

Control system technology

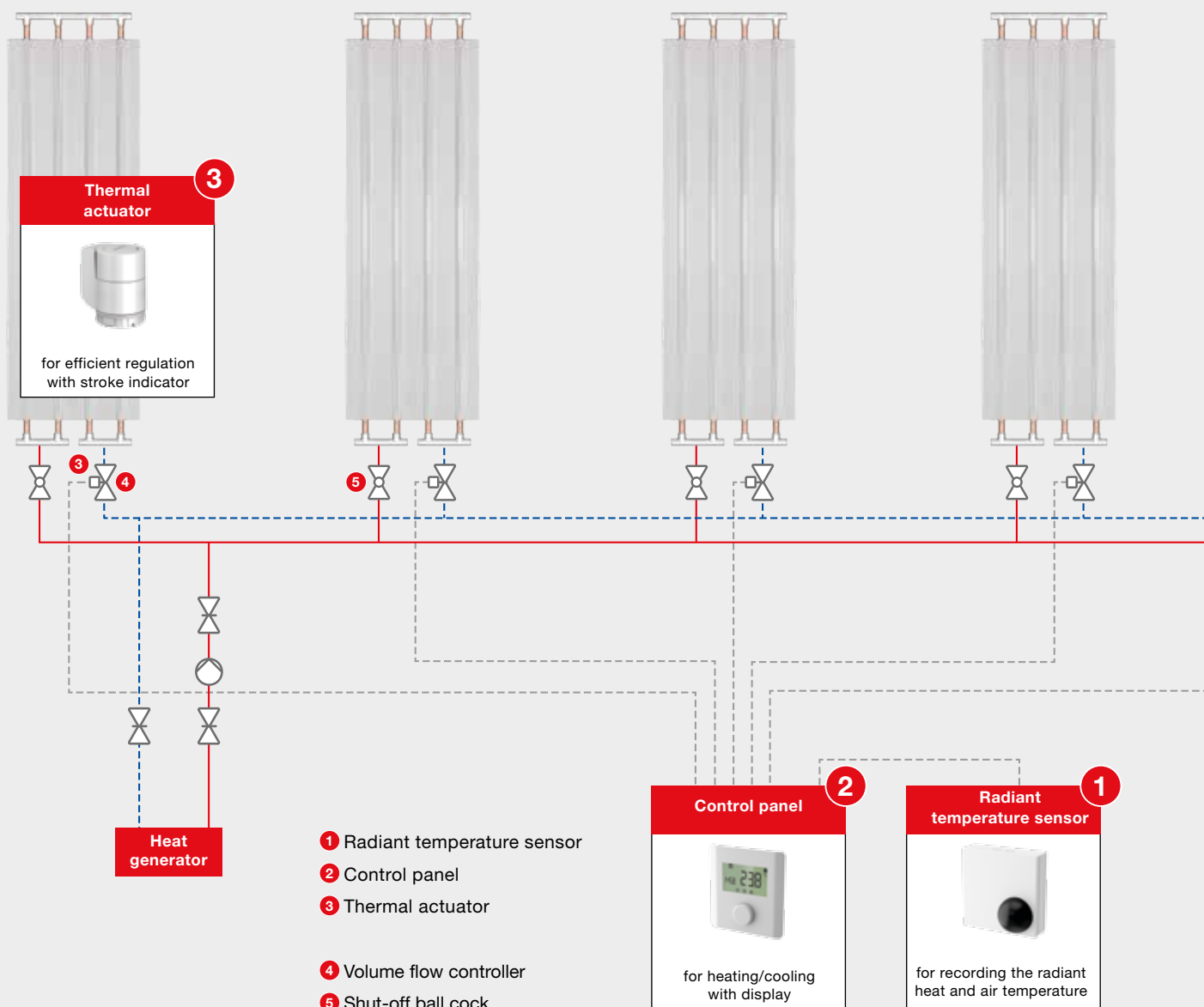
Control components for Zehnder radiant ceiling panels



Controlled and cost-optimised heating and cooling

The control system technology for Zehnder radiant ceiling panels satisfies the requirement of easily achieving the desired room temperature at all times, with the control panel providing the flexibility to alter requirements. Optimally coordinated components ex works guarantee easy installation.

Example heating wiring diagram



+ OUR SOLUTION

- **Reliable planning**

In-depth advice on products and planning support.

- **Simple installation**

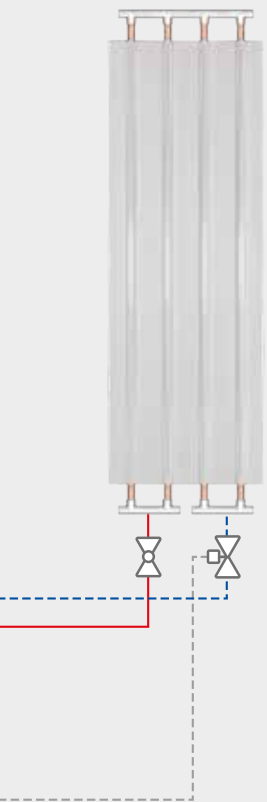
Thanks to optimally coordinated components, simple and swift installation is ensured.

- **Intuitive operation**

Your desired temperature can easily be controlled using the control panel.

- **Sustainable and efficient**

Thanks to the constant room temperature, energy, maintenance and servicing costs are saved.



In order to ensure the desired zone temperature is achieved, the radiant temperature sensor (1) takes the mean value of the air temperature and the mean radiant temperature. This value is transmitted to the control panel (2). As soon as the set temperature is exceeded or falls below, the control panel reports this to the thermal actuator (3). This then closes or opens the water throughput.

A separate control panel is required for each zone. A maximum of 5 actuators can be connected to these components. For more than 5 actuators, a connection box for simultaneous control of a maximum of 10 zones and up to 18 actuators must be used.

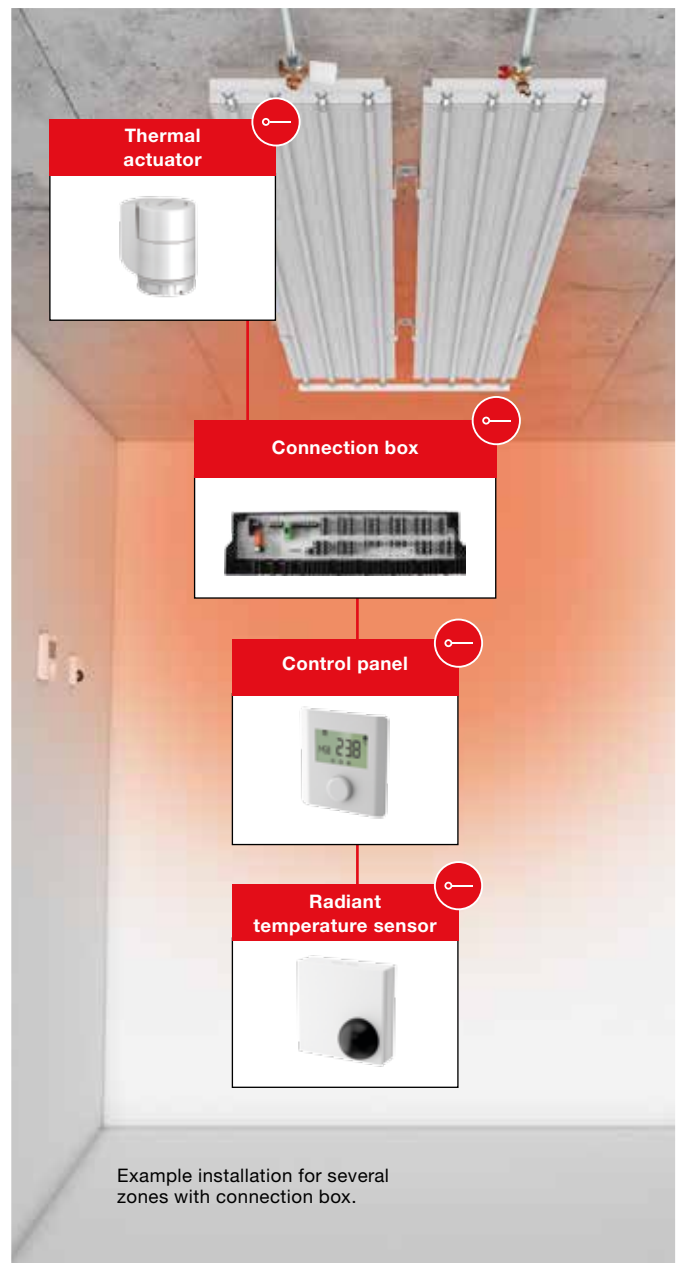
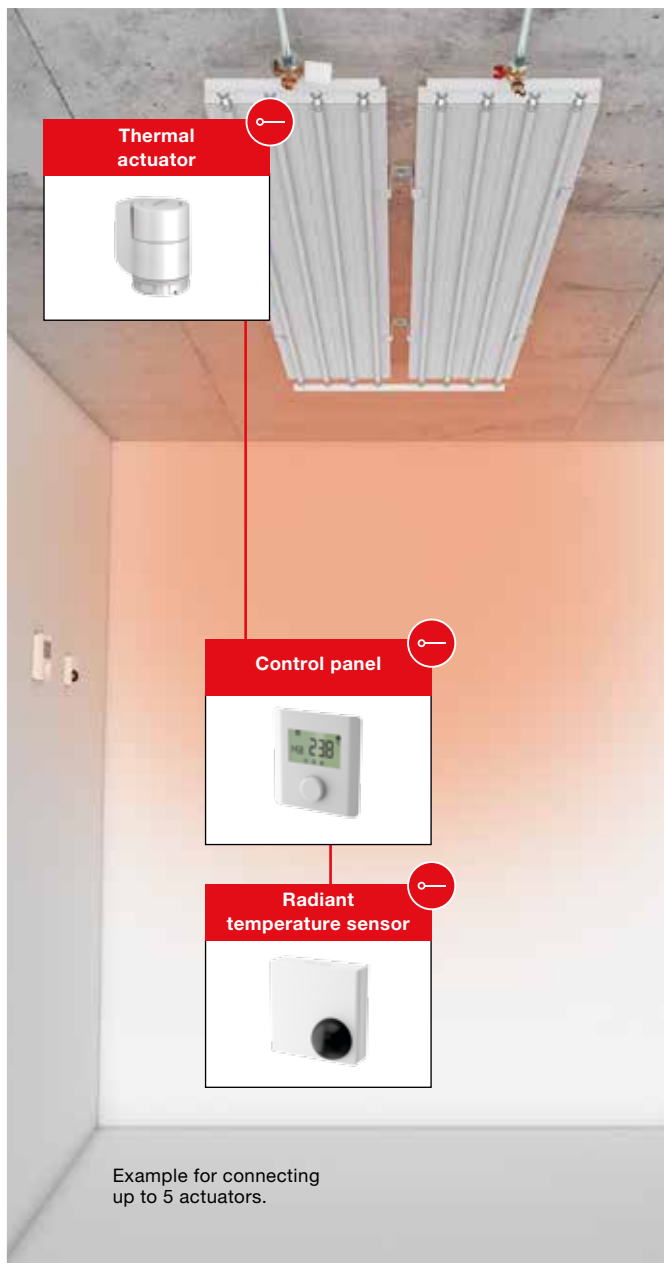
If Zehnder radiant ceiling panels are also used for room cooling, a dew point sensor must be installed in advance (see page 5). If condensation occurs, the contact to the thermal actuator is broken and the actuators close (NC). When cooling, one dew point sensor and one connection box are required for each room.

The control system technology from Zehnder is not compatible with building technology or bus systems.

Comfortable indoor climate for every situation

The control technology from Zehnder can either be used just for heating or for heating and cooling. When heating, it is possible to control up to 10 zones.

Heating



Connection box

A connection box is used to distribute the power supply. This enables you to control a maximum of 10 zones and 18 actuators.

A different temperature can be set in each zone.

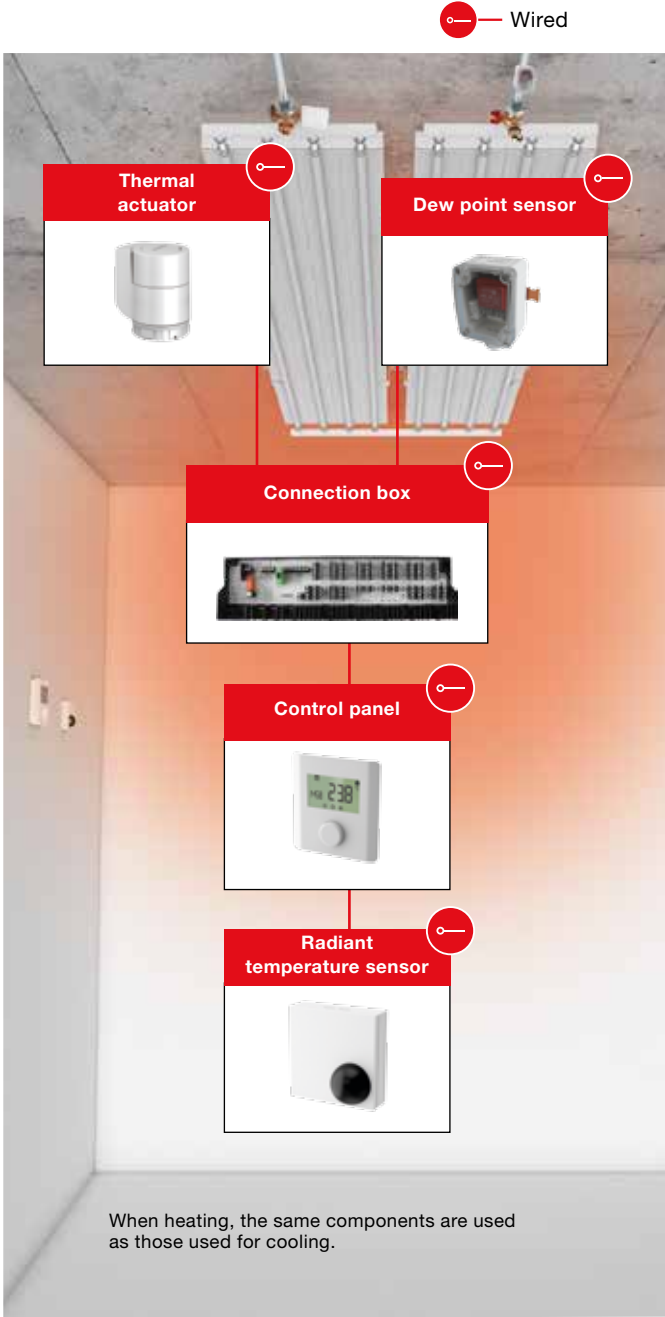
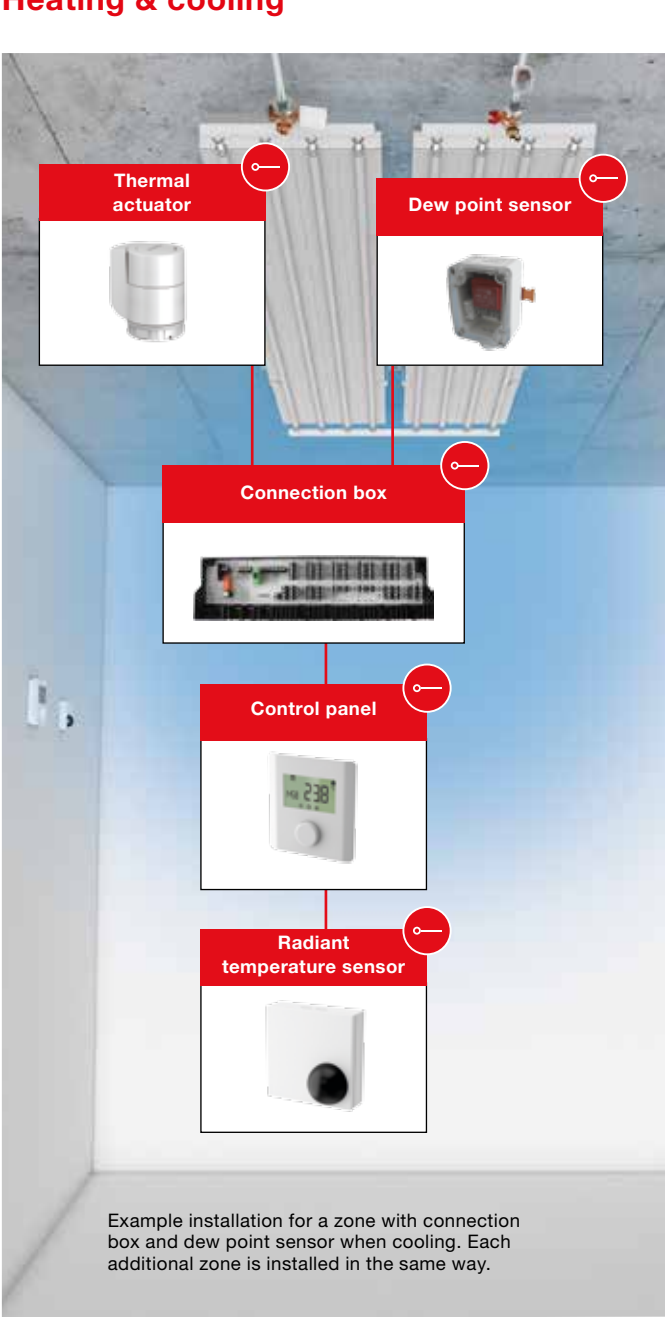
Dew point sensor

When cooling, a dew point sensor is also used for regulation, which provides effective protection from damage caused by moisture. It must be noted here that only one dew point sensor can be connected to a connection box.

Protective cover

To avoid damage to the control panel and radiant temperature sensor, a protective cover can also be used, for instance in sports halls.

Heating & cooling



Tender specification

Control panel with display (article no. 513030)

230 V (shielding on site), heating/cooling

Clear LCD display with background lighting.
Simple wiring. Modern design with ergonomic set point knob. Limitation of the adjustment range of the set point temperature. Automatic frost protection function 5 °C. Time programme and pilot timer output. Optimised time programme for comfort profile and energy saving. Eco-input for raising/lowering the room temperature.
Input for switching between heating and cooling. Input for external temperature sensor.
Cooling block function, valve protection function and switching NC and NO.

Power supply:	230 V, $\pm 10\%$
Number of thermal actuators:	maximum 5 pieces
Adjustment range:	5 – 30 °C
Switching differential:	± 0.2 K
Reduction:	2 K, adjustable
Measuring element:	NTC 22 k Ω
Switching element:	Relay, 1 A switching capacity
Pilot timer output:	100 mA
Connecting terminals:	Screw terminals 0.22 – 1.5 mm ²
Degree of protection:	IP 20 (EN 60529)
Protection class:	II (EN 60730)

Thermal actuator (article no. 501020)

230 V, NC, 1 m, 125 N

For standard unit valves. With automatic closed component adjustment and large 360° position indicator. Powerless installation on the valve.

Modular plug connection for electrical connection. Silent and maintenance-free. Overhead installation also possible.

Effect no current:	NC (closed)
Power supply:	230 V
Thrust power:	125 N
Maximum stroke:	4.5 mm
Running time:	3.5 min
Power consumption in operation:	2 W
Start-up current:	250 mA
Bayonet nut:	M 30 x 1.5
Connection cable 2-wire length:	1.0 m
Permissible surrounding temperature:	0 – 50 °C
Degree of protection:	IP 54
Plastic box colour:	White

Dew point sensor (article no. 513060)

230 V

Protection against condensation on cooling ceilings.
Measurement with a dew point sensor. Potential-free output contact for 24 and 230 V. LED display for power supply and condensation. Tube assembly with enclosed cable ties for tube $d = 10 - 100$ mm.

Power supply:	230 V $\pm 10\%$
Power consumption:	maximum 3.5 W
Switch contact:	5 A, 230 V
Nominal value:	95 $\pm$ 4% relative humidity
Permissible surrounding temperature:	-20 – 60 °C (non-condensing)
Connecting terminals:	maximum 1.5 mm ²
Cable inlet:	M 20
Housing colour:	White
Degree of protection:	IP 65

Radiant temperature sensor (article no. 513040)

NTC 22 kΩ

Recording the radiant heat and air temperature for radiant ceiling panels. Averaging of 2 sensor values in hemisphere and in the housing.

Measuring range:	-35 °C to + 70 °C
NTC sensor:	22 kΩ (25 °C)
Tolerance:	±1% at 25 °C
Colour:	white/black
Degree of protection:	IP 30

Protective cover (article no. 513320)

174 x 110 mm (L x W)

To avoid damage to the control panel and radiant temperature sensor, a protective cover can also be used, for instance in sports halls.

Connection box (article no. 513050)

Heating/cooling, 10 channels, 230 V

To distribute the power supply, the control inputs and a common time programme for indoor units (analogue or with display) and thermal actuators. To easily wire up to 10 zones of a heated front face/cooling system. Pump logic for controlling the circulation pump.

Power supply:	230 V
Circuits/zones:	10
Time channels/lowering:	2
Permissible surrounding temperature:	0 – 50 °C
Permissible ambient humidity:	< 80% relative humidity
Number of thermal actuators:	maximum 18 pieces
Pump outlet:	maximum 6 A
Lowering inlet:	Potential-free
Switching between heating/cooling:	Potential-free
Temperature limiter inlet and dew point sensor:	Potential-free
Connecting terminals:	0.2 – 1.5 mm ²
Housing colour:	black
Lid colour:	grey transparent
Degree of protection:	IP 20

Wall mounting or profile channel.

Tension relief integrated in housing.

For technical support on radiant heating and
cooling solutions call us on **+44 1276 408 400.**

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