SIEMENS

3191

Room thermostats with KNX communications

RDG100KN
RDG160KN

– For fan coil unit applications

– For universal applications

– For use with compressor in DX type equipment

- **KNX bus communication (S-mode and LTE mode)**
- **Backlit display**
- **2P / PI / P control**
- **Outputs for on/off, PWM, 3-position or DC 0...10 V control**
- **Outputs for 3-speed, 1-speed, or DC (DC 0...10 V) fan**
- **3 multifunctional inputs for keycard contact, external sensor, etc.**
- **Operating modes: Comfort, Economy and Protection**
- **Automatic or manual fan speed control**
- **Automatic or manual heating / cooling changeover**
- **Minimum and maximum limitation of room temperature setpoint**
- **Control depending on the room or the return air temperature**
- **Selectable relay output functions (RDG160KN)**
- **Adjustable commissioning and control parameters**
- **Commissioning with Synco ACS, ETS or via local HMI**
- **Integration into Synco**
- **Integration into Desigo via group addressing (ETS) or via individual addressing**
- **Integration into third-party system via group addressing (ETS)**
- **Operating voltage:**
  RDG100KN: AC 230 V
  RDG160KN: AC 24 V

Edition 3.2

CE1N3191en
2013-09-18

Building Technologies

Use

The RDG1...KN room thermostats are designed for use with the following types of system:

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

- 2-pipe system
- 2-pipe system with electric heater
- 2-pipe system and radiator / floor heating
- 4-pipe system
- 4-pipe system with electric heater (RDG100KN)
- 2-stage heating or cooling system

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

- Chilled / heated ceiling
- Chilled / heated ceiling with electric heater
- Chilled / heated ceiling and radiator / floor heating
- Chilled / heated ceiling, 2-stage cooling or heating

Compressor application via On/Off control (RDG160KN)

- Compressors in DX-type equipment
- Compressors in DX-type equipment with electric heater
- Compressors in DX-type equipment with Radiator
- 2-stage compressors in DX-type equipment for heating or cooling

The RDG100KN controls ...

- One single or 3-speed fan
- One or two on/off / PWM / 3-position valve actuators
- One valve actuator and one electric heater / Radiator

The RDG160KN controls ...

- One single, 3-speed or DC 0...10 V fan
- One or two on/off valve actuators / el. Heater / radiator with DC fan
- One or two DC valve actuators / el. Heater / radiator with DC fan
- One or two DC valve actuators / el. Heater / radiator with 1 / 3-speed fan
- One on/off valve actuator, one DC valve actuator with DC fan
- 1 or 2-stage compressor in DX-type equipment, with electric heater / radiator

Used in systems with:

- Heating or cooling mode
- Automatic heating/cooling changeover
- Manual heating/cooling changeover
- Heating and cooling mode (e.g. 4-pipe system)

The room thermostats are delivered with a fixed set of applications.
The relevant application is selected and activated during commissioning using one of the following tools:

- Synco ACS
- ETS
- Local DIP switch and HMI

Functions

- Room temperature control via built-in temperature sensor or external room temperature / return air temperature sensor
- Changeover between heating and cooling mode (automatic via local sensor or bus, or manual)
- Selection of applications via DIP switches or commissioning tool (ACS, ETS)
- Select operating mode via operating mode button on the thermostat
- Parameters download with commissioning tool (ACS, ETS)
- Temporary Comfort mode extension
- Single speed, 3-speed or DC 0...10 V fan control (automatic or manual)
- Display of current room temperature or setpoint in °C and/or °F
- Minimum and maximum limitation of room temperature setpoint
- Button lock (automatic or manual)
- 3 multifunctional inputs, freely selectable for:
  - Operating mode switchover contact (keycard, window contact, etc.)
  - Sensor for automatic heating / cooling changeover
  - External room temperature or return air temperature sensor
  - Dewpoint sensor
  - Electric heater enable
  - Fault input
  - Monitor input for temperature sensor or switch status
  - Supply air temperature sensor (RDG160KN)
- Advanced fan control function, e.g. fan kick, fan start delay, selectable fan operation (enable, disable or depending on heating or cooling mode)
- Purge function together with 2-port valve in a 2-pipe changeover system
- Reminder to clean fan filters
- Floor heating temperature limitation
- Minimum and maximum supply air temperature limitation (RDG160KN)
- Reload factory settings for commissioning and control parameters
- KNX bus (terminals CE+ and CE-) for communication with Synco or KNX compatible devices
- Display of outside temperature or time of day via KNX bus
- Time scheduling and central control of setpoints via KNX bus
- With a Synco RMB7xx controller, the energy demand signal of the thermostat is used to optimize energy supply
- Selectable relay function for switching external equipment (RDG160KN)

Applications

The thermostats support the following applications, which can be configured using the DIP switches at the rear of the unit or a commissioning tool.

Remote configuration

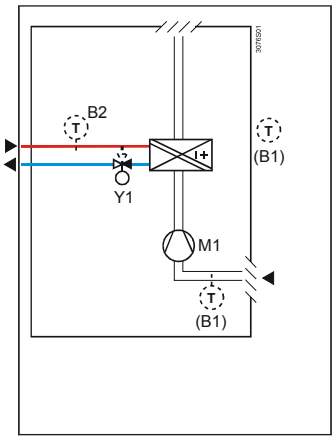
DIP switches 1...3 need to be set to OFF (remote configuration, factory setting) to select an application via commissioning tool.

Remote configuration, via commissioning tool (factory set) • Synco ACS • ETS	**DIP switches** 

Applications for fan coil systems

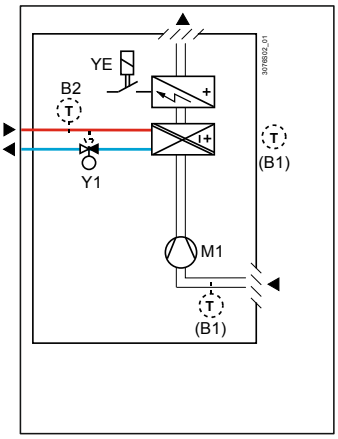
Applications, DIP setting, Control outputs

• 2-pipe fan coil unit



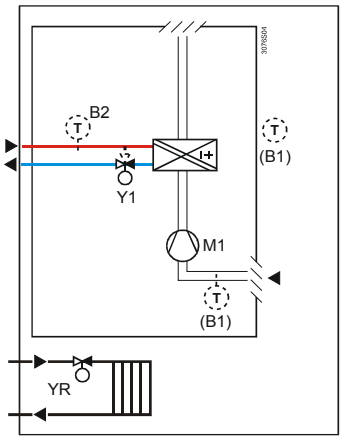
Using RDG100KN, RDG160KN

• 2-pipe fan coil unit and electric heater



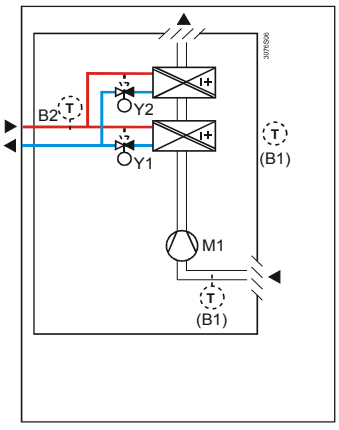
Using RDG100KN, RDG160KN

• 2-pipe fan coil unit and radiator / floor heating



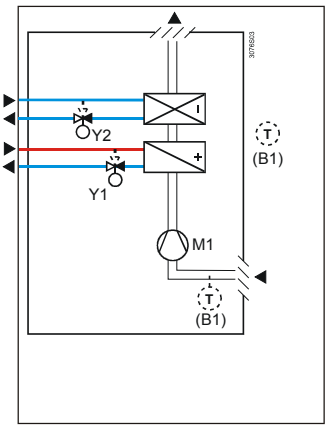
Using RDG100KN, RDG160KN

• 2-pipe / 2-stage fan coil unit



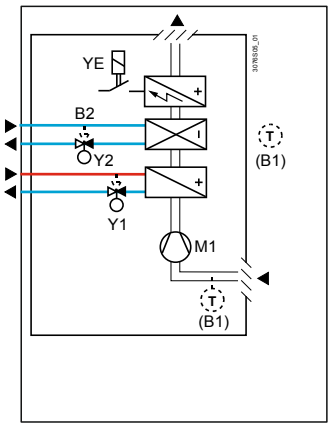
Using RDG100KN, RDG160KN

• 4-pipe fan coil unit



Using RDG100KN, RDG160KN

• 4-pipe fan coil unit and electric heater



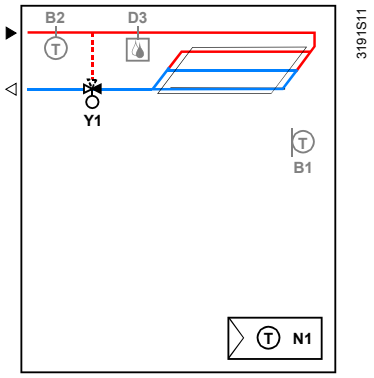
Using RDG100KN

Product no.	Control outputs	Fan
RDG100KN	On/off, PWM, 3-position	3-speed, 1-speed
RDG160KN	DC 0...10 V	3-speed, 1-speed, DC 0...10 V
RDG160KN	On/off	DC 0...10 V

Applications for Universal systems

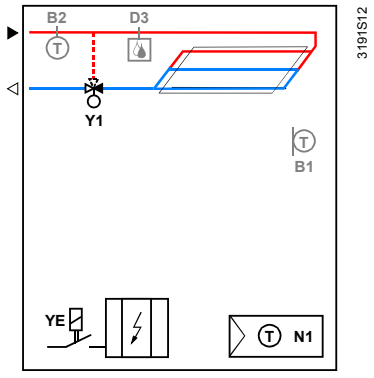
Applications, DIP setting, Control outputs

- Chilled / heated ceiling



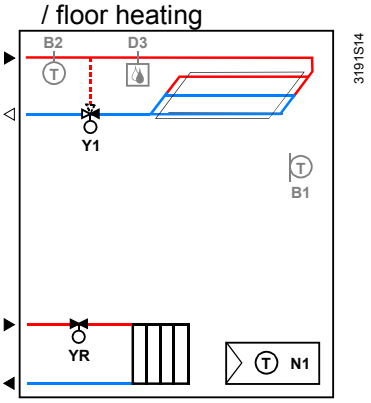
Using RDG100KN, RDG160KN

- Chilled / heated ceiling and electric heater



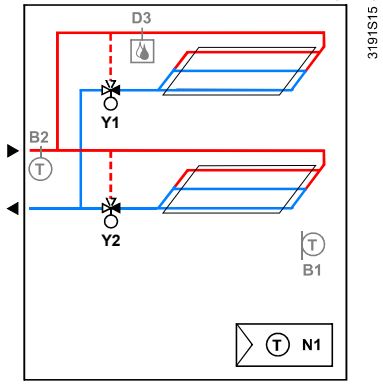
Using RDG100KN, RDG160KN

- Chilled / heated ceiling and radiator / floor heating



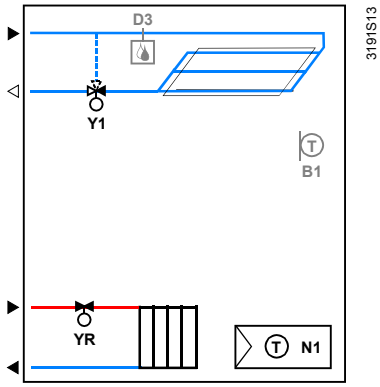
Using RDG100KN, RDG160KN

- 2-stage chilled / heated ceiling



Using RDG100KN, RDG160KN

- Chilled ceiling and radiator



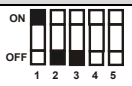
Using RDG100KN, RDG160KN

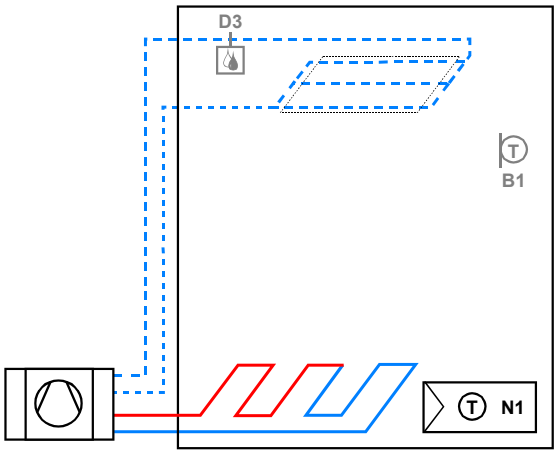
Product no.	Control outputs
RDG100KN	On/off, PWM, 3-position
RDG160KN	On/off, DC 0...10 V

Applications for heat pump systems (RDG160KN)

Applications, DIP setting, Control outputs

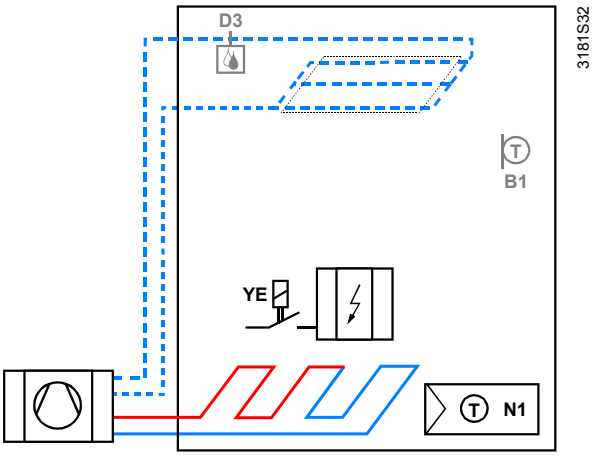
- Heated or cooled with compressors





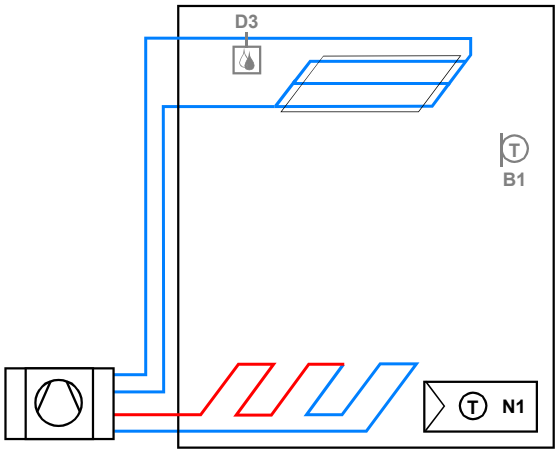
Using RDG160KN

- Heated or cooled with compressors, with electric heater



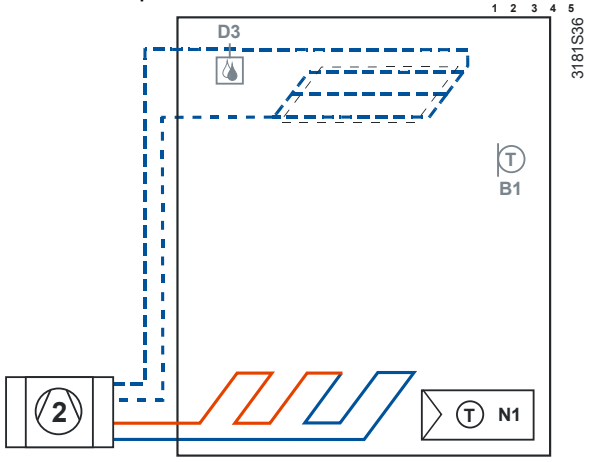
Using RDG160KN

- Heated and cooled with compressors



Using RDG160KN

- 2-stage heated or cooled with compressors



Using RDG160KN

Product no.	Control outputs	Fan
RDG160KN	On/off , DC 0...10 V	Disabled, DC 0...10 V

Key

Y1	Heating or heating / cooling valve actuator	M1	1-speed or 3-speed fan
Y2	Cooling valve actuator	B1	Return air temperature sensor or external room temperature sensor (optional)
YE	Electric heater	B2	Changeover sensor (optional)

Notes

RDG100KN

- Use P46 / P47 to change output from On / Off (factory setting) to PWM
- Use DIP switches 4 and 5 to change output from ON/OFF to 3-position

RDG160KN

- Use P46 / P47 to change valve actuator output from DC (factory setting) to On / Off
- Use DIP switch 4 to change fan output from DC (factory setting) to 3-speed

Type summary

Product no.	Stock no.	Features						
		Operating voltage	Number of control outputs				Fan		Backlit LCD
			On/Off	PWM	3-pos.	DC	3-stage	DC	
RDG100KN	S55770-T163	AC 230 V	3 [1]	2 [1]	2 [1]		✓		✓
RDG160KN	S55770-T297	AC 24 V	2 [2]			2 [2]		✓	✓
						2 [2]	✓[3]		

1) Selectable: On/Off, PWM or 3-position (triac outputs)
2) Either On/Off or DC control signal
3) 3-speed fan selectable only with DC outputs

Equipment combinations

	Description	Product no.	Data sheet
	Cable temperature or changeover sensor 	**QAH11.1**	1840
	Room temperature sensor 	**QAA32**	1747
	Condensation motion 	**QXA2601 / QXA2602 / QXA2603 / QXA2604**	3302
On / off actuators	Electromotoric ON/OFF actuator 	**SFA21...**	4863
	Electromotoric ON/OFF valve and actuator (only available in AP, UAE, SA and IN) 	**MVI… / MXI…**	4867
	Zone valve actuator (only available in AP, UAE, SA and IN) 	**SUA…**	4832
On / off and PWM actuators *)	Thermal actuator (for radiator valves) 	**STA23... STA21... **)**	4884 4893 **)
	Thermal actuator (for small valves 2.5 mm) 	**STP23... STP21... **)**	4884 4893 **)

*) With PWM control, it is not possible to ensure exact parallel running of more than one thermal actuator. If several fan-coil systems are controlled by the same room thermostat, preference should be given to motorized actuators with ON/OFF or 3-position control.
**) Not sold any more

3-position actuators	Electrical actuator, 3-position (for radiator valves) 	**SSA31...**	4893
	Electrical actuator, 3-position (for small valves 2.5 mm) 	**SSP31…**	4864
	Electrical actuator, 3-position (for small valves 5.5 mm) 	**SSB31...**	4891
	Electrical actuator, 3-position (for small valve 5,5 mm) 	**SSD31...**	4861
	Electromotoric actuator, 3-position (for valves 5.5 mm) 	**SQS35…**	4573

DC 0…10 V actuators

Electrical actuator, DC 0...10 V (for radiator valves)		**SSA61...**	4893
Electrical actuator, DC 0...10 V (for 2- and 3-port valves / V…P45)		**SSC61…**	4895
Electrical actuator, DC 0...10 V (for small valves 2.5 mm)		**SSP61…**	4864
Electrical actuator, DC 0...10 V (for small valves 5.5 mm)		**SSB61...**	4891
Electrical actuator, DC 0...10 V (for CombiValves VPI45)		**SSD61...**	4861
Electromotoric actuator, DC 0...10 V (for valves 5.5 mm)		**SQS65…**	4573
Electrothermal actuator, AC 24 V, NC, DC 0…10 V, 1 m		**STA63**	4884
Electrothermal actuator, AC 24 V, NO, DC 0…10 V, 1 m		**STP63**	4884

Accessories

Description	Product no. / stock no.	Data sheet
KNX Power supply 160 mA (Siemens BT LV)	**5WG1 125-1AB02**	--
KNX Power supply 320 mA (Siemens BT LV)	**5WG1 125-1AB12**	--
KNX Power supply 640 mA (Siemens BT LV)	**5WG1 125-1AB22**	--

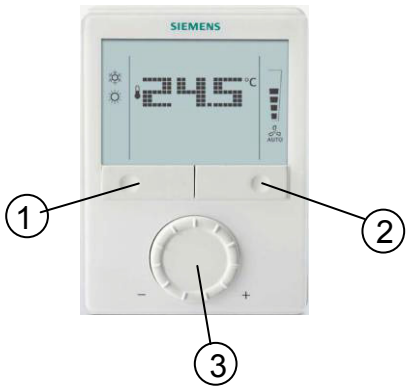
Mechanical design

The room thermostat consists of 2 parts:

- Plastic housing with electronics, operating elements and room temperature sensor
- Mounting plate with the screw terminals

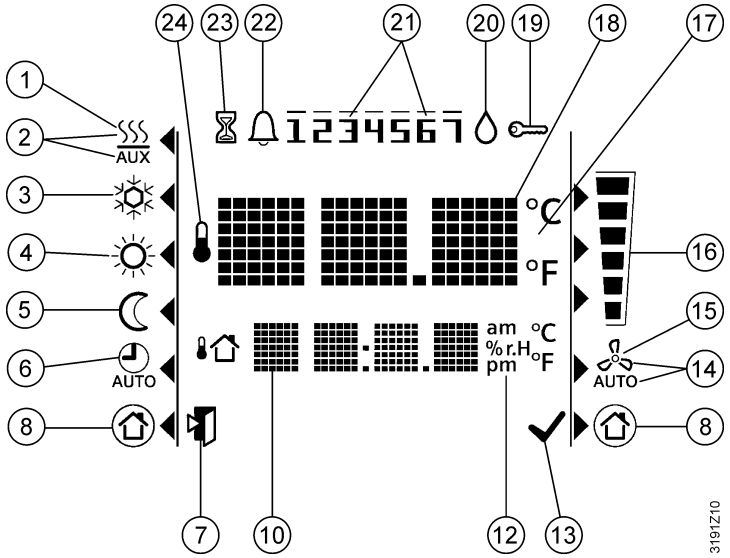
The housing engages in the mounting plate and is secured with 2 screws.

Operation and settings



1) Operating mode button / Esc
2) Fan mode button / Ok
3) Rotary knob to adjust setpoints and parameters

Display



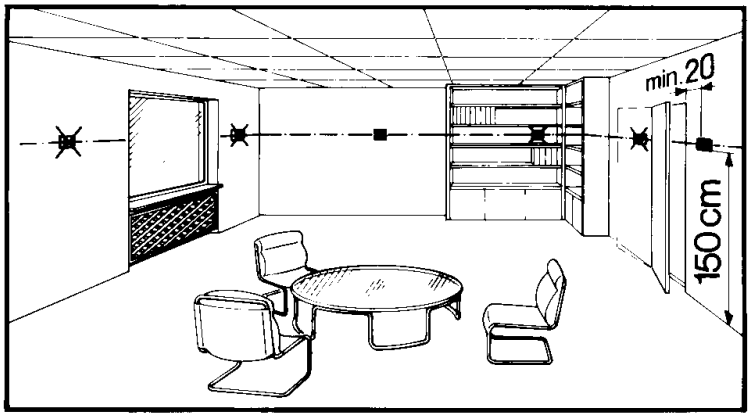
#	Symbol	Description	#	Symbol	Description
1		Heating mode	14	AUTO	Automatic fan
2	AUX	Heating mode, electric heater active	15		Manual fan
3		Cooling mode	16		Fan speed: Fan speed 1
4		Comfort			Fan speed: Fan speed 2
5		Economy			Fan speed: Fan speed 3
6	AUTO	Auto Timer mode according to schedule (via KNX)	17	°C °F	Degrees Celsius Degrees Fahrenheit
8		Protection mode	18		Digits for room temperature and setpoint display
9		Escape	19		Button lock
10		Additional user information, like outdoor temperature or time of day from KNX bus. Selectable via parameters	20		Condensation in room (dewpoint sensor active)
12	am pm	Morning: 12-hour format Afternoon: 12-hour format	21	1234567	Weekday 1…7 from KNX bus 1 = Monday / 7 = Sunday
13		Confirmation of parameters	22		Fault
			23		Temporary timer function; visible when operating mode is temporarily extended (extended presence or absence)
			24		Indicates that room temperature is displayed

Engineering notes

See the "Reference documentation", page 16 for information on how to engineer the KNX bus (topology, bus repeaters, etc.) and how to select and dimension connecting cables for supply voltage and field devices.

Mounting and installation

Do not mount on a wall in niches or bookshelves, behind curtains, above or near heat sources, or exposed to direct solar radiation. Mount about 1.5 m above the floor.



Mounting

⚠

- Mount the room thermostat on a clean, dry indoor place without direct airflow from a heating / cooling device, and not exposed to drips or splash water.

Wiring

See the mounting instructions M3191 enclosed with the thermostat.

⚠
- Comply with local regulations to wire, fuse and earth the thermostat.

⚠
- Properly size the cables to the thermostat, fan and valve actuators for AC 230 V mains voltage

⚠
- Use only valve actuators rated for AC 230 V

⚠
- The AC 230 V mains supply line must have an external fuse or circuit breaker with a rated current of no more than 10 A.

⚠
- Isolate the cables of input D1-GND for 230 V if the conduit box carries AC 230 V mains voltage.
- X1-M,X2-M or D1-GND: several switches (e.g. summer/winter switch) may be connected in parallel. Consider overall maximum contact sensing current for switch rating.
- Inputs X1-M and X2-M carry mains potential (RDG100KN only).
  Sensor cables must be suited for AC 230 V mains voltage
- Selectable relay function (RDG160KN): Follow instructions in P3191 to connect external equipment to the relay outputs.

⚠
- Isolate the cables of KNX communication input CE+ / CE- for 230 V if the conduit box carries AC 230 V mains voltage.
- No cables provided with a metal sheath.
- Disconnect from supply before removing from the mounting plate.

Applications

The room thermostats are delivered with a fixed set of applications.

Select and activate the relevant application during commissioning using one of the following tools:

- Local DIP switch and HMI
- Synco ACS
- ETS

Set the DIP switches before snapping the thermostat to the mounting plate, if you want to select an application via **DIP switches**.

All DIP switches need to be set to “OFF” ("remote configuration"), if you want to select an application via **commissioning tool**.

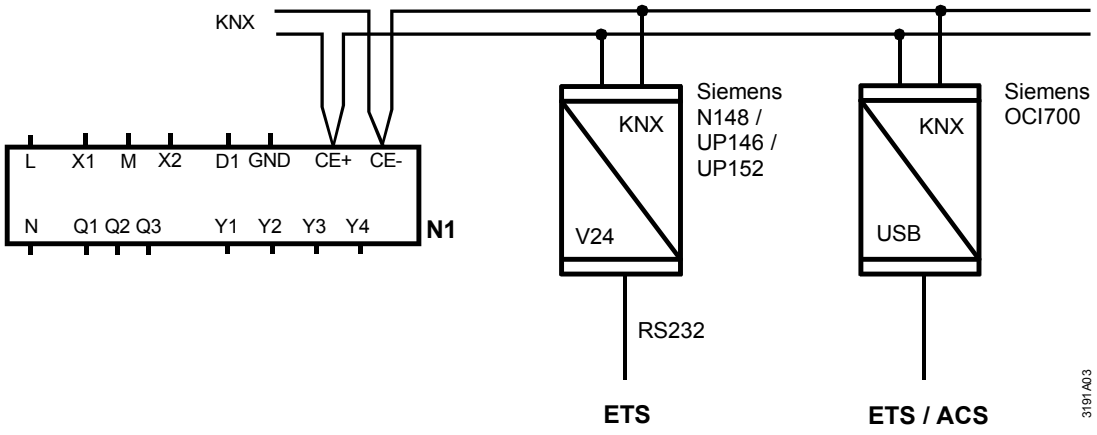
After power is applied, the thermostat resets and all LCD segments flash, indicating that the reset was correct. After the reset, which takes about 3 seconds, the thermostat is ready for commissioning by qualified HVAC staff.

If all DIP switches are OFF, the display reads "NO APPL" to indicate that application commissioning via a tool is required.

Note Each time the application is changed, the thermostat reloads the factory setting for all control parameters, except for KNX device and zone addresses!

Connect tool

Connect the Synco ACS or ETS tools to the KNX bus cable at any point for commissioning:



ACS and ETS require an interface:

- RS232 KNX interface (e.g. Siemens N148 / UP146 / UP152)
- OCI700 USB- KNX interface

Note An external KNX bus power supply is required if an RDG1...KN is connected directly to a tool (ACS or ETS) via KNX interface.

Control parameters

The thermostat's control parameters can be set to ensure optimum performance of the entire system (see basic documentation P3191).
The parameters can be adjusted using
- Local HMI
- Synco ACS
- ETS

Control sequence

- The control sequence may need to be set via parameter P01 depending on the application. The factory setting is as follows:

Application	Factory setting P01
2-pipe and chilled / heated ceiling, and 2-stage	1 = Cooling only
4-pipe, chilled ceiling and radiator	4 = Heating and cooling

Calibrate sensor

- Recalibrate the temperature sensor if the room temperature displayed on the thermostat does not match the room temperature measured (after min. 1 hour of operation). To do this, change parameter P05.

Setpoint and range limitation

- We recommend to review the setpoints and setpoint ranges (parameters P08…P12) and change them as needed to achieve maximum comfort and save energy.

Programming mode

The programming mode helps identify the thermostat in the KNX network during commissioning.
Press the left and right buttons simultaneously for 6 sec to activate programming mode, which is indicated on the display with "PrOg".
Programming mode remains active until thermostat identification is complete.

Assign KNX group addresses

Use ETS to assign the KNX group addresses of the RDG communication objects.

KNX serial number

Each device has a unique KNX serial number inside the plastic housing.
An additional sticker with the same KNX serial number is enclosed in the packaging box. This sticker is intended for installers for documentation purposes.

Disposal

This device is classified as waste electronic equipment under European Directive 2002/96/EC (WEEE) and may not be disposed of as unsorted municipal waste.
Adhere to all relevant national laws.
Regarding disposal, use the systems setup for collecting electronic waste.
Observe all local and applicable laws.

RDG100KN

⚠ Power supply	Rated voltage	AC 230 V
	Frequency	50/60 Hz
	Power consumption	Max. 15 VA / 2 W
Outputs	Fan control	
	Q1, Q2, Q3 - N	AC 230 V, 5 mA...5(4) A
STOP Note!	**Fans must NOT be connected in parallel!**	
	Connect one fan directly, for additional fans, one relay for each speed.	
	Control outputs	Solid state (Triac)
	Y1, Y2, Y3, Y4-N	AC 230 V, 8mA...1 A
Inputs	Multifunctional inputs	
	X1-M / X2-M	
	Temperature sensor input	
	Type	QAH11.1 (NTC)
	Temperature range	0...49 °C
	Cable length	Max. 80 m
	Digital input	
	Operating action	Selectable (NO/NC)
	Contact sensing	DC 0…5 V, max. 5 mA
	Parallel connection of several thermostats for one switch	Max. 20 thermostats per switch. **Do not mix with D1!**
	Insulation against mains	N/A, mains potential ⚠
	D1-GND	
	Operating action	Selectable (NO/NC)
	Contact sensing	SELV DC 6…15 V, 3…6 mA
	Parallel connection of several thermostats for one switch	Max. 20 thermostats per switch. **Do not mix with X1 / X2!**
	Insulation against mains	3.75 kV, reinforced insulation
	Function of inputs	Selectable
	External temperature sensor, heating/cooling changeover sensor, operating mode switchover contact, dewpoint monitor contact, enable electric heater contact, fault contact, monitoring input	X1: P38 X2: P40 D1: P42

RDG160KN

Power supply	Rated voltage		AC 24 V
	DC 24 V : Make sure to connect G to + and G0 to -		DC 24 V
	Frequency		50/60 Hz
	Power consumption		Max. 5 VA / 2 W
Outputs	ECM fan control	Y50 - G0	SELV DC 0...10 V, Max. ±2 mA
	3-speed fan control, external equipment		
	L - Q1 / Q2 / Q3 - N		AC 24...230 V, 5 mA...5(4) A
STOP Note!	**Fans must NOT be connected in parallel!**		
	Connect one fan directly, for additional fans, one relay for each speed.		
	Actuator control	Y10 - G0 / Y20 - G0 (G)	SELV DC 0...10 V, Max. ±1 mA
Inputs	Multifunctional inputs		SELV
	X1-M / X2-M		
	Temperature sensor input		
	Type		QAH11.1 (NTC)
	Temperature range		0...49 °C
	Cable length		Max. 80 m
	Digital input		
	Operating action		Selectable (NO/NC)
	Contact sensing		DC 0…5 V, max. 5 mA
	Parallel connection of several thermostats for one switch		Max. 20 thermostats per switch
	D1-GND		
	Operating action		Selectable (NO/NC)
	Contact sensing		DC 6…15 V, 3…6 mA
	Parallel connection of several thermostats for one switch		Max. 20 thermostats per switch.
	Function of inputs		Selectable
	External room temperature sensor, heating/cooling changeover sensor, operating mode switchover contact, dewpoint monitor contact, enable electric heater contact, fault contact, monitoring input, supply air temperature		X1: P38 X2: P40 D1: P42

RDG100KN, RDG160KN

KNX bus	Interface type		KNX, TP1-64 (electrically isolated)
	Bus current		20 mA
	Bus topology: See KNX manual (reference documentation, see below)		
Operational data	Switching differential, adjustable		
	Heating mode	(P30)	2 K (0.5…6 K)
	Cooling mode	(P31)	1 K (0.5…6 K)
	Setpoint setting and setpoint range		
	☼ Comfort mode	(P08)	21 °C (5…40 °C)
	☾ Economy	(P11-P12)	15 °C/30 °C (OFF, 5…40 °C)
	⌂ Protection	(P65-P66)	8 °C/OFF (OFF, 5…40 °C)
	Multifunctional inputs X1 / X2 / D1		Selectable (0...8)
	Input X1 default value	(P38)	1 (Ext. temperature sensor, room or return air)
	Input X2 default value	(P40)	0 (no function)
	Input D1 default value	(P42)	3 (Operating mode switchover)
	Built-in room temperature sensor		
	Measuring range		0…49 °C
	Accuracy at 25 °C		< ± 0.5 K
	Temperature calibration range		± 3.0 K

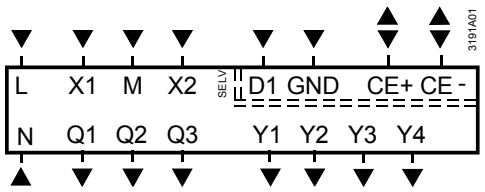
	Settings and display resolution		
	Setpoints		0.5 °C
	Current temperature value displayed		0.5 °C
Environmental conditions	Operation		IEC 721-3-3
	Climatic conditions		Class 3K5
	Temperature		0…50 °C
	Humidity		<95% r.h.
	Transport		IEC 721-3-2
	Climatic conditions		Class 2K3
	Temperature		–25…60 °C
	Humidity		<95% r.h.
	Mechanical conditions		Class 2M2
	Storage		IEC 721-3-1
	Climatic conditions		Class 1K3
	Temperature		-25…60 °C
	Humidity		<95% r.h.
Standards and directives	CE conformity		
	EMC directive		2004/108/EC
	Low-voltage directive		2006/95/EC
	C-tick conformity to EMC emission standard		AS/NZS 61000.6.3: 2007
	RoHS ☑ 2002/95/EC Reduction of hazardous substances		2002/95/EC
	Product standards		
	Automatic electrical controls for household and similar use		EN 60730–1
	Special requirements for temperature-dependent controls		EN 60730–2-9
	Electronic control type		2.B (micro-disconnection on operation)
	Home and Building Electronic Systems		EN 50090-2-2
	Electromagnetic compatibility		
	Emissions (residential)		IEC/EN 61000-6-3
	Immunity (industrial and residential)		IEC/EN 61000-6-2
	Safety class		II as per EN 60730
	Pollution class		Normal
	Degree of protection of housing		IP30 as per EN 60529
General	Connection terminals		Solid wires or stranded wires with wire end sleeves 1 x 0.4…2.5 mm^2 or 2 x 0.4…1.5 mm^2
	Housing front color		RAL 9003 white
	Weight without / with packaging	RDG100KN	0.270 kg / 0.380 kg
		RDG160KN	0.240 kg / 0.320 kg

Reference documentation Handbook for Home and Building Control - Basic Principles
(www.knx.org/uk/news-press/publications/publications/)

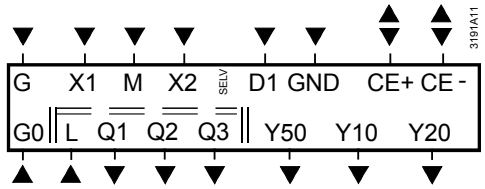
Synco	CE1P3127 Communication via the KNX bus for Synco 700, 900 and RXB/RXL Basic documentation
Desigo	CM1Y9775 Desigo RXB integration – S-mode CM1Y9776 Desigo RXB / RXL integration – individual addressing CM1Y9777 Third-party integration CM1Y9778 Synco integration CM1Y9779 Working with ETS

Connection terminals

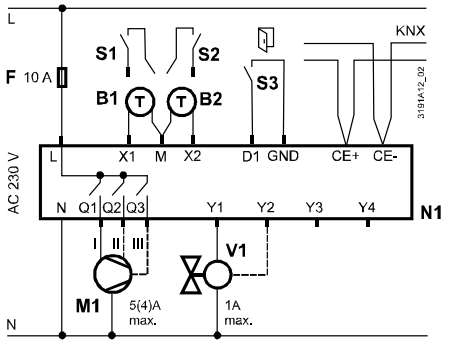
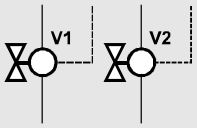
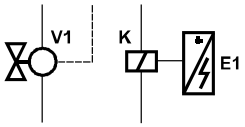
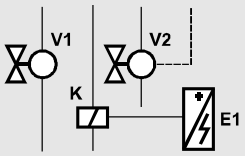
RDG100KN



RDG160KN

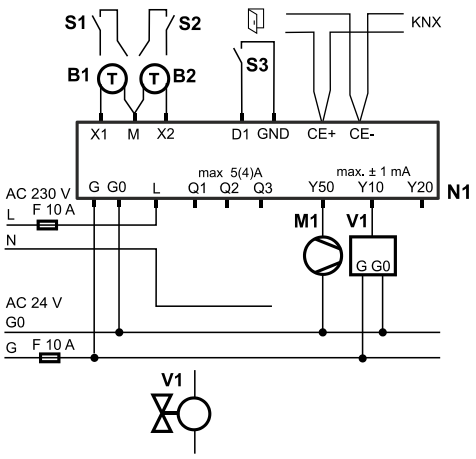
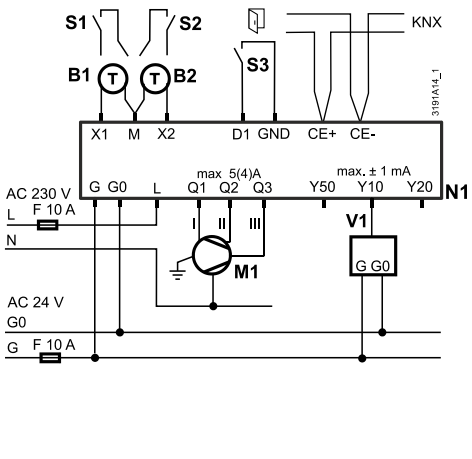
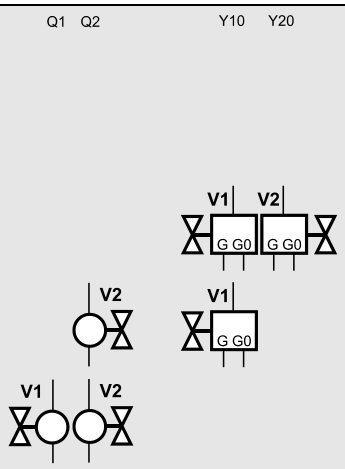
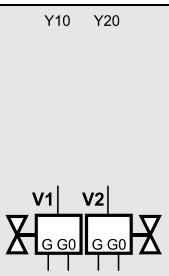
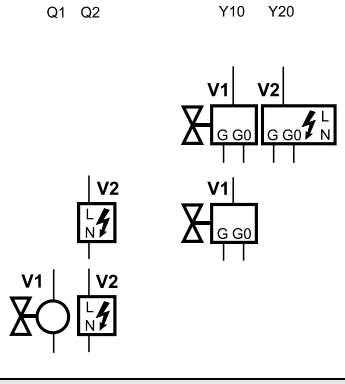
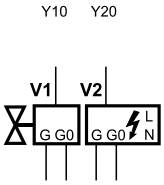
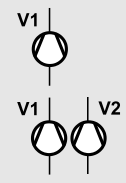


L, N	Operating voltage AC 230 V	(RDG100KN)
G, G0	Operating voltage AC 24 V	(RDG160KN)
L	Feed for relays AC 24...230 V	(RDG160KN)
X1, X2	Multifunctional input for temperature sensor (e.g. QAH11.1) or potential-free switch Factory setting: – X1 = External temperature sensor – X2 = No function (function can be selected via parameters P38 / P40).	
M	Measuring neutral for sensors and switches	
D1, GND	Multifunctional input for potential-free switch Factory setting: Operating mode switchover contact (function can be selected via parameter P42).	
Q1	Control output fan speed “low” AC 230 V	
Q2	Control output fan speed “medium” AC 230 V	
Q3	Control output fan speed “high” AC 230 V	
Q1...Q3	Also for special functions AC 24...230 V	(RDG160KN)
Y1…Y4	Control outputs “Valve” AC 230 V ("N/O" triac, for normally closed valves), output for electric heater via external relay	(RDG100KN)
Y10, Y20	Control outputs “Valve” DC 0...10 V	(RDG160KN)
Y50	Control output “Fan” DC 0...10 V	(RDG160KN)
CE+	KNX data +	
CE-	KNX data –	

Application	V1	V2	
• 2-pipe	YHC		
• 2-pipe and radiator	YHC	YR	
• 4-pipe	YH	YC	
• 2-stage	1.	2.	
• 2-pipe and electric heater	YHC	E1	
• 4-pipe and electric heater	YH	YC	
	E1		

N1	Room thermostat RDG100KN	M1	1- or 3-speed fan
F	External fuse	V1, V2	Valve actuators: On/Off or PWM, 3-position, heating, cooling, radiator, heating / cooling, 1st or 2nd stage
S1, S2	Switch (keycard, window contact, presence detector, etc.)	E1	Electric heater
S3	Switch at SELV input (keycard, window contact)	K	Relay
B1, B2	Temperature sensor (return air temperature, external room temperature, changeover sensor, etc.)	YH	Heating valve actuator
CE+	KNX data +	YC	Cooling valve actuator
CE–	KNX data –	YHC	Heating / cooling valve actuator
		YR	Radiator valve actuator
		E1	Electric heater with relay / contactor Y
		1^{st} / 2^{nd}	1^{st} / 2^{nd} stage

Connection diagrams RDG160KN

Application	V1	V2	DC 0...10 V fan	1- / 3-speed fan
• 2-pipe	YHC			
• 2-pipe and radiator • 4-pipe • 2-stage	YHC YH 1st	YR YC 2nd		
• 2-pipe and electric heater	YHC	E1		
• Compressor 1-stage • Compressor 2-stage	1st 1st	 2nd		

N1	Room thermostat RDG160KN
F	External fuse
S1...S3	Switch (keycard, window contact, presence detector, etc.)
B1, B2	Temperature sensor (return air temperature, external room temperature, changeover sensor, etc.)
CE+	KNX data +
CE–	KNX data –

M1	1- or 3-speed fan, DC 0...10 V fan
V1, V2	Valve actuators: On/Off or PWM, 3-position, DC 0...10 V, heating, cooling, radiator, heating / cooling, 1st or 2nd stage
YH	Heating valve actuator
YC	Cooling valve actuator
YHC	Heating / cooling valve actuator
YR	Radiator valve actuator
1^{st} / 2^{nd}	1^{st} / 2^{nd} stage

Dimensions

Dimensions in mm