CLAIMS

1. An air-conditioning device, comprising:

air-conditioning means for air-conditioning a target space, the air-conditioning means including

a compressor to compress a refrigerant and circulate the refrigerant through a refrigerant pipe,

a heat exchanger to cause heat exchange between air in the target space and the refrigerant circulating through the refrigerant pipe, and a blower to feed air in the target space to the heat exchanger;

acquiring means for acquiring a temperature and a humidity in the target space; and

air-conditioning control means for switching an operation mode, in accordance with the temperature and the humidity acquired by the acquiring means, between a cooling mode in which the air-conditioning means cools the target space, a dehumidification mode in which the air-conditioning means dehumidifies the target space, and an air-blowing mode in which the compressor is stopped without the blower stopping air blowing,

wherein

in a case in which a humidity difference between the humidity acquired by the acquiring means and a set humidity in the target space is greater than a first humidity threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when a temperature difference between the temperature acquired by the acquiring means and a set temperature in the target space decreases below a first temperature threshold during air-conditioning of the target space performed by the air-conditioning means in the cooling mode,

in a case in which the humidity difference is smaller than a second humidity threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the temperature difference decreases below a fourth temperature threshold during air-conditioning of the target space performed by the

air-conditioning means in the cooling mode,

in a case in which the temperature difference is smaller than the first temperature threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when the humidity difference exceeds the first humidity threshold during air-conditioning of the target space performed by the air-conditioning means in the air-blowing mode,

in a case in which the temperature difference is smaller than the fourth temperature threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the humidity difference decreases below the second humidity threshold during air-conditioning of the target space performed by the air-conditioning means in the dehumidification mode,

the first humidity threshold is greater than the second humidity threshold, and

the first temperature threshold is greater than the fourth temperature threshold.

2. The air-conditioning device according to claim 1, wherein

in the case in which the humidity difference is greater than the first humidity threshold, the air-conditioning control means switches the operation mode to a second dehumidification mode in which a sensible heat capacity is smaller than in the dehumidification mode when the temperature difference decreases below a second temperature threshold that is smaller than the first temperature threshold during air-conditioning of the target space performed by the air-conditioning means in the dehumidification mode.

3. The air-conditioning device according to claim 2, wherein

in the case in which the humidity difference is greater than the first humidity threshold, the air-conditioning control means stops the compressor when the temperature difference decreases below a third temperature threshold that is smaller than the second temperature threshold during air-conditioning of the target space performed by the air-conditioning means in the second dehumidification mode.

4. The air-conditioning device according to any one of claims 1 to 3, wherein the acquiring means further acquires a temperature in an external space external to the target space, and

the air-conditioning control means switches the operation mode between the cooling mode and the dehumidification mode in accordance with the temperature difference and a sensible heat load of the target space defined by the temperature in the external space acquired by the acquiring means.

5. The air-conditioning device according to any one of claims 1 to 4, wherein the acquiring means further acquires a humidity in an external space external to the target space, and

the air-conditioning control means switches the operation mode between the dehumidification mode and the air-blowing mode in accordance with the humidity difference and a latent heat load of the target space defined by the humidity in the external space acquired by the acquiring means.

6. A control device for controlling an air-conditioning device to air-condition a target space, the air-conditioning device including a compressor to compress a refrigerant and circulate the refrigerant through a refrigerant pipe, a heat exchanger to cause heat exchange between air in the target space and the refrigerant circulating through the refrigerant pipe, and a blower to feed air in the target space to the heat exchanger, the control device comprising:

acquiring means for acquiring a temperature and a humidity in the target space; and

air-conditioning control means for switching an operation mode, in accordance with the temperature and the humidity acquired by the acquiring means, between a cooling mode in which the air-conditioning device cools the target space, a dehumidification mode in which the air-conditioning device dehumidifies the target space, and an air-blowing mode in which the compressor is stopped without the blower

stopping air blowing,

wherein

in a case in which a humidity difference between the humidity acquired by the acquiring means and a set humidity in the target space is greater than a first humidity threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when a temperature difference between the temperature acquired by the acquiring means and a set temperature in the target space decreases below a first temperature threshold during air-conditioning of the target space performed by the air-conditioning device in the cooling mode,

in a case in which the humidity difference is smaller than a second humidity threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the temperature difference decreases below a fourth temperature threshold during air-conditioning of the target space performed by the air-conditioning device in the cooling mode,

in a case in which the temperature difference is smaller than the first temperature threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when the humidity difference exceeds the first humidity threshold during air-conditioning of the target space performed by the air-conditioning device in the air-blowing mode,

in a case in which the temperature difference is smaller than the fourth temperature threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the humidity difference decreases below the second humidity threshold during air-conditioning of the target space performed by the air-conditioning device in the dehumidification mode,

the first humidity threshold is greater than the second humidity threshold, and

the first temperature threshold is greater than the fourth temperature threshold.

7. An air-conditioning method for air-conditioning a target space with a compressor to compress a refrigerant and circulate the refrigerant through a refrigerant

pipe, a heat exchanger to cause heat exchange between air in the target space and the refrigerant circulating through the refrigerant pipe, and a blower to feed air in the target space to the heat exchanger, the method comprising:

acquiring a temperature and a humidity in the target space;

switching an operation mode, in accordance with the acquired temperature and the acquired humidity, between a cooling mode for cooling the target space, a dehumidification mode for dehumidifying the target space, and an air-blowing mode for stopping the compressor without stopping air blowing of the blower;

in a case in which a humidity difference between the humidity and a set humidity in the target space is greater than a first humidity threshold, switching the operation mode to the dehumidification mode when a temperature difference between the temperature and a set temperature in the target space decreases below a first temperature threshold during air-conditioning of the target space in the cooling mode;

in a case in which the humidity difference is smaller than a second humidity threshold, switching the operation mode to the air-blowing mode when the temperature difference decreases below a fourth temperature threshold during air-conditioning of the target space in the cooling mode;

in a case in which the temperature difference is smaller than the first temperature threshold, switching the operation mode to the dehumidification mode when the humidity difference exceeds the first humidity threshold during air-conditioning of the target space in the air-blowing mode; and

in a case in which the temperature difference is smaller than the fourth temperature threshold, switching the operation mode to the air-blowing mode when the humidity difference decreases below the second humidity threshold during air-conditioning of the target space in the dehumidification mode,

wherein

the first humidity threshold is greater than the second humidity threshold, and

the first temperature threshold is greater than the fourth temperature threshold.

8. A program causing a computer to function as acquiring means and air-conditioning control means, the computer being to control an air-conditioning device to air-condition a target space, the air-conditioning device including a compressor to compress a refrigerant and circulate the refrigerant through a refrigerant pipe, a heat exchanger to cause heat exchange between air in the target space and the refrigerant circulating through the refrigerant pipe, and a blower to feed air in the target space to the heat exchanger, wherein

the acquiring means acquires a temperature and a humidity in the target space,

the air-conditioning control means switches an operation mode, in accordance with the temperature and the humidity acquired by the acquiring means, between a cooling mode in which the air-conditioning device cools the target space, a dehumidification mode in which the air-conditioning device dehumidifies the target space, and an air-blowing mode in which the compressor is stopped without the blower stopping air blowing,

in a case in which a humidity difference between the humidity acquired by the acquiring means and a set humidity in the target space is greater than a first humidity threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when a temperature difference between the temperature acquired by the acquiring means and a set temperature in the target space decreases below a first temperature threshold during air-conditioning of the target space performed by the air-conditioning device in the cooling mode,

in a case in which the humidity difference is smaller than a second humidity threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the temperature difference decreases below a fourth temperature threshold during air-conditioning of the target space performed by the air-conditioning device in the cooling mode,

in a case in which the temperature difference is smaller than the first temperature threshold, the air-conditioning control means switches the operation mode to the dehumidification mode when the humidity difference exceeds the first humidity

threshold during air-conditioning of the target space performed by the air-conditioning device in the air-blowing mode,

in a case in which the temperature difference is smaller than the fourth temperature threshold, the air-conditioning control means switches the operation mode to the air-blowing mode when the humidity difference decreases below the second humidity threshold during air-conditioning of the target space performed by the air-conditioning device in the dehumidification mode,

the first humidity threshold is greater than the second humidity threshold, and the first temperature threshold is greater than the fourth temperature threshold.