

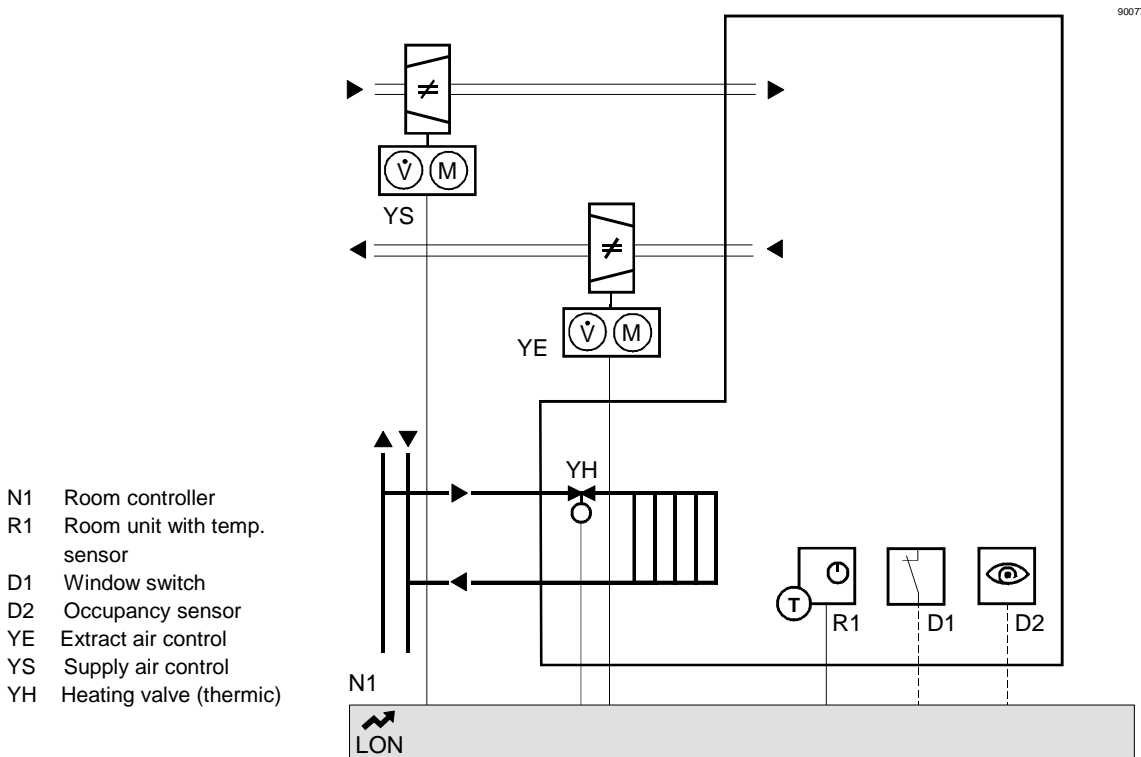
Single-duct supply and extract air system with radiator-type heating

VAV08

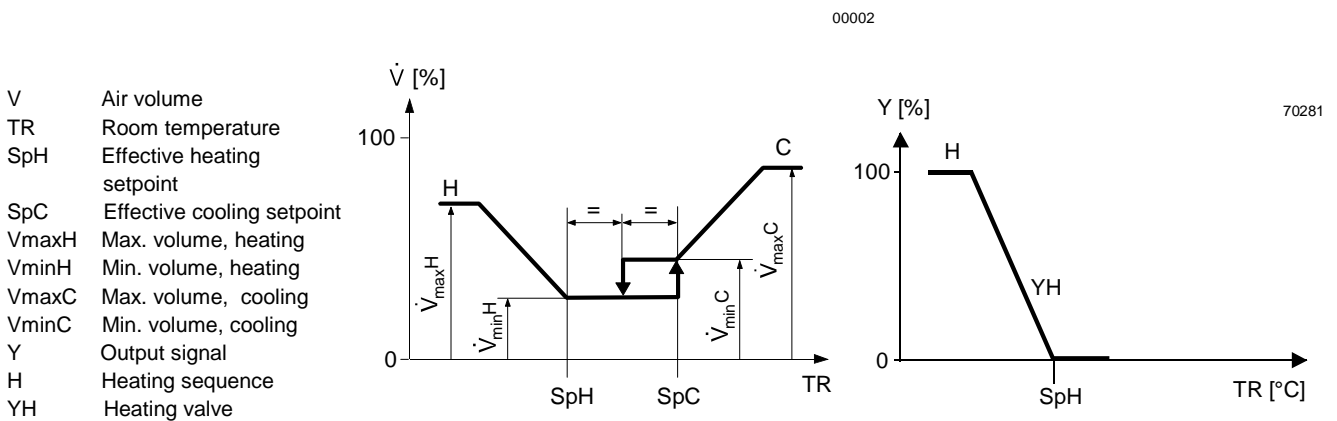


- Volume control of the supply / extract air
- Room temperature control
- Air quality dependent control
- Radiator-type heating

Plant diagram



Sequence diagram

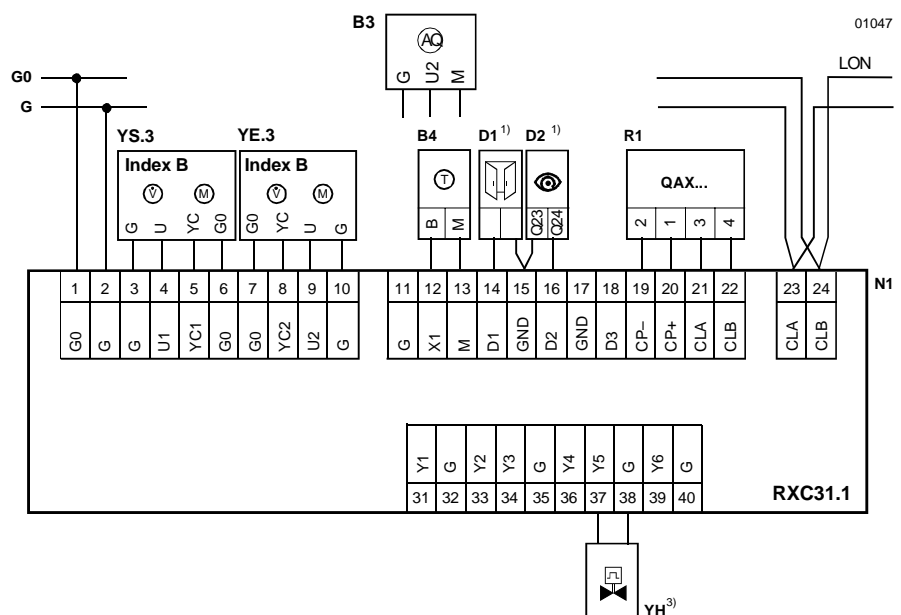


Functions

For details refer to the “VAV function description” at the beginning of this section (CA2A3817E00). Application VAV08 includes the following functions:

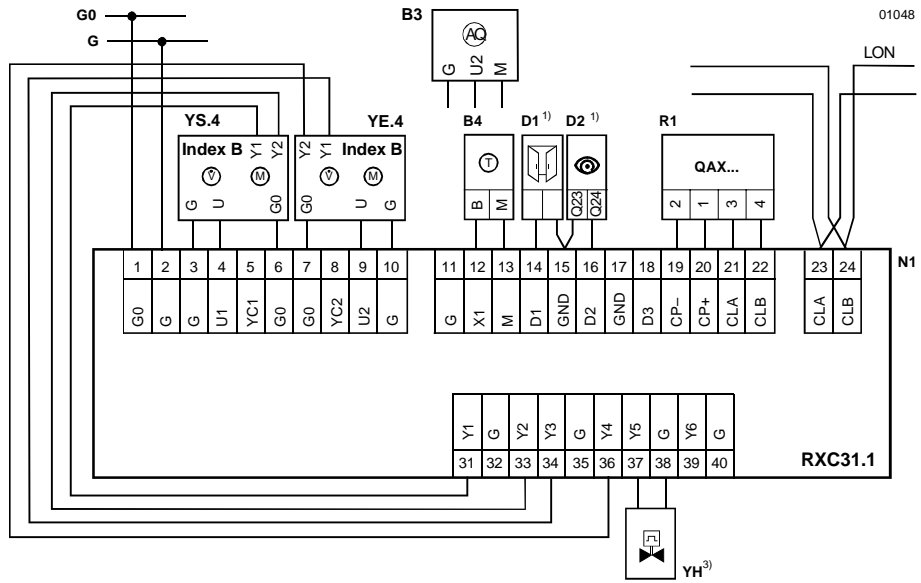
Function	Brief description	See CA2A3817E00
Operating modes	<ul style="list-style-type: none"> – <i>Comfort, Stand-by, Economy and Building protection</i> – Change of operating mode via ⏻/Auto switch on room unit, occupancy sensor, window contact or central command 	2
Setpoint reset	– Locally via room 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"> – Volume control – Radiator heating, PWM 	6.1 CA2A3841E00
General functions	<ul style="list-style-type: none"> – Occupancy sensor – Window switch – Master/slave operation – Morning boost, night cooling – Air quality dependent control – etc. 	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 VAV08 can be used in conjunction with the RXC31.1	CA2N3844

Connection diagram Alternative 1 (G..B181.1E/3, with function type **CON**)

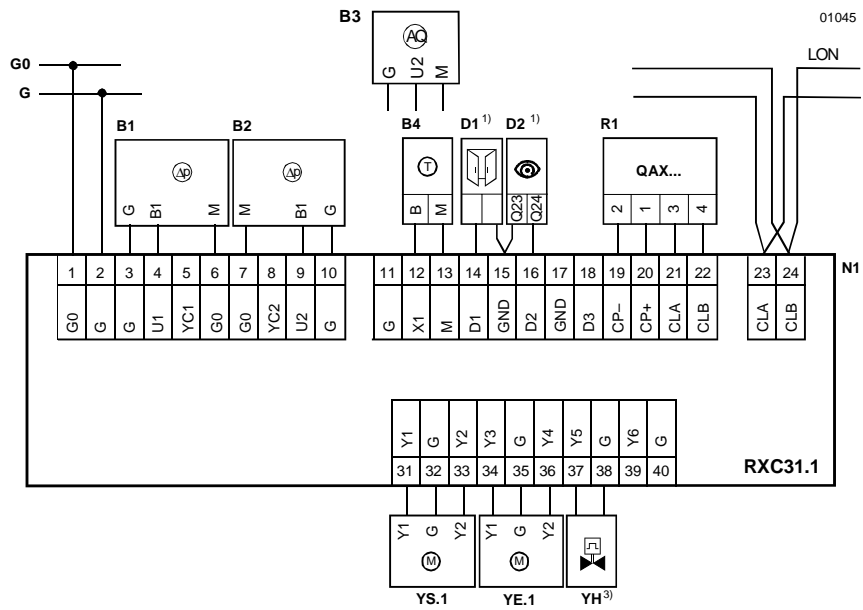


- 1) **Either** an occupancy sensor **or** a window contact may be connected (but not both)
- 3) Observe the rating with simultaneous loads on outputs Y1 ... Y4: 9.5 VA (see data sheet 3844)

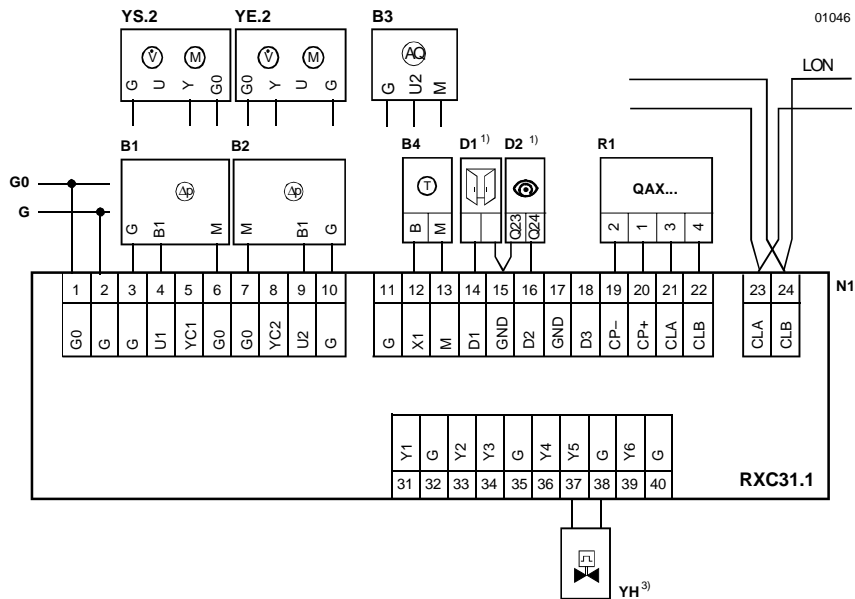
**Connection diagram
Alternative 2
(G..B181.1E/3
with function type
3-position)**



**Connection diagram
Alternative 3
(G..B13..1E)**



**Connection diagram
Alternative 4
(G..B16....E)**



- 1) **Either** an occupancy sensor **or** a window contact may be connected (but not both)
- 3) Observe the rating with simultaneous loads on outputs Y1 ... Y4: 9.5 VA (see data sheet 3844)

List of equipment

Ref.	Description	Type	Data sheet
B1, B2	Differential pressure sensor	QBM62.1...	1913
		QBM62.2...	1914
		QBM63/...,	1912
		QBM64/...	
		QBM65-...	1916
		QBM65-.../C	1919
B3	Air quality sensor	QPA63	1958
B4	Room temperature sensor	QAA24	1721
D1	Window contact ^{1) 2)}	Third-party device	–
D2	Occupancy sensor ^{1) 2)}	Third-party device	–
N1	Room controller	RXC31.1	3844
R1	Room unit	QAX30.1	1741
		QAX31.1	
		QAX32.1	1641
		QAX33.1	1642
		QAX34.1	1645
		QAX39.1	1646
	Wireless room unit	QAX90.1	1643
	Receiver	QAX91.1 RXZ90.1	1644
YS.1, YE.1	Damper actuator, supply / extract air (AC 24 V, 3-position)	GLB13...1E	4624
		GDB13...1E	
		GLB13...2E	4654
		GDB13...2E	
YS.2, YE.2	Damper actuator for supply /extract air (DC 0 ... 10 V motor)	GLB16...1E	4634
		GDB16...2E	4664
YS.3, YE.3	VAV compact supply / extract air controller (function type CON)	GDB181.1E/3	3544
		GLB181.1E/3	
YS.4, YE.4	VAV compact supply / extract air controller (function type 3-position)	GDB181.1E/3	3544
		GLB181.1E/3	
YH	Thermic heating valve, 2-position (AC 24 V, PWM control)	STE71.1	4874
		STA71	4877

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 VAV08: 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>	<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

Menu	Parameter	Values / Range	Basic setting	
Volume setpoints	Nominal volume (supply air)	0...10000 l/s	100 l/s	
	Minimum volume, cooling	0...10000 l/s	0 l/s	
	Maximum volume, cooling	0...10000 l/s	0 l/s	
	Minimum volume, heating	0...10000 l/s	0 l/s	
	Maximum volume, heating	0...10000 l/s	0 l/s	
	Minimum volume, stand-by	0...10000 l/s	0 l/s	
	Minimum volume, economy	0...10000 l/s	0 l/s	
	Minimum volume, stand-by (time)	0...90 mins	0 l/s	
	Nominal volume (extract air)	0...10000 l/s	100 l/s	
	Ratio, max. supply air / max. extract air	0...10	1.0	
	Constant volume differential	0...10000 l/s	0 l/s	
Volume control	Supply air or extract air	Supply air or extract air	Supply air or extract air	
3-position	Open-loop / Closed-loop control	Open-loop / Closed-loop control	Closed-loop control	
	Sensor type	Air flow / Pressure	Pressure	
	Sensor range "pressure"	0...1000 Pa	300 Pa	
	VAV damper run-time (supply/extract air)	30...300 sec	150 sec	
0 ... 10V	Supply air or extract air	Supply air or extract air	Supply air or extract air	
	Open-loop / Closed-loop control	Open-loop / Closed-loop control	Closed-loop control	
	Sensor signal	Air flow / Pressure	Pressure	
	Sensor signal: Pressure	0...1000 Pa	300 Pa	
	Signal output (supply/extract air) volume 0%	0 ... 10V	0V	
	Signal output (supply/extract air) volume 100%	0 ... 10V	10V	
Volume controller	VAV damper run-time (supply/extract air)	30...300 sec	150 sec	
	Supply air or extract air	Supply air or extract air	Supply air or extract air	
	Signal output (supply/extract air) volume 0%	0 ... 10V	0V	
	Signal output (supply/extract air) volume 100%	0 ... 10V	10V	
Air volume calibration	Calibration mode	Static / Dynamic / No calibration	No calibration	
Air quality dependent control	Input X1	Temperature sensor / air quality sensor	Temperature sensor	
	ppm range	0...5000 ppm	2000 ppm	
	CO2 Max.	0...5000 ppm	1000 ppm	
	CO2 limit	0...5000 ppm	500 ppm	
Sequences	Valve types	STE71	STE71	
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, D2 or D3	Digital input D1, D2 or D3	No occ. sensor
		Room occupied: Contact open / closed	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, 2 or 3	Digital input 1, 2 or 3	No window switch
		Window closed: Contact open / closed	Window closed: Contact open / closed	Closed
	Master / Slave	Master or Slave	Master	
	Heating 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 RXC31.1 room controllers with application VAV08 RXC31.1/ VAV08

Notes

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

Example 2

2 RXC31.1 room controllers RXC31.1 / 00031

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