Step 10. Enter to the Thermocouple Input Submenu Press • to store Thermocouple Input. The display will stop flashing and show the top menu for Thermocouple types. It you press o controller will step to next menu item (Skip to Step 14).

Step 11. Enter to the Thermocouple Type Input Submenu Press • to display flashing, previously selected Thermocouple type.

Step 12. Scroll through available selection of TC types Press • to sequence thru flashing Thermocouple types, (select k -for type "K" CHROMEGA®/ALOMEGA®)

Step 13. Store TC type

After you have selected the Thermocouple type press 2 to store your selection, the instrument automatically advances to the next menu item.

Step 14. Enter to Reading Configuration Menu The display shows Rad Reading Configuration, which is the top menu for 4 submenus: Decimal Point, Degree Units, Filter Constant and Input/Reading Submenus.

Step 15. Enter to Decimal Point Submenu Press o to show dec Decimal Point.

**Step 16. Display the Decimal Point position** Press again to display the flashing Decimal Point position.

Step 17. Select the Decimal Point position Press • to select FFF.F Decimal Point position.

Step 18. Store selected Decimal Point position By pressing o momentarily the Decimal Point position will be stored and the instrument will go to the next menu item.

Step 19. Enter to Temperature Unit Submenu Display shows **EEMP** Temperature Unit.

Step 20. Display available Temperature Units Press • to display the flashing Degree • or •.

Step 21. Scroll through Temperature Units selection Press • to select • Degree.

Step 22. Store the Temperature Unit

Press o to display momentarily that the Degree Unit has been stored and the instrument will go automatically to the next menu item.

Step 23. Enter the Filter Constant Submenu Display shows FLER Filter Constant Submenu.

Step 24. Display the Filter Constant Value Submenu Press o to display the flashing, previously selected Filter Constant.

Step 25. Scroll through available Filter Constants Press • to sequence thru Filter Constants 000 1, 0002, 0004, 0008, 00 16, 0032, 0064 and 0 128.

Step 26. Store the Filter Constant

Press @ momentarily to store @004 Filter Constant and the instrument will automatically go to the next menu item.

Step 27. Enter Alarm 1 Menu

The display will show ALR I the top menu for Alarm 1. In the following steps we are going to enable Alarm 1, Deviation, Unlatch, Normally Open, Active Above, Enable at power on and +2°F High Alarm i.e. Process Value > Setpoint 1 Value +2°F will activate Alarm 1.

Step 28. Enter Alarm 1 Enable/Disable Submenu Press • to display flashing #56L / EN6L.

Step 29. Enable Alarm 1 Submenu

If flashing ENEL is displayed, press ②, if J56L is displayed, press • until ENEL is displayed, then press • to store and go to the next menu item.

Step 30. Select the Deviation Control Type Submenu Press **②**. If flashing **■** ■ ■ Deviation is displayed press **②**, otherwise press • until flashing \_\_\_\_ is shown. Now press **2** to store and go to next menu item.

Step 31. Select the Latched Type Submenu
Press ②. If flashing Unlatched is displayed press ②, otherwise press o until UNLE is displayed. Press to store and advance to next menu item.

Step 32. Select the Normally Open Type of Contact Closure Submenu

Press ②. If flashing Normally Open is displayed, press ②, otherwise press ③ until No. is displayed. Press ③ to store and advance to next menu item.

Step 33. Select the Above Type of Active Submenu Press ②. If flashing Above is displayed, press ②, otherwise press o until Bboy is displayed. Press o to store and advance to next menu item.

Step 34. Enable Alarm 1 at Power On (8.P.o.N) Press ②. If flashing ENDL is displayed, press ②, otherwise press • until ENDL is displayed. Press • to store and advance to next menu item.

Step 35. Enter Alarm 1 High Submenu Press 2 twice to skip ALR.L Alarm 1 Low value. ALR.L is for below & ALR.H for above.

Step 36. Set the Alarm 1 High value (BLR.H) Press O. Press O or until value to set the display to 002.0. Press • to save.

Step 37. Enter the Alarm 2 Menu The display will show ALR2 the top menu for Alarm 2. Repeat steps from 28 to 36 to set for Alarm 2 the same conditions as for Alarm 1.

Step 38. Configuration of Display Color Selection Press o until the DISPlay Color Selection Menu appears on the Display. Configure [COLR] as W.ELR / GRN (green), I.ELR / RED (red), Z.ELR / ANDR (amber). Please refer to the operator's manual if needed.

Step 39. Run a Test

Press @ until reset the controller and return to RUN Mode to display 0 15.0 (Ambient Temperature). Now you are ready to observe temperature as it rises 10°F higher than displayed. Touch the tip of the Thermocouple to raise the temperature above the Alarm 2 High value 982.0, and AL2 will turn on, and Display Color will change from Green to Amber. Continue touching the tip to raise the temperature above the Alarm 1 High value 187.0 and Display Color will change from Amber to Red.

#### **SPECIFICATION**

Accuracy: +0.5°C temp; 0.03% rdg. process typical Resolution:

1°/0.1°; 10 µV process Temperature Stability:

0.05°C/°C TC @ 25°C (77°F); 50 ppm/°C process

Display:

4-digits, 9-segments LED, 10.2 mm (0.40") with red, green and amber programmable colors

Input Types: Thermocouple, RTD, Analog Voltage and Current

TC: (ITS90) J. K. T. E. R. S. B. C. N. L RTD: (ITS68)

100/500/1000 ohm Pt sensor 2-, 3-, or 4-wire; 0.00385 or 0.00392

curve Voltage:

0 to 100 mV. 0 to 1 V. 0 to 10 Vdc Current:

0 to 20 mA (4 to 20 mA)

Output 11:

Relay 250 Vac @ 3 A Resistive Load,

Output 2†:

Relay 250 Vac @ 3 A Resistive Load,

SSR, Pulse **Options: Communication:** 

Excitation: 24 Vdc @ 25 mA Exc. not available for Low Power Option Line Voltage/Power:

90 - 240 Vac ±10%, 50 - 400 Hz\*, or 110 - 375 Vdc, 4 W

RS-232 / RS-422 / RS-485 or

\* No CE compliance above 60 Hz Low Voltage Power Option: 12 - 36 Vdc, 3 W\*\*

\*\* Units can be powered safely with 24 Vac but No Certification for CE/UL are claimed.

Dimensions: 25.4 H x 48 W x 126.3 D mm (1.0 x 1.89 x 5")

Weight: 127 g (0.28 lb)

Approvals:

UL, C-UL, CE per EN 61010-1:2001

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

This device is marked with the international caution symbol. It is important to read the Setup Guide before installing or commissioning this device, as the guide contains important information relating to safety and EMC.

It is the policy of OMEGA to comply with all worldwide safety and EMC/EMI regulations that apply. OEMGA 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.

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WARRANTY/DISCLAIMER

OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of one (1) year from the date of purchase. In addition to OMEGA's standard warranty period, OMEGA Engineering will extend the warranty period for four (4) additional years if the warranty card enclosed with each instrument is returned to OMEGA.

If the unit malfunctions, it must be returned to the factory for evaluation, OMEGA's Customer Service Department will If the unit malfunctions, it must be returned to the factory for evaluation. OME-GA'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 bean 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 which wear are not warranted, including but not limited to contact points, fuses, and triacs.

Contact points, tuses, 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 it will be as specified and free of defects. OMEGA MAKES NO OTHER WARRANTIES OR REPRESSOR THAT INTILE, 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 Productly; be used in or with any nuclear installation or activity, medical applications, used on humans, or misused in any way, OMEGA assumes no responsibility as set forth in our basic WARRANTDDISCLAIMER 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 PRODUCTIOS, 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

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

FOR <u>WARRANTY</u> 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 informa available BEFORE contacting OMEGA:

2. Model and serial number of 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.

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Series

**Temperature & Process Monitor Temperature & Process Limit Alarm** 



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MQS3448/0406



This Quick Start Reference provides information on setting up your instrument for basic operation. The latest complete Communication and Operational Manual as well as free Software and ActiveX Controls are available at www.omega.com/specs/iseries or on the CD-ROM enclosed with your shipment.

# **SAFETY CONSIDERATION**



This device is marked with the international Caution symbol.

The instrument is a panel mount device protected in accordance with EN 61010-1:2001, electrical safety requirements for electrical equipment for measurement, control and laboratory. Remember that the unit has no power-on switch. Building installation should include a switch or circuitbreaker that must be compliant to IEC 947-1 and 947-3.

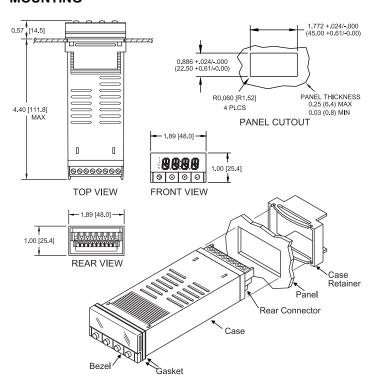
## **SAFETY:**

- Do not exceed voltage rating on the label located on the top of the instrument housing.
- Always disconnect power before changing signal and power connections.
- Do not use this instrument on a work bench without its case for safety reasons.
- Do not operate this instrument in flammable or explosive atmospheres.
- · Do not expose this instrument to rain or moisture.

# EMC:

- Whenever EMC is an issue, always use shielded cables.
- Never run signal and power wires in the same conduit.
- Use signal wire connections with twisted-pair cables.
- Install Ferrite Bead(s) on signal wire close to the instrument if EMC problems persist.

## MOUNTING



# **Panel Mounting Instruction:**

- 1. Using the dimensions from the panel cutout diagram shown above, cut an opening in the panel.
- 2. Insert the unit into the opening from the front of the panel, so the gasket seals between the bezel and the front of the panel.
- 3. Slide the retainer over the rear of the case and tighten against the backside of the mounting panel.

## **Disassembly Instruction:**

If necessary, the unit may be removed from the panel and opened.



Warning: Disconnect all ac power from the unit before proceeding.

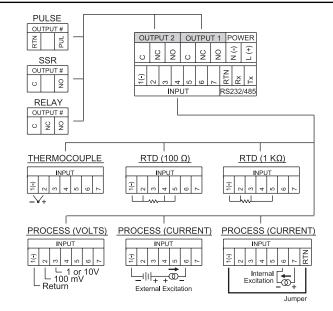
- 1. Make sure the AC power is disconnected.
- **2.** Remove all wiring connections from the rear of the meter. To remove power and input connectors bend the side panel detents on the case outward to release the connectors, then pull connectors from the meter.
- 3. To remove meter from the case, squeeze left and right sides of the bezel to release, then pull from case.

# **WIRING**

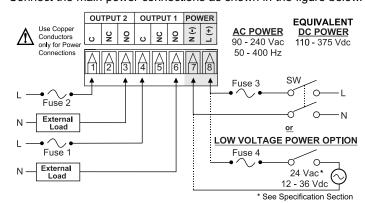
Wire the instrument according to the figure shown below.



Warning: Do not connect ac power to your device until you have completed all input and output connections. This device must only be installed by a specially trained electrician with corresponding qualifications. Failure to follow all instructions and warnings may result in injury!



Connect the main power connections as shown in the figure below.



FUSE	Connector	Output Type	For 115Vac	For 230Vac	DC
FUSE 1	Output 1	Relay	3 A(T)	3 A(T)	-
FUSE 2	Output 2	Relay	3 A(T)	3 A(T)	-
FUSE 3	Power	N/A	100 mA(T)	100 mA(T)	100 mA(T)
FUSE 4	Power	N/A	N/A	N/A	400 mA(T)



Output 1 and 2 are for -AL Limit Alarm Option only.

#### CONFIGURATION

**MENU** Mode:

Flashing display in MENU Mode means you can make your selection by pressing \( \oldsymbol{O} \) button. If the flashing display is not a four digit value, pressing • button will always direct the instrument one step backward of the top menu item. The second push on the **o** button will reset the instrument except after the setpoint and the alarms, that will go to the RUN Mode without resetting the instrument. The o button will always sequence the instrument thru the menu items.

### The **O** button has two functions:

- 1. To save a selected flashing display
- 2. To direct the instrument to the next submenu level

- causes the display to flash the PEAK with the corresponding value. Press again to go back to RUN
- causes the display to flash VALLEY with the corresponding value. Press again to go back to RUN
- causes flashing PEAK or VALLEY to reset corresponding values. Press one more time to go back to RUN Mode.

ID

## FLOW CHART



**Step 1. Apply Power to the Instrument** 

When your device is first powered up it will display the ambient temperature (assume 75°F).

Step 2. Enter Setpoint 1 Menu

Press **②** one time from run mode to get to **5**<sup>2</sup> Setpoint 1.

Step 3. Enter the Setpoint 1 Value Submenu

Press **②**. Display shows the previous selection of Setpoint 1.

Step 4. Change the Setpoint 1 Value

Press or until desired value is displayed.

Step 5. Store the Setpoint 1 Value

Set the Setpoint 1 to 10 degree higher than Process value (SP1 = 85) and press **⊙** to <u>store,</u> display flashes <u>5 ⊧ ℝ d</u> message and advances to 5P2 Setpoint 2 Menu.

Step 6. Store the Setpoint 2 Value

Repeat steps 3 and 4. Set the Setpoint 2 to 5 degree higher than Process value (SP2 = 80) and press • to store, display flashes 5 L R d message and advances to C N F C Configuration Menu.

Step 7. Enter the Input Type Menu
Press 2 to enter INPE Input Type Menu.

Step 8. Enter to the submenu items of Input Menu

Press o to display Input: Process, RTD or Thermocouple. If flashing **E.c** is displayed press **②** and proceed to Step 11.

Step 9. Scroll through available selection of Input Menu Press • until a flashing • for Thermocouple is displayed.

SEPR

CR

**SPACE** 

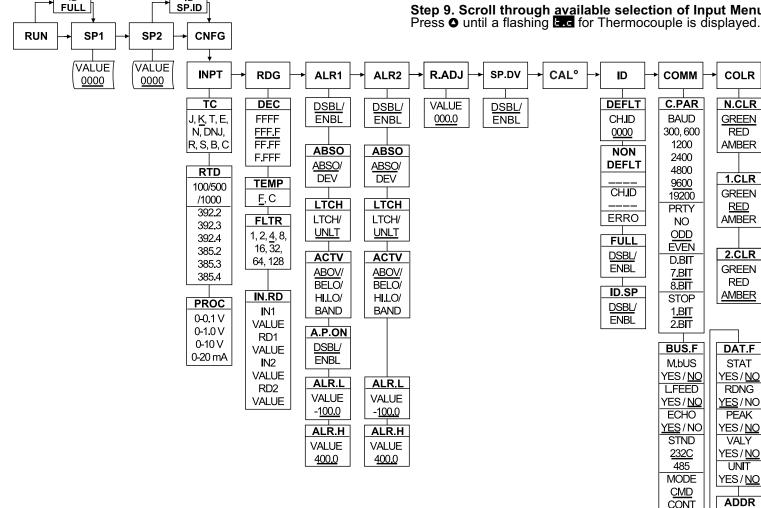
VALUE

<u>0001</u>

TRTM

VALUE

<u>0016</u>



Underline denotes factory default setup