**RETURN REQUESTS/INQUIRIES**

Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

**FOR NON-WARRANTY REPAIRS, contact OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:**

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

OMEGA's policy is to make running changes, not model changes, whenever an improvement is possible. This affords our customers the latest in technology and engineering.

**FOR WARRANTY RETURNS,** please have the following information available BEFORE contacting OMEGA:

1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

**OMEGA warrants this unit to be free of defects in materials and workmanship for a period of 13 months from date of purchase. OMEGA'S WARRANTY applies to the normal one (1) year product warranty to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA'S WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA'S control.

Components in which wear is not warranted, include but are not limited to contact points, fuses, and trims.

OMEGA is pleased to offer suggestions on the use of its various products. However, OMEGA neither assumes responsibility for any omissions or errors nor assumes liability for any damages that result from the use if its products in accordance with information provided by OMEGA, either verbal or written. OMEGA warrants only that the parts manufactured by the company will be as specified and free of defects. OMEGA makes no OTHER WARRANTIES OR REPRESENTATIONS OF ANY KIND WHATSOEVER, EXPRESSED OR IMPLIED, EXCEPT THAT OF TITLE, AND ALL IMPLIED WARRANTIES INCLUDING ANY WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. LIMITATION OF LIABILITY: The remedies of purchaser set forth herein are exclusive, and the total liability of OMEGA with respect to this order, whether based on contract, warranty, negligence, indemnification, strict liability or otherwise, shall not exceed the purchase price of the component upon which liability is based. In no event shall OMEGA be liable for consequential or incidental damages. In no event shall OMEGA be liable for consequential, incidental or special damage.

**CONDITIONS:** Equipment sold by OMEGA is not intended to be used, nor shall it be used: (1) as a “Basic Component” under 10 CFR 21 (NRC), which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based. In no event shall OMEGA be liable for negligence, indemnification, strict liability or otherwise, for a failure to conform to specification; or (2) in medical conditions, which liability is based.
The HHF1000 series air velocity/temperature meter is not explosion proof, nor is it intrinsically safe. Do not use for flammable or hazardous gases, or in hazardous areas.

General Information
The HHF1000 series handheld air velocity/temperature meter measures and displays air velocity mass flow and air temperature of clean air flows in ducts & pipes, while producing very little pressure drop in the flow stream. The sensor design is based on three RTD elements, one measures the air temperature and the other two measure the air velocity.

The HHF1000 displays the air velocity in feet per minute (FPM), meter per second (m/s), miles per hour (MPH), and kilometer per hour (Km/h). The air temperature is displayed in °F & °C. The volume airflow is displayed in Cubic Feet per minute (CFM) and Cubic meter per minute (CMM).

The sensor probe is 12" long as standard. The 304 Stainless Steel sensor tubing is provided with inch marks for ease of insertion depths. The sensor probe comes in two different versions as follows:

- Telescopic probe adjustable from 10 to 36 inches.
- Fixed 12 inches long probe

The HHF1000 is a bi-directional device, meaning the air flow in the forward or reverse direction provides the same readings.

Installation
1. Install the 9V battery in the battery compartment of the unit. You can remove the battery door to get to the compartment.
2. Remove the protective cap from the sensor tip.
3. Run a length of straight pipe before and after the flow sensor probe. The amount of upstream straight pipe required depends on the type of obstruction which is immediately upstream of the flow sensor. Downstream of the flow sensor, in all situations, run 5 diameters of straight pipe regardless of the downstream obstruction.
4. Align the sensor probe with the air flow. Make sure the air flow is perpendicular to the sensor windows. The score line on the sensor tubing is another way of marking the air flow is perpendicular to the sensor windows. The unit powers from a 9V battery or a 9Vdc adapter.

Piping Requirement

<table>
<thead>
<tr>
<th>Typical Piping</th>
<th>Recommended Straight Pipe Length A</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Without Valve</td>
<td>With Valve</td>
<td>Without Valve</td>
</tr>
<tr>
<td>10D</td>
<td>10D</td>
<td>Closed Branch</td>
</tr>
<tr>
<td>20D</td>
<td>12D</td>
<td>Blow, Ten, Branch Pipe</td>
</tr>
<tr>
<td>20D</td>
<td>12D</td>
<td>Blow, 2 planes</td>
</tr>
<tr>
<td>20D</td>
<td>12D</td>
<td>Long-radius Bend</td>
</tr>
<tr>
<td>30D</td>
<td>25D</td>
<td>Blow long-radius Bend</td>
</tr>
<tr>
<td>40D</td>
<td>25D</td>
<td>Blow long-radius Bend</td>
</tr>
<tr>
<td>40D</td>
<td>20D</td>
<td>Contracting Pipe</td>
</tr>
</tbody>
</table>

Main Operation
Changing Display Engineering Units – You can change the air velocity Engineering unit display from feet per minute (FPM) to meter per second (m/s), miles per hour (MPH), and kilometers per hour (Km/h) from the keypad (Press SET key). You can change the temperature display from °F to °C or vice versa by pressing the DOWN key.

Turn On Display Backlight – You can turn on the auto power shut off feature (Default is ON) to save battery life. If no keys are pressed for 5 minutes, the unit will shut down to save battery life. Pressing any key will turn the unit back on.

Display Volume Air Flow – The unit calculates volume air flow by multiplying the air velocity by the cross sectional area of the pipe or the duct. The cross sectional area can be set in the display menu as shown in the keypad flow chart in square inches units. The volume air flow is shown in cubic feet per minute or cubic meter per minute when air temperature is displayed in Degrees C.

Auto Power Shutoff – You can turn on the auto power shut off feature (Default is ON) to save battery life. If no keys are pressed for 5 minutes, the unit will shut down to save battery life. Pressing any key will turn the unit back on.

Keypad Functional Flow Chart

The HHF1000 air velocity/temperature meter saves the following parameters in the non-volatile memory, so removing the power will not affect these settings: High and Low alarm air velocity set points and status (On or Off), Display Response time in msec, Cross sectional area in Square inches, Atmospheric Pressure in mmHg.