SK SATO
SATO KEIRYOKI MFG. CO., LTD.

Instruction Manual
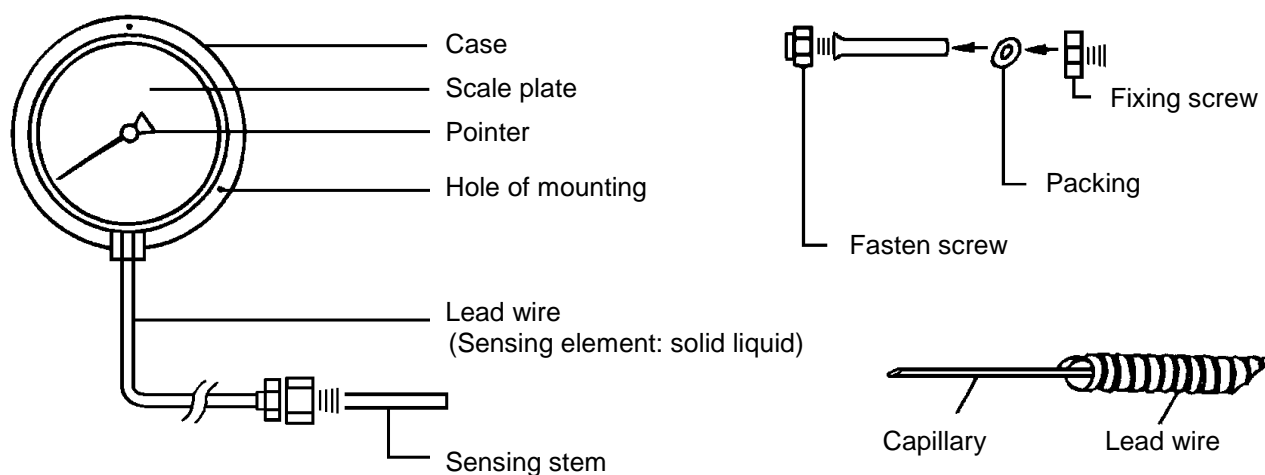# *Remote Sensing Dial Thermometers*

Thank you for purchasing Remote Sensing Dial Thermometer
- This product is designed to measure temperature. Do not use it for other purposes.
- Read this manual thoroughly before using the thermometer.　Keep the manual in a safe place for future references whenever necessary.

Features

. Available to remotely read the temperature values of the object to be measured.
. You can directly read temperature values with easy-to-read analog display.
. This instrument is mechanical structure.　Electric power is not required (except the electric contact type).

Name of Section (ex.: Model LB-100S)

Case
Scale plate
Pointer
Hole of mounting

Fixing screw
Packing
Fasten screw

Lead wire
(Sensing element: solid liquid)

Sensing stem

Capillary　Lead wire

Materials

Parts name	Material	Parts name	Material
Case	Stainless steel (SUS304)	Fixing screw	Stainless steel (SUS304)
Capillary tube	Stainless steel (SUS304)	Sensing bulb	Stainless steel (SUS304)
Lead wire	Stainless steel (SUS304)	Packing	NA joint sheet
Fasten screw	Stainless steel (SUS304)	Window	Glass

Measurements

1. Remove the packing materials.
2. Before using the thermometer, confirm that the unit has been produced as per your required specifications; such as measuring range, stem length, standard of the screw and etc.
3. Firstly check the temperature value in the normal temperature.
4. Curled lead wire should be rewound to the natural direction without being twisted.
5. Install the main body (case) with screws or bolts at the preferable place.
6. Remove the fixing screw from the body and mount it at the place to install the sensing stem. Be sure to tighten the screw.
7. Insert the sensing stem into the fixing screw and tighten the screw confirming the sensing stem immerses the object measured.
8. Confirm that the lead wire was not twisted and then secure it with the fixing screw.

Cautions

For your safety and proper use of the thermometer, be sure to observe the following:
- Do not alter, bend or bind the lead wire, as doing so may break or damage the thermometers.
- Do not install the thermometer in a place subject to vibration, shocks, direct rain and vapor.

- Properly insert the sensing bulb into the object.　Otherwise, the accuracy of measurement is affected.
- Confirm that packing is set between the fixing screws and fasten screw.　Otherwise, the object may leak out.
- Confirm that the packing ring is in between fixing screw and fasten screw. Otherwise object measured may leak out.
- Be sure to install the lead wire in a Pipe with cramp. Be sure not to drive staples with a hammer to fix the lead wire.
- Never disassemble or alter the thermometers, which may cause malfunctions.
- Use the thermometer within the measuring range.
- Be careful not to drop the thermometer.　It may cause of broken glass window and malfunction.
- Install the main unit in vertical position at the place where temperature is normal and stable.

Precautions on temperature-sensing elements

1.　When ethyl alcohol or kerosene is used
- If a hand or any part of the body touches the liquid, wash the part thoroughly with soap and water.
- Keep the liquid away from fire as it is inflammable.
- If spilled, wipe the liquid with a dry cloth or paper towel.

2.　When mercury is used

Precautions on mercury

Always handle the instrument carefully and avoid physical shock, otherwise the instrument may be damaged.

If breakage occurs, never use a vacuum cleaner to remove the mercury, otherwise the inside of the cleaner will become contaminated and mercury vapor will be expelled. If mercury is spilled, immediately pick it up using a dropping pipette; collect it in a glass jar, then seal the jar. For small droplets, use gummed/adhesive tape to pick them up.
Keep the glass jar of recovered mercury in a cool dark place, and send it either to us or a licensed waste disposal company for disposal.

First aid (see MSDS)
 (1)　In case of contact with skin, wipe the contacted area with gauze or absorbent cotton and wash thoroughly with clean water.
 (2)　If inhaled, remove the person from the place of exposure to fresh air, make the person blow their nose and gargle, then promptly seek medical attention.
 (3)　If swallowed, give the person milk or egg yolk and induce vomiting. Immediately seek medical attention.

Specifications

Type	SB (W.O), SD (W.O)	LB (W.O), LD (W.O)
Sensing Element	S: Mercury	L: Solid liquid (Alcohol, kerosene, liquid paraffin)
Way to mount	B: Wall mount　　　D: Flush mount	
Dial diameter	75 mm, 100mm, 130mm, 150 mm	
Optional Spec.	W: waterproof type　O: oil filled type　E, MS: with electric contacts	
Accuracy	± 1 graduation	

Materials

Case	Stainless steel SUS304 or Aluminum cast alloy
Capitally tube	Stainless steel SUS304
Lead wire	Stainless steel SUS304
Fixing screw	Stainless steel (SUS304 or SUS316) or brass
Fasten screw	Stainless steel (SUS304 or SUS316) or brass
Sensing stem	Stainless steel (SUS304 or SUS316)
Packing	NA joint sheet
Window	glass or acrylic resin

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