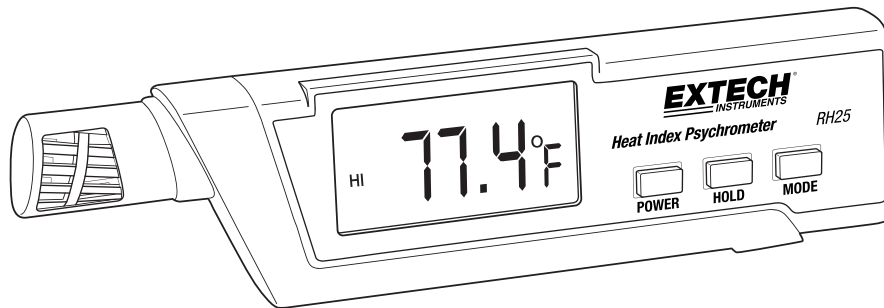




## USER GUIDE

# Heat Index Psychrometer

Model RH25



## Introduction

Thank you for selecting the Extech Instruments Model RH25 Heat Index Psychrometer. The RH25 measures Temperature and Relative Humidity (using precision capacitance RH sensor). The RH25 also calculates and displays Heat Index, Dew Point, Wet Bulb, and Wet Bulb Globe temperatures. The High Temperature Alarm feature alerts the user when Heat Index or Wet Bulb Globe levels exceed user-preset limits.

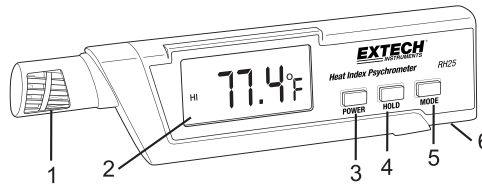
Data Hold and MIN/MAX/AVG memory utilities make it easier to recall important data.

This device is shipped fully tested and calibrated and, with proper use, will provide years of reliable service. Please visit our website ([www.extech.com](http://www.extech.com)) to check for the latest version of this User Guide, Product Updates, and Customer Support.

## Description

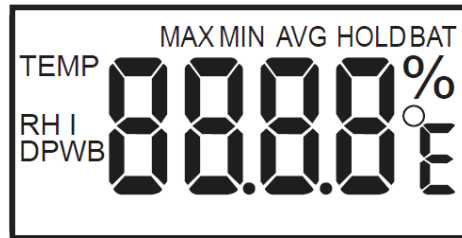
### Meter

1. Sensor area
2. Display area (LCD)
3. POWER button
4. HOLD button
5. MODE button
6. Battery compartment on rear of instrument



### Display

- TEMP** Temperature
- RH** Relative Humidity
- HI** Heat Index
- DP** Dew Point temperature
- WB** Wet Bulb temperature
- WB/HI** Wet Bulb Globe temperature
- MAX** Maximum reading memory
- MIN** Minimum reading memory
- AVG** Average reading memory
- HOLD** Data Hold (freezes display)
- BAT** Low Battery symbol
- %** Percent units for RH readings
- o** Degrees symbol for temperature units
- E** Used to display temperature units C or F



## Operation

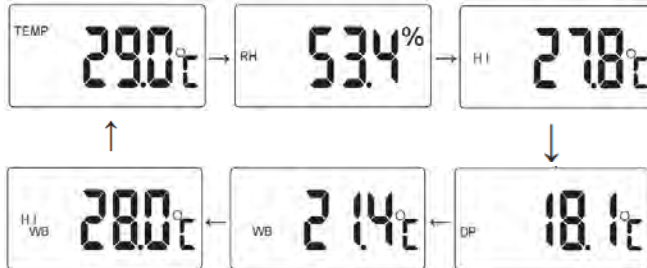
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### Keypad

**POWER:** Switch the meter ON or OFF; also used to enter the MAX/MIN/AVG memory mode.

**HOLD:** Press to enter Data Hold (reading freezes on display). Press again to exit Data Hold.

**MODE:** Press to step through the measurement modes: TEMP (Temperature), RH (Relative Humidity), HI (Heat Index), DP (Dew Point), WB (Wet Bulb), and HI/WB (Wet Bulb Globe).



### Powering the meter

Press POWER to switch meter ON. The meter shows all display icons momentarily as it switches ON and then the TEMP icon and the temperature reading will display. The meter will also emit a chirp sound as it switches ON.

To switch the meter OFF, press and hold the POWER button for at least 2 seconds.

### MAX/MIN/AVG Memory

With the meter powered ON, press POWER button momentarily. The MAX icon will appear and the meter will display only the highest reading.

Press POWER again; the MIN icon will appear and the meter will only display the lowest reading.

Press POWER again; the AVG icon will appear and meter will only display the average reading.

Press POWER again to exit (the MAX/MIN/AVG icons will switch OFF).

### Data Hold

With the meter powered ON, press the HOLD button momentarily. The HOLD icon will appear and the current reading will freeze on the display. Press HOLD again to exit (the HOLD icon will switch OFF).

### Automatic Power OFF (Sleep) Mode

The meter switches OFF automatically after 15 minutes of inactivity. To defeat this feature temporarily: With the meter switched OFF, press the HOLD and POWER buttons simultaneously until the meter displays the screen shown below. Now, the user must switch the meter OFF manually by pressing and holding the POWER button for at least 2 seconds. Note that the next time the meter's power is cycled, the Auto Power OFF utility will again be active.



### Selecting °C/°F units of measure

With the meter OFF, press and hold the POWER and MODE buttons simultaneously until the unit of measure appears on the lower right corner of the LCD. Use the MODE button to select the desired unit of measure (°C or °F). Press POWER twice to step past the alarm settings until the normal measurement mode is displayed.

### High Alarm for Heat Index and Wet Bulb Globe temperature

1. With the meter OFF, press and hold the POWER and MODE buttons simultaneously until the temperature unit 'C' or 'F' appears on the lower right corner of the LCD (if desired, use the MODE button to select the desired unit of measure).
2. Press the POWER button to step to the Heat Index (HI) Alarm ON/OFF display.
3. Use the MODE button to select ON (A-on) or OFF (A-of); see display examples below:



4. Press POWER to step to the Heat Index temperature Alarm limit value. See example below:



5. Press the MODE button momentarily to change the value in small steps. Press and hold the MODE button to scroll quickly.
6. When the desired Heat Temperature alarm limit is displayed, press the POWER button to continue to the Wet Bulb Globe temperature Alarm programming screens.
7. Repeat steps 3 - 6 to program the Wet Bulb Globe temperature ON/OFF and Alarm limits. Use the POWER button when done to step back to the normal operating mode.
8. The default settings are 27.8°C (82.0°F) for Heat Index temperature alarm limits and 28.0°C (82.4°F) for Wet Bulb Globe temperature alarm limits
9. When either alarm limit is exceeded, the meter continuously beeps. To determine which alarm is sounding, check the HI (Heat Index) and WB/HI (Wet Bulb Globe) temperature displays to see which unit of measure is blinking, that will indicate the tripped alarm.
10. To silence an alarm the user must either switch the alarm OFF or change its alarm limit value.

### Error Message Displays

- E-2: Humidity Sensor failure. Replace unit.
- E-3: Temperature Sensor failure. Replace unit.
- E-4: Temperature over-range; E-5: Temperature under-range
- E-6: Hardware failure. Replace unit

## Appendices

### Appendix A – Heat Index based on Temperature (°F) vs. Relative Humidity (%)

Note: Italic values are Heat Index based on the Temperature (left column) and Relative Humidity (top row).

°F	90%	80%	70%	60%	50%	40%
80 °F	<i>85</i>	<i>84</i>	<i>82</i>	<i>81</i>	<i>80</i>	<i>79</i>
85 °F	<i>101</i>	<i>96</i>	<i>92</i>	<i>90</i>	<i>86</i>	<i>84</i>
90 °F	<i>121</i>	<i>113</i>	<i>105</i>	<i>99</i>	<i>94</i>	<i>90</i>
95 °F		<i>133</i>	<i>122</i>	<i>113</i>	<i>105</i>	<i>98</i>
100 °F			<i>142</i>	<i>129</i>	<i>118</i>	<i>109</i>
105 °F				<i>148</i>	<i>133</i>	<i>121</i>
110 °F						<i>135</i>

### Appendix B – Heat Index based on Temperature (°F) vs. Dew Point (DP)

Note: Italic values are Heat Index based on the Temperature (left column) and Dew Point (top row).

°F	55 DP	60 DP	65 DP	70 DP	75 DP	80 DP	85 DP
80 °F	<i>55</i>	<i>60</i>	<i>65</i>	<i>83</i>	<i>84</i>	<i>87</i>	
85 °F	<i>80</i>	<i>80</i>	<i>81</i>	<i>89</i>	<i>93</i>	<i>99</i>	<i>107</i>
90 °F		<i>84</i>	<i>86</i>	<i>95</i>	<i>100</i>	<i>107</i>	<i>117</i>
95 °F			<i>91</i>	<i>101</i>	<i>106</i>	<i>114</i>	<i>125</i>
100 °F					<i>113</i>	<i>121</i>	<i>131</i>
105 °F						<i>127</i>	<i>138</i>
110 °F						<i>134</i>	<i>145</i>

### Appendix C – Heat Index and Health Effects

Heat Index of 80 to 90°F: Fatigue possible with prolonged exposure and physical activity

Heat Index of 90 to 105°F: Sunstroke, heat cramps, and heat exhaustion possible

Heat Index of 105 to 130°F: Sunstroke, heat cramps, heat exhaustion likely; heat stroke possible

Heat Index of 130°F or greater: Heat stroke highly likely with continued exposure

The Heat Index is determined using the dry bulb temperature and the relative humidity. It is based on charts available through the U.S. National Weather Service. The Heat Index represents how an average person feels relative to climate conditions. For a given temperature, the higher the humidity, the higher the heat index will be.

## Battery Replacement

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When the low battery icon (BAT) appears on the LCD, the CR-2032 lithium button battery must be replaced. The battery compartment is located on the rear of the meter.

1. Use a coin to turn the battery compartment cover counter-clockwise to open.
2. Note the position, orientation, and polarity of the existing battery installation.
3. Replace the CR-2032 Lithium battery following the same position, orientation, and polarity.
4. Replace the battery compartment cover and secure it using a coin to turn it clockwise



Never dispose of used batteries or rechargeable batteries in household waste.

As consumers, users are legally required to take used batteries to appropriate collection sites, the retail store where the batteries were purchased, or wherever batteries are sold.

**Disposal:** Do not dispose of this instrument in household waste. The user is obligated to take end-of-life devices to a designated collection point for the disposal of electrical and electronic equipment.

### Other Battery Safety Reminders

- Never dispose of batteries in a fire. Batteries may explode or leak.
- Never mix battery types. Always install new batteries of the same type.

## Specifications

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Display	Multi-function LCD
<b>Measurement ranges</b>	
Air Temperature	-20 to 50°C (-4 to 122°F)
Heat Index	-46 to 205°C (-50.8 to 401°F)
Dew Point	-78 to 50°C (-108.4 to 122°F)
Wet Bulb	-20 to 50°C (-4 to 122°F)
Wet Bulb Globe	-25 to 54.5°C (-13 to 130°F)
Relative Humidity	0 to 99.9% RH
<b>Resolution</b>	0.1°C/°F/%RH
<b>Accuracy</b>	
Temperature	±0.6°C (1°F)
Relative Humidity	±3%RH @ 25 °C from 10 to 90% RH otherwise ±5% RH
Power supply	1 x CR2032 Lithium Battery
Dimensions	140 x 35 x 18mm (5.5 x 1.4 x 0.7")
Weight	50g (1.8 oz.)