



**RH200A/ RH201A  
OPERATING  
INSTRUCTIONS**

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## **1. GENERAL INFORMATION**

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It is recommended that you read the safety and operating instructions before using this instrument.

### **Notes:**

RH200A is a RH/temperature handheld instrument using an integral sensor; RH201A uses a separate RH/temperature probe (RH-201A-RP).




### **WARNING**

**TO AVOID ELECTRIC SHOCK DO NOT ALLOW ANY PROBE OR SENSOR TO COME INTO CONTACT WITH LIVE ELECTRICAL POWER CONDUCTORS WITH VOLTAGES IN EXCESS OF 30V AC RMS OR 60V DC.**

**TO AVOID DAMAGE OR BURNS, DO NOT MAKE TEMPERATURE MEASUREMENTS IN MICROWAVE OVENS.**

**DO NOT PLACE THE THERMOMETER IN A DISHWASHER AS IT IS NOT DISHWASHER SAFE.**

**THE  SYMBOL ON THE INSTRUMENT INDICATES THAT THE OPERATOR MUST REFER TO THE WARNINGS GIVEN HERE.**

This instrument complies with the Electromagnetic Compatibility Directive EN61326-1



Declarations of Conformity available.

## **1. DESCRIPTION**

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The RH200A and RH201A handheld hygrometers incorporate high level accuracy (both temperature and humidity) with class leading features.

The RH200A has an integral sensor head, while the RH201A has the RH sensor and its associated electronics, contained in a hand held probe (RH-201A-RP) connected to the instrument by a cable. This probe is also fitted with a thermistor for high accuracy air temperature measurement. The RH201A is also capable of independent temperature measurement via a special adaptor enabling the use of other thermistor probes.

Both units use a large LCD allowing both humidity and temperature to be displayed simultaneously.

There are two basic operation modes for these instruments:

1. Measurement of Relative Humidity.
2. Calculation of Dew point.

### **1.1 ACCESSORIES AVAILABLE**

Each hygrometer can be supplied with a rubber boot for those demanding applications requiring additional protection for the instrument. Each rubber boot comes complete with a built in wrist strap for added security.  
(Part No: CRS/4)

## 2. OVERVIEW OF DISPLAY SYMBOLS

The Display is split into three main areas. The first line displays either Relative Humidity or Dew Point. The second line is split into two areas; the area to the left is used to display ambient temperature, whereas the area to the right is used to indicate the temperature scale in use and Dew point mode.

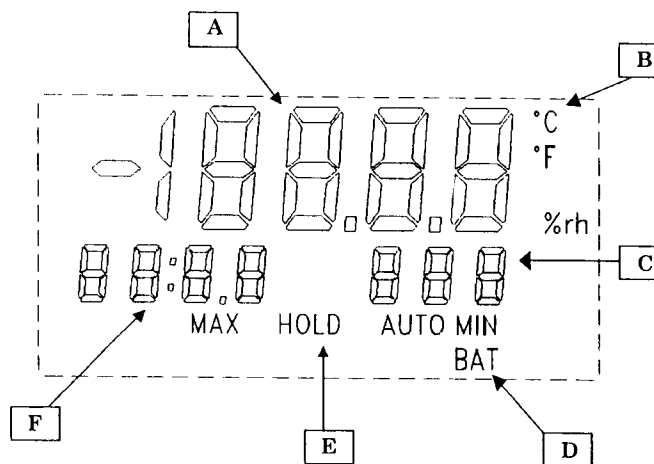


FIG. 1

- A. Main RH/Dewpoint display.
- B. Used to indicate temperature scale in use when in Dewpoint mode. %rh indicates that the instrument is in Relative Humidity mode.
- C. Displays the current temperature scale in use in RH mode or indicates Dewpoint mode.
- D. Indicates AUTO power off enabled/MINimum and Low BATtery.
- E. Indicates MAXimum and HOLD mode.
- F. Used to indicate ambient temperature.

### 3. OPERATING INSTRUCTIONS

A full description of the operation of the modes of the Hygrometers is given below.



#### 3.1 SWITCH ON

Press to turn ON.

**NOTE:** The instrument performs a self-test for up to 1 second when switched on.

Press this button again to turn the instrument OFF.

#### RH201A

A probe must be inserted before the instrument can be operated. If a probe is not inserted the display appears as follows:

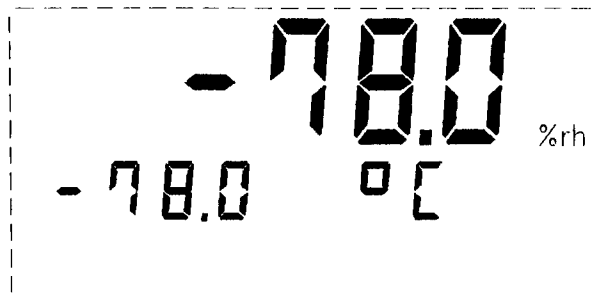


FIG.2

This is the normal indication for an open circuit, broken probe or out of range indication.

#### RH200A

If your RH200A displays the above diagram it is faulty and should be returned to Omega Service Department.



### 3.2 %RH/DP

Selects direct relative humidity measurement or dewpoint calculation mode and will be displayed in the main name area of the display.

Relative Humidity Mode:



FIG. 3

Dewpoint Mode:

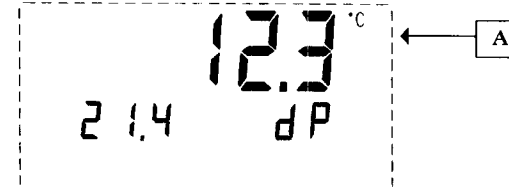


FIG. 4



### 3.3 °C/°F

This selects the temperature scale used. This applies to both ambient temperature and dewpoint temperature depending on the mode of operation.



### 3.4 HOLD

Freezes the display with the last measured value. 'HOLD' is shown on the display. Press the button again to release this function.

NOTE: Having selected HOLD, it is still possible to scroll the held values of MAX, MIN and CURRENT temperatures and to redisplay the temperature scale for any of these. It is also possible to change to dewpoint mode or RH. Note that the scale indicated by A in Fig. either °C/°F, has now become the scale indicator for both the dewpoint temperature and the ambient air temperature.



### 3.5 MAX/MIN

at  
ric

This button scrolls through the display of the Maximum, Minimum and current humidity and temperature. It also cycles through the Maximum and Minimum values in dewpoint and hold modes.



### 3.6 RESET

Resets Maximum and Minimum to Current value. This function occurs automatically at switch-on.

The reset button copies the current value into the Maximum and Minimum stores, but it does not alter the selection for display.

### 3.7 AUTO-SWITCH OFF

These hygrometers can be configured either to switch off automatically five minutes after the last button operation or to remain permanently on until manually switched off.

This mode is indicated on the display by the AUTO symbol. When this is visible the instrument will auto power down.

To change from one mode option to the other, switch the instrument OFF, then with the °C/°F button depressed switch the instrument ON again.

## 4. MEASUREMENT

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Although the humidity sensor is virtually insensitive to temperature over the normal operating range, temperature itself affects Relative Humidity. This and other factors are discussed at a later point. This dependence (typically 0.5%RH for 0.1°C (0.2°F) temperature change) means that when taking a cold probe into a warmer atmosphere, RH readings will initially be high and conversely when a warm probe is taken into a cold atmosphere, readings will initially be low.

To ensure accurate readings the user should wait until the display is stable.



## **5. PRECAUTIONS IN USE**

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Care should be taken where organic solvents are being used. Occasional exposure to hazardous environments is to be expected for a portable instrument but for more prolonged use (e.g. monitoring), Omega should be contacted for advice.

Care must also be taken to protect all sensors against physical damage.

## **6. MAINTENANCE**

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### **6.1 SENSOR CLEANING**

In the event of accidental pollution, the following steps may be taken, though success cannot be guaranteed.

NOTE: On no account touch the humidity sensor (glass) with even the softest material.

DUST – use a **gentle** air stream, e.g. from squeeze-bulb used for cleaning camera lenses. If not successful, use a stream of **distilled** water from a wash bottle, holding the probe downwards, so that water drips clear from the sensor. Dry in a dust-free environment, using a hair-dryer to speed the drying process, if required.

OILY POLLUTION – use a stream of perchlorethylene to remove contamination.

## **7. CALIBRATION**

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This can only be performed by Omega.

## **8. PRECAUTIONS IN RH MEASUREMENT**

Apart from the need to take reasonable care when using the RH200A/RH201A as described already, there are precautions to be taken in measuring humidity, regardless of the instrument being used.

### **AIR CIRCULATION**

Without air circulation there will be humidity differentials across the room or chamber.

### **TEMPERATURE**

The temperature differences that exist across a room or chamber, though small, will have a large effect on Relative Humidity. In a typical case 0.5%RH for a temperature difference of 0.1°C (0.2°F).

### **AIR VELOCITY**

Some air velocity is necessary to ensure accurate results and fast response time.

### **ATMOSPHERIC PRESSURE EFFECTS**

These are often neglected, but can be significant. As an example, for the same temperature, air measured at 1050mB (millibars) may give an RH of 70%RH, whereas the same air at 950mB will read 77%RH.

### **CONDENSATION**

This can occur at high RH when the probe is below the ambient dewpoint. Though the RH200A/RH201A humidity sensor will recover from this, it should be avoided if possible.

# SPECIFICATION

<b>RH200A &amp; RH201A</b>					
<b>RANGE:</b>					
Humidity	0%RH to 100%RH				
Temperature	-20 to 60°C (-4 to 140°F)				
<b>RESOLUTION:</b>	0.1°C/F %RH				
<b>ACCURACY:</b>					
Humidity	±2%RH 0 to 90%RH ±3%RH 90 to 100%RH				
Temperature	±0.5°C, ±0.9°F				
Temperature Coefficient of RH Sensor	Negligible				
Ambient Operating Temperature Range	-20 to 60°C (-4 to 140°F)				
<b>BATTERY TYPE:</b>	Two Type I.E.C. LR6 Size AA				
Battery Life Continuous	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">RH200A</td> <td style="width: 50%;">300hrs</td> </tr> <tr> <td>RH201A</td> <td>250hrs</td> </tr> </table>	RH200A	300hrs	RH201A	250hrs
RH200A	300hrs				
RH201A	250hrs				
<b>DIMENSIONS:</b>					
Instrument Probe RH-201A-RP	Approx L183, W 68/79, D31mm Approx L 200, Dia 23mm				
<b>WEIGHT</b>					
Instrument Probe RH-201A-RP	272g 126g				
<b>EMC</b>	Tested to EN61326-1 Criteria B performance				