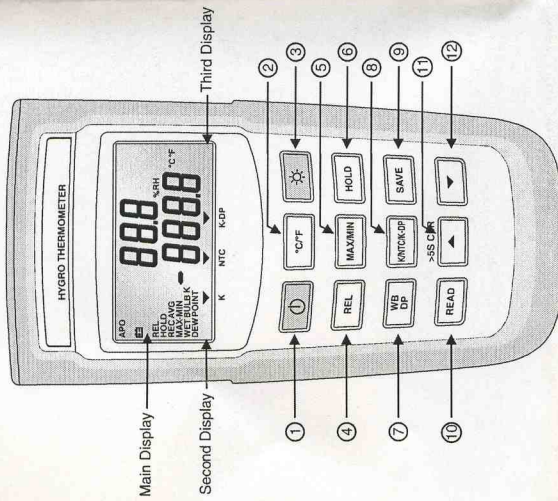


OPERATING INSTRUCTIONS

HYGRO THERMOMETER

TECPEL 323



INTRODUCTION

The instrument hereafter referred to as "the Meter" is a battery powered meter that measures relative humidity and temperature. Through a few easy to use controls, the Meter displays three different temperature points of the air surrounding the meter's sensor: ambient, wet bulb, and dew point.

SAFETY INFORMATION

WARNING

To avoid electrical shock, do not use this instrument when working voltages at the measurement surface over 24V AC or DC.

WARNING

To avoid damage or burns, do not make temperature measurement in microwave ovens.

CAUTION

Repeated sharp flexing can break the thermocouple leads. To prolong lead life, avoid sharp bends in the leads, especially near the connector.

Do not immerse the hygrometer sensor head into liquids since this causes permanent damage to the sensor.

SPECIFICATIONS

ELECTRICAL

Temperature Scale: Celsius or Fahrenheit user-selectable.

Measurement Range:

K-TYPE -50°C to 1000°C, (-50°F to 1832°F)

Resolution: 0.1°C or 0.2°F

Accuracy: Accuracy is specified for operating temperatures over the range of 18°C to 28°C (64°F to 82°F), for 1 year, not including thermocouple error.

±(0.1% rdg + 1°C) on -50°C to 1000°C

±(0.1% rdg + 2°F) on -50°F to 1832°F

±(0.05% rdg + 1.4°F) -58°F to -328°F

Sensor: Thermistor temperature sensor

Range: 0°C to 60°C, (32°F to 140°F)

Resolution: 0.1°C/0.2°F

Accuracy:

±2°C on 0°C to 10°C

±0.5°C on 10°C to 45°C

±2°C on 45°C to 60°C

±4°F on 32°F to 50°F

±1°F on 50°F to 113°F

±4°F on 113°F to 140°F

RELATIVE HUMIDITY

Sensor: Capacitive Humidity Sensor

Range: 0% to 100% RH

Accuracy:

±2.5% at 25°C(77°F), 10% to 90% RH

±5% at 25°C(77°F), 0% to 10% RH, 90% to 100% RH

Sensor Response Time for 90% of Total Range: 60sec typical.

Sensor Hysteresis(excursion of 10% to 90% to 10% RH): ±1%RH typical.

Temperature Coefficient:

0.1 times the applicable accuracy specification per °C from 0°C to 18°C and 28°C to 50°C (32°F to 64°F and 82°F to 122°F).

Input Protection:

24V dc or 24V ac rms maximum input voltage on any combination of input pins.

Input Connector: Accepts standard miniature thermocouple connectors (flat blades spaced 7.9mm, center to center).

GENERAL

Display: 5 digit liquid crystal display (LCD).

Overload: "----" or "OL" is display.

Battery: 1.5V x 4 PCS (SIZE AAA) UM-4 R03.

Battery Life: 200 hours typical with carbon zinc battery.

Reading Rate: 1 time per second.

Auto power off: 15 minutes, press power key to resume operation.

Dimensions: 160mm(H) x 83mm(W) x 38mm(D)

Weight: Approx. 230g including batteries.

Supplied Wire: 4 feet type "K" thermocouple bead wire (Teflon tape insulated). Maximum insulation temperature 260°C (500°F). Wire accuracy ±2.2°C or ±0.75% of reading (whichever is greater) from 0°C to 800°C.

ENVIRONMENTAL

Ambient Operating Ranges:

0°C to 50°C (32°F to 122°F) <80% R.H.

Storage Temperature:

-20°C to 60°C (-4°F to 140°F) <70% R.H.

OPERATING INSTRUCTIONS

1. "⊙" Power Switch

The "⊙" key turns the thermometer on or off. In the SET mode cannot be powered off. Exit SET mode to power off.

APO function mode

Press "⊙" power key for more than 4 seconds to disable the auto-power function. The display will show "APO OFF".

2. "°C/°F" Selecting the Temperature Scale

Readings are displayed in either degrees Celsius(°C) or degrees Fahrenheit(°F). When the thermometer is turned on, it is set to the temperature scale that was in use when the thermometer was last turned off. To change the temperature scale, press the "°C/°F" key.

3. "★" Button

Press the "★" key to trigger on the backlight function, press the "★" key again to cancel the backlight function. The backlight will switch-off automatically after 30 seconds.

4. "REL" Button

Press the "REL" key to enter Relative mode, zero the display, and store the displayed Reading as a reference value and annunciator REL is displayed. Press "REL" key again to exit the relative mode. In this mode, press "HOLD" key to stop reading, all values are frozen, press "HOLD" key again to restart reading.

5. "MAX/MIN" Button

Press "MIN/MAX" key to enter the MIN/MAX recording mode and REC shows on the display. The beeper emits a tone when a new minimum or maximum measurement is recorded. Press "MIN/MAX" key again to cycle through the current readings:

MAX: The highest measurement recorded.

MIN: The lowest measurement recorded.

MAX-MIN: The difference of the highest and the lowest measurement.

AVG: The average values of the measurements.

Press "MIN/MAX" key over two seconds to exit the function. In this mode, press "HOLD" key to stop recording, all values are frozen, press "HOLD" key again to restart recording. In this mode, the APO function and other keys are disabled, excluding "HOLD" and Back-light keys. Press and hold down the "MAX/MIN" key for more than 2 seconds to exit the MAX/MIN function.

6. "HOLD" Button

Press the "HOLD" key to enter the data hold mode, the

"HOLD" annunciator is displayed at the center-left of display. When data hold mode is selected, the meter hold the present readings and stops all further measurements. Press the "HOLD" key again to cancel data hold mode, causing meter to resume taking measurements.

7. "WB/DP" Button

In the NTC data Mode, the Meter displays ambient temperature when first turned on. To display wet bulb(WB) temperature, press "WB/DP" key once. Press the "WB/DP" again to switch to dew point(DP) temperature. Press "WB/DP" a third time returns the Meter to ambient temperature.

8. "K/NTC/K-DP" Button

Press the "K/NTC/K-DP" key, the meter can cycle through "K-TYPE", "NTC", "K-DP".

* K-DP = K-TYPE temperature minutes Dew point temperature.

9. "SAVE" Button

The save function stores the %RH, K-TYPE, NTC, Wet bulb, Dew point data in a nonvolatile memory. Press the "SAVE" key to save the current data, the word SAVE is displayed to indicate the data are saved. The build in memory can store up to 256 data.

10. "READ", "▲", "▼" Button

To recall the readings from memory, press "READ" key. To check the memorized data just to press "▲" or "▼" until the desired memorized data is displayed. To return the meter to normal operation, press "READ" key again.

* CLR SAVE DATA:

Pressing the "▲" key for more than 5 seconds clears all the saved data in memory. And lower display show "Clr" about 2 second.

OPERATOR MAINTENANCE

WARNING

To avoid possible electrical shock, disconnect the thermocouple connectors from the thermometer before removing the cover.

Battery Replacement

1. Power is supplied by 4pcs 1.5V (SIZE AAA) UM-4 R03.
2. The "E" appears on the LCD display when replacement is needed. To replace battery remove screw from back of meter and lift off the battery cover.
3. Remove the battery from battery contacts and replace.
4. When not use for long time remove battery.
5. Don't keep in place with high Temp, or high humidity.

Cleaning

Periodically wipe the case with a damp cloth and detergent, do not use abrasives or solvents.

*Software operation manual is on the software disk.