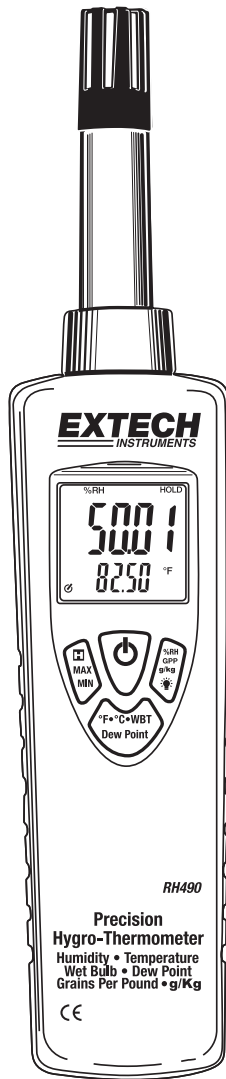


User's Guide



## Precision Hygro-Thermometer

Model RH490



## ***Introduction***

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Congratulations on your purchase of the Extech RH490 Precision Hygro-Thermometer. This device measures Humidity, Air Temperature, Dew Point temperature, Wet Bulb temperature and Grains of Water Vapor Per Pound of Air. Advanced features include Data Hold, Auto Power Off, and MAX/MIN reading. This meter is shipped fully tested and calibrated and with proper use will provide years of reliable service.

## ***Warranty***

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**EXTECH INSTRUMENTS CORPORATION** warrants this instrument to be free of defects in parts and workmanship for **one year** from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department at (781) 890-7440 ext. 210 for authorization or visit our website [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

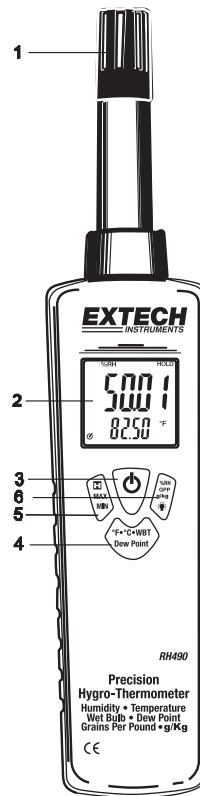
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## Meter Description

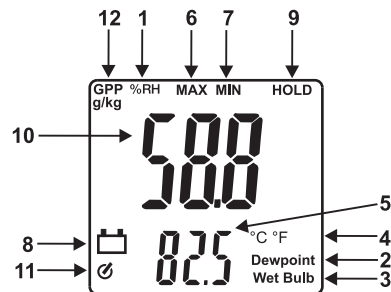
1. Humidity & Temperature Sensor
2. LCD Display
3. Power ON/OFF button
4. °F/°C/WBT (wet bulb)/Dew Point button
5. Hold/MIN-MAX button
6. %RH, GPP, g/Kg, Backlight button

Note: The battery compartment is located on the rear of the instrument



## Display Description

1. Relative Humidity %
2. Dew Point
3. Wet Bulb
4. °C/°F
5. Temp/WB/DP Display
6. Maximum
7. Minimum
8. Low Battery
9. Hold
10. RH% Display
11. Auto Off
12. Grains per pound



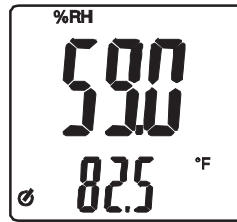
## Operation

### Power

Press the power button  to turn power on or off.

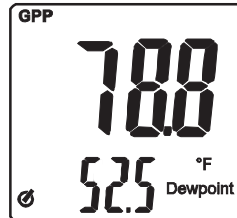
### %RH

1. To select %RH measurement, press the “%RH/GPP/g/Kg” button.
2. Hold the probe in the area to be tested.
3. Allow adequate time for readings to stabilize.
4. The Relative Humidity measurement appears in the top display.
5. Pressing the “°F/°C/WBT/Dew Point” button toggles the lower display between Temperature (°F), Temperature (°C), Dew Point (°C), Dew Point (°F), Wet Bulb (°C) and Wet Bulb (°F).



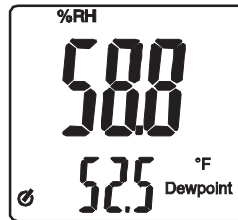
### Mixing Ratio (Grains Per Pound or Grams Per Kilograms)

1. To select GPP or g/kg measurement, press the “%RH/GPP/g/Kg” button.
2. Hold the probe in the area to be tested.
3. Allow adequate time for readings to stabilize.
4. The GPP or g/Kg measurement appears in the top display.
5. Pressing the “°F/°C/WBT/Dew Point” button toggles the lower display between Temperature (°F), Temperature (°C), Dew Point (°C), Dew Point (°F), Wet Bulb (°C) and Wet Bulb (°F).



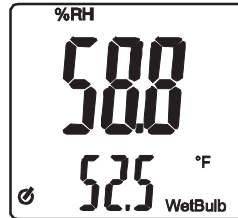
### Dew Point

1. To select the Dew Point measurement, press the “°F/°C/WBT/Dew Point” button until DEWPOINT (°F or °C) appears in the lower right.
2. Dew Point temperature is now displayed.



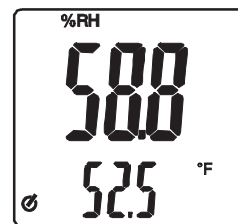
### Wet Bulb

1. To select the Wet Bulb measurement, press the “°F/°C/WBT/Dew Point” button until WET BULB (°F or °C) appears in the lower right.
2. Wet Bulb temperature is now displayed.



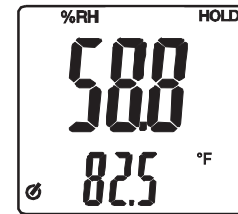
### Temperature

1. To select the temperature measurement, press the “°F/°C/WBT/Dew Point” button until “°C” or “°F” appears in the lower right.
2. Temperature is now displayed.



### Data Hold

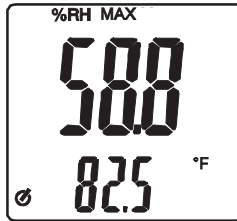
1. Press the "H MAX MIN" button momentarily to freeze the displayed readings. "HOLD" will appear on the upper left-hand side of the display.
2. Press the "H MAX MIN" button three more times to return to normal operation. (Steps through MAX and MIN)



## Minimum (MIN) Maximum (MAX) Function



The MIN/MAX mode allows the user to view only the lowest (**MIN**) or highest (**MAX**) readings.

1. Press the "**H MAX MIN**" button twice and "**MIN**" appears on the display. The LCD is now displaying the minimum value recorded in both the top and bottom display. The display will not change until a lower reading is registered.
2. Press the "**H MAX MIN**" button again and "**MAX**" appears on the display. The LCD is now displaying the maximum value recorded in both the top and bottom display. The display will not change until a higher reading is registered.
3. To exit the MIN/MAX mode, press the "**H MAX MIN**" button again. The "**MAX**" icon will disappear.




**Note:** Max and Min values are recorded into memory while the meter is on. The values are erased when power is turned off.


## Backlight

Press and hold the light button " until the backlight turns on. To turn the backlight off, press and hold the light button " until the backlight turns off.

## Automatic Power OFF

The meter has a default setting that automatically shuts the meter off after 10 minutes (indicated by the  symbol on the display).

This battery saving feature can be disabled.

To disable the auto power off function, press and hold the "**H MAX MIN**" hold button while powering on. The  symbol will not appear when auto power off has been disabled.

The meter will revert to the default auto-off mode when powered off.


## Maintenance

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### Cleaning and storage

1. The meter should be cleaned with a damp cloth and mild detergent when necessary. Do not use solvents or abrasives.
2. Store the meter in an area with moderate temperature and humidity (refer to the operating and storage range in the specifications chart earlier in this manual).

### Battery Replacement

When the battery becomes weak the " battery symbol will appear on the LCD. Replace the 9 Volt battery by removing the Philips head screw holding the rear battery compartment cover to access the battery compartment. Ensure that the compartment cover is securely fastened when finished.

## Specifications

Function	Range and Resolution	Accuracy
Humidity	0.0 to 10.0%RH	±3%RH
	10.0 to 90.0%RH	±2%RH
	90.0 to 100.0%RH	±3%RH
Temperature	-22.0 to - 3.9°F -30.0 to -19.9°C	±2.7°F ±1.5°C
	-4.0 to 158.0°F -20.0 to 70.0°C	±1.8°F ±1°C
	158.1 to 199.0°F 70.1 to 100.0°C	±2.7°F ±1.5°C
Wet Bulb	32 to 176°F (0 to 80°C)	Calculated from RH and air temperature measurements
Dew Point	-22 to 199°F (-30 to 100°C)	
Mixing Ratio	0 to 1120 GPP (grains per pound) 0 to 160 g/kg (grams per kilogram)	

**Display** Dual LCD  
**Response Time:** <30 seconds (90% of final value in moving air)  
**Operating Conditions** 32 to 122°F (0 to 50°C); < 80% RH non-condensing  
**Storage Conditions** -40 to 185°F (-40 to 85°C); <99% RH non-condensing  
**Power Supply** 9 Volt battery  
**Battery Life** Approx. 24 hours  
**Dimensions / Weight** 7.8 x 1.7 x 1.3" (200 x 45 x 33mm); 7 oz. (200g)

## Calibration and Repair Services

**Extech offers repair and calibration services** for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.



### Support line (781) 890-7440

Technical support: Extension 200; E-mail: support@extech.com

Repair & Returns: Extension 210; E-mail: repair@extech.com

#### Product specifications subject to change without notice

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: [www.extech.com](http://www.extech.com)