



Zone room unit

QAW850

for RRV... controllers

Digital zone control unit for installer and end-user interface with RRV... controllers.

2 wire bus connection

Use

Use

- Room unit in combination with an RRV... controller for HVAC plants in:
- Residential apartments
- Residential single house
- Autonomous light commercial applications

Application

For use with RRV... controllers in air based plants including heating, cooling and ventilation (HVAC) equipment. Only suitable for Duo-zone and Multi-zone applications.

Functions

Primary functions

- Zone control and monitoring in combination with an RRV... controller
- Zone addressing by installer
- Room temperature measurement

Operator functions

- Local zone control and monitoring
- Temporary setpoint adjustment
- Zone comfort, energy saving, auto timer and off selection
- Display of operating mode and zone temperature.

Type summary

Type reference	Description	Compatible with*
QAW850	Zone room unit	<ul style="list-style-type: none">• Temperature controller RRV852• Temperature controller RRV856• Master room unit QAX850

* Not usable with Desigo RX range of controllers

Product documentation

Document	Document number
Data sheet	N2721
Mounting instructions	M2721
Operating instructions for use with RRV852	B2726en02
Operating instructions for use with RRV856	B2727en02
Declaration of conformity	T2721

Mechanical design

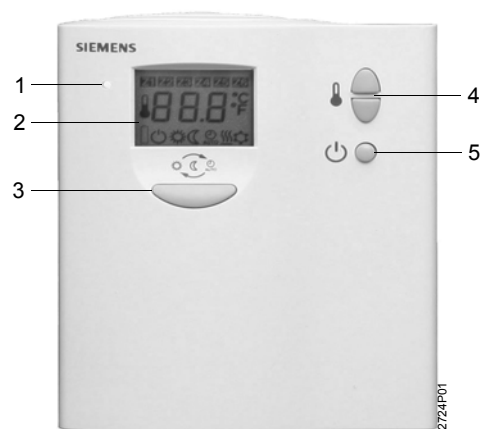
The QAW850 is the end-user zone MMI for RRV controllers.

Components

The unit consists of the following components:

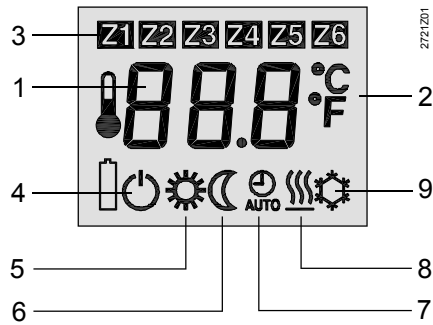
- Room unit with integrated electronics and operating elements
- Internal temperature sensor
- Base for wall mounting with the connection terminals
- Digital input for zone off – window contact (only when connected to RRV856)
- Operator interface buttons

Operating elements



- 1 LED for zone damper status (Main heat/cool output status for RRV852)
- 2 LCD display with EL backlight for control and monitoring of modes, setpoints, zone conditions etc.
- 3 Operating mode selection: Comfort, energy saving and auto timer (RRV852 day/night zone selection for Duo-zone application)
- 4 Temporary setpoint adjustment
- 5 Zone off (System off for RRV852)

LCD display



- 1 Actual temperature
- 2 Fahrenheit/Celsius
- 3 Zone identification
- 4 Zone off
- 5 Comfort mode (Day zone in Duo-zone application)
- 6 Energy saving mode (Night zone in Duo-zone application)
- 7 Auto timer mode
- 8 Heating mode
- 9 Cooling mode

Commissioning notes

Response on start-up

When powering up, the QAW850 will display all LCD icons for approximately 3 seconds. It will then revert to normal display. There will be a delay before operation commences due to polling of all values.

Sensor calibration

Generally there is no need to calibrate sensor; however the displayed room temperature on the LCD can be calibrated if there is any discrepancy from the actual temperature measured with a certified thermometer. Calibration function can be accessed by pressing the Δ and ∇ buttons simultaneously for 5 seconds. Displayed value can then be adjusted via the same buttons in 0.1K steps. Range is ± 3 K.

Commissioning

Initial HVAC equipment application set-up is made by the setting of dip switch positions on the RRV controller. Dip switches are located on the top of the RRV controller. Further settings can be made via the QAX850 by modifying installer level parameters.

The window contact digital input default condition is normally closed (NC) and a link is included across terminals D1–M. This input is only applicable when connected to the RRV856 controller. The default condition can be changed to normally open (NO) via installer level parameter P16.

The QAW850 includes dip switches for zone addressing. Up to 6 zones can be connected to an RRV856 controller. The master room unit QAX850 is normally zone 1 although a QAW850 can be addressed as zone 1 if required. In this case the QAX850 would serve as a master control unit only.

Dip switches

They allow setting the address in cases where several room units are connected to one RRV856 controller.

The room units are delivered with default positions = zone 2 (address = 3).

No dip switch changes are needed for duo-zone RRV852 connection. Room unit default position as zone 2 is needed for duo-zone application.



Dip switches on the back of QAW850

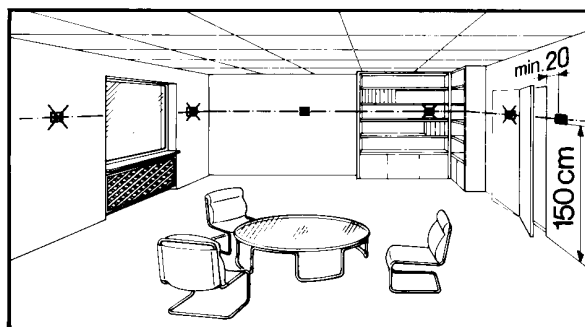
Dip switch settings

Dip switch no.	Function	Pos.3	Pos. 2	Pos. 1	Zone	Address
1...3	Zone Definition	OFF	OFF	OFF	1	2
		OFF	OFF	ON	2	3
		OFF	ON	OFF	3	4
		OFF	ON	ON	4	5
		ON	OFF	OFF	5	6
		ON	OFF	ON	6	7

BOLD = Default setting

Mounting and installation notes

The QAW850 should be mounted in a location where the air temperature can be measured as accurately as possible without getting adversely affected by direct solar radiation or other heating/cooling sources.



- Mounting height is about 1.5 m above the floor.
- QAW850 must not be located in the direct path of air conditioning air flow.
- The unit can be fitted to a recessed conduit box.
- The specified ambient conditions must be complied with.
- Only authorized staff may disconnect the QAW850 unit from base plate.
- Do not mount in recesses, shelves, behind curtains or doors.
- Refer to Mounting Instructions M2721 included in packaging box.

When mounting the unit, fix the base-plate first and then make the electrical connections. To avoid any damage during construction works only install QAW850 unit when all construction works have been completed. The QAW850 must be mounted on a flat surface and in compliance with local regulations.

Local installation regulations must be observed.



Note

The room unit is not protected against connection to AC 230 V!

Technical data

Interfaces (S+, SG)


HCC bus	proprietary protocol
Bus power supply voltage	DC 12 V, +10, -15% (supply RRV85x controller)
Baud rate	9.6 kbit/s
Room unit power consumption	2 VA

Permissible cable lengths

For bus communication	
A ≥ 0.5 mm ²	max. 60 m
A ≥ 1 mm ²	max. 100 m
Type of cable	2-wire standard installation cable (unshielded)

Note:

Twisted pair (unshielded) is recommended for enhanced immunity to external electromagnetic interference, e.g. in the vicinity of radio transmitters or variable speed drives

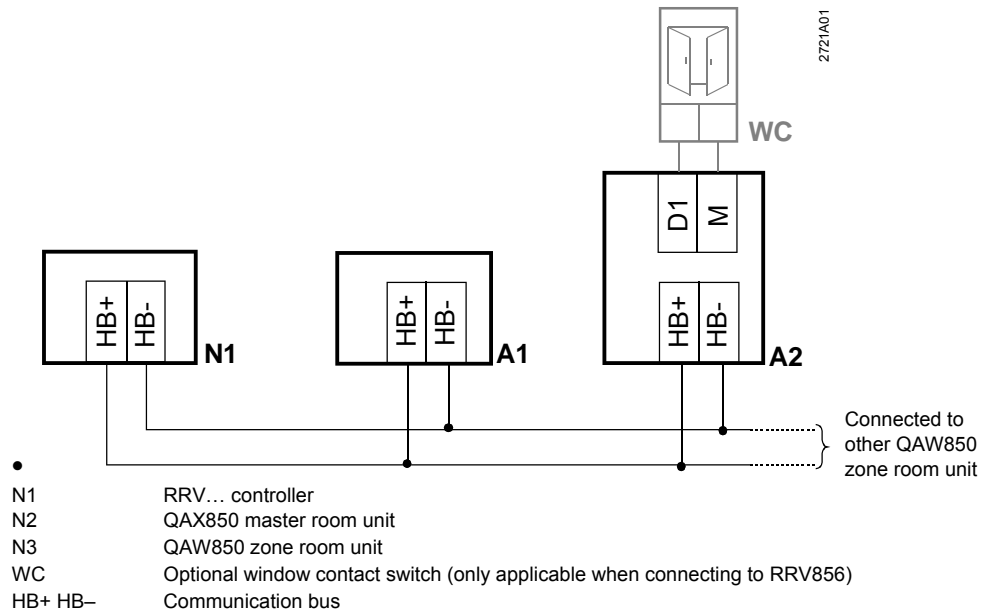
Electrical connections (HB+, HB-)	Connection terminals	screw terminals
	For wires	0.6 mm dia. ... 2.5 mm ²
Degrees of protection	Degree of protection of housing to IEC 60 529	IP 30
	Safety class to EN 60 730	device suited for use with equipment of safety class II
Environmental conditions	Operation to	IEC 721-3-3
	Climate conditions	class 3K5
	Temperature (housing and electronics)	0...50 °C
	Humidity	5...95 % r. h. (non-condensing)
	Mechanical conditions	class 3M2
	Transport to	IEC 721-3-2
	Climate conditions	class 2K3
	Temperature	-25...+70 °C
Humidity	<95 % r. h.	
Mechanical condition	class 2M2	
Classification to EN 60 730	Mode of operation, automatic controls	type 1B
	Degree of contamination, controls Environment	2
	Rated surge voltage	4000 V
	Software class	A
Materials and colors	Top housing	Polycarbonate, RAL 9003 (signal-white)
	Bottom housing and base plate	Polycarbonate, RAL 7035 (lightgrey)
	Packaging	corrugated cardboard
Norms and standards	Product safety	
	Automatic electrical controls for household and similar use	EN 60 730-1
	Special requirements for temperature sensing controls	EN 60 730-2-9
	Electromagnetic compatibility	
	Immunity domestic section, light industry	EN 61 000-6-1
	Emissions domestic section, light industry	EN 61 000-6-3
	CE-conformity	
	EMC directive	89/336/EEC
	Low-voltage directive	73/23/EEC
	 N474 conformity to	
Australian EMC framework	Radio Communication Act 1992	
Radio interference emission Standard	AS/NZS 4251.1	
Room temperature measurement	Measuring range	0...49 °C
	Setpoint range	5...35 °C
	Accuracy at 20 °C	max. ±0.5 K
	Temperature calibration range	max. ±3.0 K in increments of 0.5 K
	Room temperature display resolution	0.5 K
Weight	Excluding packaging	approx. 0.1 kg

Notes

Product liability

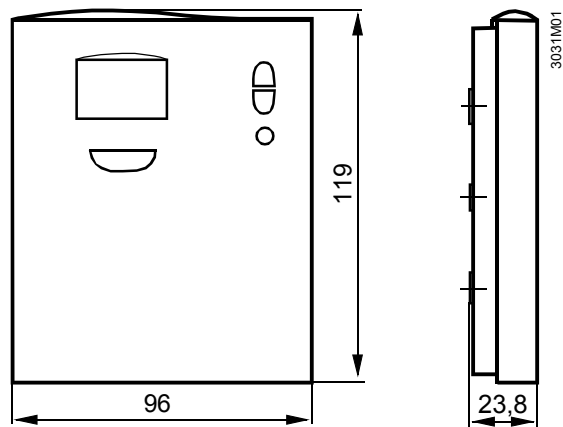
- The products may only be used in building services plant and applications as described above.
- When using the products, all requirements specified under "Technical data" must be observed.
- Local regulations for electrical installations must be complied with.

Connection diagram

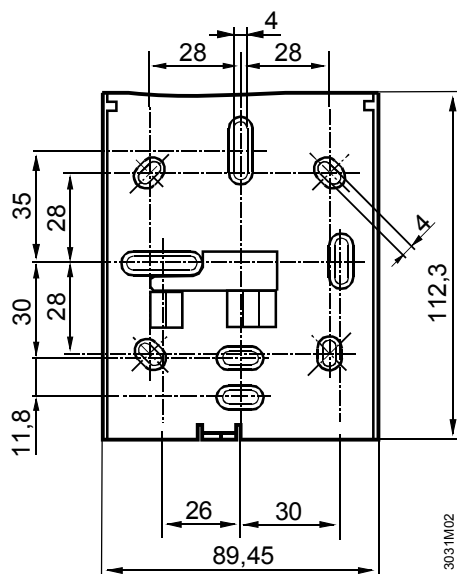


Dimensions

Room unit



Base



Dimensions in mm