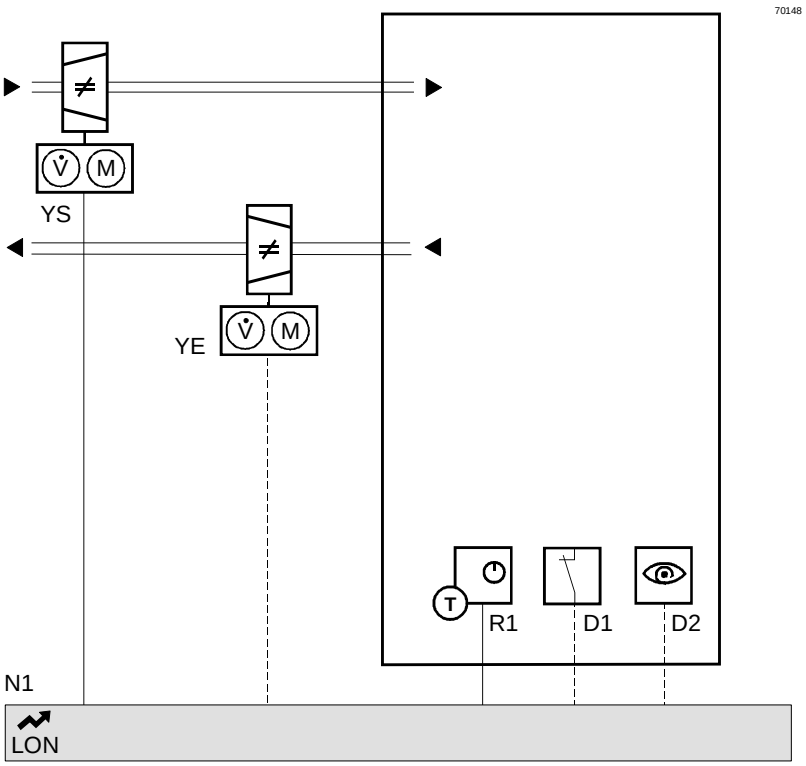
Single-duct supply or extract air system

VAV01

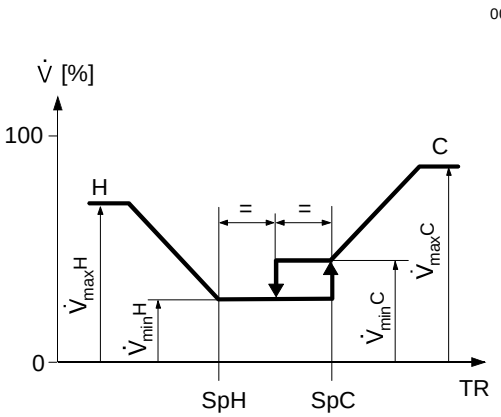
- **Supply or extract air volume control**
- **Room temperature control**
- **Air quality dependent control**

Plant diagram



N1 Room controller
R1 Room unit with temp. sensor
D1 Window switch
D2 Occupancy sensor
YS Supply air control
YE Extract air control

Sequence diagram



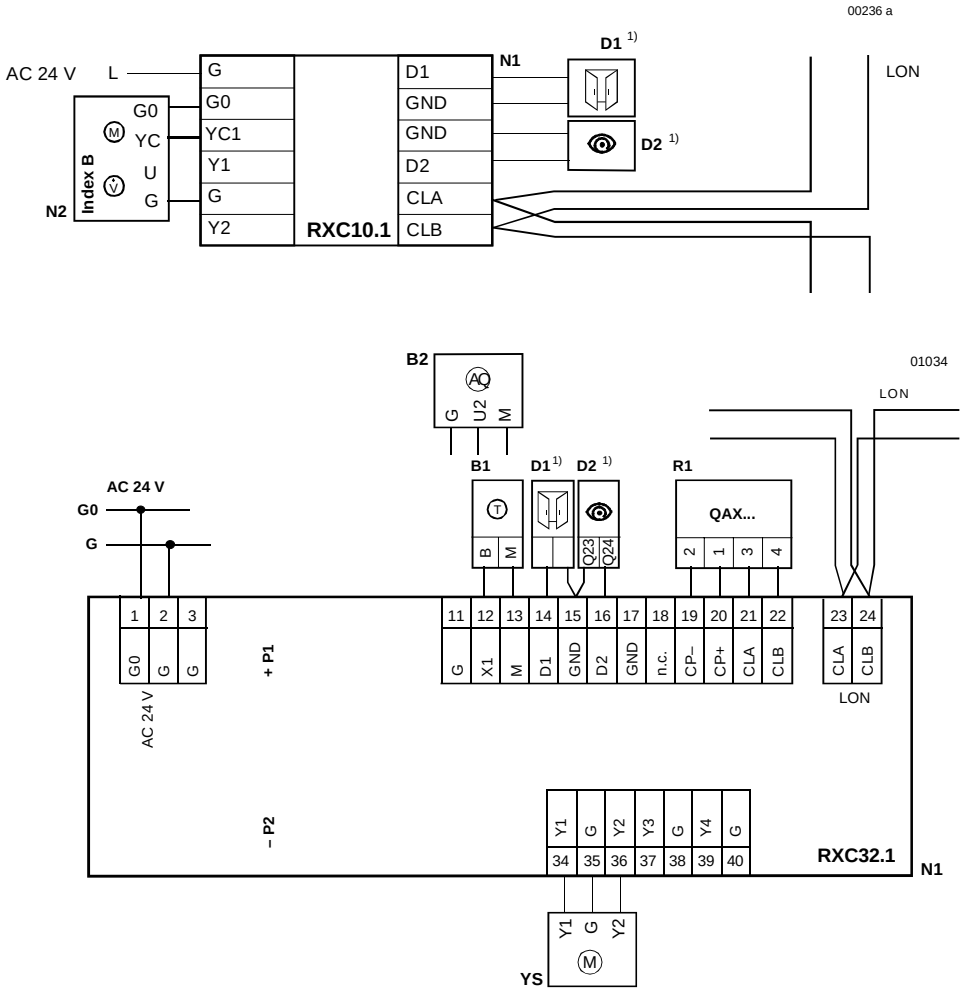
V Air volume
TR Room temperature
SpH Effective heating setpoint
SpC Effective cooling setpoint
VmaxH Max. volume, heating
VminH Min. volume, heating
VmaxC Max. volume, cooling
VminC Min. volume, cooling

Functions

For details refer to the “VAV function description” at the beginning of this section (CA2A3817E00). Application VAV01 includes the following functions:

Function	Brief description	See CA2A3817E00
Operating modes	– *Comfort, Stand-by, Economy* and *Building protection* – 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	– Volume control (supply or extract air)	6
General functions	– 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	– VAV01 can be used with the RXC10.1 and the RXC32.1	CA2N3830, 3845

Connection diagrams



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 [1) 2)]	Third-party device	–
D2	Occupancy sensor [1) 2)]	Third-party device	–
R1	Room unit	**QAX30.1,** **QAX31.1** **QAX32.1** **QAX33.1** **QAX34.1** **QAX39.1**	1741 1641 1642 1645 1646
	Wireless room unit Receiver	**QAX90.1,** **QAX91.1** **RXZ90.1**	1643 1644
N1	Room controller	**RXC10.1** **RXC32.1**	3830 3845
N2	VAV compact supply (extract) air controller	**GDB181.1E/3,** **GLB181.1E/3**	3544
YS	Damper actuator, supply air (extract air) AC 24 V, 3-position	**GDB13…1E,** **GLB13…1E** **GDB13…2E,** **GLB13…2E**	4624 4654

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 VAV01: They are set in the RXT10.1 commissioning and service tool via the **Device, Configure, Settings** menu option.

Menu	Parameter	Values / Range	Basic setting
Temperature setpoints	*Comfort heating*	10 ... 35 °C	21 °C
	Comfort cooling	10 ... 35 °C	24 °C
	Stand-by heating	10 ... 35 °C	19 °C
	Stand-by cooling	10 ... 35 °C	28 °C
	Economy heating	10 ... 35 °C	15 °C
	Economy cooling	10 ... 35 °C	35 °C
	Building protection heating	10 ... 40 °C	12 °C
	Building protection cooling	10 ... 40 °C	40 °C
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, stand-by (time)	0…90 min	Min.
	Nominal volume (extract air)	0…10000 l/s	0 l/s
Volume control	*Supply air / extract air*	Supply air / extract air	Supply air
	Open-loop / closed-loop control	Open-loop / closed-loop control	Closed-loop control
Air volume calibration	*Calibration mode*	Static calibration / no calibration	No calibration
Air quality controller	*Input X1*	Temperature sensor / air quality sensor	Temperature sensor
	ppm range	0…5000 ppm	2000 ppm
	CO2 Max.	0…5000 ppm	1000 ppm
	CO_2 limit	0…5000 ppm	500 ppm

Menu	Parameter	Values / Range	Basic setting
General functions	*Veto time (override)*	0 ... 90 min	30 min
	Receive period	0 ... 105 mins	60 mins
	Send interval (heartbeat)	0 ... 105 mins	45 mins
	Occupancy sensor	Digital input D1 or D2	No occ. sensor
	Type of operation:	Room occupied: Contact open or closed	Closed
	Switch-off delay	0 ... 90 min	5 min
	Switch-on delay	0 ... 90 min	5 min
	Window switch	Digital input 1 or 2	No window switch
	Type of operation:	Window closed: Contact open / closed	Closed
	Master / Slave	Master or Slave	Master
	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 VAV01 RXC32.1/ VAV01

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