Model 485-2 Digital Hygrometer

Specifications and Operating Instructions

Specifications

Relative Humidity Measurement

Range: 0-100%
Accuracy: ±2%
Resolution: 0.1%
Sensor Operating Temperature:
-22° to 185°F (-30° to 85°C)

Temperature Measurement

Range: -22° to 185°F (-30° to 85°C)
Accuracy: ±1°F (0.5°C)
Resolution: 0.1°

Ambient Temperature Operating Range

32° to 104°F (0° to 40°C)

Storage Temperature Limits

-40° to 176°F (-40° to 80°C)

Power Source

9 Volt Alkaline Battery

Operating Instructions & Specifications

Introduction

The Model 485 Digital Hygrometer is a versatile, hand-held, battery-operated humidity and air temperature measurement system. The instrument will directly measure temperature, in either °C or °F, and percent relative humidity. The 485 will also calculate the dew point temperature and the wet bulb temperature based on the relative humidity and temperature readings. MIN and MAX functions are provided to save minimum and maximum temperature and relative humidity readings. The reading may also be frozen using the HOLD function. In addition, a memory function is provided which will hold up to 25 humidity and temperature samples.

Battery Installation

The unit is shipped with a separate 9 Volt alkaline battery which must be installed before operation. Remove the two screws holding the bottom endcap in place and remove it. Connect the battery to the enclosed battery clip, observing correct polarity. Be careful not to trap the wires between the case or foam pad which retains the battery. This could make it difficult to install the battery or remove it later for replacement. Be sure the rubber gasket is properly seated in the gasket channel and replace the endcap. Note that the endcap will only fit one way because the holes are slightly off-center. Place the "Z" shaped wrist strap clip in one of the screw recesses and replace the screws. Do not overtighten. Attach the wrist strap to the clip.

When battery replacement becomes necessary, use only 9 Volt alkaline type batteries such as a Duracell® MN1604, or Eveready® 522 or equivalent. Zinc-carbon types, often labeled Heavy-Duty are not recommended because of their shorter life and an increased potential for leakage. Alkaline batteries are a better value because they last typically up to three times longer in this device.

On-Off Operation

The on-off control is a toggle function. Press the ON/OFF key once to turn the unit on; again to turn it off. If the hygrometer is left on with no activity for approximately 2½ minutes, the unit will turn itself off to conserve the battery. Each time a key is pressed, the timeout will be reset to 2½ minutes.

An extended timeout function is provided for situations where the 2½ minute timeout is not long enough. With the unit off, press the ON/OFF key and the DP/WB/STORE key simultaneously during power on and release them together. The "ALARM 2" annunciator will be illuminated. The power timeout will now be approximately 23 minutes from the time the unit is turned on. This function is also useful for min/max sampling. Turn the unit on in the extended timeout mode then clear the MIN/MAX memory and place the unit in the desired location. It will record the minimum and maximum temperature and humidity measured during the sample time.

Display Backlight

The Model 485 includes a display backlight to allow use in the dark or in poor lighting conditions. The unit must be off before this feature can be activated. Next, press and hold the ON/OFF key down. After about 1 second the backlight will come on and remain lighted for approximately 2 minutes after which it will turn itself off to conserve the battery.

Selecting Temperature Units

The temperature readings may be displayed in either °F or °C. The currently selected units will be indicated on the display.

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To change the units, press the UNITS/LOC key. The selected units will remain in memory even when the power is shut off. This way, your preference will always be displayed after the initial selection.

Display Hold

There may be situations where you want to temporarily retain a reading. The Model 485 provides a display hold function which freezes the current reading and holds the reading until cleared. To activate this function, momentarily press the HOLD/MEMORY key when the reading you want is displayed. A HOLD indicator will appear in the display to indicate that the reading shown is frozen. To return to normal operation, press the HOLD/MEMORY key again. The HOLD indicator will disappear and the current temperature and humidity readings will again be shown.

Dew Point and Wet Bulb Temperatures

The Model 485 provides calculated dew point and wet bulb temperatures. To display the dew point temperature, press the DP/WB/STORE key. The large display will show the dew point temperature in the selected units. The %RH indicator will be extinguished and the smaller lower left display will show "dP" to indicate dew point measurement. To display the wet bulb temperature, press the DP/WB/STORE key again. The lower left display will now display "bt" to indicate wet bulb temperature. To restore the display to %RH, press the DP/WB/STORE key again. The %RH indicator will be illuminated and the relative humidity and ambient temperature will again be displayed.

Min-Max Readings

A minimum and maximum reading function is provided by the model 485. This will save the minimum and maximum temperature and relative humidity readings. To display the minimum temperature and relative humidity readings press and hold the MIN key. While the key is depressed the minimum recorded readings will be displayed. To return to normal operation, release the key. Likewise, to display the maximum readings, press and hold the MAX key; release when done. To clear the MIN/MAX memory, press both the MIN and MAX keys simultaneously. The display will display "----" while the memory is being cleared. When the switches are released the MIN/MAX memory begins storing the current minimum and maximum values. The minimum and maximum values are stored in nonvolatile memory which retains the minimum and maximum values even when the power is off.

Memory Function

A memory function is included in the Model 485 that allows you to store up to 25 humidity and temperature readings. The samples are stored in nonvolatile memory so the samples are retained even when the power is off.

Entering Memory Mode

To enter memory mode, press and hold the HOLD/MEMORY key until the MEM indicator appears in the display. The key can then be released. The active memory location will be briefly displayed, starting initially with "01", then humidity will be displayed.

Storing Readings

To store a reading, press the DP/WB/STORE key. The readings will be stored in the previously indicated memory location and a beep will sound to indicate the reading has been saved. As each reading is saved, the memory location is advanced to the next location and briefly displayed in the lower left display.

Viewing Stored Readings

To view the contents of memory, the unit must be in the memory mode. To enter the view mode, press the UNITS/LOC button. The HOLD indicator will then be displayed with the MEM indicator to indicate that the memory values are being displayed rather than the current readings, and the location number will be briefly displayed. Each time the UNITS/LOC button is pressed the memory location is advanced, and the new location is briefly displayed. If the button is held down, the location will automatically increment until the button is released. This operation may be used to select a particular memory location to store the next reading. To resume temperature and humidity measurements, press the HOLD/MEMORY button. The HOLD indicator will disappear and the display will resume displaying the current measurements. The last viewed memory location will remain as the location in which the next sample will be stored.

Clearing Memory

The memory may be cleared of all previously stored values by pressing and holding the DP/WB/STORE key, then simultaneously pressing the ON/OFF key. During the clearing operation "----" will be displayed. When the memory is cleared, the current readings will be displayed and the memory location will be set to "01".

Exiting Memory Mode

To exit memory mode, press the HOLD/MEMORY key. The memory indicator will disappear. All values stored in memory will be retained for later viewing.

Low Battery Indicator

A weak battery may cause improper operation or inaccurate measurements. A low battery indicator is provided on the display to show when the battery needs to be replaced. Although the unit may appear to function and read properly, the accuracy of the readings cannot be guaranteed when the "LOW BAT" indicator is illuminated. Replace the battery with a fresh one. Do not leave an exhausted battery in the unit due to potential battery leakage.

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