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Synco™, Synco™ living
Web server OZW772... V4.0
Commissioning instructions

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1 Overview

1.1 Introduction

Type summary

Type designation	Max. number of devices on KNX bus
OZW772.01	1 device
OZW772.04	4 devices
OZW772.16	16 devices
OZW772.250	250 devices

Document contents

The document describes commissioning and operating the web server OZW772.

In this edition of "Web server OZW772, V4.0", the new "Energy indicator" function is described in Section 6. Sections 2 and 7 contain supplementary information on the DHCP client.

Focus on web browser operation

The ACS790 PC software can also be used to commission and operate the web server OZW772. To simplify reading, this document focuses on commissioning and operating via web browser.

Important notes ⚠

The symbol to the right identifies special safety notes and warnings.

Ignoring this type of note may result in device damage and personal injury.

Safety / Product liability

- Devices may only be used in building technical plants and for the described applications only. Comply with all local regulation (installation, etc.).
- Disconnect the power and immediately replace a defective or obviously damaged device.
- Do not open the device. Failure to comply will invalidate any warranty claims.
- The technical data are provided solely for use with Siemens bus devices. The user ensures the functionality of operation when using third-party devices not expressly mentioned here. Siemens assumes **no** responsibility for service and warranty under these circumstances.

Intended use

Trouble-free and safe product operation presupposes transport, storage, mounting, installation, and commissioning as intended as well as careful operation.
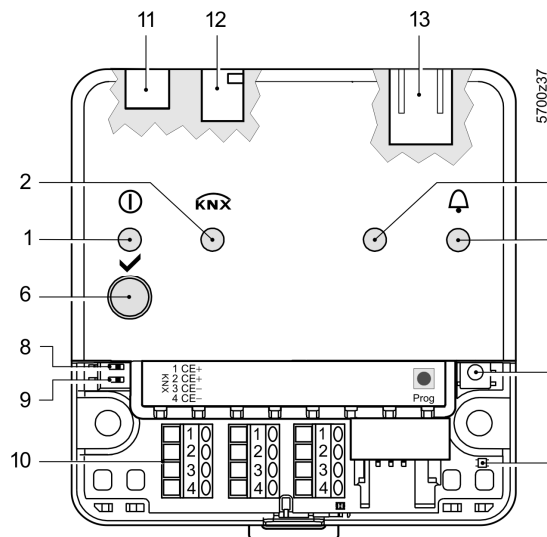
Disposal

Dispose of the device as electronic waste in compliance with European directive 2002/96/EEC (WEEE) and not as municipal waste. Observe all corresponding national, legal regulations, and dispose of the device via appropriate channels. Comply with all locally applicable laws and regulations.

1.2 Web server display and operating elements

Overview

Pos	Designation
1	LED ① Operation and "Energy indicator"
2	LED KNX
3	LED field bus 2 (reserve)
4	LED fault 🔔
5	LED addressing mode
6	Remote button ✔
7	Addressing mode button Prog
8	"Message suppression" switch
9	Switch 2 (no function)
10	KNX bus connection terminals
11	Operating voltage connection
12	USB connection Mini-B
13	Ethernet connection, RJ45 plug

LED displays

1 ① (red/green/orange)
- Dark — No operating voltage DC 24 V
- Steady red — Web server starts operating system
- Flashing red — Web server starts application
- Steady green — Web server operational, "Energy indicator" = "Green leaf"
- Steady orange — Web server operational, "Energy indicator" = "Orange leaf"

2 KNX (green)
- Dark — No bus power
- Lit — KNX operational
- Flashing — Communication on KNX

3 Field bus 2 (reserve)
- Dark — No function

4 Fault 🔔 (red)
- Dark — No fault (normal operating state)
- Lit — Acknowledged fault
- Flashing — Unacknowledged fault

5 Addressing mode (red)
- Dark — KNX addressing mode off
- Lit — KNX addressing mode o

Operating buttons

6 Remote button ✔
- Short (< 2 s) — Acknowledges fault message
- Long (> 6 s) — Sends system report to fault e-mail recipients (not to consumption data and "Energy indicator" recipients)

7 Addressing mode Prog
- Short (< 2 s) — Press once: KNX addressing mode on. Press again: KNX addressing mode off

Button combinations ✔ and Prog
- Long (> 6 s) — Simultaneously pressing the buttons ✔ and Prog restores defaults

  ℹ️ All configuration data and settings are reset. The device list, plant diagrams, and unsent messages are deleted. History data is not deleted.

Switches

8 Message suppression
- Position ON — Sending messages is suppressed
- Position OFF — Sending messages permitted

9 DIP switch 2
- Switch settings — No function

1.3 User interface

A web browser is used to access the user interface for the web server.

- The web server provides text-based operation of the web server and connected KNX devices as a standard (Section 3).
- You can also set up visualized operation (Section 4).

The following describes the display areas for the text-based standard user interface (display areas for visualization are outlined in Section 4).

The main window is sub-divided into various areas.
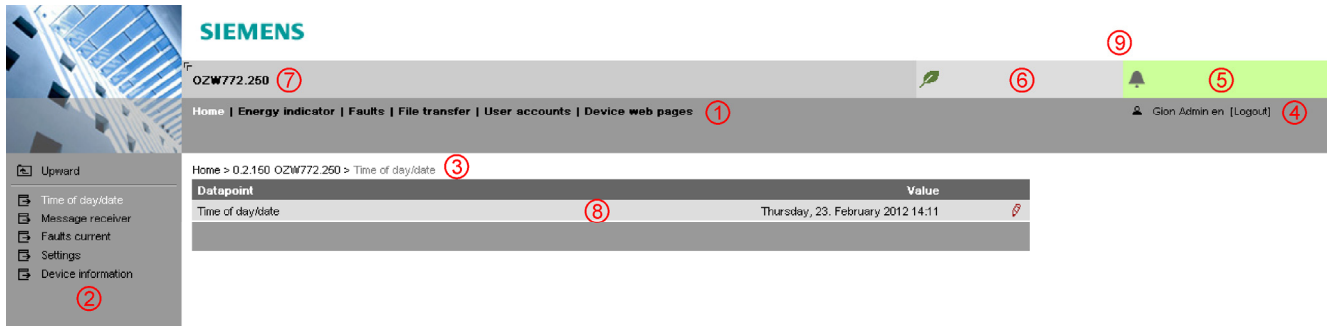
①	**Primary navigation**	The following functions are selected via primary navigation:

Home	Menu-based plant and device operation.
Energy indicator	Display and operate "Energy indicator" data points.
Faults	Display system faults.
File transfer	Download consumption data and event history, upload documents, logos and system definitions.
User accounts	User administration.
Device web pages	Create device list and operating pages.

②	**Secondary navigation**	Device operation (via home) queries devices and their operating pages via secondary navigation (menu tree).
③	**Command sequence**	The path displays the workflow starting at the main menu to the open operating page. Simply click at any point on the path to return to that location.
④	**User**	This field shows the currently logged-in user. Clicking [Logout] ends the current session. The session remains active until logout.
⑤	**Plant state fault**	The "Plant state fault" field is displayed permanently: • Green field: No fault • Red field: Plant fault Click the "Plant state fault" field to display all faults in the plant.
⑥	**Plant state Energy indicator**	The "Plant state Energy indicator" field is displayed permanently: • Green leaf: All "Energy indicator" data points are always within their "green limits", i.e. "within the green/allowed range". • Orange leaf: One or multiple "Energy indicator" data points are outside their "green limits" Clicking the "Plant state Energy indicator" field opens the "Energy indicator" function.

⑦	**Plant name**	Displays plant name as entered.
⑧	**Display**	The display range displays content corresponding to the selected function via primary and secondary navigation.
⑨	**Logo area**	Shows Logo 1 and Logo 2.

1.3.1 User levels

Displays and operates based access level for the logged on user:

End user

- Operate end user data
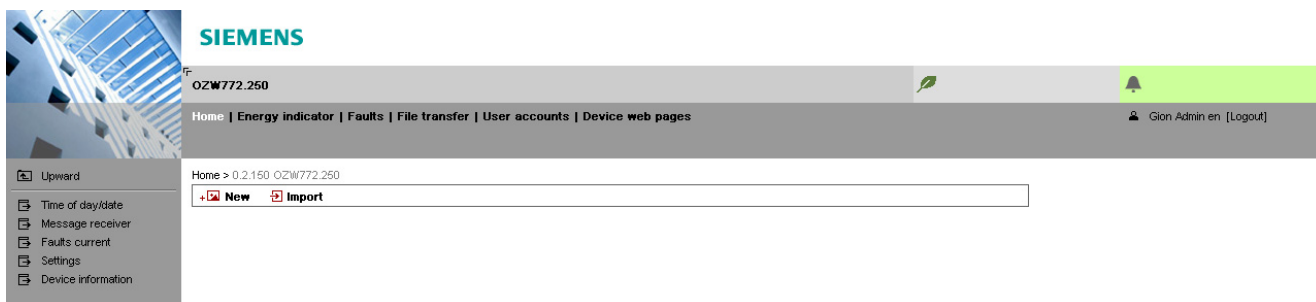- Fault overview
- Administer own user account

Service

Same as end user. In addition:
- Operate service data
- Documents, message history

Administrator

Same as service. In addition:
- Create device list and web pages
- The toolbar to create plant web pages
- Administer all user accounts

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1.4 Symbols, notations, abbreviations

1.4.1 Symbols

Symbols

Symbol	Meaning
	Data point at the service level
	Data point at the end user level
	Read/write data point; the setting value can be changed
	Read-only data point; the value cannot be changed
	Link to entry field
	Delete object
	Checkbox
	Selection box
	Calendar
	Arrows to incrementally adjust values
	Adjustment tab
/	Arrow to display sort order
	Up
	File upload (to web server)
	File download (from web server)
	Safety note, intended to protect against misuse
	Always observe/follow
	Note; important information
	Network connection
	Link to device
	User
	Message history
	System definitions
	Logos
,	Switch over displays: Full view, partial view
/	Fault indication: Green field = no fault; red field = fault (alarm)
	"Green leaf"
	"Orange leaf"
	"Grey leaf"

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1.4.2 Notations

Path indications

Paths are printed as follows:

- Web server: Home > 0.2.150 OZW772.xx > Settings > Time of day/date.
- PC: *Start > Settings > Network connections > Local Area Connection.*

OZW772.xx stands for: OZW772.01 or
OZW772.04 or
OZW772.16 or
OZW772.250

IP address, domains

Enter in the browser address line:

- IP address: 192.168.2.10
- Domain: www.siemens.com

Buttons

Buttons depicted as follows: [Add]

1.4.3 Abbreviations

Abbreviations

Auto MDI-X	Auto Medium Dependent Interface – Crossed.
DHCP	Dynamic Host Configuration Protocol
DynDNS	Dynamic Domain Name System
ECA	Energy Cost Allocation
HTTP	Hyper Text Transfer Protocol
HTTPS	Hyper Text Transfer Protocol Secure
IP	Internet Protocol
KNX	Konnex
LAN	Local Area Network
NAT	Network Address Translation
PAT	Port and Address Translation
RNDIS	Remote Network Driver Interface Specification
SMTP	Simple Mail Transfer Protocol
STP	Shielded Twisted Pair
TCP	Transmission Control Protocol
TLS	Transport Layer Security
UPnP	Universal Plug and Play
USB	Universal Serial Bus
UTP	Unshielded Twisted Pair
Web API	Web Application Programming Interface

The glossary, Section 8.4, contains detailed explanations of terms and abbreviations.

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2 Commissioning

This section describes how to commission the web server.

2.1 Prerequisites

Prerequisites

The following conditions must be met to commission the web server:

- The web server is mounted and wired (see Installation instructions, G5701).
- The connected KNX devices are commissioned.
- The KNX devices have a valid KNX address [1...253] are operating.
  Note: Web servers are delivered with KNX address 150. As a result KNX address range [1…253], except for 150, applies to all other devices.
- Bus power supply to the KNX bus is available.
- The web server or another KNX device is the clock master on KNX.
- Connecting a SmartPhone App to a web server makes sense only after the web server is fully commissioned.

Notes

- IP address USB: 192.168.250.1 (cannot be changed)
  IP address Ethernet: As per the address assigned by the router.
                         Without router: 192.168.2.10 (default state,
                         see Section 7.1.1)
- Commissioning with a PC/laptop and a web browser via the USB interface.
  The RNDIS driver must be installed to connect via USB.
- The RNDIS driver is automatically installed when connecting via USB if the PC/laptop is connected to the Internet (as long as the Microsoft online update is enabled). You can manually install the RNDIS driver when there is no connection to the Internet (see Section 8.3.3).
- The RNDIS driver is supplied on the web server at http://<IP-Adresse>/drivers/.
- To navigate, always start with primary navigation, then use the secondary navigation to select the desired menu item.
- Return: Click ⬆ "Upward" or navigate via the path or primary navigation.

2.2 Getting started

2.2.1 Turn on web server

Turn on web server

Connect the web server to the power supply and connect it to the PC:

1. Connect power supply to turn on power on web server. The web server is operational, when the green ① LED is lit.
2. Check additional displays:
    - LED KNX
      Green light if the KNX bus power supply is available. Check KNX bus wiring and setting for bus power supply on the KNX devices if no bus power supply is available.
    - LED ⌂
      Dark if no fault pending. You can troubleshoot pending faults later (see Section 3.3).
3. Plug the supplied USB cable into the web server and the PC and start up the PC. The PC recognizes the web server as a USB device. Otherwise, the RNDIS is still not installed.
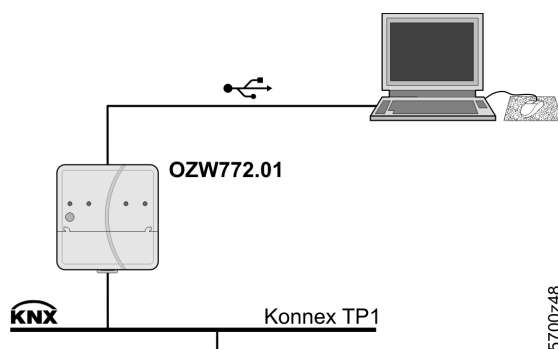
4. The RNDIS driver is installed automatically if the PC is connected to the Internet and no RNDIS driver is installed as long as the Microsoft online update is enabled. Follow the instructions for the installation program.

Note

ℹ You can also manually setup the RNDIS driver (see Section 8.3.3).

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2.2.2 Log into web server

Log on

A PC with USB interface and web browser is used to commission the web server.

1. Start web browser.
2. In the address line, enter the USB IP address (192.168.250.1).
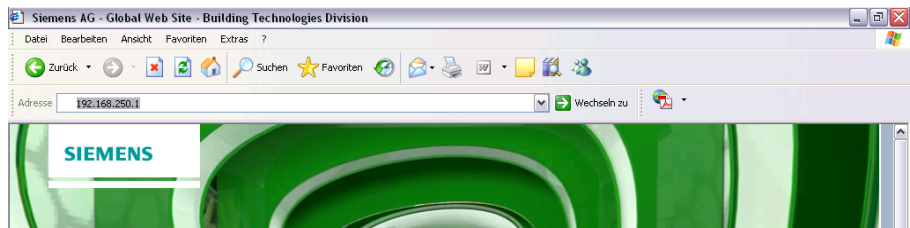
3. First time Login
   - User name   *Administrator*
   - Password   *Password*

4. Click [Login] to finish.
5. After logging on the first time, the dialog box is displayed to define a new password.

Important note ⚠

- **A new password must** be defined the first time you log in (you can also change the language).

- You cannot exit the dialog box if you do not define a new password (i.e. not equal to "Password") and the following note is displayed:

- The following message is displayed if you fail to fill out all required fields:
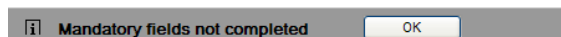
- Capitalization must be observed when entering the password.

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2.3 Administer user accounts

Administer user accounts

The "User Accounts" ("User accounts") menu changes the administrator password at delivery and sets up additional user accounts.

Note [i] The user account settings equally apply to access via Smartphone app and other applications via Web API.

Change administrator data

Procedure:
1. Click red pencil 🖉
   The "Change user" dialog box opens.

2. Change administrator data:
   - Password
   - Repeat Password
   - Description (optional)
   - E-mail address (optional)
   - Language: English
3. Close with [OK]

Add a new user

Procedure:
1. Click [Add]
   The "Add user" dialog box opens.

2. Enter / Select user data:
   - User name
   - Password
   - Repeat password
   - Description (optional)
   - E-mail address (optional)
   - Language: English
   - User group
3. Close with [OK]

Change user data

Procedure:
1. Click the red pencil ✎ for the corresponding user
   The "Change user" dialog box opens.
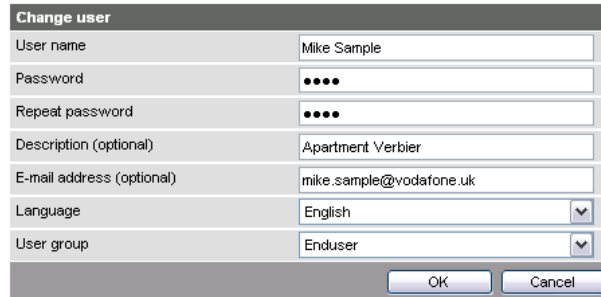
Change user	
User name	Mike Sample
Password	••••
Repeat password	••••
Description (optional)	Apartment Verbier
E-mail address (optional)	mike.sample@vodafone.uk
Language	English
User group	Enduser
	OK Cancel

2. Change user data:
   - User name
   - Password
   - Repeat password
   - Description (optional)
   - E-mail address (optional)
   - Language: English
   - User group.

3. Close with [OK]

Delete user account

Procedure:
1. Click the red recycle bin 🗑 for the corresponding user.
   The "User accounts" dialog box opens.

User accounts	
❓ User to be deleted?	Yes No

2. Click [Yes] to confirm "User to be deleted?".

Notes   ℹ

- The administrator account cannot be deleted. The name "Administrator" and user group "Administrator" cannot be changed. You may, however, add user accounts with administrator rights.
- You can only add new users and delete existing ones on the "Administrator" user level.
- Changing other user accounts is reserved to the "Administrator" user level.
- A secure password is comprised of letters, numbers and special characters, is at least 20 characters in length and does not include a name or words from dictionaries.

2.4   Create device web pages

Create device websites

The associated devices must be recorded and the device websites generated before operating the web server and the KNX devices. Use the "Device web pages" menu.

Note   Device web pages can only be created on the "Administrator" user level.

Linked devices are listed in a table with the following information:

- Device name
- Device address
- Device type
- Serial number
- State
- Generated on

You can sort the table by clicking

Notes
- The web server itself is already in the device list.
- Only added devices are monitored.
- Only generated devices can be operated.
- Device web pages can only be generated on the "Administrator" user level.
- Changes to settings of the connected bus device may require that the device web pages be recreated or updated to apply changes from web operation.
- You must delete and re-add to replace a KNX device.

Add devices

Procedure:
1. Click [Add]
2. Enter serial number.

The serial number is located on the type label for KNX devices.

3. Confirm with [OK]
   The web server searches for the device with the corresponding serial number. It appears in the device list if found.

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4. Select ☑ devices whose web pages you want to create.

	Device name	▲ Device address	Device type	Serial no	State	Generated on
☐	OZW772.250	0.2.150	OZW772.250	00FD00FF0644	Generated	05.03.2012 11:31
☐	QAX913	0.2.200	QAX913-DE	00FD000763FE	Generated	07.03.2012 09:44
☐	RMH760B-1	0.2.210	RMH760B-1	00FD0007A091	Generated	07.03.2012 09:49
☑	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B		
☑	Device 230	0.2.230	RMU730-1	00FD00001DF7		
☐			[Add]	[Delete]	[Generate]	[Hide]

5. Click [Generate]
   Device web pages are generated.
   ⓘ The process may take a few minutes.

   Device web pages
   Process running: Device 1 from 2
   ⧖ Process takes a few minutes   [Cancel]

6. Wait until the message "ⓘ Process finished" is displayed.

   Device web pages

   ⓘ Process finished   [OK]

7. Close with [OK]

   ⓘ The device list for the web server and KNX devices displays status "Generated".

	Device name	▲ Device address	Device type	Serial no	State	Generated on
☐	OZW772.250	0.2.150	OZW772.250	00FD00FF0644	Generated	05.03.2012 11:31
☐	QAX913	0.2.200	QAX913-DE	00FD000763FE	Generated	07.03.2012 09:44
☐	RMH760B-1	0.2.210	RMH760B-1	00FD0007A091	Generated	07.03.2012 09:49
☐	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B	Generated	07.03.2012 09:55
☐	Device 230	0.2.230	RMU730-1	00FD00001DF7	Generated	07.03.2012 10:12
☐			[Add]	[Delete]	[Generate]	[Hide]

Delete device

Procedure:
1. Select the KNX device you want to remove from the device list ☑

☐	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B	Generated	07.03.2012 09:55
☑	**Device 230**	**0.2.230**	**RMU730-1**	**00FD00001DF7**	**Generated**	**07.03.2012 10:12**
☐			[Add]	[Delete]	[Generate]	[Hide]

2. Click [Delete]
3. Confirm with [Yes]

   Device web pages

   ❓ Remove device from device list?   [Yes]   [No]

4. The web server removes the device from the device list.

   Device web pages
   Process running: Device 1 from 1
   ⧖ Process takes a few minutes   [Cancel]

5. Wait until the message "ⓘ Process finished" is displayed.

   Device web pages
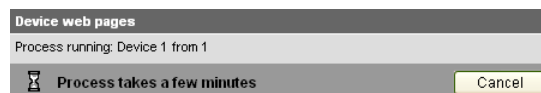
   ⓘ Process finished   [OK]

6. Click [OK] to confirm.
   The device is deleted from the device list.

	Device name	▲ Device address	Device type	Serial no	State	Generated on
☐	OZW772.250	0.2.150	OZW772.250	00FD00FF0644	Generated	05.03.2012 11:31
☐	QAX913	0.2.200	QAX913-DE	00FD000763FE	Generated	07.03.2012 09:44
☐	RMH760B-1	0.2.210	RMH760B-1	00FD0007A091	Generated	07.03.2012 09:49
☐	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B	Generated	07.03.2012 09:55
☐			[Add]	[Delete]	[Generate]	[Hide]

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Update device web pages

The following changes to user defined texts result in outdated device web pages:
- Menu tree names *, e.g. Message receiver 1…4.
- Web server plant names.
- Plant names for KNX devices (e.g. QAX913).

The impact and restore differ for the three changes mentioned above based on internal KNX data storage.

Change	Device list (device web pages)		Texts in sec. navigation		Generate/	Delete, Add
	Device name	Status	Menus	Device nodes	Update	
Menu tree names *, e.g. Message receiver 1…4	n/a	Outdated	Outdated	n/a	Required	no
Web server plant name	Current	Generate	Current	Outdated	Required	no
Plant name for KNX device(s)	Outdated	Generate	Current	Outdated **	No	Required

* Menu tree names are user defined texts displayed in secondary navigation (menu tree)
** Even after generate

Notes

[i]
- You can update device web pages on user levels "Administrator" and "Service".
- Click "Update" on the service level and "Generate" on the Administrator level to start updating (see "Create device web pages").
- You can only delete a KNX device on the "Administrator" user level.

Tip

When deleting or adding a KNX device (see above for description of workflow), we recommending copying (select and right-click: Copy) the serial number to the clipboard prior to deleting.

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2.5 Web server settings

The "Home" menu is used to set the web server. The web server and then the corresponding operating page are selected in secondary navigation.

Note   🛈   The settings depend on the user level.
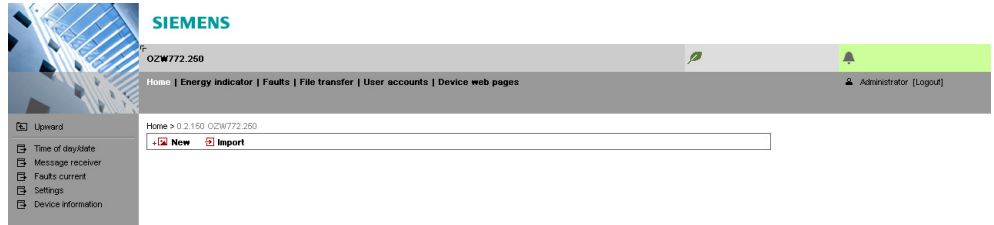
2.5.1 Operating page settings "Time of day/date"

Time of day/date   Path: Home > 0.2.150 OZW772.xx > Time of day/date

Power reserve   🛈   The clock has a backup battery for at least 72 hours. The clock continues to run after power failure for the duration of the backup battery.

Both date and time are reset in case of an extended interruption.

- It is corrected automatically if the time is synchronized to the master clock on the KNX bus (see Section 2.5.2).
- Otherwise, both date and time must be reset.

Data point	Explanation, example	🔒	■
Time of day/date Default val: 00:00 1.1.2005 Setting val: Time of day/date	The setting values are derived from the current time clock and the current date. Weekday is calculated automatically.	●	●

Datapoint	Value
Time of day/date	Wednesday, 29. February 2012 12:20

Time of day/date

Time of day	12:21
Date	🗓 29.02.12
Weekday	Wednesday

OK   Cancel

2.5.2   Operating page settings "Settings"

Language

Path: Home > 0.2.150 OZW772.xx > Settings > Web server

Data point	Explanation, example	⌘	■
Language Default val: English Setting val: see example	Web server language: Is used for web server fault texts, message history, messages and system reports.	●	—
Code Default val: 01 Setting val: max. 20 charact.	Access code for PC Software ACS790.	●	—
Reset admin password * Default val: No Setting val: Yes	If you do not know the administrator password for the web server, setting value "Yes" again provides access to the web server via the administrator password "Password" ("Password" = Factory setting for administrator password). Setting value "Yes" is a temporary state, i.e. the setting value automatically goes to "No" after ca. 2 seconds.	* —	* —

* with PC software ACS790 only.

Time of day/date

Path: Home > 0.2.150 OZW772.xx > Settings > Time of day/date

Data point	Explanation, example	⌘	■
Time synchronization Default val: Slave on bus Setting val: Slave on bus Quartz	Defines time clock synchronization on the web server. Default value "Slave on bus": Clock time master exists on the KNX network. Setting value "Quartz": The quartz synchronizes the clock time on the web server. Web ser is operated autonomously as the clock time master.	●	—
Time zone Default val: GMT +01:00 Berlin, Rome Setting val: misc. Time zones	The time zone setting value is based on UTC (GMT). The time zone also defines daylight saving time / standard time changeover.	●	—

KNX

Path: Home > 0.2.150 OZW772.xx > Settings > Communication > KNX

Data point	Explanation, example	⌘	■
Device address Default val: 150 Setting val: 1... 253	Set device address. The device address must be unique within the same KNX line.	●	—
Clock time mode KNX Default val: Autonomous Setting val: Autonomous/Master	"Slave" for "Time synchronization" = "Slave on bus". For "Time synchronization" = "Quartz", can selected between "Autonomous" or "Master".	●	—

Clock slave remote adj KNX	Setting value is important for "Time synchronization" = "Slave on bus". For "Clock slave remote adj KNX" = "Yes" the time clock for the clock master on the KNX network can be changed via the time clock for the web server.	●	—
Default val: Yes Setting val: Yes / No			

Ethernet

Path: Home > 0.2.150 OZW772.xx > Settings > Communication > Ethernet

Notes   ⓘ
- Enter these settings if you intend to operate the web server on a local area network (LAN) or via the Internet.
- Entries for the various network topologies are described in Section 7.1.

Data point	Explanation, example	🔑	■
DHCP client Default val: On Setting val: Off, On	Service automatically getting the web server's IP network configuration automatically rom the router; see Section 7.1.1.	●	—
IP address Default val: 192.168.2.10 Setting val: IP address	Web server IP address. Does not require setting if "DHCP client = On".	●	—
Subnet mask Default val: 255.255.255.0 Setting val: IP address	The IP subnet mask sets the size of the subnet. Does not require setting if "DHCP client = On".	●	—
Default gateway Default val: 192.168.2.1 Setting val: IP address	The standard gateway represents the interface between the local and public network. You typically enter the IP address for the router here. Does not require setting if "DHCP client = On".	●	—
Preferred DNS server Default val: 192.168.2.1 Setting val: IP address	The DNS server (domain name system) on the Internet connects a globally valid name to a domain with an IP address (e.g. domain www.siemens.com with IP address 146.254.191.150). The setting corresponds to the IP address for the next router or DNS server that recognizes for its part a queried name (domain) or another DNS server. The setting is typically identical to the setting for the standard Gateway. Required to send e-mails. Does not require setting if "DHCP client = On".	●	—
Alternate DNS server Default val: (blank) Setting val: IP address	The alternative DNS server is only defined for redundant systems. Settings are typically empty. Does not require setting if "DHCP client = On".	●	—
UPnP localization Default val: Ethernet Setting val: ---, Ethernet, USB	The web server registers its presence in the network via the Universal Plug and Play (UPnP) service.	●	—

UPnP localization   ⓘ   Web server registers its existence via Ethernet, when
- "UPnP localization" = "Ethernet" is set *and*
- The connection between PC/laptop and the web server is active via Ethernet.

Home > 0.2.150 OZW772.250 > Settings > Communication > Ethernet

Datapoint	Value	
DHCP client	On	🖉
IP address	192.168.2.10	
Subnet mask	255.255.255.0	
Default gateway	192.168.2.1	
Preferred DNS server	192.168.2.1	
Alternate DNS server		
Set when DHCP client off		
IP address	192.168.2.10	🖉
Subnet mask	255.255.255.0	🖉
Default gateway	192.168.2.1	🖉
Preferred DNS server	192.168.2.1	🖉
Alternate DNS server		🖉
UPnP localization	Ethernet	🖉
Physical address	00:a0:03:fd:2e:11	

E-mail

Path: Home > 0.2.150 OZW772.xx > Settings > Communication > E-mail

Notes   ℹ

- Enter these settings if the web server sends e-mails (report faults / send consumption file).
- Additional information on e-mail settings is available in Section 7.2.
- Automatically negotiate the securest connection:
  TLS mode is selected automatically if the device sending the email and the email provider support TLS.

Data point	Explanation, example	⊶	■
Address mail server Default val: smtp.example.com Setting val: max. 49 characters	Contact the Internet service provider for the mail server's address (IP address) or name (domain). Often referred to as the outgoing mail server or SMTP server instead of mail server.	●	—
Port number mail server Default val: 25 Setting val: 1…65535	Port number 25 is default for the mail server (and does not normally require change).	●	—
E-mail address sender Default val: ozw772@example.com Setting val: max. 49 characters	The setting corresponds to the e-mail address of the web server. The e-mail address is displayed in the "From" field of each e-mail.	●	—
Authentification mail server Default val: No Setting val: No/Yes	Select **Yes** for mail server access with authentication. In this case, user name and password (see next two data points below) are required.	●	—
User name Default val: (blank) Setting val: max. 49 characters	User name and password help authenticate each e-mail via the mail server.	●	—
Password Default val: (blank) Setting val: max. 49 characters	Password and user name help authenticate each e-mail via the mail server.	●	—
Signature line 1…10 Default val: (blank) Setting val: max. 49 characters	Signature lines are transmitted with the e-mail. It identifies the sender, e.g. the plant's Internet address.	●	—

USB

Path: Home > 0.2.150 OZW772.xx > Settings > Communication > USB

Data point	Explanation, example	⊶	■
UPnP localization Default val: USB Setting val: ---, Ethernet, USB	The web server registers its presence in the network via the Universal Plug and Play (UPnP) service.	●	—

UPnP localization   ℹ

Web server registers its existence in the USB network, when

- "UPnP localization = USB" is set *and*
- The connection between PC/laptop and the web server is active via USB.

Message receiver 1…4   Path: Home > 0.2.150 OZW772.xx > Settings > Message receiver > Message
receiver 1…4

Note   ℹ️   Enter these settings if the web server is to send an e-mail for a fault.

Data point	Explanation, example	🔑	■
Message receiver 1…4 Default val: (Message receiver x) Setting val: max. 20 characters	Message receiver 1…4 is a name (text) and is displayed in the web browser. Update note on menu texts => Update or regenerate web server device web page.	●	—
Receiver type Default val: --- Setting val: ---, E-mail	The following are available as receiver types: "---": No messages to this recipient. "E-mail": Message receiver configured for e-mail.	●	—
Fault priority Default val: All Setting val: All, Only urgent ones	Setting value "Only urgent ones" serves as a filter when sending fault status messages.	●	—
E-mail address Default val: Messagereceiver @example.com Setting val: max. 49 characters	The setting must match the message receiver's e-mail address.	●	—

System report   Path: Home > 0.2.150 OZW772.xx > Settings > System report

Note   ℹ️   Enter these settings if the web server is to regularly send an e-mail for a fault.

Data point	Explanation, example	🔑	■
Signal time Default val: 06:00 hh:mm Setting val: 00:00...23:59	The setting value corresponds to the time of day when a system report is sent (once every 24 hours).	●	—
Message cycle Default val: 1 d (day) Setting val: 0...255 d	The setting value corresponds to the interval (in days) at which a system report is sent. The first system report is delivered after completion of the first message cycle and then as per the message cycle. The system report is disabled when the message cycle = 0.	●	—
Priority Default val: Urgent Setting val: Urgent / Not urgent	Filter when sending the system reports. The setting "Urgent" sends the system report to all active message receivers. For setting "Not urgent" the system report is only sent to message receivers with a fault priority of "All".	●	—
Next report Default val: 0 d (day) Setting val: 0...255 d	Waiting period until the initial system report is sent after commissioning (or re-commissioning) of the web server. The value can be exceeded when the starting point is to be modified.	●	—

Consumption data

Web server provides consumption data functionality in the form of consumption data files. See Section 5 for additional information.

Plant information

Path: Home > 0.2.150 OZW772.xx > Settings > Consumption data > Plant information

Note

ℹ️ The settings set user defined data fields, section display and one centralized due date for the consumption data file.

Data point	Explanation, example	🔑	⬛
Plant name Default val: (blank) Setting val: max. 20 characters	Web server or plant name.	●	—
Header Default val: (blank) Setting val: max. 49 characters	Header for consumption data file.	●	—
Information line 1…10 Default val: (blank) Setting val: max. 49 characters	The information lines are saved to the consumption file. They are freely applicable, e.g. to identify the send by post or internet address for the plant.	●	—
Footer Default val: (blank) Setting val: max. 49 characters	Footer consumption data file.	●	—
Delete meter replacem section Default val: No Setting val: No, Yes	Delete meter replacement section for consumption data file.	●	—
Due day date Default val: 31. December setting val: Jan 1…Dec. 31.	Centralized due day applicable to all WRI982 pulse inputs and for all M-bus meters. A due day on the M-bus meter that differs from this due day is ignored. The last or first day of the month is typically entered. The due day value is only transmitted on the third day of the month to the web server.	●	—
Send due day date Default val: Off Setting val: Off, On	Enable send of centralized due day.	●	—

Receiver

Path: Home > 0.2.150 OZW772.xx > Settings > Consumption data > Receiver >
E-mail receiver 1…2

Notes   ℹ️
- The settings configure sending the consumption data file per e-mail.
- The e-mail signature (sender name, address, etc.) is set under "Settings >
  Communication > E-mail".
- The settings are independent of the settings for the message receiver (Section
  Message receiver 1…4).

Data point	Explanation, example	🔑	■
E-mail address Default val: mailrecipient @example.com Setting val: max. 49 characters	The setting must match the consumption data receiver's e-mail address.	●	—
Transmit interval Default val: Never Setting val: Never, daily, weekly, monthly	The send interval sets how often consumption data is sent to the e-mail receiver. The setting "Never" corresponds to "turned off".	●	—
File format Default val: .xml Setting val: (empty), .xml, .csv	The file format sets the format of the e-mail attached for consumption data. Two files are attached if both formats are selected. No file is added is the setting is empty.	●	—
Test receiver Default val: --- Setting val: ---, Trigger	"Test receiver" tests the connected to the selected receiver.	●	—

Notes   ℹ️
On send interval:
- It is generally sent as soon as the data collection is completed for the web
  server.
- Daily means between 5 and 10 am.
- Weekly means Sundays (between 5 and 10 am).
- Monthly refers to the third day of the month (between 5 am and 10 pm).

In the case of "Annual allocation", "monthly" can be selected: The 11 additional
e-mails with attached consumption data files are available for backup purposes
or to provide precise billing by the month in the event of a change of renters.

Faults

Enter these settings if the web server is to send an e-mail for a fault.

Local

Path: Home > 0.2.150 OZW772.xx > Settings > Faults > Local

Note   ℹ️
"Local" faults refer to web server faults.

Data point	Explanation, example	🔑	■
Message triggering Default val: Coming Setting val: Coming, Coming and going	Coming: a message is triggered when a fault is received (start of fault). Coming and going: A corresponding message is triggered at start and end of fault. A web server fault displays the LED 🔔.	●	—

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System

Path: Home > 0.2.150 OZW772.xx > Settings > Faults > System

Note [i] "System" faults refer to faults to the KNX device received via the KNX bus.

Data point	Explanation, example	[Oπ]	■
Message triggering Default val: Coming Setting val: Coming, Coming and going	Coming: a message is triggered when a fault is received (start of fault). Coming and going: A corresponding message is triggered at start and end of fault. This "Message triggering" applies to device faults on the KNX network (system) including on the web server device list. LED ♀ indicates a KNX device fault.	●	—

Texts

Path: Home > 0.2.150 OZW772.xx > Settings > Texts

Data point	Explanation, example	[Oπ]	■

Name
 	
Default val: OZW772.01
                     OZW772.04
                     OZW772.16
                     OZW772.250
Setting val: max. 20 characters
	User definable text for the plant displayed by web server and transmitted in the message. Update note on menu texts => Update or regenerate web server device web page.	●	—

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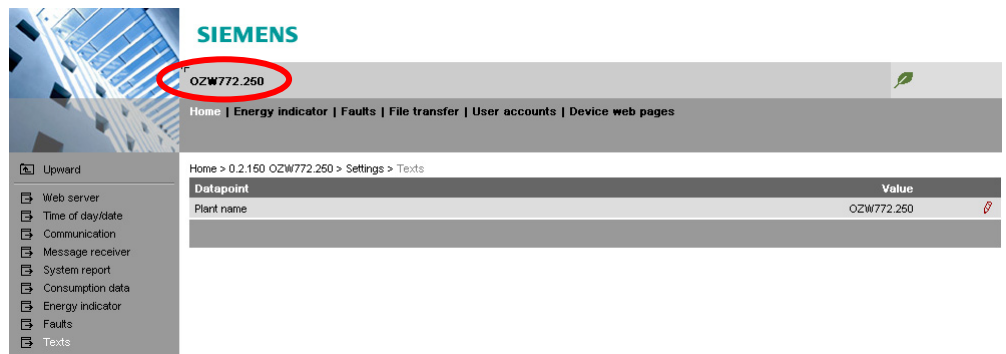
2.5.3 Operating page settings "Message receiver"

Message receiver
You can define time periods to send messages for each message receiver.

Note   ℹ️
Enter these optional settings if the web server is supposed to send an e-mail for a fault.

Send messages
Path: Home > 0.2.150 OZW772.xx > Message receiver > Message receiver 1 > Send messages…4

Data point	Explanation, example	🔑	■
Monday...Sunday, Special day Default val: Monday, 00:00 On … Special day, 00:00 On … Setting val: Monday - Sunday, Special day 00:00 - 24:00 Off/on	Each message receiver is assigned a time switch to program max. 3 transmission times for each weekday, i.e. periods during which the web server can send messages. The default value sends messages throughout the entire period.	●	●

Monday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Tuesday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Wednesday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Thursday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Friday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Saturday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Sunday

☑	00:00	On	∨
☑	02:00	Off	∨
☑	04:00	On	∨
☑	06:00	Off	∨
☑	08:00	On	∨
☑	10:00	Off	∨

Special day

☑	00:00	On	∨
☐	00:00	Off	∨
☐	00:00	Off	∨
☐	00:00	Off	∨
☐	00:00	Off	∨
☐	00:00	Off	∨

Copy

From   Monday ∨

To   ☐ Monday   ☐ Tuesday
☐ Wednesday   ☐ Thursday
☐ Friday   ☐ Saturday
☐ Sunday   ☐ Special day

[Copy]

[Check]   [OK]   [Cancel]

Notes   ℹ️
- Check ☑ to enable switching points.
- You can copy the switching times for a day of the week by clicking [Copy] from one day to a selection of other days ☑
- Click [Check] to sort and check the data before saving.

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Holidays/special days   Path: Home > 0.2.150 OZW772.xx > Message receiver > Message receiver 1…4
> Holidays/special days
No messages are sent during vacation/holidays. For special days, sending periods
are defined via "Send messages".

Notes   ⓘ   • General: Messages outside sending periods are resent during the next send
period.
• If a special day occurs during a holiday/vacation, the day is a special day.
• Holidays/special days can be set as recurring days each year.

Data point	Explanation, example	🔑	■

Entry 1...16
 	
Default val: ---
Setting val: Beginning
         End
         Reason
         Annually
	Each receiver is assigned a yearly calendar to enter holidays and special days. Data and time can be used to indicated beginning and end of period. Select "Annually" to repeat the periods each year.	●	●

		Beginning			End		Reason		Annually
1	☑ 2	14.07.09	00:00	2	29.07.09	23:59	Holidays	▾	☐
2	☑ 2	24.12.**	00:00	2	02.01.**	23:59	Holidays	▾	☑
3	☑ 2	01.08.**	00:00	2	01.08.**	23:59	Special day	▾	☑
4	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
5	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
6	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
7	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
8	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
9	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
10	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
11	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
12	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
13	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
14	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
15	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐
16	☐ 2	01.01.00	00:00	2	01.01.00	23:59	Holidays	▾	☐

[Check]   OK   [Cancel]

Notes   ⓘ   • Check ☑ to select active entries.
• Select "Annually" ☑ to set repetitive switching points.
• Click [Check] to sort and check the data before saving.

2.6 Commission network components

**Commission
network components**

The web server can be operated from a PC with web browser on a local area network (LAN) or via the Internet.
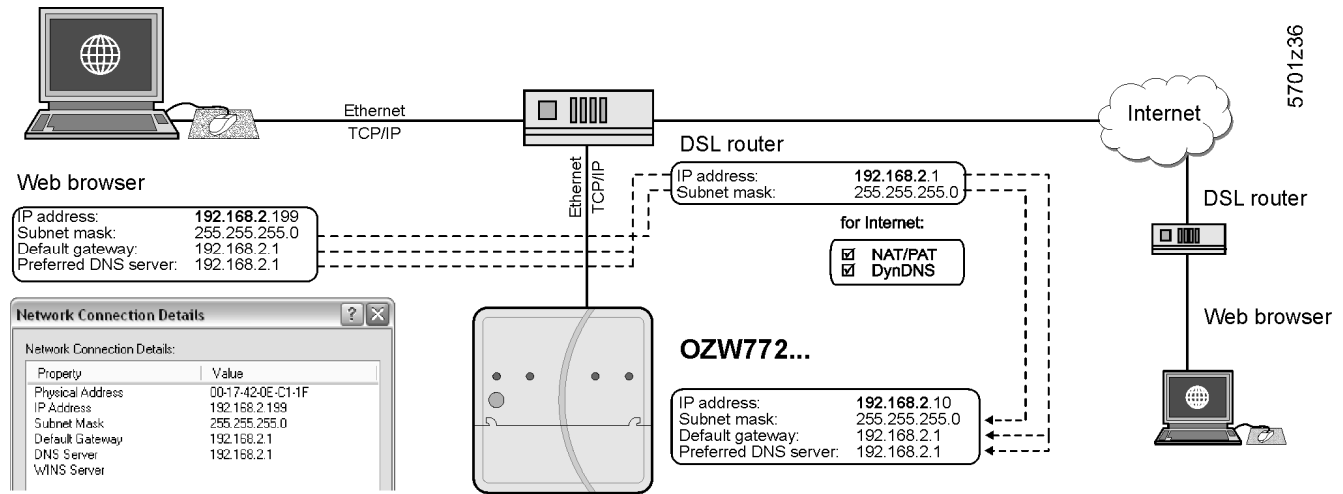
The illustration shows a typical application with operation via Internet and home network. Use can use **"Network connection"** to issue IP address, subnet mask, standard gateway and preferred DNS server if the PC is connected to the home network.

2.6.1 Operator station on a local area network (LAN)
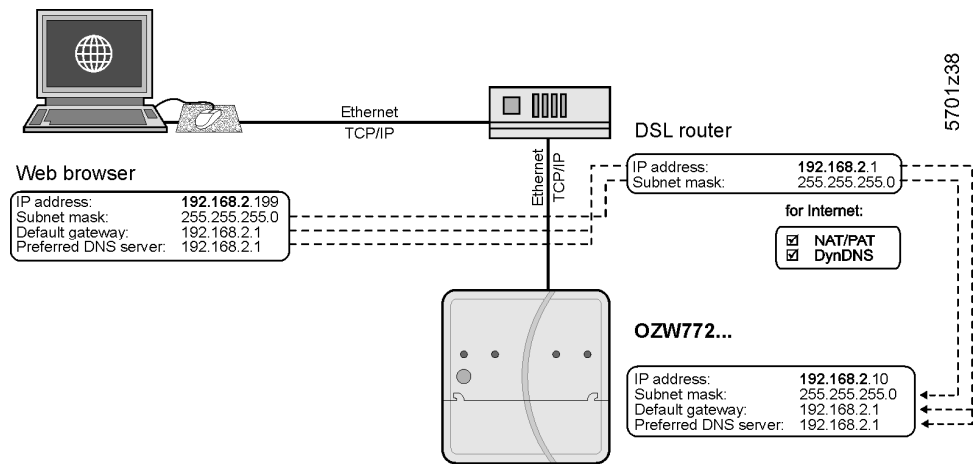
Operator station

The operator station requires these settings, if the web server is operated from a PC with web browser on a local area network (LAN):
- IP address
- Subnet mask

Note ⓘ Settings depend on network type and application. The different variants are described in Section 7.1.1.

2.6.2 Router
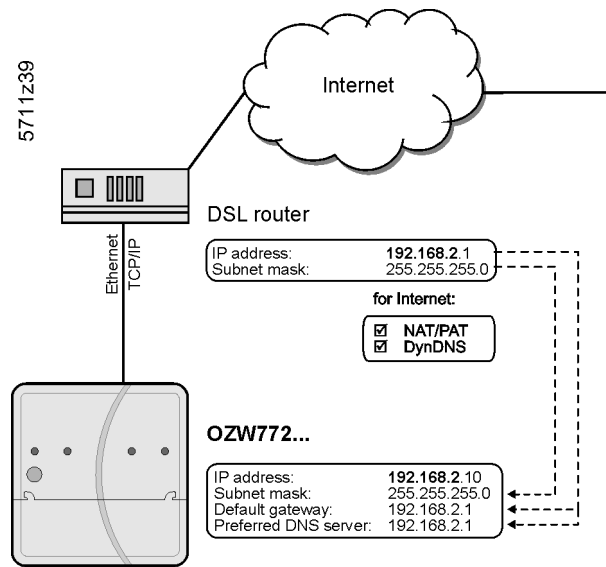
Router

The router settings below are required, when:
- Accessing the web server from outside the local area network.
- A message is send via e-mail for a fault.

Note

Remote access (e.g. DSL router with Internet connection) must be set up. A static IP address or DynDNS-capable controller with DynDNS account is prerequisite for operation via Internet.

Settings:
- NAT/PAT: Translate private parties on public IP addresses and ports.
- DynDNS: The dynamic IP address for the connection must be published if no fixed public IP address is available.
- Firewall: Access to the plant must be granted.

Note

Settings depend on network type and application. The different variants are described in Section 7.1.2.

2.7   Functional check

Test condition   Connections must be tested if all settings were made to the web server as well as to KNX devices.

LAN   A PC on the local network is used to test operations via LAN. The log in dialog box must appear after entering the local IP address for the web server (see Section 2.2.2).

Internet   We recommend using mobile participants with Internet access (Smart phone, mobile phone) to test operation over the Internet. The log in dialog box must appear after entering the public IP address or plant domain.

Test message receiver   Path: Home > 0.2.150 OZW772.xx > Settings > Message receiver

Notes   ℹ️
- Do the test if the web server is to send a message or system report via e-mail for a fault.
- The test is also conducted if message suppression is switched on.

Data point	Explanation, example	🔲	⬛
Test message receiver Default val: --- Setting val: Message receiver 1..4	Select a message receiver to test the connection to the receiver.	●	—
System report sent Display val: ---, Yes, No	The display changes from "---" after a few seconds to: "Yes": Message sent successfully "No": Message receiver not reached	○	—
Cause Display val: ---, Network cable, DNS setting, Address mail server, Port number mail server, E-mail address receiver, Authentication mail server See the following table.	"Cause" displays the results of "System report sent". For "Yes" the cause is "---". For "No" the cause is displayed. The first cause is displayed for multiple faults.	○	—
Message inhibition Display values: Yes, No	Shows the message suppression switch setting (**8**) (see Section 1.2).	○	—

Cause: Cause of error and problem solution   A specific cause can originate in different sources. The problem must be solved accordingly.

Cause	Cause of error	Solution
---	No error	---
Netzwork cable	No network cable or no active network connected.	Connect cable or active network. LEDs must be lit at Ethernet connection.
DNS setting	DNS server could not be reached or no guaranteed network connection.	Check Setting DNS server, Default gateway, or network connection.
Address mail server	Address mail server not discovered by DNS server.	Check Address mail server, Default gateway, or network connection.

Table continued on next page

Cause	Cause of error	Solution
Port number mail server	Mail server refuses connection or does not answer.	Check Port number mail server. A company proxy server may block Internet connection.
E-mail address receiver	Invalid E-mail address.	Check E-mail address.
Authentication mail server	Mail server refuses connection. Inconsistent Mail server response. "Authentication mail server" contains different errors. Encrypted mail server (i.e. with TLS = Transport Layer Security) may not be supported.	Check "Authentication mail server = Yes" and user name and Password. An invalid "E-mail address sender" can also result in this error.

Test e-mail receiver consumption data

Pfad: Home > 0.2.150 OZW772.xx > Settings > Consumption data > Receiver

Note   <img> Do the test if the web server sends consumption data via e-mail.

Data point	Explanation, example	🔑	■
Test receiver Default val: --- Setting val: ---, Trigger	"Test receiver" tests the connected to the selected receiver.	●	—
Consumption data sent Display val: ---, Yes, No	The display changes after a few seconds from "---" to Yes: Message sent successfully. No: Message receiver not reached.	○	—
Cause Display val: ---, Network cable, DNS setting, Address mail server, Port number mail server, E-mail address receiver, Authentication mail server.	"Cause" displays the results of "Test receiver". For "Yes" the cause is "---" For "No" the cause is displayed. The first fault is displayed for multiple faults.	○	—

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2.8 Additional settings

Hide devices

You can determine whether a device in the device list can be operated under "Home".

Procedure:
1. Select "Device web pages"
2. Select ☑ the device you want to hide.
3. Click [Hide]

Device name	▲ Device address	Device type	Serial no	State	Generated on
☑ OZW772.01	0.2.150	OZW772.01	00FD00FF020D	Generated	23.11.2009 09:44
☐ Device	0.2.246	RMU710B-1	00FD0001E8A4	Generated	25.11.2009 16:51
☐			Add / Delete / Generate / Hide		

Note   ⓘ Click [Generate] again to show the device. This may have an impact on the display of any existing meters in the consumption data file (For details see Section 5.2, Sections replace meter and section Start value web server).

Delete history

Path: Home > 0.2.150 OZW772.xx > Settings > Faults

Note   ⓘ We recommend deleting the history after you have completed commissioning.

Data point	Explanation, example	🔑	■
Delete history Default val: No Setting val: Yes	Delete history of all events and messages. ⓘ Setting value "Yes" is a temporary state, i.e. the setting value automatically returns to "No" after ca. 2 seconds.	●	—

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2.9 Final steps

2.9.1 Check faults

Fault indication

The fault indicator displays the plant state.

Notes   ℹ️

No faults may be pending after commissioning. Additional information on faults is available in Section 3.3.

No fault

The fault indicator remains green as long as no fault is pending.
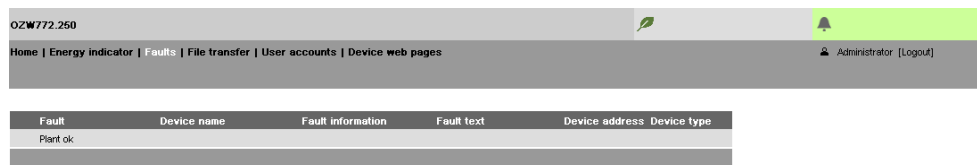
Fault

The fault indicator changes to red for faults. The most severe plant faults are displayed.
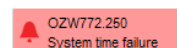
2.9.2 Final steps on web server

Final steps

The final function checks are conducted on the web server, the cover is mounted and the LEDs checked.

Note   ℹ️

On display and operating elements, see Section 1.2.

Procedure:
1. Unplug USB cable.
2. Switch off message inhibition and address mode.
   – Switch 8 must be set to "Off" 🔲
   – Address mode LED Prog must be off.
3. Mount terminal cover.
4. Press Remote ✔ button for more than 6 seconds.
   – The web server sends a system report to the defined message receivers.
   – Fault LED 🔔 displays (flashing) error in establishing communications.
5. LED On ⏻ must be steady green.
6. Fault LED 🔔 must be off.

2.10 Supply state

Restore default state

The web server can be reset to factory default settings. This is probably a good idea when using the web server for another plant.

Procedure:
1. Simultaneously press "Long" (> 6 seconds) on the "Remote" ✔ button and "Prog" Prog
    The LED "On" ① turns off. The web server restarts.
2. Wait until the web server is operational (LED "Run" ① is green).

Note   ℹ️

When restoring default state:
*   All settings are reset to default state.
*   Plant diagrams are deleted.
*   The device list is deleted.
*   Uploaded files are deleted.
*   Unsent messages are deleted.
*   History data is **not** deleted:
    It must be deleted manually (see Section 2.8).

Note   ⚠️

The KNX device addresses and Ethernet IP address are also reset to default state.

2.11 Software updates

We differentiate between the following:

*   System definition updates to integrate device descriptions of new devices in the web server.
*   Firmware updates to update the web server to the latest firmware version. Firmware updates may also contain new device descriptions (system definitions).

System data update

The web server supports a number of KNX devices and differentiates them via device descriptions. A text catalog with various languages contains all web server texts and device descriptions.

Note   ℹ️

A system definition update is a simply operational step via web browser.
See Section 3.4 for information on uploading system definitions.

Firmware update

Local operatings on web server required to update firmware. Procedures are communicated for any firmware update accordingly.

Logo update

The logos can be customized.

3 Operate using a web browser

This section describes how to operate the web server and connected devices.

3.1 Overview

Overview

The plant is operated via PC, smart phone or mobile phone with compatible web browsers via USB interface, LAN/Ethernet or Internet.
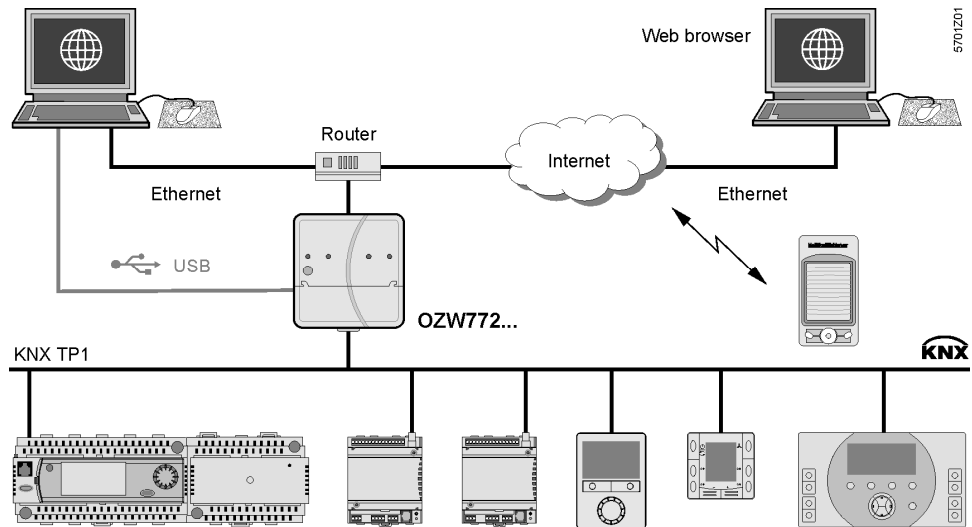
Connection

Enter the IP address for the interface (USB, Ethernet) or the plant's domain name in the browser's address line.
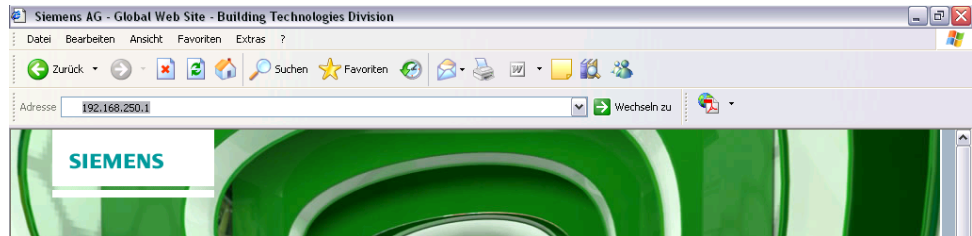
Login

The login follows:
- User name
- Password

Automatic log in

You can automate the process by adding the login information to the browser's address line.
Format: <IP address>/main.app?user=<User name>&pwd=<Password>
Example: 10.169.9.121/main.app?user=Administrator&pwd=Password

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"Deep link"	You can create and save a deep link to go to a sub-page without navigating. The easiest way to do this is to copy the URL for the desired subpage and replace the browsers session ID with user name and password.
Example	Original URL: **http://192.168.250.1/main.app?**SessionId=f9d53187-2868-4a6b-8b20-9eca4e859a4d**&section=popcard&id=637&idtype=4**
	Available as "Deep Link": http://192.168.250.1/main.app?**user=Administrator&pwd=Password**&section=popcard&id=637&idtype=4
	The current, valid login information must be included for syntax "user=<user name>&pwd=<Password>".

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3.2 Operate the plant

Operate the plant

Device ready to operate are display via "Home".
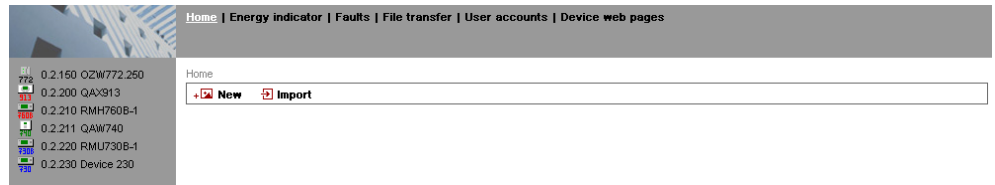
3.2.1 Operate KNX device

Operate KNX devices

Select the device in the left part of the menu to operate KNX devices. Web server displays the top level of the menu tree. From here, you can go to all operating pages and data points.
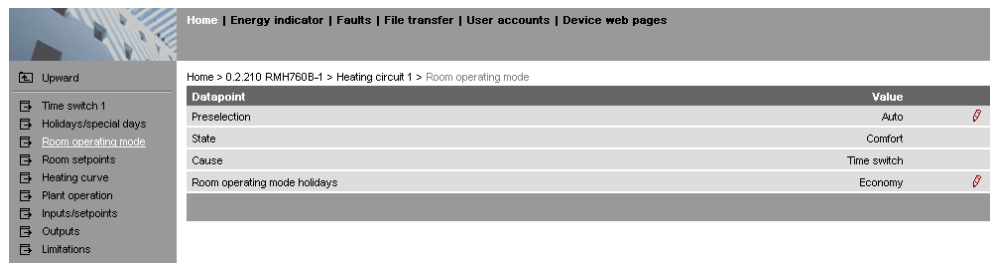
3.2.2 Operate web server

Operate web server

Click the left menu pane to select web server operation. Web server displays the top level of the menu tree. From here, you can go to all operating pages and data points.

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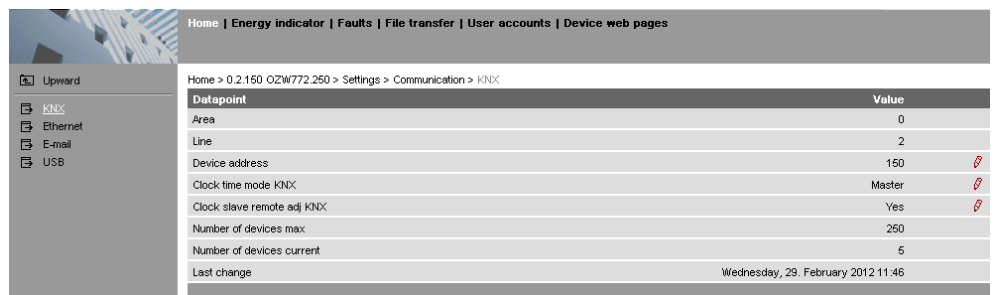
Switch views

Only the following parts of the user interface are displayed to operate the web server from a smaller screen or to hide navigation:

- Plant state
- Plant name
- Display

The double arrow in the upper left-hand corner switches the view.

Full screen
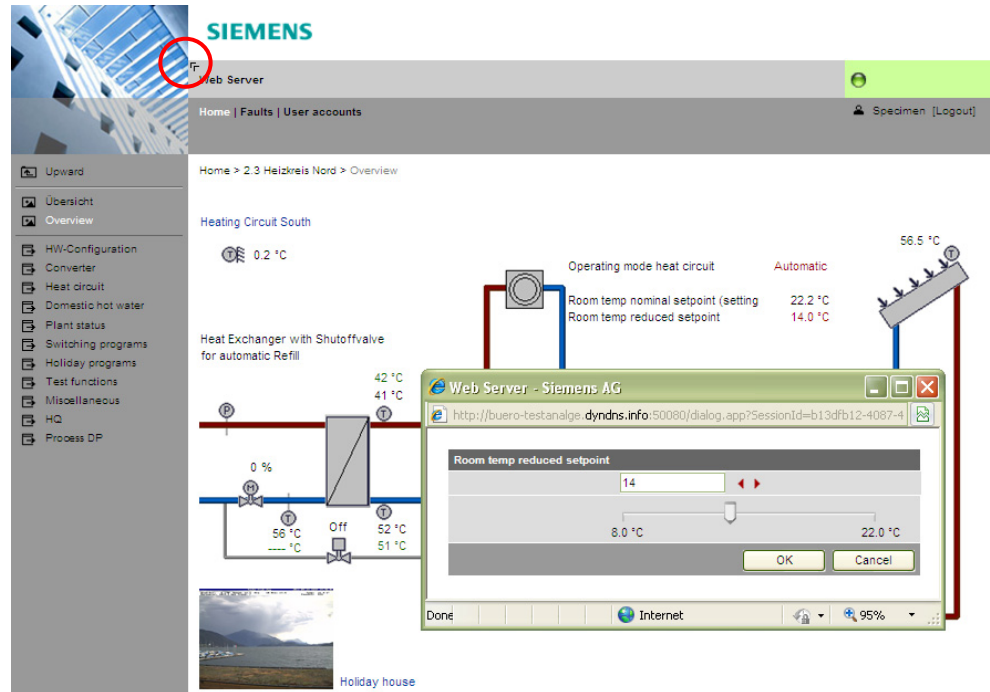
Partial screen
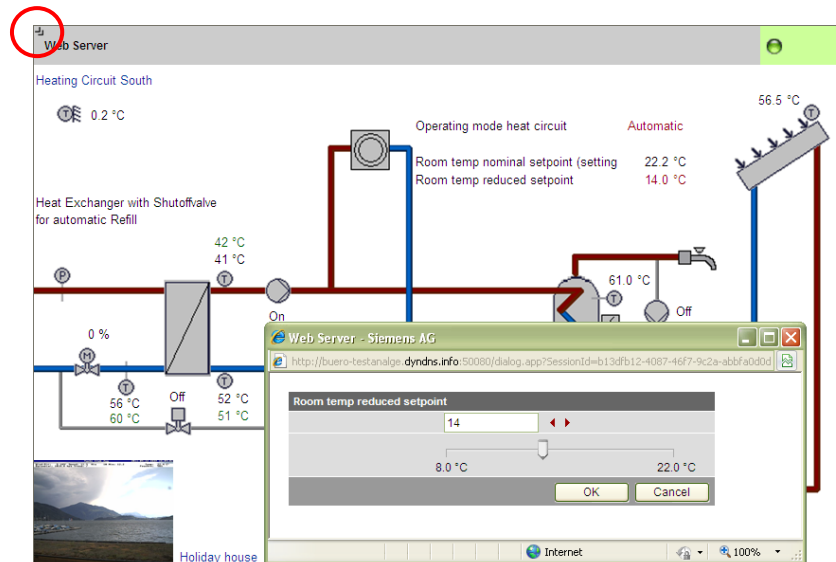
Note ℹ️ In partial view, navigation to other plant web pages must be implemented using user-defined links. You can return to the full view at any time for navigation.

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Time of day/date   Path: Home > 0.2.150 OZW772.xx > Time of day/date

Note   ℹ️ You can set date / time while the system is operating. The clock time master overwrites the time if the web server clock slave does not have remote adjustment (See Section 2.5.1).

Data point	Explanation, example	🔑	◼
Time of day/date Default val: 00:00 1.1.2005 Setting val: Time, Date	The setting values are derived from the current time clock and the current date. Weekday is calculated automatically.	●	●

Message receiver   You can define the times and days for sending messages for each message recipient.

Send messages   Path: Home > 0.2.150 OZW772.xx > Message receiver > Message receiver 1…4 > Send messages

Data point	Explanation, example	🔑	◼
Monday...Sunday, Special day Default val: 00:00 (On) … Setting val: 00:00…24:00 Off / On	Each message receiver is assigned a time switch to program max. 3 transmission times for each weekday, i.e. periods during which the web server can send messages (i.e. time periods where the web server sends messages to the appropriate message receiver).	●	●

Notes   ℹ️

- Check ☑ to enable switching points.
- You can copy the switching times for a day of the week by clicking [Copy] from one day to a selection of other days ☑.
- Click [Check] to sort and check the data before saving.

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Holidays/special days   Path: Home > 0.2.150 OZW772.xx > Message receiver > Message receiver 1…4
> Holidays/special days

Data point	Explanation, example	🔑	■
Entry 1...16 Default val: --- Setting val: Beginning 　　　　　　End 　　　　　　Reason 　　　　　　Annually	Each receiver is assigned a yearly calendar to enter holidays and special days. Messages are sent on days **not** listed in the calendar as holidays or special days.	●	●

			Beginning			End		Reason		Annually
1	☑	🗓	14.07.09	00:00	🗓	29.07.09	23:59	Holidays ▾		☐
2	☑	🗓	24.12.**	00:00	🗓	02.01.**	23:59	Holidays ▾		☑
3	☑	🗓	01.08.**	00:00	🗓	01.08.**	23:59	Special day ▾		☑
4	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
5	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
6	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
7	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
8	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
9	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
10	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
11	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
12	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
13	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
14	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
15	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐
16	☐	🗓	01.01.00	00:00	🗓	01.01.00	23:59	Holidays ▾		☐

[Check]　[OK]　[Cancel]

Notes   ℹ️
- Check ☑ to select active entries.
- Select "Annually" ☑ to set repetitive switching points.
- Click [Check] to sort and check the data before saving.

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3.2.3 Web server diagnostics

Diagnostics

The following information is required to identify product version and settings. Information on faults is available in Section 3.3.2.

Web server

Device information on the web server helps identify the web server.

Path: Home > 0.2.150 OZW772.xx > Device information > Web server.

Data point	Explanation, example	🔑	■
Plant name	Web server or plant name.	○	○
Web server type	Web server product number (ASN).	○	○
Software version	Web server software version.	○	○
Build	Revision status for the software.	○	○
Hardware version	Web server hardware version.	○	○
Message inhibition	Displays position of switch 8 "Message inhibition"	○	—

KNX

The following information displays the current settings and states on the KNX bus.

Path: Home > 0.2.150 OZW772.xx > Device information > KNX.

Data point	Explanation, example	🔑	■
Area	First KNX network level. The line coupler assigns the area. The factory setting for the web server is set to area 0.	○	○
Line	Second KNX network level. The line coupler assigns the line. The factory setting for the web server is set to line 2.	○	○
Device address	The factory setting for the web server is set to device address 150.	○	○
Clock time mode KNX	"Master" or "Autonomous": Time is mapped from web server quartz. **"Slave"**: the web server gets the time from the master clock.	○	○
Clock slave remote adj KNX	"Clock slave remote adj KNX" = "Yes" allows the web server to change the clock master time on the KNX network. "Yes" makes sense for "Time synchronization" = "Slave on bus".	○	○
Number of devices max	Maximum possible number of devices monitored by web server on the KNX bus.	○	○
Number of devices current	Actual number of devices monitored by web server on the KNX bus.	○	○
Last change	Time of last change to device list.	○	—

Ethernet

You can consult the following information as needed to analyze problems on the Ethernet. It displays the current settings for the subnet.

Path: Home > 0.2.150 OZW772.xx > Device information > Ethernet.

Data point	Explanation, example	🔑	■
IP address	Web server IP address. The factory IP address for the web server on the Ethernet is: 192.168.2.10	○	○
Subnet mask	The subnet mask defines the size of the subnet. A value of 255 masks the partial network; a value of 0 masks the device portion of the IP addresses on the subnet. Devices must have the same partial network to communicate directly. The web server has a default subnet mask 255.255.255.0	○	○
Default gateway	The standard gateway connects the subnet for the web server to additional networks, e.g. the Internet. The router typically is the default gateway.	○	○
Preferred DNS server	Preferred DNS server required to send e-mails. The router is typically the DNS server as well for the web server.	○	○
Alternate DNS server	An alternative DNS server is only defined for redundant systems and is typically empty.	○	○
Physical address	The physical address (MAC address) is a unique identification for the Ethernet interface.	○	○

3.3 Faults

3.3.1 Overview

Fault overview

The "Faults" function displays the most severe fault on a device in the device list. It is available to all user levels. The following information helps identify the fault:

- Fault
- Device name
- Fault information (date, time, fault code).
- Fault text
- Device address
- Device type

Notes [i]

- An overview of web server faults is available in Section 8.2.1.
- Faults for KNX devices are listed in the documentation for the corresponding devices.
- Click 📞 to go to the corresponding device's web operation.

3.3.2 Device faults

You can display detailed information on all faults via the "Home" menu.

Local faults

Displays all faults for the selected device.

Path: Home > 0.2.150 OZW772.xx > Faults current > Local

Data point	Explanation, example	🔑	■
Fault 1..10	Displays for each fault: • Fault information (date, time, fault code). • Fault text	○	○
Acknowledge faults Default val: No Setting val: Yes / No.	The setting value "Yes" acknowledges web server faults (same effect as "Remote" ✔). Setting value "Yes" is a temporary state, i.e. the setting value automatically goes to "No" after ca. 2 seconds.	●	●

System faults

The most severe faults are displayed for each device on the KNX bus.

Path: Home > 0.2.150 OZW772.xx > Faults current > System > Fault 1…n

Data point	Explanation, example	🔑	◼
Fault 1..n	Displayed under "Fault 1..n": Device name, Fault information, Fault text, Area, Line, Device address, Device type	○	○
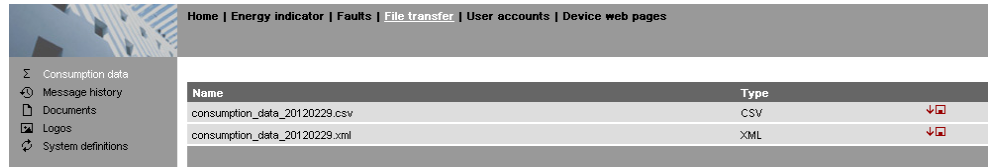
Note   ℹ️   Faults for KNX devices are listed in the documentation for the corresponding devices.

3.4 File transfer

"File transfer":
- Downloads consumption data
- Download message history as Excel or text file
- Upload documents to the web server
- Upload logos
- Upload system definitions

Download consumption data

Name	Type	
consumption_data_20120229.csv	CSV	↓▣
consumption_data_20120229.xml	XML	↓▣

Note   ℹ️ The file can also be sent by e-mail, in addition to the download of consumption data described here.

Proceed as follows:
1. Select File transfer in primary navigation.
2. Click ↓▣ depending on the desired output format for CSV or XML.
   The file download dialog box is displayed.
3. Open the file with the application or save it to any location.
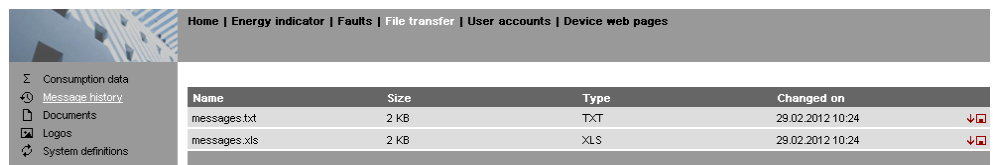
Notes   ℹ️
- The consumption data file is mapped at the moment it is opened.
- The CSV is suitable for processing using any program that work with comma separated data.
- The XML format is suitable for processing with MX Excel or Excel-compatible programs.

The design of the allocation file is explained in Section 5.

Download message history

Name	Size	Type	Changed on	
messages.txt	2 KB	TXT	29.02.2012 10:24	↓▣
messages.xls	2 KB	XLS	29.02.2012 10:24	↓▣

Procedure:
1. Select "Message history" from secondary navigation.
2. Click ↓▣ for the desired document. TXT for text or ASCII format and XLS for Excel format. The "File download" dialog box opens.

3. Open the file with the application or save it to any location.

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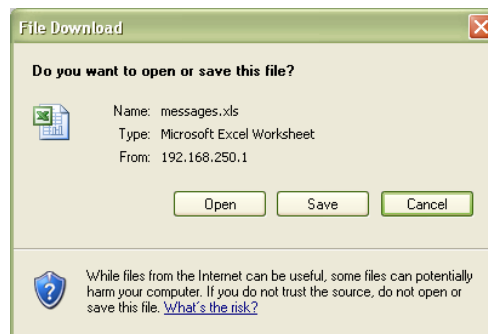
| Notes | ⓘ | • Message history export is available to administrator and service user levels.
• The message history remains intact when resetting the web server to default. |

History data

The message history includes the last 500 events on faults, fault messages, and system reports. It contains the following information:

- Plant information:
  - Plant name
  - Phone number plant (Unused)
- Information per entry:
  - Event
  - Plant section (Device name (KNX bus address))
  - Date of occurrence
  - Time of occurrence
  - Fault code+text
  - Transmission date
  - Transmission time
  - Message receiver
  - Cause

Plant name	OZW772.01							
Phone number plant								
Event	Plant section	Date of occurrence	Time of occurrence	Fault code+text	Transmission date	Transmission time	Message receiver	Cause
Fault going	OZW772.01 (0.2.150)	'2009.06.24	'15:42:26	5003: Invalid time of day				
Message not OK	OZW772.01 (0.2.150)	'2009.06.24	'15:42:26	5023: M'rec 1 not reached	'2009.06.24	'15:42:38	1: myservice@siemens.com	Fault receiver
Message not OK	OZW772.01 (0.2.150)	'2009.06.24	'15:42:26	5023: M'rec 1 not reached	'2009.06.24	'15:42:43	1: myservice@siemens.com	Fault receiver
Fault going	OZW772.01 (0.2.150)	'2009.06.24	'15:46:29	5023: M'rec 1 not reached				
Fault coming	OZW772.01 (0.2.150)	'2009.06.24	'16:20:30	5001: System time failure				
Fault coming	Appartment Unit (0.2.100)	'2009.06.24	'16:57:29	5031: Radio comm error				
Fault coming	Appartment Unit (0.2.100)	'2009.06.24	'17:27:10	5031: Radio comm error				
Fault going	Appartment Unit (0.2.100)	'2009.06.24	'17:35:57	0: No fault				
Fault going	OZW772.01 (0.2.150)	'2009.06.24	'17:47:25	5001: System time failure				
Message not OK	OZW772.01 (0.2.150)	'2009.06.26	'16:10:54	OK	'2009.06.26	'16:11:09	'1: myservice@siemens.com	Fault receiver
Fault coming	OZW772.01 (0.2.150)	'2009.06.26	'16:15:42	5000: No bus power supply				
Fault going	OZW772.01 (0.2.150)	'2009.06.26	'16:16:52	5000: No bus power supply				

Upload documents
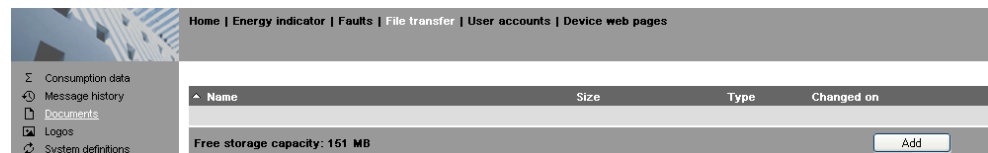
Procedure:
1. Click [Add] and select [Find]

2. Select desired file.
3. Click [Upload] to finish.

| Notes | ⓘ | • Make sure there is enough memory for uploading.
• The Administrator and Service levels allow for uploading documents. |

Upload logos
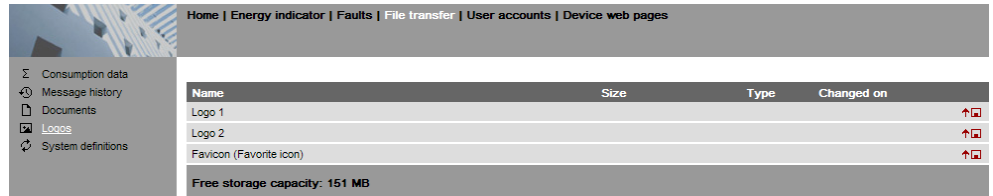
Procedure:
1. Select l from secondary navigation.
2. Save existing logo(s) as needed (see below).
3. Click ↑⊡
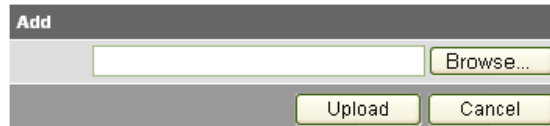
4. Select the desired file.
   Adhere to maximum dimensions (see Notes).
5. Click [Upload]
6. Re-load page content from web server (Internet Explorer, Firefox: Ctrl+F5; i.e. no older data is displayed from the browser cache)

Save logos:
1. Click "Logo 1" or "Logo 2". The browser window opens with the logo.
2. Right-click the log and save to the desired location via "Save Image As".

Notes

- Log file transfer is available to administrator and service user levels.
- Allowed file formats: PNG, GIF, JPG, BMP.
- The left logo (Logo 1) has max. 625 x 54 pixels.
- The right logo (Logo 2) has max. 200 x 54 pixels.
- The original logos are restored when resetting the web server to default.
- The area belonging to the logo is highlighted in color when the cursor moves within the display area above the logo line.

Upload system definitions
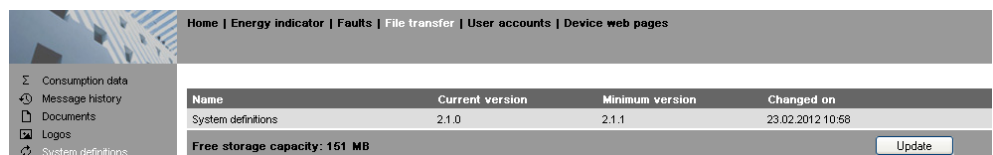
Procedure:
1. Select System definitions from secondary navigation.
2. Click [Update]

3. Select the desired file.
4. Click [Upload] to finish.
5. Restart web server with power-down, power-up.
6. You must recreate the devices following a system definition upload.

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Notes	ⓘ	• System definition file transfer is available to administrator and service user levels.

• System definition file transfer is available to administrator and service user levels.
• Uploading and installing make take more than 5 minutes.

System definitions

System definitions comprise:
• Device descriptions.
• Text catalogs in each user language.
• Units catalog.

The device web pages use the uploaded system definitions to properly display devices and menus.

You must generate all device web pages following successful uploading. This applies the new system definitions.

The system definitions must be compatible with the web server's software version. If incompatible, an associated message is displayed and the old system definitions remain as is.

Note   ⓘ

Make sure there is at least 60 MB free memory on the web server when uploading. If not, check the contents via File transfer > Documents.

3.5   Operation with ACS790

The following functions are available with ACS790:

• Commissioning with device search.
• Popcard.
• Plant diagrams:
  For standard applications for the KNX devices, web-capable plant diagrams may be exported from ACS790 and import them to the web server.
• Parameterization:
  Read and write parameter sets.
• Commissioning protocol.
• Offline trend.

For more details, see data sheet N5649.

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4 Visualize plants

4.1 Overview

Web server OZW772... visualizes technical equipment in buildings via plant web pages. The plant is operated and monitored via one or more generated plant web page(s).

Download plant diagram

Web-capable plant diagrams can be downloaded from the HIT (HVAC Integrated Tool by Siemens) online platform for Synco 700 devices, RXB/RXL room controllers and RDG/RDF/RDU room thermostats standard applications.

Create own plant web pages

You can freely design plant web pages.
As a hybrid form, you can also modify and extend downloaded plant diagrams.

Web page elements

Plant web pages are designed with the following web page elements:
- Background image
- Data point elements
- Text elements
- Link elements
- Partial pictures

Data point elements are used to operate and monitor read and write values for devices connected via KNX and the web server.

Edit / view mode

Plant web pages are generated online in the web browser.
The web page designer with administrator rights also switches the plant web pages to edit mode.
Other users can query and operate the last saved visualization during the transition phase.
Plant web pages return to view mode once the changes are saved. The new state is now available online at this point.

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4.2 Example of a plant web page

Preselection	Auto	Eco heat setp	15.0 °C	Eco cool setp	29.0 °C
State	Comfort	Prcom heat setp	19.0 °C	Prcom cool setp	27.0 °C
Cause	Time switch	Comf heat setp	21.0 °C	Comf cool setp	25.0 °C

Fault text   Filter dirty
Fault   14.10.2010; 16:46; 3911
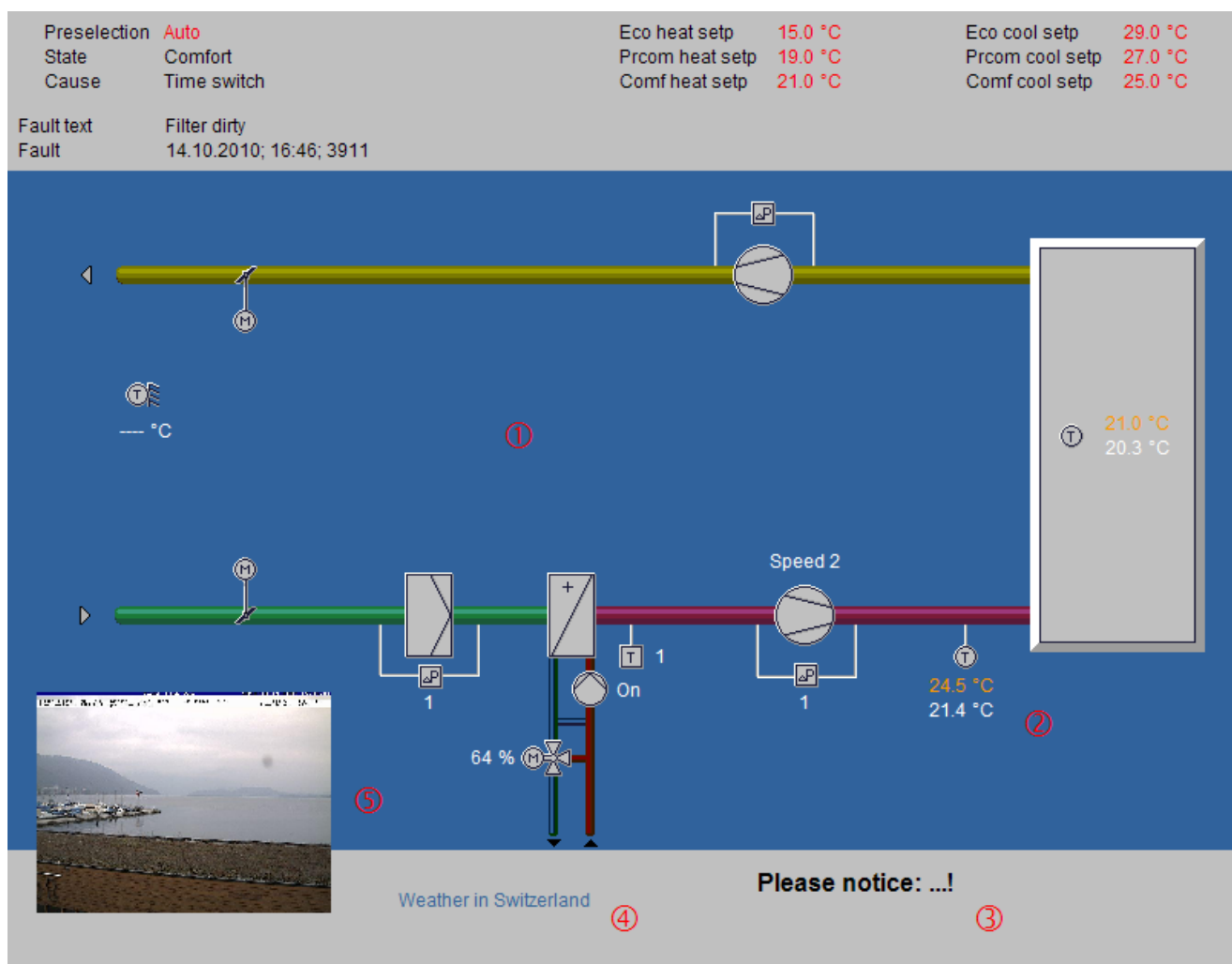
①	**Background image**	All surfaces, symbols and the diagram.
②	**Data point element**	Two data point elements: Present supply air setpoint (orange), supply air actual value (white).
③	**Text element**	Explanation text.
④	**Link element**	Link to Internet.
⑤	**Part. pic. element**	Integrated web cam image.

The example above is an extension to a web-capable plant diagram downloaded from HIT.
The extension consists of additional, explanatory text (3), a link to the Internet (4) and an integrated web cam image (5), that is updated periodically (every minute).

4.3 Plant web page features

Background image

A plant web page has an expandable area that can be used to place web page elements. The display area has a minimum size of 800px (width) and 580px (height).

The minimum display area is filled with a transparent background image if no background image is explicitly selected.
- The display area can be expanded to any size by adding a larger background image.
- The following types are accepted: png, jpg, gif and bmp; we do not recommend using bmp due to the file size.

Position in secondary navigation

Multiple plant web pages are listed from top to bottom in the secondary navigation per their "Position". The plant web page is built and displayed at "Position"=1 when going to a home or device node. Use "Position > New > Properties" to set the "Position" in the secondary navigation or "Properties > Position" for existing plant web pages.

Front side / Background

The following applies to levels within a plant web page:
- The background picture is located in the background.
- The group of partial pictures are in front.
- The group with all remaining elements are in front.
- More recently added elements are on top of previously added elements within the group of partial pictures and remaining elements.

Please note the following for the last statement:
- If **an** element is deleted as part of editing and another element added, the new element jumps to the level of the deleted one. This level is not always the top level.
- You must add a new element as part of **new** editing to ensure that the new elements are placed at the top (finish with OK and re-click edit).

Show / Hide

Plant web pages are hidden for a hidden device with appended plant web pages. The associated plant web pages are displayed again if the device is re-generated and displayed (Important note in Section 2.8).

Delete

Appended plant web pages are irretrievably deleted once a device is deleted. The same is true when you reset the web server.

Changes to controller configuration

Any change to the controller configuration creates differences between the controller and the mapping on the web server. This impacts plant web pages as well where data point elements access the controller via the web server map. You must run "Generate" each time you change the controller configuration (see Section 2.4 for workflow).

Key variables

Any number of plant web pages per web server are possible.
- The web server has 180 MB in memory.
- You should pay special attention to image file size to save memory; (current available memory is available at "File transfer > Documents").
- A maximum of 100 elements may be added on a plant web page from one web page element type (e.g. a maximum of 100 data point elements).

4.4   Toolbar

Note   The menus described below are only displayed and operable on the
                             "Administrator" user level.

**View mode, no web   The following toolbar is displayed at home and on the device nodes, if no plant
page available**   web pages are generated:

Home > 0.2.150 OZW772.16

+🖼 New   ➡ Import

Menu	Description (in German)
New	Create new plant web page.
Import	Import archived plant web page. Plant web pages are archived and imported as .tar files.

**View mode, web page   The toolbar is as follows for an existing plant web page:
available**

Home > RMU710B_A01_ADA001BHQ

🖊 Properties | +🖼 New ➡ Import | ✏ Edit 📋 Copy ➡ Export | 🗑 Delete

Menu	Description (in German)
Properties	Properties dialog for the plant web page. Enter the same as for "New". Furthermore, "Replace datapoint addresses" address identical data points on another device (KNX address).
New	Create another plant web page.
Import	Import archived plant web page.
Edit	Switch to edit.
Copy	Copy selected plant web page to another device node.
Export	Export selected plant web page as .tar archive.
Delete	Deleted selected plant web page.

Edit   Click Edit to switch the plant web page to edit mode. The toolbar is as follows:

Home > RMU710B_A01_ADA001BHQ

Edit   +➡ Datapoint   +🔤 Text   +➡ Link   +🖼 Partial picture

Menu	Description (in German)
Datapoint	Embed data point element to web page. A data point element consists of two fields: – Data point value for a device connected via KNX or the web server. – Data point text.
Text	Add free text (single line) to plant web page. The text is entered in the field "Displayed name".
Link	Hyperlink to other plant web pages, to a document or an external web page.
Partial picture	Add additional picture to plant web page. "Link external" integrates periodically updated, external images (e.g. web cams).

User levels   Only an administrator may generate and change visualization. User levels have the
                             same rights for operation and monitoring.

4.5 Import web-capable plant diagrams

HIT has web-based plant diagrams for download and import to the web server for Synco 700 standard applications as well as the room controllers RXB and RXL.

Prerequisites

- The drafter is logged on to the web server as an administrator.
- The web server is connected via KNX with one or more devices (Synco 700 devices, room controllers).
- A standard application is loaded on the device.
- The device web page is generated, see Section 2.4. The web server menu tree and data point information for the device and the loaded standard application are now available.

Download plant diagram from HIT

Workflow in HIT online platform (Siemens HVAC Integrated Tool):

1. Run www.siemens.com/hit.
2. Select country.
3. Select "Applications" in HIT.

Select all control devices suitable for a given standard HVAC application and add them to your project.

→ Select a standard application.
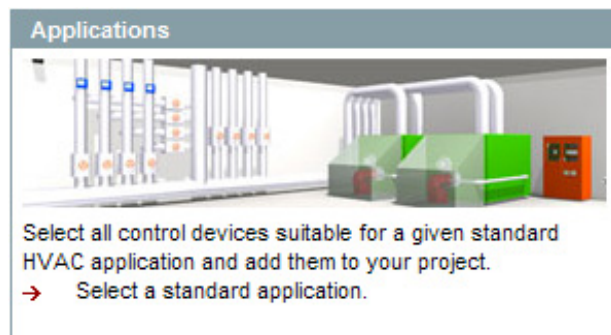
4. Select application (heating, ventilation/air conditioning, refrigeration, rooms).
5. Select a standard application for the Synco 700 series (e.g. ADA001 U1B HQ) or a room controller application (RXB, RXL) in the "Rooms" application.
6. Click document symbol in the "Doc" column.

The dialog "Application documents" is displayed.

7. Click the ZIP symbol on the line "Plant diagram for operator station (ACS and OZW)".
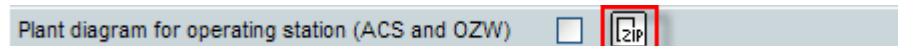
The file download dialog box is displayed.

8. Click Open.
   The ZIP program opens the ZIP archive.
9. Drag and drop the .tar file to the computer.
10. Close ZIP archive and HIT download dialog box.
    This saves the .tar file with the web-based plant diagram on the computer.

Import plant diagram to web server

Workflow on web server:
1. Start at the home node in secondary navigation, select the Synco controller.
2. Click Import.
   The import dialog ("file name (*.tar)") is displayed.
3. "Search..." to go to the .tar file saved on the computer.
4. Click Open.
5. Click Upload.
   Import information is displayed while the file is being read; the property dialog box now opens.
6. Check "Replace datapoint addresses".
7. From the dropdown menu, select the KNX address for the controller connected via KNX and used to load the standard application.

Properties	
Displayed name	RMU710B_A01_ADA001BHQ
Background picture	RMU710B_A01_ADA001_U1B_HQ.PNG
Position	1
Replace datapoint addresses	
0.2.253	☑ 0.2.250

OK   Cancel

8. Click [OK] to start.
   The plant diagram is finished.

Result

The controller or plant can now be operated and monitored via the web-based plant diagram. The default display is as follows:

- Operating values (e.g. operating mode Auto, Comfort, PreComfort, etc.) is displayed in red. The cursor changes to a hand symbol when you move it over the display. Click to open the applicable settings dialog box.
- Set points are displayed in orange; actual values in white.

Note

It may occur that individual data points for controllers cannot be mapped to the standardized plant diagram due to compatibility issues.

- The data point text "Data point not found" is displayed.
- Three question marks "???" are displayed as the data point value.
  See Section 4.6 for any post editing.

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4.6 Create own plant web pages

You can generate complete plant web pages yourself. As an option, you can change and extend any imported plant diagrams (see Section 4.5) as needed. This section presents the steps required to generate and design a customized plant web page.

Prerequisites
- The drafter is logged on to the web server as an administrator.
- The web server is connected via KNX with one or more devices.
- The device web pages for the web server and devices are generated, see Section 2.4. The web server menu tree and data point information is now available.

Create plant web page

The following describes how to create a plant web page and add a background image.

1. Go to home nodes or to a device node.
2. Click New.
   The properties dialog box is displayed.
3. In the Displayed name field, enter the name for the plant web page (is displayed later in the navigation area for the web server).
4. Click the red pencil in the Background picture field.
   The add dialog box is displayed.
5. Search to go to the desired background picture.
6. Click Open.
7. Click Upload.
   The file name for the selected picture is displayed in the background picture field.
8. Click OK.
   The plant web page is now saved with the background picture.

Add data point element

The following describes how to add a data point element to a newly created plant web page.

1. Click Edit.
   The plant web page switches to edit.
2. Click Datapoint.
   The data point dialog box is displayed.
3. Click the red pencil in the Datapoint address field.
   The data point address dialog box is displayed.
4. Go to the data point via device, menu text(s).
5. Select Datapoint.
   The entire data point path is entered in the data point address field.
6. Set the X/Y position for the data point field in the display area.
7. Modify formats such as text field size for "Datapoint - value" and "Datapoint - text" as needed.
8. Click Apply to check the results of the change in formatting as a preview to the plant web page.
9. If satisfied, click OK to finish.
10. Click OK to change to view.
    The data point value was read and is displayed.

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Notes	• Double-click the data point element in edit to reopen the settings dialog box for an already created data point element. The data point element can also be deleted in the settings dialog box. This note applies as well to other web page elements.
	• As an alternative to setting the X/Y position in the data point dialog box, you can also position data point elements using drag and drop in edit mode. The element can no longer be moved after switching to view mode. This note applies as well to other web page elements.
	• The X/Y position in the data point dialog box is anchored to the text in the data point value field and its alignment. In conjunction with the alignment functions, the data point field moves to the right for left align and to the left for right align (see the following graphic). This note refers as well to text and link elements accordingly.

Alignment

		x	
Left		Data point text	Data point value

		x	
Center	Data point text	Data point value	

	x		
Right	Data point text	Data point value	
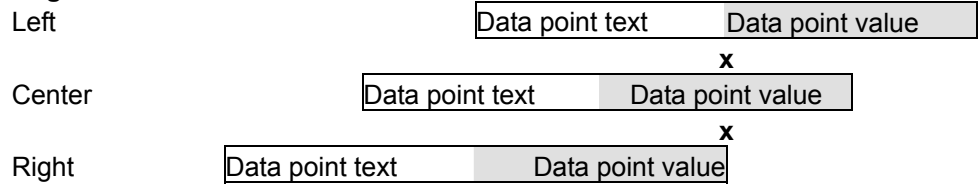
Notes	• The "**x**" displays the changed position of the anchor.
	• The alignment of all the data point texts is left aligned.

Add text element	The following describes how to add informational text to a plant web page.
	1. Click Edit. The plant web page switches to edit.
	2. Click Text. The text dialog box is displayed.
	3. Enter the desired text in the Displayed name field.
	4. Set the X/Y position for the text field in the display area.
	5. Format as needed.
	6. Click Apply to check the results of formatting in a preview.
	7. If satisfied, click OK to finish.
	8. Click OK to change to view.

Notes	Text elements are single lines. Only a limited number of fonts are available for texts:
	• Small 10pt
	• Normal 12pt
	• Large 16pt
	• XL 24pt

Add link element	The following describes how to add two lines to the plant web page:
	• To another plant web page.
	• To an external web page.
	The link to a document is not displayed, but works accordingly.

Link to another plant web page	1. Click Edit. The plant web page switches to edit. 2. Click Link. The link dialog box is displayed. 3. Enter the desired text for display in the Displayed name field. 4. Select Link to in the "Plant diagram" field. 5. Click the red pencil in the same field. The plant diagram dialog box is displayed with all plant diagrams available on the web server. 6. Select the desired plant diagram. Enter the path for the plant diagram in the "Link to" field. 7. Set the X/Y position for the link field in the display area. 8. Format the link as needed. 9. Click Apply to check the results of formatting in a preview. 10. If satisfied, click OK to finish. 11. Click OK to change to view. The link is enabled immediately in the view mode: Click to open the corresponding plant web page.
Tip	We recommend adding a link on the target web page to return to the previous page.
Notes	• Links are broken after importing a plant web page to another web server and must be restored per the instructions above. • The links to other plant web pages are also broken after a firmware update for web pages exported in advance and then imported and must be restored per instructions above.
Links to an external web page	1. Click Edit. The plant web page switches to edit. 2. Click Link. The link dialog box is displayed. 3. Enter the desired text for display in the Displayed name field. 4. Select external link in the Link to field. 5. Click the red pencil in the same field. The link external dialog box is displayed. 6. Enter the desired URL. 7. Check the correctness of the entry: The Internet page is opened. 8. Confirm with OK. 9. Enter the URL in the "Link to" field. 10. Format the link as needed. 11. Click Apply to check the results of formatting in a preview. 12. If satisfied, click OK to finish. 13. Click OK to change to view. The link is enabled immediately in the view mode: Click to open the corresponding web page.

Add partial picture

The following describes how to add two partial pictures to the plant web page:
- A static picture downloaded to the web server.
- A link to an external picture on a server, e.g. continuously updated images from a webcam.

Static partial picture

1. Click Edit.
   The plant web page switches to edit.
2. Click Partial picture.
   The partial picture dialog box is displayed.
3. Select "Picture source" in File field.
4. Click the red pencil in the same field.
   The add dialog box is displayed.
5. Click Search.
6. Go to desired image file.
7. Click Open.
8. Click Upload.
   Enter the file name for the selected image in the Field Source field.
9. Adapt Position and Scaling.
10. Click Apply to check the results of formatting in a preview.
11. If satisfied, click OK to finish.
12. Click OK to change to view.

Dynamic partial picture

1. Click Edit.
   The plant web page switches to edit.
2. Click Partial picture.
   The partial picture dialog box is displayed.
3. Select "Picture source" in Link external field.
4. Opens the web cam image on the Internet.
5. Right-click webcam image.
6. Select properties for webcam image.
7. Highlight the address (URL) of the webcam image and copy to clip board.
8. Click the red pencil in the Source Picture field.
   The link external dialog box is displayed.
9. Add the URL for the webcam image.
10. Check the correctness of the entry: The webcam image is opened.
11. Click OK.
12. Modify Position and Scaling.
13. Click Apply to check the results of formatting in a preview.
14. If satisfied, click OK to finish.
15. Click OK to change to view.

5 Record consumption data

You can record consumption data for heating, hot water, chilled water, cooling electricity, natural gas or other media depending on the installed energy or volume meters. You can precisely track energy consumption by querying consumption data. Daily updated values, monthly values and for QAX9… annual due date values are available.
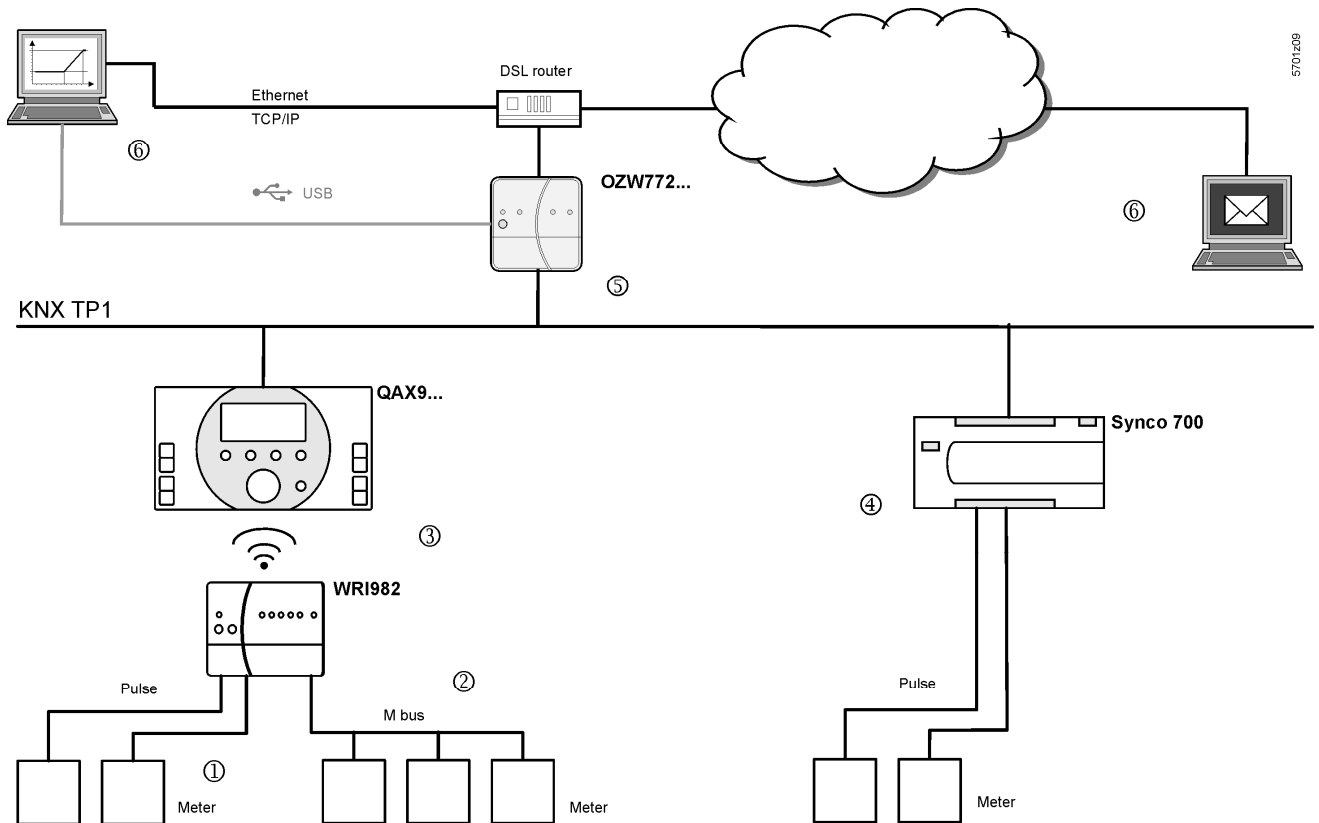
① The consumption data interface WRI982 continuously counts pending pulses.

② The WRI982 periodically queries consumption data on the M-bus meter.

③ The QAX9… periodically queries the consumption data interface WRI982.

④ The Synco 700 controller continuously counts pending pulses.

⑤ The OZW772… periodically queries consumption data.

⑥ You can view consumption data via web operation (local or remote) or have it send by e-mail.

Notes

- Compatible M-bus meters are listed in data sheet N2735 on the consumption data interface WRI982.
- The QAX9…. documentation includes additional information on meter integration and consumption data acquisition up to QAX9…
- Information on pulse processing for Synco 700 controllers is available in the corresponding documentation on basic.

5.1 Consumption data file

You can view the consumption data file via web operation (local or remote) (Section 3.4) or sent via e-mail (Section 5.3).

The consumption data file displays meters for those KNX devices with device pages generated on the web server.

Note 　⚠　The device web pages must be re-generated after commissioning and changes to the plant (see Section 2.4).

Static metering information is available immediately after generation. The current values for operational meters are available in the consumption data file at the latest after 24 hours.

5.1.1 Main areas for consumption data file

my header						
Plant information						
Plant name	**Device address**	**Device type**	**Serial number**	**IP address**	**File created on**	
OZW772.04	0.2.150	OZW772.04	00FD00FEFF0C	192.168.251.1	10:29	04.01.2011
Meter data						
Device information				Meter information		
Device name	**Device address**	**Device type**	**Serial number**	**Meter name**	**Medium**	**Production r**
QAX913	0.2.200	QAX913-1	00FD0001889E	Electricity 1	Electricity	569
QAX913	0.2.200	QAX913-1	00FD0001889E	Heat/cooling energy 1	Heat (oulet)	569
QAX913	0.2.200	QAX913-1	00FD0001889E	Cold water 1	Cold water	5474166
QAX913	0.2.200	QAX913-1	00FD0001889E	Hot water 1	Hot water	5474167
Heizung	0.2.210	RMH760B-1	00FD00019940	meter 1		
Meter replacement						
Device information				Meter information		
Device name	**Device address**	**Device type**	**Serial number**	**Meter name**	**Medium**	**Production r**
my information line 1						
my information line 2						
my footer						

User defined texts　　Header, Information line 1…10 and Footer are user defined settings that can be entered in the web operation for the web server (see Section 2.5.2).

Web server data　　Plant information relies on the web server and is mapped "ad hoc" when querying and sending the consumption data file.

Meter data　　Meter data is mapped in the web server based on information from KNX devices entered and generated under Device web pages.

Meter exchange　　The entire data set for the meter is moved when replacing a meter from the "Meter data" area to "Meter replacement".
In generation, the "Meter replacement" function ensures that last available values for any meter is retained even for billing purposes even after replacement.

Notes　　ℹ　• The entire "Meter replace" area can be deleted (see Section 2.5.2).
　　• 2-year old data is deleted automatically.

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5.1.2 Meter data in detail

Key for data fields:

A	Web server data (plant)	F1	Last due day
B	Device information (incl. meter name)	F2	Last but one due day
		G	Calendar monthly values
C	Meter information (excl. meter name)	H	Start value web server
		T	Header
D	Current values	U	Information lines
E	Meter state	V	Footer

QAX / Synco 700 data	Data for device information, including meter name (data field B) are mapped to the web server based on information from the KNX devices immediately after generating.
Note	Must be re-generated if settings are changed to integrated KNX devices.
QAX / Synco 700 mapping	Meter information, not including meter name (data field C), current values (D), meter status (E), last due date (F1) and calendar monthly values (G) are collected at the QAX9… or on the Synco 700 controller (not E and not F1) and then retrieved by web server.
Note	Data in the section on meter status (E) are specific to the manufacturer for M-bus meters.
Initialize QAX9…	The listed values are available for the first time on the QAX9…:

- For initial commissioning: After the connection test of WRI982 or automatically after 4 hours.
- For meter replacement: After two connection tests of WRI982 or automatically after 8 hours.

Web server constructs

- Web server copies data to "Last but one due date" (F2) from "Last due date" each time a **new** "Last due data" is read from QAX9….
- Web server maps the data in "Start value web server" (H) as soon as it receives the first measured value from each meter.

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5.2 Time ratios
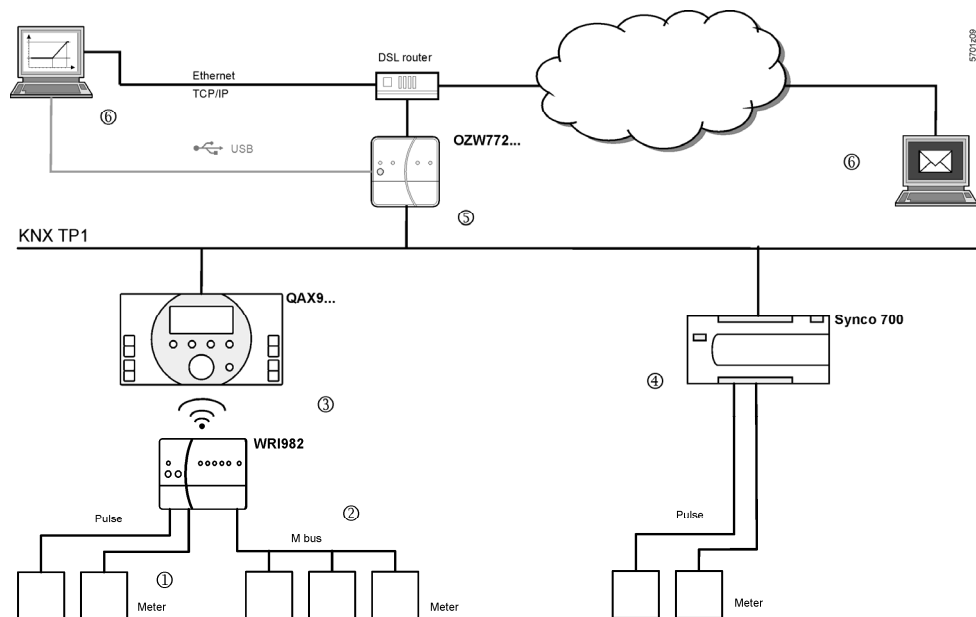
Current value

Meter → WRI982
- Consumption data from pulse meters is added up **once an hour** on WRI982.
- Consumption data from M-bus meters are read by WRI982 **every 4 hours**.

WRI982 → QAX9…
QAX9… reads the current values pending on WRI982 **every 4 hours**.

QAX9… → OZW772…
- Web server OZW772 reads the current consumption on the QAX9… **daily** between 5 and 10 am.
- Individual meter values are available immediately after reading.
- Reading is finished earlier accordingly on plants that do not fully use the maximum number of 512 meters.

Synco 700 → OZW772…
- The Synco 700 controller adds up the pulses every 5 minutes.
- Web server reads the current values **daily** between 5 and 10 am.

OZW772… → Reading
- The user determines the read time for consumption data file via file transfer. With daily readings, the user can read the web server value up to 24 hours after the web server reading.
- The consumption data file is sent by e-mail as soon as the consumption data is collected.

Summary
- Via the chain (1) (3) (5) (6), the current values for WRI982 pulse meters are a maximum of 5 hours old plus read delay.
- Via the chain (2) (3) (5) (6), the current values for M-bus meters are a maximum of 8 hours old plus read delay.
- Via the chain (4) (5) (6), the current values for the pulse meters to Synco 700 controllers feature only the read delay.

Current value time stamp	The current value timestamp is written as follows to the consumption data file:

- For WRI982 pulse meters: Added up hourly by WRI982.
- For M-bus meters **without** a manufacturer-specific timestamp: by QAX9…, at read time QAX9…/WRI982.
- For M-bus meters with a manufacturer-specific timestamp: by the M-bus meter at the manufacturer-specific time.
- For Synco 700 pulse inputs: By Synco 700 controller, added up every 5 minutes.

Monthly values

WRI982 → QAX9…	Monthly values are transmitted every 24 hours.
QAX9… → OZW772…	The monthly values are transmitted on the third day of the month between 5 am and 10 pm.
Note ⓘ	Not all M-bus meters form their own monthly values. If not, the QAX9… assumes the task.
Synco 700 → OZW772…	The Synco 700 controller forms its own monthly value. The reading takes place on the third day of the month between 5 am and 10 pm.

Due day

Due day formation	The due day values of meters connected to the QAX9… are formed on the centralized due day. The due day for QAX9… is active in the default state (Default setting of December 31), but can be edited on the QAX9… or via web server (see Section 2.5.2).

Please note the following, however:

- A temporary due day value is formed during the commissioning of the QAX9…: This is the start value of the meter using the start value date.
- The first due day value is formed using the due day date if the centralized due day is reached for the first time.
- Due days that differ from the centralized due day (by the corresponding M-bus meters) are blocked accordingly.
- A due day value is used for precision only if one M-bus meters supplies a due day value on the centralized due day.

Time ratios WRI982 → QAX9…	Due day values are transmitted every 4 hours.
QAX9… → OZW772…	The due day values are transmitted on the third day of the month between 5 am and 10 pm.

Please note the following for the web server at the conclusion of the comments under "Due day formation":

- The temporary due day value and its dates is written to the due day field for in the consumption data file if the QAX9... has not yet achieved a due day by the first transmission to the web server.
- At the latest then, the first real due day value with due date is available on the QAX9… 12 months after commissioning and is written at the start of the next month (third day) to the field due day of the consumption data file.

Notes ⓘ	

- A due day value is still available on the web server on the third day of the month if the due day is set to the first day of a month.
- Synco 700 controllers do not support the due day function.

Replace meter

A change to the configuration of the QAX9.../ Synco 700 controller causes a meter replacement. The information is provided to the web server accordingly.

Notes   [i]

- A new generation of the device web pages after a device exchange of QAX9… or Synco 700 controller always results in a meter replacement even when the same meter is re-connected to the replacement device.
- Hiding a device in the device list also results in a meter replacement.

QAX9…

Changes to the following information are interpreted as a meter replacement:

- Meter medium
- Meter ID number

The following changes are also evaluated for pulse meters:

- Unit factor (e.g. from "10 Wh" to "100 Wh")
- Pulse value (counter or denominator)
- Start value

Synco 700 controller

Changes to the following information are interpreted as a meter replacement:

- Unit
- Format (number of decimal places)

Time ratios

The following time ratios apply to meter replacement:
- It last up to 8 hours from the time the meter (as defined above) is replaced until the information is available on a consistent basis on the QAX9…
- The following midnight (12:00 am) OZW772… **automatically** re-generates all devices where it has detected a meter replacement.
- You must also wait 8 hours after meter replacement when generated manually.
- The following information is available immediately for Synco 700 controllers.
- The OZW772… detects the meter replacement during the daily reading between 5 and 10 am.

Web server start value

The web server maps the web server start value as soon as it receives the first meter value after generating the KNX device.

Notes   [i]

- The web server start value is not the same as the start value for the meter available on the QAX9…
- An initial generation also occurs when the KNX device is hidden and then shown after using generate. The reason for the exception is that hiding KNX devices with meters is backed up using meter replacement. Otherwise, meters relevant to allocations can unintentionally disappear from the consumption data file.

Exemption from liability

The Siemens system for transmitting acquired consumption data for meters uses the latest technology and security standards. The value as displayed on the meter applies for allocation purposes in the event of differences between the displayed value on the meter and the value as transmitted.

5.3   Send consumption data file

Settings are available under: Home > 0.2.150 OZW772.xx > Settings >
Consumption data > Receiver > E-mail receiver 1…2

To set, see Section 2.5.2, consumption data/receiver.

Information on the e-mail outline is available in section 7.2.
Information on outline and content of the appended consumption data file is
available in Section 5.1.

Empty page

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Record consumption data

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6 "Energy indicator" function

6.1 Introduction

6.1.1 Function description

"Energy indicator" function

The OZW772… web server from Version 4.0 supports the "Energy indicator" function.

The web server uses the "Energy indicator" function to read selected data point values from the bus devices and to compare the values to energy-related limit values, or so-called "Green limits".

The data points are also monitored for adherence to the "Green limits". As a result, the "Energy indicator" is displayed in the form of a tree leaf.

Monitored data points and their "Green limits"

The monitored data points and their "Green limits" depend on the device type. The following applies e.g. to a controller:

Monitored data points	"Green limits" (technical energy limit values)
Comfort heating setpoint	>22 °C
Economy heating setpoint	>16 °C
Comfort cooling setpoint	<23 °C
Economy cooling setpoint	<34 °C
Readjustment room unit	>± 1.0 K (± readjustment has 2 "Green limits")
Preselection (operating modes)	Auto, Economy, Protection → "Green leaf" (continuous Comfort, Precomfort → "Orange leaf")

Notes

The "Green limits" are used only together with the "Energy indicator" function. They do **not** represent process or safety limit values which trigger e.g. fault messages or turn off the plant in the event of limit violations.

Users also are allowed to change data point values (setpoints). E-mail messages from the system then remind the user that a value or values were changed.

Tree leaf as "Energy indicator"

Green leaf

"Green leaf" → Green tree leaf, leaf pointing up.

- The "Green leaf" symbol indicates that a data point value has not exceeded its "Green limit", i.e. the value is within a "green" range in terms of energy consumption.

Orange leaf

"Orange leaf" → Orange tree leaf, leaf pointing down.

- The "Orange leaf" symbol indicates that a data point value has exceeded its "Green limit", i.e. the value is outside a "green" range in terms of energy consumption.

Grey leaf

"Gray leaf" → Gray tree leaf, horizontal leaf.

- The "Grey leaf" symbol indicates that a data point value is not current, e.g. transmission of a data point value is incomplete, or there is no data communication with the bus.

No tree leaf

- The data point is not monitored via the "Energy indicator" function.

Standard EN 15232

The "Energy indicator" function is based on standard EN 15232 "Energy efficiency in buildings".

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Example: Web page "Energy indicator"

Web page with "Energy indicator" function; example with data points from "Room 1" and open dialog box to set data point value "Comfort heating setpoint" and its "Green limit" (for "Room 1").

6.1.2 KNX bus topology

The OZW772.01 web server can monitor 1 bus device via the "Energy indicator" function. The OZW772.04 web server can monitor up to 4, OZW772.16 up to 16, and OZW772.250 up to 250 bus devices via the "Energy indicator" function.
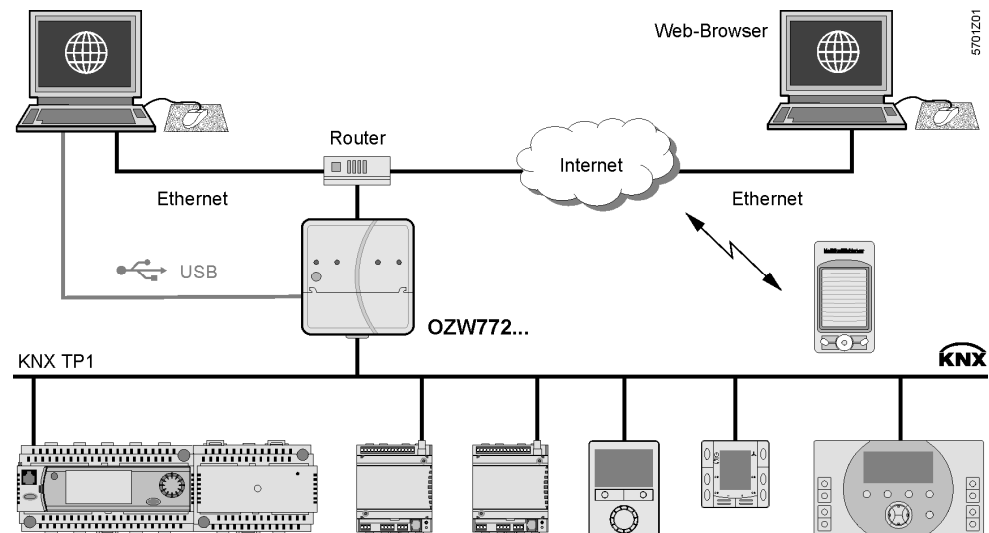
Note

A maximum processing time of ca. 8 hours results for a max. quantity of 2500 "Energy indicator" data points.

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"Energy indicator" function

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6.1.3 Synco product range and KNX devices

The following KNX devices from the Synco range can be connected to the OZW772… web server.

Synco range	KNX devices		Data sheet no.
Synco 700	Universal controller	RMU7x0, RMU7x0B	**N3144, N3150**
	Heating controller	RMH760, RMH760B	**N3131, N3133**
	Boiler sequence controller	RMK770	**N3132**
	Central control unit	RMB795, RMB795B	**N3121, N3122**
	Switching & monitoring unit	RMS705, RMS705B	**N3123, N3124**
	Room unit	QAW740	**N1633**
Synco RXB/RXL	Room controller	RXB21.1, RXB22.1	**N3873**
	Room controller	RXL21.1, RXL22.1	**N3877**
	Room controller	RXB24.1	**N3874**
	Room controller	RXL24.1	**N3878**
	Room controller	RXB39.1/FC-13	**N3875**
	Room controller	RXL39.1/FC-13	**N3876**
Synco RDG/RDF/RDU	Room thermostat for fan coils	RDG100KN	**N3191**
	Room thermostat for VAV	RDG400KN	**N3192**
	Room thermostat for fan coils	RDF301	**N3171**
	Room thermostat for fan coils and lighting RDF301.50		**N3171**
	Room thermostat for VAV	RDU341	**N3172**
Synco living	Central apartment unit	QAX903	**N2741**
	Central apartment unit	QAX910	**N2707**
	Central apartment unit	QAX913	**N2740**

Important note

The "Energy indicator" function is supported in all Synco KNX devices (see table above) excepting:

Synco 700:   RMU7x0, RMH760, RMK770 V1, RMS705
Synco living: QAX910 V1 und V2

Device description

If the "Device description" of a device contains "Energy indicator" data points and "Green limits", the device can be operated on the "Energy indicator" function.

"Energy indicator" data points and "Green limits" have predefined, device-specific default values. The default values can be changed with a few notable exceptions.

Neither number nor selection of the "Energy indicator" data points and "Green limits" that exist in the "Device description" can be changed.

6.1.4 Navigation and device web pages
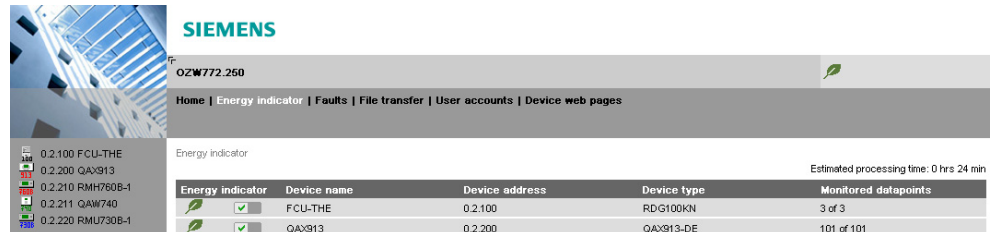
Navigation

Go to the "Energy indicator" function as follows:

- Via primary navigation, main function "Energy indicator".
- Click the "Plant state Energy indicator" pane
  (top right field pane tree leaf in the screenshot below).

Primary navigation

On the web page, you can select the "Energy indicator" function from the primary navigation next to "Home".
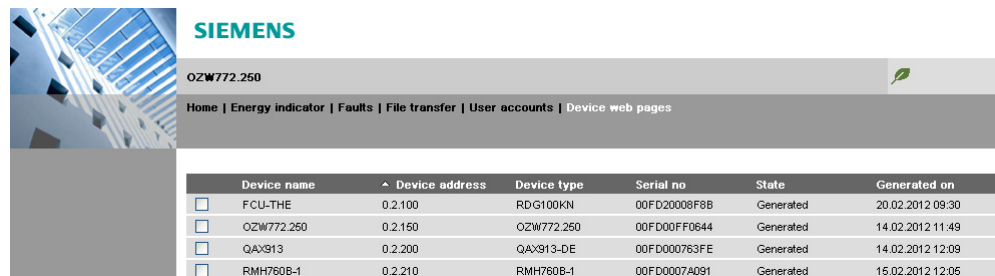
Secondary navigation

In secondary navigation, both partial plants and/or devices are displayed sorted by device address in ascending order.

Device web pages status "Generated"

Status "Generated" in column "Status" in "Device web pages" is a precondition for displaying the devices using the "Energy indicator" function (see Section 2.4).

Path: Home > ... > Device web pages

Note

The "Device web pages" (see screenshot) pane can be opened with "Service" and "Administrator" access rights.

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6.2 "Energy indicator" function levels

Level designations	The contents of the "Energy indicator" function are distributed across 2 or 3 levels depending on the functionality of the respective device.

- Simple devices have 2 levels:
  - "Plant"
  - "Data points"
- Complex devices have 3 levels:
  - "Plant"
  - "Partial plants"
  - "Data points"
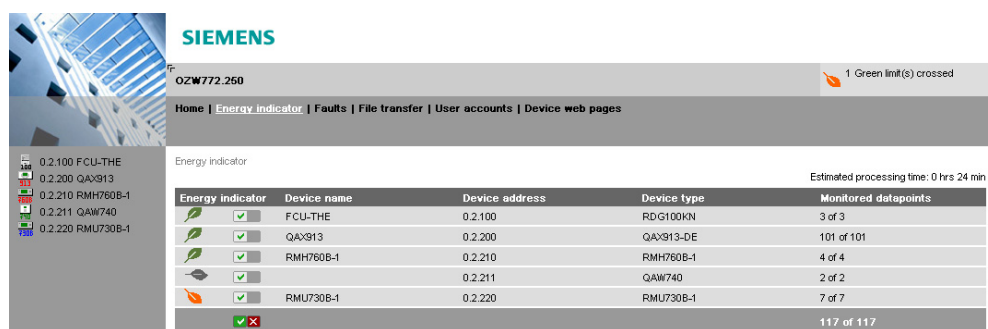
6.2.1 "Plant" level

Enter the "Plant" level	Enter the "Plant" level as follows:

- Click the "Energy indicator" function (primary navigation) or
- Click the "Plant state Energy indicator" pane.

The "Plant" level shows all devices of a plant subject to the "Energy indicator" function.

"Energy indicator" for a plant	The "Energy indicator" of the plant is displayed as a **summary display** in the "Plant state Energy indicator" pane. See Section 6.2.6 for information on the summary display.
"Energy indicator" for devices	The "Energy indicator" for devices is displayed at the "Plant" level in the "Energy indicator" column for each device.
Next lower level	Clicking the name of a device in secondary navigation or in the "Device name" column opens the next lower level for that device.
Table columns Energy indicator	"Energy indicator" (tree leaf) for each actively monitored device.

This column also contains:

- Checkboxes to activate/deactivate monitoring of the "Energy indicator" data points for the selected device.
- Summary checkbox (green/red) to activate/deactivate monitoring for all data points of the plant.
  The summary checkbox is available only for access level "Administrator"; see Section 6.3.4.
  When a checkbox is cleared (deactivated), message "Monitoring off, green limits reset to default values! Really to be continued?" is displayed; see Section 6.3.4.

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Device name, device type	The device name is displayed if defined (prior to creating the "Device list"), otherwise the device type.
	The devices are sorted by device address in ascending order.
Device address	Network address (area.line.deviceaddress)
Device type	Device type (technical device designation)
Monitored data points	Indication of the number of **actively** monitored data points (x) for possible number of data points to be monitored (y) for each device; see Section 6.2.4.
Note	Clicking the column title
	• Device name
	• Device address
	• Device type
	sorts the column contents in the table in ascending or descending order.

6.2.2 "Partial plants" level

"Partial plants" level
The "Partial plants" level shows the partial plants of functionally complex devices (see partial plants below for QAX913 central apartment unit).

Next lower level
Clicking the name of a partial plant in secondary navigation or in the "Partial plant name" column opens the next lower level for that partial plant.

Next higher level
Clicking ⬆ Upward (in secondary navigation) opens the next higher level.

Table columns
Energy indicator
"Energy indicator" (tree leaf) for each actively monitored partial plant.

This column also contains the checkboxes to activate/deactivate "Energy indicator" monitoring of the data points for the selected partial plant (deactivate without confirmation message).

Partial plant name
Name of the partial plant (taken over by device).

Monitored data points
Indication of the number of **actively** monitored data points (x) for possible number of data points to be monitored (y) for each partial plant; see Section 6.2.4.

Notes	When level "Partial plants" is selected, they are sorted by "Device description". Users cannot change the sort order.

In functionally complex devices with many data points, they are assigned to the partial plants. The data points of the partial plants (per partial plant) are displayed at the "Data point" level; see below.

The "Partial plants" level is not available in functionally simple devices with few data points.

6.2.3 "Data points" level

"Data points" level   The "Data points" level shows the data points to be monitored (see the data points for partial plant "Room 1" below).

Next higher level	Clicking [Upward] (in secondary navigation) opens the next higher level.

Table columns
Energy indicator	"Energy indicator" (tree leaf) for each actively monitored data point.
	This column also contains the checkboxes to activate/deactivate "Energy indicator" monitoring of the selected data point (deactivate without confirmation message).
Data point	Name of the data point.
Value	Value of the data point (dependent on data point type with unit, e.g. °C).
Symbol ✎ (red pen)	Clicking the red pen ✎ symbol opens the dialog box for the selected data point; see Section 6.4.
Green limit(s)	Value of the set "Green limit" (dependent on data point type and unit).
	Enumeration values for "Green leaf" are displayed for "Green limits" with enumeration values such as Auto, Comfort, Economy.
	Invisible values are replaced by dots "…" if not all enumeration values can be displayed. The dialog box (click red pen symbol ✎) shows all enumeration values.
Note	When level "Data points" is selected, they are sorted by "Device Description". Users cannot change the sort order.

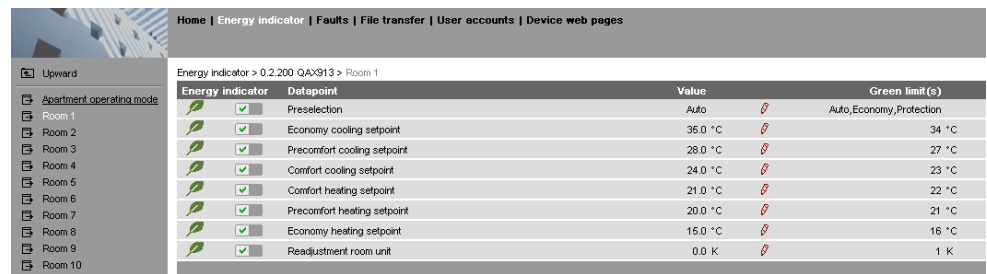## 6.2.4 Number of "Monitored data points"

Column "Monitored data points"

The "Monitored data points" column shows the number of **actively** monitored data points (x) compared to the number of data points (y) that could be monitored.

"Plant" level

"x of y" is displayed for each device and partial plant in the corresponding row.

The sum of all devices and partial plants is displayed in the bottom row.

Energy indicator		Device name	Device address	Device type	Monitored datapoints
	☑	FCU-THE	0.2.100	RDG100KN	2 of 3
	☑	QAX913	0.2.200	QAX913-DE	93 of 101
	☑	RMH760B-1	0.2.210	RMH760B-1	4 of 4
	☑		0.2.211	QAW740	1 of 2
	☑	RMU730B-1	0.2.220	RMU730B-1	7 of 7
	☑☒				107 of 117

"Partial plants" level

"x of y" is displayed for each partial plant in the corresponding row and the sum of all partial plants is displayed in the bottom row.

Energy indicator		Partial plant name	Monitored datapoints
	☑	Apartment operating mode	1 of 1
	☑	Room 1	8 of 8
	☒	**Room 2**	**0 of 8**
	☑	Room 3	8 of 8
	☑	Room 4	8 of 8
	☑	Room 5	8 of 8
	☑	Room 6	8 of 8
	☑	Room 7	8 of 8
	☑	Room 8	8 of 8
	☑	Room 9	8 of 8
	☑	Room 10	8 of 8
	☑	Room 11	8 of 8
	☑	Room 12	8 of 8
	☑	DHW	4 of 4
			93 of 101

Note

Level "Data points" does not have indication "x of y".

6.2.5 "Energy indicator" visibility

Configuration of visibility

Visibility of the "Energy indicator" symbol is configured at the "Administrator" access level and "Service" in the web server.

Path: OZW772.xx > Settings > Energy indicator > Energy indicator on the web
(very bottom of web page)

Notes

"Energy indicator" remains active even if "Energy indicator on the web = Not visible" is selected.

Configuration "Energy indicator on the web" (Visible/Not visible) also applies to user groups "Service" and "End user".

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6.2.6   Summary display "Energy indicator" for a plant

Summary display

The "Energy indicator" of the plant OR-links the "Energy indicators" of all devices across all levels. It is displayed as a summary:

- LED ① on the web server (see figure in Section 1.2).
- Web page "Plant" in the "Plant state Energy indicator" pane.

LED ① on web server

The following colors of LED ① on the web server front mean:

- LED is lit green   "Energy indicator" of the plant = "Green leaf".
- LED is lit orange   "Energy indicator" of the plant = "Orange leaf".

Summary display
"Plant" web page

- "Green leaf"
  All actively monitored data points of the plant are within limits, i.e. no "Green limits" are violated.
- "Orange leaf"
  At least one monitored data point is outside its "Green limit".
  The number of data points outside their "Green limit" is displayed in addition to the tree leaf.

The summary display "Orange leaf" with "2 Green limit(s) crossed" is displayed (in the previous example) because two "Green limits" were exceeded in "Controller 1" (see next screenshot).

6.3 "Energy indicator" commissioning function

6.3.1 Commissioning notes

Prerequisites

Prerequisites for commissioning the "Energy indicator" function:

- Login with "Administrator" access right.
- Generating the devices in the web server. This generates the "Energy indicator" data points for each device.
- Devices on the Device web pages must have status "Generated".

Device web pages

Home | Energy indicator | Faults | File transfer | User accounts | Device web pages

	Device name	▲ Device address	Device type	Serial no	State	Generated on
☐	OZW772.250	0.2.150	OZW772.250	00FD00FF0644	Generated	23.02.2012 10:59
☐	QAX913	0.2.200	QAX913-DE	00FD000763FE	Generated	23.02.2012 11:56
☐	RMH760B-1	0.2.210	RMH760B-1	00FD0007A091	Generated	23.02.2012 12:00
☐		0.2.211	QAW740	00FD00076B24	Generated	23.02.2012 12:04
☐	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B	Generated	23.02.2012 12:08
☐	Device 230	0.2.230	RMU730-1	00FD00001DF7	Generated	23.02.2012 12:09
☐			Add	Delete	Generate	Hide

6.3.2 Start "Energy indicator" function

Start "Energy indicator" function

The "Energy indicator" function in the OZW772… web server is started automatically if the above prerequisites are fulfilled.

Notes

The devices must contain at least one "Energy indicator" data point to be displayed as part of the "Energy indicator" function.

The "Energy indicator" database only exists on the web server. And the web server itself has no data points subject to the "Energy indicator" function.

Temporary status

"---" is temporarily displayed for a data point's status in the "Value" column until the data point value is read and processed via the bus.

Energy indicator		Datapoint	Value		Green limit(s)
🍃	☑	Preselection	Auto	✎	Auto,Economy,Protection
🍃	☑	Economy cooling setpoint	34.0 °C	✎	34 °C
🍃	☑	Precomfort cooling setpoint	28.0 °C	✎	27 °C
		Comfort cooling setpoint	—	✎	—
		Comfort heating setpoint	—	✎	—
		Precomfort heating setpoint	—	✎	—
		Economy heating setpoint	—	✎	—
		Readjustment room unit	—	✎	—

Updates on the web page

A maximum of 4 "Energy indicators" per second are updated on a web page. The actual number depends on effective bus load. In the event of concurrent user access, bandwidth is distributed across all users.

Note

Device data point values are not transmitted if there is no bus supply or if the KNX bus is interrupted.

No comparison to "Green limits" then takes place and column "Value" contains "---" while column "Energy indicator" displays a "Grey leaf".

6.3.3 Estimated processing time

After starting the "Energy indicator" function, the "Plant" web page contains the following:

- Summary display "Energy indicator"; see Section 6.2.6.
- Number of monitored data points; see Section 6.2.4.
- "Estimated processing time"; see below.

Estimated processing time

The "Estimated processing time" is displayed in hours and minutes.

Energy indicator

Estimated processing time: 0 hrs 24 min

Energy indicator		Device name	Device address	Device type	Monitored datapoints
🌱	✔	FCU-THE	0.2.100	RDG100KN	3 of 3
🌱	✔	QAX913	0.2.200	QAX913-DE	101 of 101
🌱	✔	RMH760B-1	0.2.210	RMH760B-1	4 of 4
🌱	✔		0.2.211	QAW740	1 of 2
🌱	✔	RMU730B-1	0.2.220	RMU730B-1	7 of 7
	✔✖				116 of 117

Processing time at base load

When monitoring is active, the web server first reads each data point from the bus devices and then compares the values to its "Green limit".

Processing time at base load per data point is 12 seconds (longer if the bus carries a heavy load).

Updated display for "Energy indicator"

The web server can process up to 2500 "Energy indicator" data points. Thus, updating the "Energy indicator" (leaf color) display may take hours. Therefore:

- "Green leaf" (start-up mode)
  The "Green leaf" display does not necessarily reflect the current plant state prior to completion of the "Estimated processing time".
- The updated display of "Energy indicator" can be postponed by max. the "Estimated processing time".

Note

Note the restriction from the "updated "Energy indicator" display" also when navigating to other web pages.

6.3.4 Deactivating "Data point monitoring"

Deactivation

Monitoring "Energy indicator" data points is activated automatically following device list creation.

Thus, data point monitoring can only be deactivated as a first step.

- Deactivation for "Data point monitoring" requires "Administrator" access rights.

The checkbox in the "Energy indicator" column allows for deactivating monitoring of one or multiple data points e.g. for operational reasons.

✔   Data point monitoring active (default following commissioning)

✖   Data point monitoring deactivated

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"Plant" level	Selecting the checkbox deactivates the data points for the selected device (can be reactivated).
	Selecting the summary checkbox (green/red, bottom row) deactivates the data points for the plant (can be reactivated)).
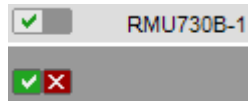
Note	A **confirmation message** is displayed when data point monitoring for a device or plant is deactivated; see below.
"Partial plants" level	Selecting the checkbox deactivates the data points for the selected partial plant (can be reactivated)).
	No confirmation message is displayed when data point monitoring for a partial plant is deactivated.
"Data points" level	Selecting the checkbox deactivates the selected data point (can be reactivated)).
	No confirmation message is displayed when data point monitoring is deactivated.
Confirmation message for "Monitoring off"	A confirmation message is displayed when data point monitoring for a device or plant is deactivated:
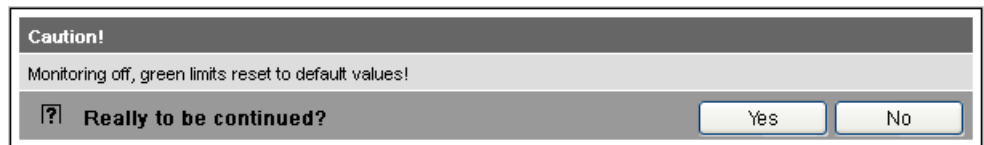
Green limits to default values!	Clicking [Yes] for message "Really to be continued?" to deactivate monitoring also resets "Green limits" (changed by the user) to their default values. Therefore:
	"Monitoring off" deactivates monitoring while, at the same time, setting the "Green limits" to the default values of device list creation.
Note	Contrary to the "Green limits", deactivation does **not** reset changed data point values to default values. Therefore:
	Following "Monitoring off" and reactivation, "Energy indicator" data points may no longer be within the green limits, as the "Green limits" reset to default values have different dependencies.

6.3.5 Activating "Data point monitoring"

Activation

Monitoring "Energy indicator" data points is activated automatically following device list creation.

Data point monitoring can thus be activated only following deactivation; see Section 6.3.4.

- Activation for "Data point monitoring" requires "Administrator" access rights.

The checkbox in the "Energy indicator" column allows for activating monitoring of one or multiple data points e.g. following temporary deactivation.

☒	Data point monitoring deactivated (by user)
☑	Data point monitoring activated

"Plant" level

Selecting the checkbox activates the data points for the selected device.

Selecting the summary checkbox (green/red, bottom row) activates the data points for the plant.

"Partial plants" level

Selecting the checkbox activates the data points for the selected partial plant.

Example

Monitoring is deactivated for partial plant "Room 2". As a result, all data points are deactivated.

Partial plant "Room 2" is deactivated.

Energy indicator		Partial plant name
🌿	☑	Apartment operating mode
🌿	☑	Room 1
	☒	Room 2

"Monitored data points" 0 of 8.

Monitored datapoints
1 of 1
8 of 8
0 of 8

Data points "Room 2" are deactivated.

Energy indicator		Datapoint
	☒	Preselection
	☒	Economy cooling setpoint
	☒	Precomfort cooling setpoint
	☒	Comfort cooling setpoint
	☒	Comfort heating setpoint
	☒	Precomfort heating setpoint
	☒	Economy heating setpoint
	☒	Readjustment room unit

Selecting the checkbox for partial plant "Room 2" activates it. As a result, all data points at the "Data points" level are also activated.

Partial plant "Room 2" is reactivated.

Energy indicator		Partial plant name
🌿	☑	Apartment operating mode
🌿	☑	Room 1
🌿	☑	Room 2

All data points of "Room 2" are reactivated.

Energy indicator		Datapoint
🌿	☑	Preselection
🌿	☑	Economy cooling setpoint
🌿	☑	Precomfort cooling setpoint
🌿	☑	Comfort cooling setpoint
🌿	☑	Comfort heating setpoint
🌿	☑	Precomfort heating setpoint
🌿	☑	Economy heating setpoint
🌿	☑	Readjustment room unit

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"Data points" level	Selecting the checkbox activates the selected data point.
Example	Starting point: All data points of partial plant "Room 2" are deactivated.

Activating just one data point (of partial plant "Room 2") also activates the partial plant.

A data point of partial plant "Room 2" is activated.	Partial plant "Room 2" is automatically activated.

Energy indicator		Datapoint
	☒	Preselection
	☒	Economy cooling setpoint
🌿	☑	**Precomfort cooling setpoint**
	☒	Comfort cooling setpoint
	☒	Comfort heating setpoint
	☒	Precomfort heating setpoint
	☒	Economy heating setpoint
	☒	Readjustment room unit

Energy indicator		Partial plant name
🌿	☑	Apartment operating mode
🌿	☑	Room 1
🌿	☑	**Room 2**
🌿	☑	Room 3
🌿	☑	Room 4
🌿	☑	Room 5
🌿	☑	Room 6
🌿	☑	Room 7

Note	Note that "Monitoring activated" at the "Partial plants" level does not mean that **all** subordinate data points are activated and monitored also. This also applies to "Monitoring activated" at the "Plant level".

6.4 Dialog boxes, data points, and "Green limits"

6.4.1 General dialog boxes

Open a dialog box

Clicking the red pen ✐ symbol opens the dialog box for the selected data point. This allows you to either change the data point value and/or the "Green limit".

Example: Dialog box
Comfort heating setpoint
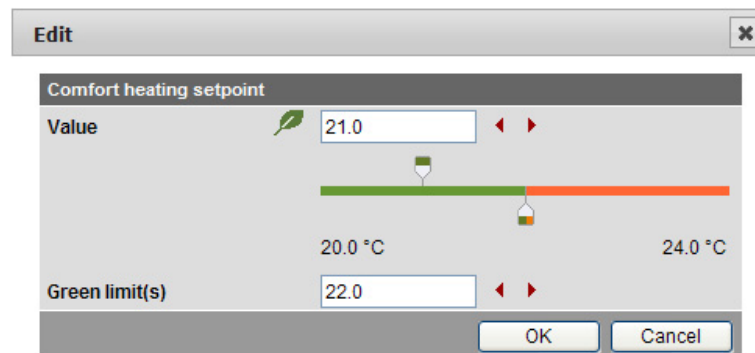
Contents

The dialog box contains the following information (example: Comfort heating setpoint):

- Name (data point)   Comfort heating setpoint
- Value (data point)   21.0
- "Energy indicator" as:
  "Green leaf"   Green tree leaf
  "Orange leaf"   Orange tree leaf
- "Green limit(s)"   22.0
- Setting range   20.0 °C to 24.0 °C for data point and "Green limit(s)"

Value
Data point value

The set data point value is displayed in the field above the setting range. There are 3 ways to change the data point value:

- Change the data point value in the entry field.
- Move the data point slider to the right or left.
- Arrows ◄ ► to adjust the value step by step.

The data point slider is green for as along as the data point value is within the green setting range (up to and including "Green limit"). If the data point value is moved to the orange range, the slider turns orange.

Setting range
Bars

The setting range for the data point value and its "Green limit" corresponds to the green/orange bar limited by value indications to the right and left of the bar.

Green limit(s)

Each data point monitored with the "Energy indicator" function has its own "Green limit". There are 3 ways to change the "Green limit":

- Change the value for the "Green limit(s)" in the entry field.
- Move the "Green limit(s)" slider to the right or left.
- Arrows ◄ ► to adjust the value step by step.

The "Green limit" slider is always "green/orange". If the slider is moved to the setting range limit value, the bar color disappears in the direction of the movement.

Notes	The default values defined for data point and "Green limit(s)" in the "Device description" are displayed in the corresponding entry field.
	After values are changed (by the user), default values can be regenerated only by deactivating "Data point monitoring" (with summary checkbox).

6.4.2 Dialog boxes with numeric data points

In numeric data points such as Comfort heating setpoint and Comfort cooling setpoint, the "Green limits" may depend on neighboring values. Therefore:

To achieve the desired setting range, the data points (heating and cooling setpoints) and their "Green limits" must be set in relation to the neighboring value.

Note	Dependency of neighboring values always depends on the data point values (setpoints), not the "Green limits".

Comfort heating setpoint

Note	Set the heating setpoint by 1 K lower (or max. the same) as the "Green limit" to display the "Energy indicator" = "Green leaf".

Comfort cooling setpoint

Note	Set the cooling setpoint by 1 K higher (or max. the same) as the "Green limit" to display the "Energy indicator" = "Green leaf".

Readjustment room unit

In the "Readjustment room unit" dialog box, the adjustable data point value corresponds to the adjustment range, symmetrical to the zero-point axis. This requires 2 "Green limits".
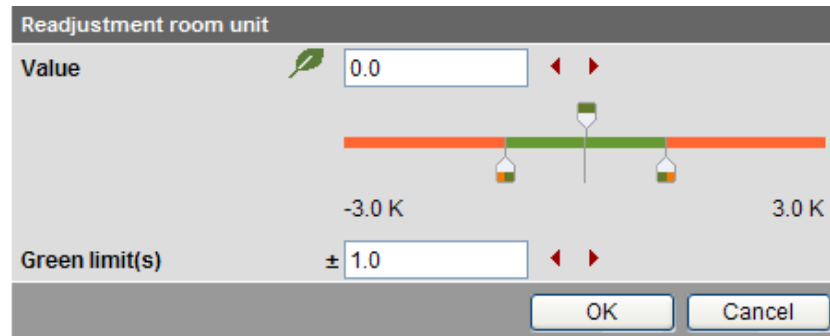
6.4.3 Dialog boxes with enumeration data points

A dialog box with enumeration values, at least one "Green limit" for a value to be monitored needs to be set.

Preselection operating mode
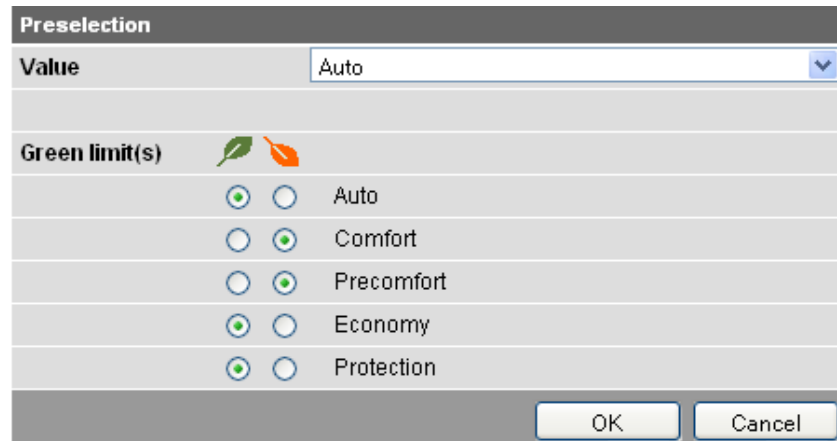
Note

The enumeration values are predefined as per the data point type. The "Green limit(s)" are set by clicking the selection boxes.

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6.4.4 Dialog boxes with variable unit data points

Synco 700 universal devices can be used either to control temperature, humidity, or other physical variables. The setpoint is thus set with the corresponding variable, e.g. in [°C], [% r.h.] or [Pa] .

Dialog boxes with variable unit data points contain a disabled checkbox ☐ to set the "Green limit". The entry field and the arrows ◄ ► are grayed and the "Green limit" slider is hidden. The entire setting range bar is green.

The checkbox ☑ can be enabled with "Administrator" access rights. The "Green limit" can be set and the "Value" (data point value) is compared to the "Green limit".

6.4.5 Dialog boxes for data points with manually set value

The device presets the value during normal operation. You can manually set the value as an exception.
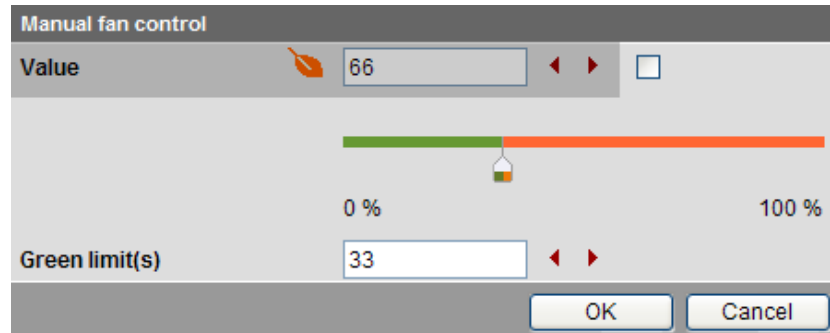
Dialog boxes for data points with a manually set value contain a checkbox. The value cannot be entered manually if the checkbox is cleared □. The entry field and the arrows ◄ ► are grayed and the "Value" slider is hidden.

The value can be set if the checkbox is selected ☑. The value is then also compared to the "Green limit".

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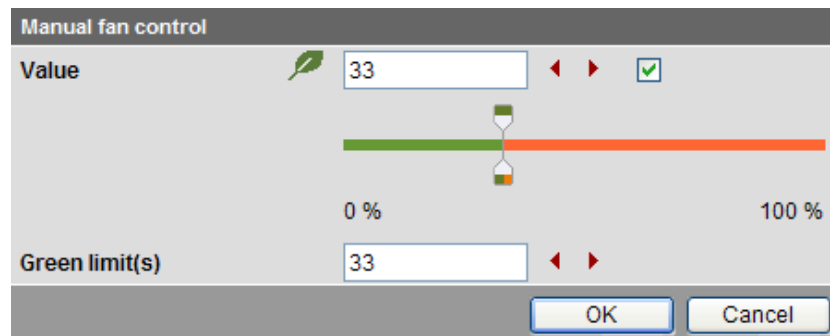
6.4.6 User groups "Service" and "End user"

The dialog boxes for the "Energy indicator" data points can be opened also in the "Service" and "End user" user groups.

However, contrary to the "Administrator" user groups, only data point values can be set, not "Green limits".

The entry fields for the "Green limits" are grayed, i.e. they are unavailable for editing. Other than that, the dialog boxes are the same as for the "Administrator" user group.

Comfort heating setpoint

Readjustment room unit

Preselection operating mode

Contrary to the "Administrator" user group, the dialog box "Preselection" contains grayed enumeration values (operating modes).

User groups "Service" and "End user" thus can only read, but not change the set "Green limits".

6.5 E-mail with "Energy indicator" for the plant
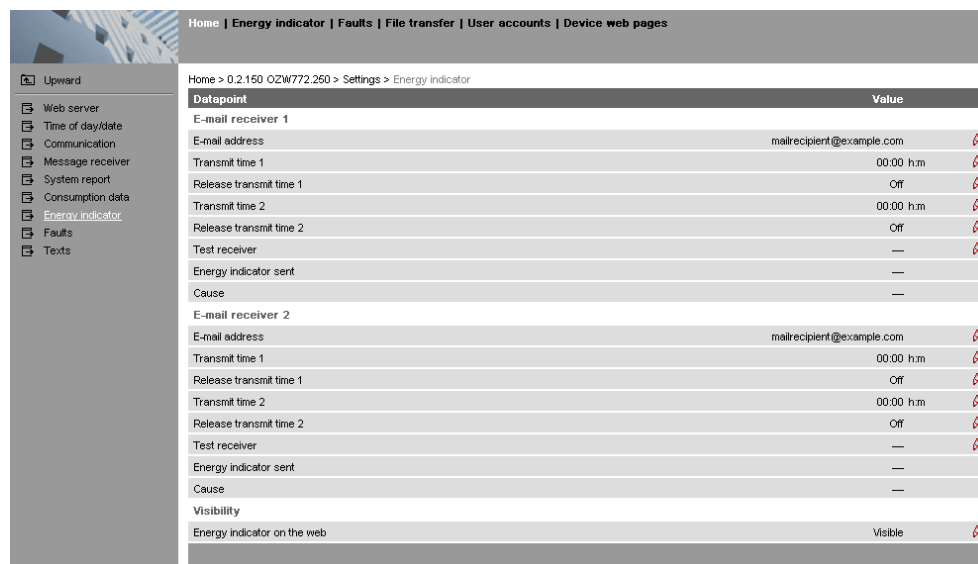
6.5.1 E-mail receiver configuration

Either **no** E-mail (no transmit time = Default) or one or two e-mails (Transmit time 1 and/or Transmit time 2) can be sent with the plant's "Energy indicator".

E-mail receiver configuration

E-mail receivers 1 and 2 can be configured with "Adiministrator" and "Service" access rights on the web server.

Path: OZW772.xx > Settings > Energy indicator

Notes

E-mail receivers 1 and 2 are configured individually (separate settings).

If Transmit time 1 and/or 2 are configured, the "Energy indicator" of the plant is sent as an e-mail **only** if at least one monitored data point exceeds its "Green limit".

Configuration of e-mail receivers 1 and 2 for the "Energy indicator" of the plant is not related to the e-mail receivers of fault messages (device failure etc.) and ECA (Energy Cost Allocation).

Test receiver

One e-mail each can be sent for test purposes to E-mail receiver 1 and 2.

- The test is triggered manually via data point "Test receiver = Trigger".
- Reception is confirmed in data point "Energy indicator transmitted = Yes".
- Data point "Reason" contains feedback on whether the e-mail was sent or which setting must be checked in the event of an error.

"Energy indicator transmitted" and "Reason"	The values of the data points "Energy indicator transmitted" and "Reason" are displayed after testing until:

- Another test is triggered manually.
- The next transmitted e-mail is transmitted as per Transmit time 1 and/or 2.
- The device supply is switched on and off.

Data point	Function
Test receiver	[---, trigger]
"Energy indicator transmitted"	[---, Yes, No]
Reason	[---, DNS setting, mail server address, mail server port number, e-mail address recipient, mail server authentication, network cable]

Note	Manual triggering for test purposes does not trigger a fault message.

Fault message e-mail	If an e-mail with "Energy indicator" of the plant is not transmitted without error, a fault message is triggered for the corresponding e-mail recipient.

Reset fault message	The fault message is reset if:

- The next transmitted e-mail is transmitted as per Transmit time 1 and/or 2.
- Manually triggered "Test receiver" is successful.

Note	The diagnostic options are identical to those of other e-mail recipients.

6.5.2 Mail inbox

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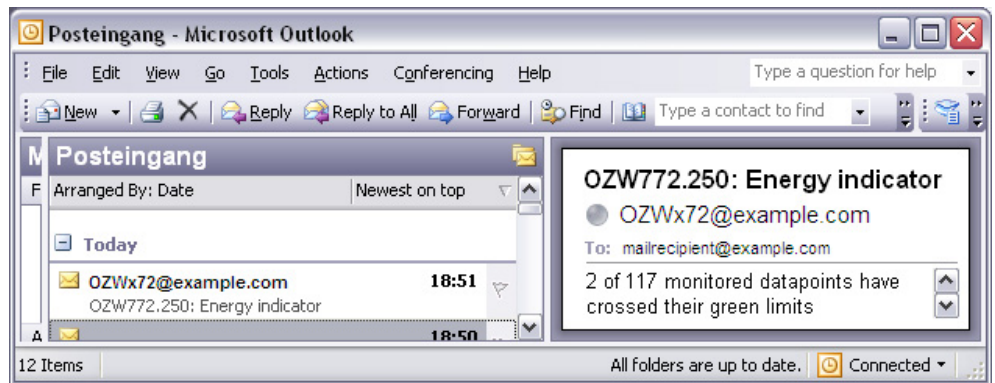
6.5.3　E-mail contents

E-mail Energy indicator contents

The contents of the e-mails comprises (see screenshot below):

- E-mail format　　Text only (see message field below).
- E-mail sender　　As per the settings (e.g. ozw772@siemens.com).
- E-mail recipient　As per the settings (e.g. first name.lastname@example.com).

Reference field

The Reference field comprises the following information:

- Plant name:　　OZW type or user-defined name (see examples).
- Energy indicator　Fixed text (e.g. "Energy indicator" translated into the language selected in the web server.

Examples

OZW772.250: Energy indicator

Lindenmatt 1: Energy indicator

Message field

The actual message is written in the language selected in the web server.

Example

2 of 117 monitored data points have crossed their Green limits.

10 lines follow this text where each line may contain a free text regardless of the language selected in the web server. (Signature line 1...10, with max. 49 characters per line).

E-mail "Energy indicator"
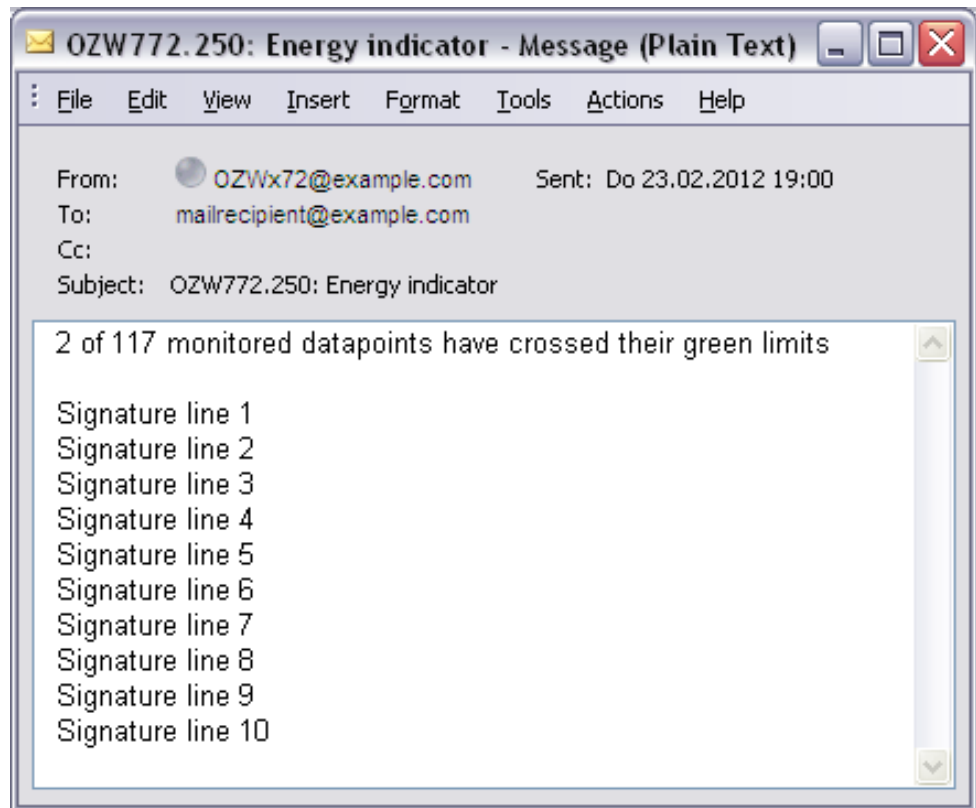
6.6 Exceptions

**Regenerate
bus devices**

The following applies to the "Energy indicator" function when regenerating bus devices:

- Existing data points and their "Green limits" as well as the set status for "Data point monitoring activated/deactivate" remain as is.
- Data points no longer available and their "Green limits" are deleted from the "Energy indicator" database.
- New data points and their "Green limits" are taken over into the "Energy indicator" database and data point monitoring is activated.

Bus devices

Hide

Hiding bus devices is the same as deactivating monitoring. Thus, "Energy indicators" are not calculated and displayed.

Home | Energy indicator | Faults | File transfer | User accounts | **Device web pages**

	Device name	▲ Device address	Device type	Serial no	State	Generated on
☐	OZW772.250	0.2.150	OZW772.250	00FD00FF0644	Generated	08.03.2012 07:55
☐	QAX913	0.2.200	QAX913-DE	00FD000763FE	Generated	08.03.2012 08:03
☐	RMH760B-1	0.2.210	RMH760B-1	00FD0007A091	Generated	08.03.2012 08:08
☐	RMU730B-1	0.2.220	RMU730B-1	00FD0007980B	Generated	08.03.2012 08:06
☐			Add	Delete	Generate	Hide

Generate again

Bus devices are shown again via "Generate".

Change configuration

Complete changes to the configuration via "Generate".

Replace

Complete bus device replacements via "Generate".

Delete

When deleting bus devices from the device list, the "Energy indicator" data is deleted also.

Special cases

Bus device failure

In the event of bus device failure, e.g. no communication via KNX bus, the "Grey leaf" is displayed. The "Estimated processing time" does not change.

Missing bus supply

If there is no bus supply, the data point values of the bus devices cannot be read and a "Grey leaf" is displayed. The "Estimated processing time" does not change.

System data update

Complete system data updates for all bus devices via "Generate". "Generate" does not lead to data loss.

Firmware update

In the event of a firmware update, the entire configuration is lost, i.e. parameter set and data for the "Energy indicator" function.

Read and write of the parameter set via ACS790 allow for retaining the configuration of the OZW772 (device list and "Device Descriptions").

Changed data of the "Energy indicator" function are lost. The "Energy indicator" function starts with the data point values and "Green limits" similar to creating a device list in the web server.

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Empty page

7 Communications

7.1 Remote operation

The web server can be operated from a PC with web browser on a local area network (LAN) or via the Internet. The following settings also apply to access via Smartphone and other apps via Web API.
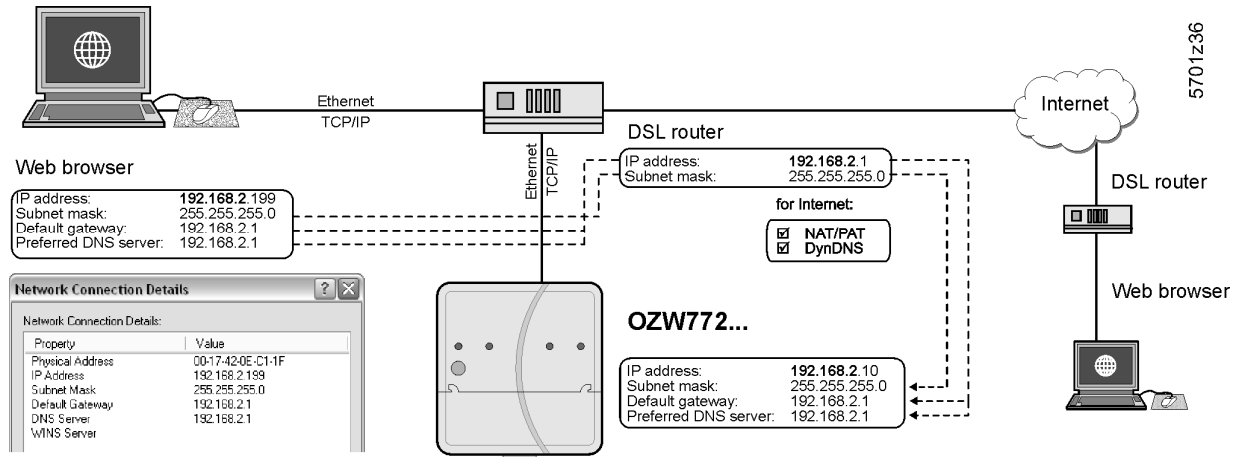
7.1.1 Local area network (LAN)

The PC and web server must be on the same IP subnet to communicate. You must first determine the subnet as well as the IP addresses.

Local area network with router
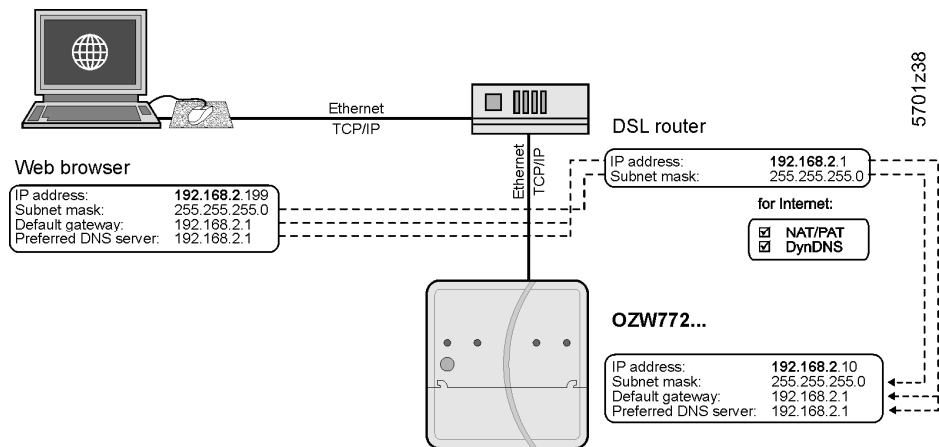
A router normally serves as the DHCP server if installed on a local area network (e.g. DSL router for Internet access). As such, it automatically assigns IP addresses to all participants that are DHCP clients.

If a PC is connected to the router via Ethernet, an IP address, subnet mask, standard gateway and DNS server are assigned automatically.

When delivered, the web server already contains an enabled DCHP client; as a result, users do not need to enter Ethernet settings.

The connection is checked every 3 minutes. It is recommended to assign the IP address of the web server in the router according to its MAC address.

If the router with DHCP server is not available, the web server uses the default IP address 192.168.2.10.

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For manual settings, use the PC to determine the required data.

Procedure:

1. Select *Start > Control Panel > Network connections > Local Area Connection.*
2. Select "Support" tab.
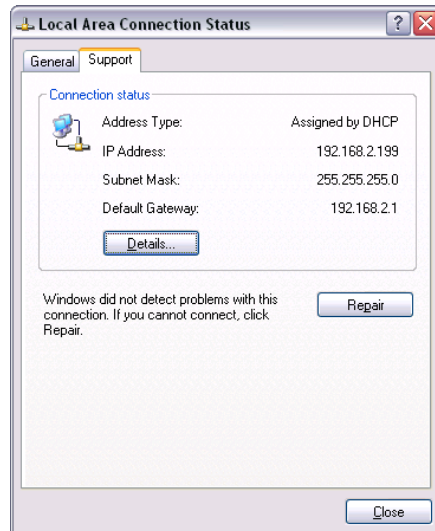
3. Click [Details...]
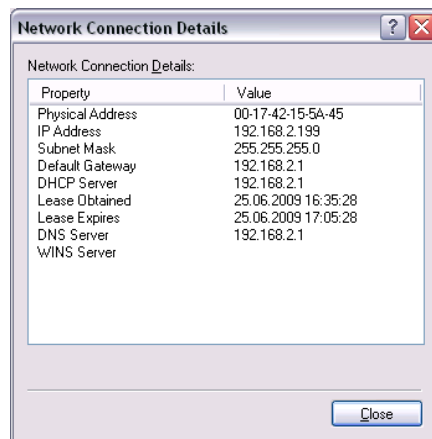
In the example, the PC is assigned the IP address 192.168.2.199 and subnet mask 255.255.255.0. The default gateway and DNS server have IP address 192.168.2.1.

You can use the data to set the web server:

- IP address: an unused address on the subnet. For example 192.168.2.10 is still available, if the PC uses 192.168.2.199 and the router uses 192.168.2.1.
- Subnet mask: 255.255.255.0
- Default gateway: 192.168.2.1
- Preferred DNS server: 192.168.2.1
- Alternate DNS server (empty).

Notes

- In the example, the subnet has an address of 192.168.2.x. Devices must have the same subnet address to communicate directly (i.e. without a router).
- The web server is delivered as preconfigured DHCP client with automatic reception of the network configuration.
  The web server's IP address can be set manually as an option.
- We recommend using IP addresses from the private range in the home network (see Section 8.3.1).

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Local area network without router

IP addresses and subnet masks must be entered manually if a local area network is installed with PC and web server, but without a router.
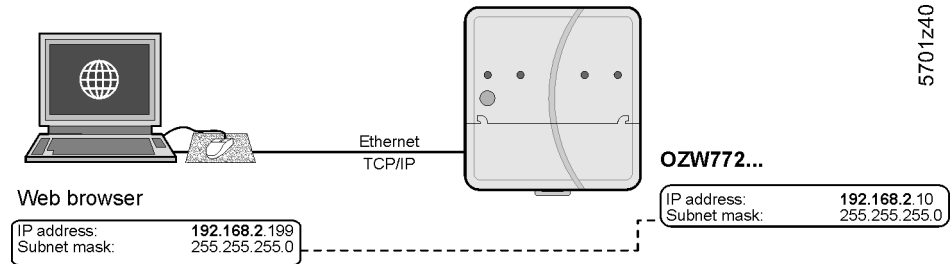
Web browser

| IP address: | **192.168.2**.199 |
| Subnet mask: | 255.255.255.0 |

OZW772...

| IP address: | **192.168.2**.10 |
| Subnet mask: | 255.255.255.0 |

On the PC, set as follows:

1. Select *Start > Control Panel > Network connections > Local Area Connection.*
2. Select the "General" tab.
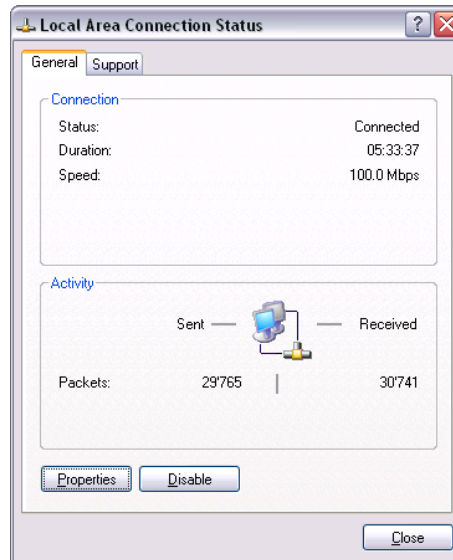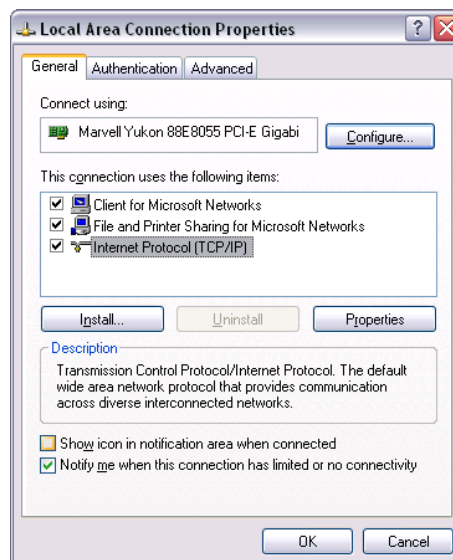
3. Click [Properties]

4. Select "Internet Protocol (TCP/IP)".
5. Click [Properties]
6. Select "Use the following IP address".

Continued on next page.

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7. Enter the IP address and subnet mask.
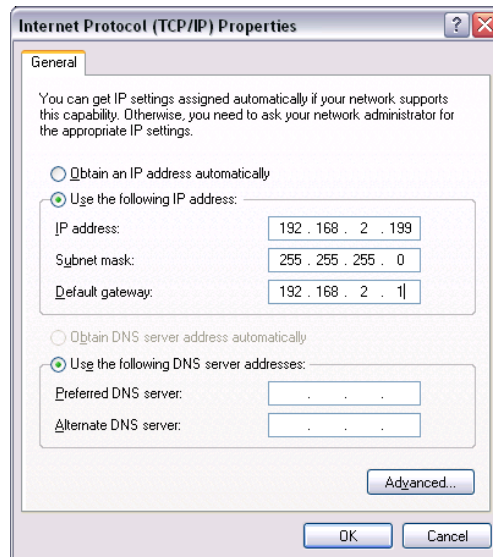
8. Click [OK]

In the example, the PC is assigned IP address 192.168.2.199 and subnet mask 255.255.255.0.

You can now set the web server:
- IP address: An unused address in subnet, e.g. 192.168.2.10
- Subnet mask: 255.255.255.0
- Default gateway (empty).
- Preferred DNS server (empty).
- Alternate DNS server (empty).

Notes ℹ
- In the example, the subnet has an address of 192.168.2.x. Devices must have the same subnet address to communicate directly (i.e. without a router).
- Settings for the standard gateway and DNS servers are irrelevant in a local area network without a router.
- We recommend using IP addresses from the private range in the home network (see Section 8.3.1).

7.1.2   Remote operation via the Internet

Internet connection

An appropriate connection is required (e.g. DSL router) for remote operation via Internet. Setting up Internet access is not described here.

Notes ℹ
- The examples here were created using the Siemens Gigaset SX763 router (see Section 8.3.5). Workflow, terms and functionality may differ when using other products.
- The router must support NAT/PAT, DynDNS and DHCP.

⚠
- The web server supports HTTPS (Hyper Text Transfer Protocol Secure) as an option. Web operating pages are transmitted secured and encrypted.

Local area network (LAN)

IP address, subnet mask and DHCP are set up under Local Network in addition to other settings:

- The IP address router is fixed.
- The subnet mask defines the size of the subnet.
- The router assigns the DHCP clients (e.g. the PC on the local area network) an IP address from a selecting setting range ("First issued IP address" through "Last issued IP address") if set as DHCP server.
- The "Standard gateway" is typically the router's IP address as well.
- The "Lease time" defines how long a client maintains the IP address received from the DHCP server (the DHCP server regularly renews the client IP addresses).

In the example, the router has a set IP address of 192.168.2.1 and receives subnet mask 255.255.255.0. As a DHCP server, it renews the IP addresses of the DHCP clients every 30 (in the above example) minutes. DHCP clients are assigned addresses from a range of 192.168.2.100 through 192.168.2.199. The router is the gateway between LAN and Internet.

Firewall

We recommend enabling the firewall to protect the local area network:

- Firewall: On

Gigaset   SX763 WLAN dsl

| Home | Basic Setup Wizard | Security Setup Wizard | Advanced Settings | Status | Log Off |

Internet
Internet Connection
Firewall
   Attack Detection
   Access Control
Address Translation (NAT)
Dynamic DNS
   Routing
Local Network
Wireless Network
Telephony
USB
Administration

Firewall

Firewall: ⦿ On   ○ Off

[OK]   [Cancel]
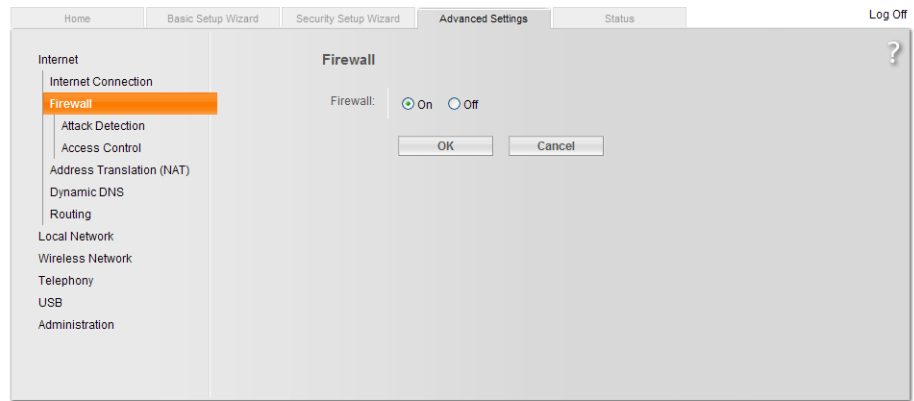
SIEMENS

Address translation (NAT)

Activate NAT to ensure that the web server can be reached via the Internet:

- NAT: On

Gigaset   SX763 WLAN dsl

| Home | Basic Setup Wizard | Security Setup Wizard | Advanced Settings | Status | Log Off |

Internet
Internet Connection
Firewall
Address Translation (NAT)
   Port Forwarding
   Exposed Host
Dynamic DNS
   Routing
Local Network
Wireless Network
Telephony
USB
Administration

Address Translation (NAT)

Network address translation: ⦿ On   ○ Off

[OK]   [Cancel]
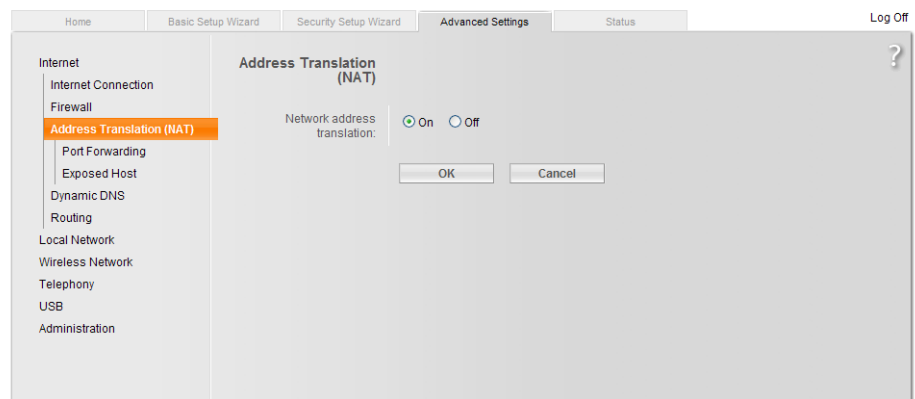
SIEMENS

Port forwarding (PAT)

- Port Forwarding is used to determine which local IP addresses/ports the router translates to which public IP addresses/ports.
- Web operating pages are preset on the web server via Port 80 (HTTP) or port 443 (HTTPS). As a result, queries from the Internet must be translated using the public IP address/port to the private IP address/port 80 or 443 for the web server.
- When using PC software ACS790 for remote operation, you must also change Port 21 (FTP) and Port 50005 (ACS private) from the public to a private IP address.

Notes   ⓘ

- The port IP address is appended to the web browser address line: <IP address>:<Port>, e.g. 122.104.2.10:8080.
- The web browser always uses port 80 unless another port is entered. As a result, the information in the address line for the web browser is always: <IP address>:80 and <IP address>, or 122.104.2.10:80 and 122.104.2.10.
- Ports not equal to 80 are considered more robust against hackers.
- We recommend using Port Forwarding from the private range for ports (see Section 8.3.1).
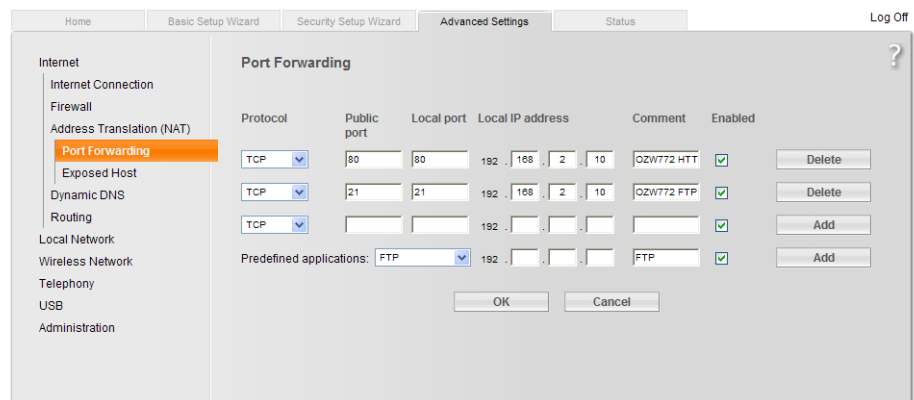
In the example, queries from the Internet to a public IP address (Internet connection)/port 80 are forwarded to local IP address 192.168.2.10 (web server)/Port 80. Port 21 is also enabled for file transfer.

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DynDNS
The web server can communicate directly with the fixed IP address or domain if a fixed IP address or domain (e.g. www.myname.com) is available for the Internet connection.

Dynamic IP address
For dynamic IP addresses, the Internet provides free-of-charge DynDNS services that connect user-defined domain names to dynamic IP addresses. The router must support DynDNS to use this function.

Registration
To use the DynDNS service, a new account must be set up at the respective provider.

Report dynamic address
The router must inform the service of changes to the dynamic IP address for the web server to communicate via the DynDNS service setup. Set up the router DynDNS as follows:

- Dynamic DNS: On
- Service provider: Service provider.
- Domain name   Domain = Host name (own name).
- User name: User name for the DynDNS account (e.g. MyUserAccount).
- Password: Password for DynDNS account.

Encrypted connection (HTTPS)
HTTPS encryption via port 443 is also supported. The required certificate is not accredited. The self-signed certificate from Siemens is valid for 20 years and is installed on the web server. The certificate must be installed on the web browser for encrypted communications.

Note
One own certificate must be installed for each web server.

Principal workflow
The web browser security warning is displayed the first time you connect via the http**s** address. The page continues to load contrary to the web browser recommendation.
The certificate must now be installed: A context-sensitive installation routine is available depending on web browser used.

Note
The warning "Certificate error" remains for individual web browsers even after the certificate is successfully installed. Transmission is nevertheless secure.

7.2 Messages via e-mail

E-mail

SMTP is used to send fault messages, system reports and consumption data via e-mail. The mail server (SMTP server, outgoing mail server) must be known to the web server to send e-mails to the recipients (see Section 2.5.2, E-mail).
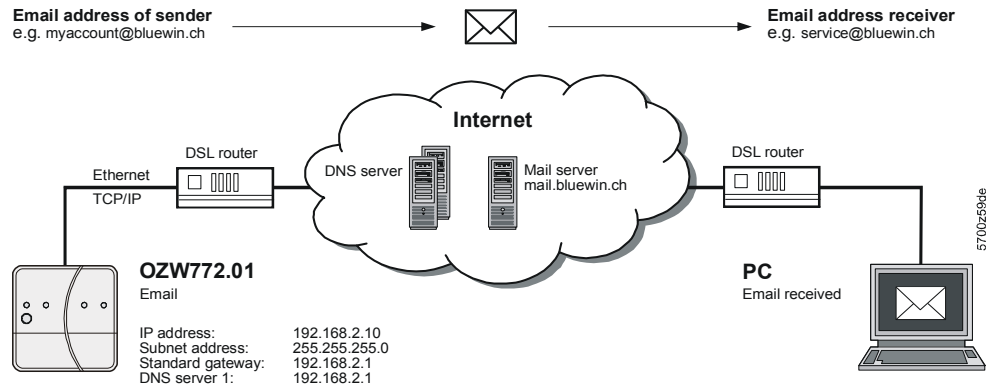
Prerequisites for sending e-mails via Internet:

- An e-mail account is available and set up
  (see Section 8.3.2, Free e-mail account providers).
- Internet access is set up for the web server (see Section 7.1.2).
- The settings for "E-mail", "Message receiver 1…4", "System report"
  or "Consumption data > Receiver" are made (see Section 2.5.2).

Example of an e-mail
(fault message)

Example of an e-mail
(consumption data)

E-mail outline depends on message type and content.
In the listing below:

- User settings are in bold.
- The path for user settings starts each time with:
  Home > 0.2.252 OZW772.16 > Settings > …
- Set components of the e-mail are in italics.

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Web server fault

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Message receiver > Message receiver 1…4: **E-mail address**
Subject: **OZW772.16***: Message central unit*	…> Texts: **Name:** Message type
Device: **OZW772.16** (0.2.252) Message: No bus power supply *Fault number:* 5000 Fault priority: Urgent Occurred at: 07-Oct-2010 at 3:15 pm **myhome.dyndns.info**	…> Texts: **Name** (Device address) Fault text Fault code Fault priority Occurred at …> Communication > E-mail: **Signature line 1…10**

Fault KNX device

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Message receiver > Message receiver 1…4: **E-mail address**
Subject: **OZW772.16***: Message central unit*	…> Texts: **Name**: Message type
Device: QAX913 (0.2.250) *Message:* No bus power supply *Fault number:* 5002 *Fault priority: Not urgent* Occurred at: 07-Oct-2010 at 3:23 pm **myhome.dyndns.info**	Name KNX device (device address) Fault text Fault code Fault priority Occurred at …> Communication > E-mail: **Signature line 1…10**

Fault eliminated

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Message receiver > Message receiver 1…4: **E-mail address**
Subject: **OZW772.16***: Message central unit*	…> Texts: **Plant name:** Message type
Device: **OZW772.16** (0.2.252) or QAX913 (0.2.250) *Message*: No fault *Fault number:* 00 *Fault priority*: Not urgent Occurred at: 07-Oct-2010 at 3:23 pm **myhome.dyndns.info**	…> Texts: **Plant name** (device address) or Name KNX device (device address) Fault text Fault code Fault priority Occurred at …> Communication > E-mail: **Signature line 1...10**

System report with fault

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Message receiver > Message receiver 1…4: **E-mail address**
Subject: **OZW772.16***: System report central unit*	> Texts: **Plant name:** Message type
Status: N. OK *Fault 1:* *Device:* QAX913 (0.2.250) *Message:* *No bus power supply, 5002 Occurred at: 07-Oct-2010 at 3:42 pm **myhome.dyndns.info**	Status Fault 1: Name KNX device (device address) Fault text, fault code Occurred at …> Communication > E-mail: **Signature line 1...10**

System report
without fault

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Message receiver > Message receiver 1…4: **E-mail address**
Subject: **OZW772.16***: System report central unit*	…> Texts: **Plant name:** Message type
Status: OK **myhome.dyndns.info**	Status …> Communication > E-mail: **Signature line 1...10**

Consumption data

Example of an e-mail	Data point, information
From: **myhome@bluewin.ch**	…> Communication > E-mail: **E-mail address sender**
To: **service@siemens.com**	…> Consumption data > Message receiver > E-mail receiver 1…2 > **E-mail address**
Subject: **OZW772.16***: Consumption data*	…> Texts: **Plant name:** Message type
Plants:	.xml or .csv file
myhome.dyndns.info	…> Communication > E-mail: **Signature line 1...10**

MS Outlook

You can provide the required information as follows for an e-mail account under MS Outlook:

1. Start Outlook.

2. Go to Tools / E-mail accounts…

3. ⊙ View or change existing e-mail accounts.

4. Click [Next >]

5. Select the desired account.

6. Click [Change]
   The e-mail account dialog box is displayed with the data on the e-mail account.

7. Click [More settings…]
   If required, authentication is displayed here.

8. Click [Cancel] to exit the account settings.

Notes

- A list of providers that send e-mails at no charge is available in Section 8.3.2.
- The web server supports HTTPS (Hyper Text Transfer Protocol Secure). E-mails are transmitted unsecured and unencrypted.
- Web server supports SSL (Secure Sockets Layer, network protocol for the secure transfer of data) and TSL (Transport Layer Security, encryption protocol for data transmissions over the Internet; a further development of SSL).
- "Authentication mail server = Yes" checks unsecured, unencrypted information in the data items "User name" and "Password" from the mail server for each e-mail transmission.
- The mail server can also be installed on the local area network.

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8 Appendix

8.1 General notes

Text entry

Names of data points and message text, e.g. of faults, cannot contain special characters or umlauts. Valid characters:

- a…z and A…Z
- 0…9
- ! „ $ % & , ( ) * + ` - . / : ; < = > ? "Space

Note   ℹ️   When sent, **invalid characters** will be converted to "**?**" (question marks).

8.2 Diagnostics

8.2.1 Web server fault codes

Fault codes

Fault code	Web server fault	Type of fault
General		
0	No fault	No acknowledgement
1	Plant ok	No acknowledgement
2	Fault	No acknowledgement
3	No urgent fault	No acknowledgement
Communications		
5000	No bus power supply	No acknowledgement
5001	System time failure (Web server as slave)	No acknowledgement
5002	>1 clock time master	With acknowledgement
5003	Invalid time of day (Web server time not or incorrectly entered)	No acknowledgement
5012	Device failure (Bus) *	No acknowledgement
5023	Message receiver 1 not reached	No acknowledgement
5024	Message receiver 2 not reached	No acknowledgement
5025	Message receiver 3 not reached	No acknowledgement
5026	Message receiver 4 not reached	No acknowledgement
System configuration errors		
6001	>1 identical device address (Devices have same address)	With acknowledgement

* Device failure (bus) is a fault generated by the web server for a failed device. As result, the device failure (bus) is assigned to "System faults", where as all other faults generated by the web server are assigned as "Local faults".

8.2.2 Windows Commander

Windows Commander

You can use the Windows Commander to check availability of IP addresses, domains or servers:

1. Open Windows commander: *Start > Run*.

2. Enter "cmd".
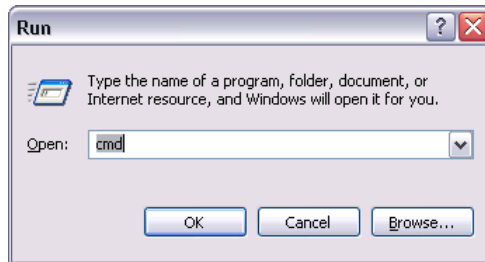
3. Click [OK]

4. Enter the desired command in the command line C:\>:

Command	Result, application
ping <IP address> or <domain>	Response times to the query: Checks whether an IP address can be reached in the network.
Tracet <IP address> or <domain>	Progress of the IP address implementation to the goal: Check whether DNS and mail servers can be reached.
nslookup <IP address> or <domain>	Translates an IP address to the domain name and vice versa: Look up domain names.

8.3 Communications

8.3.1 Internet protocol

Private networks

The following IP addresses are reserved for private networks:

- Class A: 10.0.0.0–10.255.255.255.
- Class B: 172.16.0.0–172.31.255.255.
- Class C: 192.168.0.0–192.168.255.255 (typical for home networks).

Ports

There are predefined public ports and ranges for private ports:

Public

HTTP	80
HTTPS	443
FTP	21
SMTP	25

Private

Range: 49152 to 65535

8.3.2 Free e-mail account providers

You can use free-of-charge e-mail accounts to send e-mails. Note that some ISPs work with encryption or can be accessed and used only via the web server's DSL connection.

Note ℹ The following list is not conclusive, ISPs are subject to change.

Free e-mail account providers	Address mail server	Port mail server	Authentification	Restriction
blueVARIA.de	mail.bluevaria.de	25	Yes	
GMX	mail.gmx.net	25	Yes	
Google Mail	smtp.gmail.com	587	Yes	
Hotmail	smtp.live.com	587	Yes	
WEB.DE	smtp.web.de	25	Yes	
Yahoo! Mail	smtp.mail.yahoo.com	25	Yes	
Online service providers				
Alice DSL	smtp.alice-dsl.net	25	Yes	
AOL	smtp.de.aol.com	587	Yes	
AOL	smtp.aim.com	587	Yes	
Arcor	mail.arcor.de	25	Yes	
Chello	mgate.chello.at	25	Yes	With Chello DSL connection only
CompuServe	smtp.compuserve.de	25	Yes	
Freenet	mx.freenet.de	25	Yes	
NetCologne	smtp.netcologne.de	25	Yes	With NetCologne DSL connection only
T-Online	mailto.t-online.de	25	Yes	With T-Online DSL connection only
T-Online	smtpmail.t-online.de	25	Yes	
Tiscali	smtp.tiscali.de	25	Yes	With Tiscali DSL connection only

Additional information on free e-mail providers:

- http://www.patshaping.de/hilfen_ta/pop3_smtp.htm
- http://www.iopus.com/guides/bestpopsmtp.htm

8.3.3   Install RNDIS driver

RNDIS driver

The PC requires a USB RNDIS driver for the connection between the PC and the web server. Windows hardware recognition recognizes the web server when the USB cable is plugged into the USB cable. You can start the Add Hardware Wizard if no RNDIS driver is installed.
The driver is installed in the background with an Internet connection as long as the online update service is enabled by the network administrator. You can install the driver manually without an Internet connection.

Note   ℹ   The operating system must be equipped with the latest updates.

Automatic installation

Procedure:

1.   ⊙ Select "Search for and install the hardware automatically (Recommended)".

2.   Click [Next >]
     The software is installed.

German screenshot [Weiter]

3. Confirm hardware installation:
    Click [Continue installation]

Hardwareinstallation

⚠ Die Software, die für diese Hardware installiert wird:

SBT USB Remote NDIS Network Device

hat den Windows-Logo-Test nicht bestanden, der die Kompatibilität mit
Windows XP überprüft. (Warum ist dieser Test wichtig?)

**Das Fortsetzen der Installation dieser Software kann die korrekte
Funktion des Systems direkt oder in Zukunft beeinträchtigen.
Microsoft empfiehlt strengstens, die Installation jetzt abzubrechen
und sich mit dem Hardwarehersteller für Software, die den
Windows-Logo-Test bestanden hat, in Verbindung zu setzen.**

[Installation fortsetzen]   [Installation abbrechen]

German screenshot [Installation fortsetzen]

4. Wait until installation is complete and click [Finish]

Found New Hardware Wizard

**Completing the Found New
Hardware Wizard**

The wizard has finished installing the software for:

SBT USB Remote NDIS Network Device

Click Finish to close the wizard.

[< Back]   [Finish]   [Cancel]
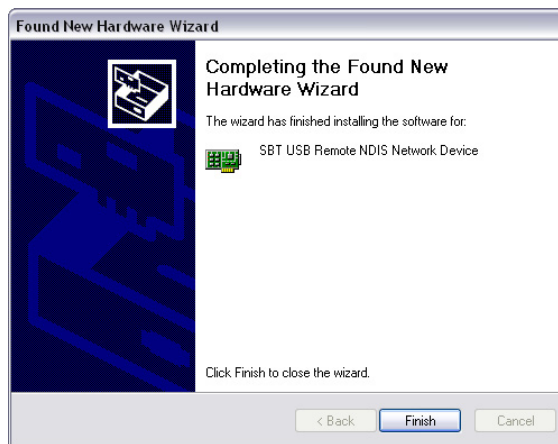
Result

The RNDIS driver is now installed. The PC can communicate with the web server via USB.

Manual installation

Procedure:

1. ⊙ Select "Install the hardware that I manually select from a list (Advanced)".

Hardwareupdate-Assistent

Willkommen

Mit diesem Assistenten können Sie Software für die folgende
Hardwarekomponente installieren:

SBT USB Remote NDIS Network Device #5

**Falls die Hardwarekomponente mit einer CD
oder Diskette geliefert wurde, legen Sie diese
jetzt ein.**

Wie möchten Sie vorgehen?

○ Software automatisch installieren (empfohlen)
⊙ Software von einer Liste oder bestimmten Quelle
installieren (für fortgeschrittene Benutzer)

Klicken Sie auf "Weiter", um den Vorgang fortzusetzen.

[< Zurück]   [Weiter >]   [Abbrechen]

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2. Enter the source to install the driver.
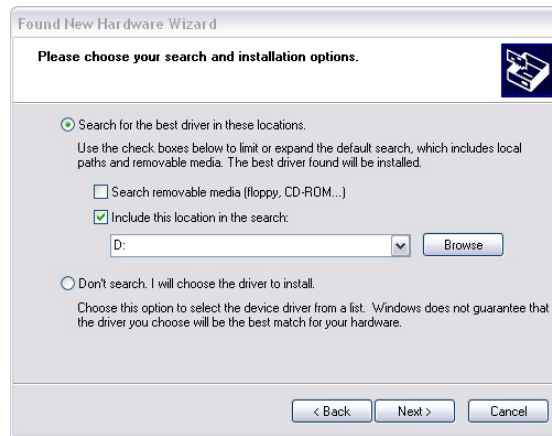
3. Click [Next >]

4. Select the folder with the RNDIS driver.

5. Click [OK]

6. Confirm hardware installation:
Click [Continue installation]
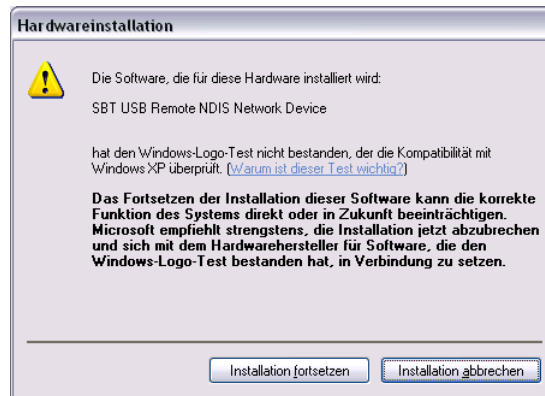
German screenshot [Installation fortsetzen]

7. Wait until installation is complete and click [Finish]
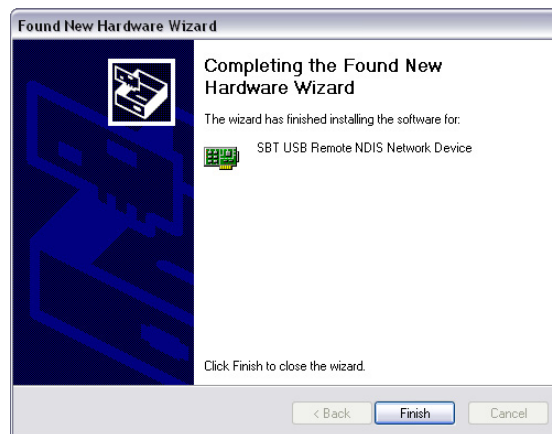
Result   The RNDIS driver is now installed. The PC can communicate with the
                  web server via USB.

Notes   ⓘ

- The RNDIS driver is supplied on the web server at http://<IP address>/drivers/
  You can copy the file "SBT_RNDIS.zip" to your PC via the Ethernet connection (see Section 2.6.1) and unzip it.
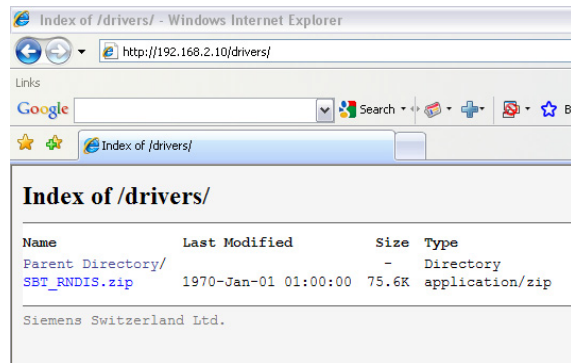
- The RNDIS driver is installed as part of the ACS790 Siemens software installation.

8.3.4 Alternative network configuration

Alternative configuration

We recommend setting up IP settings for commissioning as an alternative configuration if a PC, connected to a network, is temporarily used to commission the web server and the local area network.

On the PC, set as follows:

1. Select *Start > Control Panel > Network connections > Local Area Connection*.
2. Select the "General" tab.
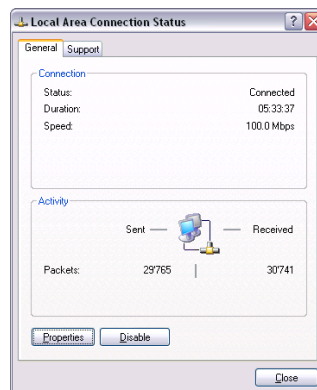
3. Click [Properties]
4. Select "Internet Protocol (TCP/IP)".

Continued on next page.

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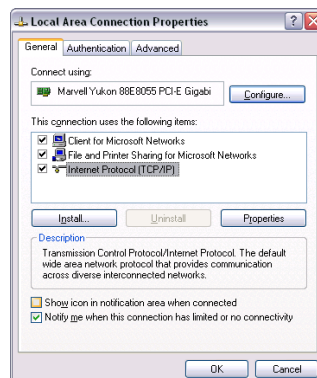
5.   Click [Properties]
6.   Select "Alternate Configuration" tab.
7.   Enter IP address, subnet mark and operational standard gateway as well as DNS server.

Internet Protocol (TCP/IP) Properties	? X

General Alternate Configuration

If this computer is used on more than one network, enter the alternate IP settings below.

○ Automatic private IP address
◉ User configured

IP address:	192 . 168 . 2 . 199
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 2 . 1
Preferred DNS server:	192 . 168 . 2 . 1
Alternate DNS server:	. . .
Preferred WINS server:	. . .
Alternate WINS server:	. . .

[OK] [Cancel]

Result   The PC assumes the configuration with these settings as soon as it is no longer integrated in the standard network.

8.3.5 Siemens routers

We recommend the **Gigaset SX763 WLAN dsl** routed from Siemens to operate an internal network with DSL connection. This router supports all requirements for trouble-free operation of web server.

Performance features
- 1 connection for analog, leased line network.
- 2 internal connections for analog devices (phone, fax, answering machines).
- Integrated phone system for up to 6 extensions (analog, LAN, WLAN).
- 4 Ethernet ports to network PC or other LAN.
- WLAN (IEEE 802.11b/g) with variable reduction of WLAN transmission.
- 6 VoIP accounts can be configured.
- USB 2.0 host connection for printer or external storage media.
- Ready for connection to home entertainment services.
- Remote management.
- Integrated SIP proxy.
- Security and firewall functionality.
- Easy installation and setup.

**Technical data
Protocols / Service**

TCP/IP, UDP, DHCP server/client, HTTP/ HTTPS, DNS, RIPv1/v2, Telnet, UPnP, IGMP, NTP, port forwarding, DynDNS, preconfigured gateways, backup, NAT, URL/port filter, DoS blocking, packet inspection, firewall, WPA2, WPA, 64/128-bit WEP encryption, SSID broadcast can be deactivated, Mac filter.

High-speed WLAN gateway for triple play services: Supports Internet, home entertainment, leased line and VoIP.

**DoS attack
Denial of Service**

When buying routers, make sure they can defend against DoS attacks (function is available on most commercially available routers).

A DoS attack is a special type of hacker attack on computers and networks with connection to the Internet.

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8.4   Glossary of Ethernet and Internet terms

ADSL	Upstream and downstream channel transport data at different rates, i.e. asymmetrically via a two-wire line (DLS, copper phone line) on a broadband network.
	Very little data is sent upstream, i.e. to the server, when surfing. The requested data, however, are sent at high speed downstream to the requesting computer. You can call or e.g. send faxes while transmitting data.
	The Internet Service Provider ISP provides the ADSL connection. You need a DSL modem for this type of connection.
Asymmetrical Digital Subscriber Line	*see ADSL.*
Bit rate	The bit rate describes the transmission speed or rate in bits per second (bps).
Broadcast	Data sent out to all participants on the network.
Client	A client is a network device unable to execute certain services and thus requests those services from the server. The server provides the service and sends a reply.
Default gateway	Gateway that is selected when one IP address is outside its own subnet and therefore the standard gateway is unknown.
Denial of Service	*see DoS attack.*
DHCP	The new Dynamic Host Configuration Protocol allows for dynamic allocation of a network configuration to clients (PC, web server) via a server (router).
Digital Subscriber Line	*see DSL.*
DNS	The DNS allows for assigning IP addresses to names (that are easier to remember than 32-bit IP addresses). A DNS server must manage this information for each LAN with Internet connection. When you select an Internet page, the web browser accesses the IP address for that site assigned by the DNS server to open a connection.
	On the Internet, domain names are assigned to IP addresses as per a hierarchical system. A local PC only knows the address of the local DNS server. This server, in turn, knows the addresses of all PCs on the local network as well as that of the higher DNS servers that, in turn, know the addresses of the next higher DNS servers.
Domain Name System	*see DNS*
Domain name	The domain name is the web server designation on the Internet. The DNS server assigns an IP address to the domain name.
DoS attack	A DoS attack (denial of service) is a special type of hacker attack on computers and networks connected to the Internet. The DoS attack aims at disabling computers and networks to prevent network resources from being provided and services from being executed.

DSL	DSL is a type of data transmission allowing for 1.5 Mbps access to the Internet on standard copper phone lines. The Internet Service Provider ISP provides the DSL connection. You need a DSL modem for this type of connection.
DSL router	The DSL router has several functions. It connects the Ethernet network (LAN) and the internal network devices to the Internet. The router then requests the IP addresses for the internal network devices from the DNS server. Port forwarding (NAT, PAT) is also configured in the router. In addition, service "DynDNS", which automatically is updated after a change of the DynDNS server, is activated in the router.
Dynamic DNS	*see DynDNS.*
Dynamic Host Configuration Protocol	*see DHCP.*
Dynamic IP address	A dynamic IP address is assigned automatically via DHCP to a network device. As a result, the IP address for a network device differs every time the device logs in or at periodic intervals.
	The ISP assigns dynamic IP addresses to network devices that are not online continuously, i.e. integrated in the network. Dynamic IP addresses are reassigned to other devices, as the number of addresses is limited. Web server (permanently online) does not use a dynamic IP address.
DynDNS	The DNS server assigns domain names and IP addresses. Dynamic DNS (DynDNS) is needed for dynamic IP addressing. It allows deployment of a network device with dynamic IP address on the Internet.
	DynDNS ensures that a service is always available on the Internet under the same domain name regardless of the current IP address.
	A domain name can be registered with a DynDNS service.
Ethernet	Ethernet is a network technology for local networks (LAN). Ethernet operates at a transmission rate of 10 or 100 Mbps and has a maximum range of 100 meters between two network components.
Firewall	A firewall protects networks against unauthorized access from the outside. Firewalls are hardware and/or software measures designed to control data exchange between the private network to be protected and an unsecured network (e.g. the Internet).
Gateway	A gateway is a device connecting networks of different architecture (addressing, protocols, interfaces, etc.). Although not entirely correct, the term often is used interchangeably with router.
HTTP proxy	A proxy is a server used by network devices for Internet traffic. All requests are sent via the proxy server.
HTTPS	The web server supports HTTPS (Hyper Text Transfer Protocol Secure).
Hub	A hub in a star-topology network connects various network devices by receiving all data from one device and forwarding it to other devices.

Hyper Text Transfer Protocol Secure	*see HTTPS.*
Internet	The Internet is a data network with millions of members. A number of protocols are used to exchange data, summarized under the term TCP/IP.
	All devices connected to the Internet can be identified via IP address. The DNS server assigns domain names to IP addresses.
Internet Protocol	*see IP.*
Internet Service Provider	*see ISP.*
IP	The IP protocol is a TCP/IP protocol. It is responsible for addressing devices on a network based on IP addresses and transmitting data packages from sender to recipient. The IP protocol determines the order and network connection used to send data packages (routing).
	The transmission control protocol TCP reassembles the data packages in the right order at the recipient.
IP address	The IP address is a unique address of a network device on the network based on TCP/IP protocols. The IP address consists of four sections, separated by a dot (192.168.1.1).
	The IP address comprises the **network number and the computer number** (number of the network device). Depending on the subnet mask, one, two or three portions form the network or computer number.
	IP addresses can be assigned automatically or manually. On the Internet, domain names are used rather than IP addresses. The DNS server assigns domain names to IP addresses.
IP address pool	IP address pool defined at the router (IP address range) the DHCP server can be used to assign dynamic IP addresses.
LAN	A local network (size: large building, building sites) is a number of interconnected network devices. In LANs, data is exchanged and resources are used jointly. A LAN can be connected to other networks such as WAN or Internet.
Local Area Network	*see LAN.*
MAC address	The MAC address allows for worldwide identification of a network adapter (network card). It consist of hexadecimal numbers, grouped in six portions at 2x4 bit each, thus 48 bit, e.g. 00-55-96-5D-00-2C. The MAC address is assigned by the network adapter manufacturer and cannot be changed.
Mbps	Million bits per second indicates the transmission rate in a network.
Media Access Control	*see MAC address.*

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NAT	NAT is a method to translate IP addresses (private IP addresses) in a network into one or several public IP addresses on the Internet. NAT allows us to use several network devices in a LAN together with a public IP address of a router for Internet access.
	The network devices of the local network are masked by the IP address (router) registered on the Internet. Thanks to this security function, NAT often is used as a part of a network's firewall. Web server is accessible from a public network thanks to the correct NAT table definition; see also port forwarding.
Network	A network (LAN, WAN) is a linked group of devices connected via various lines or radio sharing common resources such as data or peripheral devices.
Network adapter	Hardware to connect network components to a local area network (LAN). Connection can be wired or wireless.
Network Address Translation	*See NAT.*
Network configuration	All settings an IP-based device requires to work on a network: IP address, subnet mask, standard gateway, preferred DNS server, and alternate DNS server.
PAT	PAT or NPAT (Network and Port Address Translation) translates all private network addresses into one public (dynamic) IP address. In this process, port numbers are exchanged in addition to addresses when there is a connection. As a result, an entire private network only requires one single registered public IP address.
Plant room	The ISP provides the connection to the Internet via DSL or cable TV (at a fee).
Point-to-Point Protocol	*See PPP.*
Port	Ports are used to exchange data between different applications on a network. The port number addresses the application within a network device. The combination of IP address and port number serves as a unique identification of the recipient or the sender of the data package with the network.
	Internet service applications work with set port numbers (HTTP 80, FTP 21).
	See http://www.iana.org/assignments/port-numbers for registered port numbers. Port numbers 0 to 49151 are set and reserved, port numbers 49152 to 65535 are dynamic (and therefore available).
Port and Address Translation	*See PAT.*
Port Forwarding	With port forwarding, the router forwards data packages from the Internet, destined for a particular port, to the port of the responsible network device. As a result, servers (web server) integrated in a LAN, can be reached from the Internet (without a need for a public IP address). Port Forwarding is achieved by the correct NAT / PAT definition in the router.
PPP	Protocol for dial-up connection of a computer to the ISP.
PPP over Ethernet	*See PPPoE.*

PPPoE	Protocol used to connect to the Internet via ADSL or DSL.
Private IP address	The private IP address (local IP address) is the address of a network device on a local network (LAN). The provider assigns this address at will. DSL routers have a public IP address for the WAN and a private IP address for the LAN. The following IP ranges are recommended for private IP addresses: 10.0.0.0…10.255.255.255 → Class A. 172.16.0.0…172.31.255.255 → Class B. 192.168.0.0…192.168.255.255 → Class C. The first IP address xxx.xxx.xxx.0 and the last IP address xxx.xxx.xxx.255 in a network segment cannot be used, as xxx.xxx.xxx.0 is reserved for the network and xxx.xxx.xxx.255 for broadcasting.
Protocol	A protocol describes the type of communication on a network. It contains rules on opening, managing, and closing a connection, on data formats, time sequences, and possible error correction. Different protocols are needed to allow two applications at different levels to communicate with each other, e.g. TCP/IP protocols on the Internet.
Provider	Provider of telecommunications services. Also referred to as network provider or network operator.
Public IP address	The public IP address is the worldwide valid (global) address of a network device on the Internet. The ISP assigns these addresses. A network device with public IP address is a device establishing a connection between local network LAN and the Internet. DSL routers have a private IP address for the LAN and a public IP address for the WAN (Internet).
Router	A router forwards data packages from a local network LAN to a higher network while selecting the fastest route. A router allows for connecting different networks with different network topologies. For example, the router connects a local network to the Internet.
Secure Sockets Layer	*See SSL.*
Server	A server accepts requests from clients, processes them and responds to the clients. Network servers, data servers, web servers also assume services for other network devices.
Simple Mail Transfer Protocol	*See SMTP.*
SMTP	The SMTP protocol is a TCP/IP protocol. It controls e-mail traffic on the Internet. The ISP provides the SMTP server (mail server).
SSL	Outdated form for TLS; see TLS.
Standard gateway	A default gateway (see Default Gateway as well as DSL router) is also referred to as a network address used by clients to send their packages if the target address is outside the immediate network.

Static IP address	Network devices, and servers in particular, integrated permanently in a network, have static IP addresses. Clients often have a dynamic IP address. Web server (integrated permanently in a network) has a static IP address and can thus be reached easily by clients.
Subnet	A subnet subdivides a network into smaller network segments.
Subnet mask	A subnet mask masks the IP address, i.e. it determines which parts of the IP address form the network number and which parts the computer number (e.g. server).
	Subnet mask 255.255.255.0 means that the first three sections of the IP address determine the network number, and the fourth section is used for the computer number. In this case, the first three IP address sections are identical for all network devices. Example:
	Subnet mask 255.255.255.0 masks IP addresses: 192.168.1.1…192.168.1.254.
	Please note: Do not use the first IP address 192.168.1.0 and last IP address 192.168.1.255.
Switch	A switch, similar to a hub, is a connecting element to connect various network segments or network devices. Contrary to the hub, a switch is an intelligent device used to route packages only to the subnet or network device for which a package is destined.
TCP	The TCP protocol is a TCP/IP protocol. TCP is responsible for transporting data between two communication partners (applications). TCP is a secured transmission protocol, i.e. a connection is established, monitored and disconnected to data transmission.
	TCP is a so-called connection-oriented protocol. The transmission control protocol TCP reassembles the data packages, sent by the Internet protocol IP via different network connections, in the right order at the recipient.
TCP/IP	Family of protocols used as the basis for the Internet. TCP/IP for the basis for any number of internet services such as HTTP (Web), FTP (file transfer) and SMTP (mail).
TLS	**TLS** (**Transport Layer Security,** for [outdated]: SSL Secure Sockets Layer) a hybrid encryption protocol to transmit data over the Internet. TLS 1.0, 1.1 and 1.2 are standardized developments of SSL 3.0 (TLS 1.0 is now used for SSL 3.1). In other words, SSL is being further developed under the name TLS.
	The web server always uses TLS for e-mails if the e-mail provider supports TLS.
Transmission Control Protocol	*See TCP.*
Transport Layer Security	*See TLS.*
UDP	UDP is a TCP/IP protocol to control data traffic between two communication partners (application). UDP, in contrast to TCP, is an unsecured protocol. UCP is a so-called connection-less protocol. Data packets are broadcast. The recipient is responsible for receiving data. The sender does not receive notification if the data packages were received.

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Uniform Resource Locator	*See URL.*
Universal Plug and Play	*See UPnP.*
UPnP	UPnP technology was designed for home and office networks. Devices supporting UPnP automatically configure their network settings as soon as connected to a network. In addition, they automatically provide, depending on class, own services or use services of other devices on the network.
URL	A URL refers to an information source, e.g. http://www.siemens.com. The URL is a uniform web address that is used to determine the network protocol used (e.g. http) or the location of the resource on the network.
User Datagram Protocol	*See UDP.*
WAN	The wide area network WAN has a spatial dimension of ca. 50 km. A WAN can comprise a number of several LANs. If an ISP operates a WAN, private LAN users receive access to the Internet.
Wide Area Network	*see WAN.*
Wireless LAN	*see WLAN.*
WLAN	Wireless LANs allow network devices to communicate via radio. The WALN can be added as an extension to a wired LAN, or it can be the basis of a new network.

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