

## Room Thermostat

### Model TY6300Z5000

#### General

Model TY6300Z5000 is a 2 position (ON-OFF) thermostat for indoor use. It automatically turns on/off warm-air heating equipment, a hot water boiler, or a fan of a plastic greenhouse, glass house, a crops storage, a livestock crib, or the like for farm or horticultural applications.

Model TY6300Z can also be used as anti-freeze thermostat for ON/OFF operation of a circulating pump or a heater, or as high/low limit switch.

#### Features

- Quick response to temperature detection:  
High speed of response to temperature detection enables to save the cost for cooling and heating.
- Enclosed microswitch:  
Microswitch enclosure prevents dust from covering the microswitch contact.



#### Specifications

Item		Specification
Model number		TY6300Z5000
Temperature setting range		-10 °C to 60 °C
Temperature setting accuracy		± 2.5 °C (at an ambient temperature of 20 °C)
Differential		Approx. 1.7 °C (at an ambient temperature of 20 °C)
Environmental conditions	Operating conditions	-15 °C to 65 °C, 90 %RH or less (non condensing)
	Transport/storage conditions	-20 °C to 65 °C, 95 %RH or less (non condensing)
Color		Cover: Natural gray
Accessories		4 wood screws (φ4.1 mm nominal diameter × 16 mm long)
Weight		Approx. 670 g

#### Contact Rating

Load \ Voltage	24 V AC	120 V AC	240 V AC
Full load	2.0 A	7.4 A	3.7 A
Locked rotor	—	44.4 A	22.2 A
Resistance	—	10.0 A	5.0 A

#### Contact Operation (SPDT Contact)

On temperature rise:  
Contact between terminals R and B opens.  
Contact between terminals R and W closes.

On temperature drop:  
Contact between terminals R and B closes.  
Contact between terminals R and W opens.

## Safety Instructions

Please read instructions carefully and use the product as specified in this manual. Be sure to keep this manual near by for ready reference.

### Usage Restrictions

This product is targeted for general air conditioning. Do not use this product in a situation where human life may be affected. If this product is used in a clean room or a place where reliability or control accuracy is particularly required, please contact Yamatake's sales representative. Yamatake Corporation will not bear any responsibility for the results produced by the operators.

### WARNING



- DANGER: To prevent the risk of severe or fatal electrical shock, always disconnect power source from the product before performing any wiring.



- Make sure all the wires are tightly connected to the screw terminals. Fire or burn injury due to heat generation may result.



- Do not disassemble the product. Electrical shock or equipment damage may result.



- Disconnect power from the product before performing maintenance. Electrical shock may result.

### CAUTION



- Installation and wiring must be performed by qualified personnel in accordance with all applicable safety standards.



- Installation must be carried out according to the operating conditions (power, temperature, humidity, vibration, shock, installation position, atmospheric condition, etc) specified in this manual to prevent equipment damages.



- All wiring must comply with local codes of indoor wiring and electric installation rules.



- This product must be operated within its rated operating ranges. Failure to comply will cause equipment damages.



- Do not detach the terminal cover except when connecting or disconnecting wires. After connecting or disconnecting them, be sure to reattach the terminal cover. Make sure that the terminals and wires are not current-carrying when attaching or detaching the terminal cover.



- Dispose of this product as an industrial waste in accordance with your local regulations. Do not recycle all or part of this product.

### IMPORTANT:

- In addition to this manual, refer to specification and instruction manual of a device to be combined with the thermostat.
- In case a trouble occurs to the thermostat, ON or OFF electric output may be maintained. If the safety level of equipment including the device combined with the thermostat may be lowered due to this, redundant operation is required.
- For inspection and maintenance, follow the instructions (of procedure, handling, replacement time, etc.) as specified in this manual. Failure to comply will cause equipment damages.

**Dimensions**

**Model TY6300Z5000**

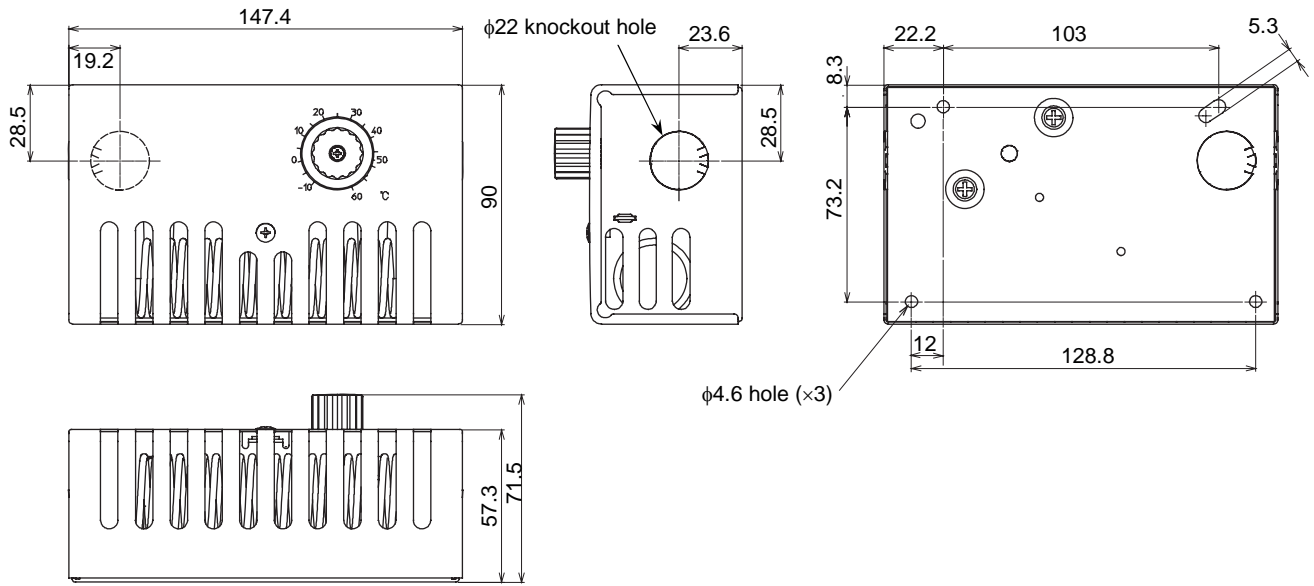


Figure 1. Dimensions of Model TY6300Z5000 (mm)

**Model TY6300Z5000 with the adaptor plate (Part No.83165180-001, requiring separate order) attached:**

**For replacement of Model T631A1121-1**

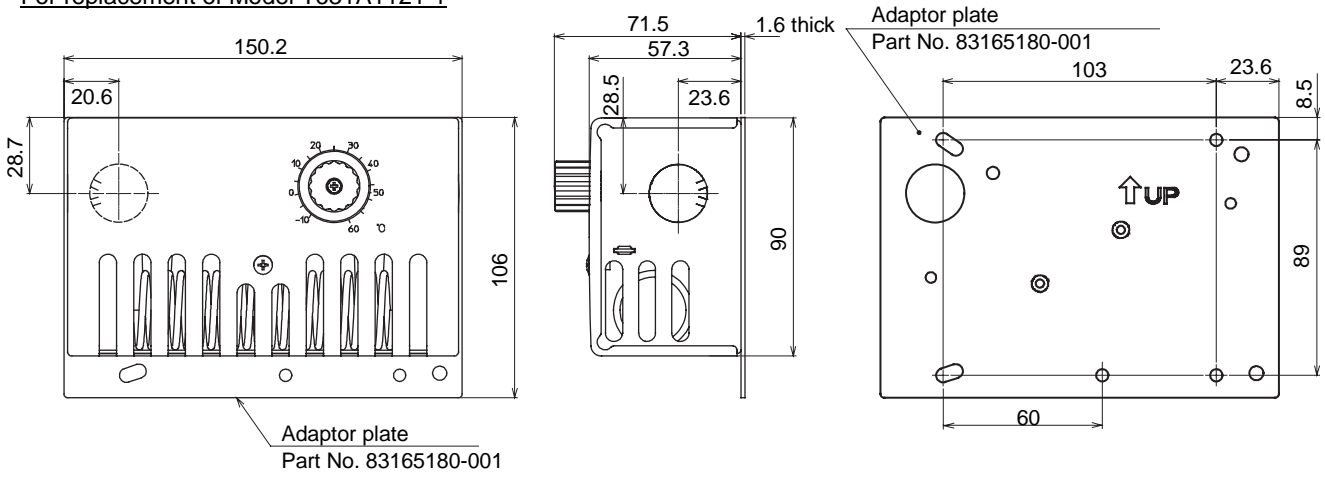


Figure 2. Mounting dimensions of Model TY6300Z5000 attached to the adaptor plate for replacing Model T631A1121-1 (mm)

**Model TY6300Z5000 with the adaptor plate (Part No. 83165180-001, requiring separate order) attached:**

**For replacement of Model T631C1038 / T631C1046**

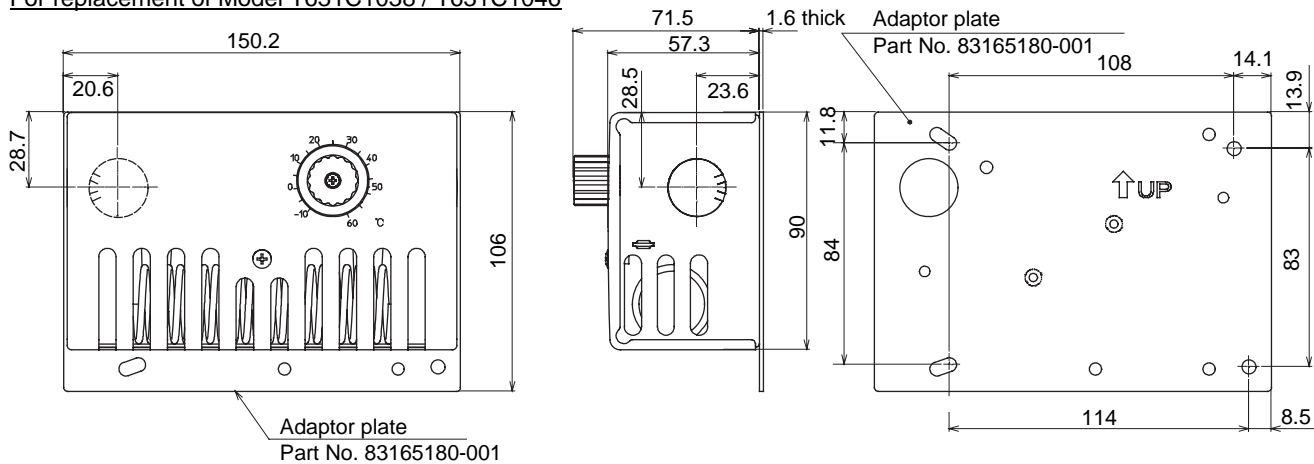


Figure 3. Mounting dimensions of Model TY6300Z5000 attached to the adaptor plate for replacing Model T631C1038 / T631C1046 (mm)

**Installation**

- IMPORTANT:**
- Do not install the product under the following conditions:
    - Atmosphere containing chemical specialties and corrosive gases (e.g., ammonia, sulfur, chlorine, ethylene compound, acid, etc.).
    - Location with high humidity or where water drops.
    - Location in high temperature or exposed to direct sunlight.
    - Location exposed to warm or cold air.
    - Location where air stagnates or in a draft.
    - Location with vibration.
  - In addition to this manual, refer to specification and instruction manual of a device to be combined with the thermostat.
  - To prevent malfunction, do not distort (twist, flatten, or the like) or break the temperature sensing element.

**Installing Model TY6300Z5000**

Install the thermostat in a location where air circulates and representative temperature is measured. Install it on a wall approx. 1.5 m high from the floor. (Note that the optimum level may vary depending on the environmental conditions.)

- 1) Loosen the cover mounting screw and remove the cover.
- 2) Cut out the knockout hole(s) if necessary to connect a wiring conduit. (Wiring conduit is commercially available.) Knockout hole is cut out by simply pushing it from the inside.
- 3) With the wood screws, mount and fix the case on a wall at an appropriate height. Be sure not to distort the temperature sensing element (coiled).
- 4) After wiring is completed, attach and fix the cover with the cover mounting screw. For wiring, see the section "Wiring."

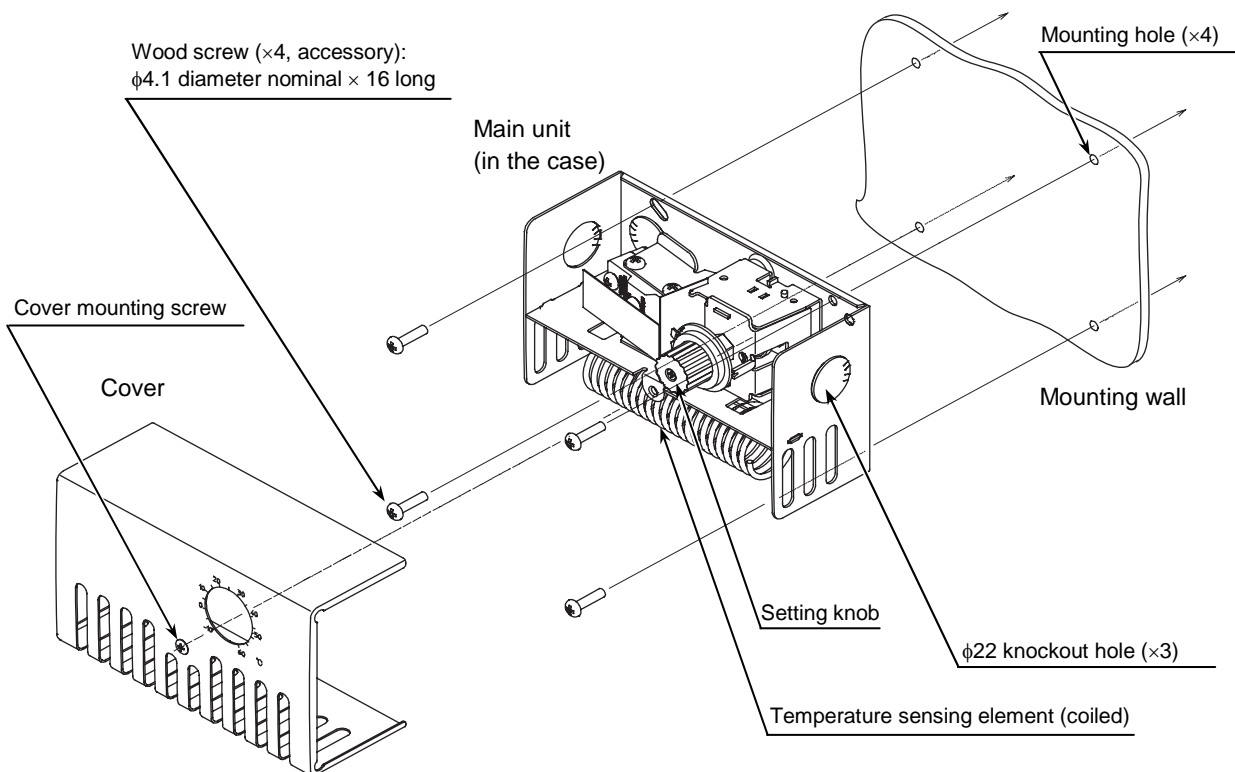


Figure 4. Installing TY6300Z5000 (with parts identification)

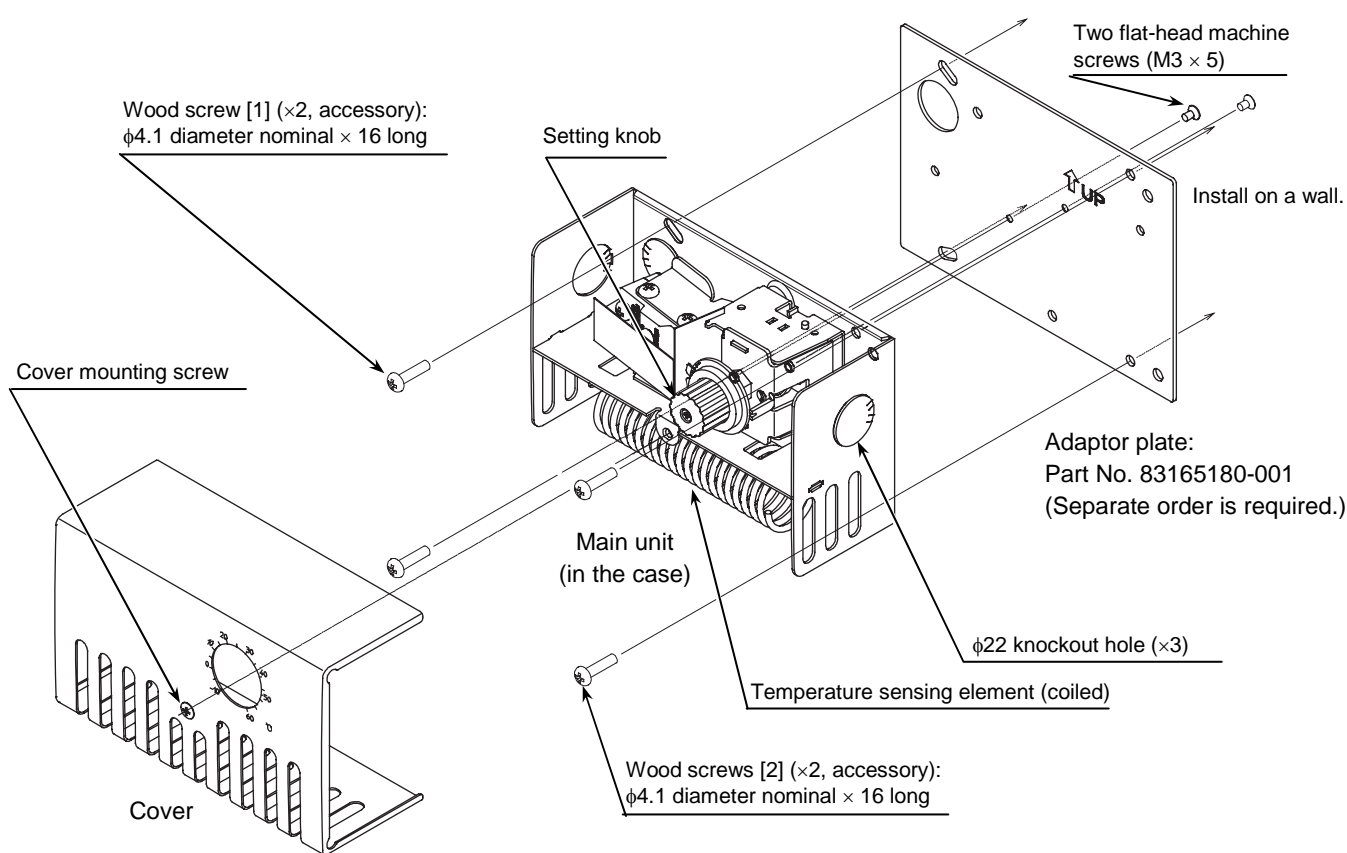
(Unit: mm)

### Replacing the currently installed thermostat (Model T631A1121-1 / T631C1038 / T631C1046) with Model TY6300Z5000

The former thermostat models (Model T631A1121-1, T631C1038, or T631C1046) is replaceable with Model TY6300Z5000. In this case, the adaptor plate (Part No. 83165180-001) is required. Be sure to separately order the adaptor plate for the replacement.

Fig. 5 shows how to install Model TY6300Z5000 for replacing Model T631A1121-1. To replace Model T631C1038 or T631C1046, follow the same procedure referring to Fig. 3. (Note that the mounting dimensions are different.)

- 1) Attach the main unit (in the case) to the adaptor plate with the two flat-head machine screws (M3 × 5) supplied with the adaptor plate.
- 2) Loosen the cover mounting screw and remove the cover.
- 3) Cut out the knockout hole(s) if necessary to connect a wiring conduit. (Wiring conduit is commercially available.) Knockout hole is easily cut out by pushing it from the inside.
- 4) With the two wood screws [1] as shown in Fig. 5, mount and fix the upper part of the main unit and the adaptor plate on a wall.
- 5) With the two wood screws [2] as shown in Fig. 5, fix the lower part of the adaptor plate on the wall.
- 6) After wiring is completed, attach and fix the cover with the cover mounting screw. For wiring, see the section "Wiring."



(Unit: mm)

Figure 5. Installing Model TY6300Z5000 for Model T631A1121-1 replacement (with parts identification)

**Wiring**

<b>⚠ WARNING</b>	
<b>⚡</b>	<ul style="list-style-type: none"> <li>• <b>DANGER:</b> To prevent the risk of severe or fatal electrical shock, always disconnect power from the product before performing any wiring.</li> </ul>

<b>⚠ CAUTION</b>	
<b>!</b>	<ul style="list-style-type: none"> <li>• All wiring must comply with local codes of indoor wiring and electric installation rules.</li> </ul>

<b>IMPORTANT:</b>	
<ul style="list-style-type: none"> <li>• To prevent malfunction, do not distort (twist, flatten, or the like) or break the temperature sensing element.</li> <li>• For wiring, connect the power line last. If you touch the terminals with the power applied, trouble or damage of the thermostat may result.</li> <li>• Load on the terminals connection should not exceed the contact ratings as specified.</li> <li>• An additional timer, auxiliary relay, or another device combined with the thermostat must ensure reliable operation. Correctly connect the additional device to the thermostat.</li> <li>• Power (voltage and frequency) supplied to the thermostat must be the same as the power supplied to the device connected to the thermostat.</li> <li>• Before supplying the power, make sure all the wires are correctly connected. Misconnection may cause damage and malfunction of the thermostat.</li> <li>• To prevent malfunction, do not distort (twist, flatten, or the like) or break the temperature sensing element.</li> </ul>	

**Wiring procedure**

- 1) For the wiring configuration, see specification and instruction manual of the device to be combined with the thermostat, and refer to the application examples shown in Figs. 6-11.
- 2) Make sure all the wires to be connected to the thermostat are insulated (with high insulation performance) and have appropriate current capacity, especially when the wires are used in a humid atmosphere (in a plastic greenhouse, glass house, etc.).
- 3) Before connecting wires, turn off the thermostat power supply.
- 4) Lead the wires into the inside of the thermostat through the conduit. Connect them to the microswitch terminals. Connect the other end of the wires to the device to be combined with the thermostat. Connected wires should be well-organized so that they don't block the traffic in the installed location.
- 5) Make sure all the wires are correctly connected, and attach the cover to the main unit in the case.
- 6) Turn on the thermostat power supply when operating the device.

**Application examples**

Ventilation fan control

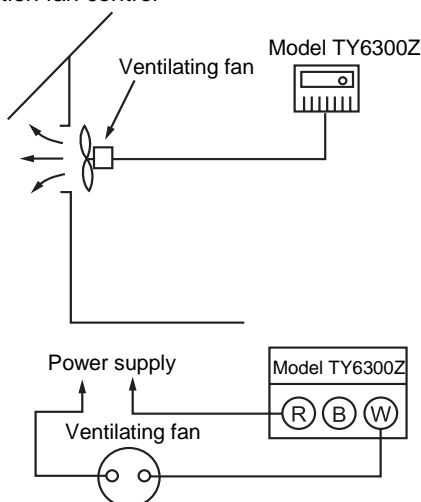


Figure 6. Ventilating fan control

Circulating pump control for hot-water boiler

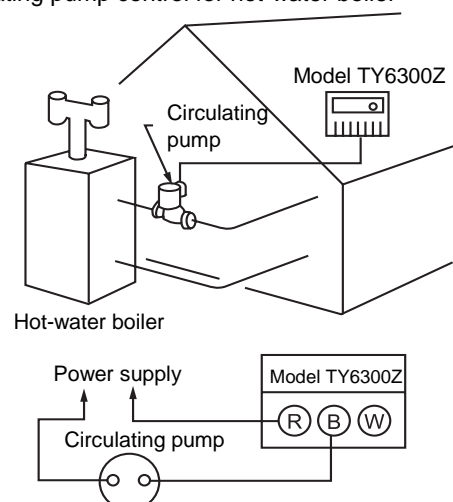


Figure 7. Circulating pump control

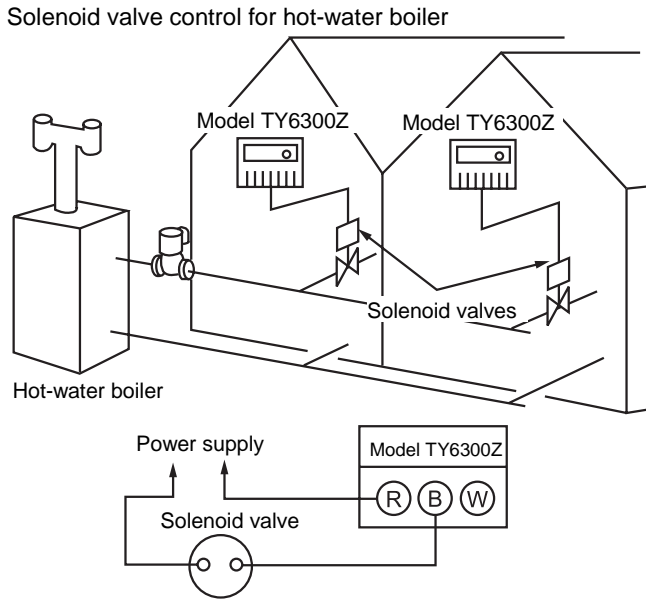


Figure 8. Solenoid valve control

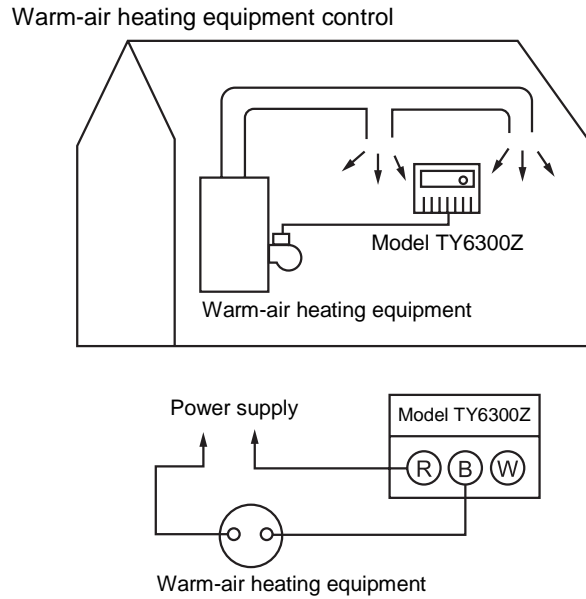


Figure 9. Warm-air heating equipment control

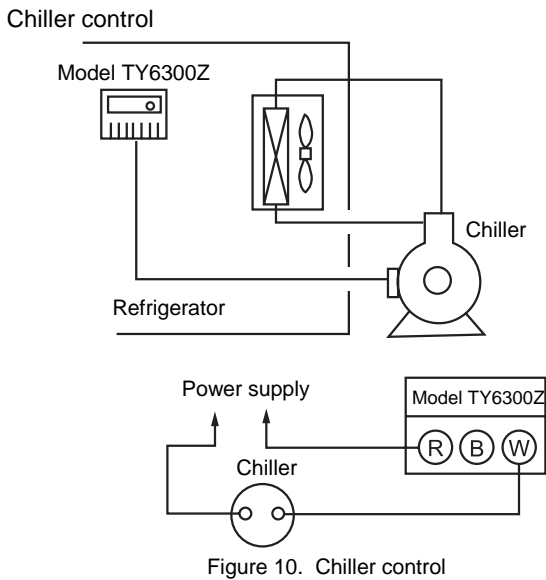


Figure 10. Chiller control

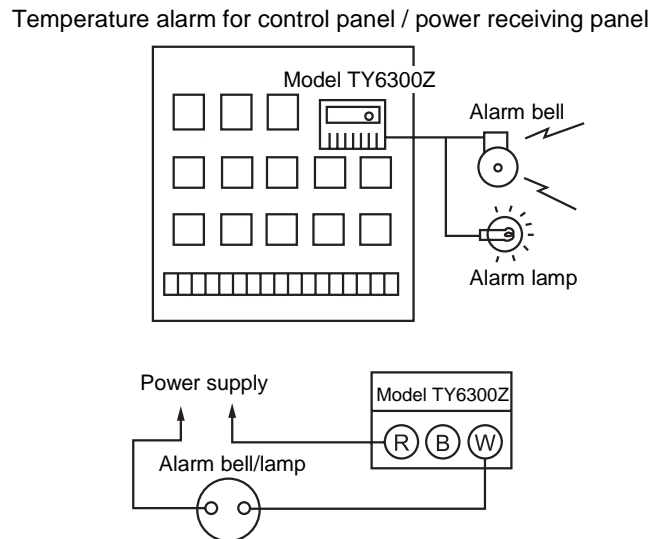


Figure 11. Temperature alarm for control panel / power receiving panel

### Temperature Setting

To set the temperature, turn the setting knob until the indicator points to your desired value (setpoint). Turn the setting knob clockwise for higher temperature, and counterclockwise for lower temperature.

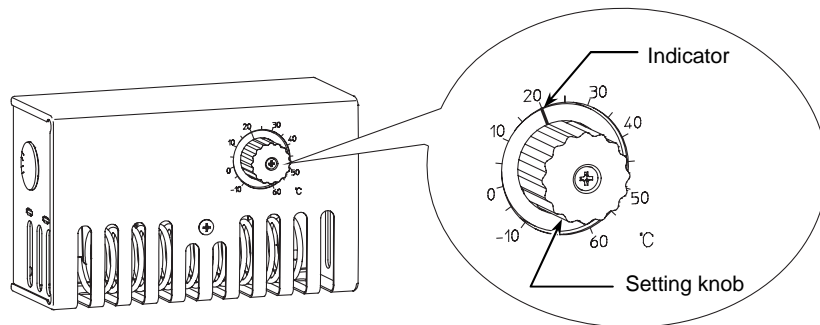


Figure 12. Temperature setting

### Microswitch Operation

When temperature rises and reaches the setpoint, the microswitch operates (contact opens between terminals R and B). Then, when temperature drops approx.

1.7 °C (differential) down from the setpoint, the microswitch operates (contact closes between terminals R and B). Contact between terminals R and W operates oppositely. Refer to Fig. 13.

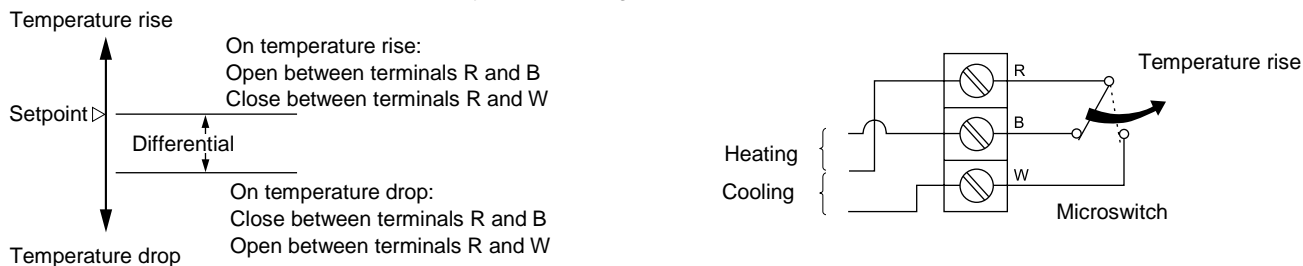


Figure 13. Microswitch operation

### Operation check

- 1) After connecting all the wires, supply the power and turn the setting knob to make sure the device in combination with the thermostat operates without any problem. Operate the device for at least one operation cycle of the microswitch.
- 2) After checking the operation, be sure to disconnect the power supply till the thermostat is operated next time.

### Inspection and Maintenance

**⚠ WARNING**



- To prevent the risk of severe or fatal electrical shock, always disconnect power from the thermostat before inspection and maintenance.

Inspection and maintenance described in the following must be performed as required. (The cycle of inspection and maintenance varies depending on the environmental conditions and frequency of use.)

If the thermostat is not in continuous use, inspection and maintenance right before each use is recommended.

- 1) Remove dust on the temperature sensing element with a soft cloth and toothbrush in order for the element to be exposed to air.  
Inspect that the element is not distorted or damaged.
- 2) In the same way, remove dust on the terminals of the microswitch, the surroundings, and the setting knob.
- 3) Check the insulation of all the wires.

**azbil**

*Specifications are subject to change without notice.*

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