

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.

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 or calibration,
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 2013 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.

5

SECTION 3: Basic Operations

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 **°F/°C** key.

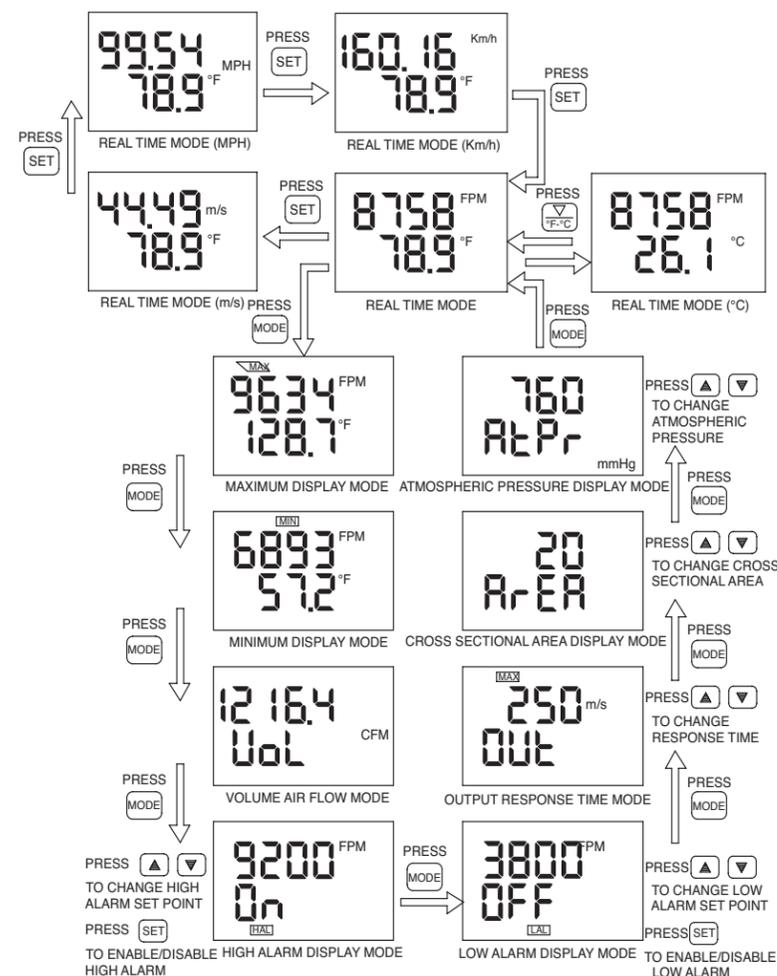
Turn on Display Back light - You can turn the LCD backlight on or off by pressing the **☀** key.

High & Low Alarm set points - You can set and enable the high & low alarm set points for the air velocity as shown in the keypad flow chart. When in the alarm condition, the HAL or LAL icon will flash on the LCD, and the corresponding alarm voltage output will go high. The alarm voltage outputs can drive external mechanical relays.

Operation	Press	MODE	SET	°F/°C	☀
Real Time	Go to Max Mode	Go to Min Mode	Go to Average Mode	Go to High Alarm Mode Velocity	Go to Low Alarm Mode Velocity
Display Max Vel. & Temp MAX icon	Go to Min Mode	Go to Average Mode	Go to High Alarm Mode Velocity	Go to Low Alarm Mode Velocity	Go to Output Response Mode
Display Min Vel. & Temp MIN icon	Go to Average Mode	Go to High Alarm Mode Velocity	Go to Low Alarm Mode Velocity	Go to Output Response Mode	Go to Cross sec. area Mode
Display Vol. Flow CFM icon	Go to High Alarm Mode Velocity	Go to Low Alarm Mode Velocity	Go to Output Response Mode	Go to Cross sec. area Mode	Go to Real Time Mode
Display High Alarm Velocity set point	Go to Low Alarm Mode Velocity	Go to Output Response Mode	Go to Cross sec. area Mode	Go to Real Time Mode	Go to Real Time Mode
Display Low Alarm Velocity set point	Go to Output Response Mode	Go to Cross sec. area Mode	Go to Real Time Mode	Go to Real Time Mode	Go to Real Time Mode
Display Output Response time	Go to Cross sec. area Mode	Go to Real Time Mode	Go to Real Time Mode	Go to Real Time Mode	Go to Real Time Mode
Display cross sectional area Sq in	Go to Real Time Mode	Go to Real Time Mode			
Display AirP & mmHg icon	Go to Real Time Mode	Go to Real Time Mode			

Keypad Functional Flow Chart

6



Functional Display Flow Chart

Model No.	Velocity Range FPM (m/s)
FMA1001A-* FMA1001A-*HT FMA1001B-* FMA1001B-*HT FMA1001R-* FMA1001R-*HT	0-1000 (0-5.1)
FMA1002A-* FMA1002A-*HT FMA1002B-* FMA1002B-*HT FMA1002R-* FMA1002R-*HT	0-5000 (0-25.5)
FMA1003A-* FMA1003A-*HT FMA1003B-* FMA1003B-*HT FMA1003R-* FMA1003R-*HT	0-10,000 (0-50.8)
FMA1004A-* FMA1004A-*HT FMA1004B-* FMA1004B-*HT FMA1004R-* FMA1004R-*HT	0-500 (0-2.54)
FMA1005A-* FMA1005A-*HT FMA1005B-* FMA1005B-*HT FMA1005R-* FMA1005R-*HT	0-2000 (0-10.16)
FMA1006A-* FMA1006A-*HT FMA1006B-* FMA1006B-*HT FMA1006R-* FMA1006R-*HT	0-12,000 (0-60.9)

* - Specify analog output for air velocity, -MA, 4-20 mA output, -V1, 0-5 Vdc output, -V2, 0-10 Vdc output, The air temperature analog output is 0-5 Vdc

Air Velocity Transmitter Model Numbers

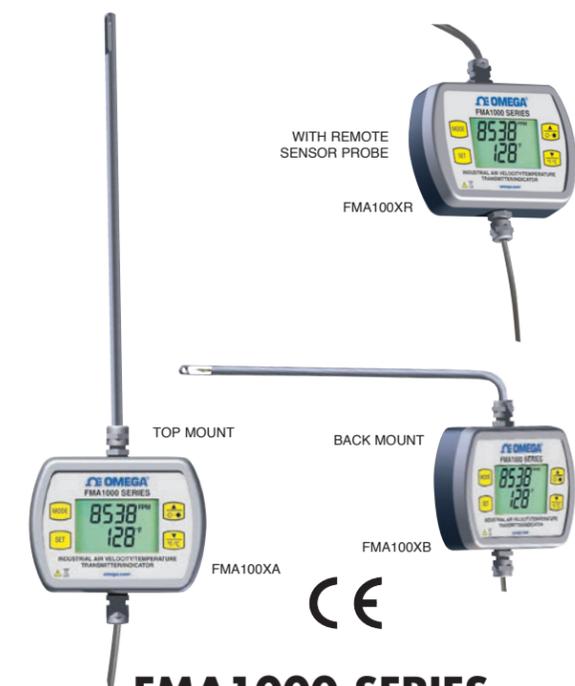
It is the policy of OMEGA Engineering, Inc. to comply with all worldwide safety and EMC/EMI regulations that apply. OMEGA is constantly pursuing certification of its products to the European New Approach Directives. OMEGA will add the CE mark to every appropriate device upon certification.

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.

QUICK START

For complete product manual:
www.omega.com/manuals/manualpdf/M4791.pdf



FMA1000 SERIES

Air Velocity/Temperature Transmitter and Indicator



omega.com info@omega.com

Servicing North America:

U.S.A.: OMEGA Engineering, Inc., One Omega Dr.
P.O. Box 4047, Stamford, CT 06905-0047 USA
Toll-Free: 1-800-826-6342 (USA & Canada Only)
Customer Service: 1-800-622-2378 (USA & Canada Only)
Engineering Service: 1-800-872-9436 (USA & Canada Only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

Canada: Toll-Free: 1-800-826-6342 (USA & Canada Only)
Tel: (514) 856-6928 Fax: (514) 856-6886
e-mail: generalinfo@omega.ca Web: www.omega.com

Servicing Mexico and Latin America:

Mexico/Latin America: Tel: 001-800-099-0420 (Mexico Only)
Tel: 001-203-359-7577 (Outside Mexico) Fax: 001 (203) 968-7290
e-mail: ventas@mx.omega.com Web: mx.omega.com

Servicing Asia:

China: Hotline: (+86) 800 819 0559, (+86) 400 619 0559
e-mail: info@cn.omega.com Web: cn.omega.com

Servicing Europe:

France: Freephone: 0805 541 038 (France only)
Tel: 01 57 32 48 17 Fax: 01 57 32 48 18
e-mail: esales@omega.fr Web: www.omega.fr

Germany/Austria: Freephone: 0800 826 6342 (Germany only)
Tel: +49 (0)7056 9398-0 Fax: +49 (0) 7056 9398-29
e-mail: info@omega.de Web: www.omega.de

Italy: Freephone: 800 906 907 (Italy only)
Tel: +39 022 333 1521 Fax: +39 022 333 1522
e-mail: commerciale@it.omega.com Web: it.omega.com

Netherlands/Benelux: Freephone: 0800 099 33 44 (Netherlands only)
Tel: +31 070 770 3815 FAX: +31 070 770 3816
e-mail: esales@omega.nl Web: www.omega.nl

Spain: Freephone: 800 900 532 (Spain only)
Tel: +34 911 776 121 Fax: +34 911 776 122
e-mail: ventas@es.omega.com Web: es.omega.com

United Kingdom: Freephone: 0800 488 488 (United Kingdom only)
Tel: +44 (0)161 777 6611 Fax: +44 (0)161 777 6622
e-mail: sales@omega.co.uk Web: www.omega.co.uk

START HERE

Using This Quick Start Manual

Use this Quick Start Manual with your FMA1000 series Air Velocity/Temperature Transmitter and Indicator for quick installation and basic operation. For detailed information, refer to the User's Guide (Manual Number M4791).

- SECTION 1General Information**
- SECTION 2Installation**
- SECTION 3Basic Operation**

SECTION 1: General Information

The FMA1000 series industrial air velocity/temperature transmitter/indicator measures and displays air velocity mass flow and air temperature of clean air flow in ducts & pipes, while producing very little pressure drop in the flow stream.

The FMA1000 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 FMA1000 also has a USB interface with accompanying Windows based PC interface software.

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 four different versions as follows:

- Fixed probe mount
- Right angle probe mount
- Remote probe
- Fixed short probe, 3.75" long

WARNING:

The FMA1000 series air velocity transmitter is intended for use with clean air or nitrogen ONLY. Do not use with other gases, as it will produce an un-calibrated and non-linear display measurement and analog output. In addition, air carrying dust or oil (such as found in blower/ compressor systems that utilize oil) can lead to coating of the sensor and thus inaccurate readings.

2

NOTE:

The FMA1000 is a bi-directional device, meaning the flow in the forward or reverse direction provides the same readings. The FMA1000 can be mounted vertically or horizontally without shift in calibration.

SECTION 2: Installation

- 1) Remove the protective cap from the sensor tip.
- 2) 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. See the Piping Requirements table for specific requirements. Downstream of the flow sensor, in all situations, run 5 diameters of straight pipe regardless of the downstream obstruction.
- 3) Align the sensor probe with the air flow. Make sure the air flow is perpendicular to the sensor window. The score line on the sensor tubing is another way of aligning the sensor to the flow stream. The score line starts from the center of the sensor window and as a result it can be aligned properly.
- 4) One way of installing the sensor probe into a flow stream is to utilize a compression fitting such as Omega's SSLK-1414 stainless steel compression fitting with Teflon ferrule, which allows adjustment of the insertion depth of the probe.
- 5) Connect the 15 feet shielded Power/Output cable to the transmitter's 10-pin male mating connector. Follow the wiring information below.

Power/ Output Cable Wire	Connection
Red	+ Power Input
Black	- Power Input (Common Ground)
White	Velocity Analog Output referenced to Common Ground
Green	Temperature Analog Output referenced to Common Ground
Brown	High Alarm voltage output-Velocity
Blue	Low Alarm voltage output-Velocity
Shield	Earth Ground
USB Connector	PC USB Port

Power/Output Cable Wiring

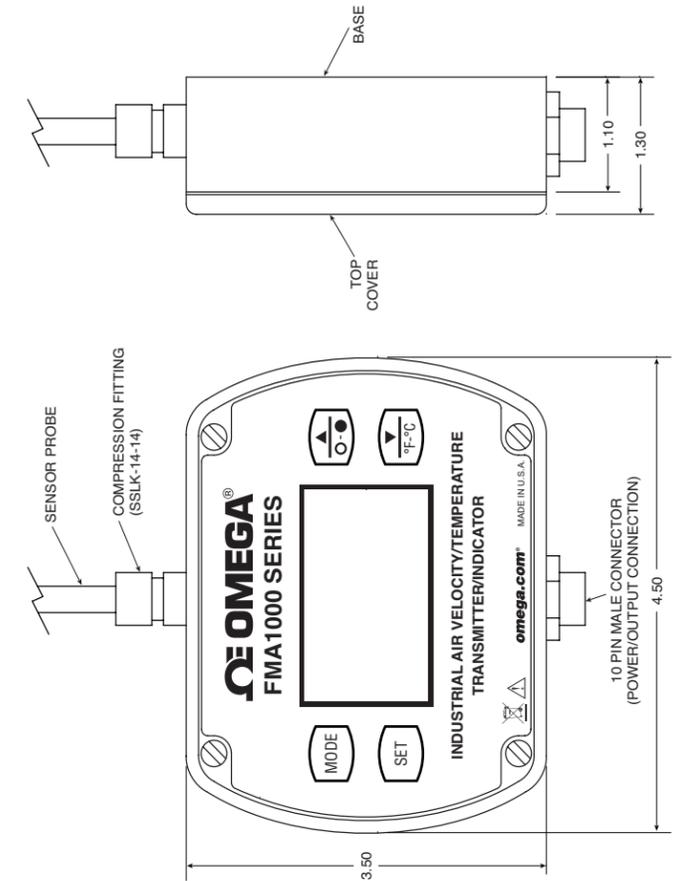
3

Typical Piping	Recommended Straight Pipe Length "A"		Remarks
	Without Vanes	With Vanes	
	15D	15D	Closed Branch
	20D	15D	Elbow, Tee, Branch Pipe
	25D	15D	Elbow, 2 planes
	25D	15D	Long-radius bends
	30D 25D	15D 15D	Elbow Long-radius bends
	40D 35D	15D 15D	Elbow Long-radius bends
	20D	15D	Contracting Pipe
	40D	20D	Expanding Pipe
	Recommend Meter Be Installed Upstream		Regulating, reducing valves Ball, check valves Shut-off valves

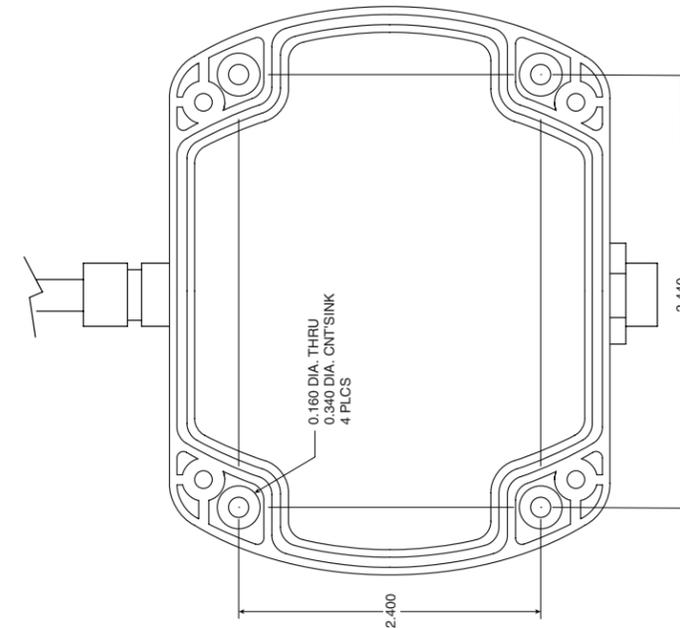
Note: Straight pipe length on the downstream side to be 5 pipe diameters minimum.
Note: D – Pipe internal diameter

Piping Requirements

4



FMA1000 Transmitter General Dimensions



FMA1000 Transmitter Wall Mounting Holes