

SIEMENS



SYNERGYR® **Control and Metering System** **Operating Manual**

Contents

| | | |
|-----|---|----|
| 1 | About the Operating Manual..... | 7 |
| 1.1 | Some notes on the contents of the Operating Manual | 7 |
| 1.2 | Notes on the central unit's software version | 8 |
| 1.3 | Compatibility list..... | 9 |
| 2 | Brief description of the system..... | 11 |
| 2.1 | Central unit OZW30..... | 11 |
| 2.2 | Room units QAW10 and QAW20..... | 12 |
| 2.3 | Control and heating cost allocation valve WRV... .. | 12 |
| 2.4 | Control and heat meter interface WRI80 | 12 |
| 2.5 | Pulse adapter AEW2.1 | 13 |
| 2.6 | Service unit AZW30..... | 13 |
| 3 | Operating the central unit | 14 |
| 3.1 | Buttons and display | 15 |
| 3.2 | Left side of the display..... | 16 |
| 3.3 | Right side of the display | 18 |
| 3.4 | FILE button..... | 19 |
| 3.5 | Clearing entries or resetting to default value | 19 |
| 3.6 | Display during operation..... | 20 |
| 3.7 | Data protection and data privacy..... | 20 |
| 4 | Description of operating lines | 21 |
| 4.1 | Operating card 1 – Building | 21 |
| 4.2 | Operating card 2 – User | 23 |
| 4.3 | Operating card 3 – Diagnostics building | 28 |

| | | |
|-------|--|----|
| 4.4 | Operating card 4 – Diagnostics user | 33 |
| 4.5 | Operating card 5 – Control heating group | 39 |
| 4.6 | Operating card 6 – Startup building | 47 |
| 4.7 | Operating card 7 – Startup user | 56 |
| 5 | About the devices | 71 |
| 5.1 | Control and heating cost allocation valve | 71 |
| 5.1.1 | Display..... | 71 |
| 5.1.2 | Manual operation..... | 72 |
| 5.1.3 | Protection of valve | 72 |
| 5.2 | Control and heat meter interface | 72 |
| 5.2.1 | Reading the heat meter (meter 1)..... | 72 |
| 5.2.2 | Control / zone valve..... | 73 |
| 5.2.3 | Pulse adapter (meter 2)..... | 74 |
| 5.2.4 | Indication (LED)..... | 74 |
| 5.3 | Pulse adapter | 74 |
| 5.4 | Room unit QAW10..... | 74 |
| 5.5 | Room unit QAW20... .. | 75 |
| 6 | Practical tips | 77 |
| 6.1 | About heating | 77 |
| 6.2 | Saving heating energy..... | 77 |
| 6.3 | Important information about the reference room | 78 |
| 6.4 | What to do in the event of operating faults? | 78 |
| 7 | Commissioning | 80 |
| 7.1 | Preparation | 80 |
| 7.1.1 | Operating voltage and wiring | 80 |
| 7.1.2 | Heating plant and heat source..... | 81 |
| 7.1.3 | Pressure control and spill valve..... | 81 |
| 7.2 | Setting up the central unit..... | 82 |
| 7.2.1 | Setting the parameters of the apartments' room temperature control system | 82 |

| | | |
|-------|---|----|
| 7.2.2 | Setting the parameters of load compensation | 82 |
| 7.2.3 | Setting the parameters of the heating group controllers on the LPB | 82 |
| 7.2.4 | Entering the building parameters..... | 82 |
| 7.2.5 | Locking the room temperature display..... | 83 |
| 7.3 | Setting up the devices of each apartment | 83 |
| 7.3.1 | Addressing the devices | 83 |
| 7.3.2 | Mounting the control and heating cost allocation valve | 83 |
| 7.3.3 | Wiring the control and heating cost allocation valve | 84 |
| 7.3.4 | Basic balancing of valve | 85 |
| 7.3.5 | Setting the parameters of the control and heating cost allocation valve (meter 1) | 85 |
| 7.3.6 | Electrical connection of the control and heat meter interface..... | 87 |
| 7.3.7 | Setting the parameters of the control and heat meter interface (meter 1) | 88 |
| 7.3.8 | Setting the parameters of meter 2 | 90 |
| 7.3.9 | Setting the parameters of the pulse adapters AEW2.1 for meters 3...6..... | 91 |
| 7.4 | Setting up the devices in the "General area" | 92 |
| 7.4.1 | Setting the parameters of the consumption meters in the primary distribution..... | 92 |
| 7.4.2 | Setting the parameters of the QAB30 temperature measuring unit..... | 93 |
| 7.5 | Sealing | 94 |
| 7.6 | Final work on the central unit..... | 95 |
| 7.7 | Settings to be made on the heating group controller..... | 95 |
| 7.7.1 | Controllers RVL50 / 55 | 95 |
| 7.7.2 | Controllers RVP40 / 45 / 75 / 97 | 96 |
| 7.7.3 | Controllers RVL4..., RVA..., RVP3..., RVD2... | 96 |
| 7.8 | Setting up the QAW... room units..... | 96 |
| 7.8.1 | Room unit QAW10..... | 96 |

| | | |
|-------|---|-----|
| 7.8.2 | Room unit QAW20..... | 97 |
| 7.9 | Service level of QAW20... room unit | 97 |
| 7.9.1 | Operating on the service level | 97 |
| 7.9.2 | Displaying the communication status | 98 |
| 7.9.3 | Displaying the device and software version..... | 98 |
| 7.9.4 | Locking the programming level..... | 99 |
| 7.9.5 | Setting the parameters of the airing function | 99 |
| 7.9.6 | Setting the parameters of the signal input | 100 |
| 7.9.7 | Limiting the occupancy times..... | 101 |
| 7.9.8 | Setting the parameters of the operating level output | 101 |
| 8 | Replacing defective devices | 103 |
| 8.1 | General checks..... | 103 |
| 8.2 | Defects on the central unit..... | 103 |
| 8.3 | Defective devices in the apartments..... | 104 |
| 9 | Error list | 106 |
| 10 | Communication with PC | 110 |
| 10.1 | Communication via modem | 110 |
| 10.2 | Direct connection to a PC..... | 111 |

1 About the Operating Manual

1.1 Some notes on the contents of the Operating Manual

The present Operating Manual contains all information required to ensure optimum operation of the SYNERGYR Control & Metering System.

Since SYNERGYR is a new type of system, a brief description of the system itself and of the individual system components is given first. This will allow you to become more easily familiar with the array of functions and possibilities offered by the system and to make use of them.

Then, you will be introduced – step by step – to the operation of the central unit, which has seven buttons and an LCD. The display is read out with the help of operating cards which have a specific line assigned to each reading and each entry.

The next chapter leads you through the use of the operating cards. For each line, a description is given of what the display means, how values are entered, which guide values should be used, etc.

Operating cards 1 through 4 only contain readings while the entries are made with cards 5 through 7 – if not yet made at the time of commissioning.

In the eyes of the tenant or apartment owner, you as the plant operator are the technical expert. This Operating Manual provides detailed information about the system components installed in the apartments, enabling you to respond to questions and to satisfy specific needs.

Also, practical tips are given. Useful hints on heating and energy savings and recommendations for rectification of faults complement the manual.

At the end, the Operating Manual provides guidelines for commissioning the entire plant. They are intended as an aid for service staff who perform such work.

1.2 Notes on the central unit's software version

This Operating Manual describes the functions and capabilities of the central unit using software version 4.0 or higher. Since the introduction of the first central unit (software version 1.0), a number of functions have been slightly enhanced (software version 1.10).

Software version 2.0 affords communication with a PC **via modem**. In addition, certain functions and capabilities were further extended. For example, it is now possible to enter the date of summer- / wintertime changeover.

With software version 3.0 or higher, it is possible to connect heating controllers via **LPB**. In addition to a few small functional enhancements, the central unit can now send **alarms** to an operator station.

With software version 3.01 or higher, the WRV... control and heating cost allocation valves are operated at regular intervals, aimed at preventing seizing.

Software version 4.0 or higher supports use of the WRI80 control and heat meter interface. Periodic operation of the WRV... valves can now be adjusted.

If a function can only be provided from a certain central unit software version, the Operating Manual gives explanatory notes. The same applies to other components of the SYNERGYR system (e.g. to the WRV... valve), whose functionality depends on the software version used.

All central units of software version 4.0 or higher should be supplied with revised operating cards. If, after an update, the operating cards of the previous version are still around, the central unit can be operated with the help of this Operating Manual.

1.3 Compatibility list

Using the compatibility list, it is possible to find out whether the software installed is suited for the desired auxiliary function.

| Unit, SYNERGYR component | WRV... | | | WRI80 | OZW30 | | | | | RVL50, RVL55 | RVP45.500/900, RVP97, RVP75.230/237/900, RVP40.3 | RVA..., RVL4..., RVD2..., RVP3... | ACS30 |
|---|--------|------------------------------|------------------------------|----------|-------|------|-------------|-------------|-------------|--------------|--|-----------------------------------|----------|
| Software version | 1.3 | 1.11 1.13 1.14 1.15 | 1.20 1.21 1.22 1.30 | From 1.0 | 1.0 | 1.10 | 2.0 2.01 | 3.0 3.01 | 4.0 4.01 | From 4.0 | From D-series, 4.0 | * | From 2.0 |
| Direct communication with PC (ACS30) | - | - | - | - | (●) | (●) | ● | ● | ● | - | - | - | ● |
| Modem communication with PC (ACS30) | - | - | - | - | | | ● | ● | ● | - | - | - | ● |
| Adjustable clock synchronization | - | - | - | - | | ● | ● | ● | ● | - | - | - | - |
| Adjustable maximum flow rate | - | - | - | - | | ● | ● | ● | ● | - | - | - | - |
| Adjustable minimum flow rate | | | | - | | | | | ● | - | - | - | - |
| Selectable assignment of WRV.../WRI80 to OZW30 | | ● | ● | - | | ● | ● | ● | ● | - | - | - | - |
| Valve positioning commands with service unit to adjacent WRV.../WRI80 | | ● | ● | - | | | - | - | - | - | - | - | - |
| Control function of valve when sensor is faulty | | ● | ● | - | | | ● | ● | ● | - | - | - | - |
| Display of flow when sensor is faulty | | | ● | - | | | ● | ● | ● | - | - | - | - |
| Load compensation via H-bus | - | - | - | - | | | ● | ● | ● | ● | ● | | - |
| Load compensation via LPB | - | - | - | - | | | | ● | ● | | | ● | - |
| Date of summer- / wintertime change-over | - | - | - | - | | | ● | ● | ● | - | - | - | - |

| Unit, SYNERGYR component | WRV... | | | WR180 | OZW30 | | | | | RVL50, RVL55 | RVP45.500/900, RVP97, RVP75.230/237/900 | RVP40.3 | RVA..., RVL4..., RVD2..., RVP3... | ACS30 |
|--|--------|------------------------------|------------------------------|----------|-------|------|-------------|-------------|-------------|--------------|---|---------|-----------------------------------|-------|
| Software version | 1.3 | 1.11 1.13 1.14 1.15 | 1.20 1.21 1.22 1.30 | From 1.0 | 1.0 | 1.10 | 2.0 2.01 | 3.0 3.01 | 4.0 4.01 | From 4.0 | From D-series, 4.0 | * | From 2.0 | |
| Display of required valve position | | | ● | - | | | ● | ● | ● | - | - | - | - | |
| Display of cause of valve position | | | ● | - | | | ● | ● | ● | - | - | - | - | |
| Display of load compensation as a change in room temperature | - | - | - | - | | | ● | ● | ● | - | - | - | - | |
| Adjustable function selection | | | ● | - | | | ● | ● | ● | - | - | - | - | |
| Extended commissioning file | - | - | - | - | | | ● | ● | ● | - | - | - | - | |
| Sending alarms to an operator's station | - | - | - | - | | | | ● | ● | - | - | - | - | |
| Central WRV... valve kick adjustable | - | - | - | - | | | | | ● | - | - | - | - | |

- = function only possible with this software version or higher
- (with dot) = restricted use of function with this software version
- = function independent of software version

Blank = function not possible

- * RVL469 : From 3.0
- RVL47/470 : From 1.5
- RVL471 : From 1.1
- RVL472 : From 1.0
- RVA43.222 : From 2.1
- RVA43.223 : From 2.5
- RVA46.531 : From 2.5
- RVA47.320 : From 1.1
- RVA63.242 : From 1.1
- RVA63.280 : From 1.0
- RVA66.540 : From 1.0
- RVA65.642, RVP540 : From 1.2
- RVA65.643, RVP550 : From 2.3
- RVD2... : From 1.1
- RVP3... : From 1.1

2 Brief description of the system

The SYNERGYR Control & Metering System is a combined system designed to control the room temperature in flats, apartments, consulting rooms, etc., and to facilitate consumption-dependent heating cost billing through individual acquisition of the proportional amounts of thermal energy used.

All components of the system are interconnected via a data line, the so-called building bus.

Communication with the heating group controllers (RVL50 / 55, RVP40 / 45 / 75 / 97) takes place via H-bus or, alternatively, via LPB (RVL4... / RVA... / RVD2... / RVP3...). The LPB is connected directly to the building bus.

2.1 Central unit OZW30

The OZW30 is the central control unit for the entire plant. From the apartments, it acquires all data important for heating cost allocation and stores them. For readout, the data can be written to a memory card or transmitted directly to the billing agency via modem.

Since the central unit collects the heat demand of the entire building, it is able to control heat generation depending on load conditions.

From the central unit, the room temperature control systems of the individual apartments can be influenced.

From the plant, the central unit receives messages about operating states, actual values and faults. Fault status messages can be passed on via modem to an operator station.

All required values are entered and logged at the time the plant is commissioned. If required, most values can subsequently be changed by you. Make sure you enter any new values in the appropriate fields of the Operating Manual.

2.2 Room units QAW10 and QAW20...

A room unit can be connected in each apartment. It is used by the occupant to adjust the required room temperature which, depending on the type of room unit used, is an autonomous setpoint or a readjustment of the central setpoint adjusted by you on the OZW30 for all apartments. On the QAW20... room unit, the occupant can enter a complete 7-day program covering the normal occupancy times of his apartment.

Each room unit has an Economy button. On leaving the apartment, the occupant can press it, thereby lowering the room temperature.

The room unit is used by the control system to capture the room temperature.

2.3 Control and heating cost allocation valve WRV...

The WRV... control and heating cost allocation valve is an electronic metering, control and positioning device which controls the room temperature of the apartment, ascertains the proportional heat consumption and stores the relevant data. It is also capable of acquiring and saving an additional consumption value (e.g. DHW, electricity, etc.).

All required values are entered and logged at the time the plant is commissioned.

2.4 Control and heat meter interface WRI80

The WRI80 control and heat meter interface controls the room temperature of the apartment via an electronic actuator, reads heat energy consumption from the connected M-bus heat meter and stores the relevant data. Furthermore, it can acquire and store an additional consumption value (e.g. DHW, electricity, etc.).

All required values are entered and logged at the time the plant is commissioned.

2.5 Pulse adapter AEW2.1

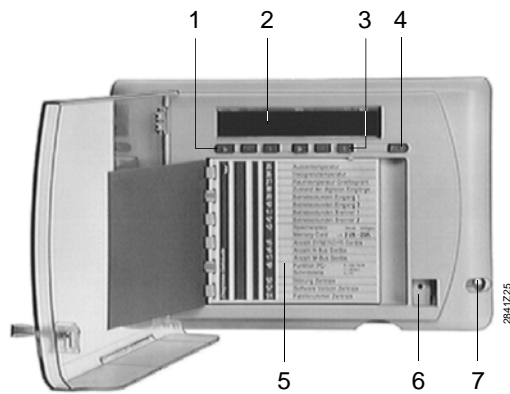
If, in an apartment, 2 or more other consumption values are to be acquired – in addition to the thermal energy used for heating – an adapter is required. It collects such data and stores them.

All required values are entered and logged at the time the plant is commissioned.

2.6 Service unit AZW30

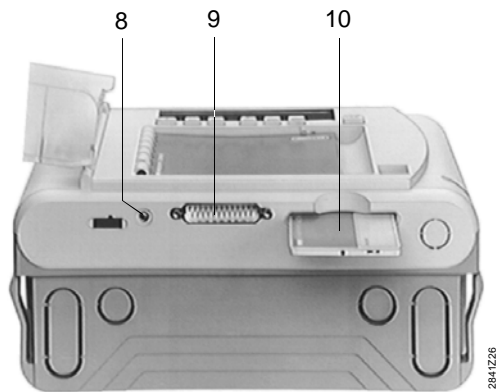
When commissioning the plant, the AZW30 service unit is employed for setting the parameters and for checking the plant. It is for use by service staff only.

3 Operating the central unit



Front

- 1 Buttons on the left
- 2 Display
- 3 Buttons on the right
- 4 Storage button
- 5 Operating cards
- 6 Lock
- 7 Hole for sealable fixing screw









Underside

- 8 Jack for modem's power supply
- 9 RS-232 port
- 10 Memory card

3.1 Buttons and display

The display is divided into 2 sections:

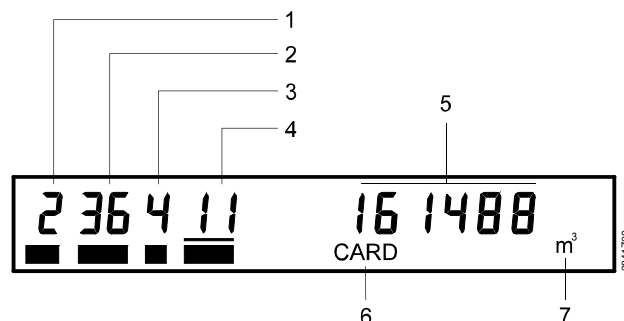
- The left side of the display is the "Address". It defines the assignment of the displayed variable (that is, function, measuring location, purpose, etc.). The 3 buttons on the left, ,  and , are assigned to that section of the display
- The right side of the display shows the numerical value of the displayed variable. The 3 buttons on the right, ,  and , are assigned to that section of the display

All variables are displayed as numerical values. Each variable shown on the display can be interpreted with the help of the operating cards located below the display.

The make-up of the operating cards is matched to the kind of presentation on the display.

Each entry and each reading is assigned 1 line on the operating cards. The lines are structured according to the fields of use.

For switching the standard display (time of day) to the display of operating lines, press one of the buttons on the **left**.



Display

- 1 Field of use (= operating page number)
- 2 Number of apartment
- 3 Meter number
- 4 Entry or read function (= line number)
- 5 Numerical value of entry or read function
- 6 Operating state
- 7 Unit of numerical value

3.2 Left side of the display

The left side of the display comprises four 1- and 2-digit numbers. They define the entry or display function whose numerical value is shown on the right side of the display.


- The first number defines the **field of use**. The number is identical with that on the respective operating card:
 - 1: Building
 - 2: User
 - 3: Diagnostics building
 - 4: Diagnostics user
 - 5: Control
 - 6: Startup building
 - 7: Startup user
- The second number (if present) is the **number of the apartment**. Each apartment has its own address in the form of a 2-digit number. By selecting the appropriate number from the OZW30, you can call up each apartment and interrogate its data. The numbering is in consecutive order:
 - 00: General area (group meters, etc.)
 - 01: Apartment number 1
 - 02: Apartment number 2
 - 03: Apartment number 3 through 96
- The third number (if present) is the **meter number**. Each device belonging to the SYNERGYR system and installed in the apartment is given a number. This enables you to address each device individually from the central unit. The following numbers are used:
 - 1: Control and heating cost allocation valve or control and heat meter interface
 - 2: Non-SYNERGYR meter, connected to the control and heating cost allocation valve or control and heat meter interface
 - 3: Non-SYNERGYR meter, connected to the first pulse adapter (input 1)
 - 4: Non-SYNERGYR meter, connected to the first pulse adapter (input 2)
 - 5: Non-SYNERGYR meter, connected to the second pulse adapter (input 1)

6: Non-SYNERGYR meter, connected to the second pulse adapter (input 2)


- The fourth number always stands for an **entry or read function**. For the meaning of the numbers, refer to the operating cards which have the numbers listed.

Chapter "4 Description of operating lines" of the Operating Manual provides a detailed description of each line.


You can select and adjust the 4 numbers with the buttons on the left. The buttons provide the following functions:

 Selecting the number:

When pressing this button, a pointer jumps from one number to the next. The pointer is in the form of a bar which underlines the number. The underlined number or the respective function is being addressed and can be adjusted. The numerical value is given on the right side of the display.

 Increasing the number:











When pressing this button, you increase the underlined numerical value.



 Decreasing the number:



When pressing this button, you decrease the underlined numerical value.

A function is selected as follows:

For example, in the field of use "User" (operating card **2**), the meter reading of apartment **46** at the end of May (read function **25**) shall be ascertained:

1. Press button  until the pointer is located below the first number.
2. Press button  or  until the first number reads 2.
3. Press button  until the pointer is located below the second number.
4. Press button  or  until the second number reads 46.
5. Press button  until the pointer is located below the third number.
6. Press button  or  until the third number reads 1.
7. Press button  until the pointer is located below the fourth number.

8. Press button  or  until the fourth number reads 25.




You have thus selected the required function. Now, if you wish to see the heating energy meter readings of all apartments, return with the pointer to the apartment number and readjust it with the buttons  and . The respective meter readings will be displayed. Proceed in a similar way if you want to have the same variable of the individual meters per apartment displayed.

3.3 Right side of the display

The right side of the display may comprise as many as 8 digits. It shows the **numerical value of the entry or read function** selected with the left side of the display.


In the case of an entry function, you enter the required value with the buttons on the right. Normally, each digit of the number must be selected and readjusted. All shaded lines on the operating cards contain read data which are non-adjustable. The buttons on the right are then inactive.

The buttons provide the following functions:

-  Selecting a digit:
When pressing this button, the pointer will move. The digit or portion of the value underlined by the pointer can be readjusted.
-  Increasing the value:
When pressing this button, you increase the value of the underlined digit.
-  Decreasing the value:
When pressing this button, you decrease the value of the underlined digit.












A value is entered as follows:

For example, user number 5234 shall be entered in the field of use "6 Startup building":

1. Select field of use "6 Startup building" on the left side of the display and call up variable "01 User number".
2. Press button  until the pointer is located below the first digit.


Note:

The display comprises 8 digits. The zeros preceding the number to be entered must be considered. In this case: 00005234!

3. Press button  or  until the first digit reads 5.
 4. Press button  until the pointer is located below the second digit.
 5. Press button  or  until the second digit reads 2.
 6. Press button  until the pointer is located below the third digit.
 7. Press button  or  until the third digit reads 3.
 8. Press button  until the pointer is located below the fourth digit.
 9. Press button  or  until the fourth digit reads 4.
- You have thus entered the required number which is immediately saved. This means there is no other button to confirm the entry.



In the case of physical variables (temperature, electric power, etc.), the respective unit is indicated to the right of the numerical value (°C, kWh, etc.).

3.4 FILE button

By pressing the  button, all consumption data required for billing will be saved on the memory card. During data transmission, the display shows **DATA**. The memory card may be removed from the central unit only after **DATA** has extinguished.

3.5 Clearing entries or resetting to default value

Entries can be cleared or reset to their default values by proceeding as follows:

1. Select the respective line.
 2. Press **simultaneously** buttons  and  on the right side of the display.
- ⇒ After 2 seconds, dashes appear in place of the setting value ().

⇒ After another 2 seconds, the setting value will be cleared or overwritten with the default value.

If the 2 buttons are released while the dashes are still displayed, clearance will be canceled.

3.6 Display during operation

In normal operation, the display shows the time of day. When interrogating variables, the display always shows the updated value. All variables are updated at 3-second intervals. Depending on the operating state, the following displays also appear:

- **DATA** = data are loaded to a communication partner (PC, memory card, etc.)
- **CARD** = memory card is inserted and has been accepted
- **ERROR** = system error
- **BAT** = battery of memory card or central unit exhausted

3.7 Data protection and data privacy

Data readout from the apartments interferes with occupant privacy. Also, unauthorized persons could gain access to the central unit (tampering).

To give consideration to data protection and privacy of the occupants, the data from the apartments and the central unit are protected as follows:

- The transparent cover protects the operating section of the central unit against tampering. It can only be opened with the right key
- Interrogation of the room temperatures from the apartments can be locked.

This is achieved by an intervention on the central unit, an action that can only be performed by Siemens service staff

- The fixing screw, which secures the operating section of the central unit to the base, is sealed

4 Description of operating lines

There are:

- Entry functions:
You can alter the numerical value of the variable shown.
- Read functions:
Here, you can read actual values, operating states, etc.
The operating cards show these fields shaded.

4.1 Operating card 1 – Building

This operating card contains data and parameters required for ascertaining the consumption data. They always refer to the entire building.

Apartment-specific data and parameters are given on operating card 2.

Operating card 1 only contains read functions. Numerical values cannot be altered here.

01 Central unit number

Here, you can read the customer-specific number of the central unit. It is valid for the entire plant acquired and handled by the central unit.

The central unit number is saved together with the consumption data and facilitates data evaluation by the billing agency.

02 Number of degree days

This line shows you the current number of heating degree days since the last set day.

The number of heating degree days allows you to check the efficiency of the heating system by relating energy consumption to

- the room temperature, and
- the progression of the outside temperature

On the set day, the degree day counter is reset to zero.

04 Operating hours

This line is the central unit's operating hours counter. It shows you the current number of operating hours acquired based on the presence of AC 24 V operating voltage.

05 Date

Here, the current date is shown. Before starting any work on the central unit, be sure the date is correct since it is used for a number of functions.

07 Degree days last set day

Here, the number of degree days on the last set day is given (last billing period).

On the set day, all consumption data acquired in each apartment, such as heating energy, DHW, gas, etc., and other plant variables like the number of operating hours, etc., are saved in the set day memory.

It is possible to enter 1 or 2 set days. The dates are freely selectable. You can always read the saved meter readings of the last and the last but one set day (number of degree days on line 11).

09 Operating hours last set day

This line shows you the total number of operating hours of the central unit on the last set day.

10 Date of last set day

Here, you can read the date of the last set day.

11 Degree days last but one set day

This line gives you the number of degree days on the last but one set day.

13 Operating hours last but one set day

This line shows you the total number of operating hours of the central unit on the last but one set day.

14 Date of last but one set day

Here, you can read the date of the last but one set day.

15 Date of set day 1

This line gives the date of set day 1.

16 Date of set day 2

This line gives the date of set day 2 (if entered, otherwise the display shows 00-00).

4.2 Operating card 2 – User

All lines of operating card 2 relate to data and functions of the apartments (with the exception of line 05). For this reason, always call up the number of the respective apartment first, that is, the second number on the left side of the display.

Operating card 2 only contains read functions. Numerical values cannot be changed here.

01 Meter number

Here, you read the numbers of the consumption meters installed in the apartment. These numbers have been defined on a customer-specific basis, independent of the apartment numbers.

They are saved together with the consumption data and facilitate the evaluation of data by the billing agency.

The numbers were entered at the time of commissioning with the aid of the AZW30 service unit. With the control and heat meter interface, the number of meter 1 is read from the heat meter.

02 Meter reading

Here, you can view the current meter readings of all acquired consumption variables of the apartment called up. The individual meters which measure the consumption must be selected from column "Meter number", one by one. Assignments are as follows:

- 1: Control and heating cost allocation valve (acquires the heat consumption) or control and heat meter interface (acquires the reading of the connected heat meter).
- 2: Any types of meters whose pulses can be acquired by the control and heating cost allocation valve or the control and heat meter interface.
- 3...6: Any types of meters whose readings are acquired by pulse adapters.

04 Operating hours

This line shows you the current operating hour readings of the devices installed in the apartment. They must be called up one by one.

The number of operating hours displayed is based on the presence of operating voltage. Different numbers of operating hours of devices with the same usage times are an indication of defects or manipulations.

In the control and heat meter interface, the number of operating hours are generated internally. The operating hours of the connected heat meter cannot be adopted.

05 Date

Here, you can read the current date.

07 Meter reading last set day

The reading of each meter installed in the apartment is saved on the set day entered. Normally, the set day concludes a heating season (e.g. June 30). On this line, you call up the readings on the last set day – again for each meter. If you wish to make a comparison or determine the difference

in consumption between the last and the last but one set day (heating season), you can go to line 11 to view the readings on the last but one set day.

The control and heat meter interface adopts the set day value from the heat meter, if the latter can be read via the M-bus and storage took place on the same set day. Otherwise, the set day value will be simulated with the help of the current meter reading in the interface.

09 Operating hours last set day

On this line, you can call up the number of operating hours of each device installed in the apartment.

10 Date of last set day

Here, the date of the last set day is displayed.

If the date of the set day of the connected heat meter does not agree with that of the control and heat meter interface, the set day in the interface will be generated according to the settings made on the central unit (operating card 6, lines 15 and 16).

11 Meter reading last but one set day

If you wish to make a comparison or determine the difference in consumption between the last and the last but one set day (heating season), you can view here the readings on the last but one set day of each device installed in the apartment.

13 Operating hours last but one set day

For comparison and checking purposes, this line gives you the operating hours readings on the last but one set day of each device installed in the apartment.

14 Date of last but one set day

Here, the date of the last but one set day is displayed.

21 Meter reading end of January

On this and the following 11 lines, the meter readings at the end of the last day of the month are given for each meter installed in the apartment. This means that in the event of a change of occupant, an immediate readout is not required. The values are retained for 1 year and will then be overwritten. Hence, the values of this line – Meter reading end of January – will be overwritten on January 31 of the following year.

When transferring the billing data to the memory card, the monthly values will also be copied and are therefore available on archived copies at any time. The line shows you the reading of each meter last January 31.

If the control and heat meter interface can read monthly meter readings from the connected heat meter, they will be adopted. Otherwise, the interface will simulate the meter readings at the end of the month.

22 Meter reading end of February

This line shows you the reading of each meter last February 28 or 29.

23 Meter reading end of March

This line shows you the reading of each meter last March 31.

24 Meter reading end of April

This line shows you the reading of each meter last April 30.

25 Meter reading end of May

This line shows you the reading of each meter last May 31.

26 Meter reading end of June

This line shows you the reading of each meter last June 30.

27 Meter reading end of July

This line shows you the reading of each meter last July 31.

28 Meter reading end of August

This line shows you the reading of each meter last August 31.

29 Meter reading end of September

This line shows you the reading of each meter last September 30.

30 Meter reading end of October

This line shows you the reading of each meter last October 31.

31 Meter reading end of November

This line shows you the reading of each meter last November 30.

32 Meter reading end of December

This line shows you the reading of each meter last December 31.

86 Unit factor

The factor displayed on this line defines for each meter the unit and the conversion factor required for a correct display (for more details, refer to operating card 7, line 86).

For reading the values, this line is of no importance. The values are displayed as effective values with their correct units.

87 Metering medium

Here, you see the type of medium acquired by the meter called up. The numbers have the following meaning:

- 0: Other
- 1: Fuel oil

- 2: Electricity
- 3: Gas
- 4: Thermal heat
- 5: Steam
- 6: Hot water
- 7: Cold water
- 8: Heating cost allocation

88 Meter calibration date

On this line, the date of the last calibration of each meter installed in the apartment is given. It serves as a reminder to ensure the next calibration will be made as scheduled.

With the control and heat meter interface, the date of a forthcoming battery change will be displayed, provided the connected heat meter supports the function. No date is displayed if the battery change is due in more than 1 year's time.

90 Pulse valency

With pulse sources, each pulse delivered corresponds to a certain consumption volume. The correlation, the so-called pulse valency, is displayed on this line. It is given in the form of a fraction (NNNN = numerator, DDDD = denominator). For reading the values, this line is of no importance. The values are displayed as effective values.

4.3 Operating card 3 – Diagnostics building

The data given on operating card 3 refer to the entire plant or the entire building. Here, you find all key data, actual values and operating states that are important for diagnostics, service work, etc. All these functions are read functions.

Numerical values cannot be changed here.

35 Outside temperature

If an appropriate sensor is fitted, you can read the actual outside temperature here. It can also be called up from room units type QAW20... .

If a temperature measuring unit QAB30 is used together with a QAC22 outside sensor (Ni 1000 sensing element), the QAB30 displays the outside temperature. Otherwise, the outside temperature is adopted by the heating group controller on the LPB with address segment 0, device 1, then by the heating group controller with the highest address.

If no LPB is used, the outside temperature is adopted by the heating group controller with the lowest address on the H-bus.

36 Heating limit temperature for degree days

This line shows you the upper limit of the outside temperature used for calculating the number of heating degree days. Higher outside temperatures will not be taken into account when determining the number of heating degree days.

37 Room temperature for degree days

This line shows you the reference room temperature for calculating the number of heating degree days.

39 Input 1

An operating hours counter for any type of device can be connected to input 1. In that case, the following readings are possible:

- The actual state:
 - 0: Device off
 - 1: Device in operation
- Reading the operating hours counter

However, if input 1 has been configured as an alarm input, the state will be displayed:

- 0: No alarm present
- 1: Alarm present

40 Input 2

This line corresponds to line 39 and is used for a second device installed in the plant.

41 Operating hours of burner 1

This function is not possible with heating group controllers on the LPB.

If the group controller is adequately equipped and connected to the central unit via a data line, you can view here the number of burner operating hours.

This data line is termed H-bus to which the following types of Siemens heating controllers can be connected: RVL50 / 55 and RVP40 / 45 / 75 / 97.

If the plant operates with 2 or more boilers and with adequately equipped group controllers, the number of operating hours are those of the boiler controlled by the controller with the lowest address.

If the burner operating hours are not reported, there will be no display.

42 Operating hours of burner 2

This line corresponds to line 41. Here, a second heat source can be considered (independent of the first one).

If this function is not used, there will be no display.

43 Storage capacity memory card

You can store the consumption data on a memory card. If inserted in the central unit, the following memory card data are provided here:

- The first 4 digits give the maximum storage capacity available (in KB)
- Digits 5...8 indicate the storage capacity left (in KB)

Example: **128-0085** means that of the total storage capacity of 128 KB there are 85 KB left.

If ---- - ---- appears on the display, there is no memory card inserted.

If the memory card is write-protected, the following display appears, for example **128 - ----**, meaning that there is no storage capacity left so that the memory card cannot accept more data.

45 Number of SYNERGYR devices

Here, the total number of devices connected to the central unit is given. This includes the following types of units:

- The OZW30 central unit
- All WRV... control and heating cost allocation valves
- All WRI80 control and heat meter interface
- All AEW2.1 pulse adapters
- A QAB30 temperature measuring unit, if present

Not considered are the room units and any ancillary units such as conduit boxes, outside sensors, controllers, etc.

If the display shows 0, the building bus is defective. If there is a difference between the number displayed and the number of devices actually installed, the building bus is interrupted or one of the devices is defective.

46 Number of H-bus / LPB devices

This line allows you to call up the number of devices on the H-bus or LPB (new from software version 3.0) that communicate with the central unit. If, on operating card 5, line 67, LPB addresses for the heating group controllers are entered, these devices will be connected. Other devices on the LPB will not be considered.

If no LPB addresses have been assigned, the devices on the H-bus will be counted.

If no heating group controllers are identified, the display will show 0.

48 Function of PC interface

Here, you can identify the communication partner connected to the RS-232 port of the central unit:

- 0: No device connected, or the device connected cannot be identified (e.g. connecting cable inadequate)
- 1: A modem is connected
- 2: A PC with ACS30 V2.xx is connected
- 3: A PC is connected

50 Fault of central unit

Also refer to chapter "9 Error list".

If the central unit detects a fault in the plant, the display will automatically change to this line, displaying **ERROR** and giving the error code.

If you call your Siemens service team, please always give the error code.

The errors are subdivided into groups with the following meaning:

- 10...19: Device error (hardware and / or software)
- 20...29: Error in connection with operating voltage
- 30...49: Communication error
- 50...59: Measuring error
- 60...69: Interventions from outside
- 70...79: Various errors, signals received at the status inputs
- 80...89: Error from the heating plant
- 90...99: Startup error

After having acknowledged the error by pressing any of the buttons (but not the **FILE** button), the date on which the error occurred and the time with the error code will appear alternately. Hence, for example:

13-08-1993 15:48 37

means that error no. 37 occurred on August 13, 1993, at 15:48 h.

You can select other lines and make entries at any time, but the flashing **ERROR** will remind you that an error occurred.

If the error is rectified before the acknowledgement is made, the error indication is still retained to ensure that errors disappearing by themselves can still be seen.

The error status messages may have been combined with an alarm (switching on a signal lamp, direct message to service staff via modem, etc.). For more details, please contact your Siemens service team.

52 Software version central unit

This line gives the software version used by the central unit and may be helpful in connection with service calls.

54 Production number central unit

Upon final inspection in the factory, each central unit is given a production number. This information may be helpful in connection with service calls.

4.4 Operating card 4 – Diagnostics user

All lines of operating card 4 relate to data and functions in the apartments. For this reason, you always have to call the number of the respective apartment first, which is the second number on the left side of the display.

Operating card 4 only contains read functions. Numerical values cannot be changed here.

04 Operating hours

This line gives you the current operating hour readings of the devices installed in the apartment. The devices must be called up one by one.

The number of operating hours displayed is based on the presence of operating voltage. Different numbers of operating hours of devices with the same usage times are an indication of defects or manipulations.

In the control and heat meter interface, the number of operating hours are generated internally. The operating hours of the connected heat meter cannot be adopted.

50 Fault

Also refer to chapter "9 Error list".

If the central unit detects a fault on one of the connected devices, the display will automatically change to the respective line, which then shows:

- The number of the apartment and that of the connected device
- The **ERROR** message and error code

If you need to call your Siemens service team, please make certain you have the error code noted.

The errors are subdivided into groups which have the following meaning:

- 10...19: Device error (hardware and / or software)
- 20...29: Error in connection with operating voltage
- 30...49: Communication error
- 50...59: Measuring error
- 60...69: Interventions from outside
- 70...79: Various errors, signals received at the status inputs
- 80...89: Error from the heating plant
- 90...99: Startup error

After having acknowledged the error by pressing any of the buttons (but not the **FILE** button), the date on which the error occurred and the time with the error code will appear alternately. Hence, for example:

13-08-1993 15:48 37

means that error no. 37 occurred on August 13, 1993, at 15:48 h.

You can select other lines and make entries at any time, but the flashing **ERROR** will remind you that an error occurred. If the error is rectified before the acknowledgement is made, the error indication is still retained to ensure that errors disappearing by themselves can still be seen.

The error status messages may have been combined with an alarm (switching on a signal lamp, direct message to service staff via modem, etc.). For more details, please contact your Siemens service team.

52 Software version

This line displays the software version used by the control and heating cost allocation valve or control and heat meter interface and pulse adapters installed in the apartment. This information may be helpful in connection with service calls.

54 Production number

Upon final inspection in the factory, the devices is given a production number.

Here, you can call up the production number of the control and heating cost allocation valve or control and heat meter interface and those of the pulse adapters installed in the apartment.

This information may be helpful in connection with service calls.

69 Minimum flow rate

The adjusted minimum flow rate can be read from the control and heat meter interface. A minimum flow rate of 0 l/h indicates that the connected valve is fully closed when there is no request for heat.

The minimum flow rate is not supported by the control and heating cost allocation valve. The display of ---- means that this actual value is not available on the device side.

70 Nominal flow rate

Here, you can query the nominal flow rate of the selected apartment.

With the control and heat meter interface, the nominal flow rate of the connected heat meter must be entered manually.

71 Room temperature

Here, you can display the room temperature of the selected apartment.

If this display function has been locked on the central unit, it is no longer possible to select the line.

The display of ---- indicates that this actual value is not available, due to the type of unit used.

72 Room temperature setpoint

Here, you can display the room temperature setpoint of the selected apartment. It depends on the setting value, the time program and the position of the Economy button on the room unit.

If this display function has been locked on the central unit, it is no longer possible to select the line.

The display of ---- indicates that this setpoint is not available, due to the type of unit used.

73 Flow temperature

This line shows you the temperature acquired at the flow of the apartment.

With the control and heat meter interface, the flow temperature is read by the connected heat meter.

74 Return temperature

This line shows you the temperature acquired at the return of the apartment.

With the control and heating cost allocation valve, the return temperature is acquired by the temperature sensor integrated in the valve.

With the control and heat meter interface, the return temperature is read by the connected heat meter.

75 Flow rate

This line shows you the volumetric flow of the apartment currently measured by the valve.

With the control and heat meter interface, the flow rate is read by the connected heat meter.

76 Maximum flow rate

Here, you can read the maximum flow rate which has been entered on the control and heating cost allocation valve or control and heat meter interface in accordance with planning documentation.

This value may be helpful in connection with service work (hydraulic balancing of plant).

77 Pressure differential

This line displays the current pressure differential across the valve. It is used to calculate the current volumetric flow.

With the control and heat meter interface, the pressure differential is not available. The display shows ---- .

78 Opening ratio

Here, you can see the opening ratio of the control and heating cost allocation valve. The display shows the period of time the valve has been open during the last hour (as a percentage reading).

Here, the control and heat meter interface shows the zone valve's mid-position during the last hour.

79 Valve position

Here, you can display the current valve position.

Meaning of numbers with the control and heating cost allocation valve:

- 0: Valve fully closed
- 1: Valve in position 1
- 2: Valve in position 2
- 3: Valve is operating

Meaning of numbers with the control and heat meter interface:

- 0: Valve fully closed
- 1: Valve partly open
- 2: Valve fully open
- 3: Valve in motion

With the central units of software version 2.0 or higher, with the control and heating cost allocation valves of software version 1.20 or higher, and with the control and heat meter interface, the display to the left of the valve position shows whether some overriding function enforces a special valve position.

Overriding functions are all operating states that demand a valve position different from that called for by room temperature control.

Note:

Due to the PID control algorithm, the control and heating cost allocation valve may be closed during short periods of time also when the actual room temperature lies below the room temperature setpoint.

The following overriding functions and the corresponding enforced valve positions are indicated as follows:

Lo: Low flow rate:

WRV...: The valve is fully closed because the flow rate is below the minimum.

WRI80: Limitation to minimum flow rate.

Co: Cold:

WRV...: The valve is fully closed because the temperature differential of flow and return is too small.

Hi: High flow rate:

WRV...: The valve is fully closed or cycles (on / off operation) because the flow rate exceeds the entered maximum flow rate (operating card 7, line 76).

WRI80: Limitation to maximum flow rate.

SE: Service:

WRV..., WRI80: The valve is controlled via the service unit or central unit.

OF: OFF:

WRV..., WRI80: The valve is fully closed since the heat source was shut down.

Su: Summer (summer function):

WRV...: The plant is in summer mode (4-hour test opening cycle, no flow or no temperature differential for more than 24 hours; also refer to operating card 7, line 85).

With software version 1.20 or higher, the above information is also displayed on the control and heating cost allocation valve WRV... .

81 Heating group / flow zone

Each apartment can be assigned to a heating group. The latter provides load-dependent boiler temperature control. This means consideration is given to the heat demand from the plant's individual apartments. This line displays the number of the heating group.

If control and heating cost allocation valves WRV82 / 85 / 86 are used, flow temperature measurement may have been

subdivided into several zones. In that case, each WRV82 / 85 / 86 has been assigned to one of these zones. This assignment appears as a second number beside the number of the heating groups.

83 Room unit

Here, you can read the type of room unit used. The numbers have the following meaning:

- 1: No SYNERGYR room unit (room thermostat or wire link, or connection interrupted)
- 2: Analog room unit (QAW10)
- 3: Digital room unit (QAW20...)
- 4: Wrong type, incompatible room unit

91 Type of pulse source

If, in addition to the control and heating cost allocation valve or control and heat meter interface, the apartment uses one or several consumption meters, the types of pulse sources can be viewed on this line. The numbers have the following meaning:

- 1: No pulse source (meter) present
- 2: Pulse source with Reed contact and Namur circuitry
- 3: Pulse source with Reed contact

4.5 Operating card 5 – Control heating group

The entries made with this operating card partly apply to all apartments (occupancy times, room temperature setpoints), partly to heating groups (load compensation). For the heating group-specific entries, the respective heating group is to be selected. The entries must be made separately for all heating groups.

Operating card 5 contains both entry and display functions. All displayed numerical values of the entry functions can be altered at will as long as they lie within the setting range. Enter the new values into the appropriate fields!

The entries on lines 57...61 relate to the room temperatures of the apartments. Also refer to the tips given in chapter "6 Practical tips".

55 Start (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 00:00 | | | |

Here, you enter the start of the general occupancy time of the building, that is, of all apartments acquired by the central unit. The entry applies to every weekday. A separate program for every weekday is not available.

During the occupancy time, all apartments use the normal room temperature setting, but a separate heating program – if desired – can be entered on room units type QAW20... . With the help of the Economy button on the room unit, it is also possible to use the reduced temperature setting during occupancy times. The time is to be set in steps: First the hour, then the minutes, in 10-minute steps.

If "Occupancy time on" coincides with "Occupancy time off", the reduced temperature setting will be used.

If "Occupancy time on" is set to 00:00 and "Occupancy time off" to 24:00, the normal temperature setting will apply.

Note on room unit QAW20... :

Since a separate heating program can be entered on this room unit, the occupancy time must be terminated no later than 24:00 h. For this reason, it must always be made certain that the number entered for "Occupancy time on" is smaller than that for "Occupancy time off". For example, "On" at 15.00 and "Off" at 2:00 is not permitted!

56 End (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 24:00 | | | |

Here, you enter the end of the general occupancy time of the building.

During non-occupancy times, all apartments use a reduced temperature setting (absolute priority). The heating programs entered on the QAW20... room units cannot normally override these time limits.

With software version 1.20 or higher of the QAW20..., this limitation can be deactivated via the service level (refer to subsection 7.9.7 "Limiting the occupancy times").

The time of the general end of occupancy time is entered the same way as that of the start of occupancy time.

Note on room unit QAW20...:

Since a separate heating program can be entered on this room unit, the occupancy time must be terminated no later than 24:00 h. For this reason, it must always be made certain that the number entered for "Occupancy time on" is smaller than that for "Occupancy time off". For example, "On" at 15:00 and "Off" at 2:00 is not permitted!

Note:

- All entries on lines 57 through 60 relate to the building's occupancy time!
- Refer to the setting tips given in section 6.2 "Saving heating energy"

57 Maximum room temperature (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 24.0 | | | |

On this line, you enter the maximum setpoint for all the room units on which the room temperature setpoint can be adjusted. A higher setpoint cannot be adjusted on the room unit. The maximum room temperature of the apartment is the temperature you enter here.

The maximum setpoint must be adjusted to a level equal to or higher than the setpoint of the normal room temperature (following setting value, line 58), the maximum being 30 °C. This adjustment prevents the apartments from getting overheated.

58 Normal room temperature (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 20.0 | | | |

Here, you enter the normal room temperature setpoint of the apartments equipped with the room unit QAW10. These room units have no setpoint adjuster but only allow a setpoint readjustment to be made. This means that the general setpoint you enter on this line can be readjusted by ± 3 °C.

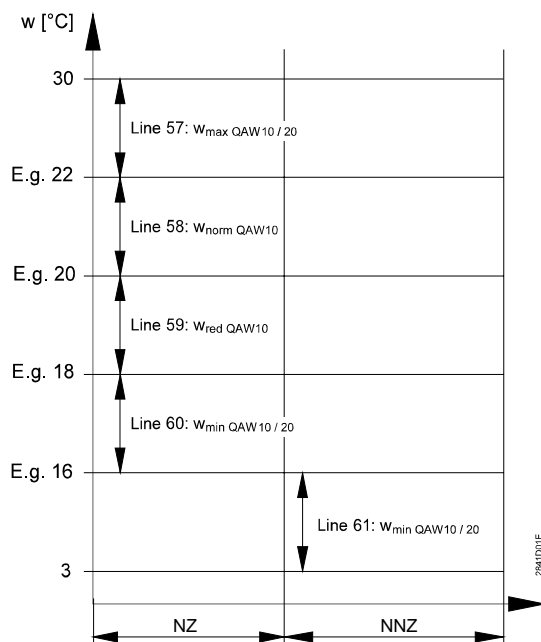
This setpoint must be set to a level equal to or higher than the reduced room temperature (line 59) and equal to or lower than the maximum room temperature (line 57).

59 Reduced room temperature (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 16.0 | | | |

Here, you enter the room temperature of an apartment equipped with the QAW10 room unit if, during occupancy time, the Economy button on the QAW10 is pressed.

This setpoint must be set to a level equal to or higher than the minimum room temperature (line 60) and equal to or lower than the normal room temperature (line 58).



Adjustment of the different setpoints and limit values

- NZ Occupancy time
- NNZ Non-occupancy time
- w Room temperature setpoint
- 57 Maximum setpoint for QAW10 / QAW20... room units (as entered on line 57)
- 58 Normal setpoint for QAW10 room units (as entered on line 58)
- 59 Reduced setpoint for QAW10 room units (as entered on line 59)
- 60 Minimum setpoint for QAW10 / QAW20... room units (as entered on line 60)
- 61 Setpoint for non-occupancy time (as set on line 61)

60 Minimum room temperature (Occupancy time)

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 16.0 | | | |

On this line, you enter the minimum setpoint for all QAW20.... room units.

A lower setpoint cannot be adjusted on the QAW20.... The room temperature of the apartment is the temperature you adjust here. This minimum setpoint must be set to a level equal to or higher than the setpoint for non-occupancy time (line 61) and equal to or lower than the reduced room temperature.

With this function, you prevent undesired heat transfer from one apartment to another.

61 Room temperature non-occupancy time

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 14.0 | | | |

On this line, you enter the general setpoint to be used during non-occupancy time.

On the QAW20... room unit, it is not possible to select a lower setpoint for the non-occupancy time. This means that the room temperature entered on this line is the actual temperature level of the apartment.

This value must be set to a level equal to or higher than 3 °C and equal to or lower than the minimum setback temperature (line 60).

62 Type of load compensation / Strategy

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|-----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 – 0.75 | | | |

Here, the impact on heat generation has been entered. This setting should only be changed by Siemens service staff!

There are 2 entries required on this line:

- The type of load compensation on the left side of the display:
 - 0: No load compensation
 - 1: Switching or shifting load compensation
 - 2: Switching load compensation only
 - 3: Shifting load compensation only
- The strategy on the right side of the display:

The demand for energy savings and that for comfort are always contradictory.

The strategy parameter is used to select which priority is assigned to which demand:

 - 0.00: Energy savings have absolute priority
 - 1.00: Comfort has absolute priority

It is recommended to use a setting of 0.75.

Note

Shifting load compensation is only possible in connection with controllers using the H-bus or LPB:

- Controllers type RVL55 / 50 on H-bus: The controller must run on software version 5.0 or higher, and the OZW30 central unit on software version 1.0 or higher
- Controllers type RVP75.230 / .237/ .900, RVP45.500 / .900, RVP40.3 and RVP97 on H-bus: The controller must run on software version 4.0 or higher, and the OZW30 central unit on software version 2.0 or higher
- Controllers type RVL47..., RVA..., RVD2..., RVP3... and RVP5...on LPB: For the required controller version, refer to section 1.3 "Compatibility list". The OZW30 central unit must run on software version 3.0 or higher

63 Effect of load compensation

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1.0 | | | |

This line is used for entering the effect of shifting load compensation. Changes should only be made by Siemens service staff.

The setting range is 0.0 ... 10.0.

Load compensation shifts the room temperature setpoint of the heating group controller as a function of the load, thus controlling the generation of heat. The setting made here is the maximum rate of change of the room temperature setpoint in °C per hour:

- 0: Load compensation inoperative (rate of change = 0 °C per hour)
- 1: Rate of change = 1 °C per hour
- 2: Rate of change = 2 °C per hour, etc., to
- 10: Rate of change = 10 °C per hour

64 Active load compensation

This line shows you the current effect of load compensation:

- **Status (left side of the display):**
 - 0: The heating group controller provides heating to the reduced room temperature setpoint
 - 1: The heating group controller provides heating to the normal room temperature setpoint
- **Setpoint (right side of the display):**

Software version 2.0 or higher:

The display shows the change of the room temperature setpoint communicated to the heating group controller. A negative value means that the flow or boiler temperature setpoint is being reduced according to the heating curve.

Software version up to 1.10:

The display shows the calculated room temperature setpoint communicated to the heating group controller. It is used by the controller to generate the required flow or boiler temperature setpoint.

65 Number of apartments

Here, you can display the number of configured apartments per heating group.

67 LPB address heating group controller

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 00-00 1 | | | |

This entry can only be made on central units of software version 3.0 or higher.

This line is used for entering the LPB addresses of the heating group controllers on the LPB. 3 entries are required:

- The setting value on the left is the segment number (00...14)
- The second setting value is the device number (00...16)
- The setting value on the right indicates the heating circuit (1...3)

As soon as the parameters of a heating group controller have been set, H-bus communication is no longer possible.

4.6 Operating card 6 – Startup building

Operating card 6 only contains entry functions. All displayed numerical values within the setting range can be changed as required.

01 Central unit number

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|-------------------|-----------------------------|-----------------------------|-----------------------------|
| Production number | | | |

On this line, you enter the number of the central unit. This may be any number consisting of a maximum of 8 digits. The number is valid for the whole plant controlled by this central unit.

03 Clock time master LPB

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 | | | |

This entry can only be made on central units of software version 3.0 or higher.

This line is used for entering the clock time master mode of the central unit on the LPB.

- 0: Standalone
- 1: Slave without remote adjustment
- 2: Slave with remote adjustment
- 3: Clock time master (the time of day of the central unit is adopted by the LPB devices: recommended entry!)

05 Date

Here, you enter the current date while observing the following format:

- 2 digits for the day of month (1...31)
- 2 digits for the month (1...12)
- 4 digits for the year (1992...2091)

The date must be entered in this order.

06 Weekday / time of day

Here, you enter the current weekday and the correct time.

The format is the following:

- 1 digit for the weekday (1 = Monday, 2 = Tuesday, etc., through 7 = Sunday)
- 2 digits for the hour (0...23)
- 2 digits for the minutes (0...59)

Weekday and time must be entered in this order.

15 Date of set day 1

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 30-06 | | | |

On the set day, all consumption data required for billing, such as heating energy, DHW and cold water, gas, etc., and other plant variables like heating degree days, operating hours, etc., are saved in the set day memory.

The date of the set day can be freely selected.

Here, you enter the day and the month of the set day. The format is the following:

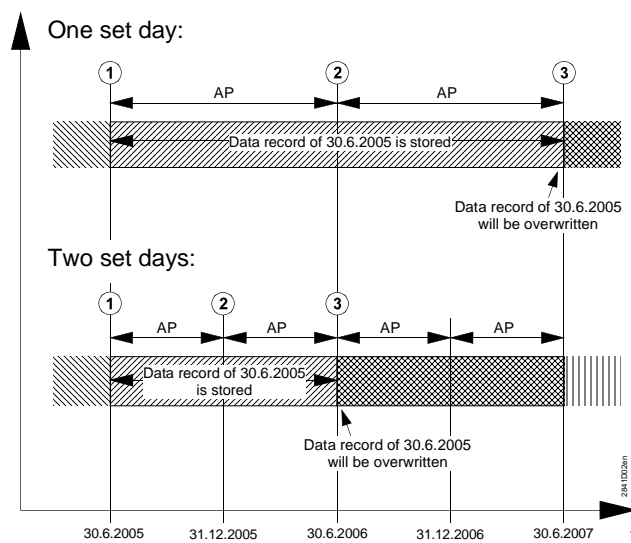
- 2 digits for the day (1...31)
- 2 digits for the month (1...12)

The date must be entered in this order.

It is possible to select 2 set days. The second set day is to be entered on the next line.

Important note:

To enable the control and heat meter interface to adopt the set day values of the heat meter, the heat meter's date of the set day must agree with that of the central unit.



1 and 2 set days – example of a data record storage on 30.6.2005

t Time
 AP Billing period
 Data record of 30.6.2005 will be saved
 Data record of 30.6.2005 remains saved
 Data record of 30.6.2005 will be overwritten

16 Date of set day 2

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 00 – 00 | | | |

On this line, you can enter the date of the second set day, if required.

If 0 is entered for both variables (day and month), there will be no storage. In that case, only set day 1 is used. In normal circumstances, only 1 set day will be defined.

Important note:

The consumption data will be retained for 2 billing periods, whereby 1 billing period is the period of time between 2 set days. If you choose 1 set day per year, the last data record will be retained for a period of 2 years (2 billing periods). In the third year, the data will be overwritten.

If you enter 2 set days per year, 1 billing period will last 6 month. This means that the last data record will be retained for 1 year (2 billing periods).

Hence, by entering a second set day, the duration of data storage in the central unit will be cut by 50 %.

17 Summertime

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1 | | | |

Here, you select summer- / wintertime changeover:

0: Manual (or no) summer- / wintertime changeover

1: Automatic summer- / wintertime changeover

The dates for automatic summer- / wintertime changeover can be entered on lines 19 and 20.

18 Mode of clock synchronization

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1 | | | |

This entry can only be made on central units of software version 1.10 or higher.

Here, you can select the type of clock synchronization:

0: Clock synchronization using the quartz frequency

1: Clock synchronization using mains frequency (50 Hz)

In normal situations, clock synchronization with mains frequency (50 Hz) is used. This setting ensures a clock with great accuracy. In the case of unstable AC 230 V mains networks, quartz synchronization must be selected.

If setting 0 is used (quartz synchronization), an additional number appears on the right side of the display.

This setting can be used to make adjustments to annual clock deviations, if required.

Readjustment example: If, after one year, the clock is 10 minutes too fast, the value of -10 must be entered.

Deviations of up to 30 minutes can be corrected.

19 Beginning of summertime Day – month

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 25 – 03 | | | |

This entry can only be made on central units of software version 2.0 or higher.

Here, the earliest possible date (day and month) is entered on which the change from winter- to summertime can occur. The change will take place on the first Sunday (at 03.00) that follows the date entered.

At present, the change takes place on the last Sunday in March, requiring 25-03 to be entered.

20 Beginning of wintertime Day – month

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 25 – 10 | | | |

This entry can only be made on central units of software version 2.0 or higher.

Here, the earliest possible date (day and month) is entered on which the change from summer- to wintertime can occur. The change will take place on the first Sunday (at 02.00) that follows the date entered.

At present, the change takes place on the last Sunday in October, requiring 25-10 to be entered.

36 Heating limit temperature for degree days

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 15.0 | | | |

Here, you select the upper limit of the outside temperature for calculating the number of heating degree days.

If there are no country-specific regulations concerning this variable, use 15 °C as a guide value.

37 Room temperature for degree days

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 20.0 | | | |

Here, you select the desired room temperature for calculating the number of heating degree days.

If there are no country-specific regulations concerning this variable, use 20 °C as a guide value.

39 Operating hours input 1

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|-----------------|-----------------------------|-----------------------------|-----------------------------|
| X-000000 | | | |

An operating hours counter for any plant component can be connected to input 1.

When commissioning the plant, the initial reading of the existing counter must be transferred to this line. The entry is to be made digit by digit. There are 6 digits available.

40 Operating hours input 2

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|-----------------|-----------------------------|-----------------------------|-----------------------------|
| X-000000 | | | |

This line corresponds to line 39, but here you transfer the number of operating hours of a second plant component (input 2).

44 Number of apartments

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 | | | |

On this line, you enter the number of apartments. This entry may only be changed in special cases (e.g. in the case of system extensions).

As long as this setting is zero, the central unit is in startup mode, in which case error status messages are suppressed. Readout of billing data is possible only when the number of apartments entered differs from zero.

The central unit verifies the entry by counting the number of apartments connected to it (apartments that can be identified on the bus). If there is a difference, an error status message will be delivered.

With software versions 1.0 and 1.10, readjustment of this value automatically deletes all data saved on the central unit (the data on the memory card are retained). The last 50 error status messages and the dates the meters were changed will also be deleted. Then, the central unit generates a new image of the plant's data.

With software version 2.0 or higher, readjustment of the number of apartments leads to a new plant data image, but the last 50 error status messages and the dates the meters were changed will be retained. For this reason, the last 50 error status messages and the dates the meters were changed must be deleted manually. To delete these data, keep both buttons and on the right depressed for 8 seconds. Since in that case the central unit automatically sets the number of apartments to zero, you then need to reenter the correct number.

48 Selection of PC interface

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 2 | | | |

This entry is required when a PC shall be connected either directly or via modem. The entries have the following meaning:

- 0: Automatic identification of the connected device. With software version 2.0 or higher, entry of 0 is no longer possible
- 1: Connection of a modem
- 2: Connection of a PC with ACS30
- 3: Connection of a PC with ACS Alarm

Using this entry with software version 3.0 or higher, it is also possible to deliver alarms to a directly connected PC. This setting must not be applied to ACS30. For safe operation, the relevant setting (1 or 2) is to be selected.

Exercise caution when connecting a PC!
Since most PCs are grounded via the COM port and the power pack, a ground fault can occur if the secondary side of the SYNERGYR system is grounded, damaging the WRV... heating cost allocation valves beyond repair.
For this reason, connect the COM port via galvanic separation, such as a commercially available optocoupler, or use an isolating transformer or a rechargeable battery.
This precautionary measure is not required when using central units of series D or higher.

66 Bus power supply

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1 | | | |

If an additional device with own power supply is connected to the building bus, one of the supplies must be turned off prior to startup.

On this line, you can deactivate the building bus power supply on the central unit:

- 0: Power supply off. Building bus not powered via the central unit
- 1: Power supply on. Building bus powered via the central unit

84 Control of all valves

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 2 | | | |

Using this line, you can manually control all valves from the central unit. This may be required in connection with hydraulic balancing of the plant, for instance.

Manual valve control is achieved as follows:

- 0: All valves fully closed
- 1: All valves fully open
- 2: Automatically; all valves in normal control mode

With entry of 0 or 1, the valves will automatically return to normal control mode at 00:00 h., or after no more than 5 hours.

85 Function selection WRV

Setting only possible on central units of software version 4.0 or higher.

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 | | | |

This function is used for the protection of plant where the WRV... control and heating cost allocation valve is installed. In apartments using the WRI80 control and heat meter interface, this function is not available.

The following settings can be made, depending on the valve kick cycle (operating page 6, line 97):

- 0: No valve kick
- 1: Valve kick open: The valve is opened and closed again if constantly closed
- 2: Valve kick close: The valve is closed and opened again if constantly open
- 3: Valve kick open and close: The valve is closed and opened again, or opened and closed again, if constantly open or constantly closed

89 Type of plant

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1 | | | |

This entry may only be made by Siemens service staff or an authorized partner. The following entries are possible:

- 1: Default value
- 10: Plant with circulating pump in the apartment, no pump overrun
- 1: Plant with circulating pump in the apartment, pump overrun time = 1 min

- 12: Plant with circulating pump in the apartment, pump overrun time = 2 min
- 13: Plant with circulating pump in the apartment, pump overrun time = 4 min
- 14: Plant with circulating pump in the apartment, pump overrun time = 8 min
- 15: Plant with circulating pump in the apartment, pump overrun time = 16 min
- 20: DHW charging with changeover valve (special application)

Entries other than those given above may lead to undefined plant conditions and should never be made!

99 Setup protocol

With this line, the data and parameter settings of all devices connected to the building bus are saved on the memory card. Saving takes place by pressing simultaneously (for 2 seconds) buttons and on the right.

4.7 Operating card 7 – Startup user

Operating card 7 defines the entries relating to the devices in the apartments during startup. The entries are required in each apartment and can normally only be made locally (exceptions depending on the software version), that is, on the respective device, with the help of the AZW30 service unit.

01 Meter number

The entry can only be made locally with the AZW30 service unit.

| |
|--------------------------|
| Default value: |
| Production number |

Here, a user-specific number can be entered for each device installed in the apartment. It is independent of the consecutive apartment number.

With the control and heat meter interface, it is always the heat meter's customer number that is used for meter 1. It can only be set on the heat meter.

02 Meter reading

This entry can only be made locally with the AZW30 service unit.

| |
|-----------------|
| Default value: |
| 00000000 |

If the apartment uses meters other than the control and heating cost allocation valve or the control and heat meter interface, the initial meter readings must be entered so that the display on the central unit agrees with that on the meters. The entry is to be made digit by digit. There are 8 digits available.

The reading of meter 1 (control and heating cost allocation valve or control and heat meter interface) cannot be changed.

53 Write standard data record

This entry can only be made locally with the AZW30 service unit.

On this line, the standard data record is written from the AZW30 to the device connected to the service unit.

In each apartment, the write process takes place meter by meter (meters 1...6). The individual meters must be called up via their meter numbers. The service unit selects the relevant data automatically and writes them to the device. It is possible to store 1 data record per meter.

Writing takes place by pressing simultaneously (for 2 seconds) the 2 buttons and on the right.

Reading data to the service unit: Refer to line 95 – Read standard data record.

Note:

Data written with the standard data record are identified on the operating card with *.

With WRV... control and heating cost allocation valves up to software version 1.22, the standard data record must not be written.

58 Normal room temperature *

This entry can only be made with the AZW30 service unit.

The entry is not required in plant equipped with a central unit.

| Default value: | Standard data record: | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| 20.0 | | | |

In the following case, the normal room temperature setpoint for the control and heating cost allocation valve or control and heat meter interface must be entered on this line:

- Plant without OZW30 central unit, with WRV81/82/84/85 or WRI80 and 1 QAW10 room unit

59 Reduced room temperature *

This entry can only be made with the AZW30 service unit.

The entry is not required in plant equipped with a central unit.

| Default value: | Standard data record: | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| 16.0 | | | |

In the cases mentioned above (line 58), the reduced room temperature setpoint for the control and heating cost allocation valve or control and heat meter interface must be entered on this line.

69 Minimum flow rate

This entry can only be made with the WRI80.

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 | | | |

With the control and heat meter interface, a minimum flow rate can be entered. If there is no demand for heat from the apartment, the minimum flow rate will be maintained. A minimum flow rate of 0 l/h means that the connected valve will be fully closed when there is no demand for heat.

The minimum flow rate is not supported by the control and heating cost allocation valve. The display of ---- indicates that this setting value is not available on the device side.

70 Nominal flow rate

This entry can only be made locally on the WRI80 with the AZW30 service unit.

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 1500 | | | |

Here, with the control and heat meter interface, you can set the nominal flow rate of the connected heat meter. With the control and heating cost allocation valve, the nominal flow rate is determined by the type of valve and cannot be changed.

76 Maximum flow rate

WRV..., software version 1.0:

The entry can only be made with the AZW30 service unit.

WRV..., software version 1.10 or higher and WRI80:

The entry can be made on the central unit or with the AZW30 service unit.

| Default value: | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
|--------------------------|-----------------------------|-----------------------------|-----------------------------|
| Nominal flow rate | | | |

Each control and heating cost allocation valve can be assigned a maximum flow rate which, on average, shall not be exceeded when the valve cycles (on / off mode).

The maximum value that can be entered for each type of WRV... valve corresponds to the nominal flow rate. If this value is entered, flow limitation will be inoperative.

With the control and heat meter interface, the maximum flow rate for adequate control performance with limit control must be within 10 % of the balanced design flow of the apartment, which was set for the apartment with the help of the adjusting fitting. Limit control at the maximum flow rate is only activated when using the relevant switch on the WRI80.

With the WRI80, the maximum flow rate is limited by the nominal flow rate at the top and the minimum flow rate at the bottom.

| Type reference | Limitation in liters | Function deactivated at |
|----------------|----------------------|-------------------------|
| WRV8...200 | 0...199 | 200 |
| WRV8...400 | 0...399 | 400 |
| WRV8...750 | 0...749 | 750 |
| WRV8...1500 | 0...1499 | 1500 |
| WRI80 | Qmin...Qnenn | DIP switch 2 = off |

With the help of this setting, the valve supports hydraulic balancing.

Note:

If the WRV...’s display shows a bar in place of a number, the valve has left its display range. In that case, slowly reduce the flow with the throttle until a numerical value is displayed.

80 Location of valve *

This entry can only be made with the AZW30 service unit.

| Default value: | Standard data record: | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| 0 | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| | | | |

Here, the location of the control and heating cost allocation valve or of the heat meter connected to the control and heat meter interface is to be entered. Normally, this is the return from the apartment. In some rare cases (or in the case of incorrect mounting), this may also be the flow:

0: In the return

1: In the flow

Note:

If the valve is installed in the flow, it must be ensured that the flow temperature at the WRV... will never exceed 90 °C.

81 Heating group / flow zone

*With OZW30 software version 1.10 or higher **and** with WRV... software version 1.11 or higher (WRV... valve) and with the WRI80: Entry can be made from the central unit or with the AZW30 service unit.*

*OZW30 software version 1.0 **or** WRV... software versions lower than 1.11: Entry can only be made with the AZW30 service unit.*

| |
|-----------------|
| Default value: |
| Group: 1 |
| Zone: 0 |

Each apartment can be assigned to a heating group which provides load-dependent boiler temperature control. This means that the heat demand of the individual apartments is taken into consideration.

On this line, the number of the heating group is to be entered:

- 0: No assignment
- 1: Heating group 1
- 2: Heating group 2, etc., through
- 6: Heating group 6

If **WRV82 / 85 / 86** control and heating cost allocation valves are used, flow temperature measurement can be assigned to several zones. This assignment or the zone number must be entered as a second number, beside the number of the heating group.

For the **WRV81 / 83 / 84** control and heating cost allocation valves and the **WRI80** control and heat meter interface, this entry is of no importance.

84 Control of valve

| |
|----------------|
| Default value: |
| 2 |

This line facilitates manual control of each valve (WRV... internally or WRI80 zone and room valve) from the central unit. This may be required in connection with hydraulic balancing of plant.

Manual valve control is achieved as follows:

- 0: Valve fully closed
- 1: Valve fully opened
- 2: Automatically; valve in normal control mode

With the entries of 0 and 1, the central unit automatically changes to automatic mode at 00:00 h. The control and heating cost allocation valves change to automatic mode after a maximum period of 5 hours.

Note:

If, with a WRV... valve using a software version lower than 1.20, this line is selected a second time, the value of 2 always appears, independent of the actual valve position. With WRV... software version 1.20 or higher and with the WRI80, it is always the actual valve position that is displayed.

Each valve can also be controlled with the service unit:

- With software version 1.0 of the central unit, directly on the WRV... / WRI80
- With software version 1.10 or higher of the central unit, from any SYNERGYR unit with a connection facility for the service unit

85 Selection of function *

| | | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| Default value: | Standard data record: | | |
| 3 / 0 | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| WRV... / WRI80 | | | |

This entry is only possible with central units and service units of software version 2.0 or higher. It only acts on control and heating cost allocation valves of software version 1.20 or higher.

This entry is intended for special applications and may only be changed by Siemens service staff or an authorized partner.

At present, this entry can be used to deactivate the summer function, the temperature differential – hydraulic creep suppression and the frost protection function (acting on a pump module).

When supplied, the frost protection function (acting on the pump) and the other functions are activated.

The entry is to be made according to the following table.

With the control and heat meter interface, only the frost protection function can be selected.

| <i>Function selection</i> | <i>Frost protection function</i> | <i>Temperature differential hydraulic creep suppression</i> | <i>Summer function</i> |
|---------------------------|----------------------------------|---|------------------------|
| 0 | Off | Off | Off |
| 1 | Off | On | Off |
| 2 | Off | Off | On |
| 3 | Off | On | On |
| 4 | On | Off | Off |
| 5 | On | On | Off |
| 6 | On | Off | On |
| 7 | On | On | On |

- Frost protection function acting on the pump:
 With the type of plant using a pump module in each apartment, the pump module will always be switched on when the valve is fully open. Otherwise, it will be switched off with a certain delay (according to the pump overrun time set).
 If the frost protection function is activated and the room temperature is lower than 1.5 °C, the pump by the control and heating cost allocation valve will also be activated when the valve is fully closed
- Summer function:
 - When the summer function is deactivated, the valve will perform a test opening at 10-minute intervals, provided there is demand for heat
 - When the summer function is activated, it will be made certain – with the heat source switched off – that the valve will not carry out the test opening after 10 minutes. If the valve detects that there has been no flow for at least 24 hours, the valve will only be opened at 4-hour intervals. It is then in summer mode (also refer to operating card 4, line 79)

- (please also refer to operating card 4, line 79). The summer function should only be deactivated with special applications

86 Unit factor *

This entry can only be made with the AZW30 service unit.

| | | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| Default value: | Standard data record: | | |
| 43 | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| | | | |

The factor to be entered on this line defines for each device the unit and the conversion factor required for the correct display on the meter:

| Factor | Unit | Display on the OZW30 central unit | Display on the QAW20... room unit |
|--------|-----------|-----------------------------------|-----------------------------------|
| 2 | Wh | 88888.888 kWh | 888888 |
| 3 | Wh x 10 | 888888.88 kWh | 888888 |
| 4 | Wh x 100 | 888888.8 kWh | 888888.8 kWh |
| 5 | kWh * | 88888888 kWh | 888888 kWh |
| 6 | kWh x 10 | 88888888 | 888888 |
| 7 | kWh x 100 | 88888888 | 888888.8 |
| 8 | MWh | 88888888 | 888888 |
| 9 | MWh x 10 | 88888888 | 888888 |
| 10 | MWh x 100 | 88888888 | 888888.8 |
| 11 | kJ | 88888888 | 888888 |
| 12 | kJ x 10 | 88888888 | 888888 |
| 13 | kJ x 100 | 88888888 | 888888.8 |
| 14 | MJ | 88888888 | 888888 |
| 15 | MJ x 10 | 88888888 | 888888 |
| 16 | MJ x 100 | 88888888 | 888888.8 |
| 17 | GJ | 88888888 | 888888 |

| Factor | Unit | Display on the OZW30 central unit | Display on the QAW20... room unit |
|--------|------------------------------|---|---|
| 18 | GJ × 10 | 88888888 | 888888 |
| 19 | GJ × 100 | 88888888 | 888888.8 |
| 38 | ml * | 88888.888 l | 888888 |
| 39 | ml × 10 | 888888.88 l | 888888 |
| 40 | ml × 100 | 888888.8 l | 888888.8 |
| 41 | Liter | 88888888 l | 888888 |
| 42 | Liter × 10 | 888888.88 m ³ | 888888 |
| 43 | Liter × 100 | 888888.8 m ³ | 888888.8 m ³ |
| 44 | m ³ | 88888888 m ³ | 888888 m ³ |
| 45 | m ³ × 10 | 88888888 | 888888 |
| 46 | m ³ × 100 | 88888888 | 888888.8 |
| 57 | No unit | 88888888 | 888888 |
| 63 | Heating cost allocation * | 88888888 | 888888 |

* The unit factor of the control and heating cost allocation valve and control and heat meter interface (meter 1) is not adjustable

Note on the display of the meter readings on the QAW20... room unit: Only unit factors with 1 decimal can be displayed, like on the central unit. The digits with the highest values (left) will be cut off.

87 Metering medium *

This entry can only be made with the AZW30 service unit.

| Default value: | Standard data record: | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| 7 | | | |

Here, the metering medium of each meter is to be entered. The numbers have the following meaning:

- 0: Other
- 1: Fuel oil
- 2: Electricity
- 3: Gas
- 4: Heat
- 5: Steam
- 6: Hot water
- 7: Cold water
- 8: Heating cost allocation

When interrogating the meter readings on the QAW20... room unit, the metering media (electricity, gas, heat, hot and cold water) and heating cost allocation are displayed with symbols.

88 Meter calibration date *

This entry can only be made with the AZW30 service unit.
 On this line, the last calibration date of each meter installed in the apartment is to be entered.
 With the control and heat meter interface, meter 1 displays the date of a forthcoming battery change of the heat meter. This value cannot be changed.

89 Type of plant *

This entry can only be made with the AZW30 service unit. It is not required in plant equipped with a central unit.

| Default value: | Standard data record: | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| 1 | | | |

This entry may only be made by Siemens service staff or an authorized partner:

- 1: Default value
- 10: Plant with circulating pump in the apartment, no pump overrun
- 11: Plant with circulating pump in the apartment, pump overrun time = 1 min
- 12: Plant with circulating pump in the apartment, pump overrun time = 2 min
- 13: Plant with circulating pump in the apartment, pump overrun time = 4 min

- 14: Plant with circulating pump in the apartment, pump overrun time = 8 min
- 15: Plant with circulating pump in the apartment, pump overrun time = 16 min
- 20: DHW charging with changeover valve (special application)

Entries other than those given above may lead to undefined plant conditions and should not be made!

90 Pulse valency *

This entry can only be made with the AZW30 service unit.

| Default value: | Standard data record: | | |
|--------------------|-----------------------------|-----------------------------|-----------------------------|
| | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| 0001 – 0001 | | | |

With pulse sources, each pulse corresponds to a certain consumption volume. The correlation between pulse valency and unit factor is to be entered on this line.

The pulse valency is printed on the meter. Pulse valency and unit factor (line 86) must match. To make the entry, proceed as follows:

If pulse valency [e.g. l/pulse] and unit factor [e.g. l, line 86] are known, the factor to be entered must be determined according to the following examples:

First example:

Pulse valency = 20 l / pulse

Unit factor = 10 l

Your entry:

$$\frac{\text{Pulse valency}}{\text{Unit factor}} = \frac{20}{10} = \mathbf{2 - 1}$$

Second example:

Pulse valency = 2.5 l / pulse

Unit factor = 100 l

Your entry:

$$\frac{\text{Pulse valency}}{\text{Unit factor}} = \frac{2,5}{100} = \mathbf{1 - 40}$$

If the meter readings can be displayed on the QAW20... room unit, the unit factor selected should be such that it can be shown on the room unit. Suited are unit factors with no or 1 decimal. Examples are liters or liters × 100.

91 Type of pulse source *

This entry can only be made with the AZW30 service unit.

| | | | |
|----------------|-----------------------------|-----------------------------|-----------------------------|
| Default value: | Standard data record: | | |
| 0 | Your 1 st entry: | Your 2 nd entry: | Your 3 rd entry: |
| | | | |

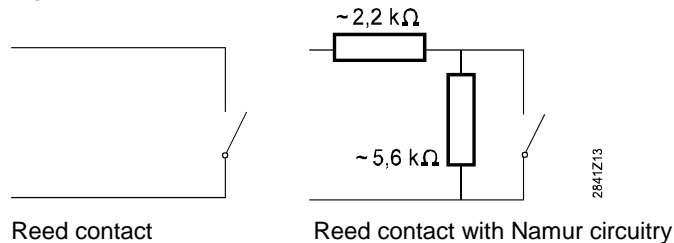
If the apartment uses 1 or more consumption meters in addition to the control and heating cost allocation valve or control and heat meter interface, the types of pulse sources of the connected meters must be entered here for each meter:

- 0: No pulse source (meter) present
- 1: Pulse source with Reed contact and Namur circuitry
- 2: Pulse source with Reed contact

When using the setting of 0, the respective meter does not report to the central unit.

Note:

Pulse source contacts with Namur circuitry offer the advantage of supervision of open-circuits and short-circuits.



92 Adapter subaddress

This entry can only be made with the AZW30 service unit.

| |
|----------------|
| Default value: |
| 1 |

If the apartment uses 2 AEW2.1 pulse adapters, 1 of them must be identified as the “2nd pulse adapter” using subaddress 2. Connected to the “2nd pulse adapter” are meters 5 and 6. The second pulse adapter is the first to be put into operation.

95 Read standard data record

This is only possible with the AZW30 service unit.

To simplify the setting of apartment parameters, standard data records can be used. To do this, the parameters of the device in a “pilot apartment” must first be set. Then, these data will be read to the service unit.

On the operating card, the saved parameters are identified with an asterisk *.

The procedure for reading data to the service unit is the following:

1. Connect service unit to the service socket of the device whose data are to be adopted.
2. Select “Read standard data record” on the service unit (operating card 7, line 95). The service unit now displays the connected device:
 1. Control and heating cost allocation valve or control and heat meter interface.
 2. Meter, connected to the control and heating cost allocation valve or control and heat meter interface.
 3. Meter, connected to pulse adapter 1.
 4. Meter, connected to pulse adapter 1.
 5. Meter, connected to pulse adapter 2.
 6. Meter, connected to pulse adapter 2.
3. On the service unit, press simultaneously (for 2 seconds) buttons and on the right hand side.

⇒ The meter's data are read to the service unit.
It is possible to store 1 data record (also refer to section 7.3 “Setting up the devices of each apartment”). The reading process is indicated by the number **1**. When the display changes to **0**, the reading process is completed.
4. Repeat the procedure with device or meter no. 2, then with no. 3, etc.

99 Setup protocol

Here, a protocol can be generated when starting up the plant. It will be written on the memory card by pressing simultaneously (for 2 seconds) buttons and on the right.

The protocol contains the parameter settings of all adjustable values and the configurations of the device to which the service unit is connected.

This function is required when meters are changed, for saving a protocol on the memory card for each device in use.

5 About the devices

5.1 Control and heating cost allocation valve

- In the case of extremely low flow rates, the valve will close since very small flow rates cannot be accurately measured (suppression of hydraulic creep)
- In the event of a power failure, all current meter readings and the actual time are saved in nonvolatile memory
- The valve is maintenance-free and performs self-checks
- Tampering is recorded

5.1.1 Display

The 7-digit display (LCD) is at the top and can be viewed through an opening in the housing. It delivers the following information:

- For 10 seconds at a time, the display shows the current meter reading of the amount of heat energy consumed, in other words the cumulated heat consumption
- For 5 seconds at a time, the display shows the current flow rate of the valve in l/h and a check number. The check number is generated from the meter's reading and enables the billing agency to verify manual readout.
If the valve has been closed due to an overriding function (that is, not by room temperature control), the valves of software version 1.20 or higher also display a code which gives the cause of the valve's position (e.g. **Lo**, when the valve has been closed due to low flow rate). The codes are listed with operating card 4, line 79, of this manual
- Symbol ((●)) indicates incoming pulses from the connected meter
- In the event of error, 2 kinds of display are possible:
 - The word **ERROR** plus the error code (refer to operating card 3, line 50)
 - The indication **no bus** if building bus communication is faulty

Error status messages are displayed for 2.5 seconds. The period of time the meter's reading is displayed is appropriately reduced.

5.1.2 Manual operation

In the event of a power failure, or if the control and heating cost allocation valve is defective, the valve can be operated manually.

Faulty devices must be isolated from the power supply to ensure the selected position of manual adjustment will not change.

The manual adjustment facility has three positions:

- 0: Valve fully closed
- 1: Valve in mid-position (low flow rate)
- 2: Valve fully open (large flow rate)

The manual adjustment facility is sealed. To operate it, the seal must be broken.

Manual adjustment is recorded by the central unit as an error.

5.1.3 Protection of valve

To protect the valve from seizing in the case of longer off periods, the valve is periodically opened and closed:

- Once a week as long as the control system does not deliver a control pulse
- Once every 200 hours when there is no clock signal

5.2 Control and heat meter interface

5.2.1 Reading the heat meter (meter 1)

- The consumption data of the connected heat meter are updated at 1-hour intervals, thus making them available for readout by the central unit or room unit
- The current meter reading, the unit factor, the medium, the production number and – if supported by the heat meter –

the mounting location, are directly adopted by the heat meter

- The monthly values are adopted by the heat meter, if available via M-bus. Otherwise, they will be internally simulated just after 0:00 on the first day of the next month
- The meter reading on the last and the last but one set day is adopted by the heat meter, if the set day was executed on the same day. Otherwise, the interface will simulate the value on the set day.

Note: SYNERGYR generates the set day value on the date of the set day at 0:00, a heat meter usually at 24:00. For this reason, small differences can occur

- The number of operating hours are not adopted by the heat meter. They will be internally accumulated and are identical for meter 1 and meter 2
- Faults received from the heat meter are forwarded to the central unit. Communication with the heat meter is monitored
- A forthcoming battery change of the heat meter is indicated under meter calibration date, provided the connected heat meter supports this function

5.2.2 Control / zone valve

- To ensure that the zone valve will stay open during occupancy times and that secondary rooms can be individually controlled, the switch for Comfort on the device must be set to "on"
- To ensure adequate control performance in connection with limit control to the maximum or minimum flow rate, the maximum flow rate must be within 10 % of the design flow rate as specified by the planning engineer
- Limit control to the maximum flow rate must be activated with the switch on the device. It makes certain that the specified maximum flow rate will be maintained
- Limit value control to the minimum flow rate can be used to ensure a certain temperature level in radiators or floors of the secondary rooms should the room temperature set-point in the reference room be exceeded
- After 168 off hours, the zone valve is given a kick at 10:00

5.2.3 Pulse adapter (meter 2)

In the event of a power failure, meter readings, operating hours, time of day and error messages are filed in a hardware buffer. The pulse adapter monitors itself and wiring to the meters (only with meters using the Namur circuitry). Should faults occur, they will be delivered as error messages via the building bus.

5.2.4 Indication (LED)

The LED indicates the following states:

- LED steady on: Startup when power is applied (max. 1 minute) or fault
- LED flashing: Normal operation
- LED dark: No power supply

5.3 Pulse adapter

In the event of a power failure, meter readings, operating hours, time of day and error messages are filed in a hardware buffer. The pulse adapter can also be equipped with a rechargeable battery, enabling it to operate during power failures.

The pulse adapter is maintenance-free.

It monitors itself and wiring to the meters (only with meters using the Namur circuitry). Should faults occur, they will be delivered as error messages via the building bus and indicated by an LED on the unit front:

- LED steady on: Fault
- LED flashing: Normal operation
- LED dark: No power supply

5.4 Room unit QAW10

The QAW10 room unit has a knob for making setpoint readjustments and an Economy button.

The setpoint as such cannot be adjusted because the setpoint of the central unit is used. But the occupant can readjust the normal setpoint within a range of ± 3 °C by turning the room unit's knob.

During occupancy times, the user can choose reduced heating and then return to normal heating by pressing the Economy button. During non-occupancy times, the Economy button is inoperative.

5.5 Room unit QAW20...

The QAW20... room unit has the following operating elements:

- Operating mode button
- Info button
- Setpoint knob
- Economy button
- LCD

The following operating modes can be selected:

- Standby: Heating system switched off, but with frost protection
- Manual operation:
 - Occupancy time: Temperature can be reduced or raised by pressing the Economy button
 - Non-occupancy time: Economy button is inoperative
- Automatic operation: Heating according to the heating program entered on the room unit by the user. A maximum of 3 heating periods per 24-hour period are possible, but only during the occupancy time defined by the central unit

When using the heating program, it should be observed that the required room temperature will not be reached the moment the set comfort period starts (heating to normal temperature). Heat transfer processes take a certain time. Depending on the type of heating system, it may be necessary to switch on the heating 1 or 2 hours earlier, thus making certain that the required room temperature will be attained when needed. Likewise, switching to reduced heating can occur earlier.

By pressing the Info button, the following information can be displayed:

- Weekday, time of day, and actual room temperature
- Current heating energy reading and consumption trend

- Current meter readings for DHW, cold water, gas, electricity and outside temperature, provided these variables are acquired
- Meter readings of the consumption variables on the last set day

In the event of longer absence, the user can enter a holiday period (number of days), in which case reduced heating is provided. The remainder of the holiday period (time to elapse until the change back to the normal temperature occurs) will be displayed.

The following setpoints can be selected:

- Setpoint of normal temperature
- Setpoint of reduced temperature

The selected setpoint can be readjusted by turning the room unit's knob, but the temperature limitations entered on the central unit always apply.

The room unit is powered via the control and heating cost allocation valve or the control and heat meter interface. In the event of a power failure, the unit has a maximum backup of 12 hours.

Detection of airing ensures the heating system will temporarily be switched to standby mode should the room temperature considerably drop.

A signal input is available to connect a remote sensor or a potential-free contact. The function of the contact can be selected.

6 Practical tips

6.1 About heating

- In setback mode, the heating system will be switched off to remain deactivated until the set reduced temperature is reached
- Heat is not as fast as light, for instance. Take this into account when making adjustments to the heating system. There will be an immediate response from the control system, but heat transfer processes take more time. For this reason, make no more than 1 temperature readjustment or program change within a 24-hour period
- Walls, furniture and other objects absorb heat, store it, and emit it again, but very slowly

6.2 Saving heating energy

- Do not allow room temperatures to exceed 21 °C. Each additional degree will cause heating costs to increase by 6 to 7 %
- Room temperature guide values for living and working spaces:
 - Normal temperature: 19 to 22 °C. 21...22 °C satisfy comfort requirements
 - Reduced temperature: 15 to 18 °C. Protection against condensation is ensured from 18 °C. For living spaces, 15 to 18 °C is sufficient at night, but consider cold-sensitive objects such as plants!
- Always renew room air quickly, with windows wide open for short periods of time
- In unoccupied rooms, turn the thermostatic radiator valves to the frost protection position
- At dusk, close shutters and blinds to reduce heat radiation losses to the outside
- Compare the heating energy consumption and the heating degree days at regular intervals, thus enabling you to detect malfunctions of heat generation at an early stage

- Curtains that cover radiators reduce their efficiency. The same applies to furniture, partitions, etc., placed in front of them
- Saving energy also means active environmental protection

6.3 Important information about the reference room

The reference room in which the room unit with the room temperature sensor is located must not be exposed to temperature disturbances since these could adversely affect the control functions. For this reason:

- Air the room only for short periods of time and avoid drafts through open doors
- Do not place furniture or curtains, etc., in front of the sensor
- Avoid heat gains from people, appliances and lighting in the vicinity of the sensor
- Lock thermostatic radiator valves in their fully open position

6.4 What to do in the event of operating faults?

Before calling on your customer service, please check the following points:

- Entire plant:
 - Is the mains isolator of the plant switched on?
 - Are all other switches in their required positions?
 - Are all plant fuses in order?
- Control and heating cost allocation:
 - Does the central unit indicate an error?
 - Have any settings on the central unit been changed?
 - Are time of day and weekday correct?
 - Are the entered temperatures and the occupancy time correct?

- If the required room temperature is not reached:
Change the heating program such that the comfort period will be extended
- Heat generation and heating group:
 - Does the heating group controller indicate an error?
 - Does the heating group controller use the correct operating mode?
 - Does remote operation act on the heating group controller? Note display!
 - Are the entered temperatures and occupancy times correct?
 - Have any settings on the heating group controller been changed?
 - Has the burner gone to lockout? Press reset button!
 - Do boiler bypass pump and circulating pump operate?
 - Has the coupling mechanism between actuator and valve been disengaged? Engage it!

If you cannot locate and correct the cause of the trouble, set the heating group controller to manual operation. Call in your heating engineer.

- Room heating: If room temperature control or the control and heating cost allocation valve fails, the valve can be operated manually
- Heat generation: If heat source and circulating pump still function, the heating valve can be operated manually. The burner will then be controlled by the boiler control thermostat whose setting may have to be lowered

7 Commissioning

The possible setting values of all devices are specified in the Operating Manual. The following commissioning instructions give the order of the individual steps and can be used as a checklist.

The system must be commissioned by Siemens service personnel or by an authorized partner.

7.1 Preparation

Prior to commissioning the plant, the following checks must be made:

7.1.1 Operating voltage and wiring

- Power supply to the OZW30 central unit
- Building bus from the OZW30 central unit to the next ALW30/84 conduit box
- Connection between ALW30/84 conduit box and QAW10 / QAW20... room unit
- Connection between ALW30/84 conduit box and first non-SYNERGYR meter
- Connection between ALW30/84 conduit box and WRV... control and heating cost allocation valve
- Connection between ALW30/84 conduit box and WRI80 control and heating meter interface
- Connection between WEI80 control and heat meter interface and heat meter
- Connection between WRI80 control and heat meter interface and zone valve actuator
- Connection between WRI80 control and heat meter interface and d.h.w contact
- Connection between WRI80 control and heat meter interface and AEK84 control module and from there to the apartment pump
- Connection between ALW30/84 conduit box and AEW2.1 pulse adapter

- Connection between ALW84 conduit box and AEK84 control module and from there to the actuator of the room valve
- Connection between AEW2.1 pulse adapter and non-SYNERGYR meters
- Connection between AEW2.1 pulse adapter and meters in the “general area”
- Connection between OZW30 central unit and RVL50 / 55, RVP40 / 45 / 75 / 97 controller (via H-bus, terminals M-D) or RVL47..., RVA..., RVD2..., RVP3..., RVP5... controller (via building bus, terminals MB-DB, to LPB) or non-Siemens controller (load compensation relay, terminals S13–S14)
- Connection of operating hours counters and alarm sources to the OZW30 central unit

When correctly wired, the following voltages must be present:

- G1–G2 = AC 16...24 V
- MB–DB = DC 15...18 V (DB being the positive pole)

Note:

The transformer for AC 24 V operating voltage must not be grounded on the secondary side!

7.1.2 Heating plant and heat source

Does the heating pump or group pump run?

Note: To commission the plant, the heat source must be switched on.

7.1.3 Pressure control and spill valve

Are differential pressure control and spill valve correctly set?

After these checks, the central unit and the apartments can be commissioned. To do this, following is required:

- AZW30 service unit
- Appropriate number of address plugs and address labels
- Seals
- Nominal flow rate of each apartment (as specified by the planning engineer)

7.2 Setting up the central unit

Before the devices in the apartments can be put into operation, the parameters of the central unit must be set.

When switching on, the central unit performs a self-test. The display shows **SELFtEst**.

After completion of the self-test, **InStAL**, weekday and time of day are displayed.

IMPORTANT!

Write the values entered or changed by you into the appropriate fields of this Operating Manual!

7.2.1 Setting the parameters of the apartments' room temperature control system

(Entries on operating card 5)

- Occupancy times (lines 55 and 56)
- Room temperatures (lines 57...61)

7.2.2 Setting the parameters of load compensation

(Entries on operating card 5)

These parameter settings are required only when there is a connection to the heating group controller.

- Type of load compensation and strategy (line 62)
- Effect of load compensation (do not change the default value)

7.2.3 Setting the parameters of the heating group controllers on the LPB

(Entries on operating card 5)

These parameter settings are required only if there is a connection to LPB heating group controllers.

- LPB address heating group controller (line 67)

7.2.4 Entering the building parameters

(Entries on operating card 6)

- Clock time master LPB (line 03)
- Date, weekday, time of day, etc. (lines 05, 06, 15 and, possibly, line 16)
- Parameters for heating degree days (lines 36 and 37)
- Starting value operating hours counter (lines 39 and 40)
- Number of apartments (leave on 0). This parameter is to be set only after the apartments have been commissioned

The remaining standard parameter settings should not be changed. They need to be changed in special cases only. Chapter "4 Description of operating lines" of this Operating Manual gives a detailed description of each line and parameter.

7.2.5 Locking the room temperature display

The room temperature display on the central unit can be locked. To do this, set the plug located on the lower printed circuit board of the central unit onto the 2 pins at the top.

7.3 Setting up the devices of each apartment

7.3.1 Addressing the devices

All devices connected to the building bus are assigned the same address plug per apartment, e.g. address plug 07. It must be inserted in the device. The small address label is to be affixed to the outer side of the unit.

7.3.2 Mounting the control and heating cost allocation valve

1. Close the shutoff valves on both sides of the adapter piece.
2. Open the air relief cock in the flow header and relieve pressure as soon as the water jet gets smaller. Close the air relief cock again.
3. Loosen the adapter fittings and remove them. Also remove both pairs of seals.

4. Install the control and heating cost allocation valve using a new pair of seals and tighten the fittings.
5. Only with WRV81 / 83 / 84: Fit the flow temperature sensor:
 - a) Check proper installation of protection pocket
 - b) Immerse sensor fully in the protection pocket
 - c) Secure the sensor to the protection pocket using the adjusting screw
6. Open both shutoff valves. If required, open air relief cock and let air escape.

7.3.3 Wiring the control and heating cost allocation valve

1. Open the ALW30 / 84 conduit box.
2. Introduce the cable from the control and heating cost allocation valve and connect the wires in compliance with their color coding.

Color coding of cable:

 - G1: White
 - G2: Brown
 - MB: Blue
 - DB: Pink
 - MD Green
 - D1: Gray
 - P1: Yellow
 - R1: Red (only ALW84)
3. Check wiring of the room unit and, if present, of the pulse adapter and consumption meter(s).
4. Switch on the SYNERGYR building bus:

If the display shows no value, there is no power present (connection terminals G1 and G2: AC 16...24 V).
If, after about 1 minute, **no bus** appears, the building bus is incorrectly connected (change connections at terminals DB and MB; voltage DB-MB: DC 15...18 V).

7.3.4 Basic balancing of control and heat cost allocation valve

If the display shows error 56, the pressure differential across the valve is too great. In that case, the flow rate lies outside the measuring range. The values depend on the valve's software version.

Remedy: Reduce overpressure with the integrated throttle until the flow rate is within the permissible range.

| Type of valve | Display outside the measuring range | |
|---------------|-------------------------------------|-------------------------------------|
| | up to software version 1.15 | with software version 1.2 or higher |
| WRV8...200 | – | 300 liters |
| WRV8...400 | 480 liters | 600 liters |
| WRV8...750 | 900 liters | 1125 liters |
| WRV8...1500 | – | 2250 liters |

The measured value "Flow rate" is updated at 15-second intervals.

It may take several minutes for the error status message to disappear.

7.3.5 Setting the parameters of the control and heating cost allocation valve (meter 1)

Note:

- The control and heating cost allocation valve is regarded as "Meter 1"
- The parameters of all devices connected to the building bus are set with operating card 7
- The parameters of operating card 7 can only be set with the help of the service unit. It is to be connected to the service port of the device whose parameters shall be set

Procedure:

1. Only if required: Enter the meter number (line 01).
2. The meter reading of the control and heating cost allocation valve (line 02) is not alterable.
3. Set the parameters. There are 2 choices:

- The parameters are set one by one
 - If the parameters have previously been saved in the service unit, they can now be copied to the control and heating cost allocation valve (only with WRV... of software version 1.30 or higher): Select line 53 (Write standard data record), press simultaneously (for 2 seconds) buttons and on the right. Then, adapt the parameters where required
4. Only in plants not equipped with the OZW30 central unit: Set the parameters of the room temperatures (lines 58 and 59).
 5. Enter the maximum flow through the control and heating cost allocation valve as specified by the planning engineer (line 76).
 6. Check the mounting location of the control and heating cost allocation valve. The normal mounting location is in the return pipe. If, by accident, the valve was fitted in the flow pipe, its parameters can be changed.
Note:
The control and heating cost allocation valve is designed to withstand flow temperatures above 85 °C **for short periods of time only**. If higher flow temperatures are expected, the valve must be mounted in the return pipe.
 7. Only in connection with the heating group controller: Enter the assignment of the control and heating cost allocation valve to the heating group (line 81).
With the H-bus controllers, the controller address must be appropriately entered (RVL55: on operating card page 7, line 12).
 8. Only with WRV82 / 85 / 86 (QAB30 temperature measuring unit): Enter assignment to the flow zone (line 81).
 9. Balance the apartment hydraulically.
To facilitate hydraulic balancing, all valves can be individually controlled via line 84.
 10. Set the parameters of the type of plant, depending on the application (line 89).
 11. Store the data record of the control and heating cost allocation valve whose parameters you have just set:

Select line 95, press simultaneously (for 2 seconds) buttons and on the right.

This assigns the data to meter 1 of the apartment. In the next apartment, the data of the parameters identified with an asterisk * can be read to the associated control and heating cost allocation valve, and appropriately adapted, using line 53.

Now, the parameters of the control and heating cost allocation valve (meter 1) of the apartment have been set. If another meter is present **and** connected to the control and heating cost allocation valve, its parameters are also to be set with the service unit. For this purpose, the service plug is to remain attached to the control and heating cost allocation valve.

Parameterization of meter 2 is described in subsection 7.3.8 "Setting the parameters of meter 2".

7.3.6 Electrical connection of the control and heat meter interface

1. Open the ALW84 conduit box.
2. Introduce the cable from the control and heat meter interface and connect the wires in compliance with their color coding.

Color coding of cable:

G1: White

G2: Brown

MB: Blue

DB: Pink

MD Green

D1: Gray

P1: Yellow

R1: Red

If the LED is not lit, there is no power present (connection terminals G1 and G2: AC 16...24 V).

If, after about 1 minute, the LED is not flashing, the building bus is incorrectly connected (change connections at terminals DB and MB; voltage DB-MB: DC 15...18 V).

3. Terminal connections:

Y1, Y2, G2: Zone valve
CM+, CM-: Heat meter
H1, MD: Request for DHW
Q1, MD: AEK84 for apartment pump

4. Check the connections to all devices.
5. Switch on the SYNERGYR building bus:
If the LED is not lit, there is no power present (connection terminals G1 and G2: AC 16...24 V).
If, after about 1 minute, the LED is not flashing, the building bus is incorrectly connected (change connections at terminals DB and MB; voltage DB-MB: DC 15...18 V).

7.3.7 Setting the parameters of the control and heat meter interface (meter 1)

Notes:

- The heat meter connected to the control and heat meter interface is regarded as "Meter 1"
- The parameters of all devices connected to the building bus are set with operating card 7
- The parameters of operating card 7 can only be set with the help of the service unit. It is to be connected to the service port of the device whose parameters shall be set

Procedure:

1. Only if required: Enter the device number directly on the heat meter. It will automatically be adopted by the control and heat meter interface (line 01).
2. The meter reading on the control and heat meter interface is read from the heat meter and is not alterable (line 02).
3. Set the parameters. There are 2 choices:
 - The parameters are set one by one
 - If the parameters have previously been saved in the service unit, they can now be copied to the control and heat meter interface: Select line 53 (Write standard data record), press simultaneously (for 2 seconds) buttons and on the right. Then, adapt the parameters where required

4. Only on plant not equipped with the OZW30 central unit:
Set the parameters of the room temperatures (lines 58 and 59).
5. Enter the nominal flow of the heat meter (line 69).
6. Enter the minimum and maximum flow rate of the control and heat meter interface as specified by the planning engineer (lines 70 and 76).
7. Only in connection with the heating group controller:
Enter the assignment of the control and heat meter interface to the heating group (line 81).
On the controllers, the controller address must be appropriately entered.
8. Balance the apartment hydraulically.
To facilitate hydraulic balancing, all valves can be individually controlled via line 84.
9. Set the parameters of the type of plant, depending on the application (line 89).
10. Store the data record of the control and heat meter interface whose parameters you have just set: Select line 95, press simultaneously (for 2 seconds) buttons and on the right.
This assigns the data to "Meter 1" of the apartment. In the next apartment, the data of the parameters identified with an asterisk * can be read to the associated control and heating cost allocation valve, and appropriately adapted, using line 53.

Now, the parameters of the control and heat meter interface (meter 1) of the apartment have been set. If another meter is present **and** connected to the control and heat meter interface, its parameters are also to be set with the service unit. For this purpose, the service plug is to remain attached to the control and heat meter interface.

If no meter is connected to the control and heat meter interface, subsection 7.3.8 "Setting the parameters of meter 2" below can be skipped.

7.3.8 Setting the parameters of meter 2

“Meter 2” is the consumption meter connected directly to the control and heating cost allocation valve or control and heat meter interface. Its parameters are set like those of the control and heating cost allocation valve.

Procedure:

1. Only if required: Enter the meter number (line 01).
Before the meter reading can be entered, the parameters of lines 86...91 must be set.
2. Set the parameters of meter 2 (lines 86, 87, 88, 90, and 91). There are 2 choices:
 - The parameters are set one by one
 - If the parameters have previously been saved in the service unit, they can now be copied to the control and heating cost allocation valve (only with WRV... of software version 1.30 or higher): Select line 53 (Write standard data record), press simultaneously (for two seconds) buttons and on the right
3. Enter the meter reading (line 02).
4. Store the data record of the meter whose parameters you have just set: Select line 95, press simultaneously (for 2 seconds) buttons and on the right.
This assigns the data to meter 2 of the apartment. In the next apartment, line 53 can be used to read the data to the respective control and heating cost allocation valve and to adapt them as required.

Now, the parameters of the control and heating cost allocation valve (meter 1) and those of the second consumption meter (meter 2) have been set.

If the apartment does not use any additional consumption meters, subsection 7.3.9 “Setting the parameters of the pulse adapters AEW2.1 for meters 3...6” below can be skipped.

7.3.9 Setting the parameters of the pulse adapters AEW2.1 for meters 3...6

If the apartment uses consumption meters in addition to meter 2 (termed "Meter 3", "Meter 4", etc.), their parameters are to be set via the AEW2.1 pulse adapters.

The parameters of a pulse adapter are set analogously to those of the control and heating cost allocation valve. The service unit is to be connected to the service interface of the pulse adapter whose parameters are to be set.

Procedure:

1. Check the electrical wiring. In normal operation, the LED of the pulse adapter flashes.
 - If the LED is not lit, there is no operating voltage present (G1 and G2: AC 16...24 V)
 - If the LED is steady on, the cause may be one of the following:
 - No address plug fitted
 - Wiring error; MB and DB mixed up
 - Poor contact
 - Parameter of type of pulse source (line 91) incorrectly set: With Namur circuitry = 01, without = 02
2. If the apartment uses 2 pulse adapters AEW2.1, one of them must be assigned subaddress 2. If there is only 1 pulse adapter AEW2.1, proceed with step no. 3. The subaddress is set as follows:
 - a) Insert the address plug of the second pulse adapter (meters 5 and 6)
 - b) The first pulse adapter (meters 3 and 4) is **not** allowed to carry an address plug. If it does, remove it!
 - c) On the service unit, select meter 3 on line 92
 - d) Enter adapter subaddress 2.
This entry informs the system that there are 2 pulse adapters in use
 - e) Insert the address plug of the first pulse adapter (meters 3 and 4)

Now, the parameters of all existing meters (meters 3...6) can be set, meter 3 being the first.

3. Only if required: Enter the meter number (line 01).
Before the meter reading can be entered, the parameters of lines 86...91 must be set.
4. Set the parameters of the meters (lines 86, 87, 88, 90, and 91). There are 2 choices:
 - The parameters are set one by one
 - If the parameters have previously been saved in the service unit, they can now be copied to the pulse adapter: Select line 53 (Write standard data record), press simultaneously (for two seconds) and on the right. Then, adjust the parameters where required.
5. Enter the current meter reading (line 02).
6. Store the data record of the meter whose parameters you have just set. Select line 95 and press simultaneously (for 2 seconds) buttons and on the right.
This assigns the data to meter 3 of the apartment. In the next apartment, the data can be read to the respective pulse adapter and adapted where required.
7. Repeat steps 3...6 for all additional meters installed in the apartment.

7.4 Setting up the devices in the “General area”

7.4.1 Setting the parameters of the consumption meters in the primary distribution

In the “General area”, a maximum of 6 meters may be present (meters 1...6). They are connected to the central unit via a maximum of 3 pulse adapters.

On the central unit, they are assigned to apartment 0.

1. Check the electrical wiring. In normal operation, the LED of the pulse adapter flashes.
 - If the LED is not lit, there is no operating voltage present (G1 and G2: AC 16...24 V)

- If the LED is steady on, the cause may be one of the following:
 - No address plug fitted
 - Wiring error; MB and DB mixed up
 - Poor contact
 - Parameter of type of pulse source (line 91) incorrectly set: With Namur circuitry = 01, without = 02
- 2. Insert the address plugs (plugs 121...123).
- 3. Set the parameters of the pulse adapter as described above.

If, due to unfavorable local conditions, for example, it is necessary to assign more than 3 AEW2.1 pulse adapters to the 6 meters, additional pulse adapters with address plugs 124...126 are needed.

In that case, it is to be noted, however, that each additional pulse adapter no longer has a connection facility for a pulse adapter with the addresses 121...123:

| <i>Pulse adapter address plug</i> | <i>Meter number and connection</i> | <i>Meter number on the central unit (apartment 0)</i> |
|-----------------------------------|------------------------------------|---|
| 121 | Meter 1 (P1-M) | Meter 1 |
| | Meter 2 (P2-M) | Meter 2 |
| 122 | Meter 1 (P1-M) | Meter 3 |
| | Meter 2 (P2-M) | Meter 4 |
| 123 | Meter 1 (P1-M) | Meter 5 |
| | Meter 2 (P2-M) | Meter 6 |
| 124 | Meter 1 (P1-M) | Meter 2 |
| | Meter 2 (P2-M) | – |
| 125 | Meter 1 (P1-M) | Meter 4 |
| | Meter 2 (P2-M) | – |
| 126 | Meter 1 (P1-M) | Meter 6 |
| | Meter 2 (P2-M) | – |

7.4.2 Setting the parameters of the QAB30 temperature measuring unit

Each acquisition zone is equipped with 1 QAB30 temperature measuring unit.

1. Insert the address plugs (plugs 101...119) according to the flow zone numbers 1...19.
2. Check the electrical wiring. In normal operation, the LED of the pulse adapter flashes.
 - If the LED is not lit, there is no operating voltage present (G1 and G2: AC 16...24 V)
 - If the LED is steady on, the cause may be one of the following:
 - No address plug fitted
 - Wiring error; MB and DB mixed up
 - Poor contact
3. Check proper installation of the protection pocket.
4. Check proper installation of the immersion temperature sensor. It must be fully immersed in the pocket.
5. Secure the immersion temperature sensor to the protection pocket using the adjusting screw.

If the QAB30 temperature measuring unit shall also be used for acquiring the outside temperature, a QAC22 outside sensor can be connected to it.

If the QAB30 is used exclusively for acquiring the outside temperature, the connected flow temperature sensor can be removed. The QAB30 requires an address plug between 101...119.

7.5 Sealing

- Central unit
- Control and heating cost allocation valve
 - With a lead seal:
 - Fitting
 - Service interface
 - Flow temperature sensor (adjusting screw on protection pocket)
 - Conduit box
 - With a transparent label (only to be checked, sealed in the factory):
 - Manual adjuster front and rear
- Control and heat meter interface WRI80
- Pulse adapter AEW2.1

- Conduit box (ALW30/84 or other)
- Control module AEK84
- Temperature measuring unit QAB30
 - Connecting unit
 - Flow temperature sensor (adjusting screw on the protection pocket)

7.6 Final work on the central unit

Checking and logging of startup are made with operating card 6.

1. Enter the number of apartments (line 44).
The central unit changes to normal operation. **InStAL** disappears from the display.
If the number of apartments entered does not agree with the number of apartments identified by the system, an error message will appear (checking on operating card 3, line 45).
2. For the control of all valves, enter 2 (automatically) (line 84).
3. Transfer the setup protocol to the memory card:
 - a) Insert memory card in the slot
 - b) Select line 99
 - c) Press simultaneously (for 2 seconds) buttons and on the right

7.7 Settings to be made on the heating group controller

7.7.1 Controllers RVL50 / 55

If one or several RVL50 / 55 controllers are connected to the central unit via H-bus, the following settings must be made on the RVL50 / 55 to enable load compensation:

- Operating card page 7, line 12 (Address of controller):
This address must agree with the address of the assigned control and heating cost allocation valves or control and heat meter interface
- Operating card page 14, line 3 (Solar compensation):
Once the communication between OZW30 and RVL50 / 55

95/116

is established, solar compensation is automatically set to 20 °C. This means that the RVL55 requires no AZY55.20 plug-in module!

- The controllers' operating mode must be set to AUTO or PLANT ON

7.7.2 Controllers RVP40 / 45 / 75 / 97

If 1 or several RVP40 / 45 / 75 / 97 controllers are connected to the central unit via H-bus, the following settings must be made to enable load compensation:

- The controller addresses must agree with the heating groups of the assigned control and heating cost allocation valves or control and heat meter interface
- The controllers' operating mode must be set to AUTO or NORMAL

7.7.3 Controllers RVL4..., RVA..., RVP3..., RVD2...

If 1 or several RVL4..., RVA..., RVP3... or RVD2... controllers are connected to the central unit via building bus / LPB, the following settings must be made to enable load compensation:

- The LPB addresses of the controllers (segment number, device number and, if present, heating circuit number) must agree with the entries made on the central unit (operating card 5, line 67)
- The controllers' operating mode must be set to AUTO or NORMAL

7.8 Setting up the QAW... room units

7.8.1 Room unit QAW10

Check the electrical wiring.

- If required, limit the setting range of the setpoint readjusting knob at the rear using the red limit stops

- Snap the unit onto its base (refer to the Mounting Instructions on the package)
- Give the Operating Instructions to the user

7.8.2 Room unit QAW20...

Same as the QAW10 room unit, but make certain that the Operating Instructions in the required language are enclosed with the unit (booklet in the unit, card in the cover).

With the aid of the Operating Instructions, the user can enter the required values on the programming level.



Entries on the service level (refer to section "7.9 Service level of QAW20... room unit ") are required only in the following cases:

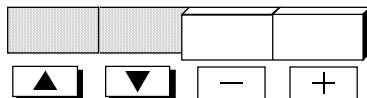
- When the external signal input at terminals T1–T2 is used (external room temperature sensor, or remote operating switch)
- When locking of the programming level is required
- When sensitivity of the identification of airing needs to be changed
- When limitation of the occupancy time by the central unit shall be canceled

7.9 Service level of QAW20... room unit

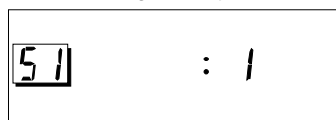
7.9.1 Operating on the service level



- Activation:

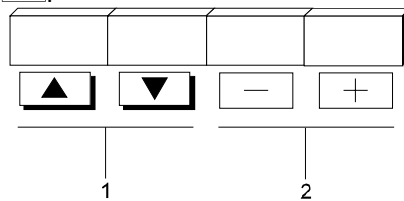
The service level is activated by pressing buttons  and  simultaneously for 5 seconds while the cover is open.



The following display will appear:



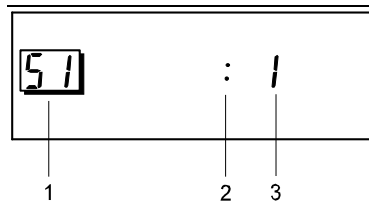
- Entry:
On the service level, the values are entered like those on the programming level using 2-step operation. The service level starts with line 51 however
- Adjustable values are entered with the buttons  and :



- 1 Selection of operating line
- 2 Adjustment of value

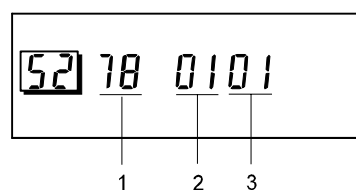
- Quitting:
The service level is quit by closing the cover.

7.9.2 Displaying the communication status



- 1 Line number: 51
- 2 Status of data interface:
Semi-colon flashes: Telegram has been received
Semi-colon permanently visible or not present: Communication ready
Dashes permanently visible: Communication interrupted
- 3 Communication address (always 1 with SYNERGYR)

7.9.3 Displaying the device and software version



- 1 Device identification number: 78
- 2 Software version: 1
- 3 Software version: 1

7.9.4 Locking the programming level



If locking of the programming level is required (in public buildings, tampering by children, etc.), it can be activated on line 53:

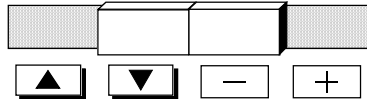


Locking inactive



Locking active

When locking is active, the values on the programming level can be altered only when, previously, the 2 outermost buttons  and  were pressed for 5 seconds while the cover was open.

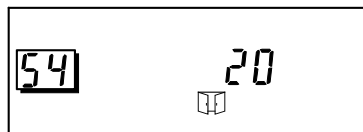


Important:

The Operating Instructions of the QAW20... make no reference to the locking facility! The users are to be informed and, if required, instructed!

7.9.5 Setting the parameters of the airing function

The limit value (in K/h) of the airing function can be entered on line 54. The sensitivity takes into account the thermal coupling of the unit to the wall. This means the limit value refers to the actual air temperature.

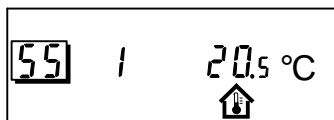


The factory setting must be changed when the airing function responds incorrectly or when it does not respond at all. If no satisfactory operation can be achieved, the airing function can be deactivated by choosing setting 0.

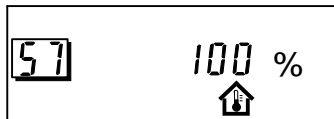
7.9.6 Setting the parameters of the signal input

The parameters of the programmed signal input at terminals T1–T2 are entered on line 55. There is a choice of 4 functions (factory setting is 1, external room temperature sensor).

Function 1:



Connection of an external room temperature sensor QAW44: On line 57, the effect of an external room temperature sensor can be entered. If no entry is made, the effect is 50 %.



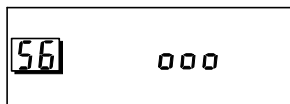
0 % = only sensor in room unit active
 0 %...100 % = weighted mean value
 100 % = only external sensor active

Functions 2...4: Remote operating switch

In the case of functions 2 through 4, the signal of a potential-free contact is used for the remote operation of functions.

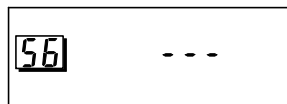
The function will be activated with the operating action selected on line 56. The present contact status is displayed to the right of the function number.

Selecting the operating action of the potential-free contact:



Function will be activated when contact is closed.

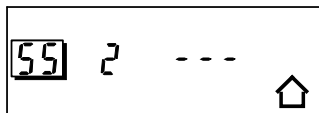
000 corresponds to 0 Ω



Function will be activated when contact is opened

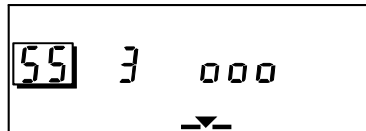
As a remote operating input, the programmable signal input offers the following choices:

Function 2:



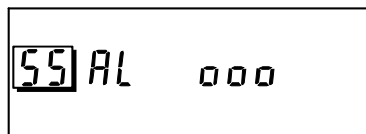
Switching over to the reduced setpoint.
Application: Window switch or telephone modem

Function 3:



Switching the operating mode to standby.
Application: Telephone modem or window switch

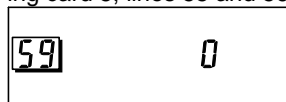
Function 4:



Alarm message to the central unit.
With the configured contact status, a fault status message is delivered to the central unit. The central unit handles the message as error no. 75. The message will be displayed on the central unit, written on the memory card and then forwarded to the relay output.

7.9.7 Limiting the occupancy times

Limitation of the occupancy times by the central unit (operating card 5, lines 55 and 56) can be deactivated, if required.



Limitation inactive



Limitation active

Important:

When limitation is deactivated, the user can also demand heat when heat generation is reduced. The time program for heat generation must be appropriately entered.

7.9.8 Setting the parameters of the operating level output

The behavior of the room unit's operating level output (only with the QAW20/1) can be programmed according to the

following table. The operating level output will be closed when one of the selected functions is active.

| | |
|-----------|---|
| 60 | 5 |
|-----------|---|

| Setting on line 60 | Operating level output closes when | | | |
|--------------------|------------------------------------|---------------------------|--------------|------------------|
| | heating at the reduced level | Economy button on absence | standby mode | holiday function |
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 (default) | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| 10 | 1 | 0 | 1 | 0 |
| 11 | 1 | 0 | 1 | 1 |
| 12 | 1 | 1 | 0 | 0 |
| 13 | 1 | 1 | 0 | 1 |
| 14 | 1 | 1 | 1 | 0 |
| 15 | 1 | 1 | 1 | 1 |

8 Replacing defective devices

Defective units must be replaced by Siemens service staff or by an authorized partner.

8.1 General checks

In the event of fault, wiring and power supply should always be checked first.

If, after these checks, the unit cannot be put back into operation, it must be replaced.

8.2 Defects on the central unit

1. Open the housing.
2. Pull both terminal blocks from their bases and away from the housing. It is not necessary to disconnect the wires.
3. Remove the housing from the control panel.
4. Install the new central unit according to the Mounting Instructions supplied with it.
5. Set the parameters of the new central unit according to the instructions given in the Operating Manual.
If the replaced central unit was correctly set up, the currently valid settings are to be found
 - in the respective fields of the Operating Manual, or
 - in the setup protocol.If entries are changed, the changes must be entered in the respective fields of the Operating Manual.
6. Write the setup protocol on the memory card to store the parameter settings of the new central unit:
 - a) Insert the memory card in the central unit
 - b) Select the setup protocol (operating card 6, line 99)
 - c) Press the **FILE** button

Note:

- SYNERGYR has been designed such that data will be saved in nonvolatile memory should the central unit become defective. After a new central unit has been started up, the required data will automatically be retrieved from

the apartments.

Exception: The actual number of heating degree days will be lost. This value is nonadjustable. The new central unit starts from zero

- Depending on the period of time that has elapsed after the central unit became defective and depending on the type of fault, other data may be missing, too. If 1 or several month endings lie between fault occurrence and replacement of the central unit, the month endings will not be acquired by the devices in the apartments since the system clock (central unit) was out of operation.

8.3 Defective devices in the apartments

The replacement of devices in the apartments is detected and recorded by the central unit only up to a certain number. If several units need to be replaced, the following procedure is recommended:

1. Saving billing data:

In small plant, store all data of the building:

- a) Insert the memory card in the central unit
- b) Press the **FILE** button

Since saving in large plant takes a fair amount of time, the data can also be saved by the unit:

- a) Connect the service unit to the service port of a device belonging to the respective apartment
- b) Insert the memory card in the service unit
- c) Select "Setup protocol" on the service unit (operating card 7, line 99)
- d) Press simultaneously (for 2 seconds) buttons **-** and **+** on the right hand side

2. Saving parameter settings:

Before replacing the defective unit, check whether its parameter settings are still available (they may no longer exist, depending on the type of fault).

- a) Connect the service unit to the defective unit
- b) Select "Read standard data record" on the service unit (operating card 7, line 95)

- c) Press simultaneously (for 2 seconds) buttons and on the right
 - ⇒ Display before storage: 0
 - ⇒ Display after storage: 1
- 3. Replace the defective device, change the address plug.
- 4. Set the parameters of the new device as described in the Operating Manual.

If storage of the parameter settings was **possible** (operating card 7, line 95), they can be written from the service unit to the new unit:

 - a) Connect the service unit to the new unit
 - b) Select "Write standard data record" (operating card 7, line 53) on the service unit
 - c) Press simultaneously (for 2 seconds) buttons and on the right

If storage of the parameter settings was **not possible** (operating card 7, line 95), the data must be entered. The values can be viewed either in the respective fields of the Operating Manual (manual entries) or in the setup protocol.

If settings are changed, the changes must be entered in the respective fields of the Operating Manual.
- 5. Check entered data once again.
- 6. Write setup protocol on the memory card to store the parameter settings of the new unit:
 - a) Insert the memory card in the central unit
 - b) Select the setup protocol (operating card 7, line 99)
 - c) Press the button
- 7. After replacing and setting up new devices, the central unit must be checked for error messages.
- 8. If no faults are reported, the data of the whole plant must be saved on the memory card:
 - a) Insert the memory card in the central unit
 - b) Press the button

9 Error list

Any errors or malfunctions must be rectified either by Siemens service staff or by an authorized partner.

| Error code | Device | Cause | Remedy, hints, notes |
|------------|-----------------|---|---|
| 11 | WRV... | Wrong parameter settings | Replace WRV... |
| 12 | OZW30 | Loss of data in RAM | Acknowledge after software change; replace OZW30 if loss of data occurs again |
| 13 | OZW30 | Loss of data in EEPROM | Acknowledge after software change and check settings; replace OZW30 if loss of data occurs again |
| | WRV... | Loss of data in EEPROM | Replace WRV... |
| | WRI80 AEW2.1 | Loss of data in EEPROM | Check meter reading and settings; set new parameters if necessary |
| 15 | WRV... | Hardware error in electronics | Replace WRV... |
| | WRI80 | Hardware error heat meter | Check heat meter |
| 16 | WRV... | Valve requires excessive actuating force | Check. If necessary, replace WRV... |
| 17 | WRV... WRI80 | Common fault room unit | Check room unit |
| 18 | WRI80 | Functional error heat meter | Check heat meter |
| 21 | WRV... | Power supply for WRV... not sufficient | Check operating voltage (AC 24 V); must not fall below 16 V |
| | WRI80 | Power supply heat meter | Check power supply heat meter; replace battery if necessary |
| 22 | OZW30 | Battery of memory card exhausted | Replace battery of memory card immediately |
| 23 | OZW30 | Lithium battery of central unit exhausted | Replace OZW30 |
| 31 | OZW30 | Address collision on the building bus | 2 AEW2.1 or 2 WRV.../ WRI80 with the same address |
| 33 | OZW30 | Building bus has a short-circuit in the communication lines | Cut building bus to pinpoint fault |
| 34 | OZW30 | Communication breakdown on the building bus | For the central unit, the respective device is missing <ul style="list-style-type: none"> • Check whether device really fails to communicate (operating card 2, line 2: query actual meter reading). If --- is displayed: check device |

| Error code | Device | Cause | Remedy, hints, notes |
|------------|---------------------------|---|--|
| 34 | OZW30 | Communication breakdown on the building bus | <ul style="list-style-type: none"> Check whether device has intentionally been removed. If yes, reenter the number of apartments (operating card 6, line 44) (even if the number of apartments has not changed and – for example – only 1 AEW2.1 has been removed or deactivated) |
| | WRV... | | Display on WRV = no bus : Check building bus connections (approx. 15...18 V across MB and DB) |
| | WR180 AEW2.1 | | LED steady on: Check building bus connections (approx. 15...18 V across MB and DB) |
| 35 | OZW30 | Faulty memory card | <ul style="list-style-type: none"> Card was removed during readout (display: DATA) Number of apartments (operating card 6, line 44) was changed during readout |
| 36 | OZW30 | Memory card has formatting error | Replace memory card |
| 37 | OZW30 | Memory card is write protected | Remove write protection |
| 38 | OZW30 | Memory card is full | Use new memory card |
| 41 | WRV... | Communication error with room unit | Wrong or defective room unit connected |
| 42 | WR180 | Communication error with heat meter | Check connection to the heat meter, check power supply heat meter |
| 44 | OZW30 | 2 clock time masters on LPB | Configure surplus clock time masters as autonomous or slaves |
| 50 | WRV... | Acquisition of measured value faulty | Replace device |
| 51 | WRV... | Error of flow temperature sensor | WRV81/83/84: Check flow temperature sensor, replace WRV... WRV82/85/86: Check QAB30 of the appropriate assignment number. Check zone number |
| | WR180 | No flow temperature from heat meter | Check heat meter |
| 52 | WRV... | Return temperature sensor faulty | Check return temperature sensor, replace WRV... |
| | WR180 | No return temperature from heat meter | Check heat meter |
| 53 | WRV... WR180 QAW... | Room temperature sensor faulty | Replace room unit |

| Error code | Device | Cause | Remedy, hints, notes |
|------------|---------------------------|--|--|
| 54 | WRV... | Error in acquisition of flow rate | Check whether direction of flow is correct, or else replace WRV... |
| 55 | WRV... WRI80 AEW2.1 | Short-circuit or open-circuit at pulse input | <ul style="list-style-type: none"> Namur circuitry faulty Input erroneously set as Namur circuitry |
| 56 | WRV... | Measured value outside limits | Check plant. Limit values: Flow rate = 1.5 times nominal flow rate Flow temperature = 99 °C Return temperature = 99 °C |
| | WRI80 | Measured values outside limits | Check plant and heat meter |
| 61 | WRV... | Housing cover open | Check cover. Tampering? |
| 62 | WRV... | Manual adjustment has been operated | Check why |
| 63 | WRV... | Strong magnetic field | Magnetic field falsifies measurement. Check. Tampering? |
| 71 | OZW30 | Alarm input 1 | Check alarm source at input 1 |
| 72 | OZW30 | Alarm input 2 | Check alarm source at input 2 |
| 73 | OZW30 | Alarm input 3 | Check alarm source at input 3 |
| 74 | OZW30 | Alarm input 4 | Check alarm source at input 4 |
| 75 | WRV... WRI80 QAW... | Alarm contact at room unit is closed | Check external alarm source at room unit |
| 76 | LPB | Common alarm | Check heating group controllers |
| 82 | WRV... | Valve stem travel obstructed | Check for reasons. If remedy not possible, replace WRV... |
| 83 | WRV... WRI80 QAW... | Risk of frost | Risk of frost. There is a risk of frost when room flow or return temperature <3 °C |
| 91 | OZW30 | Configuration error | Admissible combinations of devices: <ul style="list-style-type: none"> 1 WRV... / WRI80 and 2 AEW2.1 each, with a maximum of 32 apartments (no address plugs >32, with the exception of the AEW2.1 with addresses 121...126) 1 WRV... / WRI80 and 1 AEW2.1 each, with a maximum of 48 apartments (no address plugs >48, with the exception of the AEW2.1 with addresses 121...126) |

| <i>Error code</i> | <i>Device</i> | <i>Cause</i> | <i>Remedy, hints, notes</i> |
|-------------------|---------------|----------------------------|---|
| | | | <ul style="list-style-type: none"> • 1 WRV... / WRI80 each, with a maximum of 96 apartments (no address plugs >96, with the exception of the AEW2.1 with addresses 121...126) |
| 92 | OZW30 | Number of apartments wrong | Check entry (operating card 6, line 44). If entry is correct, check communication with all devices; for this purpose, query all meter readings |
| 95 | H-bus and LPB | Configuration | Check heating group controllers |

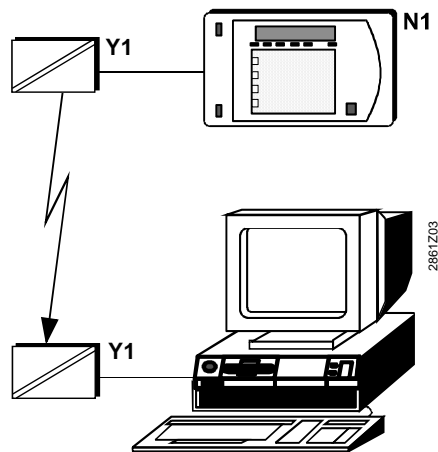
10 Communication with PC

For reading the data from the central unit, there is an RS-232 port available to which a PC can be connected, either directly (with null modem or link cable) or via modem.

In that case, for communication with a PC, the Siemens ACS30 readout software must be installed.

10.1 Communication via modem

The central unit supports communication via modem. It is advisable to use a modem with a Baud rate of at least 9,600. For the types of modems approved by Siemens, refer to Data Sheet N2843 (other types on request).



Communication via modem

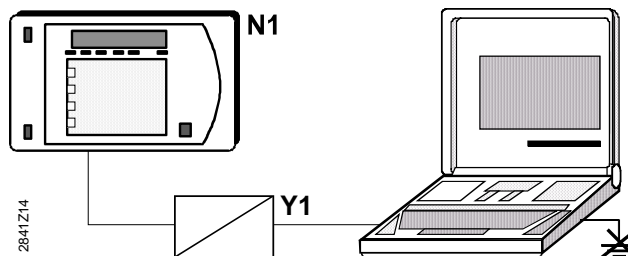
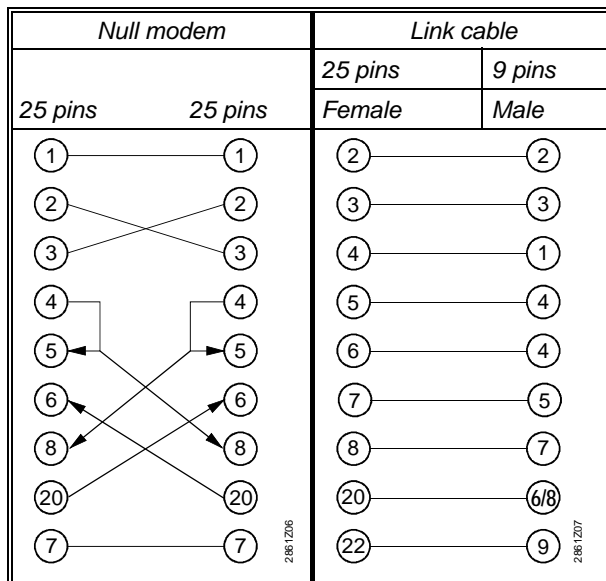
N1 Central unit OZW30
Y1 Modem

The initialization sequences for the modem can be entered on the central unit with the help of the PC.

When using a modem, null modem and link cable are not required.

10.2 Direct connection to a PC

For direct connection to a PC, a commercially available standard null modem or link cable is required (for connection to the port of the central unit or PC). The illustration below shows a null modem and a link cable. It can also be seen which lines of the RS-232 port are required.



Direct connection to a PC

N1 Central unit OZW30
Y1 Null modem or link cable

In spite our recommendation not to ground the SYNERGYR system power supply on the secondary side, grounded plants may be encountered.

In order to prevent damage to the devices in such circumstances, a directly connected PC must be galvanically separated from ground, e.g. by using an interface optocoupler or an isolating transformer, or battery power. This precautionary measure is not required when using central units of series D or higher.

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