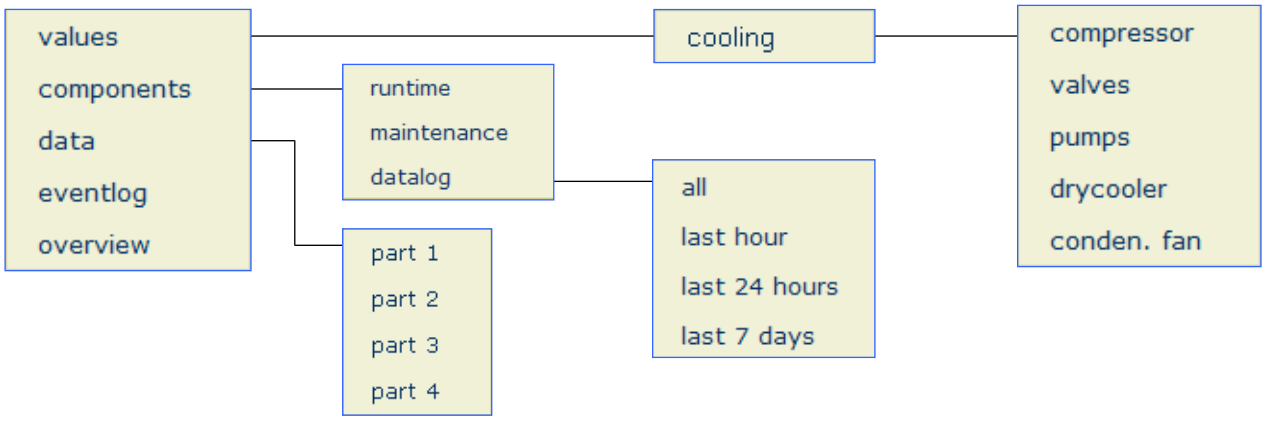
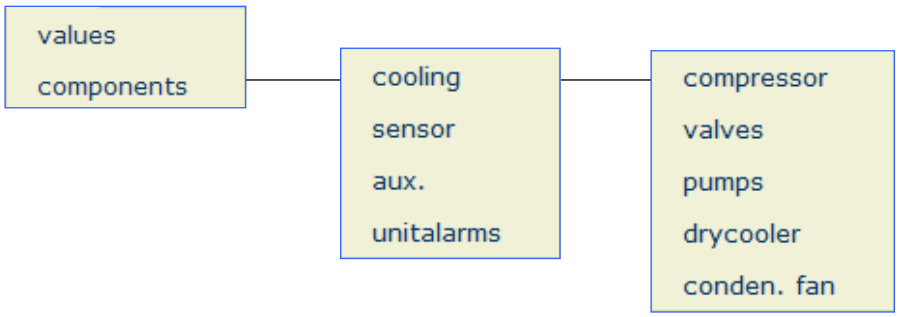
6.2.2 Menu structure for chillers with C7000

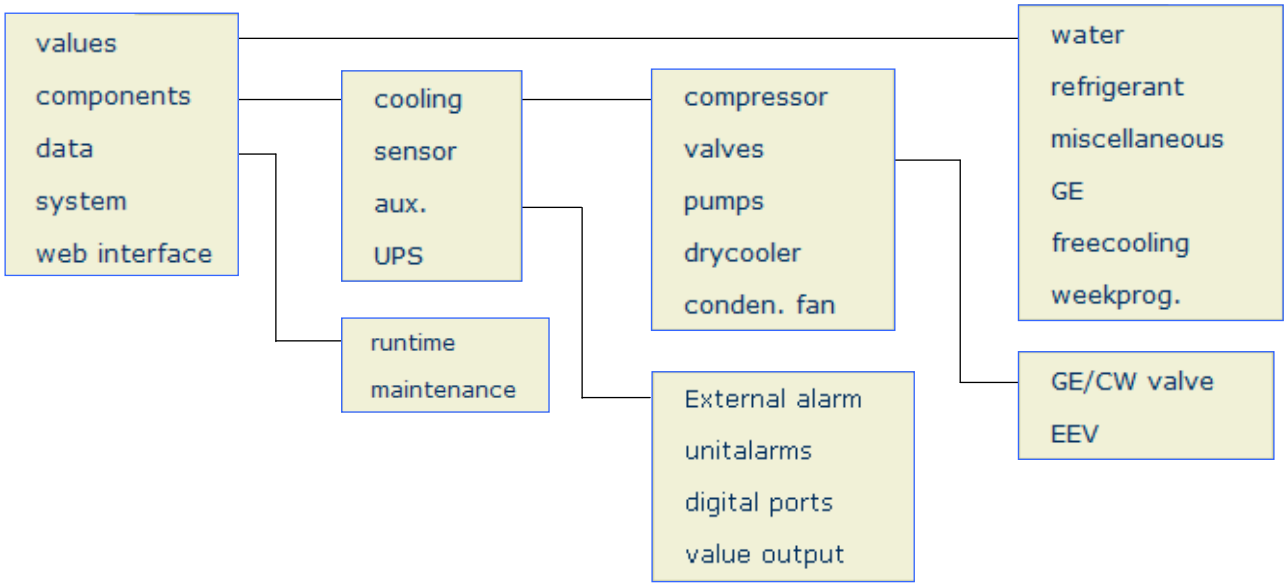
Info menu



Operate menu



Config menu



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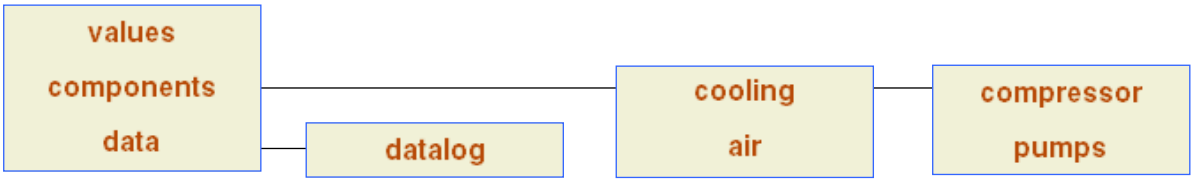
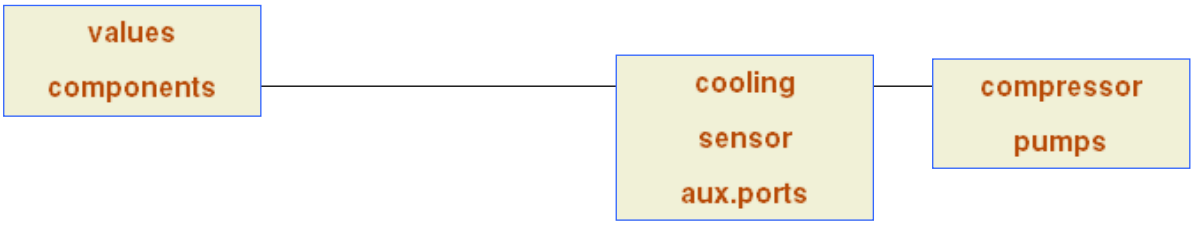
6.2.3 Menu structure for chillers with C6000

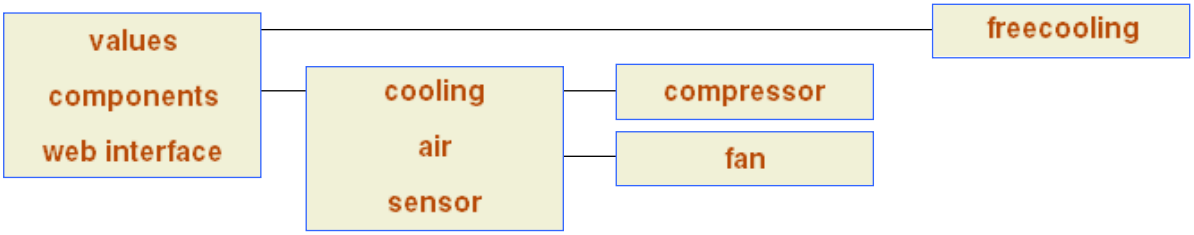
Info menu



Operate menu



Config menu



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7. Troubleshooting

7.1 Problems with the connection via SNMP

1. Reachability

- Check by the "ping" command, whether the WIB module can be reached via Ethernet.
- Check whether the access by SNMP is set as "enabled". (see page 17)
- Test the connection using the freely available Hilisoft MIB-Browser. The followings OIDs are suitable for the function test of the connection.
  OID:1.3.6.1.2.1.1.1.0 → Stulz GmbH Klimatechnik WIB 8000 // sysDescr
  OID:1.3.6.1.2.1.1.2.0 → 1.3.6.1.4.1.29492.10 // sysObjectID
  OID:1.3.6.1.2.1.1.5.0 → WIB 8000 SNMP Interface // sysName
  OID:1.3.6.1.2.1.1.6.0 → aircondition // sysLocation

2. Speed

- Consider the notes on bus configuration (Timeout, Cache holding time and Pre-fetch period) on page 19. As many values do not change so often, you can set a bigger cache holding time.
- If the WIB module is connected with the A/C units (C7000IOCs) by a C7000AT, the data request is slower than if it is connected with the C7000IOC and the A/C unit by an E-Bus board.
- Use "GET" commands for the request of data points.
- Avoid the "WALK" command.

The available data points can be taken from the file "StulzWIB8000_v2×x_oidlist.pdf" which can be downloaded from the E-Stulz area.

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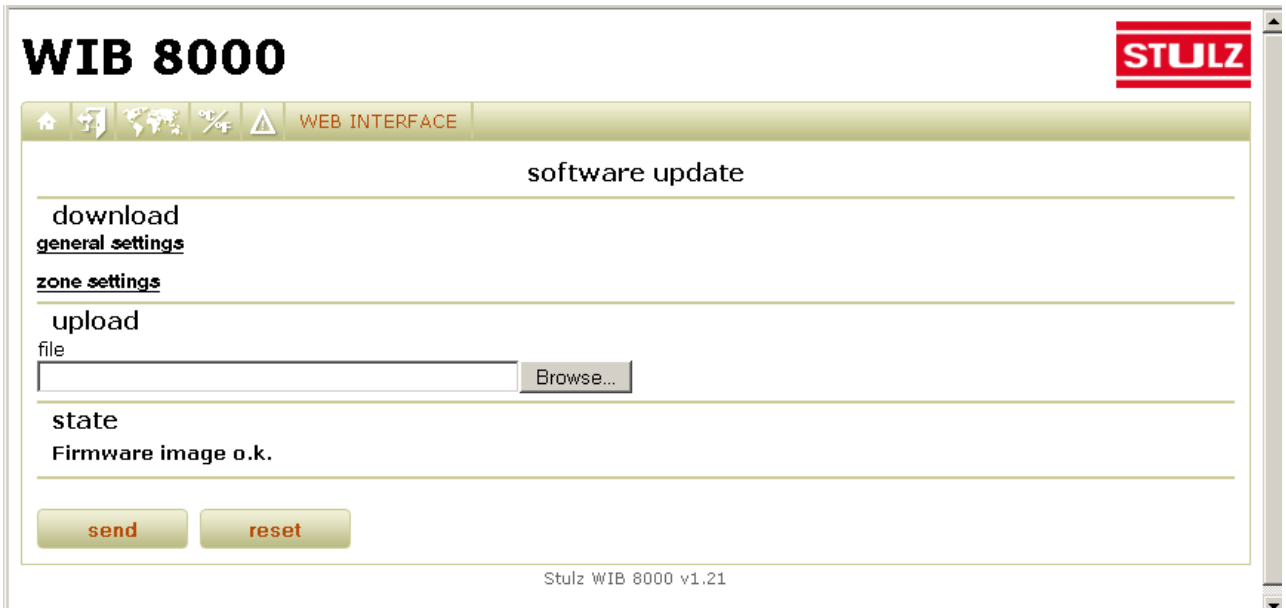
Appendix

A1. Software update



From version 1.20 a software update can be done by the web browser in the menu "Web Interface/Service/software update".

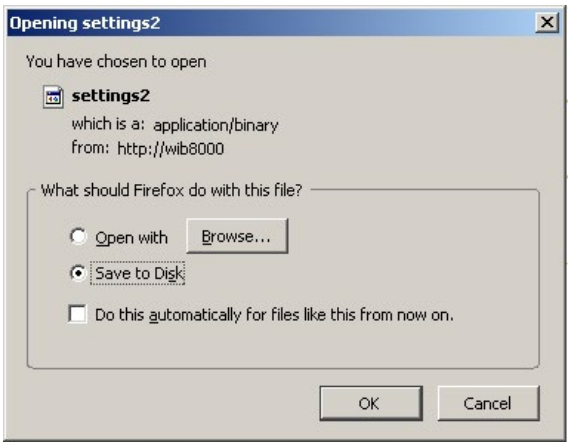
Using the download links "general settings" and "zone settings" you can save the configuration files "settings2" and "zonedata" from the WIB8000 on the PC.

Using the „Browse“ button, choose the new firmware image file which you downloaded before from the e-Stulz area of the Stulz website on the hard disk of your PC.

Use the "Send" button to transfer this file from the PC to the WIB8000.
As soon as the page is refreshed the upload is terminated. A restart is necessary (e.g. by the menu "WIB interface/ Reboot") to activate the new firmware.

In case the configuration files were damaged during the update, these can be loaded onto the WIB8000 using the upload function as for the firmware. Here also a restart is necessary to activate the files.

Download of a configuration file



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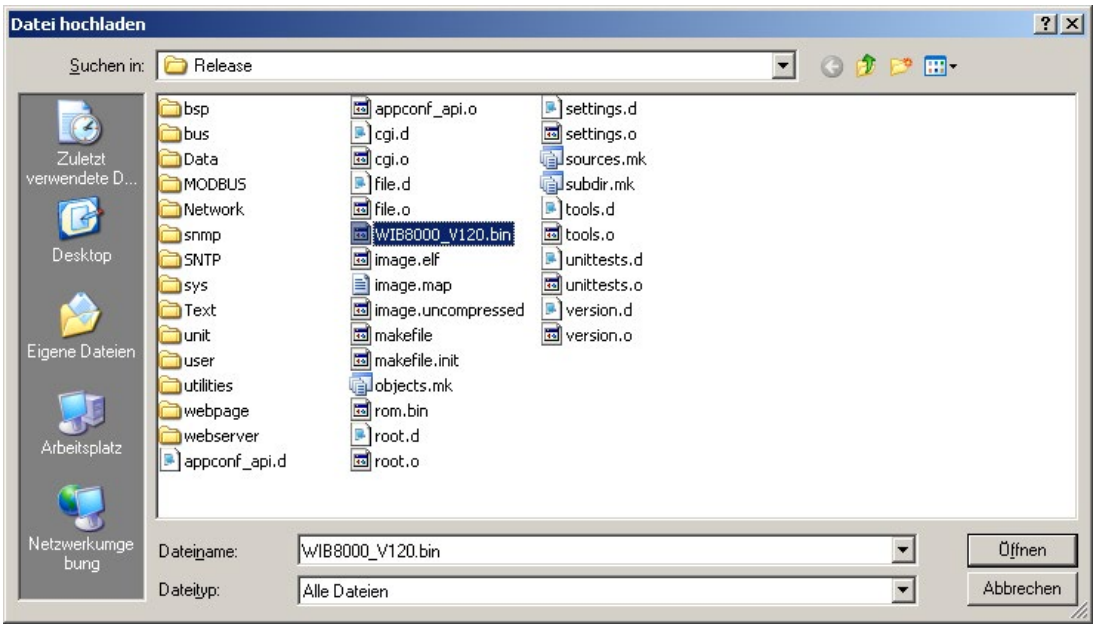
Selection of the firmware Image file for the upload to the WIB8000



When the „Software update“ page is displayed the integrity of the firmware image in the flash memory is checked (even when an update has just been carried out). The result is displayed in the section „State“ on the update page.
When the uploaded firmware image is damaged, the WIB8000 may not be restarted again ! The following message is displayed in the state section "Firmware image damaged. Please upload new image.". In this case the image must be uploaded again (onto the WIB8000). The WIB8000 restart by the web page is blocked during this time.

NOTICE

The WIB8000 is delivered with software already installed. For spare parts of the WIB which may have been in stock for a longer time, we recommend to update the software before commissioning.
Installing a software of an older version than the version of the state of delivery may disable the WIB8000.

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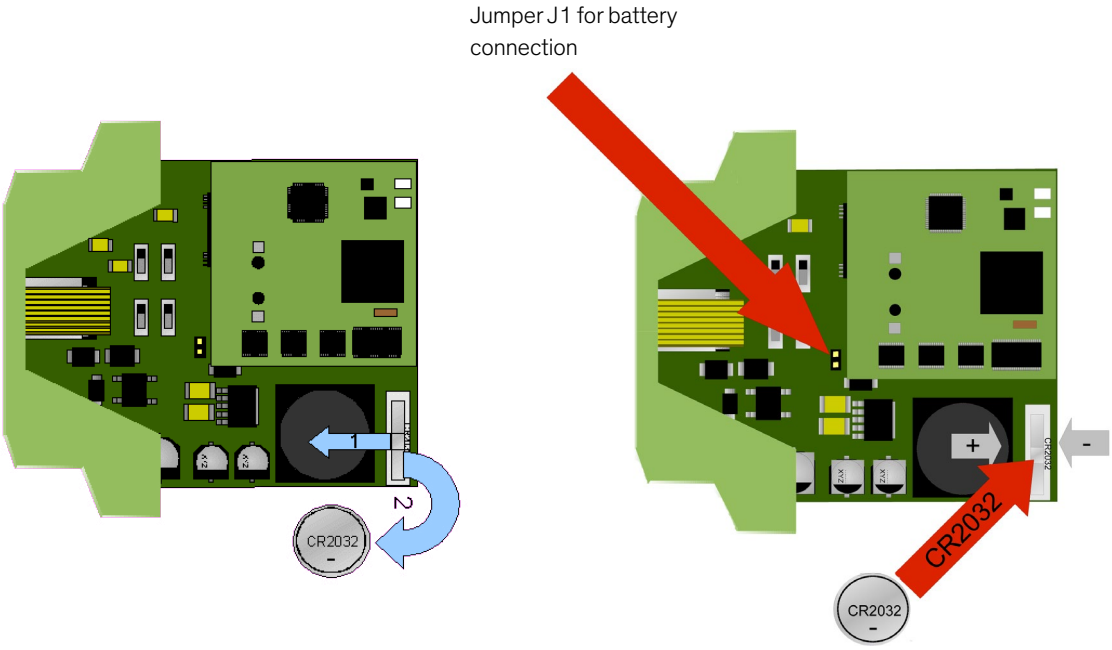
A2. RTC battery change

In the WIB8000 module a CR2032 type battery serves to provide power for the real time clock, when the WIB is de-energized. You can activate this battery by the jumper J1. When the jumper is removed the battery is not connected. Disconnecting the battery could be reasonable for an intermediate storage to save the battery capacity. This jumper is not set at delivery.



A battery change is necessary, when you notice that the date adjusted in menu "Web interface/time" resets to year 2004.
For changing the battery turn the metal clip, which fixes the battery, to the front side of the WIB. The lithium cell can be drawn out of the socket. When installing the new lithium cell take care of the right polarity.

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A3. Factory Reset

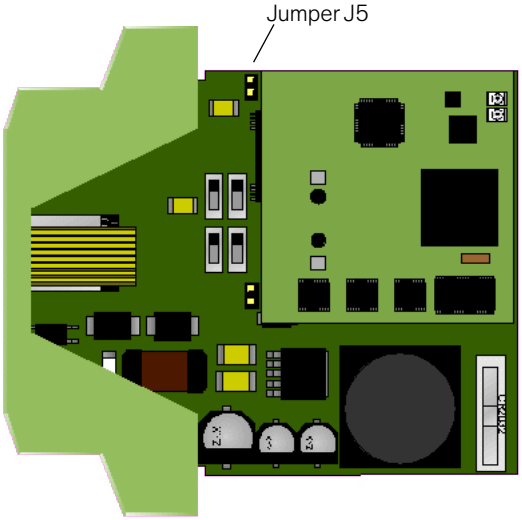
In case you forgot the password of the Config level or if network settings have been changed, so that the WIB8000 can not be reached via the LAN anymore, you can reset the WIB to the factory setting by a jumper on the board.

The steps in detail:

- switch off the WIB
- open the box
- set jumper J5
- close the box
- switch on the WIB

- wait until green LED "ready“ is permanently lit

- switch off the WIB
- open the box
- remove jumper J5
- close the box
- switch on the WIB



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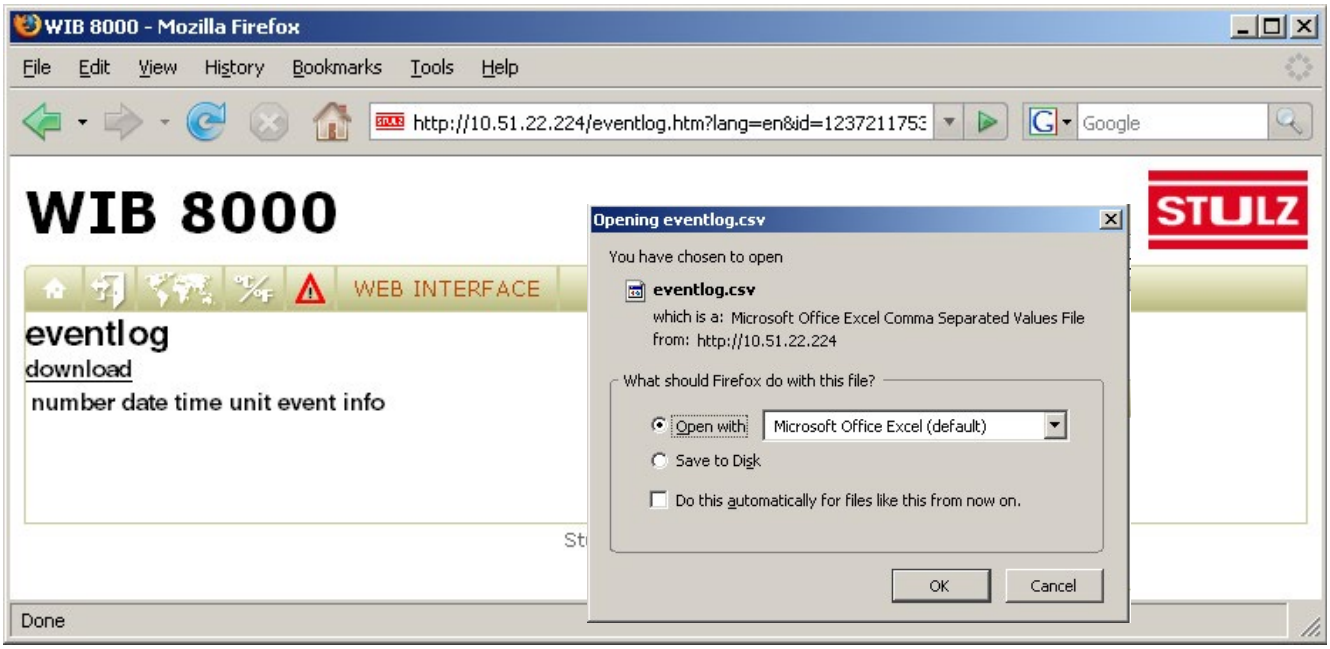
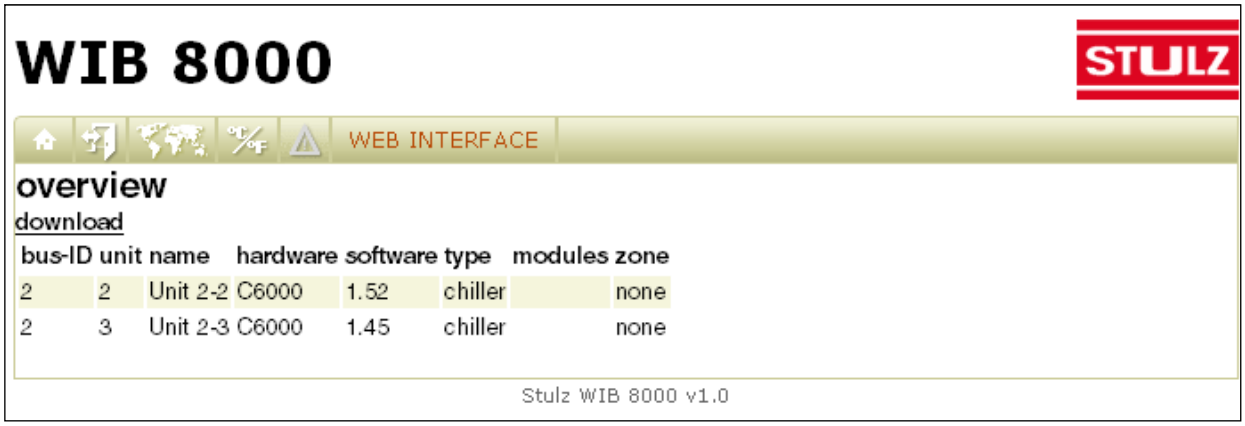
A4. Support

For trouble shooting it may be useful for the technical support to receive information about the occurred alarms and the equipment of the system.
The menu item "event log" records all alarms the same as WIB event messages, the menu item "overview" shows the hardware version of the system. Both items appear in the menu "Web Interface".
The contents of both menu items can be downloaded as csv-files. Send these files on request to the technical support.



(Menu: Web Interface/overview)



bus-ID	unit	name	hardware	software	type	modules	zone
2	2	Unit 2-2	C6000	1.52	chiller		none
2	3	Unit 2-3	C6000	1.45	chiller		none

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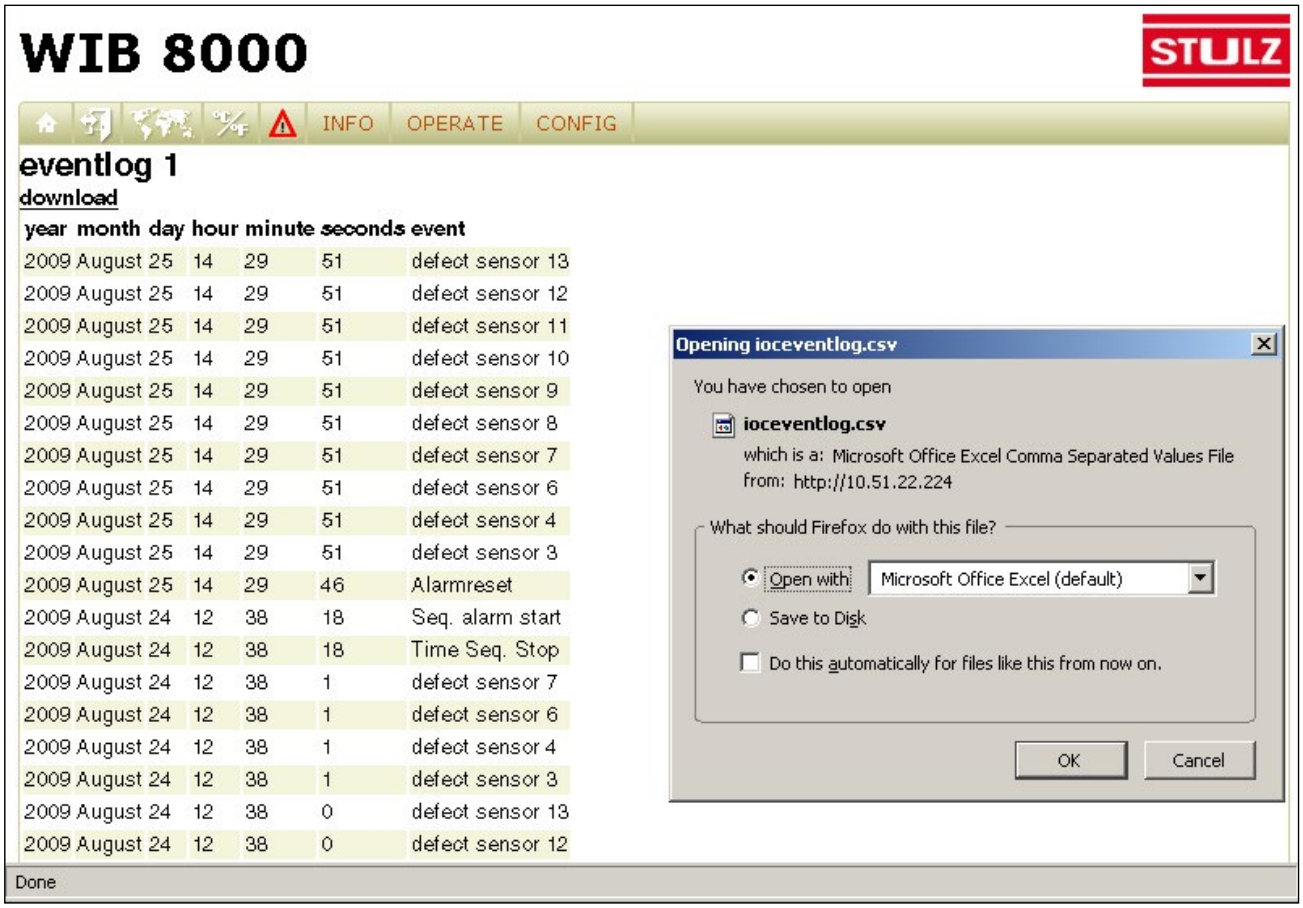
By menu "Info/Events/Part 1 ...Part 4" the eventlog of a connected unit can be displayed. To keep the time of establishing the eventlog short, the eventlog is subdivided into four parts. Part 1 contains the recent 50 events, part 2 contains 50 events before the recent 50 events etc..
The list of events can be saved in the form of a csv file with the possibility to send it to the technical support of Stulz.
These files automatically receive the file name "ioceventlog.csv". If you download several parts think of renaming the files as e.g. "ioceventlog_part1.csv".
When the eventlog is sent via email (automatically or manually by the download dialogue) all data in the eventlog is deleted. When the web page is saved the data in the eventlog is maintained.



year	month	day	hour	minute	seconds	event
2009	August	25	14	29	51	defect sensor 13
2009	August	25	14	29	51	defect sensor 12
2009	August	25	14	29	51	defect sensor 11
2009	August	25	14	29	51	defect sensor 10
2009	August	25	14	29	51	defect sensor 9
2009	August	25	14	29	51	defect sensor 8
2009	August	25	14	29	51	defect sensor 7
2009	August	25	14	29	51	defect sensor 6
2009	August	25	14	29	51	defect sensor 4
2009	August	25	14	29	51	defect sensor 3
2009	August	25	14	29	46	Alarmreset
2009	August	24	12	38	18	Seq. alarm start
2009	August	24	12	38	18	Time Seq. Stop
2009	August	24	12	38	1	defect sensor 7
2009	August	24	12	38	1	defect sensor 6
2009	August	24	12	38	1	defect sensor 4
2009	August	24	12	38	1	defect sensor 3
2009	August	24	12	38	0	defect sensor 13
2009	August	24	12	38	0	defect sensor 12

Special functions (Menu: Web Interface/Service/Special functions)

With the menu "Web Interface/Service/Special functions" you can solve problems by typing in a four-digit code. The code can be obtained from the technical support after the problem has been described.

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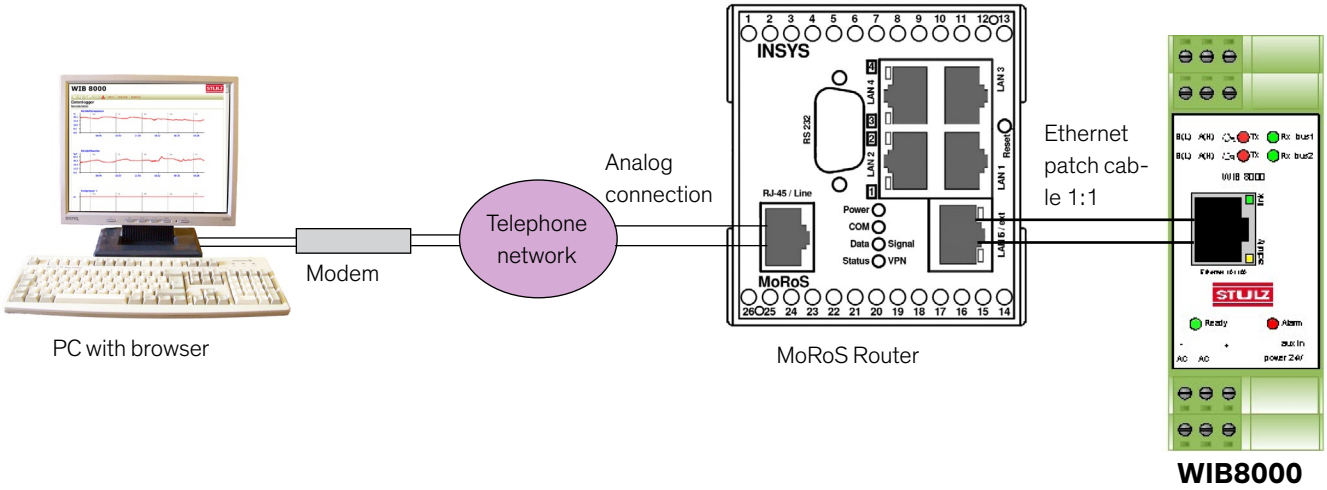
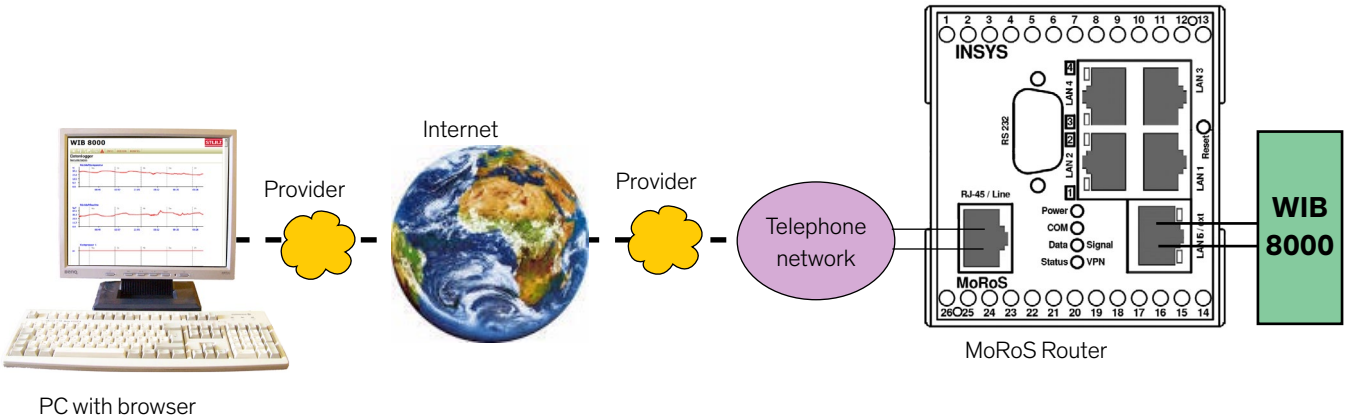
A5. WIB8000 connection by telephone network

When no network is available at the site, there is the possibility to connect the WIB8000 to the telephone network by a MoRoS router.
WIB8000 and MoRoS router must be connected by a 1:1 Ethernet patch cable, the MoRoS router establishes an analog connection to the telephone network. At the user side there are two possibilities to establish the connection to the telephone network. 1. Direct connection via modem, 2. Connection by internet.

1. Direct connection via modem



2. Connection by internet



Security
Consider the security notes of the MoRoS router manual in chapter 1 "Security" at the commissioning.

A5.1 Start-up

Set the parameters of the IP network at the WIB8000 and in the MoRoS router and link both units by a patch cable.

Power supply
The router requires a power supply between the limits of 10V and 60V with a power of 3W as described in chapter 4 "Technical Data" of the MoRoS router manual.

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IP addresses

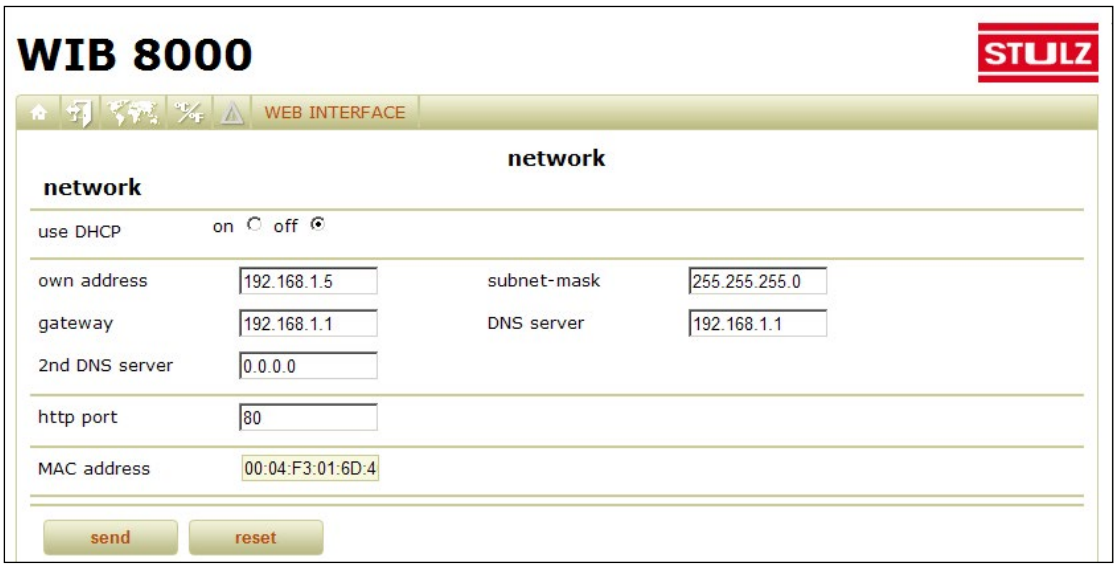
WIB8000 and MoRoS router must have IP addresses from the same subnet. In this example the pre-set router net is selected:
WIB8000: 192.168.1.5
MoroS: 192.168.1.1
Subnet mask: 255.255.255.0

Settings WIB8000

The WIB8000 configuration for a connection with the MoRoS router does not differ from the configuration in a normal network so that this can be carried out according to the WIB8000 manual.

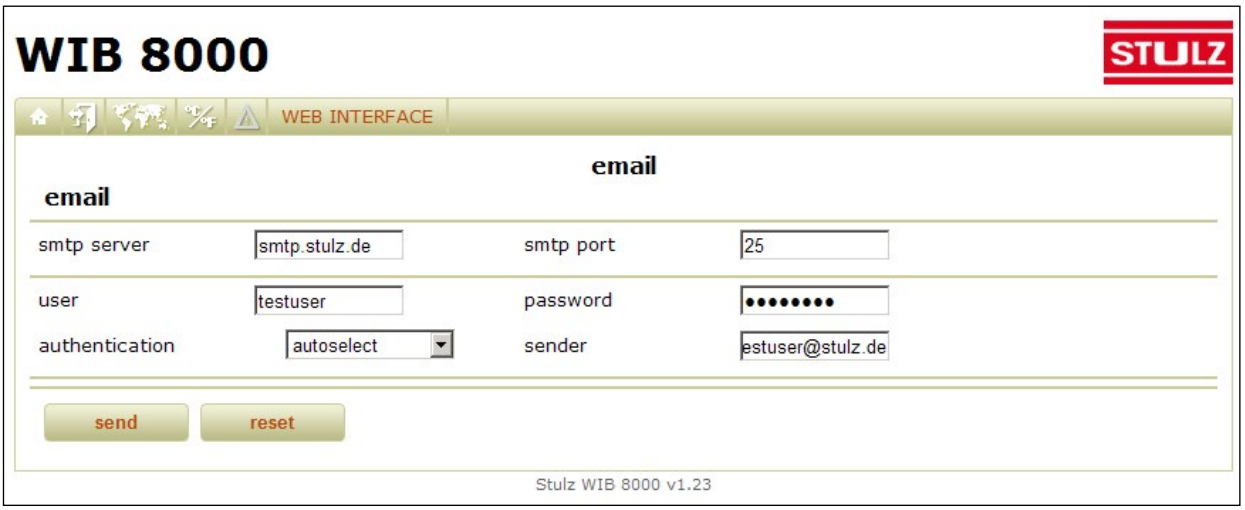
Network→Setup

The parameters of the IP net can be set in the menu „WEB INTERFACE→Network→Setup“.
Gateway and DNS server are represented by the router in this case, so enter the router IP address here.



Network→Email

Enter the settings for the mail server in the menu „WEB INTERFACE→Network→email“.



The email receivers can be configured in the menu „WEB INTERFACE→Alarm“ and in „WEB INTERFACE →Common“.

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A5.2 Router settings

As far as the router settings are concerned you can refer to the quickstart instructions provided.
If the login data for router administration or the IP parameters must be modified, select the items „Basic Settings→Webinterface“ and „Basic Settings→IP addresses (LAN)“.

Modem
Depending on the fact whether a dial tone is available or not before dialing, the item „Wait for dial tone“ must be set. The parameters under MODEM can only be changed, when "Dial-In" as well as "Dial-Out" are disabled.
To confirm click on „OK“ at the end of the page.

Dial-In
If the dial-up from the telephone network shall be enabled, select "Yes" for "Enable dial-in" in the menu item "Dial-in". The check mark for "Authentication for dial-in" should be set in addition and a user name/password should be entered.
All other parameters can keep their default values as can be seen under 11.2.6 of the manual.
The check mark "enable NAT“ must be set (default). To confirm click on „OK“ at the end of the page.
After having finished these settings the WIB8000 should be accessible by the telephone network through remote data transmission network (here: http://192.168.1.5).

Dial-Out
If the WIB8000 shall be enabled to send emails, an automatic connection buildup must be configured in the router under "Dial-Out“.
For the authentication at the remote station enter the following data:
- telephone number
- user name
- password

and set the check marks for

- "request DNS server address“
- "enable NAT“.

All other parameters can keep their default values as can be seen under 11.2.7 of the manual.
To confirm click on „OK“ at the end of the page.

Forgot password
If you do not succeed in establishing a connection to the web interface of the router via Ethernet for a consisting system, the cause may be an incorrect IP address or user name/password. In this case it is possible to reset the router to the condition at delivery, by pressing three times the reset button within two seconds. See manual 12.11.5 Reset. All settings done are lost in doing so.

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A6. Network check list

1. General

Use DHCP: Yes (continue with item 2) ☐ No ☐

IP address of the WIB: [_ _ _._ _ _._ _ _._ _ _]
Subnet mask: [_ _ _._ _ _._ _ _._ _ _]
Gateway: [_ _ _._ _ _._ _ _._ _ _]
DNS server: [_ _ _._ _ _._ _ _._ _ _]
2nd DNS server: [_ _ _._ _ _._ _ _._ _ _] http port: _ _ _

2. Access authorization

Modify password: ☐

3. E-mail

SMTP server: _ _ _._ _ _._ _ _._ _ _
(IP address / server name) _ _ _ _ _ _ _ _ _ _ _ _ _ _ (max. 30 characters)
SMTP port: _ _ _ _ _ (max. 5 numerals)
User: _ (max. 64 characters)
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Password (plain text): _ (max. 64 characters)
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
Authentication *: None ☐ DIGEST-MD5 ☐ CRAM-MD5 ☐
LOGIN ☐ PLAIN ☐ AUTO ☐

Sender: _ (max. 64 characters)
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _

4. SNMP - 1st part

Read community: _ (max. 20 characters)
Write community: _ (max. 20 characters)
Trap receiver 1
Community: _ (max. 20 characters)
IP address/ server name: [_ _ _ . _ _ _ . _ _ _ . _ _ _]
port: _ _ _ _ _ (max. 5 numerals)
Trap receiver 2
Community: _ (max. 20 characters)
IP address/ server name: [_ _ _ . _ _ _ . _ _ _ . _ _ _]
port: _ _ _ _ _ (max. 5 numerals)

* Setting "Auto" may result in authentication error if it is insufficiently implemented at the e-mail server.
In case of authentication errors with your e-mail account, ask your e-mail host provider which is the proper method and select this method deliberately.

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4. SNMP - 2nd part

Trap receiver 3

Community: _ (max. 20 characters)

IP address/ server name: [_ _ _._ _ _.._ _ _.._ _ _]

port: _ _ _ _ _ (max. 5 numerals)

Trap receiver 4

Community: _ (max. 20 characters)

IP address/ server name: [_ _ _ . _ _ _ . _ _ _ . _ _ _]

port: _ _ _ _ _ (max. 5 numerals)

Trap receiver 5

Community: _ (max. 20 characters)

IP address/ server name: [_ _ _ . _ _ _ . _ _ _ . _ _ _]

port: _ _ _ _ _ (max. 5 numerals)

Trap receiver 6

Community: _ (max. 20 characters)

IP address/ server name: [_ _ _ . _ _ _ . _ _ _ . _ _ _]

port: _ _ _ _ _ (max. 5 numerals)

System name: _ (max. 20 characters)

Contact: _ (max. 20 characters)

Location: _ (max. 20 characters)

5. SNTP

SNTP server: _ _ _ . _ _ _ . _ _ _ . _ _ _

(IP address / Server name) _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ (max. 30 characters)

Local time offset: _ _ _ : _ _ (±hh:mm)

Synchronize: hourly ☐ daily ☐ weekly ☐

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