

RDG/RDF – room thermostats

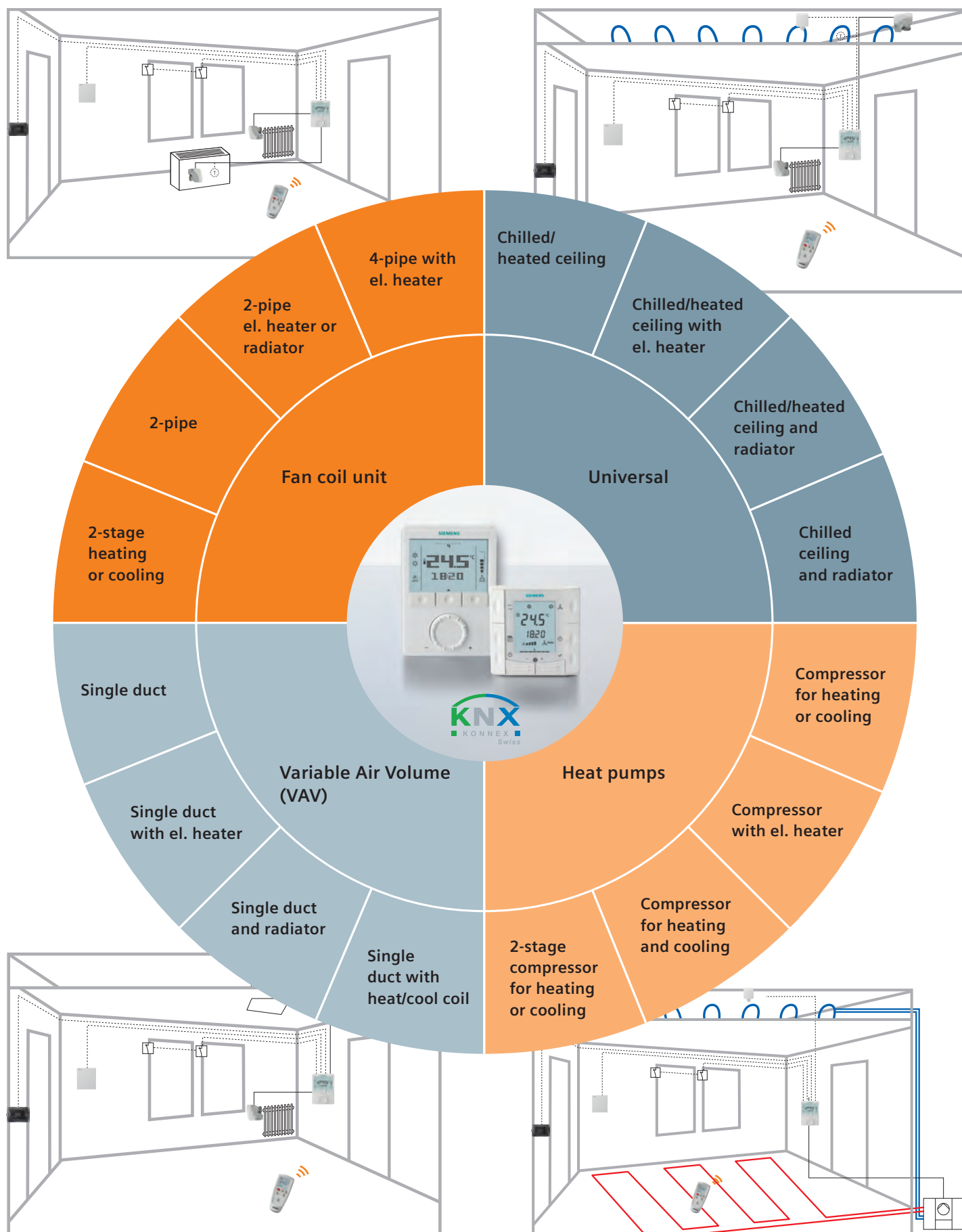
Application guide



Answers for infrastructure.

SIEMENS

Application overview



Contents

Introduction	4
Before you start.....	4
Description of RDG range.....	4
Products range RDG.....	5
Description of RDF semi flush-mount range.....	5
Products range RDF.....	5
Description of applications	6
The RDG/RDF offers extensive features and functions.....	6
Fan coil – application overview.....	8
Fan coil – product overview.....	10
Universal – application overview.....	12
Universal – product overview.....	14
Heat pumps – application overview.....	15
Heat pumps – product overview.....	16
VAV – application overview.....	18
VAV – product overview.....	19
How to prepare and set up your room thermostats.....	20
Introduction.....	20
Control parameters.....	20
Installation and set up.....	20
Application-specific parameter.....	21
Communicating, KNX- compatible thermostats.....	22
Suggestions for energy saving.....	22
FAQ.....	22
Reference to the basic documentation.....	23
Application examples.....	24
Overview – fan coil room thermostats.....	28
Overview – universal room thermostats.....	30

Introduction

The new thermostat range RDG and RDF is very versatile and consists of numerous products. The RDG and RDF offer many new features and cover a broad field of applications.

This document shall:

- give you an overview of the new ranges RDG and RDF
- assist you by the selection of the suitable product, and
- provide you with helpful information for installation and commissioning

The section “application overview” for each main application – i.e. fan coil unit, universal, heat pumps and VAV – shows what applications are covered by which thermostat line.

The section “product overview” shows the available thermostat variants and their supported applications.

■ Before you start

Before you start selecting a thermostat, we recommend to make the following preselection:

- Type of main application: fan coil unit, universal, heat pump or VAV
- Application: e.g. 2-pipe with electrical heater
- Type of control output 1: ON/OFF, PWM, 3-position, or DC 0...10 V
- Type of control output 2: ON/OFF, PWM, 3-position, or DC 0...10 V
- Type of inputs: e.g. external room temperature sensor, changeover sensor, key card switch etc.
- Type of thermostat: standalone, standalone with 7-day timer, or communicating thermostat
- Thermostat design: wall- or semi flush-mounted
- Other important requirements



■ Description of RDG range

The RDG represents a compact wall-mounted version and is of elegant and modern design.

This range consists of 2 lines of versatile products – RDG100 line and RDG400 line:

- RDG100 line for fan coil units plus universal (e.g. chilled ceilings or radiators) and heat pump applications
- RDG400 line for VAV applications

The thermostats are available as standalone versions, standalone with 7-day time program, and KNX versions tailored for use with Synco 700 via LTE-mode, for integration in Synco living or BACS (building automation and control system) via S-mode.

■ Products range RDG

- **RDG100** – the **versatile** standalone thermostat with ON/OFF and modulating (PWM or 3-position) outputs
- **RDG100T** – the **versatile** standalone thermostat with 7-day time program and same functionality as RDG100 plus infrared receiver for remote control
- **RDG100KN** – the **versatile communicating** thermostat with the same functionality as RDG100 including KNX interface
- **RDG110** – the **robust** standalone thermostat with relay outputs (SPDT) for applications with max. 5 A current on the control outputs. This thermostat is the ideal solution for ON/OFF applications with electrical heater, heat pumps and heat pumps with reversing valve (RV).
- **RDG140** – the **modulating** thermostat operating on AC 24 V (SELV) with DC 0...10 V control outputs.
- **RDG160** – the **energy efficient** modulating thermostat for controlling of electronic commutated fan motors (ECM Fan), operating on AC 24 V (SELV) with DC 0...10 V outputs for valve and fan
- **RDG400** – the **versatile** standalone thermostat for VAV applications with modulating and ON/OFF outputs
- **RDG400KN** – the **versatile communicating** thermostat with the same functionality as RDG400, including KNX interface.

On each thermostat, a number of control parameters can be readjusted to optimize the control performance.



■ Description of RDF semi flush-mount range

The range represents a compact semi-flush mount solution designed to fit into conduit boxes with fixing center 60.3 mm (BSI standard BS4662).

The RDF and RDU are 2 lines of versatile and slim products:

- RDF line for fan coil unit and heat pump applications
- RDU line for VAV applications

The thermostats are available as standalone, standalone with 7-day time program and KNX versions tailored for use with Synco 700 via LTE-mode, for Synco living or for integration in BACS via S-mode.

■ Products range RDF

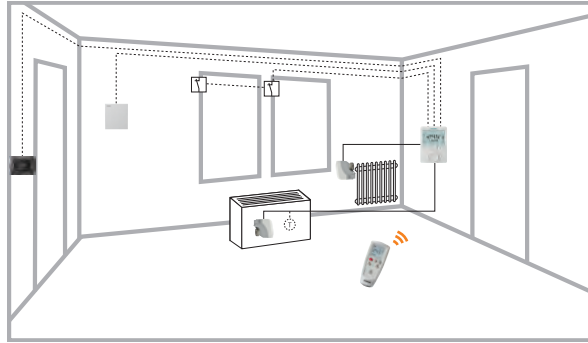
- **RDF300** – the **versatile** standalone thermostat with ON/OFF or modulating 3-position outputs
- **RDF300.02** – offers in addition backlit digital display
- **RDF400.01** – the **versatile** standalone thermostat with 7-day time program and same functionality as RDF300, plus infrared receiver for remote control and backlit digital display
- **RDF301** – **communicating** thermostat with the same functionality as RDF300, including KNX interface and backlit digital display
- **RDF301.50** – **communicating** thermostat with the same functionality as RDF301, plus switching groups for lighting and blind control via KNX S-mode
- **RDF340** – **modulating** thermostat operating on AC 24 V (SELV) with DC 0...10 V control outputs
- **RDF310.2** – **basic** standalone thermostat for 2-pipe applications.
- **RDF310.21** – offers in addition backlit digital display and infrared receiver for remote control
- **RDF410.21** – **basic** standalone thermostat for 2-pipe applications with 7-day time program, backlit digital display and infrared receiver for remote control
- **RDU340** – the **versatile** standalone thermostat for VAV applications with modulating DC 0...10 V and ON/OFF outputs
- **RDU341** – **communicating** thermostat with the same functionality as RDU340, including KNX interface

■ Description of applications

The RDG/RDF thermostats cover the following applications:

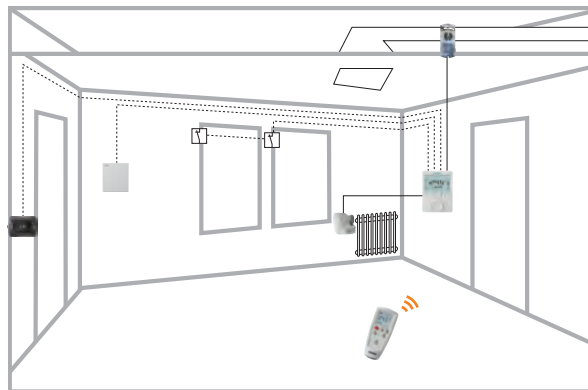
Fan coil units via ON/OFF or modulating control outputs:

- 2-pipe system
- 2-pipe system with electrical heater
- 2-pipe system and radiator/floor heating¹
- 4-pipe system
- 4-pipe system with electrical heater¹
- 2-stage heating or cooling system¹



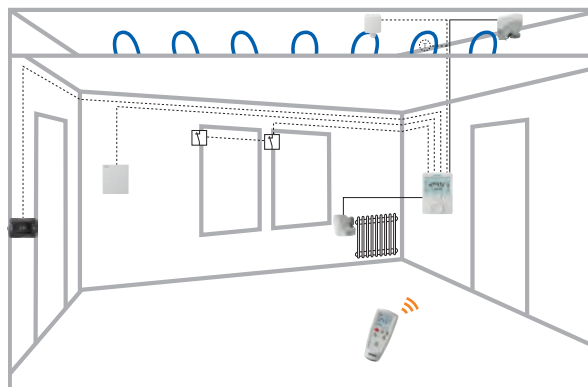
VAV systems via ON/OFF or modulating control outputs:

- Single-duct system
- Single-duct system with electrical heater
- Single-duct system and radiator/floor heating¹
- Single-duct system with heating/cooling coil¹



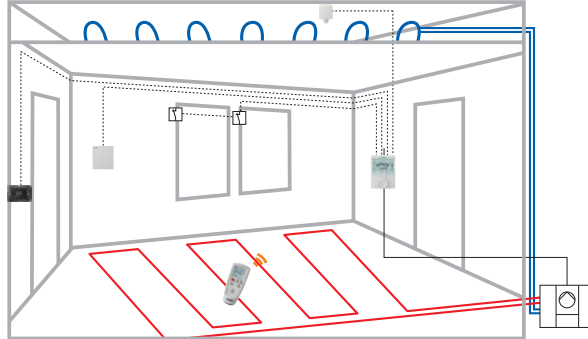
Chilled/heated ceilings (or radiators) via ON/OFF or modulating control outputs:

- Chilled/heated ceiling
- Chilled/heated ceiling with electrical heater
- Chilled/heated ceiling and radiator/floor heating¹
- Chilled/heated ceiling, 2-stage heating or cooling¹



Heat pumps with DX type equipment:

- 1-stage compressor for heating or cooling
- 1-stage compressor for heating or cooling with electrical heater
- 1-stage compressor for heating or cooling and radiator/floor heating
- 1-stage compressor for heating and cooling with reversing valve
- 2-stage compressor for heating or cooling¹



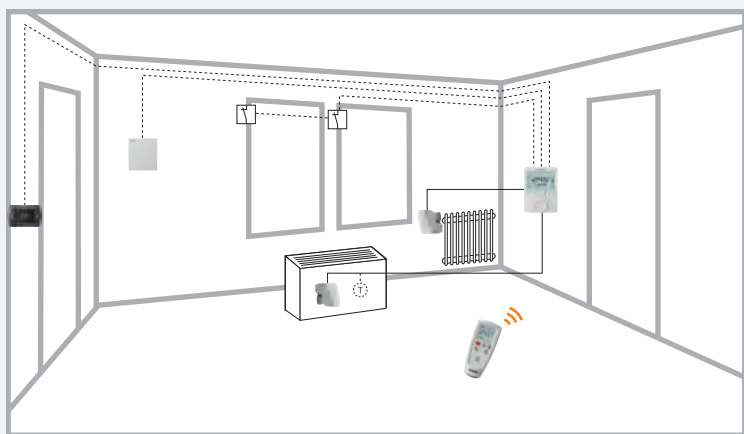
■ The RDG/RDF offers extensive features and functions²

- Operating mode: Comfort, Energy-saving and Protection
- Energy-saving functions: external operating mode switchover, 7-day time program, keycard or window contact, minimum and maximum setpoint limitation, etc.
- Numerous application selectable via DIP switch
- Heating/cooling changeover: automatic or manual
- Control output signals: ON/OFF (triac or relay), PWM, 3-position and DC 0...10 V
- Fan control: automatic or manual fan speed for 1-speed, 3-speed or ECM³) fan
- Fan operation: fan enable, heating only, cooling only, fan disable
- Multifunctional inputs: (function selectable)
 - Remote temperature sensor
 - Heating/cooling changeover sensor or switch
 - Operating mode switchover for keycard, window or time switch contact
 - Electrical heater release
 - Dew point sensor
 - Fault input
- 7-day time program
- Timer for prolong presence and absence function
- Keypad lock function
- Backlit digital display
- Infrared remote control
- Reminder for cleaning fan filter
- Floor temperature limitation function
- Various parameters for setpoint adjustment and control setting
- KNX communication interface: Synco700 via LTE mode, Synco living and BACS (building automation and control system) via S-mode
- Switching groups for lighting and blind control via KNX S-mode

¹ Applications covered only with RDG thermostats

² Feature availability depends on thermostat type



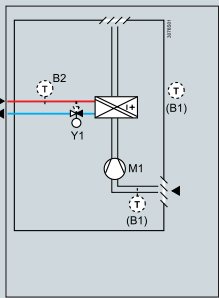
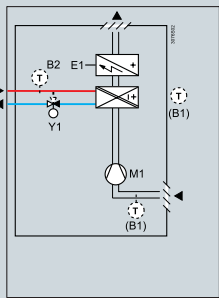
³ Electronic commutated motor, DC 0...10 V

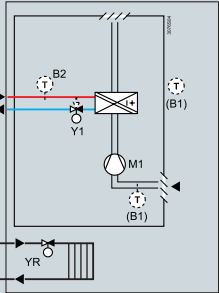
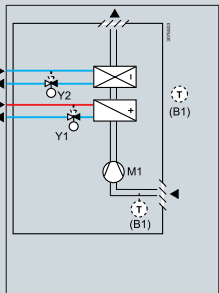
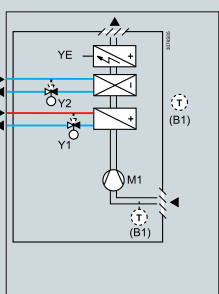
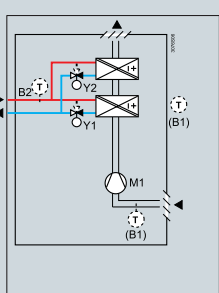


Application description

- Control sequences for heating and/or cooling, 1 or 2 stages
- Multifunctional inputs for keycard contact, external sensor, etc.
- Automatic or manual heating/cooling changeover
- Automatic or manual fan speed
- 3-speed, 1-speed and mod. (ECM) fan control (DC 0...10 V)
- Fan operation selectable in heating and cooling (enable, disable, only heating or only cooling)

Fan coil – application overview

Application	Type of control outputs	RDG... Wall-mounted range	RDF... Semi flush-mounted range
			
Two-pipe system			
	2-pipe (ON/OFF)	RDG100... RDG110	RDF300... RDF310... RDF400... RDF410...
	2-pipe mod. (PWM)	RDG100...	
	2-pipe mod. (3-pos.)	RDG100...	RDF300... RDF400...
	2-pipe mod. (DC 0...10 V)	RDG140	RDF340
	2-pipe mod. (DC 0...10 V) ECM fan control (DC 0...10 V)	RDG160	
Two-pipe system with el. heater			
	2-pipe (ON/OFF), with el. heater (ON/OFF)	RDG100... RDG110	RDF300... RDF400...
	2-pipe (ON/OFF), with el. heater (mod. PWM or 3-pos.)	RDG100...	
	2-pipe mod. (PWM), with el. heater (ON/OFF, PWM or 3-pos.)	RDG100...	
	2-pipe mod. (3-pos.), with el. heater (ON/OFF, PWM or 3-pos.)	RDG100...	
	2-pipe mod. (DC 0...10 V), with el. heater (DC 0...10 V)	RDG140	RDF340
	2-pipe mod. (DC 0...10 V), with el. heater (DC 0...10 V). ECM fan control (DC 0...10 V)	RDG160	

Application	Type of control outputs	RDG... Wall-mounted range	RDF... Semi flush-mounted range
Two-pipe system and radiator heating			
	2-pipe (ON/OFF) and radiator (ON/OFF)	RDG100... RDG110	
	2-pipe (ON/OFF) and radiator (mod. PWM or 3-pos.)	RDG100...	
	2-pipe mod. (PWM) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...	
	2-pipe mod. (3-pos.) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...	
	2-pipe mod. (DC 0...10 V) and radiator (DC 0...10 V)	RDG140	
	2-pipe mod. (DC 0...10 V) and radiator (DC 0...10 V). ECM fan control (DC 0...10 V)	RDG160	
Four-pipe system			
	4-pipe (ON/OFF)	RDG100... RDG110	RDF300... RDF400...
	4-pipe mod. (PWM)	RDG100...	
	4-pipe mod. (3-pos.)	RDG100...	
	4-pipe mod. (DC 0...10 V)	RDG140	RDF340
	4-pipe mod. (DC 0...10 V). ECM fan control (DC 0...10 V)	RDG160	
Four-pipe system with el. heater			
	4-pipe (ON/OFF) with el. heater (ON/OFF)	RDG100...	
	4-pipe (ON/OFF and 3-pos.) with el. heater (ON/OFF)	RDG100...	
	4-pipe mod. (PWM) with el. heater (ON/OFF)	RDG100...	
	4-pipe mod. (PWM and 3-pos.) with el. heater (ON/OFF)	RDG100...	
Two-stage, cooling or heating			
	2-stage (ON/OFF) heating or cooling	RDG100... RDG110	
	2-stage mod. (PWM) heating or cooling	RDG100...	
	2-stage mod. (3-pos.)	RDG100...	
	2-stage mod. (DC 0...10 V)	RDG140	
	2-stage mod. (DC 0...10 V). ECM fan control (DC 0...10 V)	RDG160	

Abbreviation

ON/OFF: 2-position control

3-pos.: Modulating 3-position control signal

PWM: Pulse Width Modulation control signal

DC 0...10 V: Modulating DC 0...10 V control signal

ECM fan: Electronic Commutated Motor for fan, DC 0...10 V

el. heater: Electrical heater

mod. output: Modulating output

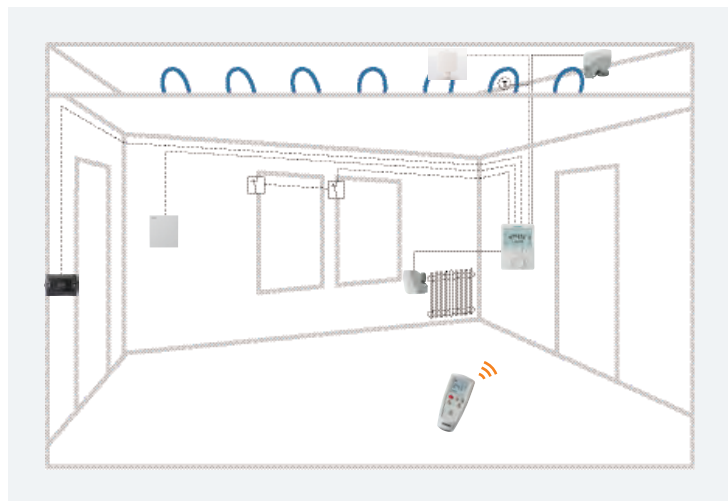
Fan coil – product overview

Product	Application	Standalone	Standalone with 7-day time program	Communicating KNX
Wall-mounted units: RDG				
RDG100... Versatile thermostats with control output signal (ON/OFF) or mod. (PWM or 3-pos.).	– 2-pipe (ON/OFF, PWM or 3-pos) – 2-pipe with electrical heater – FCU: (ON/OFF, PWM or 3-pos) – el. heater: (ON/OFF, PWM or 3-pos.) – 2-pipe and radiator – FCU: (ON/OFF, PWM or 3-pos) – radiator: (ON/OFF, PWM or 3-pos.) – 4-pipe (ON/OFF, PWM and/or 3-pos) – 4-pipe with electrical heater – FCU: (ON/OFF, PWM and ON/OFF, PWM or 3-pos) – el. heater: (ON/OFF) – 2-stage heating or cooling – FCU: (ON/OFF, PWM or 3-pos)	RDG100	RDG100T	RDG100KN
RDG110 Robust thermostat with relay outputs (SPDT) for ON/OFF – control sequences	– 2-pipe (ON/OFF) – 2-pipe (ON/OFF) with el. heater (ON/OFF) – 2-pipe (ON/OFF) and radiator (ON/OFF) – 4-pipe (ON/OFF) – 2-stage (ON/OFF) heating or cooling	RDG110		
RDG140 Thermostat for mod. control sequences with (DC 0...10 V) output signals	– 2-pipe (DC 0...10 V) – 2-pipe (DC 0...10 V) with el. heater (DC 0...10 V) – 2-pipe (DC 0...10 V) and radiator (DC 0...10 V) – 4-pipe heating (DC 0...10 V) and cooling (DC 0...10 V) – 2-stage (DC 0...10 V) heating or cooling	RDG140		
RDG160 Thermostat for mod. control sequences with (DC 0...10 V) output signals for valves and fan control (ECM) DC 0...10 V	– 2-pipe (DC 0...10 V) – 2-pipe (DC 0...10 V) with el. heater (DC 0...10 V) – 2-pipe (DC 0...10 V) and radiator (DC 0...10 V) – 4-pipe heating (DC 0...10 V) and cooling (DC 0...10 V) – 2-stage (DC 0...10 V) heating or cooling	RDG160		
Semi flush-mounted units: RDF				
RDF300../400...* Versatile thermostats with relay outputs: ON/OFF or 3-pos.	– 2-pipe – FCU: (ON/OFF or 3-pos) – 2-pipe (ON/OFF) with el. heater (ON/OFF) – 4-pipe (ON/OFF)	RDF300...	RDF400...	RDF301...
RDF310../410..* Basic thermostats for 2-pipe application	– 2-pipe (ON/OFF)	RDF310...	RDF410.21	
RDF340 Thermostat for mod. control sequences with (DC 0...10 V) output signals	– 2-pipe (DC 0...10 V) – 2-pipe (DC 0...10 V) with el. heater (DC 0...10 V) – 4-pipe heating (DC 0...10 V) and cooling (DC 0...10 V)	RDF340		

*Variants

RDF300	Basic version	RDF301	Communicating unit
RDF300.02	Unit with backlight	RDF301.50	Communicating unit with 4 buttons for light and shutter
RDF300.02/SL	Unit with backlight, silver	RDF310.2	Basic version
RDF400.01	Basic version	RDF310.21	Basic version with backlight and infrared remote control
RDF400.01/SL	Unit with backlight, silver	RDF410.21	Basic version with backlight, 7-day time program and infrared remote control

Notes


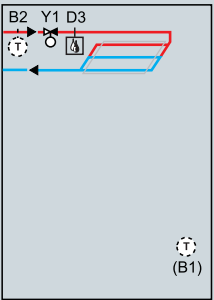
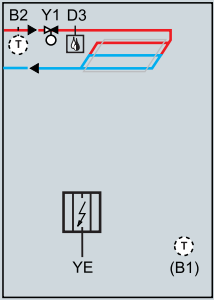


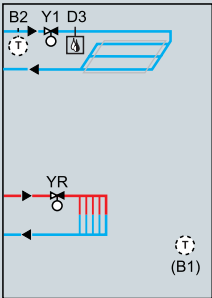
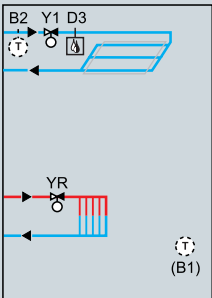
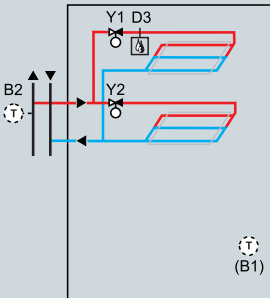
Application description

- For heating and/or cooling applications with heated/chilled ceiling or radiator
- Control sequences for heating and/or cooling, 1- or 2-stages
- Dew point monitoring
- Multifunctional inputs for keycard contact, external sensor, etc.
- Automatic or manual heating/cooling changeover
- Fan operation selectable in heating and cooling (enable, disable, only heating or only cooling)

Universal – application overview

Chilled/heated ceiling or radiator

Application	Type of control outputs	RDG... Wall-mounted range
		
Chilled/heated ceiling with changeover		
	Chilled/heated ceiling (ON/OFF)	RDG100... RDG110
	Chilled/heated ceiling mod. (PWM)	RDG100...
	Chilled/heated ceiling mod. (3-pos.)	RDG100...
	Chilled/heated ceiling mod. (DC 0...10 V)	RDG140
Chilled/heated ceiling and el. heater		
	Chilled/heated ceiling (ON/OFF) and el. heater (ON/OFF)	RDG100... RDG110
	Chilled/heated ceiling (ON/OFF) and el. heater (mod. PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (PWM) and el. heater (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (3-pos.) and el. heater (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (DC 0...10 V) and el. heater (DC 0...10 V)	RDG140

Application	Type of control outputs	RDG... Wall-mounted range
Chilled/heated ceiling and radiator		
	Chilled/heated ceiling (ON/OFF) and radiator (ON/OFF)	RDG100... RDG110
	Chilled/heated ceiling (ON/OFF) and radiator (mod. PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (PWM) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (3-pos.) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled/heated ceiling mod. (DC 0...10 V) and radiator (DC 0...10 V)	RDG140
Chilled ceiling and radiator		
	Chilled ceiling (ON/OFF) and radiator (ON/OFF)	RDG100... RDG110
	Chilled ceiling (ON/OFF) and radiator (mod. PWM or 3-pos.)	RDG100...
	Chilled ceiling (PWM) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled ceiling (3-pos.) and radiator (ON/OFF, PWM or 3-pos.)	RDG100...
	Chilled ceiling (DC 0...10 V) and radiator (DC 0...10 V)	RDG140
Chilled/heated ceiling 2 stage cooling or 2-stage heating		
	2-stage (ON/OFF) heating or cooling	RDG100... RDG110
	2-stage mod. (PWM) heating or cooling	RDG100...
	2-stage mod. (3-pos.) heating or cooling	RDG100...
	2-stage mod. (DC 0...10 V) heating or cooling	RDG140

Abbreviation

ON/OFF: 2-position control

3-pos.: Modulating 3-position control signal

PWM: Pulse Width Modulation control signal

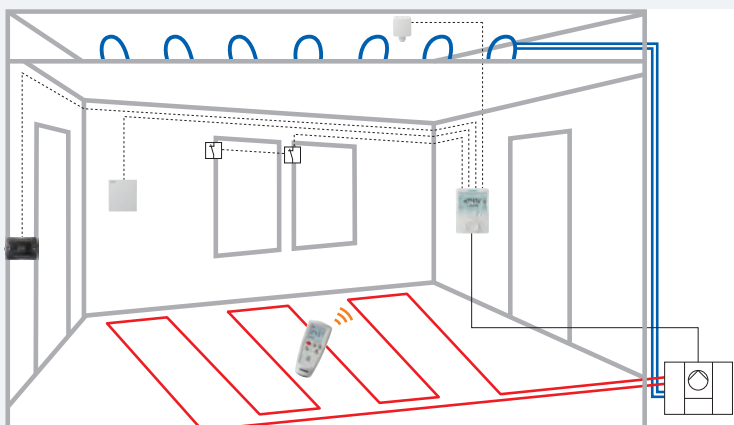
DC 0...10 V: Modulating DC 0...10 V control signal

el. heater: Electrical heater

mod. output: Modulating output

Universal – product overview



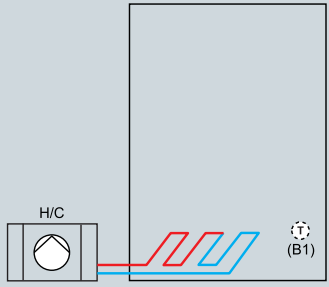
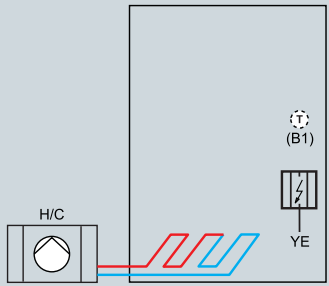
Product	Application	Standalone	Standalone with 7-day time program	Communicating KNX
Wall-mounted units: RDG				
RDG100... Versatile thermostats with control outputs signal ON/OFF or mod. (PWM or 3-pos.)	<ul style="list-style-type: none"> – Chilled/heated ceiling (ON/OFF, PWM or 3-pos) – Chilled/heated ceiling and el. heater <ul style="list-style-type: none"> – CLC: (ON/OFF, PWM or 3-pos) – el.heater: (ON/OFF, PWM or 3-pos.) – Chilled/heated ceiling and radiator <ul style="list-style-type: none"> – CLC: (ON/OFF, PWM or 3-pos) – radiator: (ON/OFF, PWM or 3-pos.) – Chilled ceiling and radiator <ul style="list-style-type: none"> – CLC: (ON/OFF, PWM or 3-pos) – radiator: (ON/OFF, PWM or 3-pos.) – Chilled/heated ceiling 2-stage <ul style="list-style-type: none"> – CLC: (ON/OFF, PWM and/or 3-pos) 	RDG100	RDG100T	RDG100KN
RDG110... Thermostats with relay outputs (SPDT) for (ON/OFF) control sequences	<ul style="list-style-type: none"> – Chilled/heated ceiling (ON/OFF) – Chilled/heated ceiling (ON/OFF) and el. heater (ON/OFF) – Chilled/heated ceiling (ON/OFF) and radiator (ON/OFF) – Chilled ceiling (ON/OFF) and radiator (ON/OFF) – Chilled/heated ceiling 2-stage (ON/OFF) 	RDG110		
RDG140 Unit for mod. control sequences with (DC 0...10 V) outputs signals	<ul style="list-style-type: none"> – Chilled/heated ceiling (DC 0...10 V) – Chilled/heated ceiling (DC 0...10 V) and el. heater (DC 0...10 V) – Chilled/heated ceiling (DC 0...10 V) and radiator (DC 0...10 V) – Chilled ceiling (DC 0...10 V) and radiator (DC 0...10 V) – Chilled/heated ceiling 2-stage (DC 0...10 V) 	RDG140		

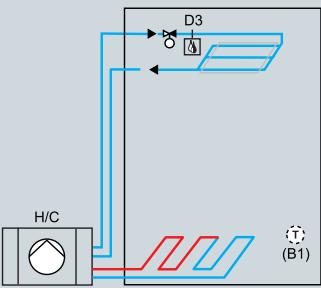
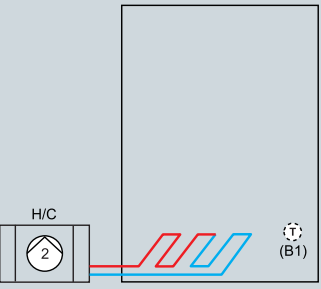


Application description

- Control sequences for heating and/or cooling, 1- or 2-stages
- Dew point monitoring
- Multifunctional inputs for keycard, contact, external sensor, etc.
- Min on/off time for compressor short cycle protection

Heat pumps – application overview

Application	Type of control outputs	RDG... Wall-mounted range	RDF... Semi flush-mounted range
			
Compressor in DX-type equipment for heating or cooling			
	1-stage compressor (ON/OFF)	RDG110	RDF300... RDF310... RDF400... RDF410...
Compressor in DX-type equipment for heating or cooling with el. heater			
	1-stage compressor (ON/OFF), with el. heater (ON/OFF)	RDG110	RDF300... RDF400...

Application	Type of control outputs	RDG... Wall-mounted range	RDF... Semi flush-mounted range
Compressor in DX-type equipment heating and cooling			
	1-stage compressor (ON/OFF) for heating and cooling	RDG110	RDF300... RDF400...
	1-stage compressor (ON/OFF) for heating and cooling with reverse valve	RDG110	
Compressor in DX-type equipment, cooling or heating, two-stage			
	2-stage compressor (ON/OFF) for heating or cooling	RDG110	

Abbreviation

ON/OFF: 2-position control

el. heater: Electrical heater

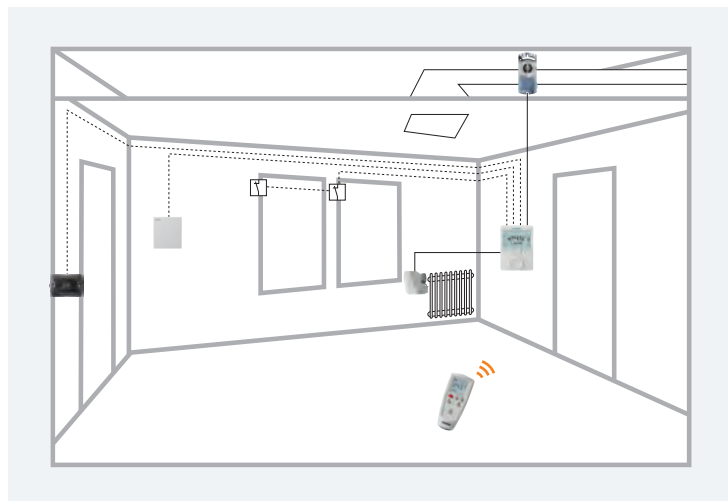
Heat pumps – product overview

Product	Application	Standalone	Standalone with 7-day time program	Communicating KNX
Wall-mounted units: RDG				
RDG110 Thermostat with relay output (SPDT) to ON/OFF control sequences	– 1-stage compressor (ON/OFF) for heating or cooling – 1-stage compressor (ON/OFF), with el. heater (ON/OFF) – 1-stage compressor (ON/OFF) for heating and cooling – 1-stage compressor (ON/OFF) for heating and cooling with reverse valve – 2-stage compressor (ON/OFF) for heating or cooling	RDG110		
Semi flush-mounted units: RDF				
RDF300.../400...* Versatile thermostats with relay outputs: ON/OFF	– 1-stage compressor (ON/OFF) for heating or cooling – 1-stage compressor (ON/OFF), with el. heater (ON/OFF) – 1-stage compressor (ON/OFF) for heating and cooling	RDF300...	RDF400...	
RDF310.../410...* Basic thermostats for 1-stage compressor	– 1-stage compressor (ON/OFF) for heating or cooling	RDF310...	RDF410...	

*Variants

RDF300	Basic version	RDF400.01/SL	Silver thermostat
RDF300.02	Thermostat with backlight	RDF310.2	Basic version
RDF300.02/SL	Thermostat with backlight, silver	RDF310.21	Basic thermostat with backlight and Infrared remote control
RDF400.01	Basic version	RDF410.21	Basic thermostat with backlight, weekly time program and Infrared remote control


Notes

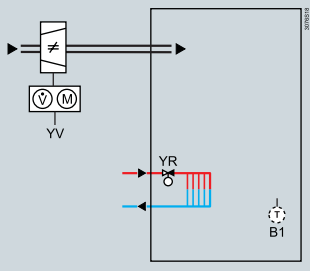
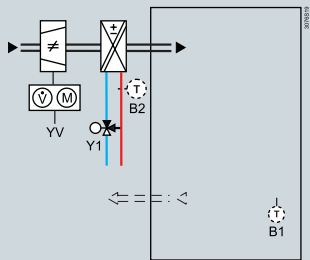


Application description

- Control sequences for heating and/or cooling
- Modulating control output DC 0..10V or 3-pos for VAV box/air flow controller
- Multifunctional inputs for keycard, contact, external sensor, etc.
- Automatic or manual heating/cooling changeover
- Adjustable minimum and maximum limitation of air flow signal (DC 0..10V)
- Modulating PI control
- Output signal inversion as an option

VAV – application overview

Application	Type of control outputs	RDG... Wall-mounted range	RDU... Semi flush-mounted range
			
Single duct			
	Single duct (DC 0...10 V) for VAV-box	RDG400...	RDU340...
	Single duct mod. (3-pos.) for VAV-box	RDG400...	
Single duct with el. heater			
	Single duct (DC 0...10 V) for VAV-box, with el. heater (ON/OFF)	RDG400...	RDU340...
	Single duct (DC 0...10 V) for VAV-box, with el. heater (mod. PWM or 3-pos.)	RDG400...	
	Single duct (3-pos.) for VAV-box, with el. heater (DC 0...10 V)	RDG400...	

Application	Type of control outputs	RDG... Wall-mounted range	RDU... Semi flush-mounted range
Single duct with radiator 	Single duct (DC 0...10 V) for VAV-box with radiator (ON/OFF)	RDG400..	RDU340..
	Single duct (DC 0...10 V) for VAV-box with radiator (mod. PWM or 3-pos.)	RDG400..	
	Single duct (3-pos.) for VAV-box with radiator (DC 0...10 V)	RDG400..	
Single duct with heat/cool coil 	Single duct (DC 0...10 V) for VAV-box with heat/cool coil (ON/OFF)	RDG400..	
	Single duct (DC 0...10 V) for VAV-box with heat /cool coil mod. (PWM or 3-pos.)	RDG400..	
	Single duct (3-pos.) for VAV-box with heat/cool coil mod. (DC 0...10 V)	RDG400..	

Abbreviation

VAV: Variable Air Volumen system

ON/OFF: 2-position control

PWM: Pulse Width Modulation

DC 0...10 V: Modulating DC 0...10 V control signal

3-pos.: Modulating 3-position control signal

el. heater: Electrical heater

mod. output: Modulating output

VAV – product overview

Main product	Application	Standalone	Standalone with 7-day time program	Communicating KNX
Wall-mounted units: RDG				
RDG400... Versatile thermostats with control outputs signal DC 0...10 V, ON/OFF, PWM or 3-pos.	<ul style="list-style-type: none"> – Single duct for VAV-box – VAV: (DC 0...10 V or 3-pos) – Single duct for VAV-box with electrical heater – VAV: (DC 0...10 V) el. heater: (ON/OFF, PWM or 3-pos.) – VAV: (3-pos) el. heater: (DC 0...10 V) – Single duct for VAV-box with radiator – VAV: (DC 0...10 V) radiator: (ON/OFF, PWM or 3-pos.) – VAV: (3-pos) radiator: (DC 0...10 V) – Single duct for VAV-box with heat/cool coil – VAV: (DC 0...10 V) coil: (ON/OFF, PWM or 3-pos.) – VAV: (3-pos) coil: (DC 0...10 V) – 2-stage cooling or heating – 2-stage: (ON/OFF, PWM and/or 3-pos) 	RDG400		RDG400KN
Semi flush-mounted units: RDU				
RDU34x.... Thermostat for mod. control sequences with DC 0...10 V and ON/OFF outputs signals	<ul style="list-style-type: none"> – Single duct (DC 0...10 V) for VAV-box – Single duct for VAV-box with el. heater (ON/OFF) – Single duct (DC 0...10 V) for VAV-box with radiator (ON/OFF) – VAV: (DC 0...10 V) el. heater: (ON/OFF) 	RDU340		RDU341

How to prepare and set up your room thermostats

■ Introduction

The versatile RDG and RDF thermostats enable you to better satisfy the requirements of your customer. This information supports you in setting up your RDG and RDF thermostats.

■ Control parameters

A number of control parameters can be readjusted to optimize control performance and enable additional functions. Because of this, the RDG and RDF can be used in almost any application.

The control parameters are assigned to 2 levels:

- “Service” level, and
- “Expert” level

The “Service” level contains a small set of parameters to set up the controller for HVAC systems (control sequence) and to adjust the user interface.

The “Expert” level contains control parameters for fan, control inputs/outputs and other functions. Always change the parameters at the “Expert” level carefully, as they impact the control performance and functionality of the thermostat.

TIP In general, after selecting the required application via DIP switch, it is not necessary to adjust the parameters as the unit works correctly with the factory-set parameters. Nevertheless, in some cases, it might be necessary to readjust the application-specific parameters:

- | | |
|---------------------------------------|---|
| – Control sequence (P01): | select heating/cooling sequence and changeover function |
| – Multifunctional inputs (P38...P42): | select the input functionality for X1, X2 and D1 |
| – Control output (P46...P47): | select type of output signal (on/off, PWM, 3-pos) |
| – Fan function (P52...P62): | select fan functionality |

TIP ■ Installation and set up

1. Select a suitable thermostat
2. Set application via DIP switch according to the mounting Instructions
3. Wire and install the thermostat. Apply power
4. If necessary set parameter P01 (control sequence) and other application-specific parameter

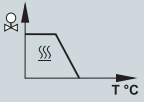
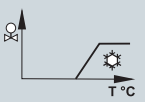
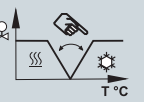
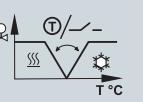
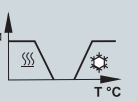
Note: ARG71 – conduit box suitable for RDF semi flush-mount thermostats is available as accessory

Control sequence (P01)

Application-specific parameter

This parameter is used to set the required heating and/or cooling sequence and to select automatic/manual changeover. Depending on selected application parameter P01 will be preset as follow:

- 2-pipe or single-duct application: P01: = 1 = cooling only
- 4-pipe application: P01: = 4 = heating and cooling

Sequence					
Mode	Heating only	Cooling only	Manually select heating or cooling mode	Automatic heating/cooling changeover	Heating and cooling mode
Parameter	P01=0	P01=1	P01=2	P01=3	P01=4

Multifunctional inputs (X1, X2, D1)

A sensor of type NTC like QAH11.1 (AI) or a switch (DI) can be connected to the input terminals. The functionality of the inputs can be freely configured. The factory settings are:

	RDG range	RDF range
P38: Multifunctional input X1	External temperature sensor (1)	Operating mode switchover (3)
P40: Multifunctional input X2	Heating/cooling changeover (2)	Heating/cooling changeover (2)
P42: Multifunctional input D1	Operating mode switchover (3)	N/A

Available function on X1, X2 and D1

	Function of inputs	Description
1	External/return air temperature (AI) (not available for input D1)	Temperature sensor input for – External room temperature – Return air temperature – Floor temperature sensor to limit the heating output
2	Heating/cooling changeover (AI/DI)	Automatic heating/cooling changeover sensor or switch
3	Operating mode switchover (DI)	Digital input to switch the operating mode to energy saving
4	Dewpoint monitor (DI)	Digital input for a dewpoint sensor to detect condensation
5	Enable electrical heater (DI)	Digital input to enable/disable the electrical heater via remote control
6	Fault (DI)	Digital input to signal a fault on the digital display (e.g. dirty air filter)

Control output (P46...P47)

- The RDG100 offers two control outputs, each either of type ON/OFF, PWM or 3-position. To select the required type use DIP switch and P46 (1st control output) and/or P47 (2nd control output).
- The RDG400 for VAV application offers two control outputs, DC 0...10 V and either ON/OFF, PWM or 3-position. To select the required type use DIP switch and P46 (reheater/cooler control output) and/or P47 (damper actuator, DC 0...10 V or 3-pos).

**Fan function
(P03, P52...P62, P67):**

RDG and RDF offer an extensive fan control concept with a wide choice of functions and features. The required options can be selected via the control parameters:

- Fan mode automatic – manual/manual only (P03)
- Fan active in cooling mode only, active in heating mode only, disable (P52)
- Control output for 3-speed/1-speed fan (P53)
- Control output for ECM fan, DC 0...10 V signal (P55...P57) on RDG160
- Fan minimum on time (P59)
- Operation in dead zone for in conjunction with return air sensor or to avoid damage due to moisture (P60, P61)
- Fan start kick from standstill to overcoming inertia and friction (P58)
- Fan overrun to avoid overtemperatures after the electrical heater turned off (P54)
- Fan start delay by ON/OFF control to avoid cold or warm air (P67)

Note: For universal application fan operation has to be disabled via control parameter (P52)

**Parameter on
communicating
thermostats**

On communicating thermostats control parameters can be downloaded via ACS Service Tool.

Note: RDG/RDF requires an external KNX bus power supply if connected via OCI700.

Diagnostic parameter

TIP After installing and setting up the thermostat, you can check your configuration by going to the "Expert" level and select the diagnostic parameters dxx (d01, d02, ...)

■ **Communicating, KNX-compatible thermostats**

In connection with Synco 700, the new communicating, KNX-compatible thermostats operate in LTE mode. The units are tailored also for use for Synco living or for integration in BACS via S-mode. For detailed information about installation and commissioning of a KNX system, refer to technical documentation CE1N3127.

TIP ■ **Suggestions for energy saving**

- Use thermostat with 7-day time program
- Use thermostat with modulating control outputs (e.g. DC 0...10 V or 3-position)
- Use thermostat with ECM fan control (DC 0...10 V)
- Use KNX communicating thermostat
- Activate auto fan function
- Connect external operating mode switchover for central operating mode control
- Connect window contacts to avoid energy losses when windows are open
- Connect keycard contact for switching the unit to Economy mode when rooms are not occupied
- Define optimum setpoint limitations (heating max. 20 °C, cooling min. 25 °C) to minimize energy usage
- In application with electrical heater, use function "Electrical heater enable" (P38, P40...)
- Inform enduser about prolonged absence and present function

■ FAQ

Where are the DIP switches located?

On RDG, the DIP switches are located at the rear of the unit.

On RDF semi flush-mount units, the DIP switches are located on the inner side of the front panel.

Where do I find the correct DIP switch position?

They are shown in the Mounting Instructions and on the product.

How can I set the parameters?

The procedure for setting the parameters ("Service" or "Expert" level) is described in the basic documentation of the thermostats.

When do I have to set the control parameters?

In general, it is not necessary to readjust the parameters since the unit works correctly with the factory-set parameters. Nevertheless, in some rare cases, you need to readjust the application-specific parameters during commissioning to enable the desired functions. For that, access the "Expert" level. For detailed information, refer to the technical documentation.

The control parameters on the "Service" level for HVAC systems and for adjusting the user interface can be accessed at any time.

It is possible to reload the default timer setting?

Yes. The default timer setting (A1... A8) and the procedure for reloading are described in the technical documentation.

It is possible to reset the control parameters?

Yes. The factory-set control parameters can be reloaded via parameter P71 by changing the value to "ON" and by confirming with the buttons. For detailed information, refer to the technical documentation.

How to check the current settings and the installation?

On the "Expert" level, some diagnostic parameters (d01, d02,) are available for checking the selected application, the status of the inputs, and for testing the 3-position outputs. For detailed information, refer to the technical documentation.

■ Reference to the basic documentation

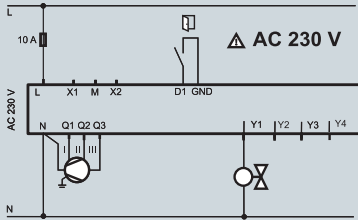

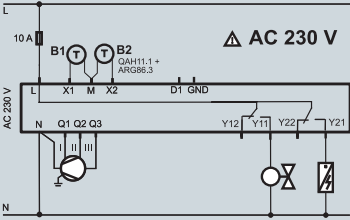

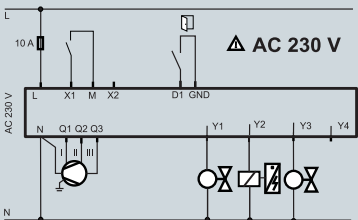

- P3181: RDG100 line for fan coil unit standalone thermostats
- P3191: RDG100 line for fan coil unit KNX communicating thermostats
- P3182: RDG400 line for VAV standalone thermostats
- P3192: RDG400 line for VAV unit KNX communicating thermostats
- P3076, N3067: RDF3xx line for fan coil unit standalone thermostats
- P3171: RDF3xx line for fan coil unit KNX communicating thermostats
- P3078: RDU340 for VAV standalone thermostats
- P3172: RDU341 for VAV and KNX communicating thermostats

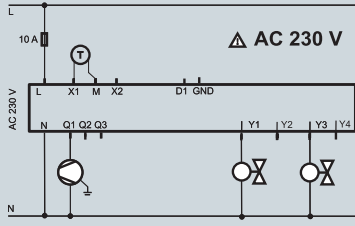
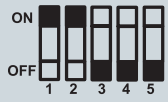
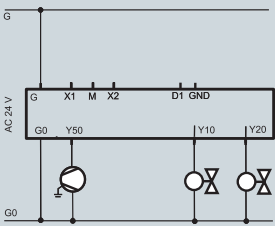
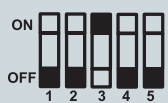
Application examples

Installation and set up

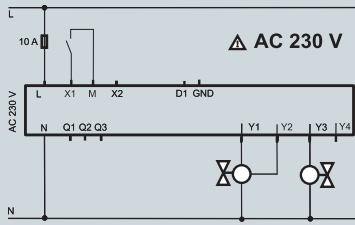

1. Select a suitable thermostat
2. Set application via DIP switch according to the mounting Instructions
3. Wire and install the thermostat. Apply power
4. If necessary, set parameter P01 (control sequence) and other application-specific parameters

Fan coil application examples

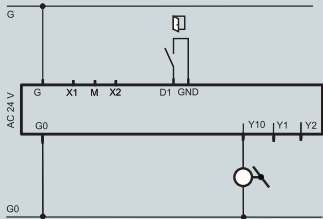

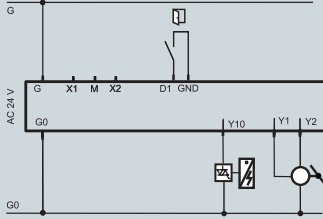

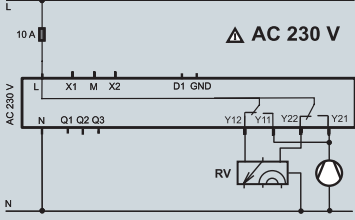

Application	How to set the application
Fan coil, 2-pipe only cooling  <p>– Valve actuator: ON/OFF – Keycard contact</p>	<p>1. Thermostat: RDG100 2. DIP switch: Application 2-pipe Y1 = ON/OFF 3. Wire: Actuator → Y1-N Fan → Q1...Q3-N Key card → D1-GND 4. Parameters: no change necessary (factory-setting)</p> <p>TIPS</p> <ul style="list-style-type: none"> – Keycard contact in hotel guest rooms helps saving energy costs – RDG100T with 7-day time program – RDG100KN communicating KNX 
Fan coil, 2-pipe with el. heater  <p>– Valve actuator: ON/OFF – Heating with electrical heater ON/OFF – Automatic changeover – Return air temperature sensor</p>	<p>1. Thermostat: RDG110 2. DIP switch: Application 2-pipe, el. heater 3. Wire: Actuator → Y11-N El. heater → Y21-N Fan → Q1...Q3-N Temp. sensor → X1-M H/C CO sensor → X2-M 4. Parameters: P01 = 3 (Auto H/C CO)</p> <p>TIPS</p> <ul style="list-style-type: none"> – RDG110 with relay outputs can drive direct an el. heater up to 1 kW 
Fan coil, 4-pipe with el. heater  <p>– Valve actuators H&C: PWM – Electrical heater: ON/OFF – Electrical heater enable input – Window contact</p>	<p>1. Thermostat: RDG100 2. DIP switch: Application 4-pipe, el. heater Y1 = PWM Y3 = PWM 3. Wire: Actuator H. → Y1-N Actuator C. → Y3-N Contactor¹ for el. heater → Y2-N Fan → Q1...Q3-N El. heater enable → X1-M Window cont. → D1-GND 4. Parameters: P38 = 5 (El. heater Input) P46 = 2 (PWM H.) P47 = 2 (PWM C.)</p> <p>TIPS</p> <ul style="list-style-type: none"> – Electrical heater enable signal for saving energy costs – Note¹: Add conductor if load exceed 1A! 

Application	How to set the application
<p>Fan coil, 2-pipe and floor heating, single speed</p>  <p>– 2-pipe cooling only: ON/OFF – Floor heating limitation (ON/OFF) with temperature limitation – Single speed fan</p>	<p>1. Thermostat: RDG100 2. DIP switch: Application 2-pipe & rad. Y1 = ON/OFF Y3 = ON/OFF</p>  <p>3. Wire: Actuator C. → Y1-N Actuator H. → à Y3-N Fan → Q1-N Floor temp. sensor. → X1-M</p> <p>4. Parameters: P51 = 25°C (floor Heat. Temp. limit.) P53 = 1 (Single-speed fan)</p> <p>TIPS – Floor heat limitation to avoid overheating (DIN EN 1264) hence protect your floor and as well provides more comfort – Select “2-pipe & el. heater” for application with electrical floor heating</p>
<p>Fan coil, 4-pipe, ECM fan</p>  <p>– Valve actuators: DC 0...10 V</p>	<p>1. Thermostat: RDG160 2. DIP switch: Application 4-pipe Y10 = DC 0...10 V Y20 = DC 0...10 V</p>  <p>3. Wire: Actuator H → Y10-Go Actuator C → Y20-Go ECM fan → Y50-Go</p> <p>4. Parameters: no changes necessary (factory-setting)</p> <p>TIPS – Modulating (ECM) fan control for optimal comfort, lower level of noise and for saving energy costs – Check ECM fan max (P55) and min (P56)</p>

Universal application example

CLC and radiator	
 <p>– Chilled ceiling (3-pos) and radiator (PWM) – Dewpoint monitor</p>	<p>1. Thermostat: RDG100 2. DIP switch: Application 2-pipe & rad. Y1/Y2 = 3-pos Y3 = PWM</p>  <p>3. Wire: Actuator C → Y1/Y2-N Actuator H → Y3-N Dewpoint sens. → X1-M</p> <p>4. Parameters: P38 = 4 (Dewpoint input) P46 = 2 (PWM) P52 = 0 (Fan disable)</p> <p>TIPS – Dewpoint monitoring to detect condensation. Cooling is stopped if condensation occurs.</p>

VAV application examples

Application	How to set the application
VAV single duct, cooling only  <ul style="list-style-type: none"> – Damper actuator: 0...10 V – Window contact 	<ol style="list-style-type: none"> 1. Thermostat: RDG400 2. DIP switch: Application single duct Y10 = DC 0...10 V 3. Wire: Actuator → Y10-Go-G Window contact → D1-GND 4. Parameters: no change (= default) <p>TIPS</p> <ul style="list-style-type: none"> – Window contact for saving energy during airing the rooms 
VAV single duct and el. reheater  <ul style="list-style-type: none"> – Damper actuator: 3-pos – El. heater: DC 0...10V – Central time switch 	<ol style="list-style-type: none"> 1. Thermostat: RDG400 2. DIP switch: Application single duct + el. heater Y10 = DC 0...10 V 3. Wire: Actuator → Y1/Y2-Go El. heater → Y10-Go Time switch → D1-GND 4. Parameters: P47 = 1 (VAV output 3-pt) <p>TIPS</p> <ul style="list-style-type: none"> – Use a central time switch (e.g. SEH62.1) to set back room temperature during non-business hours – Adjust parameter prolong comfort period (P68) to allow occupant to override the central time switch, e.g. by working overtime 
Compressor with reverse valve  <ul style="list-style-type: none"> – Compressor: ON/OFF – Reverse valve: ON/OFF 	<ol style="list-style-type: none"> 1. Thermostat: RDG110 2. DIP switch: Application 4-pipe 3. Wire: Compressor → Y11/Y21-N RV → Y12/Y22-N 4. Parameters: P52 = 0 (Fan disable) <p>– Set control sequence to manual change over (P01=2); then the user can select manually between heating or cooling</p> 

HP application example

Notes

Overview – fan coil room thermostats

	Application									Functionality									
	2-pipe/heating only	2-pipe/cooling only	2-pipe/heating or colling	2-pipe with el. heater	2-pipe and radiator	4-pipe/cooling & heating	4-pipe with el. heater	2-stage/heating or cooling	Control algorithm	Manual heat-cool changeover	Automatic heat-cool changeover	Floor heating limitation	Manual fan speed off / I / II / III	Automatic fan control	Ventilation function	Electronic Commutated fan Motor ⁵	7-day time programm	Fan operation enable/disable	Infrared remote control
Basic																			
RAB10			■						2P	■			■						
RAB10.1			■						2P	■			■		■				
RAB10.2			■						2P	■	■ ⁴		■		■ ⁴				
RAB20	■	■	■						2P		■ ⁴		■						
RAB20.1	■	■	■						2P		■		■		■				
RAB30						■			2P	■			■						
RAB30.1						■			2P	■			■		■				
RAB40.1		■							2P				■		■				
RAB90									No				■						
RAB90.1									No				■						
Modern																			
RCC10	■	■	■						2P		■		■						
RCC10.1	■	■	■						2P		■		■						
RCC20				■					2P		■		■						
RCC30					■	■			2P		■		■						
RCC50.1	■	■	■						PI		■		■						
RCC60.1	■	■	■						PI		■		■						
Advance: Semi flush-mounted																			
RDF300	■	■	■	■		■			2P/PI	■	■	■	■	■				■	
RDF300.02	■	■	■	■		■			2P/PI	■	■	■	■	■				■	
RDF310.2	■	■	■						2P	■			■	■					
RDF310.21	■	■	■						2P	■			■	■					■
RDF340	■	■	■	■		■			P/PI	■	■	■	■	■					
RDF400.01	■	■	■	■		■			2P/PI	■	■	■	■	■			■	■	■
RDF410.21	■	■	■						2P	■			■	■			■		■
Advanced: Wall-mounted																			
RDF110	■	■	■						2P		■		■	■					■ ²
RDF110.2			■						2P	■			■	■					■ ²
RDF210	■	■	■						2P		■		■	■			■		■ ²
RDF210.2			■						2P	■			■	■			■		■ ²
RDG100	■	■	■	■	■	■	■	■	2P/PI	■	■	■	■	■				■	
RDG100T	■	■	■	■	■	■	■	■	2P/PI	■	■	■	■	■			■	■	■
RDG110	■	■	■	■	■	■		■	2P	■	■	■	■	■				■	
RDG140	■	■	■	■	■	■		■	P/PI	■	■	■	■	■				■	
RDG160	■	■	■	■	■	■		■	P/PI	■	■	■	■	■		■		■	
Communicating: Semi flush-mounted																			
RDF301	■	■	■	■		■			2P/PI	■	■	■	■	■				■	
RDF301.50	■	■	■	■		■			2P/PI	■	■	■	■	■				■	
Communicating: Wall-mounted																			
RDG100KN	■	■	■	■	■	■	■	■	2P/PI	■	■	■	■	■				■	

(X): X = number of outputs

¹ Either on/off, 3-pos or PWM signals

² Infrared remote control optional (...x10/IR)

³ Either return air temp. sensor or heat-cool changeover sensor

⁴ With external aquastat

⁵ ECM DC 0...10V fan control

		Outputs				Inputs				Power supply	User interface							
Light and blind control	Communication interface KNX	On/Off	PWM	3-position	DC 0...10 V	Multifunctional inputs	Operating mode switch-over contact	Return air temperature sensor	Heat-cool changeover sensor	Power supply	Setpoint knob	Setpoint buttons	Fan speed switch	Fan speed button	Operating mode button	Display (LCD), indicator (LED)	Backlight	Additional operation selector/remarks
		(1)								AC 24...250 V	■		■					Heat-cool co switch
		(1)								AC 24...250 V	■		■					Vent-heat-cool switch
		(1)								AC 24...250 V	■		■					Heat-cool co switch
		(1)								AC 24...250 V	■		■					
		(1)								AC 24...250 V	■		■					Heat/cool-vent switch
		(2)								AC 24...250 V	■		■					Heat-cool co switch
		(2)								AC 24...250 V	■		■					Heat-vent-cool co switch
		(1)								AC 24...250 V	■		■					Cool (compressor)-vent-off switch
										AC 24...250 V			■					
										AC 24...250 V			■					Manual output switch
		(1)					■	■	■	AC 230 V	■		■			LED		
		(1)					■		■	AC 230 V	■		■			LED		
		(2)					■	■	■	AC 230 V	■		■			LED		
		(2)					■	■		AC 230 V	■		■			LED		
					(1)		■		■	AC 24 V	■		■			LED		
				(1)			■		■	AC 230 V	■		■			LED		
		(2) ¹		(1) ¹		■	■	■	■	AC 230 V		■		■	■	LCD		
		(2) ¹		(1) ¹		■	■	■	■	AC 230 V		■		■	■	LCD	■	
		(1)								AC 230 V		■		■		LCD		Heat-cool button
		(1)								AC 230 V		■		■		LCD	■	Heat-cool button
					(2)	■	■	■	■	AC 24 V		■		■	■	LCD		
		(2) ¹		(1) ¹		■	■	■	■	AC 230 V		■		■	■	LCD	■	Time-prog buttons
		(1)								AC 230 V		■		■	■	LCD	■	Heat-cool button, time-prog buttons
		(1)					■	■ ³	■ ³	AC 230 V		■		■		LCD		
		(1)								AC 230 V		■		■		LCD		Heat-cool button
		(1)						■ ³	■ ³	AC 230 V		■		■	■	LCD		Time-prog buttons
		(1)								AC 230 V		■		■	■	LCD		Heat-cool button, time-prog buttons
		(3) ¹	(2) ¹	(2) ¹		■	■	■	■	AC 230 V	■			■	■	LCD	■	
		(3) ¹	(2) ¹	(2) ¹		■	■	■	■	AC 230 V	■			■	■	LCD	■	Time-prog buttons
		(2)				■	■	■	■	AC 230 V	■			■	■	LCD	■	
					(2)	■	■	■	■	AC 24 V	■			■	■	LCD	■	
					(2)	■	■	■	■	AC 24 V	■			■	■	LCD	■	
	■	(2) ¹		(1) ¹		■	■	■	■	AC 230 V		■		■	■	LCD	■	
■	■	(2) ¹		(1) ¹		■	■	■	■	AC 230 V		■		■	■	LCD	■	Light and blind buttons
	■	(3) ¹	(2) ¹	(2) ¹		■	■	■	■	AC 230 V	■			■	■	LCD	■	

Overview – universal room thermostats

	Application											Functionality							
	Universal	VAV/CAV	Heat pumps	Heating only	Cooling only	Heating or cooling	Heating and cooling	2-stage heating	2-stage heating or cooling	Cooling or heating & el. heating	Control algorithm	Automatic heat-cool changeover	Manual heat-cool changeover	Vmin, Vmax limitation of supply air	Floor heating limitation	Dewpoint monitoring	Infrared remote control	7-day time program	Communication interface KNX
Basic																			
RAA10	■			■	■						2P								
RAA20	■			■	■						2P								
RAA200	■			■	■						2P								
RAA30	■			■	■						2P								
RAA40	■					■					2P		■						
Modern																			
RCU10	■						■	■		■	2P/PI								
RCU10.1	■						■	■		■	2P/PI								
RCU15	■						■	■			2P/PI								
RCU20	■			■	■	■					PI	■							
RCU50		■		■	■	■					P	■		■ ⁶					
RCU50.2		■		■	■	■					P		■						
RLA162	■	■		■	■		■	■			PI			■ ⁶					
Advanced																			
RDU340 ⁴		■		■	■	■	■	■		■	P/PI	■	■	■		■			
RDG400		■		■	■	■	■	■		■	P/PI	■	■	■	■	■			
RDG100-line ⁵	■		■	■	■	■	■	■	■	■	2P/PI	■	■		■	■	■	■	
RDX33.21	■		■			■					2P		■					■	
RDX43.2	■		■			■		■		■	2P		■					■	
Communicating																			
RDU341 ⁴		■		■	■	■	■	■		■	P/PI	■	■	■		■			■
RDG400KN		■		■	■	■	■	■		■	P/PI	■	■	■		■			■
RDG100KN ⁵	■			■	■	■	■	■	■	■	2P/PI	■	■		■	■			■

¹ External setpoint shift by 0 to 10V input

² External setpoint shift by outdoor temperature sensor

³ Either ON/OFF, 3-position or PWM signal

⁴ Semi flush-mounted thermostats

⁵ RDG100 line (fan coil units) thermostats are also suited for chilled ceiling and radiator applications. For detailed information, refer to the fan coil unit overview.

⁶ Only with Vmin limitation

⁷ External setpoint shift via KNX

⁸ E.g. window contact of key card reader

(X):X=number of outputs

Outputs					Inputs				Power supply	User interface				
On/Off	PWM	3-position	DC 0...10 V	Output H/C changeover	Operating mode switch-over contact	Heat-cool changeover sensor	Remote or return air temperature sensor	External setpoint shift	Power supply	Setpoint knob	Setpoint buttons	Operating mode button (B)/switch (S)	Digital display (LCD), indicator (LED)	Additional operation selector/remarks
(1)									AC 24...250 V					
(1)									AC 24...250 V	■				
(1)									AC 24...250 V	■				Large setting knob
(1)									AC 24...250 V	■				ON/OFF switch
(1)									AC 24...250 V	■				Heat/off/cool switch
(2) ³	(2) ³				■				AC 230 V	■				
(2) ³	(2) ³				■				AC 230 V	■		S		
(2) ³	(2) ³				■		■		AC 24 V	■				
		(1)			■	■			AC 230 V	■				
			(1)		■	■		■ ¹	AC 24 V	■				
			(1)						AC 24 V	■				Heat/off/cool switch
			(2)					■ ²	AC 24 V	■				
(1)			(1)		■	■	■		AC 24 V		■	B	LCD	
(1) ³	(1) ³	(1) ³	(1)		■	■	■		AC 24 V	■		B	LCD	
(3) ³	(2) ³	(2) ³			■	■	■		AC 230 V	■		B	LCD	Time-prog buttons
(2)				■					Batt.		■	B	LCD	Manual CO button, time-prog buttons
(3)				■					AC 230 V		■	B	LCD	Manual CO button, time-prog buttons
(1)			(1)		■	■	■	■ ⁷	AC 24 V		■	B	LCD	
(1) ³	(1) ³	(1) ³	(1)		■	■	■	■ ⁷	AC 24 V	■		B	LCD	
(3) ³	(2) ³	(2) ³			■	■	■	■ ⁷	AC 230 V	■		B	LCD	