SIEMENS

2812

SYNERGYR®

Room Unit QAW20

Programmable room unit for operation of the SYNERGYR® control and billing system. The unit's setting knob and economy button make it very easy to control the supply of heat. 7-day heating program, adjustable temperature setpoints, selection of operating mode and info button.

Use

QAW20 is the room unit for reference room-compensated temperature control in connection with the

- WRI80 control and heat meter interface
- WRV… control and heat cost allocation valve

For the field of use of the SYNERGYR® system, refer to Data Sheets N2800 to N2803 (System Overview).

Functions

The QAW20 is a combination of room temperature sensor and operator and control unit for use with the control and heat meter interface or the control and heat cost allocation valve. Using a digital 2-wire interface, it delivers the setpoint for temperature control by the WRI80 or WRV… . This can be accomplished via a 7-day heating program or by manual action. The QAW20 also serves as a display unit for the WRI80 or WRV… and other metering devices connected to SYNERGYR®.

Operation

All operating elements that are required for normal operation are easily accessible:

- Operating mode buttons
- Info button for the actual meter readings
- Economy button
- Setpoint readjustment knob

Programming

To program and display specific values, a cover must be removed. The unit then switches automatically to the programming level and the display shows the required data:

- Temperatures and heating program
- Weekday and time of day
- Meter readings on the set day
- Holiday period
- Retrieval of standard values

Programming is made in 2 steps. First, the entry line is selected and then the respective value changed. Operating Instructions which explain all steps are located under the cover. The programming level can be locked if these setting choices shall not be accessible.

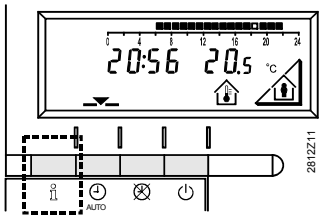
Operating modes

AUTO Automatic operation
The heating program controls setpoint changeover. It can be temporarily overridden by pressing the economy button. The overriding action then remains in effect until the next heating program switching action occurs (refer to «Economy button»).

Manual operation
The required room temperature is selected by pressing the economy button (refer to “Economy button”).

Standby
The room temperature is maintained at a minimum level preselected either at the central unit or the room unit.

Info button



Each time the info button is pressed, the values shown on the list below are displayed in successive order. The selected display is maintained until the info button is pressed again. Heating control continues to operate independently of the selected display.

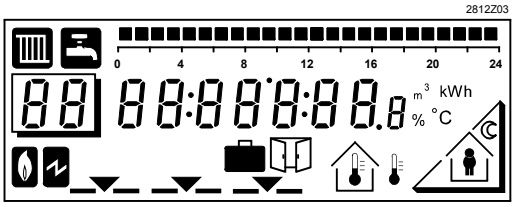
	Time of day, room temperature
1...7	Weekday, time of day
	Outside temperature*
%	Heat consumption trend
	Meter reading of space heating (heat consumption)
	Meter reading of DHW*
	Meter reading of gas*
	Meter reading of electricity*
A	Meter reading of other meters*

* These displays appear only if the respective signal sources are connected

Note

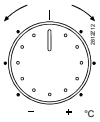
If several meters of the same type are used, a number appears in addition to the symbol.

Display



The QAW20 features an LCD showing all relevant information in every situation.

Setpoint readjustment

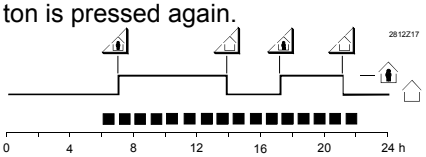


With the setting knob, the nominal room temperature setpoint can be readjusted by ±3 °C. Any readjustment is added to the programmed nominal setpoint while the reduced setpoint remains unchanged.

Economy button

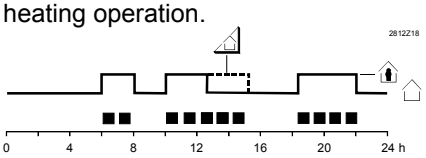
The economy button permits changeover from the nominal to the reduced room temperature, or vice versa. The action of the economy button in automatic and manual operation is as follows:

In manual operation, the selected setpoint is maintained until the button is pressed again.



Action of economy button in manual operation

In automatic operation, the actual setpoint is temporarily overridden when pressing the button. The next time the heating program performs a switching action, the controller will resume the programmed heating operation.



Action of economy button in automatic operation

Setpoints

The temperature of the reference room is controlled to the selected setpoint. There is a choice of two temperature settings. Changeover is accomplished either by the time program or the economy button.

Nominal room temperature

Reduced room temperature

Setpoint generation

The nominal and the reduced setpoint are selected on the programming level. In the case of the nominal setpoint, the readjustment made with the knob on the unit is added to the basic setting.

Setpoint limitation

There are two choices:

- Central limitation via the OZW30 central unit
- Locally by limiting the angular rotation of the knob by means of pins at the rear of the room unit

7-day clock

The time of day and weekday are set on the programming level of the unit:

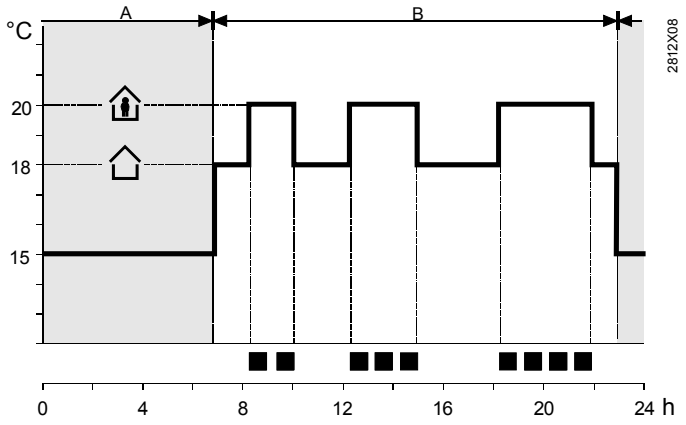
- Display of time of day from 00.00 to 23.59 hrs
- Display of weekday from 1 through 7

Clock synchronization

If an OZW30 central unit is installed, the clock of the QAW20… is synchronized by the that unit. In that case, setting of synchronization on the room unit is not possible.

7-day heating program

With the heating program, the required room temperature can be programmed for 1 week. The heating program consists of seven 24-hour programs each comprising 3 heating periods. Each of these periods is defined by a start time and an end time. The actual 24-hour program is shown on the display's time bar the resolution of which is 1 hour. Dark fields represent periods with the nominal room temperature. When start and end time of a period coincide, the period is inactive.



A Central night setback
B Blocking time

Central temperature setback / blocking time

From the OZW30 central unit, the heating program of the QAW20 can be confined by imposing a blocking time (this blocking time can be overridden on the service level of the QAW20). During the blocking time, the QAW20 operates according to the selected operating mode. Outside the blocking time hours, the central temperature setback is active. In manual operation, the economy button can be pressed to preselect the set-point that shall apply during the blocking time.

Holiday function

During the entered holiday period, the QAW20 maintains the minimum temperature preselected for standby mode. On completion of the holiday period at 00.00 hrs, the unit resumes automatic operation.

Airing detection

In automatic operation, the room unit is able to detect airing of the reference room, which results in a fast temperature drop in the space. In that case:

- The heating is switched to standby mode
- Symbol appears

The unit resumes automatic operation when:

- The room temperature rises faster than 1 °C/h, or
- The operating mode changes, or
- 45 minutes have elapsed

Note

Detection of airing is independent of the function of a window switch.

Standard values

The QAW20 uses ready programmed standard values. These can be retrieved by pressing a certain combination of buttons. Note that in that case, individually selected values will be cleared!

Reserve and data retention

In the event of a power failure, the clock has a reserve of 12 hours. Individually programmed values are retained in nonvolatile memory.

Programmable input

The QAW20 has a signal input (terminals T1 and T2). The type of input signal and its handling are programmed on the service level. The following functions are available:

Function 1: Remote sensor input

If the measured value of the built-in sensor is not suited as the actual value, a remote sensor should be installed. The room temperature which is then used is a weighted mean value of the measured internal and external value, which is displayed and evaluated. The effect of the external sensor can be selected between 0 % and 100 %. With-

out a remote sensor, only the internal sensor signal is used. The value measured by the remote sensor is displayed on the service level. The connection of a remote sensor is recommended when:

- The room unit is not installed in the reference room
- The room unit is exposed to a heat source that produces heat gains

Functions 2…4: Potential-free contact for different functions

Using a potential-free contact, various functions can be controlled from a remote location. These functions are only active in automatic and manual operation. Standby mode does not permit any remote control functions. The parameters of the contact must be set on the service level (N.O. or N.C. contact) using 1 of 3 functions:

- Function 2: When receiving a signal from a modem contact or window switch, the temperature setpoint will be permanently set to the reduced level; function 2 is recommended for airing detection via a window switch
- Function 3: When receiving a signal from a modem contact or window switch, changeover to standby mode occurs
- Function 4: Alarm transmission to the OZW30 central unit; the signals received from alarm systems, gas or pressure monitors is passed on to the central unit

Note

If 1 of the functions 2 to 4 is activated by the contact, the LCD only displays the letter E (external) and the active function. All other displays will disappear.

Type summary

Room unit	**QAW20**
Remote sensor	**QAW44**

Ordering

When ordering, please give type reference according to “Type summary”.
If the Operating Instructions need to be in a language other than the country-specific language, it is necessary to also state the reference number of the instructions according to the following list (other languages on request):

Language	*Reference number*
Danish	4 319 2737 0
Dutch	4 319 2514 0
English	4 319 2285 0
French	4 319 2283 0
German	4 319 2282 0
Hungarian	4 319 0052 0
Italian	4 319 2284 0
Swedish	4 319 2767 0

Mechanical design

The room unit consists of terminal base and operating section. The base can be fitted to most commercially available conduit boxes or directly on the wall before the operating section is placed on it. Both housing and terminal base are made of plastic.

Disposal

The larger plastic parts carry material reference markings conforming to ISO/DIS11469 to facilitate environment-friendly disposal.

Engineering notes

Room unit

The room unit should be mounted in the main living room (reference room). It acquires the room temperature, which is used for temperature control.

The mounting location should be chosen such that the sensor will acquire the room temperature as accurately as possible, with no influence from direct solar radiation or other heating or cooling sources.

In the reference room where the QAW20… is mounted, there should be no radiators with thermostatic radiator valves. If there are, they must be set to their fully open position.

Programmable input

The connection terminals are suitable for the following cross-sectional areas:

Stranded wire or solid wire	0.25…2.5 mm^2
Stranded wire with ferrule	max. 2 × 1.5 mm^2

Installation notes

The room unit can be fitted to most commercially available conduit boxes or directly on the wall. When mounting on the wall, the cable can be introduced either from the top or the bottom through knockout holes.
For the electrical installation, the local regulations and standards must be observed.
The wires must be laid based on the regulations for safety extra low-voltage (SELV) to EN 60730.
First, the base is fitted and wired up. Then, the unit is placed on the lower part of the base and swung upward. Adhesive labels (e.g. the connection diagram) can be fitted on the side of the housing.

Commissioning notes

When power is supplied to the unit, the display shows all the information relating to the current state.
The setpoint readjustment range can be limited with the help of pins at the rear of the unit.
Finally, the heating engineer needs to make the required settings on the service level and at the WRI80 or WRV… and OZW30.

Technical data

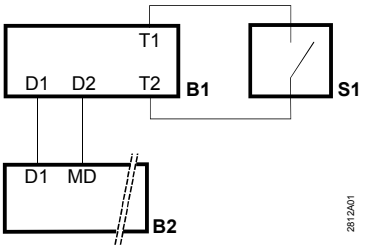
General unit data

Operating voltage	SELV / PELV DC 10…15 V
max. perm. voltage	AC 24 V
Rated voltage	DC 15 V
Perm. Ambient temperature	
Transport a storage	–25…+65 °C
Operation	0…55 °C
Perm. Ambient humidity	
Transport and storage	class E DIN40040
Operation	class G DIN40040
NTC temperature sensor	
Time constant	10 min.
Thermal coupling to the wall	50 %
Measuring range room temperature	0…32 °C
Setting ranges	
Normal setpoint	3…29 °C
Economy setpoint	3…29 °C
Setpoint readjustment range	±3 °C
Resolution	0.5 °C

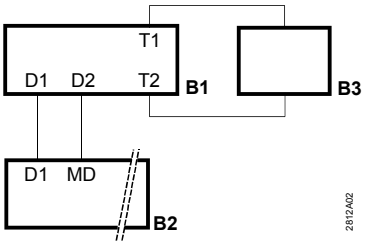
	Connection terminals for the following cross-sectional areas:	
	Stranded wire or solid wire	0.25…2.5 mm^2
	Stranded wire with ferrule	max. 2 x 1.5 mm^2
	Reserve of clock	12 h
	Weight	0.22 kg
Room unit bus	Perm. Cable lengths between room unit and conduit box	
	0.6 mm dia.	25 m
	0.8 mm dia.	50 m
Safety data	Degree of protection on a flat, closed wall	IP30 to EN 60529
	Safety class	III to EN 60730
Standards	Product standard	EN 60730-1
	Electromagnetic compatibility	
	Immunity (residential)	EN 61000-6-1
	Emissions (residential)	EN 61000-6-3
	CE conformity to	
	EMC directive	2004/108/EC

Connection diagrams

QAW20



Room unit with external switching contact

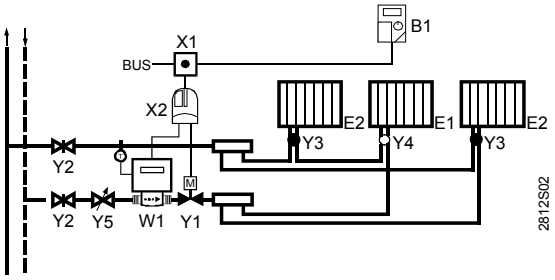


Room unit with remote sensor

B1 Room unit QAW20
B2 Conduit box (e.g. ALW84)
B3 Remote sensor QAW44
D1 Room unit data (terminal 1)
D2 Room unit data (terminal 2)
MD Ground data
S1 External switchung contact
T1 Remote sensor or potential-free switching contact (terminal 3)
T2 Remote sensor or potential-free switching contact (terminal 4)

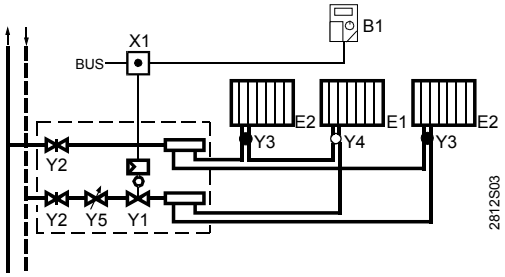
Examples

With WRI80



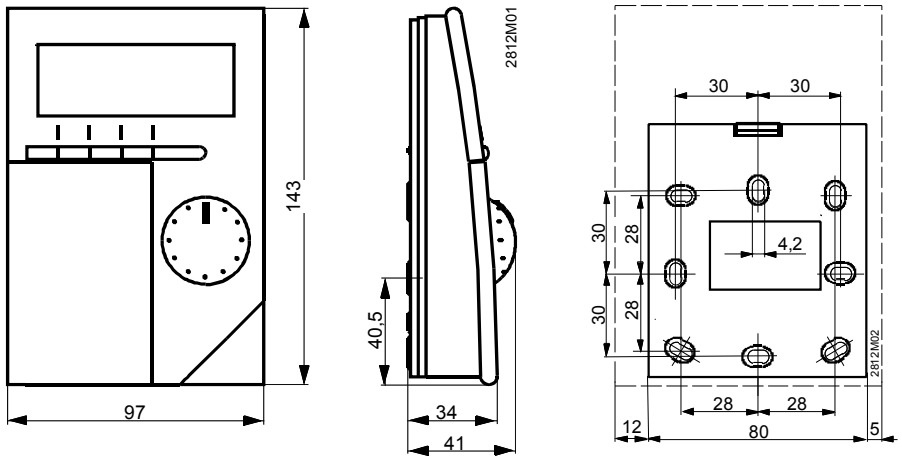
B1 Room unit QAW20 in the reference room
E1 Reference room of the apartment
E2 Other room of the apartment
W1 Heat meter WFQ21… / WFM21…
X1 Conduit box ALW84
X2 Control and heat meter interface WRI80
Y1 Motorized valve VVP… / SSP… or SSB…
Y2 Shutoff valve
Y3 Thermostatic radiator valve
Y4 Manual valve
Y5 Throttling valve

With WRV…



B1 Room unit QAW20 in the reference room
E1 Reference room of the apartment
E2 Other room of the apartment
X1 Conduit box (e.g. ALW30)
Y1 Control and heat cost allocation valve WRV…
Y2 Shutoff valve
Y3 Thermostatic radiator valve
Y4 Manual valve
Y5 Throttling valve

Dimensions



Dimensions in mm

Subject to alteration