



## Mini Mechanical Thermo Hygrometer SKU: TEC019004, TEC019005

### 1. General

When an accurate numerical humidity measurement is required, the most commonly used measuring instrument is the Assman Psychrometer. Other choices are the hair-tension hygrometer and the simplified psychrometer (wet and dry bulb thermometers), but these are seldom used when high precision is required. None of these instruments is easy to use, nor are any of them capable of measuring relative humidity directly. In addition, they are expensive, they require water and power supply, and their large size makes them difficult to use in small spaces.

The Mini Mechanical Thermo Hygrometer is the ideal alternative. Compact, affordable, and extremely accurate. It can be used wherever precise humidity and temperature monitoring is required including small spaces such as display cases containing valuable museum pieces or objects of art.

### 2. Direct Indication of temperature and relative humidity values.

Compact, space saving size (48mm x 28mm x 14mm)  
Does not require water or power supply  
Suitable for mobile use

### 3. Configuration, Operating Principles

Thermometer: Bimetal Sensor  
Hygrometer: A material that expands and contracts according to changes in humidity is attached to a metallic sheet by means of a thermo-compression bonding, and the sheet is wound into a spiral shape. This sensor functions on the same principle as the bimetal sensor.

### 4. Setup

Select a location that typifies the overall humidity of the measured space, with adequate air circulation. Preferably with some distance from the surface of a wall. Unit should sit flat on surface, never at an angle. Avoid a location with high radiant heat or direct sunlight. Do not install near steam, water vapor, water drops, or areas with humidity over 95%. Do not install in areas with high temperatures over 60°C, spaces filled with volatile or oily substances, or strong impacts or vibration.

### 5. Measurement

When the instrument has been moved before installation wait 60 minutes before taking the first readings. This allows time for readings to stabilize. Always read scales looking directly from the front. When measuring temperature and humidity that vary suddenly, wait a minimum of 60 minutes for environment to stabilize. (Note) The relative humidity is dependent on temperature. If the temperature varies by 1°C, the relative humidity may differ up to 6-7%. To obtain an accurate reading, the temperature inside the space must be constant.

### 6. Calibration

The pointers may be displaced by vibration or impact. If this happens, use the following procedure to re-calibrate them. Use an Assman psychrometer in the same space, and if the readings vary after they have stabilized, use a slotted screwdriver to re-calibrate the mechanical thermo hygrometer. This can also be done using fresh pre-conditioned silica, and making sure the meter reads to this specific RH.

### 7. Maintenance

When case gets dirty, wipe it clean with a soft cloth. If scales get dirty, plastic cover can be removed by pushing the tabs on both sides, and wiped clean. The pointers should never be touched.

### 8. Caution

Do not install meter in locations mentioned in section 4. Do not drop, and avoid sudden temperatures over 20°C. Perform precise calibration when necessary. Never touch pointers during maintenance.

### 9. Specifications

Temp Range: -30°C to +50°C (2°C scale) / 10°F to 110°F (2°F scale)  
Humidity Range: 0% to 100% (2% scale)  
Measurement Range: 35% to 85% under normal temperature  
Dimensions: 48 x 28 x 14mm / 1.9" x 1.1" x 0.55"

