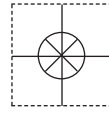


1 YEAR
WARRANTY



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

WT-3107

Unique Open Loop Wind Tunnel



OMEGAnet® Online Service omega.com	Internet e-mail info@omega.com
---	---

Servicing North America:

U.S.A.:
ISO 9001 Certified

Omega Engineering, Inc., One Omega Drive, P.O. Box 4047
Stamford, CT 06907-0047 USA
Toll Free: 1-800-826-6342 TEL: (203) 359-1660
FAX: (203) 359-7700 e-mail: info@omega.com

Canada:

976 Bergar
Laval (Quebec), Canada H7L 5A1
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 Canada: Sales Service: 1-800-826-6342/1-800-TC-OMEGA®
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
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@omega.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: 0 800 6397678 TEL: +49 (0) 7059 9398-0
FAX: +49 (0) 7056 9398-29 e-mail: info@omega.de

United Kingdom:
ISO 9001 Certified

OMEGA Engineering Ltd.
One Omega Drive, River Bend Technology Centre, Northbank
Irlam, Manchester M44 5BD England
Toll-Free: 0800-488-488 TEL: +44 (0)161 777-6611
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.

SYSTEM UTILITY

The WT-3107 is a unique open loop wind tunnel for thermal characterization of components, boards and heat sinks. The unit is made of Aluminum, stainless steel and Plexi-glass™ and produces flows up to 1100 ft/min (5.5 m/s) with the appropriate fans. Its unique polynomial shape nozzle creates uniform flow in the test section. The general characteristics of the WT-3107 are shown in the table below.

ITEM	SPECIFICATION	EXPLANATION
Length	77.84" (197.7cm)	
Width	24" (60.96 cm)	
Flow range	Up to 1100 ft/min (5.5 m/s)	Up to 900 ft/min using WTC-100 Up to 1100 ft/min using a power supply with 29 VDC
Wall-to-wall spacing	7.00" (17.78cm)	Designed to accommodate PCBs

The WT-3107 test section can be accessed from the front door for mounting of the boards. A unique internal rail guides provide mechanisms for installation of test specimen of different sizes (e.g., PCB, heat sink). Installation of different fan trays can be provided with the system to accommodate a broad range of velocities that maybe required for different testing applications. The fan trays are equipped with 24 volt-DC fans (standard), which are individually controlled to generate the flow inside the WT-3107. Optional fan voltages are available for 48 volt fans and 12 volt fans. Instrument ports are provided throughout the test section (on the front and side-walls) for placement of temperature, velocity and pressure sensors. The electric control box is provided to turn the fans on/off for the purpose of controlling the airflow inside the tunnel. Sensors to measure the flow parameters are also supplied by Omega as optional accessories. A wind tunnel controller can also be supplied by Omega for controlling the flow automatically. To use the wind tunnel controller, 24 V DC fans are required.

The WT-3107 can be used for the following applications:

- **Heat Sink Testing-** Characterize a variety of heat sink sizes for natural and forced convection cooling.
- **Heat Sink Comparison-** Test two heat sinks side by side and compare their thermal performance in the same environment.
- **Component Testing-** Test vehicle for component characterization.
- **PCB Testing-** Test actual or simulated PCBs for thermal and flow distribution.
- **Flow Visualization-** Observe flow distribution when a PCB or test object is placed in the tunnel by smoke or buoyant bubbles through the all Plexi-glass™ test section.
- **Variable Speed-** Change the flow rate by controlling the fan RPM.
- **Flow Direction-** Test the effect of flow direction (fan failure simulation) by controlling the fans (either variable RPM or on/off).
- **Quick Access-** Quickly change the test specimen through the side panel.
- **Sensor Port-** Measure pressure, velocity and temperature through the ports at the entrance and exhaust of the test section.
- **Data Center-** View data and monitor events at the data center (optional accessory)

SYSTEM COMPONENTS

The part numbers identified in Figure 1 show the system components of the WT-3107 system. These part numbers are described below:

1. Test Section
2. Instrument ports
3. Fan tray
4. Diffuser section
5. Fan box (on/off)
6. Nozzle section
7. Controller
8. Fan connector
9. Test door
10. Stands
11. Honeycomb
12. Screens

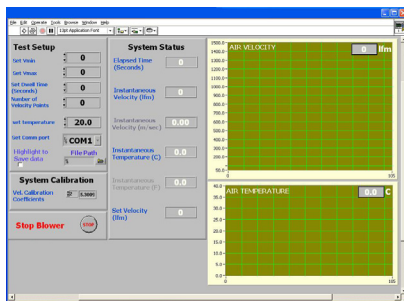
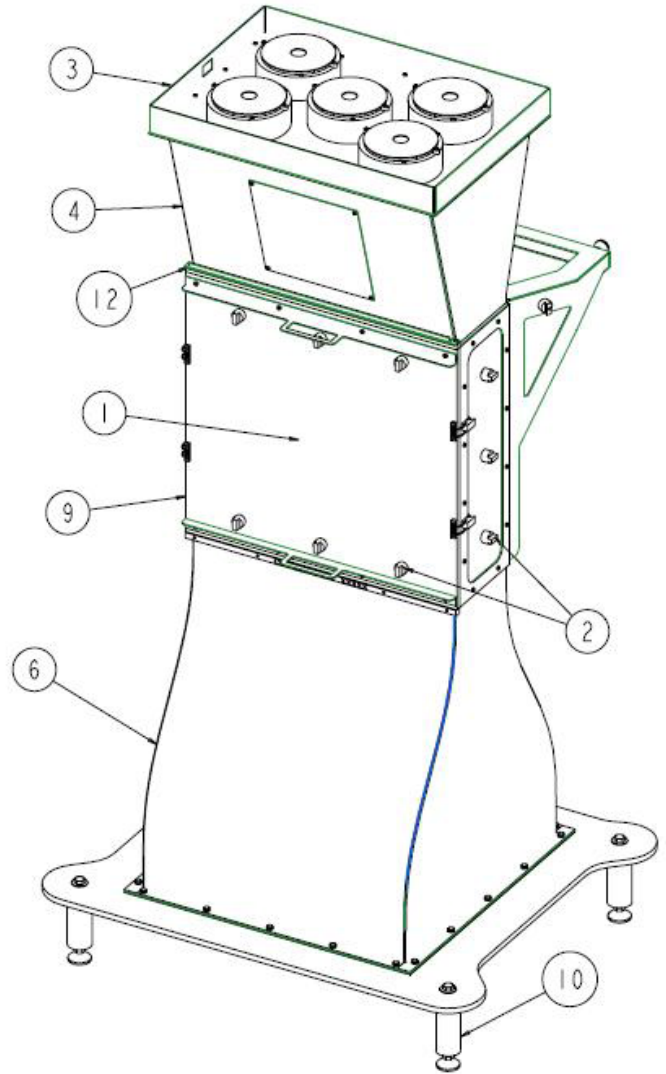
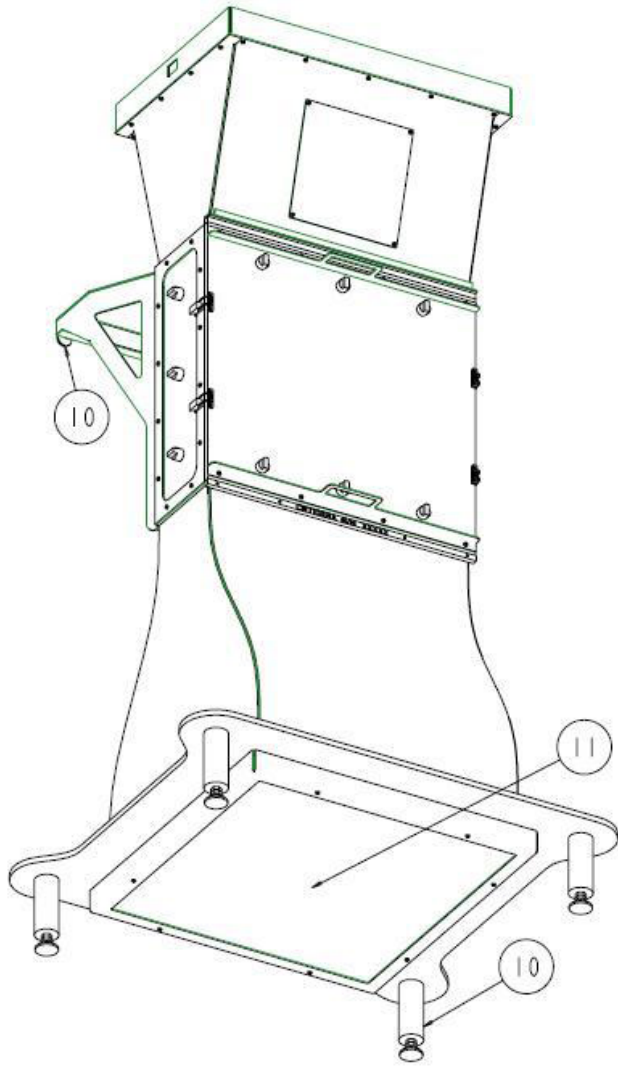


Figure 1: The WT-3107 System Components

SYSTEM OPERATION

General Testing:

1. Release the clamps on front door to have access to the test section.
2. Mount your specimen (e.g., component, PCB or heat sink) in the test section.
3. Clamp the door back on the WT-3107.
4. Place flow measurement instrument in the instrument port.
5. Connect the fan cable to the controller box.
6. Connect the fan controller box to a DC power supply or wind tunnel controller.
Important Note: Voltage to the fans cannot exceed 26 Volts-DC for 24VDC fans.
7. Adjust voltage until desired flow rate is attained.

Component and Heat Sink Testing:

1. Release the clamps on front door to have access to the test section.
2. Mount your component(s) in the test section.
3. Clamp the door back on the WT-3107.
4. Connect the fans to a variable DC power supply. Voltage to the fans cannot exceed 29 Volts-DC. Adjust voltage until desired flow level is attained.
5. Insert the velocity and temperature probes into the instrument ports provisioned in upstream of the test section.
6. Turn on the power supplies and start the experiment.



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 2009 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.

Where Do I Find Everything I Need for Process Measurement and Control?

OMEGA...Of Course!

Shop online at omega.comSM

TEMPERATURE

- Thermocouple, RTD & Thermistor Probes, Connectors, Panels & Assemblies
- Wire: Thermocouple, RTD & Thermistor
- Calibrators & Ice Point References
- Recorders, Controllers & Process Monitors
- Infrared Pyrometers

PRESSURE, STRAIN AND FORCE

- Transducers & Strain Gages
- Load Cells & Pressure Gages
- Displacement Transducers
- Instrumentation & Accessories

FLOW/LEVEL

- Rotameters, Gas Mass Flowmeters & Flow Computers
- Air Velocity Indicators
- Turbine/Paddlewheel Systems
- Totalizers & Batch Controllers

pH/CONDUCTIVITY

- pH Electrodes, Testers & Accessories
- Benchtop/Laboratory Meters
- Controllers, Calibrators, Simulators & Pumps
- Industrial pH & Conductivity Equipment

DATA ACQUISITION

- Data Acquisition & Engineering Software
- Communications-Based Acquisition Systems
- Plug-in Cards for Apple, IBM & Compatibles
- Datalogging Systems
- Recorders, Printers & Plotters

HEATERS

- Heating Cable
- Cartridge & Strip Heaters
- Immersion & Band Heaters
- Flexible Heaters
- Laboratory Heaters

ENVIRONMENTAL MONITORING AND CONTROL

- Metering & Control Instrumentation
- Refractometers
- Pumps & Tubing
- Air, Soil & Water Monitors
- Industrial Water & Wastewater Treatment
- pH, Conductivity & Dissolved Oxygen Instruments