

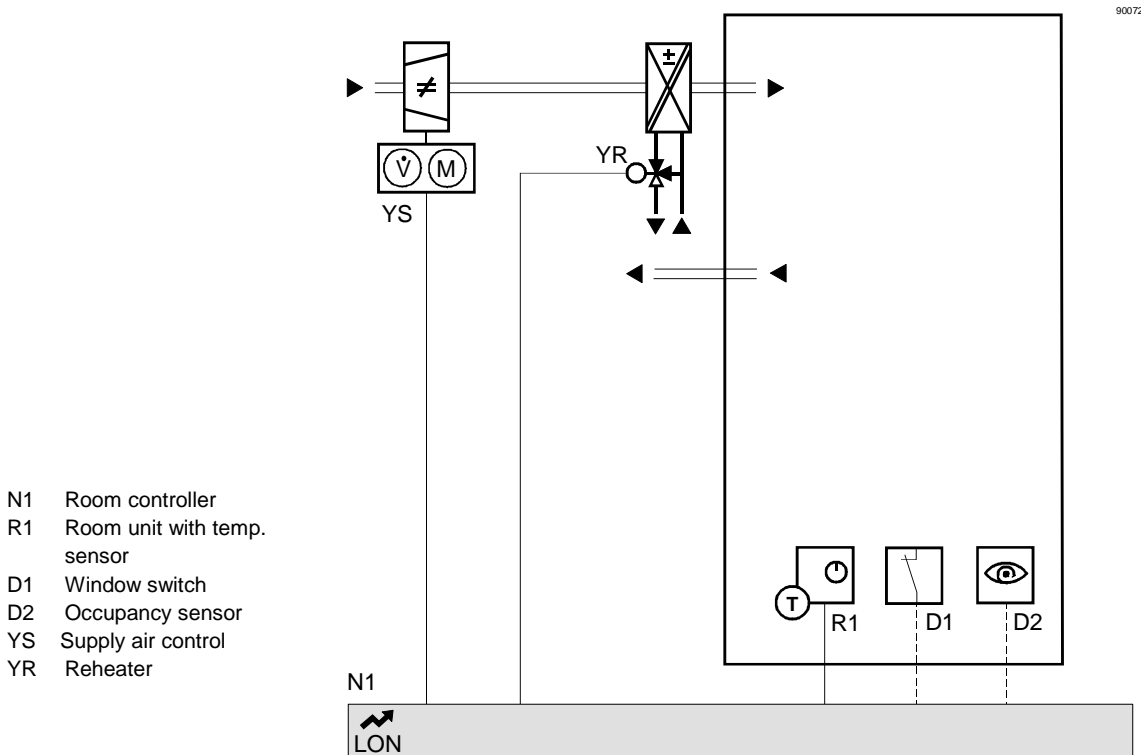
# Single duct supply air system with reheater or cooling coil

VAV02



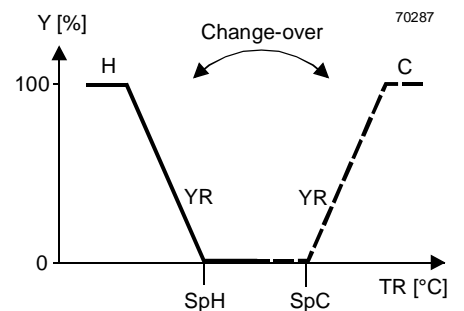
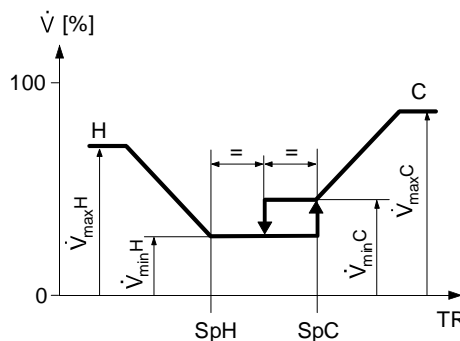
- Supply air volume control
- Room temperature control
- Air quality dependent control
- Water-based reheater
- Cooling

## Plant diagram



## Sequence diagram

- 00002
- V Air volume
  - TR Room temperature
  - SpH Effective heating setpoint
  - SpC Effective cooling setpoint
  - V<sub>maxH</sub> Max. volume, heating
  - V<sub>minH</sub> Min. volume, heating
  - V<sub>maxC</sub> Max. volume, cooling
  - V<sub>minC</sub> Min. volume, cooling
  - Y Output signal
  - H Heating sequence
  - YR Reheater
  - C Cooling sequence

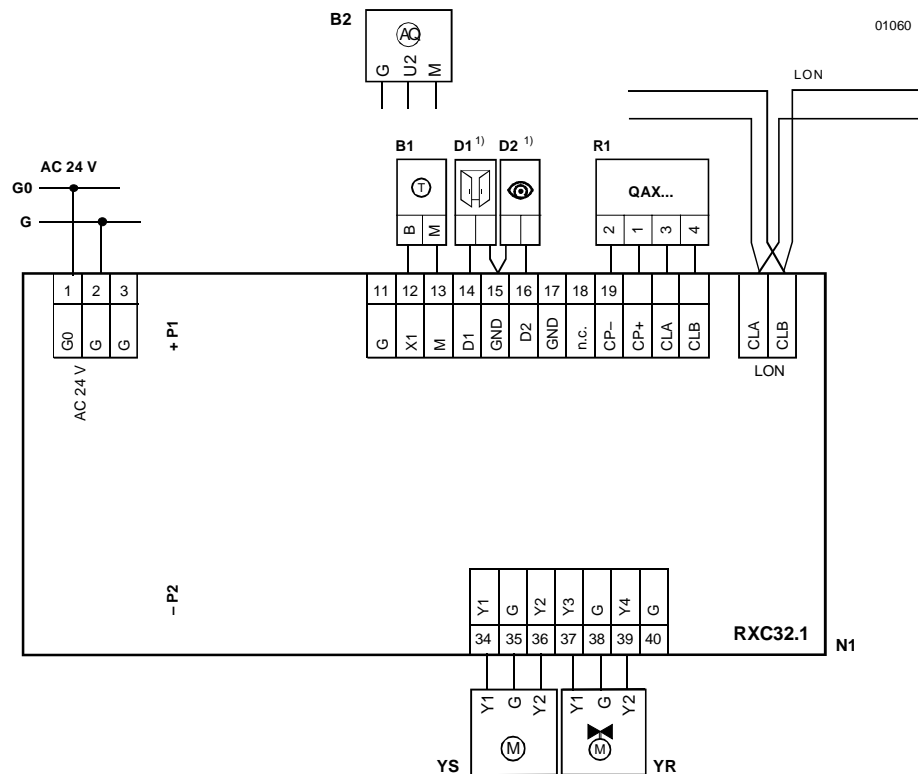


## Functions

For details refer to the "VAV function description" at the beginning of this section (CA2A3817E00). Application VAV02 includes the following functions:

Function	Brief description	See CA2A3817E00
Operating modes	<ul style="list-style-type: none"> <li>– <i>Comfort, Stand-by, Economy and Building protection</i></li> <li>– Change of operating mode via ⏻/Auto switch on room unit, occupancy sensor, window contact or central command</li> </ul>	2
Setpoint reset	– Locally via room unit or via central command	4.1, 4.2
Temperature measurement	– Via room unit or passive temperature sensor	5.1
Control sequences	<ul style="list-style-type: none"> <li>– Volume control</li> <li>– Reheater / re-cooler with change-over</li> </ul>	6.1 6.2
General functions	<ul style="list-style-type: none"> <li>– Occupancy sensor</li> <li>– Window switch</li> <li>– Master/slave operation</li> <li>– Morning boost, night cooling</li> <li>– Air quality dependent control</li> <li>– etc.</li> </ul>	7
Calibration	– Static or dynamic calibration of the volume sensor	8
Room units	– Versions available with temperature sensor, setpoint adjuster, ⏻/Auto switch and LCD display	9
Compatible controllers	– Application VAV02 can be used in conjunction with the RXC32.1	CA2N3845

## Connection diagram



1) **Either** an occupancy sensor **or** a window contact may be connected (but not both)

## List of equipment

Ref.	Description	Type	Data sheet
B1	Room temperature sensor	QAA24	1721
B2	Air quality sensor	QPA63	1958
D1	Window contact <sup>1) 2)</sup>	Third-party device	–
D2	Occupancy sensor <sup>1) 2)</sup>	Third-party device	–
N1	Room controller	RXC32.1	3845
R1	Room unit	QAX30.1	1741
		QAX31.1	
		QAX32.1	1641
QAX33.1		1642	
QAX34.1		1645	
R1	Wireless room unit	QAX39.1	1646
		QAX90.1	1643
R1	Receiver	QAX91.1	
		RXZ90.1	1644
YS	3-position damper actuator (AC 24 V)	GDB13...1E	4624
		GLB13...1E	
		GDB13...2E	4654
		GLB13...2E	
YR	3-position motorised valve actuator (AC 24 V)	SQS81, SSB81...	4575
			4891

1) Type of operation (N/O or N/C) can be selected

2) **Either** an occupancy sensor **or** a window contact may be connected (but not both)

## Configuration

The following parameters are available with VAV02: They are set in the RXT10.1 commissioning and service tool via the **Device, Configure, Settings** menu option.

Menu	Parameter	Values / Range	Basic setting
<i>Temperature setpoints</i>	Control sequence	Heating only / Cooling only / Change-over	Heating only
	<i>Comfort heating</i>	10 ... 35 °C	21 °C
	<i>Comfort cooling</i>	10 ... 35 °C	24 °C
	<i>Stand-by heating</i>	10 ... 35 °C	19 °C
	<i>Stand-by cooling</i>	10 ... 35 °C	28 °C
	<i>Economy heating</i>	10 ... 35 °C	15 °C
	<i>Economy cooling</i>	10 ... 35 °C	35 °C
	<i>Building protection heating</i>	10 ... 40 °C	12 °C
	<i>Building protection cooling</i>	10 ... 40 °C	40 °C
<i>Volume setpoints</i>	<i>Nominal volume (supply air)</i>	0...10000 l/s	100 l/s
	<i>Minimum volume, cooling</i>	0...10000 l/s	0 l/s
	<i>Maximum volume, cooling</i>	0...10000 l/s	0 l/s
	<i>Minimum volume, heating</i>	0...10000 l/s	0 l/s
	<i>Maximum volume, heating</i>	0...10000 l/s	0 l/s
	<i>Minimum volume, stand-by</i>	0...10000 l/s	0 l/s
	<i>Minimum volume, stand-by (time)</i>	0...90 mins	mins
<i>Volume control</i>	<i>Supply air</i>	Supply air	Supply air
	<i>Open-loop or closed-loop control</i>	Open-loop or closed-loop control	Closed-loop control
<i>Air volume calibration</i>	<i>Calibration mode</i>	Static or no calibration	No calibration
<i>Air quality controller</i>	<i>Input X1</i>	Temperature or air quality sensor	Temperature sensor
	<i>ppm range</i>	0...5000 ppm	2000 ppm
	<i>CO<sub>2</sub> Max.</i>	0...5000 ppm	1000 ppm
	<i>CO<sub>2</sub> limit</i>	0...5000 ppm	500 ppm
<i>Sequences</i>	<i>Valve types</i>	SSB81 / SQS81	SSB81

Menu	Parameter	Values / Range	Basic setting	
General functions	Occupancy override time ("Veto")	0 ... 90 mins	30 mins	
	Receive period	0 ... 105 mins	60 mins	
	Send interval (heartbeat)	0 ... 105 mins	45 mins	
	Occupancy sensor Type of operation:	Digital input D1 or D2		No occ. sensor
		Room occupied: Contact open / closed		Closed
		Switch-off delay	0 ... 90 mins	5 mins
		Switch-on delay	0 ... 90 mins	5 mins
	Window switch Type of operation:	Digital input 1 or 2		No window switch
		Condensation: Contact open / closed		Closed
	Master / Slave	Master or Slave		Master
	Heating demand signal			Enabled
	Cooling demand signal			Enabled
	Morning boost			Enabled
	Night cooling			Enabled
	Air flush (purge)			Enabled
Night purge			Enabled	
Service LED			Enabled	
Reset shift			Disabled	
Room unit	Sensor correction	- 3 ... 3 K	0 K	
	Setpoint reset range	± 0 ... 10 K	± 3 K	
	Display of heating/cooling symbol		Enabled	
	Temperature unit	°C or °F	[°C]	
	Temperature display in normal mode	None / room temp. / setpoint	room temp.	
	Temperature display in setpoint shift mode	Absolute or relative	Absolute	
LONMARK bindings	See the sections headed "LONMARK network variables" and "LONMARK binding templates"			

## Ordering

Room controllers may be ordered either with the application described above or with the appropriate basic application. Please state the quantity, DESIGO RXC device name, type code and application.

### Example 1

**15 RXC32.1 room controllers with application VAV02 RXC32.1/ VAV02**

### Notes

- The controllers will be delivered with the basic settings shown above.
- Minimum order quantity: 10 controllers

### Example 2

**2 RXC32.1 room controllers RXC32.1 / 00032**

### Notes

- The controllers will be delivered with the basic application
- The application can be loaded into the controllers by means of the RXT10.1 tool
- Minimum order quantity: 1 controller