

# USER MANUAL

PRODUCT NAME : ELECTRICAL CONTACTS TEMPERATURE & SWITCH

MODEL : T500, T700 SERIES, T931, T932



**WISE<sup>®</sup>** WISE Control Inc.  
[www.wisecontrol.com](http://www.wisecontrol.com)

## Instructions for proper and safe operation

Please read instructions carefully prior to using the instrument for proper and safe operations.

Mishandling could cause device malfunctions and result in disastrous injuries or accidents.

1. Do not exceed the temperature range allowed.
2. Do not apply excessive load, vibration or impact.

Damaged or ruptured product may cause temperature measurement deviations.

3. Please use within the specified temperature ranges.

Exceeding the temperature range may cause disruption in nearby area  
due to failure of or damage to the temperature indicator.

4. Do not mount the temperature sensor directly on the pipes. Please use a protective tube.
5. Please always follow the mounting tips in the manual in cases of field installation.
6. Do not make any modifications to the product or to add more functions.

Please consult with us for any repair.

7. Power must be turned off before opening the product casing.

Wiring with power on may have a risk of electric shock.

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## 1. Overview

This is a contact switch thermometer with built-in indicator and micro switch.

Please read the user manual carefully and thoroughly before using the product for proper and safe operations.

## 2. Application

The product can be used as an indicator to process control, error alarm or warning, in accordance with on or off signal if temperature reaches the predetermined setting.

## 3. Characteristics

- 1) A contact switch thermometer is desirable when a temperature indication is needed.
- 2) There are independent measuring probes for the indicator and contact switch, so that the indications are very accurate even after the switch is mounted.
- 3) The micro switch performs stable on or off operations with snap actions.
- 4) A contact switch thermometer has separate indicator and setting scales for easier setting

## 4. Specifications and standards

Indicator : 150mm circular or non-indicative type

Liquid end material : Stainless Steel

Casing material : AC7A / ALDC7

Sensor bulb material : Stainless Steel

Sensor bulb filling material : Non Mercury type

Sensor stem length : Direct connection or 2, 3, 5, 8, 10 Meter (standard : 3 meter)

Inquire within for more details on length.

Exterior : Silver painting

Indication range :  $\pm 2.0$  % OF FULL SCALE

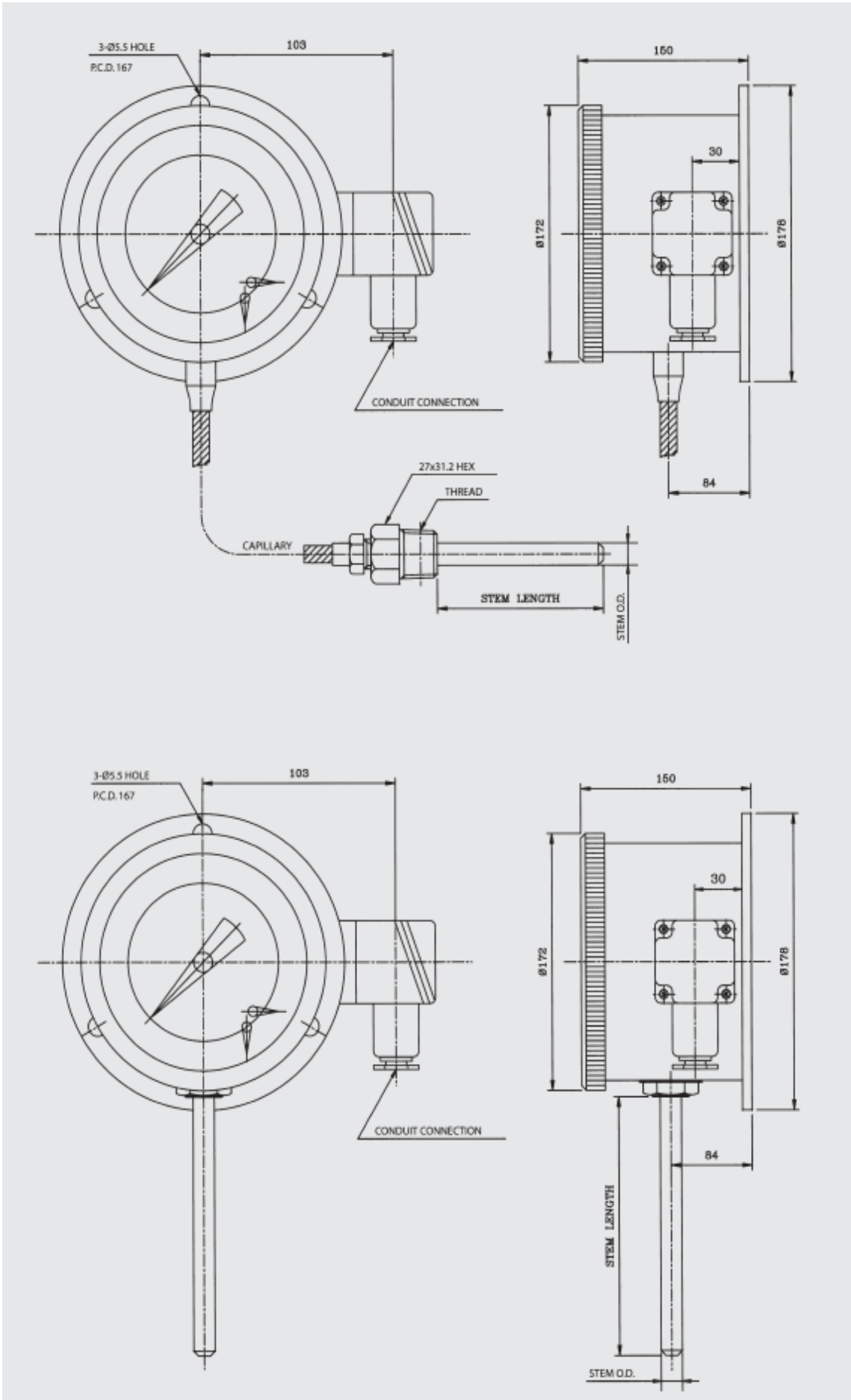
Reproducibility :  $\pm 2.0$  % OF FULL SCALE

Number of contact points : 1 X SPDT or 2 X SPDT (operates independent of each other)

Contact point capacity

Rated current			
Resistive load		Inductive load	
125V AC	15A	125V AC	15A
125V DC	0.5A	125V DC	0.05A

5. Exterior dimensions



## 6. Precautions in transit, storage and package opening

### 1) Precautions in transit

The device performance may be compromised with an impact.

Please be careful not to drop in transit.

### 2) Precautions in storage

Please store it in dry area devoid of vibration and dust.

Do not place anything on top that is heavy enough to deform the package.

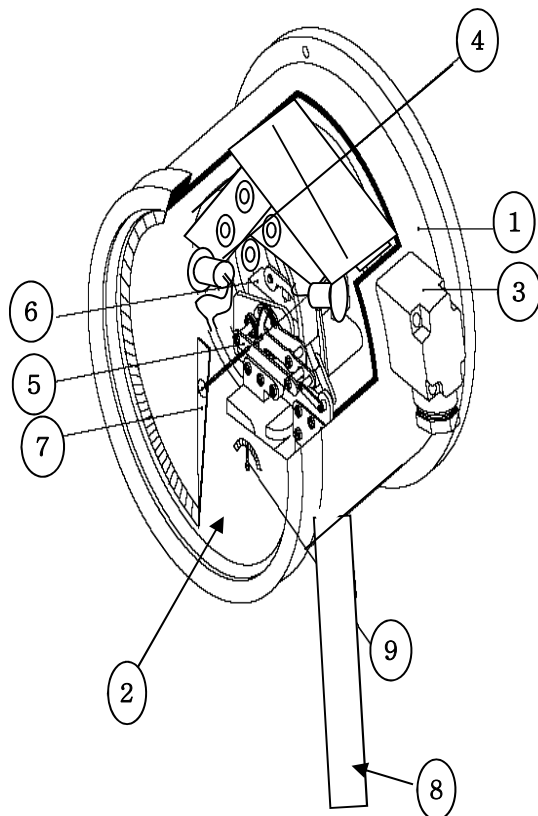
Be always careful not to drop it.

### 3) Precautions in opening the package

Handle carefully when opening the package.

Open the package in an area with ample moving space  
to minimize the chances of accidental drops.

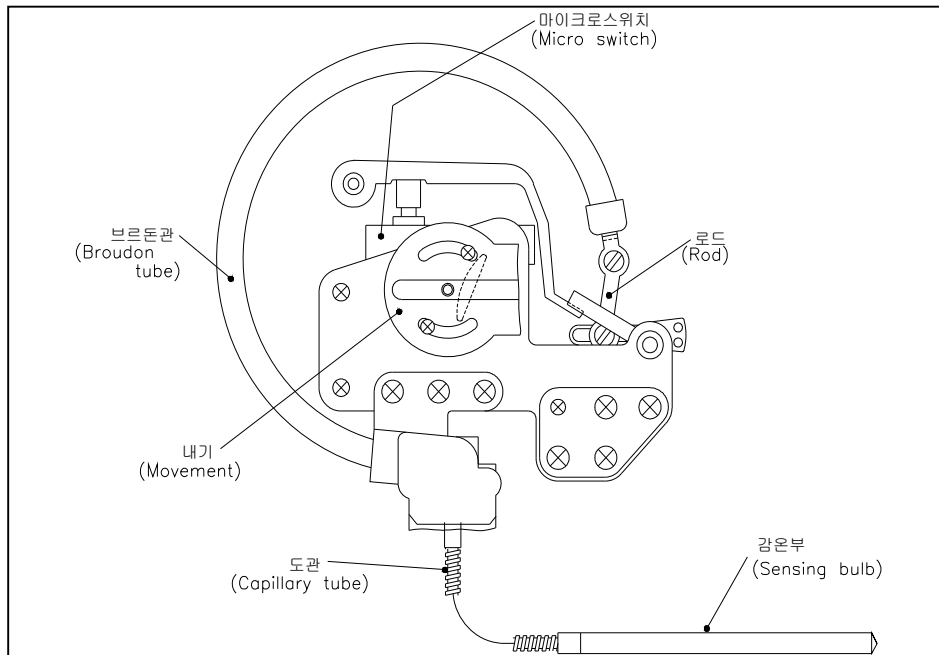
## 7. Names of parts and principles of operation



No.	PART NAME
1	Cover & CASE
2	Window
3	Terminal Block
4	Element
5	Movement
6	Switch
7	Temp. Pointer
8	Stem/Bulb
9	Switch Pointer

## Operation principles

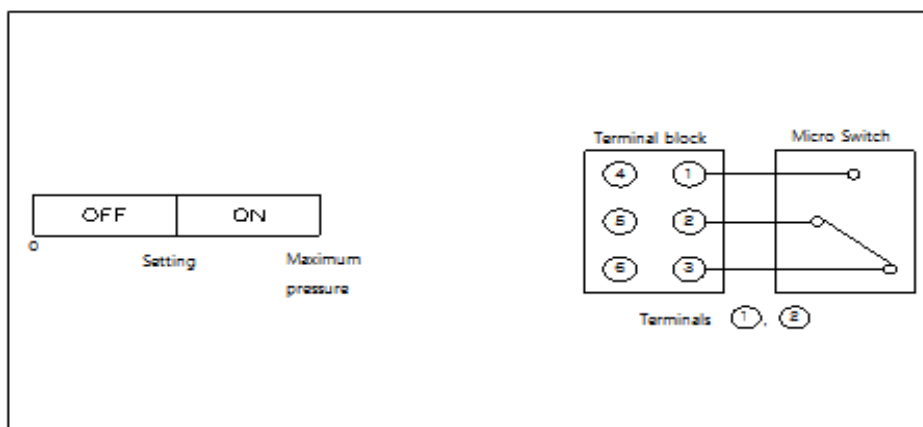
As shown in diagram below, temperature measuring probe is connected to temperature sensor and bellows capillary tube. If temperature change occurs, the liquid expands to change the internal pressure. The bellows bourdon tube transmits the position change according to pressure change through a lever to open or close the micro switch.



## 8. Types and connections according to the operation of the contact

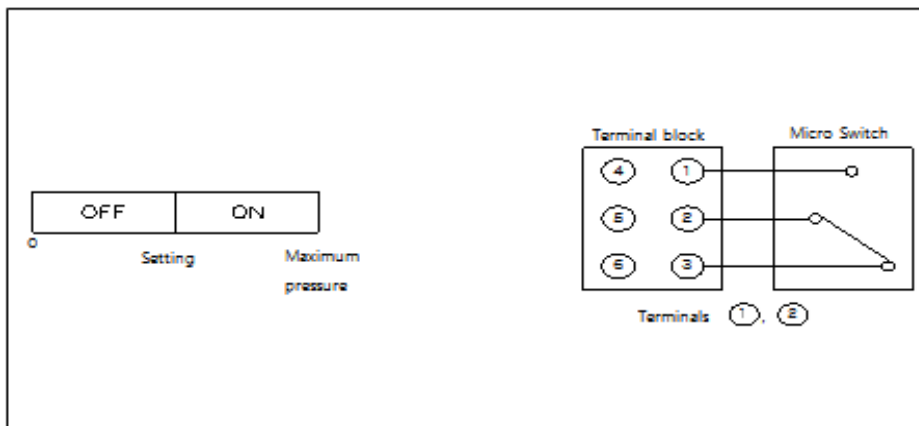
### 1) Upper limit contact type (HIGH ALARM)

There is one contact point to turn the circuit ON if the temperature is above the setting or OFF if it is below the setting.



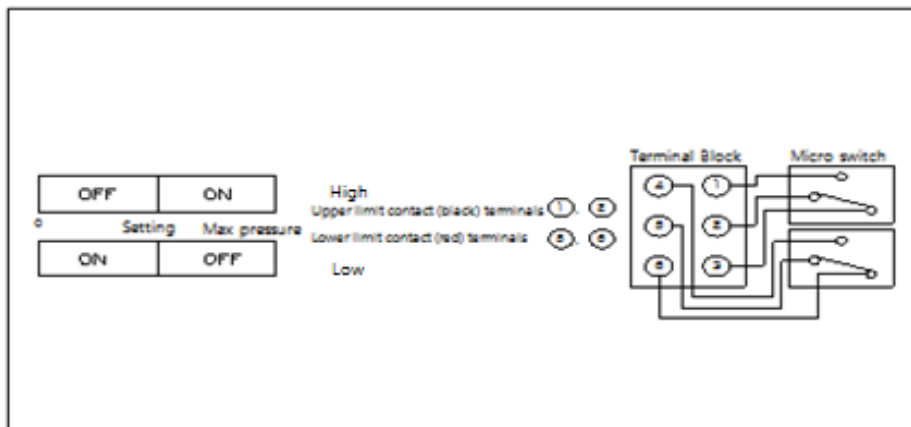
## 2) Lower limit contact type (LOW ALARM)

There is one contact point to turn the circuit ON if the temperature is below the setting or OFF if it is above the setting.



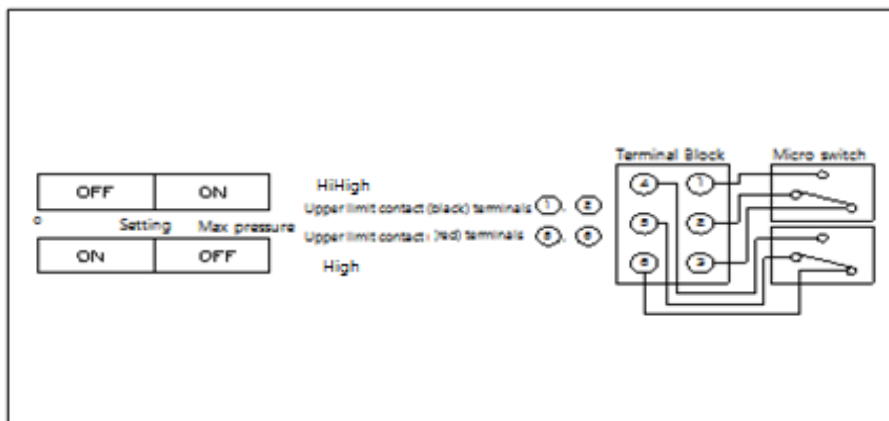
## 3) Upper and lower limits contacts type (HIGH & LOW ALARM)

There are two contacts in combination of two previously mentioned types. They operate independently of each other.



## 4) Two upper limit contacts (HIGH & HIHIGH ALARM)

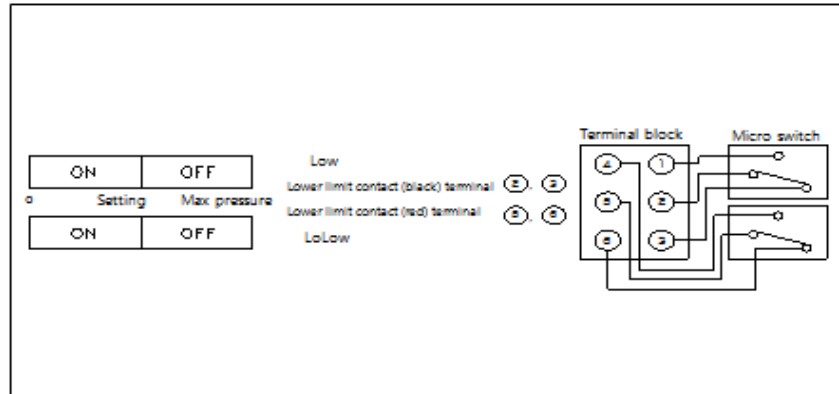
There are two contacts combining two upper limit contact types that operate independently





## 5) Two lower limit contacts (LOW & LOLOW ALARM)

There are two contacts in combination of two lower limit contact types that operate independently.



## 9. How to set

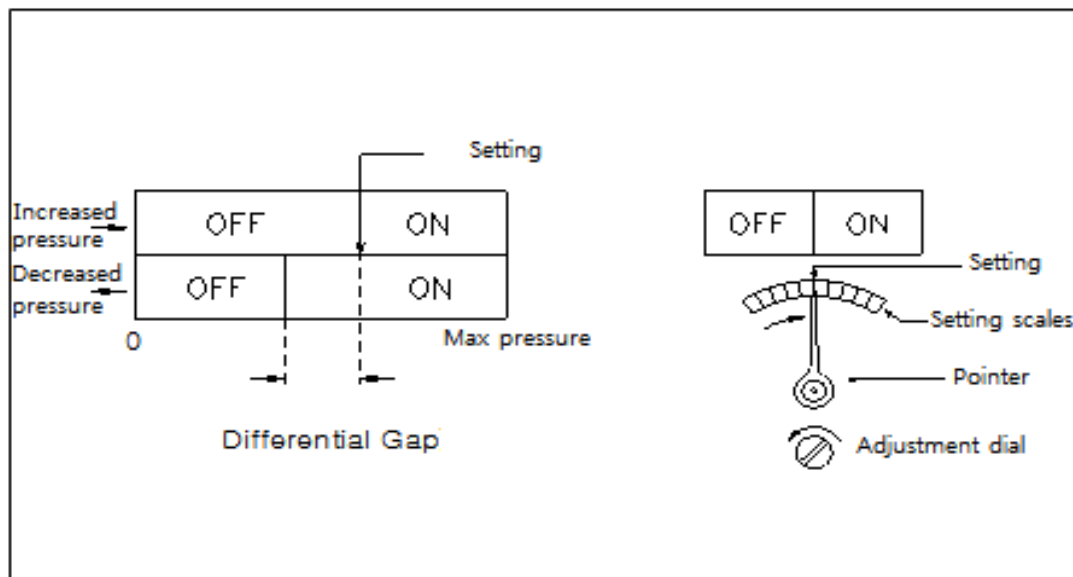
Use a screw driver to turn the adjustment shaft installed outside.

Settings are shown below according to contact types.

### 1) Upper limit type (H)

It will be turned ON if the temperature on the rise reaches the set value of the indicator hand.

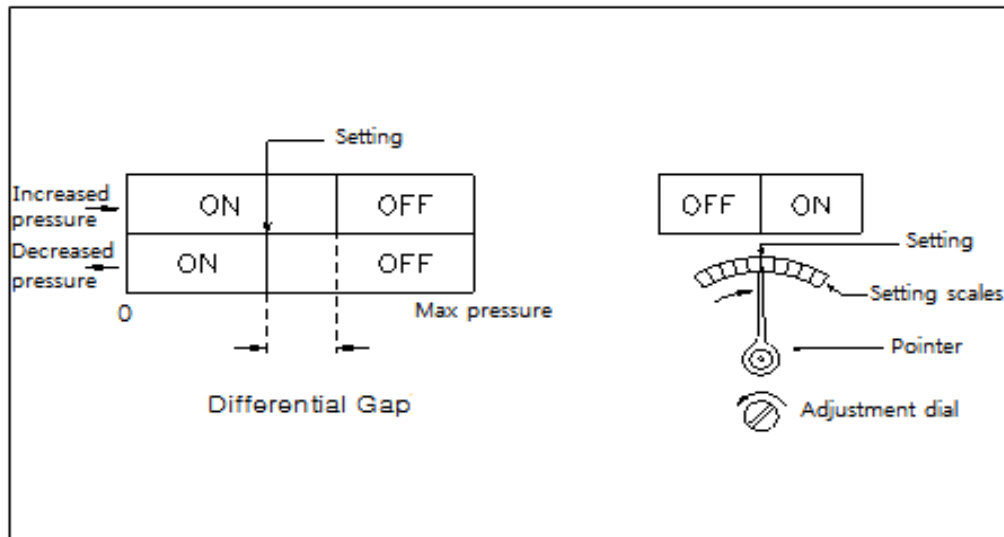
Adjust with the indicator hand to a new setting by moving it from the upper limit to lower limit



## 2) Lower limit type (L)

It will be turned ON if the decreasing temperature reaches the set value of the indicator hand.

Adjust with the indicator hand to a new setting by moving it from the lower limit to upper limit



## 10. Mounting

- 1) Install in a place devoid of moisture, vibration, dust or corrosive gas.
- 2) Avoid areas that might exceed the temperature ranges specified in this manual.
- 3) Make sure to protect from lightning or steam.
- 4) Avoid areas with direct sun light.
- 5) Use M5 nuts and bolts to mount on a panel or wall using the mounting holes.

If mounting brackets are used, make sure it is installed securely.

- 6) Inlet tube should be flexible not to strain the thermometer.
- 7) Please use specified wrench.

## 11. Wiring

- 1) Do not stress the main body.
- 2) Please use proper PVC insulated wire or captive cable.
- 3) Use M4 crimps to connect terminals for solid contacts.
- 4) Please confirm contact types in the diagrams before connecting terminals.

## **12. Maintenance and precautions**

- 1) Use in 75% of maximum capacity for commercial use.
- 2) Use in 75% of maximum capacity for commercial use.
- 3) Never use in temperature range in excess of specification.
- 4) Avoid sudden temperature changes.
- 5) Do not add oil to moving parts in the temperature switch.
- 6) Inspect once or twice regularly in 6 month to check contact operation or attempt.
- 7) In case of large deviation of indicator or setting, dismount it to inspect.

Main causes are wearing of parts, corrosion or distortion due to external vibration and/or impact.

In this case, the removal of the cause, adjustment, replacement is necessary.