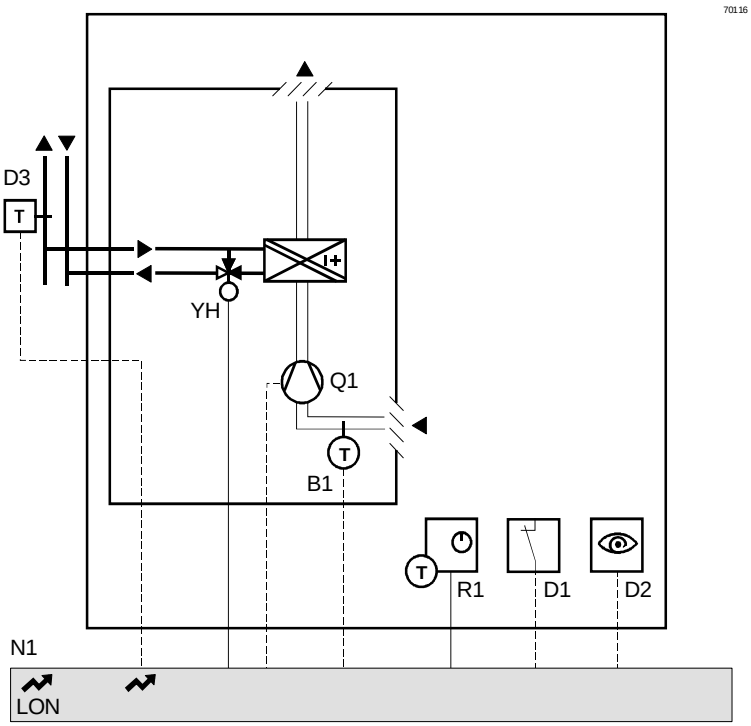
Fan coil with two-pipe system

FNC02

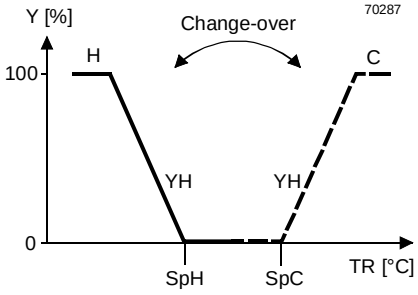
- **Only heating, only cooling or change-over, with LTHW and CHW resp.**
- **Change-over via LON bus**
- **Modulating control of heating andcooling valve**
- **Automatic or manual fan control**

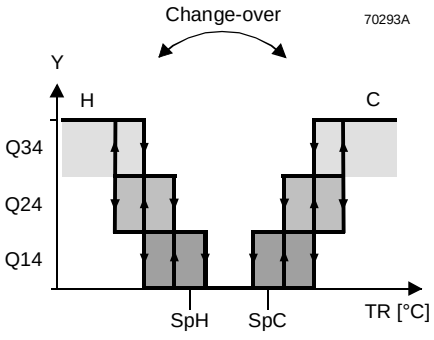
Plant diagram



N1 Room temperature controller
R1 Room unit with temp. sensor
B1 Return air sensor
D1 Window switch
D2 Occupancy sensor
D3 Change-over signal via LON bus
Q1 Fan (1 ... 3-speed)
YH Heating/cooling valve

Operating diagrams





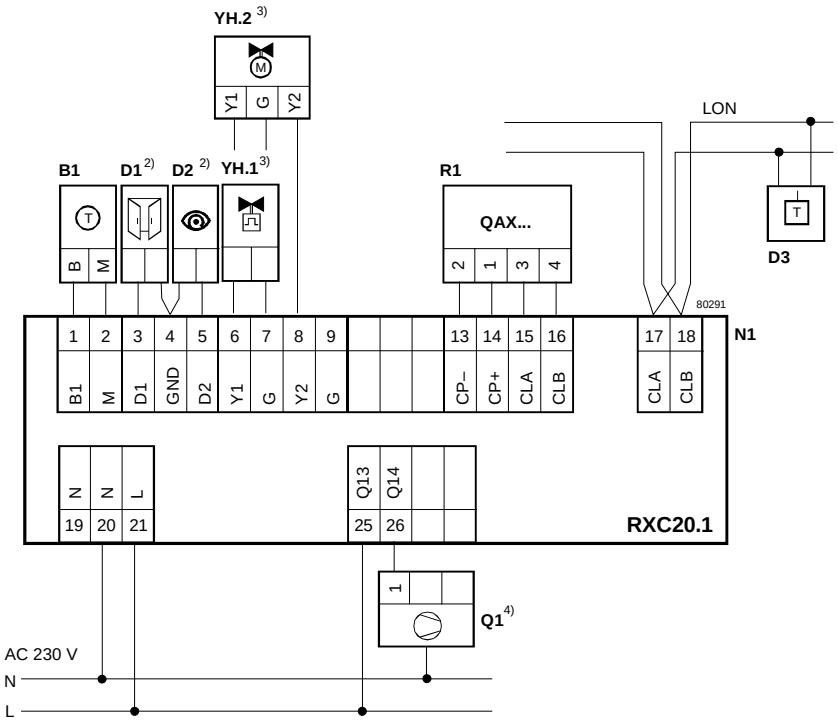
Y Output signal
TR Room temperature
SpH Effective heating setpoint
SpC Effective cooling setpoint
H Heating sequence
C Cooling sequence
YH Heating/cooling valve
Q14 Fan speed 1
Q24 Fan speed 2
Q34 Fan speed 3

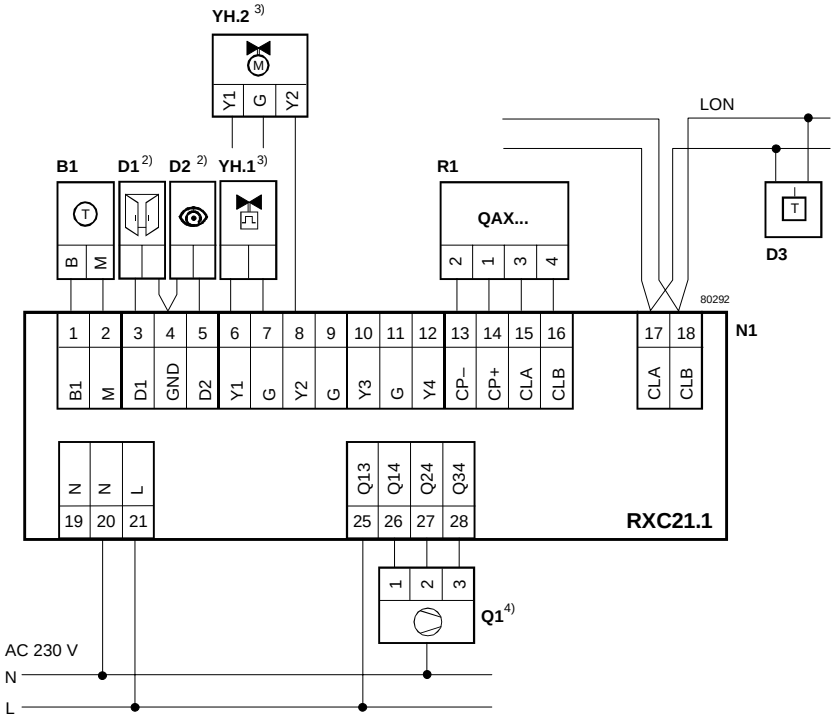
Functions

For details refer to the “FNC” description of functions at the beginning of this section (CA2A3816E00). Application FNC02 includes the following functions:

Function	Brief description	See CA2A3816E00
Two-pipe systems	– PID control – Proportional control sequence, selectable Only heating sequence, only cooling sequence or change-over. – Control of thermic or motorised valve actuators (AC 24 V, PWM or AC 24 V, 3-position) – Valve exercising feature	6.2 6.3 6.8
Fan control	– Single speed (RXC20.1) or 1...3 speeds (RXC21.1), automatic or – Manual with room unit	7
Temperature measurement	– Room temperature sensor or – Return air sensor	5 7.6
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, 3
Setpoint adjustment	– Locally via room unit or via central command	4
General functions	– Occupancy sensor – Window switch – Master/slave operation – Boost, night cooling – etc.	2.2, 8.4 2.2, 8.4 8.2 8.6, 8.7
Room units	– Versions available with temperature sensor, setpoint adjuster, ⏻/Auto switch and fan speeds, LCD display	9
Compatible controllers	FNC02 can be used in conjunction with RXC20.1 and RXC21.1.	

Connection diagrams





2) Type of operation (N/O or N/C) can be selected
3) Do not exceed the max. simultaneous load on outputs Y1 ... Y4: max. 9.5 VA (see data sheet 3834).
4) Do not connect the fans in parallel (or use cut-off relays).

List of equipment

Ref.	Description	Type	Data sheet
N1	Room temperature controller	**RXC20.1** [1] **RXC21.1**	3834
R1	Room unit	**QAX30.1** **QAX31.1** **QAX32.1** **QAX33.1** **QAX34.1** **QAX39.1**	1741 1741 1641 1642 1645 1646
	Wireless room unit Reciever	**QAX90.1,** **QAX91.1** **RXZ90.1**	1643 1644
B1	Return air sensor	**QAM22** **QAP22...**	1771 1831
	Room temperature sensor	**QAA24**	1721
D1	Window contact [2]	Third-party device	–
D2	Occupancy sensor [2]	Third-party device	–
D3	Change-over signal via LON bus	–	–
Q1	Single-speed or 3-speed fan	Third-party device	–
YH.1	Thermic heating/cooling valve, 2-position (PWM) control [3]	**T3W..., T4W...** **STE72**	4829 4873
YH.2	Motorised heating/cooling valve, 3-position control [3]	**SQS81** **SSB81...**	4575 4891

1) Only for use with a 2-position valve actuator
2) Type of operation (N/O or N/C) can be selected
3) Do not exceed the max. simultaneous load on outputs Y1 ... Y4: max. 9.5 VA (see data sheet 3834).

Configuration

The parameters below are available with application FNC02. They are set in the RXT10.1 commissioning and service tool in the **Device, Configure, Settings** menu option.

Menu	Parameter	Values/range	Basic setting
Temperature setpoints	*Control sequence*	Only heating, only cooling or change-over.	Change-over
	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
Fan control	*Fan speeds*	– Manual – Single-stage – 2-stage (RXC21.1 only) – 3-stage (RXC21.1 only)	3-speed (RXC21.1) 1-speed (RXC20.1)
	Min. run-time	1 ... 10 min	6 min
	Temperature sensor	– Room air – Return air Time interval, 0:00 ... 1:00 h	Room air 0
Sequences	*Valve type*	– STE72 – SQS81 – SSB81... – Third-party device	STE72
Room unit	*Sensor correction*	– 3 ... 3 K	0 K
	Setpoint adjustment 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
General functions	*Occupancy override time*	0 ... 90 min	30 min
	Receive heartbeat	0 ... 105 min	60 min.
	Send heartbeat	0 ... 105 min	45 min
	Occupancy sensor	Digital input 1 or 2	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 or closed	Closed
	Master/slave	Master or Slave	Master
	Heating demand signal		Enabled
	Cooling demand signal		Enabled
	Morning boost		Enabled
	Night cooling		Enabled
	Service LED		Enabled
	Reset shift		Disabled
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 RXC20.1 individual room controllers with application FNC02 RXC20.1/FNC02

Notes

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

Example 2

2 RXC20.1 room controllers RXC20.1 / 00020

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