

**1 YEAR**  
WARRANTY



# User's Guide



***Shop online at***

***omega.com***

Ω OMEGA®

***omega.com***

***e-mail: info@omega.com***

***For latest product manuals:  
omegamanual.info***

**ISO 9001**  
CERTIFIED  
CORPORATE QUALITY  
STAMFORD, CT

**ISO 9001**  
CERTIFIED  
CORPORATE QUALITY  
MANCHESTER, UK

MADE IN TAIWAN

# HHF42

## Hot Wire Anemometer

## TABLE OF CONTENTS

|                                    |   |
|------------------------------------|---|
| 1. FEATURES.....                   | 1 |
| 2. SPECIFICATIONS.....             | 2 |
| 2-1 General Specifications.....    | 2 |
| 2-2 Electrical Specifications..... | 3 |
| 3. FRONT PANEL DESCRIPTION.....    | 4 |
| 3-1 Display.....                   | 4 |
| 3-2 Power Off/On Button.....       | 4 |
| 3-3 Data Hold Button.....          | 4 |
| 3-4 °C/°F Button.....              | 4 |
| 3-5 Memory "Record" Button.....    | 4 |
| 3-6 Memory "CALL" Button.....      | 4 |
| 3-7 Zero Button.....               | 4 |
| 3-8 Unit Button.....               | 4 |
| 3-9 Battery Compartment/Cover..... | 4 |
| 3-10 Probe Input Socket.....       | 4 |
| 3-11 Sensing Head.....             | 4 |
| 3-12 Probe Handle.....             | 4 |
| 3-13 Probe Plug.....               | 4 |
| 4. MEASURING PROCEDURE.....        | 5 |
| 5. BATTERY REPLACEMENT.....        | 9 |

## 1. FEATURES

- \* Thermal anemometer, available for very low air velocity measurement.
- \* Slim probe, ideal for grilles & diffusers.
- \* Combination of hot wire and standard thermistor, deliver rapid and precise measurements even at low air velocity values.
- \* Microprocessor circuit assures maximum possible accuracy, provides special functions and features.
- \* Super large LCD with dual function display reads the air velocity & temp. at the same time.
- \* Heavy duty & compact housing case.
- \* Records Maximum and Minimum readings with recall.
- \* Data hold.
- \* Power supplied by 1.5 V AAA (alkaline) battery x 6 PCs.
- \* The portable anemometer provides fast, accurate readings, with digital readability and the convenience of a remote probe.
- \* Multi-functions for air flow measurement : m/s, km/h, ft/min, knots. mile/h.
- \* Built in temperature °C, °F measurement.
- \* Thermistor sensor for Temp. measurement, fast response time.
- \* Durable, long-lasting components, including a strong, light weight ABS-plastic housing case.
- \* Deluxe hard carrying case.
- \* Applications : Environmental testing, Air conveyors, Flow hoods, Clean rooms, Air velocity, Air balancing, Fans/motors/blowers, Furnace velocity, Refrigerated cases, Paint spray booths.

## 2. SPECIFICATIONS

### *2-1 General Specifications*

|                       |                                                                                                                                                                                |
|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Circuit               | Custom one-chip of micro-processor LSI circuit.                                                                                                                                |
| Display               | * 13 mm(0.5") Super large LCD display.<br>* Dual function meter's display.                                                                                                     |
| Measurement           | m/s (meters per second)<br>km/h (kilometers per hour)<br>ft/min (feet/per minute)<br>knots (nautical miles per hour)<br>mile/h(miles per hour)<br>Temp.- °C, °F.<br>Data hold. |
| Sensor Structure      | <i>Air velocity :</i><br>Tiny glass bead thermistor.                                                                                                                           |
|                       | <i>Temperature :</i><br>Precision thermistor.                                                                                                                                  |
| Memory                | Maximum and Minimum with recall.                                                                                                                                               |
| Sampling Time         | Approx. 0.8 sec.                                                                                                                                                               |
| Operating Temperature | 0 °C to 50 °C(32 °F to 122 °F).                                                                                                                                                |
| Operating Humidity    | Less than 80% RH.                                                                                                                                                              |
| Power Supply          | 1.5 V AAA (UM-4) battery x 6 PCs.<br>(Alkaline).                                                                                                                               |

|                      |                                                                                                                                                                                 |
|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Current        | Approx. DC 30 mA.                                                                                                                                                               |
| Weight               | 355 g/0.78 LB.                                                                                                                                                                  |
| Dimension            | Main instrument:<br>185 x 78 x 38 mm ( 7.1 x 3.1 x 1.5 inch ).<br>Telescope Probe :<br>Round, 12 mm Dia x 280 mm ( min. length ).<br>Round, 12 mm Dia x 940 mm ( max. length ). |
| Accessories Included | Instruction manual.....1 PC.<br>Telescope Probe.....1 PC.<br>Hard carrying case..... 1 PC.                                                                                      |

## **2-2 Electrical Specifications ( $23 \pm 5^{\circ}\text{C}$ )**

| A. Air velocity                                                                                                                                                                                  |                 |            |                                                               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------|------------|---------------------------------------------------------------|
| Measurement                                                                                                                                                                                      | Range           | Resolution | Accuracy                                                      |
| m/s                                                                                                                                                                                              | 0.2–20.0 m/s    | 0.1 m/s    | ± ( 5% + 1d )<br>reading<br>or<br>± ( 1% + 1d )<br>full scale |
| km/h                                                                                                                                                                                             | 0.7–72.0 km/h   | 0.1 km/h   |                                                               |
| ft/min                                                                                                                                                                                           | 40–3940 ft/min  | 1 ft/min   |                                                               |
| mile/h                                                                                                                                                                                           | 0.5–44.7 mile/h | 0.1 mile/h |                                                               |
| knots                                                                                                                                                                                            | 0.4–38.8 knots  | 0.1 knots  |                                                               |
| Note:<br>m/s – meters per second   km/h – kilometers per hour<br>ft/min – feet/per minute   knots – nautical miles per hour<br>mile/h – miles per hour                      (international knot) |                 |            |                                                               |

| <b>B. Temperature</b> |                               |
|-----------------------|-------------------------------|
| Measuring Range       | 0 °C to 50 °C/32 °F to 122 °F |
| Resolution            | 0.1 °C/0.1 °F                 |
| Accuracy              | 0.8 °C/1.5 °F                 |

### **Remark :**

*Spec. tested under the environment RF Field Strength less than 3 V/M & frequency less than the 30 MHz only.*

### 3. FRONT PANEL DESCRIPTION

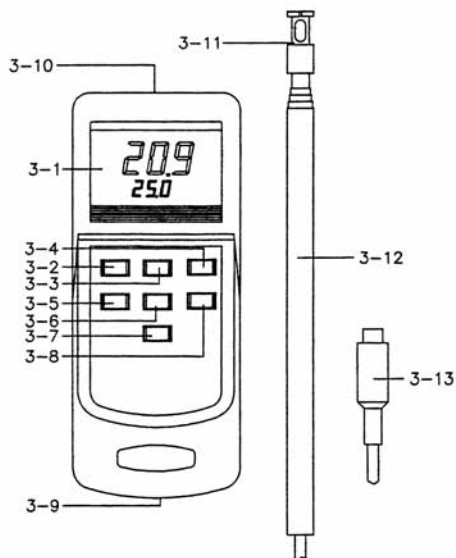
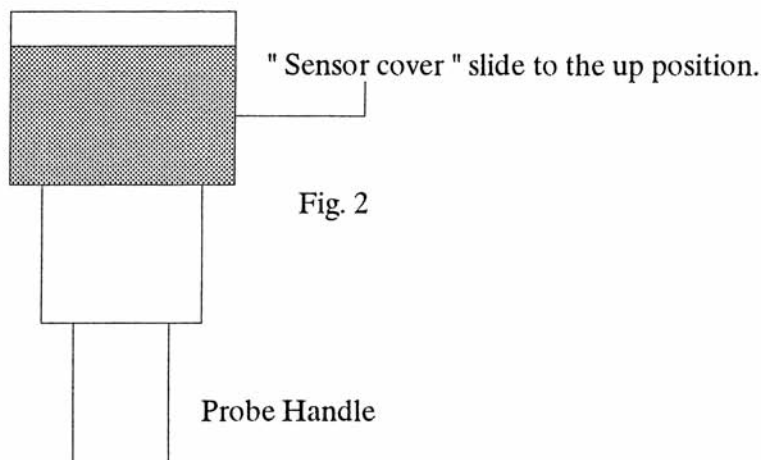


Fig. 1

- 3-1 Display
- 3-2 Power Off/On Button
- 3-3 Data Hold Button
- 3-4 °C/°F Button
- 3-5 Memory "Record" Button
- 3-6 Memory "CALL" Button
- 3-7 Zero Button
- 3-8 Unit Button
- 3-9 Battery Compartment/Cover
- 3-10 Probe Input Socket
- 3-11 Sensing Head
- 3-12 Probe Handle
- 3-13 Probe Plug

#### 4. MEASURING PROCEDURE

- 1) Connect the " Probe's Plug " (3-13, Fig. 1) to the " Probe Input Socket " (3-10, Fig.1).
- 2) Power on the meter by pushing the " Power On/Off Button " (3-2, Fig.1) once.
- 3) Select the desired temperature units, using the " °C/°F Button " (3-4, Fig. 1).
- 4) Select the desired air velocity units, m/s, km/h, ft/min, knots, mile/h, using the " Unit Button " (3-8, Fig. 1).
- 5) Zero setting :
  - a. Utilizing the "Sensing Head" (3-11, Fig.1), slide the sensor cover to the up position to let the air velocity sensor become isolated from the environment, refer to Fig. 2.
  - b. Push the " Zero Button " (3-7, Fig. 1) to let the reading value of air velocity display zero value.



- 6) a. Slide the sensor cover to the down position, to let the air velocity sensor contact the air, refer Fig. 3.  
b. Extend the telescope probe to the convenient length, refer Fig. 4

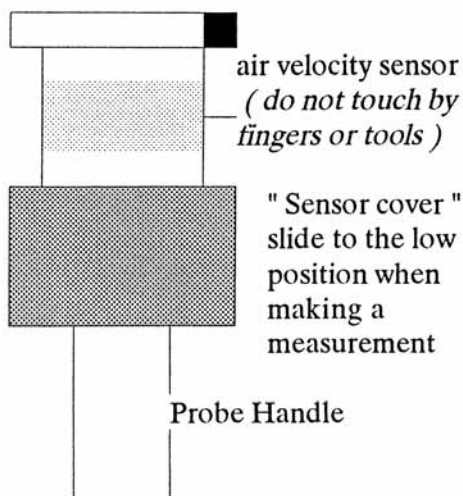


Fig. 3



Fig. 4

### ***Caution !!!***

**Do not let the fingers or any tool touch the air velocity sensor, otherwise the meter may be permanently damaged.**



7) Direction of the sensor head :

There is a mark on the top of the " Sensor Head ", when making the measurement, this mark should be against the measured wind, refer Fig. 6, Fig. 7. When the sensor head faces against the measurement air, then the upper display will show the air velocity value. The lower display will show the temperature value.

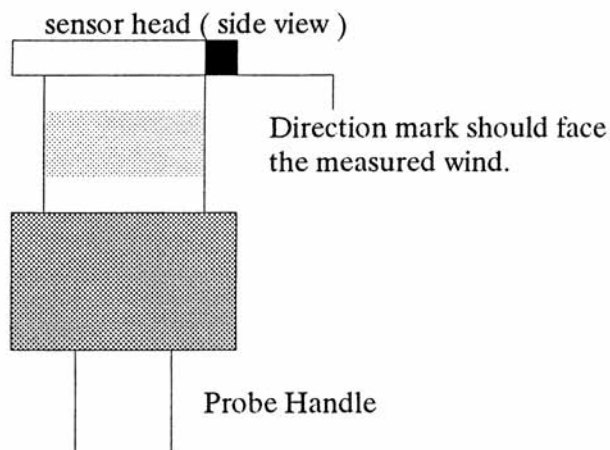


Fig. 6

sensor head ( top view )

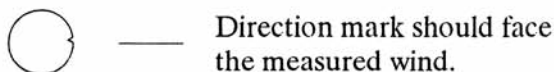


Fig. 7

8) Data Hold :

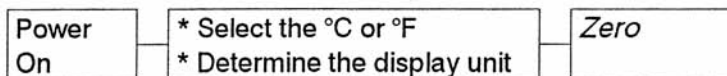
- a. During measurement, pushing the " Data Hold Button " (3-3, Fig. 1) will hold the display values & the LCD will display the " D.H " symbol.
- b. To cancel the Data Hold function, Press the Data Hold Button once more.

9) Data Record ( Max. & Min. reading )

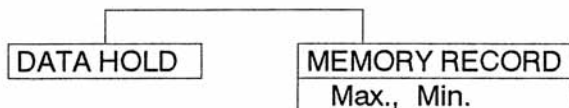
- a. The Data Record function displays the maximum & minimum readings. To start the Data Record function, press the " Record Button " (3-5, Fig. 1) once. " REC " symbol will appear on the LCD display.
- b. With the " REC " symbol indicated on the display
  - \* Push the " CALL Button " (3-6, Fig. 1) once, then the " Max " symbol with the maximum values recorded will appear on the LCD display.
  - \* Push the " CALL Button " once again, the " Min " symbol with the minimum values recorded will appear on the LCD display.
  - \* To de-activate the Data Record function, Press the " Record Button " (3-5, Fig. 1) once again. All associated annunciators will disappear from the display.

10) For quick measurement, follow the procedures shown below :

**Main procedures :**



**Optional measuring procedures :**



## 5. BATTERY REPLACEMENT

- 1) When the left corner of LCD display shows " LBT ", it is necessary to replace the battery. However, in-spec measurement may still be made for several hours after low battery indicator appears before the instrument becomes inaccurate.
- 2) Slide the " Battery Cover " (3-9, Fig. 1) away from the instrument and remove the battery.
- 3) Install the 1.5 V AAA battery x 6 PCs. Please use the Alkaline type battery. After installing the batteries, reinstate the battery cover.



OMEGAnet® Online Service  
omega.com

Internet e-mail  
info@omega.com

### Servicing North America:

**U.S.A.:** Omega Engineering, Inc., One Omega Drive, P.O. Box 4047  
**ISO 9001 Certified** Stamford, CT 06907-0047  
Toll-Free: 1-800-826-6342 Tel: (203) 359-1660  
FAX: (203) 359-7700 e-mail: info@omega.com

**Canada:** 976 Berger  
Laval (Quebec), H7L 5A1 Canada  
Toll-Free: 1-800-826-6342 TEL: (514) 856-6928  
FAX: (514) 856-6886 e-mail: info@omega.ca

### For immediate technical or application assistance:

**U.S.A. and** Sales Service: 1-800-826-6342 / 1-800-TC-OMEGA®  
**Canada:** Customer Service: 1-800-622-2378 / 1-800-622-BEST®  
Engineering Service: 1-800-872-9436 / 1-800-USA-WHEN®

**Mexico/** En Español: 001 (203) 359-7803 FAX: 001 (203) 359-7807  
**Latin America** info@omega.com.mx e-mail: espanol@omega.com

### Servicing Europe:

**Benelux:** Managed by the United Kingdom Office  
Toll-Free: 0800 099 3344 TEL: +31 20 347 21 21  
FAX: +31 20 643 46 43 e-mail: sales@omegaeang.nl

**Czech Republic:** Frystatska 184  
733 01 Karviná, Czech Republic  
Toll-Free: 0800-1-66342 TEL: +420-59-6311899  
FAX: +420-59-6311114 e-mail: info@omegashop.cz

**France:** Managed by the United Kingdom Office  
Toll-Free: 0800 466 342 TEL: +33 (0) 161 37 29 00  
FAX: +33 (0) 130 57 54 27 e-mail: sales@omega.fr

**Germany/ Austria:** Daimlerstrasse 26, D-75392 Deckenpfronn, Germany  
Toll-Free: 0800 6397678 TEL: +49 (0) 7056 9398-0  
FAX: +49 (0) 7056 9398-29 e-mail: info@omega.de

**United Kingdom:** OMEGA Engineering Ltd.  
One Omega Drive, River Bend Technology Centre, Northbank  
Irlam, Manchester M44 5BD United Kingdom  
Toll-Free: 0800-488-488 TEL: +44 (0) 161 777-6611  
**ISO 9001 Certified** FAX: +44 (0) 161 777-6622 e-mail: sales@omega.co.uk

It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

**WARNING:** These products are not designed for use in, and should not be used for, human applications.

## WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. 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 adds an additional one (1) month grace period 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 triacs.

**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 of 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, incidental or special damages.**

**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), used in or with any nuclear installation or activity; or (2) in medical applications or used on humans. Should any Product(s) be used in or with any nuclear installation or activity, medical application, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTY/DISCLAIMER language, and, additionally, purchaser will indemnify OMEGA and hold OMEGA harmless from any liability or damage whatsoever arising out of the use of the Product(s) in such a manner.

## 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.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

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.

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

1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, 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.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

© Copyright 2010 OMEGA ENGINEERING, INC. All rights reserved. This document may not be copied, photocopied, reproduced, translated, or reduced to any electronic medium or machine-readable form, in whole or in part, without the prior written consent of OMEGA ENGINEERING, INC.

M4108/0810