

Fan coil with two-pipe system and outside-air damper

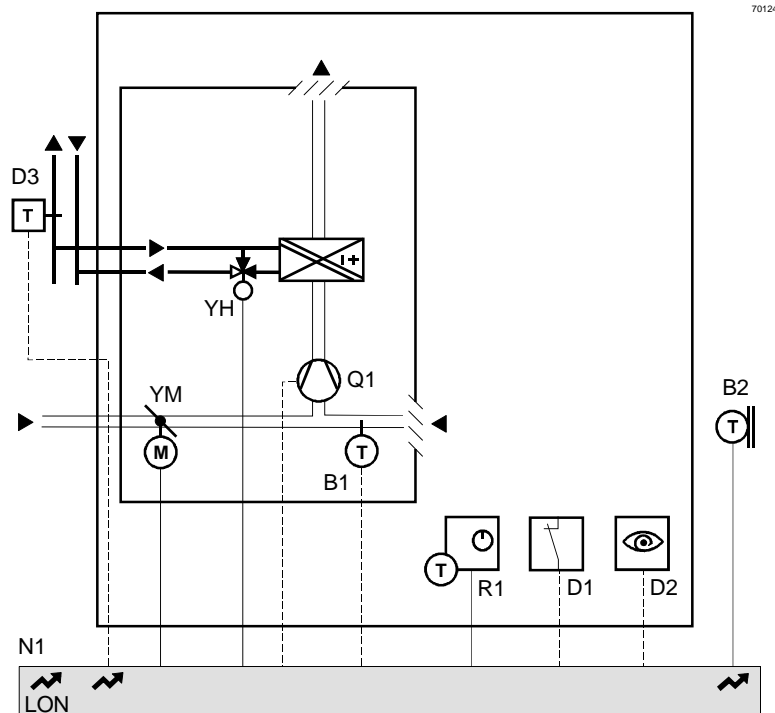
FNC10



LONMARK®

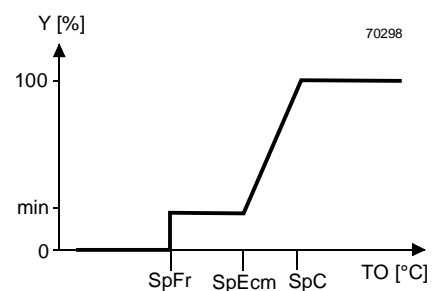
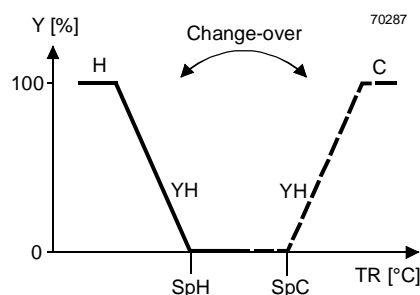
- Heating only, cooling only or change-over with LTHW and CHW resp.
- Change-over via LON bus
- Modulating control of heating/cooling valve
- Outside air damper for supply of outside air
- Automatic or manual fan control

Plant diagram

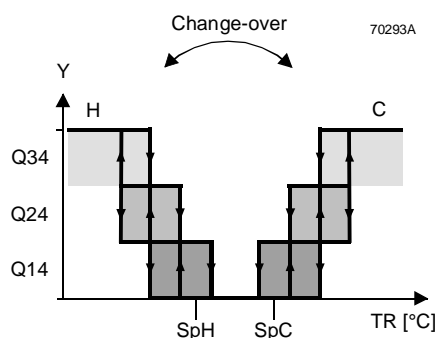


- N1 Room temperature controller
- R1 Room unit with temp. sensor
- B1 Return air sensor
- B2 Aussentemperaturfühler über LON-Bus
- D1 Window switch
- D2 Occupancy sensor
- D3 Change-over signal via LON bus
- Q1 Fan (1 ... 3-speed)
- YH Heating/cooling valve
- YM Outside air damper

Operating diagrams



- Y Output signal
- TR Room temperature
- TO Outside temperature
- SpH Effective heating setpoint
- SpC Effective cooling setpoint
- SpEcm Economiser setpoint
- SpFr Frost protection limit
- H Heating sequence
- C Cooling sequence
- YH Heating/cooling valve
- YM Outside air damper
- Q14 Fan speed 1
- Q24 Fan speed 2
- Q34 Fan speed 3

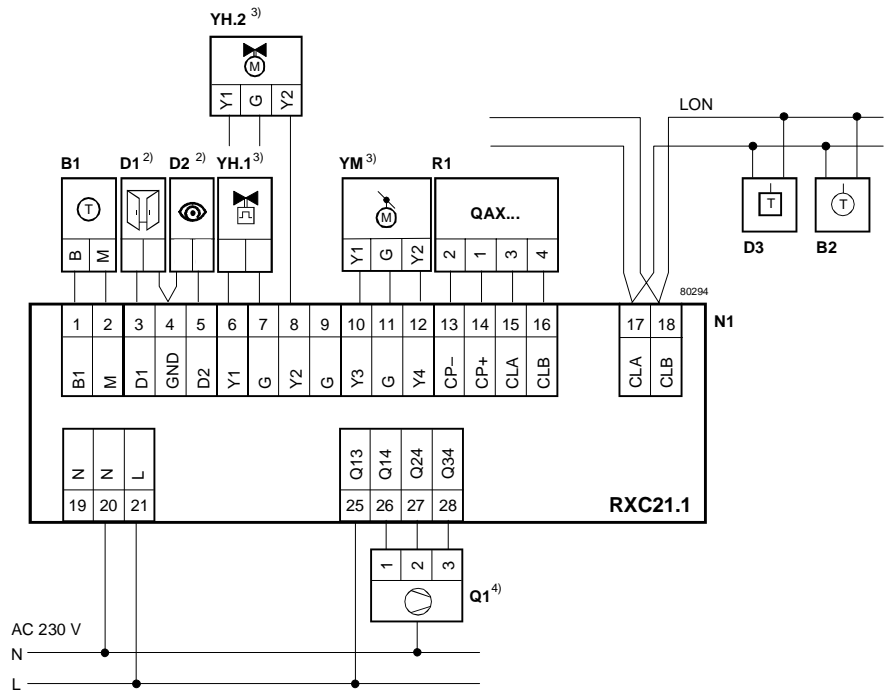


Functions

For details refer to the “FNC” description of functions at the beginning of this section (CA2A3816E00). Application FNC10 includes the following functions:

Function	Brief description	See CA2A3816E00
Two-pipe system	– PID control	6.2
	– Proportional control sequence, selectable Only heating sequence, only cooling sequence or change-over.	6.3
	– Control of thermic or motorised valve actuators (AC 24 V, PWM or AC 24 V, 3-position)	6.6
	– Outside air damper	6.8
	– Valve exercising feature	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	5
	– Return air sensor	7.6
Operating modes	– <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, 3
Setpoint adjustment	– Locally via room unit or via central command	4
General functions	– Occupancy sensor	2.2, 8.4
	– Window switch	2.2, 8.4
	– Master/slave operation	8.2
	– Boost, night cooling	8.6, 8.7
	– etc.	
Room units	– Available with temperature sensor, setpoint adjuster, ⏻/Auto switch and fan speeds, LCD display	9
Compatible controllers	FNC10 can be used in conjunction with the RXC21.1	

Connection diagram



- 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	RXC21.1	3834
R1	Room unit	QAX30.1	1741
		QAX31.1	1741
		QAX32.1	1641
		QAX33.1	1642
		QAX34.1	1645
		QAX39.1	1646
B1	Return air sensor	QAM22	1771
		QAP22...	1831
	Room temperature sensor	QAA24	1721
B2	Outside temperature sensor via LON bus or central command	Third-party device	–
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	Not within the scope of works	–
YH.1	Thermic heating/cooling valve, 2-position (PWM) control ³⁾	T3W..., T4W...	4829
		STE72	4873
YH.2	Motorised heating/cooling valve, 3-position control ³⁾	SQS81 SSB81...	4575 4891
YM	Damper actuator for outside air damper	GDB13...1E, GLB13...1E	4624
GDB13...2E, GLB13...2E		4654	
GHD131.1E		4689	

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- 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 FNC10. 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
Frost-Schutz	2 ... 10 °C	5 °C	
Fan control	Fan speeds	– Manual – Single-stage – 2-stage – 3-stage	Three-stage
	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
	Outside air damper		
	Economiser setpoint	>10 °C Comfort cooling	16 °C
	Damper run-time	0 ... 300 s	150 s
	Minimal position	0 ... 100 %	0 %
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 RXC21.1 individual room controllers with application FNC10 RXC21.1/FNC10

Notes

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

Example 2

2 RXC21.1 room controllers RXC21.1 / 00021

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

