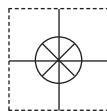


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The information contained in this document is believed to be correct, but OMEGA accepts no liability for any errors it contains, and reserves the right to alter specifications without notice.

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



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Section 1 Introduction

Your MDSi8 Series Benchtop Meter is ideal for laboratory use and applications requiring portable temperature measurement. There are two basic models, a single-channel and a ten-channel unit. The single-channel model features a universal input that can be reconfigured by you for use with a thermocouple, RTD or Voltage/Current signal. The ten-channel model is a dedicated input type of either 10 thermocouples, RTDs, or Voltage/Current signals. These meters are factory configured and calibrated. It is important that you read this manual and additional manuals outlined in Section 6 completely and follow all safety precautions in both manuals before operating your unit.

1.1 Precautions

- Follow all safety precautions and operating instructions outlined in this manual.
- Keep unit out of reach of children.
- Do not operate in flammable or explosive environments.
- Never operate with a power cord that is not properly rated for use with your unit.
- Remove and or disconnect main power cord before attempting any maintenance or fuse replacement.
- Do not connect and/or operate this unit to a non-grounded, non-polarized outlet or power source.

NOTE:

There are no user serviceable parts inside your unit. Attempting to repair or service your unit may void your warranty.

CAUTION:

This product is not designed nor recommended for medical applications.

1.2 Safety Warnings and IEC Symbols

This device is marked with international safety and hazard symbols in accordance with EN61010-1. It is important to read and follow all precautions and instructions in this manual before operating or commissioning this device as it contains important information relating to safety and EMC. Failure to follow all safety precautions may result in injury and/or damage to your calibrator. Use of this device in a manner not specified by the manufacturer may impair protection devices and safety features provided by the unit.

IEC symbols



Description

Caution, risk of electric shock

Caution, refer to accompanying documents

Figure 1. IEC Symbols

CAUTION:

All electrical connections and wiring should be performed by suitably trained personnel only.

1.3 Statement on C € Marking

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

Section 2 Installation

2.1 Unpacking and Inspection

Remove the packing list and verify that you have received all of your equipment. If you have any questions about the shipment, please call our Customer Service Department at:

1-800-622-2378 or 203-359-1660. We can also be reached on the Internet at **omega.com**
e-mail: cservice@omega.com

When you receive the shipment, inspect the container and equipment for any signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the shipping agent.

NOTE:

The carrier will not honor any damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in the event that reshipment is necessary.

The following items are supplied with your unit:

- MDSi8 Series Benchtop Meter (1 each)
- Main Power Cord (See Section 2.2.2 Power Cords)
- This User's Guide and Meter Manual #M3355 (1 each), Manual #MQS3355 (1 each)
- MDSi8A Series Meter Manual #M3565 (1 each) with Isolated Analog Output models only.
- Communications Manual #M3629 (1 each) with Ethernet models only.
- Communications Manual #M3397 (1 each) with RS232/485 models only.

2.2 Main Power Connection

2.2.1 Operation

Your Benchtop Meter will operate from 90 to 240 VAC, 50/60 Hz, 4W.

NOTE:

All power line connections to your unit are fused. When operating on single-phase power source such as 120 VAC in the USA, the main neutral line is also fused.

2.2.2 Power Cords

A main power cord has been included at no charge with your order. The following optional power cords are currently available for use with your Benchtop Meter.

OMEGA Part No.

POWER CORD-UK
(United Kingdom, Ireland, 250 V)

POWER CORD-DM
(Denmark, 250 V)

POWER CORD-NA
(USA, Canada, Mexico, 120 V)

POWER CORD-IT
(Italy, 250 V)

POWER CORD-E-10A
(Continental Europe, 250 V)

POWER CORD-SE
(Striped Leads, 250 V)

CAUTION:

All electrical connections and wiring should be performed by suitably trained personnel only.

Section 3 Operation

3.1 Single-Channel Front Panel Controls, Indicators

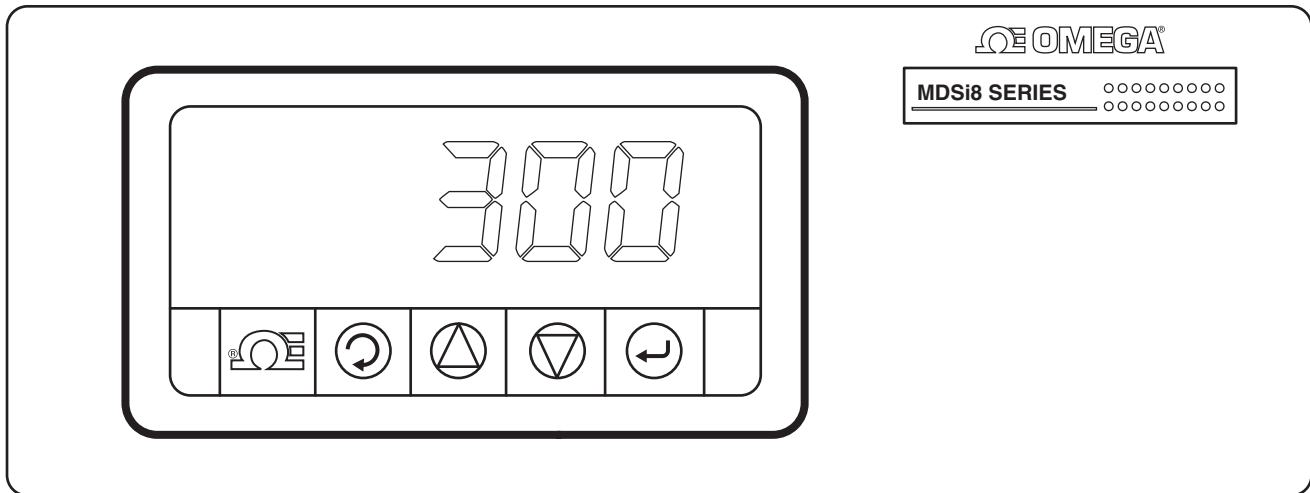


Figure 2. Single-Channel Front Panel Controls, Indicators

3.2 Ten-Channel Front Panel Controls, Indicators

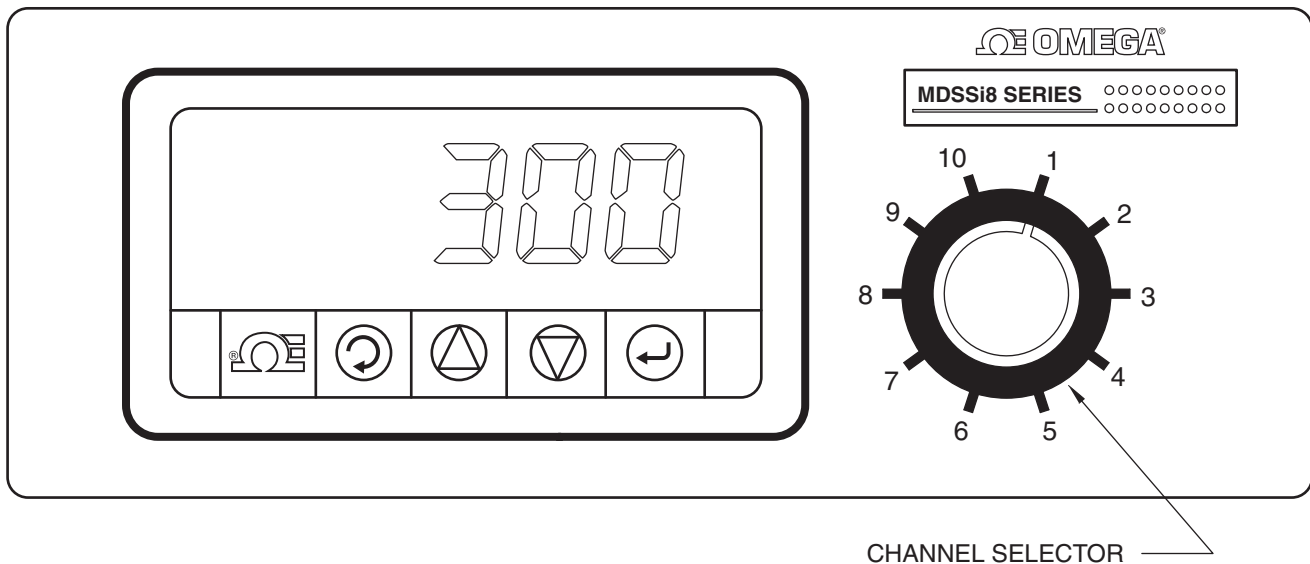


Figure 3. Ten-Channel Front Panel Controls, Indicators

3.3 Single-Channel, Universal Input, Rear Panel Connections (Models with Analog Output, RS232 and Two Alarm Outputs)

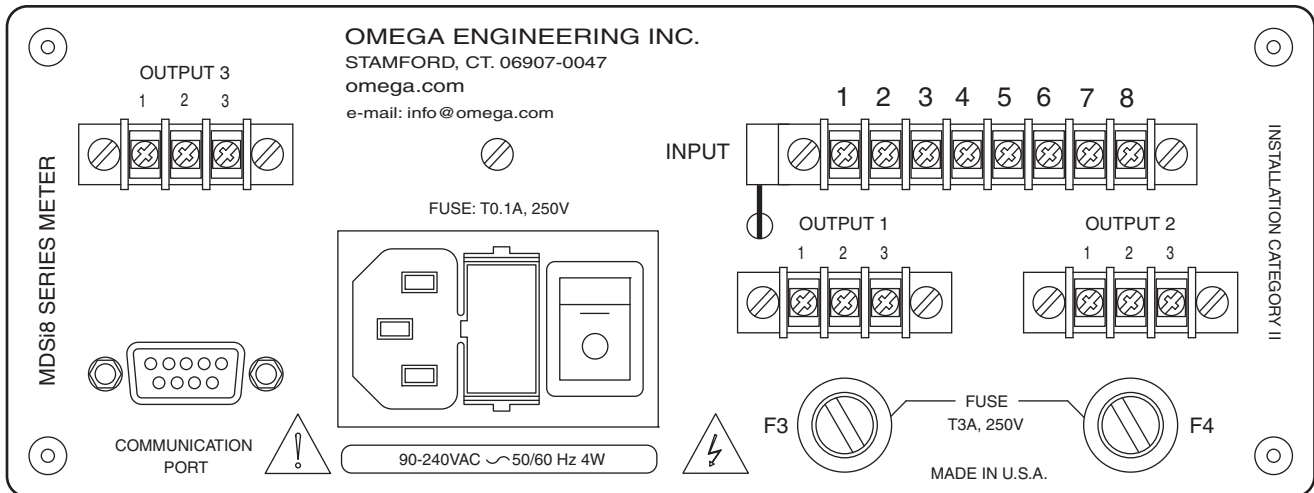


Figure 4. Single-Channel, Universal Input, Rear Panel Connections (Models with Analog Output)

3.4 Single-Channel, Universal Input, Rear Panel Connections (Models with Ethernet, RS232/485 and Two Alarm Outputs)

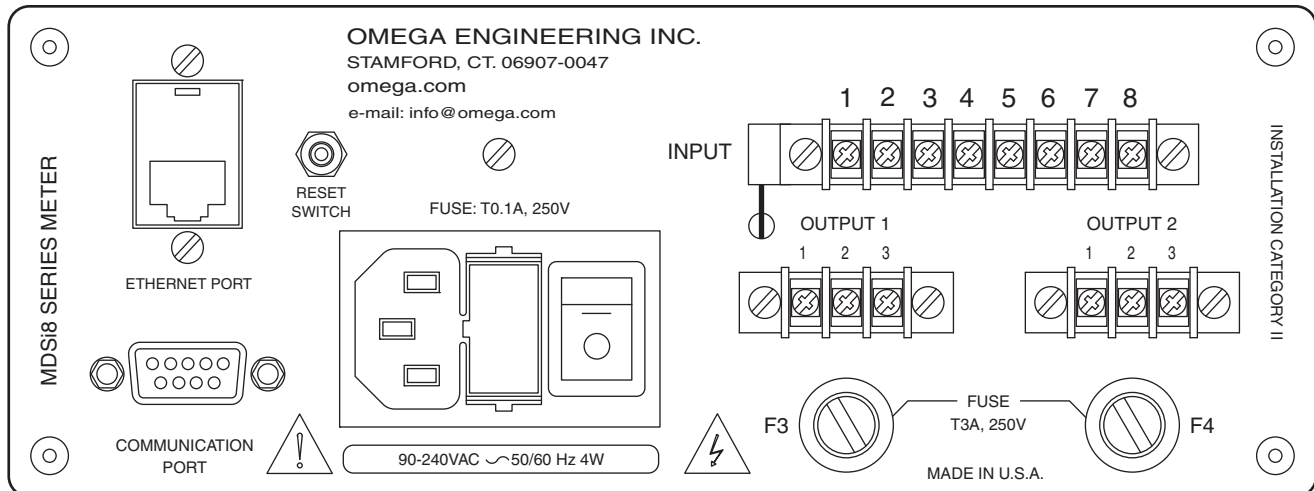


Figure 5. Single-Channel, Universal Input, Rear Panel Connections (Models with Ethernet)

3.5 Ten-Channel, Thermocouple Input, Rear Panel Connections (Models with Analog Output, RS232 and Two Alarm Outputs)

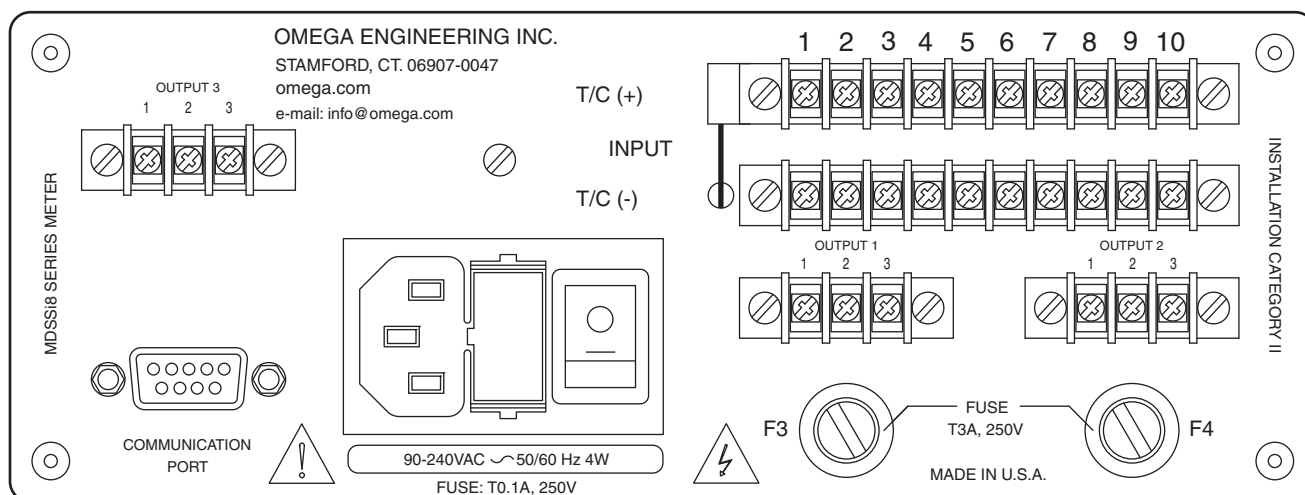


Figure 6. Ten-Channel, Thermocouple Input, Rear Panel Connections (Models with Analog Output)

3.6 Ten-Channel, Thermocouple Input, Rear Panel Connections (Models with Ethernet, RS232/485 and Two Alarm Outputs)

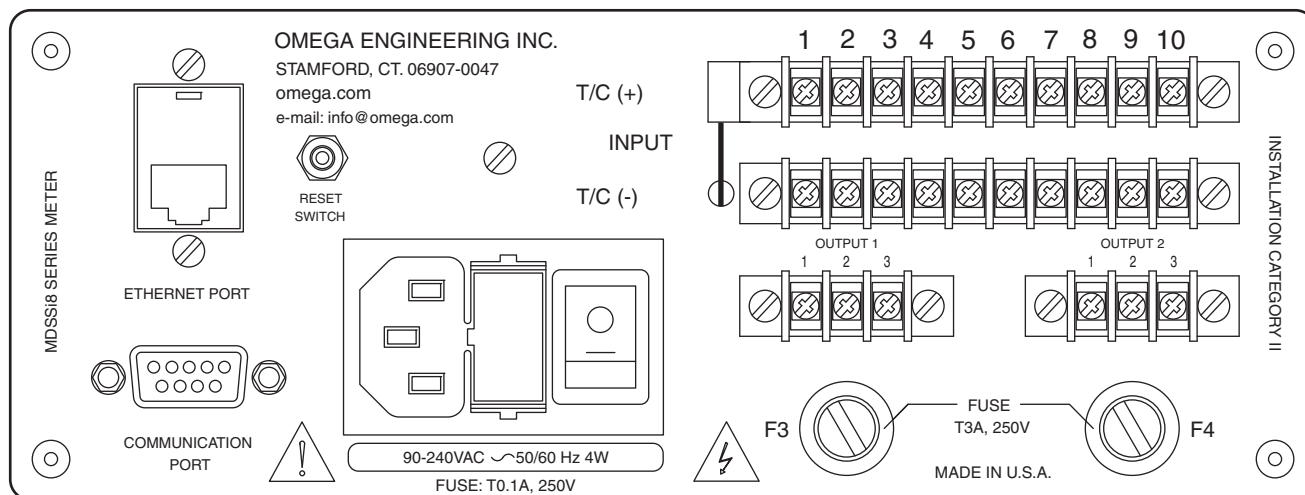


Figure 7. Ten-Channel, Thermocouple Input, Rear Panel Connections (Models with Ethernet)

3.7 Ten-Channel, RTD or PV Input, Rear Panel Connections (Models with Analog Output, RS232 and Two Alarm Outputs)

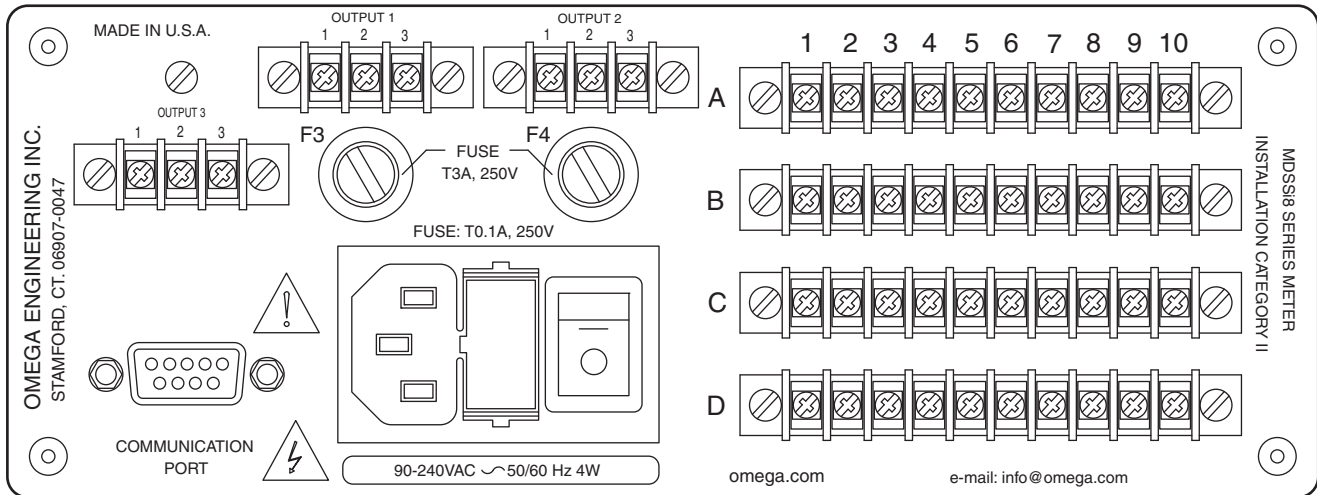


Figure 8. Ten-Channel, RTD or PV Input, Rear Panel Connections (Models with Analog Output)

3.8 Ten-Channel, RTD or PV Input, Rear Panel Connections (Models with Ethernet, RS232/485 and Two Alarm Outputs)

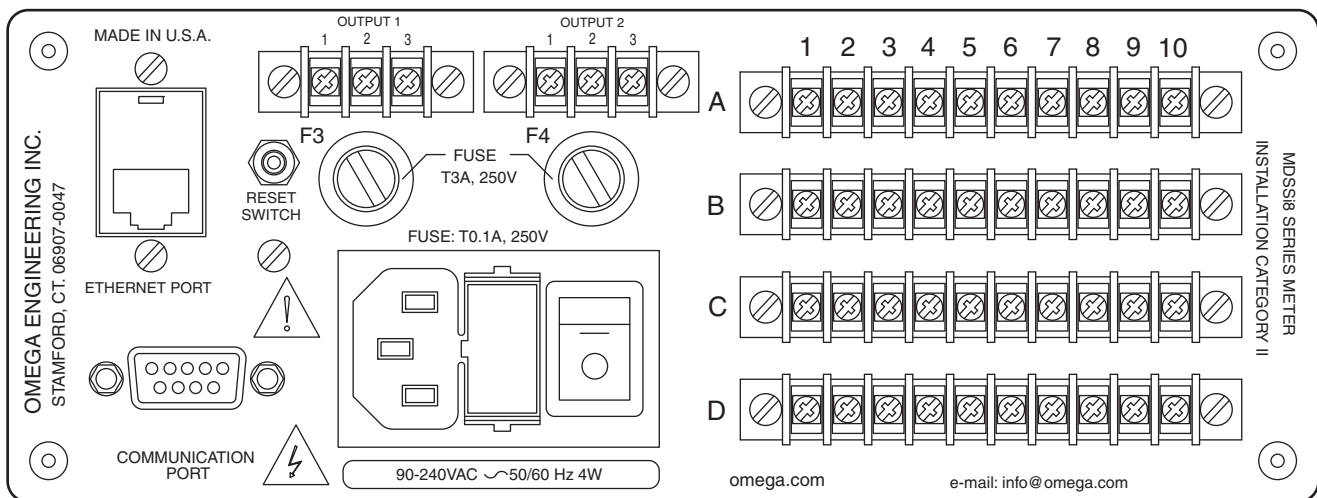


Figure 9. Ten-Channel, RTD or PV Input, Rear Panel Connections (Models with Ethernet)

3.9 Single-Channel, Universal Input, Sensor Wiring

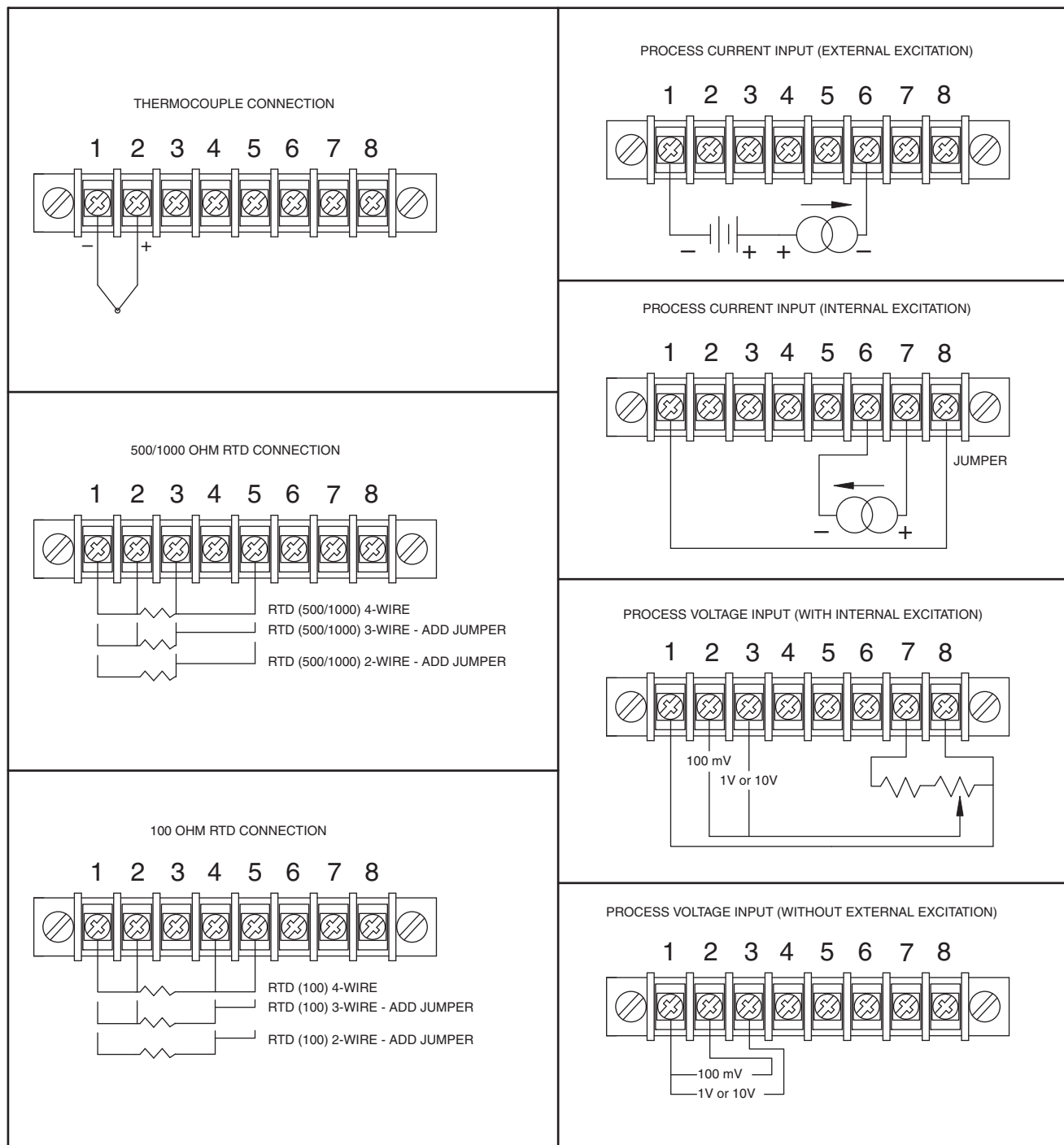


Figure 10. Single-Channel, Universal Input, Sensor Wiring

3.10 Ten-Channel, Dedicated Input, Sensor Wiring

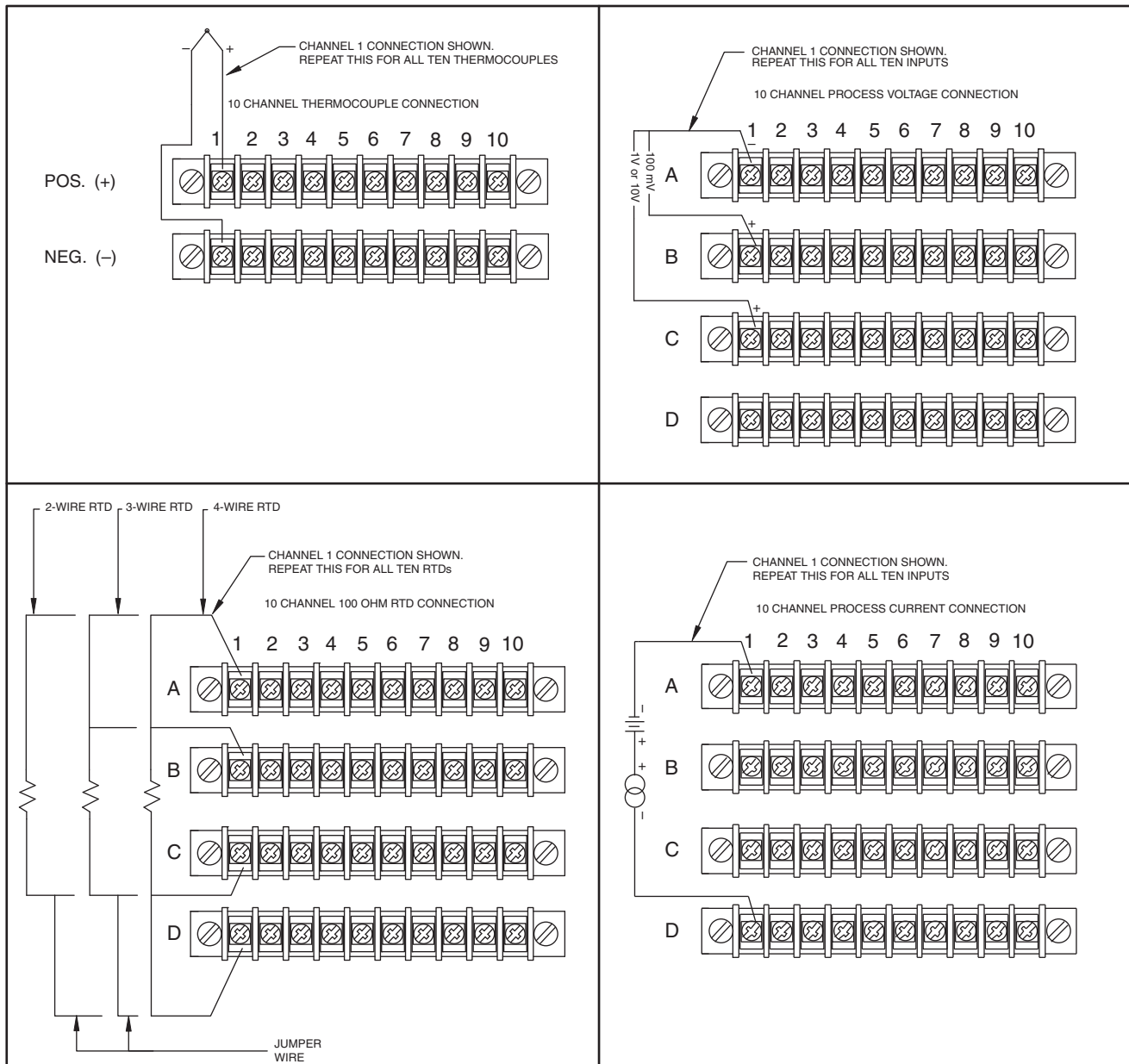


Figure 11. Ten-Channel, Dedicated Input, Sensor Wiring

3.11 Meter Setup and Programming

3.11.1 Factory Configuration

All models are factory configured and calibrated. Below is a description of how your unit has been configured.

3.11.2 Single-Channel Models

Single-channel units are factory configured and calibrated for Type-K thermocouple unless a different setup was requested when you ordered your unit. Your unit can be reconfigured in the field to a different input type without the need to recalibrate the meter. The procedure for changing the meters programming can be found in the accompanying Manual M3355.

3.11.3 Ten-Channel Models

No configuration is required. Your unit has been manufactured, programmed and calibrated for the input type you ordered by model number. Do not change or reprogram the meter's input type or incorrect readings will occur.

3.12 Analog Output Option Connection

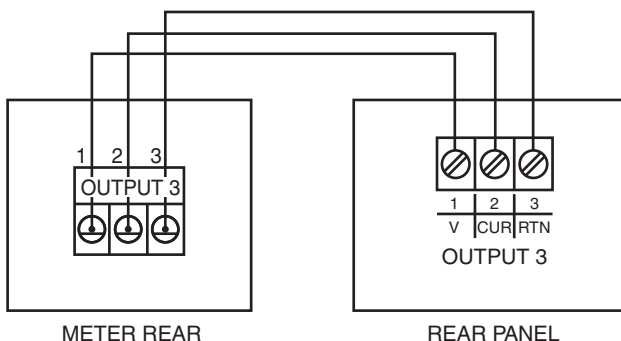


Figure 12. Analog Output Wiring Diagram

3.13 Alarm Output Option Connection

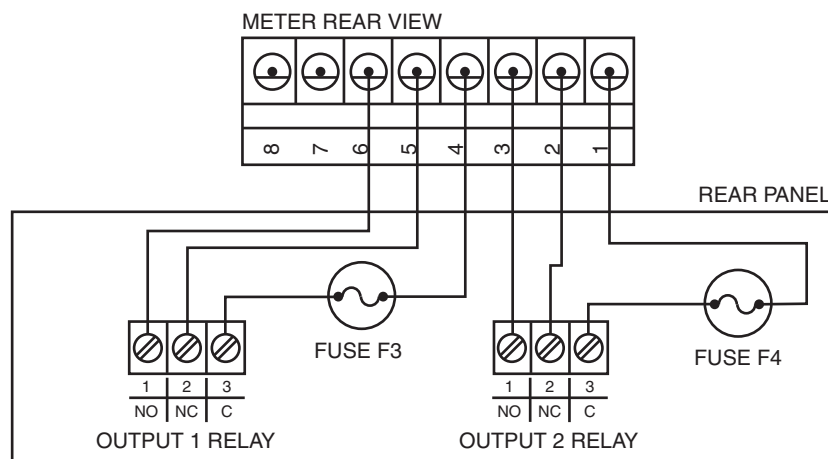


Figure 13. Alarm Output Wiring Diagram

Section 4 Communication

4.1 Communication Option (Ethernet, RS232/485)

Your meter has been factory pre-wired and configured for ease of use with your communication option. Connections are made on the rear panel.

4.1.1 Ethernet

The RJ45 connection on the back of the meter has been extended out to the rear panel on your Benchtop Meter. Connection and use of the ethernet option is outlined in Manual #M3629 that was included with your unit.

4.1.2 RS232/485

Your meter has been factory pre-wired and configured for ease of use with a standard DB9 female connector on the rear panel. Page 6 of your Communication Manual #M3397 shows how your rear panel connector has been wired. Connections to your PC should be straight through wiring as shown below.

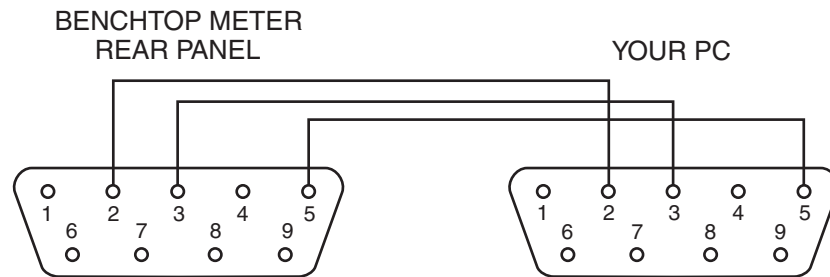


Figure 14. RS232/485 Wiring Diagram

Section 5 Maintenance

5.1 Calibration

This unit has been fine-tuned and factory calibrated to give optimum performance over its full operating range. Refer to Manual #M3355 for additional information on meter calibration and setup.

CAUTION:

Remove all electrical connections and power before attempting any maintenance or cleaning.

5.2 Cleaning

Lightly dampen a soft, clean cloth with a mild cleaning solution and gently clean the Benchtop Meter.

5.3 Fuse Replacement

WARNING:

Disconnect all power from source before attempting fuse replacement.

CAUTION:

For continued protection against the risk of fire, replace fuses with only the same size, type, rating and safety approvals indicated here and on the rear panel of your unit.

NOTE:

All power line connections to your unit are fused. When operating on single-phase power source such as 120 Vac in the USA, the neutral line is also fused.

For All Models - 90 to 240 Vac 50/60 Hz, 4W

Main Power Fusing: 2 ea., T0.1A, 250 Vac, (Time-Lag)

[(Rear Panel) F1, F2] UL./CSA/VDE Approved (5 mm dia. x 20 mm long).

Section 6 Specifications

6.1 Benchtop Configuration

NOTE:

All other specifications are located in your accompanying manual(s).

Model(s) MDSi8/MDSSi8: Manual #M3355, MQS3355
 with Analog output: Manual #M3565, MQS3610
 with Ethernet: Manual #M3629
 with RS232/485: Manual #M3397

Sensor Input(s)/Channels:
 Model MDSi8 or MDSi8A Single-Channel, Universal Input
 Model MDSSi8 or MDSSi8A Ten-Channel, Dedicated Input

Power:
 All Models: 90 to 240 Vac, 50/60 Hz, 4W
 Fused: Time-Lag, 0.1A, 250 V

Alarm Option:
 Output 1 & 2: SPDT Relay, Class "C" 3A @ 250 Vac Max
 Fused: Time-Lag, 3A, 250 V

Isolated Analog:
 Output Option
 Output 3: Programmable (Voltage or Current)

Enclosure:
 Material: Case - Painted Aluminum, Handle – Anodized Aluminum
 Size: 20.95 cm W x 9.525 cm H x 20.32 cm D
 (8.25" W x 3.75" H x 8" D)

Weight:
 MDS Series 1.36 kg (3 lb)
 MDSS Series 1.59 kg (3.4 lb)



WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **61 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **five (5) 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.

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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.

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