SIEMENS

Operating Instructions en **RDG405KN**

RDG405KN – the room thermostat with KNX communications that allows you to set the ideal room temperature you want. The thermostat provides Comfort, Economy and Protection mode.
In addition it can operate in Auto timer mode according to a schedule via KNX bus.

You can either rely on the factory settings or make adjustments that suit your individual needs.
Air quality control function is available.

1 Main display

- 24.5 Room temperature
- 1.2.5 Outdoor temperature
- °C Room temperature in degrees Celsius
- °F Room temperature in degrees Fahrenheit
- Button lock active
- Fault indicator *
- Fresh air
- Condensation in the room *
- Timer function active
- 1234567 Weekday 1 = Monday 7 = Sunday
- 2000 ppm Additional user info, eg. current time of day, or CO2 external sensor value
- Escape (Cancel)
- Confirm (OK)

2 Operating mode

- Heating mode
- AUX Electric heater active
- Cooling mode
- Comfort mode
- Economy mode
- AUTO Auto timer mode
- Protection mode: Protection against frost
- Indicator for mode selection
- Fan is active**

A Operating mode button
B Protection / OK
C Rotary knob

* Needs to be configured by your HVAC installer
** Only supported with Synco 700 primary controller

Changing the room temperature

- Turn the rotary knob clockwise (+) to increase, or counterclockwise (-) to decrease the current room temperature setpoint. The thermostat changes to Comfort ☼◀.

The setting range is from 5...40 °C; it can be limited by parameters P09 and P10.
(for parameter settings, see reverse side).

Changing the operating mode of the thermostat

Press the operating mode button repeatedly until the ◀ symbol points to the operating mode you desire.

1. Protection mode

- In protection mode, the plant stops operating. However, if the room temperature falls below 8 °C, heating is switched on to protect the room against frost.
- The thermostat switches to Protection mode when the window contact (local or on KNX) is active.

The setpoints for Protection mode can be changed by your HVAC installer if desired:
Changes made by installer: ✎ Frost protection: _____ °C Heat protection: _____ °C

2. Comfort mode

- In Comfort mode, the thermostat maintains the room temperature on the setpoint which can be adjusted with the rotary knob
- The thermostat switches to Comfort mode when the presence detector (local or on KNX) is active (room is occupied).

3. Auto Timer mode

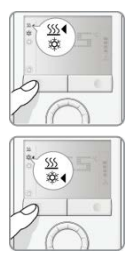
- In Auto Timer mode, the thermostat automatically switches over between Comfort and Economy mode according to the schedule via KNX bus.
  If no schedule via KNX is available, then Auto Timer is replaced by Comfort.

4. Economy mode

- In Economy mode, the thermostat maintains the room temperature at a lower or higher setpoint, thus saving energy and money.
- The thermostat can be set to Economy mode either by pressing the operating mode button if enabled (P02 = 2), or via KNX bus command.
- The Economy setpoints are factory-set to 15 °C for heating and 30 °C for cooling. They can be adjusted via parameters P11 and P12 (for parameter settings, see reverse side).

Important: These setpoints can be set to OFF; which means that the thermostat is not active., i.e. no protective heating or cooling function. **Risk of frost!**

Changing from heating to cooling mode Not supported with all configurations



- The changeover from heating to cooling (or vice versa) is made
  - either *automatically* by a changeover sensor, or a changeover switch, or a remote changeover switch via KNX command
  - or manually by pressing the operating mode button.

  If the thermostat is configured for "heating only" or "Cooling only", changeover is not available (see parameter P01)
- To select cooling or heating manually (P01=2), press the operating mode button until the ◀ symbol points to the mode you desire.
- With automatic changeover or continuous heating / cooling, symbols ≋ / ☼ indicate that the system currently heats or cools.
- With manual changeover, symbols ≋ / ☼ indicate that the system currently operates in heating or cooling mode. Symbols ≋ ◀ / ☼ ◀ indicate that the system currently heats or cools.

Fan display

The ✣ symbol informs you that the primary fan is active.

Note: Only supported with Synco 700 primary controller.

Timer to extended presence or absence

The Comfort and Economy modes can be temporarily extended by 0.5 to 9.5 hours using the timer.

1. To set the timer, press and hold the operating mode button.
   While holding the button, turn the rotary knob clockwise or counterclockwise as required.
   a) Turn the rotary knob clockwise to extend Comfort mode.
      Display: ☼◀ 0...+9:30
   b) Turn the rotary knob counterclockwise to extend Economy mode.
      Display: ☾◀ 0...–9:30
2. Release the operating mode button and the mode is temporarily changed, indicated by ⧗ symbol.

- After the temporary timer has elapsed, the thermostat will resume operation in the operating mode according to schedule via bus (if available). Without schedule:
  – when extended Comfort mode ends → new operating mode = Economy
  – when extended Economy mode ends → new operating mode = Comfort
- If Economy mode cannot be selected via the operating mode button (P02 ≠ 2), Protection mode will be used for extended absence instead.
- The temporary timer function is aborted whenever a new setting is made.

Temporary timer to extend the Comfort mode

When the operating mode is Economy (commanded by schedule via KNX or by en external signal. e.g. keycard), it can be set back to Comfort temporarily by pressing the operating mode button. The ⧗ symbol will appear.

Pressing the operating mode button again will stop the timer.

This function is only available when parameter P02 = 1. Duration: * P68 = 0...360 min, factory setting = 0 min.
* Needs to be configured by your HVAC installer.

Reminder clean filter and display of external faults

🔔 **AL1 *** These fault messages tell you an external fault has occurred *:
🔔 **AL3 *** 🔔 **AL1 :** ✎ _____ 🔔 **AL3 :** ✎ _____

* Needs to be configured by your HVAC installer

Indoor Air Quality (IAQ) function

The Indoor Air Quality (IAQ) function is used for air quality control in VAV applications. The function is achieved by controlling the damp valve position according to the CO2 level of the indoor air as well as the temperature.

The thermostat monitors the CO2 level via KNX or IAQ sensors located in the room or in the extract air duct. If the CO2 setpoint value is exceeded, the thermostat opens the valve in accordance with the minimum position, and increases the openness slowly if the CO2 level continues rising. When the CO2 level reaches the predefined maximum value, the thermostat opens the valve to the maximum position until the CO2 level drops.

Note that the valve position is also controlled according to the temperature. It depends on which is higher, the temperature demand signal or the CO2 level demand signal.

Button lock

- If the button lock function is enabled (parameter P14 = 2), then pressing the right button for 3 seconds will lock or unlock the buttons respectively. Locked buttons are indicated with the key symbol 🔑
- If "Auto lock" is configured (P14 = 1), the thermostat will automatically lock the buttons 10 seconds after the last adjustment.

Commissioning (by qualified HVAC installer)

To adapt the thermostat to your system and optimize the control performance, a number of control parameters can be adjusted. This can be done during operation, either via the buttons on the thermostat or via a commissioning tool.

Control parameters

If you wish to change control parameters, proceed as follows:

1. Press left and right buttons simultaneously for at least 3 seconds.
2. Release them and, within 2 seconds, press the right button again for 3 seconds.
   The display will show P01.
3. Select the required parameter by turning the rotary knob.
4. Press button ✓ (OK). The current value of the selected parameter starts blinking and can be changed by turning the rotary knob.
5. Press button ✓ (OK) to confirm the adjusted value, or ⎋ (Esc) to cancel the change.

If you wish to adjust additional parameters, repeat steps 3 through 5, or press ⎋ (Esc) to leave the parameter setting mode.

Parameter list

No.	Description	Default value	Setting range	Adj. ✎
P01	Control sequence ***	1 = cooling only	0 = Heating only 1 = Cooling only 2 = H/C changeover, manual 3 = H/C changeover, automatic	
P02	Mode selection via operating mode button	1	1 = Auto** / Comfort / Protection 2 = Auto** / Comfort / Economy / Protection	
P04	Selection of °C or °F	0 = °C	0 = °C 1 = °F	
P05	Sensor calibration	0.0 k	-3...+3° C	
P06	Standard temperature display	0 = Room temp.	0 = Room temperature 1 = Setpoint	
P07	Additional user information	0 = No display	0 = No display 1 = Room Temperature in °C / °F 2 = Outside temperature (via bus) 3 = Time of day (12h, via bus) 4 = Time of day (24h, via bus) 6 = CO2 ppm 7 = CO2 symbols	
P08	Comfort basic setpoint	21 °C	5 ... 40 °C	
P09	Minimum setpoint limitation in Comfort mode	5 °C	5 ... 40 °C	
P10	Maximum setpoint limitation in Comfort mode	35 °C	5 ... 40 °C	
P11	Setpoint for heating in Economy mode (WheatEconomy)	15 °C	OFF, 5 °C...WcoolEconomy	
P12	Setpoint for cooling in Economy mode (WcoolEconomy)	30 °C	OFF, WheatEconomy...40 °C	
P14	Button lock	0 = Disabled	0 = Disabled 1 = Automatic 2 = Manual	
P19	CO2 setpoint	1000 ppm	0 = OFF 0... 5000 ppm	
P20	CO2 XP	400 ppm	10... 2000 ppm	

** When no time schedule via KNX exists, then Auto is equal to Comfort.
*** Not supported with all configurations.
All temperature settings can be made in increments of 0.5 °C.
✎ Please record all changes you make!

Siemens Building Technologies
Subject to change
A6V10733816
9 Dec 2015