SDCHENXUAN

Energy saving integrated control system for heating

山东辰轩阀门制造有限公司

ShanDong ChenXuan Valve Manufacturing CO., Ltd

Heating energy-saving products --climate compensation control equipment

The working principle

When the outdoor's temperature is changing, the climate compensation equipment will regulate the opening of the first heating source, to let the supplying temperature of the user automatically change as following the changing of the outdoor's temperature , balancing the supplying heat with the expending heat, avoiding to waste heat on account of the overtopping water temperature of the supplying. In order to make the room' temperature comfortable and steady.

Product character

1.A 7-inches panel with touching screen, displaying the charts and words;

2.Supporting the switchover in manual and automatic, supporting the operational set function.

3.Having 4 independent curves setting function, satisfying the different heating request in different time.

4.Modularization set, supplying the electric valve or the ABB independent operation and Synchronous operation in the case of many divisional users.

5.Supporting kinds of operational schemas, computer association operation or independent operation, increasing the system's steady and flexible.

6.Supporting kinds of data communication types, TCP/IP internet, RS232/RS485,GPRS etc;

7.Supporting the heat and the flow’s collection, the heat and the flow’s displaying and remote transmitting.

8. Keeping the history data in the panel.

Technology precision

1.Cabinet volume: 500mm*400mm*200mm;

2.Working environment:0~40 ℃,low humidity, low distracting.

3.External supplying source: AC220V.

4.IO: analog quantity 4 input 2 outlet, allowing expand.

5.Agreement:MODBUS/Mitsubishi programmable/TCPIP;

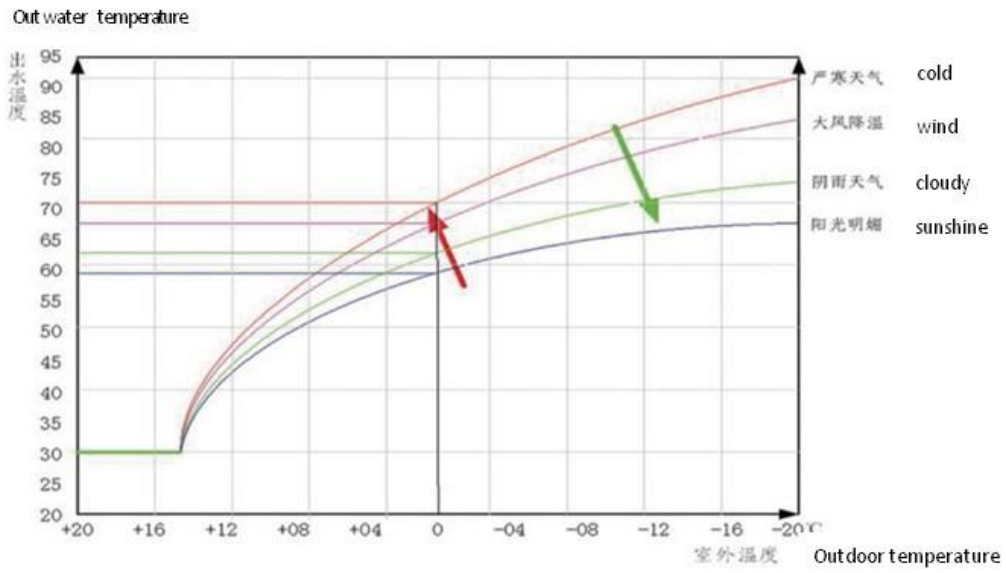
6.Control precision: 0.5%;

7.Communication mode: 485/232, Allowing expand.

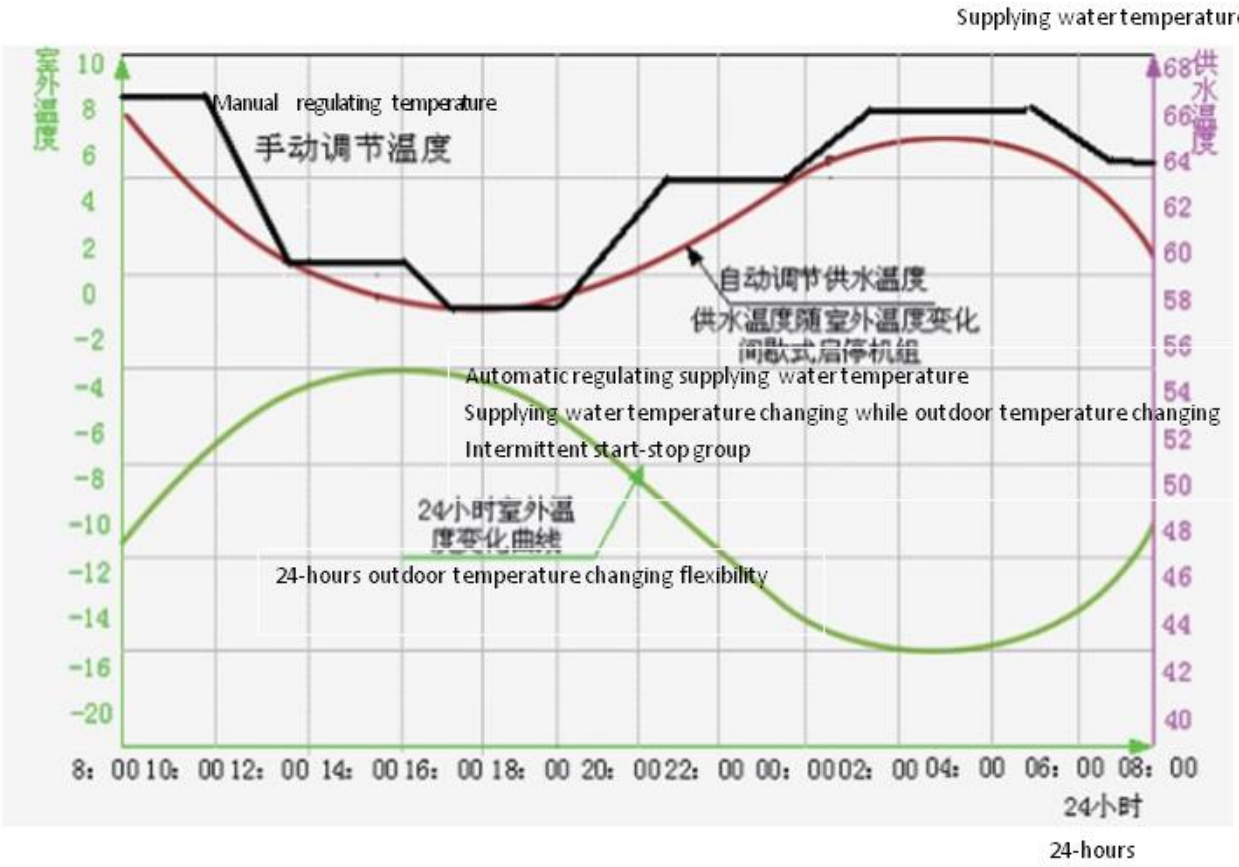
Heating energy-saving products --climate compensation control equipment

Introduce

Climate compensation regulating curve chart: the heating regulating curve is a group of changing lines which responding the relation between the supplying water temperature and the outdoor temperature, according to the building' keeping warm、the terminal heating collection、 the type of the system pipeline. Because of every year' climate independent character, we need to modify the curve to make the curve correctly respond the changing of the climate.



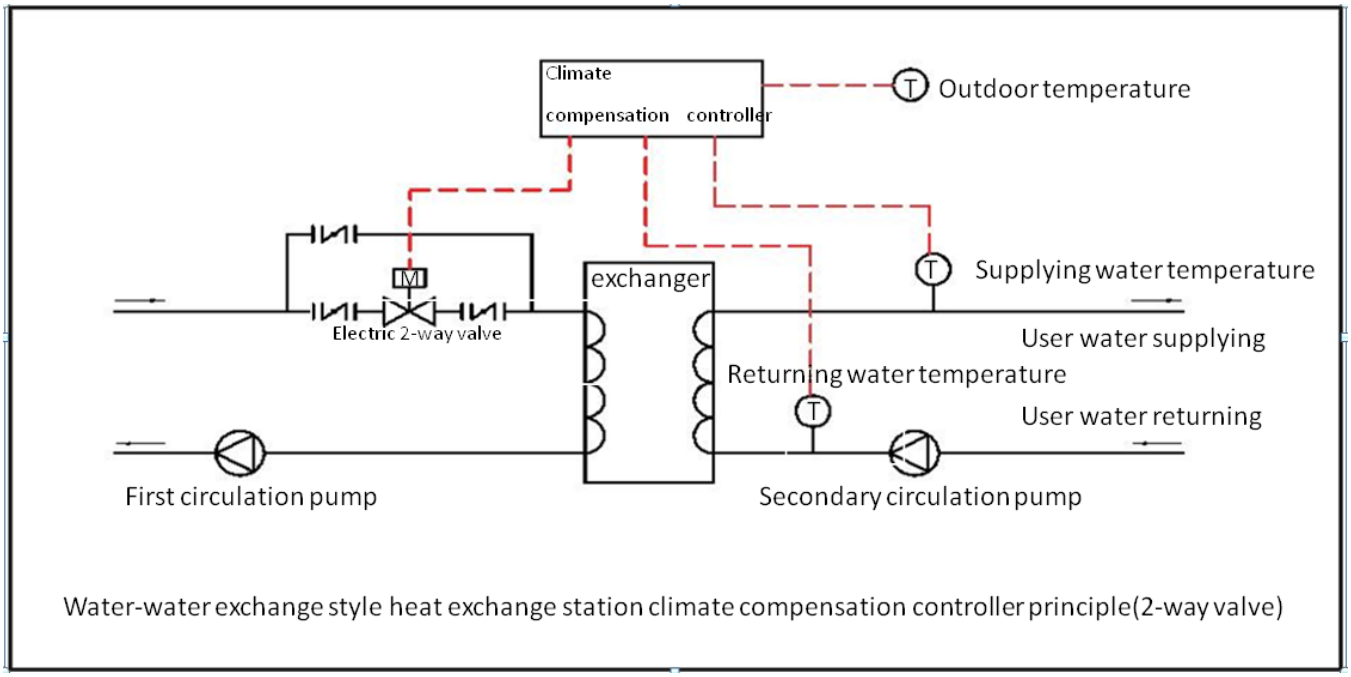
In above chart, four single curve is the supplying heat environment responding to different climate.



In above chart the black broken line is operating line of the outputting water temperature when operating the climate compensation by the manual regulating. The red line is the operating line of the outputting water temperature when the controller get the climate compensation done by itself. the green line is the 24 hours changing trend of the outdoor's temperature.

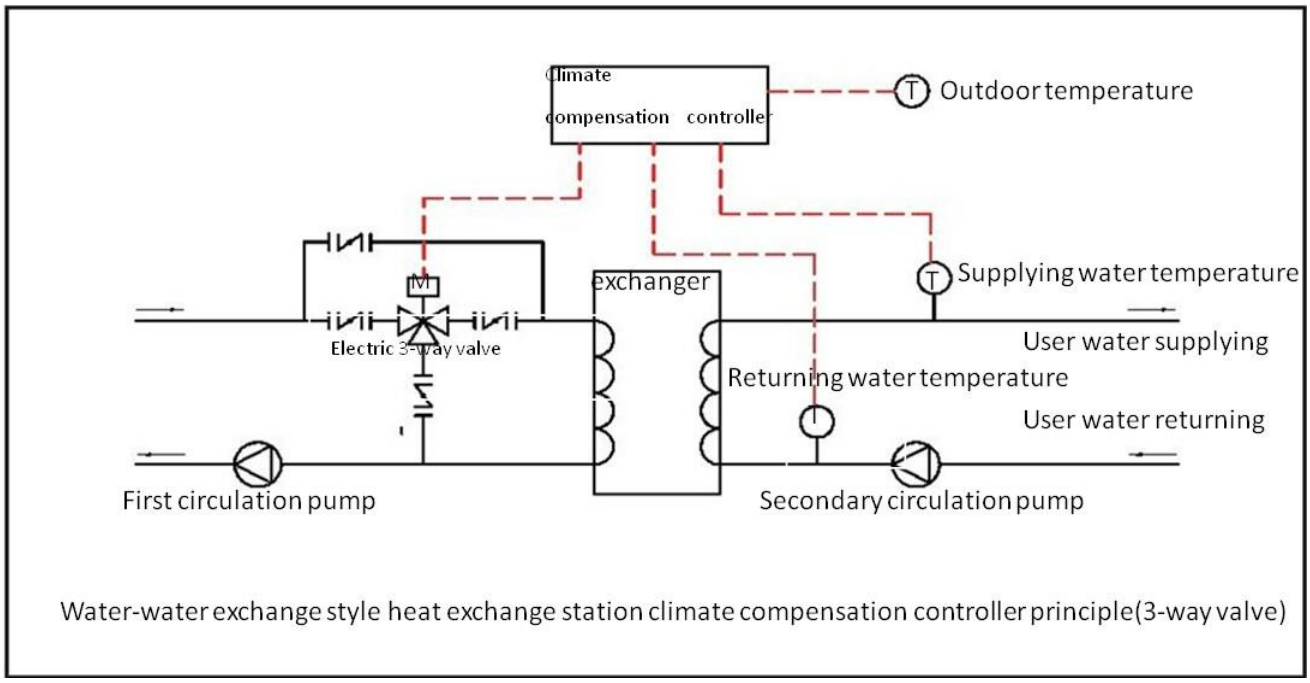
The area which is encircled by the black broken line and the green curve is the using energy before the improvement. The area which is encircled by the red curve line and the green curve line is the using energy after the improvement, the area which is encircled by the red line and the black line is the climate compensation controller' saving-energy.

System principle chart



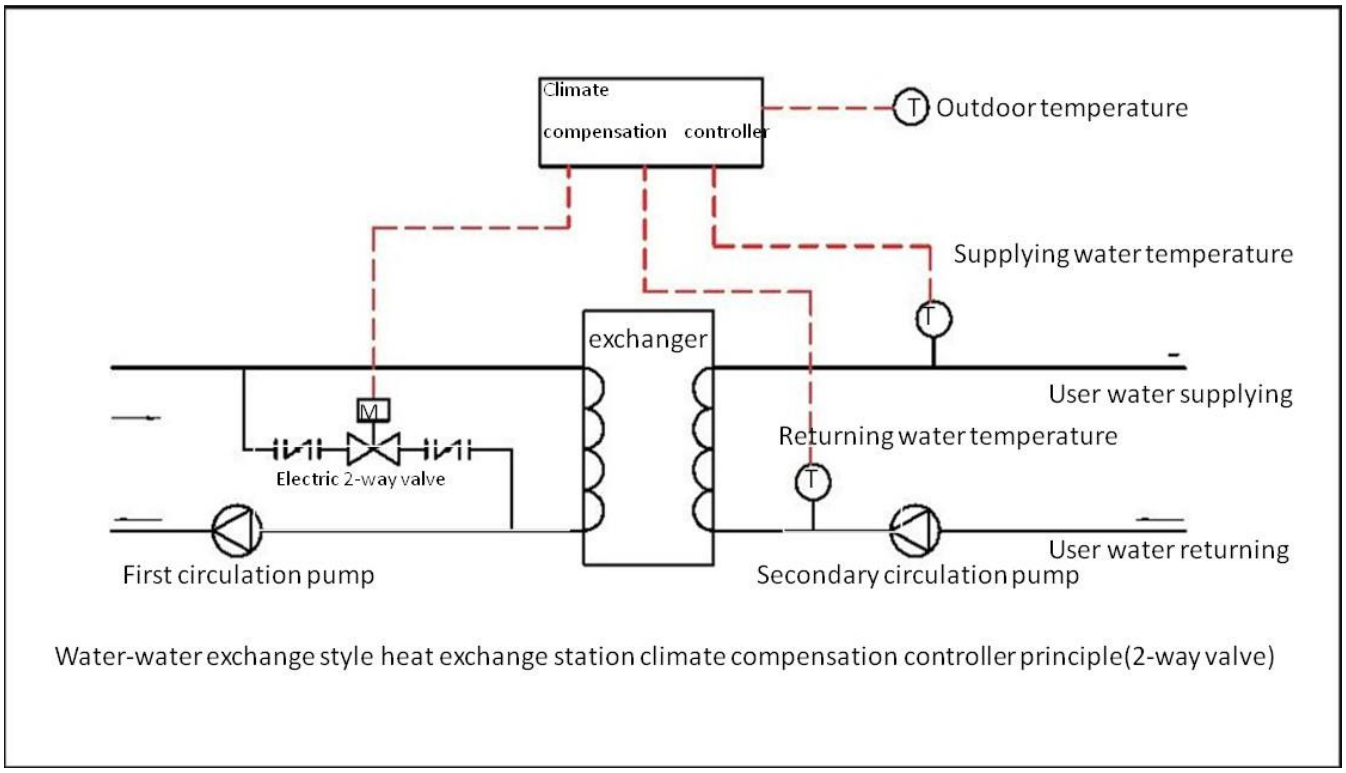
Water-water exchange style heat exchange station climate compensation controller principle(2-way valve)

In the installation method on the above, the adjustment of the electric valve will cause a large fluctuation of the water flow at one time, which is suitable for the non-self-heating station, that is, the fluctuation of the flow can be automatically adjusted by the heat source of the heat company.



Water-water exchange style heat exchange station climate compensation controller principle(3-way valve)

The above chart of the installation method, the adjustment of the electric valve won't cause the fluctuation of the water flow at one time, which is suitable for the heating company and the user' self-heating station.



Water-water exchange style heat exchange station climate compensation controller principle(2-way valve)

The above chart of the installation method is applied for limited place of remolding, the adjustment strength of the electric valve is smaller than the first two, The remote exchanger station can choose this installation.

The outdoor temperature collection should keep off the site which may cause big fluctuation, such as the wind-gap, sun insolating , the better installation way is to mount it in a climate box.

Heating energy-saving product --- the dividing-time and dividing-temperature controller

Working principle

In a heating system, there are residential buildings with accommodation as the main function, public buildings with office or commercial functions as the main functions, or special functions such as gymnasiums, gyms and other buildings. For these buildings in the heating area, the demand for heating is not consistent. The residential building needs 24-hour constant temperature or fine-tuning temperature change: the office building needs daytime heating, and the nighttime insulation is anti-freezing: the meeting room needs to reserve heat. The reality is that buildings with different uses are synchronized for 24 hours, causing enormous energy waste. The dividing-time and dividing-temperature controller can control the indoor temperature or the return water temperature of a building in a time-phase manner, so that the indoor temperature (return water temperature) of the building is maintained at the set temperature of the time period.

Product characters

1. With 7-inch human-machine dialogue touch screen, graphic simulation shows:

2. Support manual automatic switching function and running setting function:

3. Has four 24-hour time period, four date segments, and Saturday and Sunday

temperature setting mode;

4. It has two working modes: return water temperature control and indoor temperature control:

5. With anti-freeze insulation operation function;

6. Support multiple operating modes: online operation or independent operation, which increases the stability and flexibility of the system;

7. Support a variety of data communication methods: TCP / IP network, RS232 / RS485, GPRS, etc.;

8. Support the collection of heat and flow, heat and flow on-site display and remote transmission;

9. With historical data in place to save the function.

Technical parameter

1. Cabinet: 500mm*400mm*200mm;

2. Working environment: 0~40 °C, low humidity, low interference;

3. External power supply: AC220V;

4. IO: Analog 4 in 2 out, scalable;

5. Protocol: MODBUS / Mitsubishi programming port

/ TCPIP:

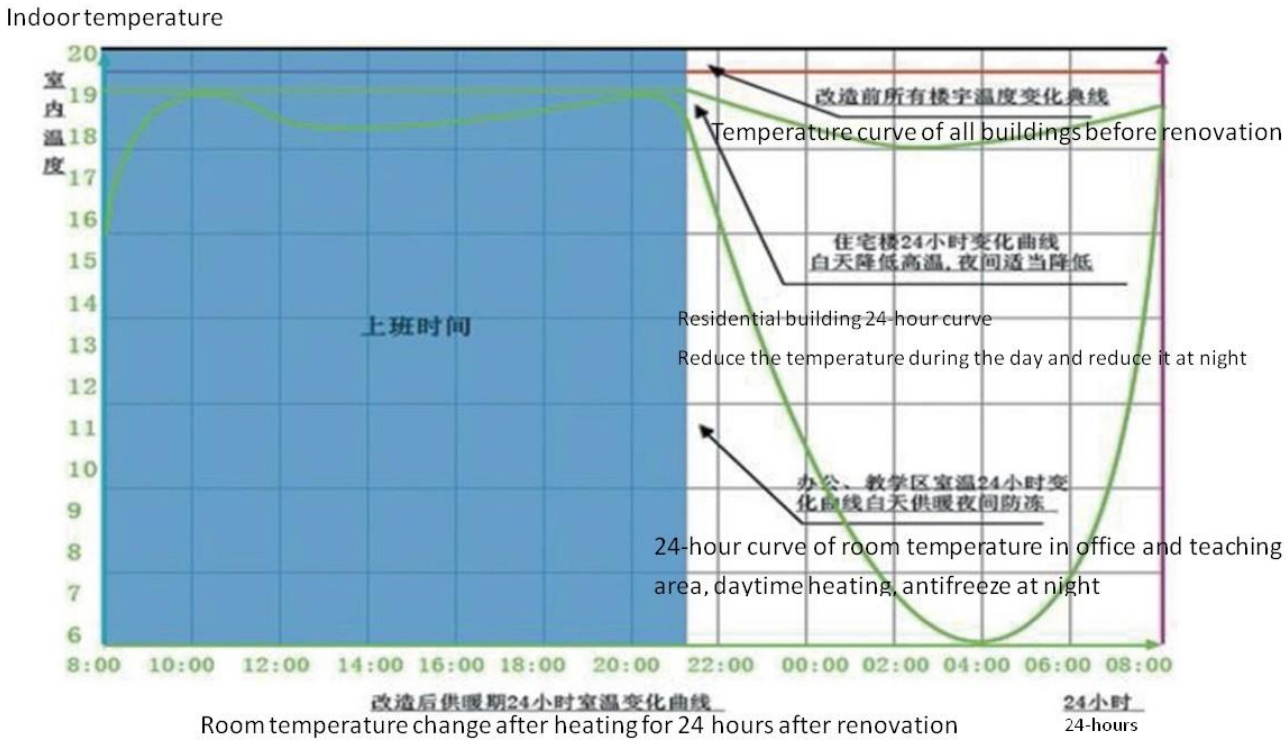
6. Control accuracy: 0.5%;

7. Communication method: 485/232, expandable.

Heating energy-saving product --- the dividing-time and dividing-temperature controller

Energy-saving analyze

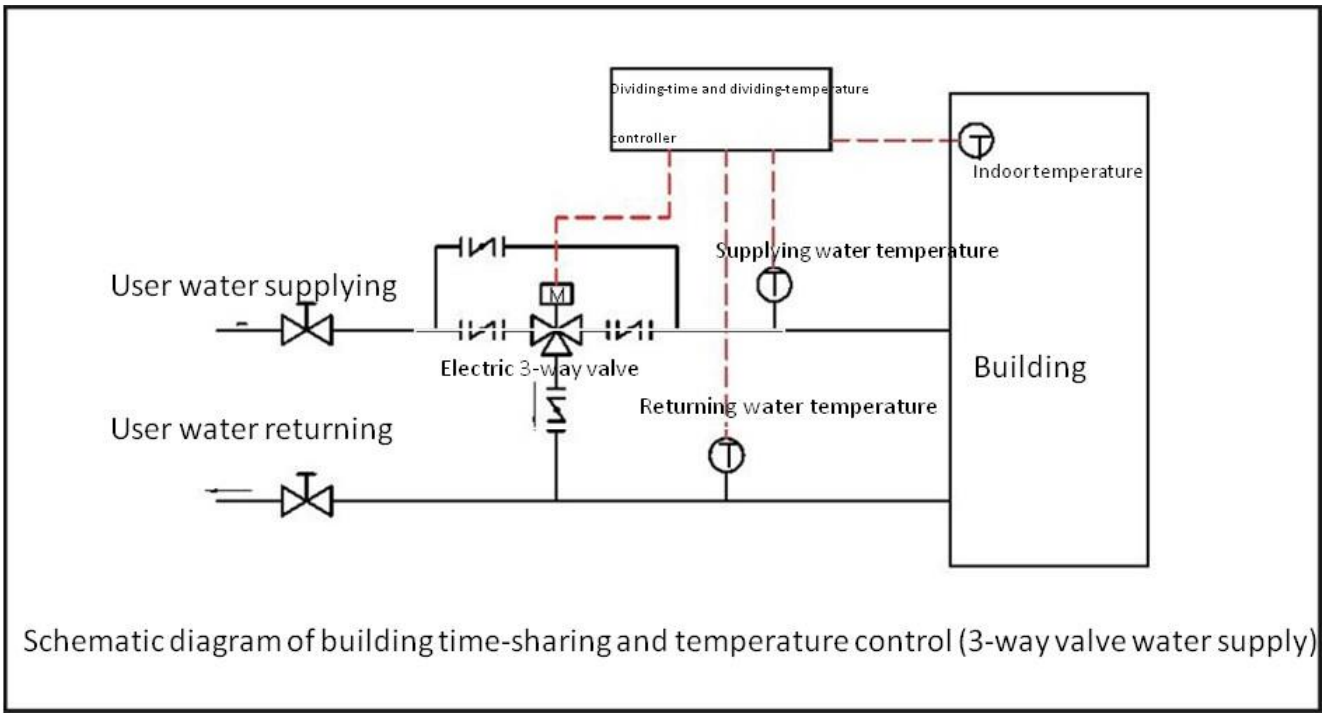
In a heating system, buildings with multiple heating characteristics coexist, and before the energy-saving renovation, the heating steps of each building are consistent. After the dividing-time and dividing-temperature controller transformation, the residential area can be fine-tuned in the daytime to increase the temperature. At night, the temperature can be fine-tuned to increase the user's comfort: the office area can be heated at a constant temperature during the day, and can be cold-proof at night to reduce energy consumption: special areas can be reserved for Heat, it is easy to use, and it is more economical to use heat.



In the above figure, the red line is the uniform indoor temperature of all buildings before the renovation, which is basically smooth; the green shallow concave curve is the indoor temperature change of the residential area after the renovation: the green deep concave curve is the indoor temperature of the office building after the renovation Variety. The area of the concave portion shown in the figure is the energy saving after the dividing-time and dividing-temperature renovation.

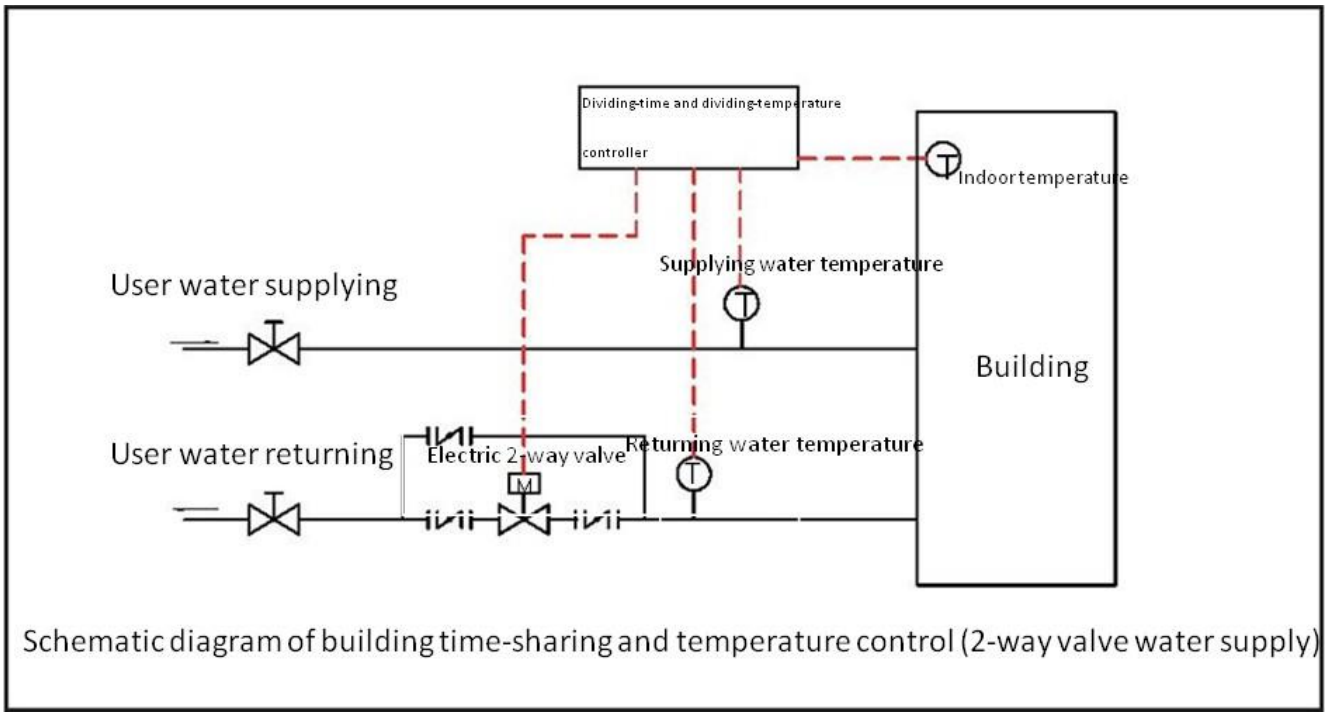
In addition, for the heating system with unbalanced heating near and far, the time-division and temperature-dividing control can reduce the water flow at the proximal end, keep the room temperature at the set value, and distribute the throttling flow to the most unfavorable circulation area at the far end, so that the distal end The increase in indoor temperature reduces the influence of the original pipe network water imbalance on the indoor temperature.

System principle



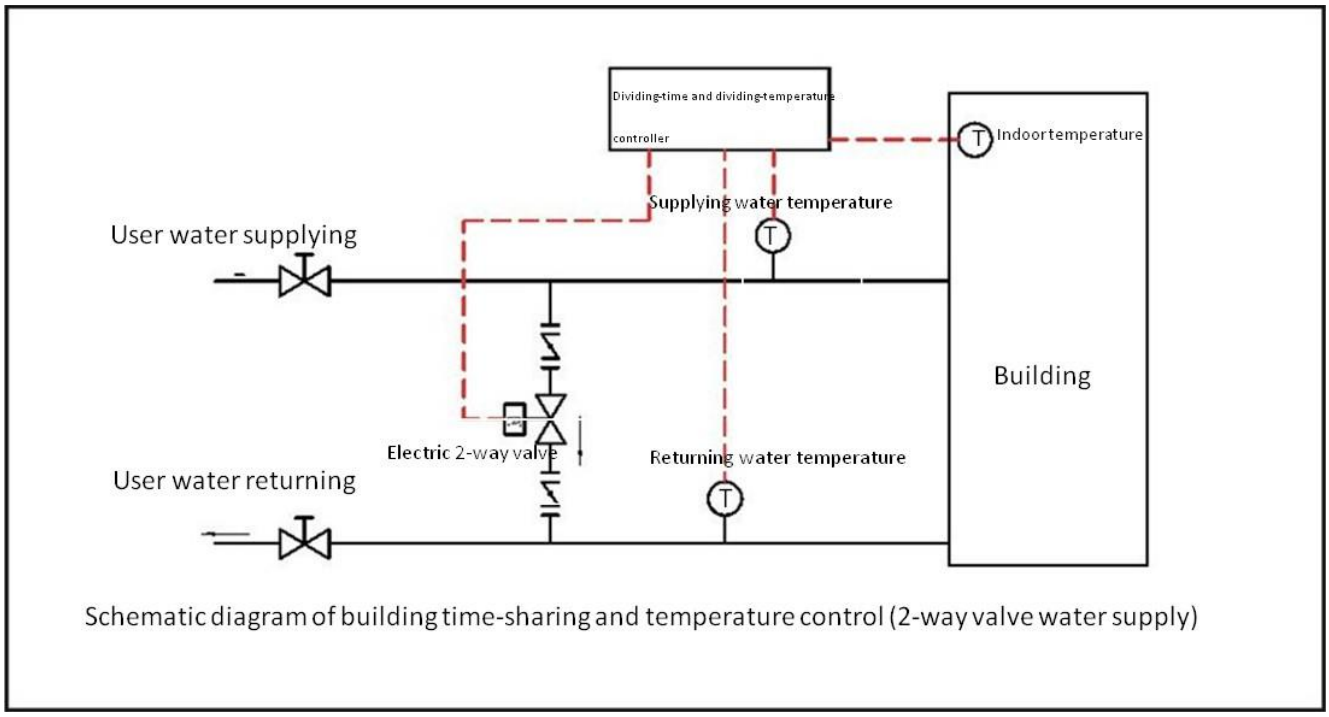
Schematic diagram of building time-sharing and temperature control (3-way valve water supply)

The installation method on the above is suitable for near-end buildings. The pressure of the near-end building is high, and the three-way split can be properly relieved.



Schematic diagram of building time-sharing and temperature control (2-way valve water supply)

The installation method on the above is suitable for normal occasions.



Schematic diagram of building time-sharing and temperature control (2-way valve water supply)

The installation method on the above is suitable for changing the space-constrained occasion. The adjustment force of the electric control valve is smaller than the first two, and the installation method can be adopted by the remote building.

The indoor temperature collector should be installed in a typical area of a typical room to represent the indoor temperature level of the heating area, otherwise it is better to control the return water temperature.

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