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Protimeter Pyclone



Operating Instructions

Protimeter Psyclone

Thermo-Hygrometer

Instruction Manual

INTRODUCTION

The GE Protimeter Psyclone thermo-hygrometer measures relative humidity with psychrometric measurements, along with temperature. One button enables start, hold and OFF operation, and four arrow keys allow you to set up and change the measurements shown on the LCD screen. An optional surface temperature probe enables users to determine if condensation is present. Figure 1 below shows the Psyclone control buttons, while Table 1 lists the available parameters.

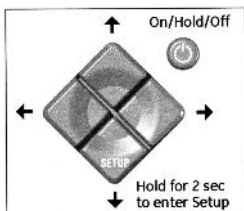


Figure 1: The Psyclone (#BLD7800) Control Buttons

Table 1: Psyclone Measurement Parameters

| Parameter | Symbol |
|--|-----------|
| % Relative Humidity | %RH |
| ¹ Grains per Pound | GPP |
| ² Grams per Kilogram | g/kg |
| Dewpoint Temperature | DEW POINT |
| Wet Bulb Temperature | WET BULB |
| ² Kilo Calorie per Kilogram | kcal/kg |
| ¹ British Thermal Units per Pound | BTU/lb |
| Ambient Temperature | AMBIENT |
| Surface Temperature | SURFACE |
| Proximity to Dew Point at the Surface | TEMP DIFF |

¹ Displayed if °F units chosen in setup

² Displayed if °C units chosen in setup

Starting the Psyclone for the First Time

The Psyclone comes with 2x AA 1.5V batteries already installed. To begin using the meter, extend the retractable probe and press the power button. The LCD screen briefly flashes, similar to Figure 2 below. After a few seconds, the meter changes to measurement mode and displays only the currently selected parameters, as shown in Figure 3 below. Moisture readings appear at the top, with temperature measurements below.

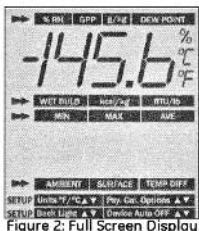


Figure 2: Full Screen Display



Figure 3: Typical Screen Display During Operation

- To freeze the Psyclone at a particular reading, press the button briefly. The "Hold" message appears to the left of the temperature reading, as shown in Figure 2.
- To shut off the Psyclone, press the power button for 3 seconds, until the message OFF appears before the LCD blanks.

Selecting Parameters and Calculations

Use the four arrow keys to select the parameters and calculations you want to display. Press any of the arrow keys to scroll to the parameter or calculation. The reading changes immediately and the parameter is set once the flashing stops. Pressing the power button instantly selects the parameter.

- To select the humidity parameter (%RH, GPP or g/kg or Dew Point):

Scroll to the top row and then to the desired parameter. Note: If you have selected the Psychrometric Calculation ON option, your options include the available calculations.

- To select a calculation (Minimum, Maximum or Average):

Scroll to the middle row, and then press the RIGHT or LEFT arrow key to select the desired calculation. The min/max/ave calculations are made from the last time the meter was powered up. If no parameter is selected, all the parameters in that row remain solid (not blinking) and the Psyclone displays the current reading. Min/Max/Ave will continue to calculate while in these modes. Push the UP arrow to return to free measurement mode.

Setting User Options

To set up the user options to your particular requirements, firmly press and hold the SETUP key (the DOWN arrow) for two seconds. The lower part of the screen appears similar to figure 4 below.



Figure 4: Setup Menu

The factory default settings are:

- Temp - Off
- Psy. Cal. Options - Off
- Device auto off - 3 mins
- Back light - 0 mins (off)

Use the LEFT and RIGHT arrow keys to scroll to the desired option and the UP and DOWN arrow keys to set the desired selection. Once selected, wait for the meter to return to measurement mode or push the power button to save the change. Four options are available:

- Units °F/°C

You can display either °F or °C. (Setting °C also results in displaying other parameters in metric units, such as g/kg. Setting °F prompts the meter to display other parameters in non-metric units, such as GPP or grins per pound.) Press the UP or DOWN arrow keys to toggle between °F and °C

units.

Psychrometric Calculations

You can extend the available humidity measurements to include psychrometric calculations (Wet Bulb Temperature, kcal/kg and BTU/lb shown in figure 2). Press the DOWN or UP arrow key to turn on (or off) the Psychrometric Calculation options. When the screen refreshed you can then select the desired calculation.

Back Light

You can set the back light for the LCD display to remain on from 1 to 9 minutes at a time. (If you set "0", the back light is turned off.) Use the UP and DOWN arrow keys to scroll to the desired number of minutes after the last button push.

Device Auto OFF

You can set the Psyclone to shut off automatically after from 1 to 9 minutes at a time. (If you set "0" the automatic shut off is turned off.) Use the UP and DOWN arrow keys to scroll to the desired number of minutes to stay on after the last button push.

Using the Optional Surface Temperature Probe

Note: The Surface Temperature (Surface) and Temperature Difference (Temp Diff) appear only if you are using the surface temperature option.

To obtain surface temperatures via the optional probe.

- Plug in the surface temperature probe on the right side of the Psyclone.
- Scroll to the bottom row using the UP or DOWN arrow keys, and then select Surface or Temp Diff on the screen. Selecting Ambient uses the Psyclone's internal sensors.
- Remove the black cap, exposing the metal sensing strip on the sensor.
- Apply the metal strip on the probe to the surface you wish to measure.

In Surface mode, the reading shown will be the surface temperature (allow time for the reading to settle).

In Temp Diff mode, the temperature shown will be the proximity to Dew Point (when condensation will occur). For example, a reading of 5 degrees above the Dew Point. A reading of -5 degrees would indicate that the surface temperature is 5 degrees below the Dew Point and condensation is present.



Figure 5: Optional Surface Temperature Probe with Cap Removed

Caring for your Psyclone

- When you have finished using the Psyclone, retract the probe back into the meter.
- Use the carrying case to shield the Psyclone when not in use.
- Keep the Psyclone out of water and away from dirt and dust.
- If the Psyclone has been stored in excessive heat or cold (i.e. a vehicle), allow for increased acclimation time.
- A low battery warning appears when the battery has only

20% of it's charge. To replace the batteries, remove the panel on the rear of the Psyclone and insert two 1.5V AA batteries. Do not use rechargeable batteries.

Error Codes

E-1: Sensor probe not responding

E-2: CRC checksum error

If either of these codes appear, contact York Survey Supply Centre.

Specifications

| | |
|------------------------|--|
| Power: | 2x AA 1.5V |
| Enclosure Material: | ABS with silicone rubber boot |
| Dimensions: | 165mm x 65mm x 30mm (6.5in x 2.5in x 1.2in) |
| Weight: | 200g |
| Front Panel Keys: | Rubber function keys |
| Probe Humidity | |
| Measurement Range: | 1.0 - 99.0% (non-condensing) |
| Humidity Precision: | ±2% (10% to 90% @ 25°C/77°F) |
| Operating Temp: | 0 to 50°C (32 to 122°F) |
| Probe Measurement | |
| Temperature Range: | -20 to 85°C (-4 to 185°F) |
| Temperature Accuracy: | ±0.5°C (0 to 50°C/32 to 122°F) |
| Certifications: | CE Approval, RoHS Compliance & WEEE |
| Emissions: | Class A Immunity - Annex C |
| Performance Criteria - | Non Continuous Operation |

Glossary

| Symbol | Definition |
|--|---|
| %RH | The ratio of the amount of water vapour in the air at a specific temperature to the maximum amount that the air could hold at that temperature, expressed as a percentage. |
| Specific Humidity (GPP, g/kg and PPMw) | The ratio of the mass of water vapour to the mass of dry air. For very low levels, the Specific Humidity is also expressed as parts per million by weight (PPMw). |
| DEW POINT (°C/°F) | The temperature at which the air you are measuring would be saturated. Condensation would begin to appear on surfaces if they are colder than the dew point temperature. |
| WET BULB (°C/°F) | The temperature of a wetted thermometer in moving air. The wet bulb temperature is a measure of the rate of evaporation which is influenced by the amount of water vapour in the air. |
| Enthalpy kcal/kg | The amount of thermal energy required to remove all the water from 1kg of air and cool it to 0°C. |
| Enthalpy BTU/lb | The amount of thermal energy required to remove all the water from 1lb of air and cool it to 32°F. |