General cautions

〈Storage procedure〉

1) Please avoid direct sunlight and keep it in a long-term keeping, within the range of the temperature of −10+70℃ and in relative humidity of 60% or less.

2) Please preserve the product in the place have no dust, dirt, toxic dose of chemicals in electric parts and gas.

About the use of the bimetal thermostat

Precautions in handling

Snapper type

a) A deformed heat sensitive surface may result in changed thermal responses or disturbance of operating temperature.
   (1) Avoid the deformity of the sensitive surface from dropping or hitting with tools.
   (2) Do not apply excessive force to a terminal, especially while connecting lead wires if the product has a small body and a large terminal.
   (Example) Employ a procedure starting from the "Lead wire connection"to"Thermostat installation" When a reverse procedure is employed, use jigs.

b) Pay attention to storage to ensure that no dust enters from a case joint part although the problem is not serious as in leaf products. If there is an inadvertent drop or shock, it is recommended that you re-check the operating temperature.

PRECAUTIONS

Please use thermostat at below to electrical rating and current rating.

1. Thermal response

When the thermal response is slow, it can be apparently improved by bringing a part of the heater close to the thermostat or by utilizing self-heating with an excited current. Basically, however it is required that you reduce heating resistance from the heat source to the heat sensitive surface of the thermostat mainly to improve the following properties:

(1) Decrease temperature ripple in the steady stats.
(2) Reduce overshooting during initial operation.
   (Larger overshooting may result in fuse disconnection even if the thermostat functions.)
(3) Faster responses during abnormalities.
(4) Decreased influence by changing atmospheric temperatures.
(5) Greater differences from excessive rise protective temperatures can be obtained to avoid wrong operation during normal operation.
(6) Smaller variations in mass production.

In practical applications, please pay attention to the following.

a) Finish a counterpart surface of installation which comes into contact with a teat absorbing part of a thermostat as flat as possible (a rivet base surface in leaf products, a heat-sensitive surface in snapper products).
b) During installation, make sure that no dirt is caught in counterpart surface.
c) To decrease radiation from the rear, insulate the rear by using a cover or other measures.

2. Electrical cautions.

Unless otherwise specified, the rated voltage/current is indicated at the resistive load (power factor=1).
However, current-carrying capacities are reduced roughly as shown in Table 1 at the following loads:
In practice, considerable changes can be produced by different temperature conditions, vibrations atmospheres or environments. If you use the product in an area close to lthe imit of the rated values, it is recommended that you contact us or test it under actual load conditions for verification.

[Table 1]

	Resistive load (power factor=1)	Inductive load (power factor=0.4)
AC 125V	100% of the rated value	50%
DC 30V	50%	20%

* In the case of inductive loads, a significantly high counter electromotive force is generated when contacts are open, to produce an arc between contacts. Especially in DC, this are is difficult to get rid of, leading to premature contact wear.
* While contact is made, a lash current larger that the steady state can be generated depending on the loads used. This results in severe damage to the contacts.

[Table 2]

Load	Lash current
Ramp	10 to 15 times higher than steady state Approx. 3 Times
Mercury lamp・ Fluorescent light	
Solenoid	10 to 20 times
Magnet switch	3 to 10 times
Motor	5 to 10 times

In the case of resistive loads, a lash current is, normally, 1.0 to 1.2 times higher than the steady state, causing no serious problems, but resistive loads with even a slight inductivity (e.g,. a thin wire with a large number of windings) may affect a contact life.
Please check the nature of the load employed.

About the use of the bimetal thermostat

3. Operating temperature
Our measuring method.

The operating temperature data of our thermostat products are measured mainly under following conditions.
Which are widely used in the usual measuring method;
(1) Air circulation thermostats are used.
(2) Temperature is increased or decreased by one degree C in one minute.
(3) No load current runs
(4) The first operating temperature (1st operation) is recorded

Determination of the operating temperature in practical application

When a product is actually used, the respective conditions described above are subjected to a significant change including:
(1) A product is often tightly mounted to an object.
(2) The rates of temperature rises or decrease vary greatly depending on the equipment,
(3) The actual load current flows.
(4) It is the first operation with an excessive temperature-rise protection device but for controls, operation each time is effective.
This may result in apparent changes in the operating temperatures. Therefore, obtain a correlation of a single thermostat measuring data item and the temperatures of the controlled object (place) according to experiments and the determine the appropriate operating temperature of the thermostat so that the controlled object has a specified temperature. Please specify the thermostat operating temperature to be set when you place an order.

Important

○ The contents described in this book based on the data as of March 2007 so that it is likely to be going to change without a previous notice in the future. Please contact our sales department when you consider mass production.

○ Please acknowledge that our company cannot carry by concerning directly and attaching to a structural manufacturing method of the product of our company besides the one when it concerns and problem occurs in third party's industrial property etc. by having used this product.

○ Generally, the breakdown will occur in electronic parts at certain probability.
It is impossible to adjust the establishment to 0 percent probability though it works for the improvement of the quality of product and reliability as our company.
When the trouble breakdown occurs by any chance, we will exchange the Replacements free of charge.

○ Our product is an intention of the thing used for "General usage" shown below.

So that if you have any ideas using our products for the devices or systems like special usage as below,
Please contact our company sales department prior because we could prospect special quality standard will be needed.

＊Common application :
computer, OA machines communication equipments measurement instruments, audio-visual devices home electric appliances, working machines Personal computers and industrial robot.

＊Special application :
transportation equipment (automobile, train, ships and etc.)'s Control unit, aircraft, Medical equipment for life maintenance, Etc.