SIEMENS

3062

Room Temperature Controller with LCD

RDU20

for heating and cooling systems

Modulating PI control or ON/OFF control selectable
Control depending on the room or the return air temperature
Three point output for heating or cooling
Automatic heating / cooling changeover
Operating modes: normal and energy saving (or off)
Operating mode changeover input for remote control
Selectable installation and control parameters
Display of room temperature or setpoint selectable
Minimum and maximum setpoint limitation
Operating voltage AC 230 V

Use

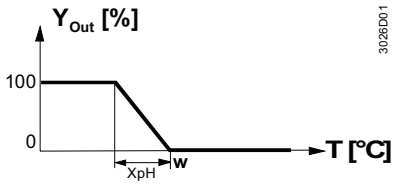
Control of the room temperature in individual rooms of ventilation or air conditioning plants that are heated or cooled.

For the control of the following pieces of equipment:

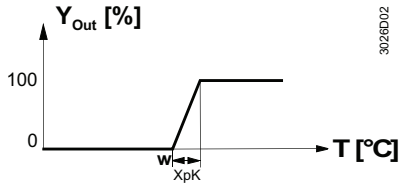
- Three-position valve actuators
- Three-position damper actuators

The controller acquires the room temperature with its integrated sensor or – if used – via a remote return air temperature sensor (QAH11.1) and maintains the setpoint by delivering 3-position control commands to the actuator. The controller provides PI control or ON/OFF control (selectable via DIP switch no 2). The proportional band (or switching differential) in heating mode is 2 K and in cooling mode 1 K (adjustable). The integral action time is 5 minutes (adjustable).

Heating mode



Cooling mode

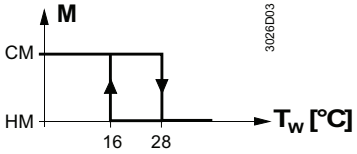


T	Room temperature	w	Room temperature setpoint
XpH	Proportional band “Heating”	Y_{Out}	Manipulated variable
XpK	Proportional band “Cooling”		

Note 1: The diagrams only show the proportional part of the PI controller
Note 2: If ON/OFF control is selected, Xp becomes the switching differential

Automatic changeover

The water or air temperature acquired by the changeover sensor (QAH11.1) is used by the controller to automatically switch from heating to cooling mode, or vice versa. When the temperature lies above 28 °C (adjustable), the controller switches to heating mode, below 16 °C (adjustable) it switches to cooling mode. If, immediately after switching on, the temperature lies between the 2 changeover points, the controller will start in heating mode. The temperature is measured at half-minute intervals and the operational status updated. The value of the current temperature reading and the mode can be visualized temporary by selecting parameter P14.



CM	Cooling mode
HM	Heating mode
T_W	Medium temperature
M	Operating mode

In systems without automatic changeover, the temperature sensor can be replaced by an external switch (suited for mains voltage) for manual changeover. In systems with continuous heating mode, no sensor will be connected to the controller’s input. With continuous cooling mode, the controller input must be bridged.

Three-position control signal

Outputs Y1 = opening, Y2 closing and N = neutral are used to drive three-position actuators with a maximum running time of 150 seconds from the fully closed to the fully open position.

1 When commissioning the controller, a closing signal of the actuator running time (parameter P11) + 20% seconds is delivered to ensure the actuator will be fully closed and synchronized with the control algorithm. This synchronization is not active when ON/OFF control is selected (DIP switch no 2).

2 When the actuator has reached the position calculated by the controller, a waiting time of 30 seconds is observed in order to stabilize the outputs.

3 The control outputs carry AC 230 V.