

## NRFC 413, 422...424: Modbus fan coil thermostat

### How energy efficiency is improved

Precise comfort control in individual rooms through precise temperature detection.

### Features

- Single-room controller for heating and cooling by means of air conditioning units in commercial and residential buildings
- For 2- or 4-pipe fan coil units, two-stage heating systems or water-bearing heat pumps
- Can be integrated into building management systems via Modbus/RTU
- Large configurable display with backlight
- Integrated on/off timer
- Deactivatable button operation for public installations
- Valve control via 2-point or 0...10 V output
- Supports 3-speed fans or fans with EC motor
- Summer/winter changeover in 2-pipe applications
- Automatic deactivation of internal temperature sensor when using a cable temperature sensor
- Installation via mounting plate without opening the controller
- Universal design and low installation height of 14 mm for inconspicuous fitting



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### Technical data

Power supply		
	Power supply	100...240 V~, 50/60 Hz
	Power consumption	5 VA
Ambient conditions		
	Ambient temperature	0...40 °C
	Ambient humidity	5...95% rh, no condensation
	Storage and transport temperature	-25...60 °C
Inputs/outputs		
Inputs	Temperature sensor	NTC 10k
	Digital input	closed < 0.3 V= open > 0.7 V=
	Analogue input	0...10 V
Outputs	Analogue output U	0...10 V (100 kOhm)
	Relay output	1 × 2.2 A (I <sub>R</sub> ) 1 × 3.6 A (I <sub>X</sub> ) cos φ 0.98 each at 240 V~
Interfaces, communication		
RS-485	Communication protocol	Modbus/RTU
	Connection	Terminal, 3-pin
	Baud rate	9600, 4800 (adjustable)
	Indicator/display	LCD display with backlight (adjustable)
	Buttons	6
Construction		
	Weight	0.3 kg
	Dimensions W x H x D	88 × 88 × 46.2 mm
	Housing	Upper and lower part white
	Housing material	Polycarbonate
	Fitting	On round or square recessed box
Standards, directives		
	Type of protection	IP20 (EN 60529)
	Protection class	III as per IEC 60730
CE conformity according to	EMC Directive 2014/30/EU	EN 61000-6-1, EN 61000-6-3
	Low-Voltage Directive 2014/35/EU	EN 60730-1/EN 60730-2-9



**Inputs/outputs**

Type	AI	DI	AO	DO
NRFC413MF111	1 × NTC, 1 × 0...10 V	1	1	3 × relay (single-pole normally-open contact)
NRFC422MF111	1 × NTC	1	0	5 × relay (single-pole normally-open contact)
NRFC423MF111	1 × NTC	1	2	3 × relay (single-pole normally-open contact)
NRFC424MF112	1 × NTC	1	2	3 × relay (single-pole normally-open contact)

**Overview of types**

Type	Description	Fan
NRFC413MF111	2-pipe, continuous, with positional feedback signal	3 speeds
NRFC422MF111	2-pipe or 4-pipe, 2-point	3 speeds
NRFC423MF111	2-pipe or 4-pipe, continuous	3 speeds
NRFC424MF112	2-pipe or 4-pipe, 2-point or 2-pipe, continuous	EC motor with cut-off function