









Shop online at

omega.comº

omega.com

omega.com e-mail: info@omega.com For latest product manuals: omegamanual.info









OM-SQ2040

OM-SQ2020/2040 SERIES Portable Data Loggers



OMEGAnet® Online Service omega.com

Internet e-mail info@omega.com

Servicing North America:

U.S.A.: One Omega Drive, Box 4047 ISO 9001 Certified Stamford, CT 06907-0047

> Tel: (203) 359-1660 FAX: (203) 359-7700 e-mail: info@omega.com

Canada: 976 Bergar

Laval (Quebec) H7L 5A1, Canada

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 e-mail: espanol@omega.com info@omega.com.mx

Servicing Europe:

Czech Republic: Frystatska 184, 733 01 Karviná, Czech Republic

Tel: +420 (0)59 6311899 FAX: +420 (0)59 6311114 Toll Free: 0800-1-66342 e-mail: info@omegashop.cz

Germany/Austria: Daimlerstrasse 26, D-75392 Deckenpfronn, Germany

Tel: +49 (0)7056 9398-0 FAX: +49 (0)7056 9398-29

Toll Free in Germany: 0800 639 7678

e-mail: info@omega.de

United Kingdom: One Omega Drive, River Bend Technology Centre

ISO 9001 Certified Northbank, Irlam, Manchester

M44 5BD United Kingdom Tel: +44 (0)161 777 6611 FAX: +44 (0)161 777 6622

Toll Free in United Kingdom: 0800-488-488

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.

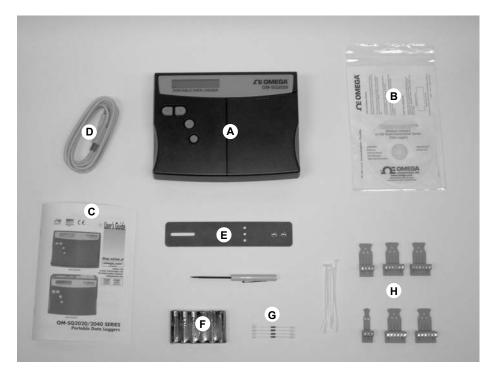
WARNING: These products are not designed for use in, and should not be used for, human applications.

1. Hardware Checklist	3
2. General Information	4
3. Communicating with your Logger	5
4. Quick Start Example	8
5. Download Process Explained	12
6. Menu and Navigation	13
7. Connections	15
8. Accessories	17
9. Specifications	19



After reading this guide please refer to the Help contents within OMEGALOG® (press F1) for further details on your logger and how to use it with the software.

1. Hardware Checklist



- A) OM-SQ2020/2040 Logger
- B) CD containing software
- C) User's Guide (this booklet)
- D) USB Cable (OM-SQ-USB-CABLE)
- E) Mounting bracket/stand for logger
- F) Batteries, 6 x AA
- G) Current shunt resistors for 4 to 20mA inputs, 10R x 4 (OM-SQ-CS)
- H) Connectors: 6 way x 4 (OM-SQ-TB6), 4 way (OM-SQ-TB4), 3 way (OM-SQ-TB3), with cable ties

Note: OM-SQ2040 Logger is supplied with 4 extra 6 way connectors as above (OM-SQ-TB6).

Version 1.2 - October 08 Page 4

2. General Information

2.1 Installing the batteries

The OM-SQ2020/2040 uses six AA size alkaline batteries located under the removable cover shown below. To insert new or change the existing batteries:

- 1. Open the battery cover by pushing down and sliding as shown.
- 2. Insert six AA* batteries, ensuring the correct polarity.
- 3. Refit the battery cover
- * It is recommended that all replacement batteries are of the same manufacturer, type and condition.





2.2 Power indicator

Battery indicator



When logging please ensure that the batteries in the unit have sufficient capacity to complete the logging task. This can be checked via the battery indicator located in the top right of the display.







External power indicator

The logger may be powered from an external source (10-18V DC)



Important: To ensure data protection in the case of an unexpected power loss, please ensure that batteries are fitted whilst the unit is operational.

28923

Version 1.2 - October 08 Page 5

3. Communicating with your Logger

3.1 Installing the Software

For detailed installation instructions please see the supplied 'Software Installation Guide' supplement. For quick installation please see the steps below;

- 1. Ensure you have administration rights on the PC you wish to install software on
- 2. Ensure any current OMEGA applications are closed
- 3. Insert the CD into the CD\DVD drive of your computer and wait for it to autorun*
- 4. Follow the on screen installation wizard
- * If after a few minutes autorun has not occurred select the **Run** option from the Windows Start Menu. In the **Command Line** box, type **d:\setup** and press enter (where **d:** is your CD\DVD drive, modify if required)



Important: Please ensure the software is installed before connecting the OM-SQ2020/2040 data logger.

3.2 Connecting your OM-SQ2020/2040 Data Logger

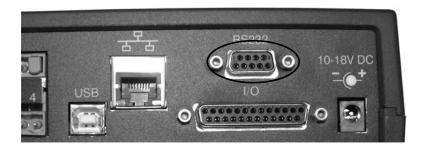
You can connect to your logger by using one of the following methods;

- 1. Serial (RS232), including serial adaptors
- 2. USB
- 3. Ethernet (where fitted)

Please see below for more information

Serial (RS232)

For information on using serial adaptors please see the OMEGALOG® help file. If using a straight serial (RS232) cable, connect one end to the serial port on the logger and the other end to the PC's serial port. Once connected you are ready to begin communications.



Version 1.2 - October 08 Page 6

USB

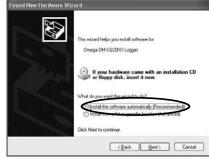
Connect one end of the supplied USB lead to the USB port on the logger and the other end to a USB port on the PC.



On detection of the logger the PC will launch the driver installation wizard.

Win 2000/XP - During the installation the USB drivers were pre-installed so the wizard will automatically locate the driver. On the 'Found New Hardware Wizard' select 'No, not this time' and for all the other screens select 'Next' to complete the installation.





Win 98SE - Select Search for the best driver for your device (Recommended), Click Next and follow the instructions illustrated below.





Select **Continue Anyway** on the Hardware Installation warning which refers to Windows Logo testing. Once the driver installation has completed you are ready to communicate to your logger.

If you experience any problems refer to Troubleshooting->20XX USB Drivers in OMEGA-LOG® help.

Ethernet

Before using the Ethernet connection please read the configuration manual which can be found under '~\OMEGALOG\Manuals\OM-SQ20XX Inbuilt Ethernet Configuration.pdf' where '~\OMEGALOG' is the installation directory of OMEGALOG®. Connect your Ethernet network to the Ethernet port on the logger.





Ethernet is only available when the logger is connected via an external power supply.

4. Quick Start Example

After installing OMEGALOG® an example setfile will be installed within the OMEGALOG® installation directory. The example file will log the internal temperature of the logger. In order to familiarise yourself with the logger the novice user may find this example Setup useful.

4.1 Startup OMEGALOG® and Select Logger Type

Click on the shortcut icon on your desktop to launch OMEGALOG® or select it from your start menu. When the OMEGALOG® Assistant is loaded, ensure the correct logger Type and communication method is selected.

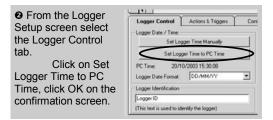
Logger type can be viewed from the OMEGALOG® Assistant, if you need to make any changes select Logger Selection from the toolbar or run the Communication Wizard. (Note: the default communication method is USB and you will need to change this via the Communication Wizard if you are using any of the other communication methods).

4.2 Synchronise Logger & PC

It is advisable to start by synchronising the Logger clock with the PC clock. See step 1 and 2 below:

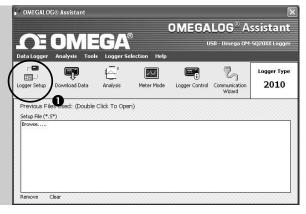
Synchronise clocks:

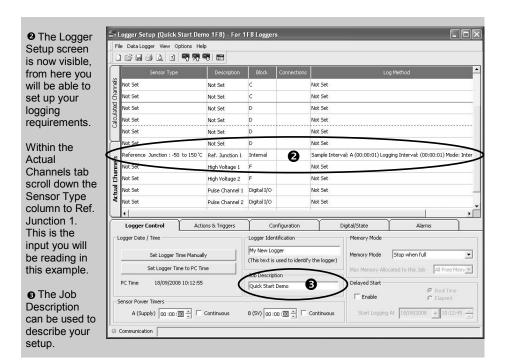




4.3 Running Quick Start Demo

• In the OMEGALOG®
Assistant click 'Logger
Setup' to enter the Logger Setup
screen. From here open the
demo setfile using File -> Open
and select the appropriate file for
your logger type.





Version 1.2 - October 08 Page 10 O Click to send setup to logger and start logging. Let the unit log for a few minutes.



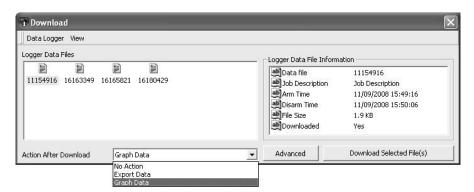
O Click if you wish to meter the input in Real Time.

Click on Logger Control icon to pause or stop the logging process.

In the Logger The Logger Control Control window Data Logger View you can view) h 6× 2 relevant ger Information Memory information on Logger ID Default text Internal Memory Total 15616 KB the state of the Serial Number Internal Memory Used KS0838015 0 KB logger. To stop Logger Type 2F8 Internal Memory Free 15616 KB logging click on Logger State Disarmed the stop button. Date and Time Power Supply Logger Time 01/01/2001 00:48:22 Internal Supply 9.6 V Status Last Updated 18/09/2008 10:16:38 External Supply 0.0 V PC Time 18/09/2008 10:16:38

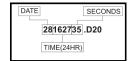
• To Download the logger click on the 'Download Data' icon from the OMEGALOG® Assistant.





© In this screen you can now download the Data File and invoke the Export Wizard or download the Data File via Analysis* (See page 10 for further information).

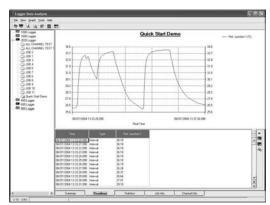
The data File is given a unique name (e.g. 28162735.D20). An explanation of the file name is shown on the right; this shows the date and start time



In this example you will download and view the Data in the Analysis* window. Start by selecting the Data File and Graph Data action, then click Download Selected File(s). You will be prompted to save the Data file, then the data will be converted for viewing.

① Once the decoding has taken place the Analysis File Description window will be presented, click OK to view your Data.

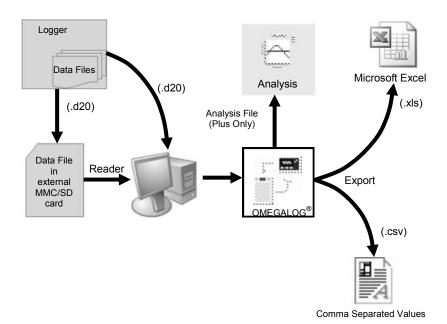




*Available with OMEGALOG® Plus only.

Version 1.2 - October 08 Page 12

5. Download Process Explained



The Diagram above shows the download process. Data in the logger is written to the internal memory and may be downloaded by OMEGALOG®.

Before the data can be viewed it must be converted by OMEGALOG® for Analysis or exported to .csv or .xls format depending on the PC software being used.

The conversion process can be performed in one of three ways within OMEGALOG®:

- from OMEGALOG[®] Assistant->Analysis->Export Data File
- automatically when using the download Data button from OMEGALOG^{®⋆}
- or from the Logger Data Analysis screen by selecting File->Import Data menu*

Once the file has been downloaded it can be double clicked to open it with the program specified under 'Tools', 'Preferences', 'File Association Action'.

^{*}Available with OMEGALOG® Plus only.

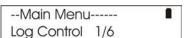
6. Menu and Navigation

6.1 Control Panel

The illustration below shows the navigation controls in more detail.



To use the OM-SQ2020/2040 control panel press . the opening display will be shown (see right). The display timeout is preset to 10 seconds, however this can be changed by selecting the Configuration tab within the Logger Setup window of OMEGALOG®.



6.2 Control panel menu

Detailed below is a basic explanation of the top menu structure. For more information on the whole menu structure please refer to the Help->Help Content->Loggers within OMEGALOG®.

6.3.1 Log Control

In this menu you can Arm (activate) or Disarm (deactivate) the logger.

--Main Menu-----Log Control 1/6

6.3.2 Meter

Here you can view each channel in Real Time (at 1-2Hz). Use the enter key to auto scroll through the channels.

--Main Menu-----Meter 2/6

6.3.3 Status

The Status menu gives you access to information relating to the logger such as memory and power supply voltage. You can also override the alarm outputs in here

--Main Menu-----Status 3/6

6.3.4 Setup

This contains menus for setting up Language, Time & Date and the opportunity to store and recall Setups.

--Main Menu-----Setup 4/6

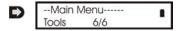
6.3.5 Data Files

This menu allows you to copy data files to an external memory card (if fitted) and delete the data files held within the loggers memory.



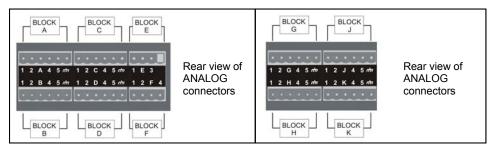
6.3.6 Tools

The Tools menu contains maintenance type functions such as querying the software version of the logger, performing a self test and resetting the logger.



7. Connections

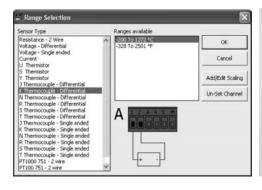
Analog Inputs



NOTE: Blocks G to K as shown above are only available on OM-SQ2040 loggers.

As the wiring configuration is dependant upon the sensor type used, it is displayed in OMEGALOG® during the setup. Follow the wiring diagram to attach the required sensor. If you would like to print the diagrams in more detail or view at a later stage select 'File > Print from Logger Setup'.

The example below shows the actual K type differential thermocouple sensor connected to the OM-SQ20XX logger from the wiring diagram to the left.

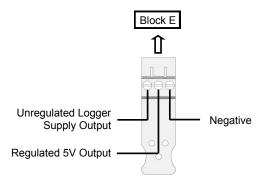


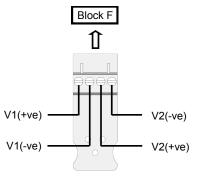


Version 1.2 - October 08 Page 16

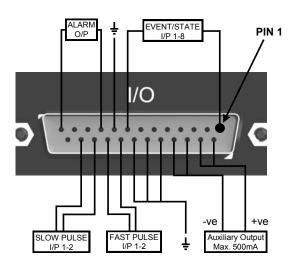
Sensor Power Wiring

High Voltage Input





I/O Socket Wiring



Pin	Connection
1	Event/State Input 1
2	Event/State Input 2
2	Event/State Input 3
4	Event/State Input 4
5	Event/State Input 5
6	Event/State Input 6
7	Event/State Input 7
8	Event/State Input 8
9	Ground
10	Alarm Output A
11	Alarm Output B
12	Alarm Output C
13	Alarm Output D
14	Auxiliary Output +ve
15	Auxiliary Output +ve
16	Auxiliary Output -ve
17	Auxiliary Output -ve
18	Ground
19	Ground
20	Ground
21	Fast Pulse Input 1
22	Fast Pulse Input 2
23	Slow Pulse Input 1
24	Slow Pulse Input 2
25	No Connection

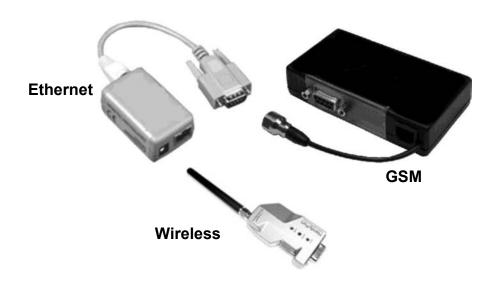
External Memory Card Reader

The external MMC/SD card slot is located inside the battery compartment.



Version 1.2 - October 08 Page 17

OMEGA Engineering supplies a wide range of accessories to compliment the range of OM-SQ2020\2040 data loggers. These include GSM Modem and Ethernet converters and wireless adapter as shown below, all of which allow you to contact any OM-SQ2010 data logger remotely or where no land line exists. All are very easy to install and connect directly to the logger via RS232. If you need any further details or wish to make a purchase please contact OMEGA Engineering.



RS232 to Ethernet Converter consisting of adaptor box and modem setup Cable. Ethernet configuration software is suitable for Windows 2000 and XP only.

Part No:

OM-SQ-NET-ADAP

GSM Modem kit comprising of modem, data logger connection cable, power lead and antenna with 3m lead. A data-enabled SIM card will also be required from your network service provider.

OM-SQ-GSM-KIT

Wireless Adaptor comprising of an RS232 adaptor for connecting the logger to the PC at baud rates up to 115K2 with a range of up to 200 metres using the 2.4GHz frequency band. The kit is supplied with all connecting leads.

OM-SQ-RF-ADAP

Note: Power supplies (OM-SQ-UNIV-ADAP) need to be ordered separately

Version 1.2 - October 08 Page 18

Part No:

Software packages for set-up, transfer and data analysis:

OMEGALOG® Plus

Provides full data analysis, on-line graphing, meter to Excel and

export to Excel

OMEGALOG® Plus Multi-User License

Unlimited use of OMEGALOG® within a single organization.

OM-SQ-SOFT-PLUS

OM-SQ-SOFT-PLUS-LIC

Calibration Certificates for OM-SQ2020/2040 series (all ranges)

Standards

Note: Test and Calibration Certificates are traceable to National

OM-SQ2010 OM-SQ2040 OM-SQ2020-CAL OM-SQ2040-CAL

Power supplies

100-240V AC 50/60Hz supplied with 3-single fit mains plugs for UK,

As OM-SQ-UNIV-ADAP but supplied with 1m flying lead

OM-SQ-UNIV-ADAP OM-SQ-UNIV-ADAP-1

Current Shunts

Pack of 4 precision resistors for 4-20mA analog channels

OM-SQ-CS

Cables for connecting data loggers to computers/modems.

Data Logger to PC serial port Data Logger to PC USB port

OM-SQ-SER-CABLE OM-SQ-USB-CABLE

Terminal blocks

Plug-in terminal blocks with cable restraint

3-way 4-way 6-way OM-SQ-TB3 OM-SQ-TB4

OM-SQ-TB6

9. Specifications

Common mode rejection:	± (0.05% readings + 0.025% range) 100dB > 1MOHM
	0.0015%
Series mode line rejection:	50/60Hz 100dB
One input voltage	
ANALOG-DIGITAL CONVERSION Type:	Sigma-Delta
	24bit
Sampling rate:	Note: 100Hz Mode not available on 1F8 models
ALARM OUTPUTS	4 x open drain FET (18V 0.1A Max)
SENSOR POWER SUPPLY	Regulated 5 VDC (50mA) or supply voltage (100mA)
TIME AND DATE	In built clock in 3 formats
SCALING DATA	Displays readings in preferred engineering units
	16Mb (Up to 1,800,000 readings)
RESOLUTION	Up to 6 significant digits
PROGRAMMING/LOGGER SET-UP	OMEGALOG® or OMEGALOG® Plus software
	USB 1.1 and 2.0 / RS232 GSM, Ethernet and wireless
External:	6*x AA Alkaline batteries10-18VDC Reverse polarity and over-voltage protected
^	



* Maximum operating temperature for supplied alkaline batteries is 50°C

POWER CONSUMPTION @ 9V	
Sleep mode:	<600µA
Logging:	40 - 120mA
DIMENSIONS AND WEIGHT	
2020 Logger	
Dimensions:	W235 x D175 x H55 mm
Weight:	Approx 1.2kgs
Enclosure material:	ABS
2040 Logger	
Dimensions:	W235 x D175 x H92 mm
Weight:	Approx1.5kgs
	ABS
MEMORY MODES (internal only)	Stop when full or overwrite
DISPLAY AND KEYPAD 2 line x 20 character LCD	
OPERATING ENVIRONMENT	30°C to +65°C

Windows is a registered trademark of Microsoft Corporation in the United States and other countries.

Due to our policy of continuous improvements, specifications may change without prior notice.

OMEGA Engineering believe that all information declared is correct at the time of issue. No liability is accepted for errors and omissions.

Personal Notes:

Version 1.2 - October 08 Page 22

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 is 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:

- Purchase Order number under which the product was PURCHASED,
- Model and serial number of the product under warranty, and
- 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:

- Purchase Order number to cover the COST of the repair,
- 2. Model and serial number of the product, and
- 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 2008 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.com[™]

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

M4690/0708

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com