

Where Do I Find Everything I Need for Process Measurement and Control? OMEGA...Of Course!



User's Guide

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



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 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 should malfunction, 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 being damaged as a result of excessive corrosion, or current, heat, moisture or vibration; improper specification; 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 traces.

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 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. P.O. 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. P.O. number to cover the COST of the repair,
2. Model and serial number of 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.

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CL220 Hand-Held Thermocouple Calibrator

- ✓ 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

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 Gauges
- ✓ Load Cells & Pressure Gauges
- ✓ 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

M3124/0798

GENERAL DESCRIPTION

The CL220 is designed to be a simple to use, high accuracy thermocouple calibrator capable of either simulating or reading J, K, T, or E thermocouple types. A standard thermocouple mini-connector makes connections easy while providing direct contact with the internal cold junction compensation circuitry.

When used as a thermocouple simulator, the CL220 provides 2 sets of output control keys which allow the user to either "step" in 100° increments or scroll in smaller increments.

INSTALLATION

UNPACKING

Remove the Packing List and verify that all equipment has been received. If there are any questions about the shipment, please call Omega's Customer Service Dept. at 1-800-826-6342.

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 claims unless all shipping material is saved for their examination. After examining and removing contents, save packing material and carton in the event reshipment is necessary.

SET-UP

Before beginning, become familiar with the keypad layout and the configuration of the input/output jacks. Remember, these jacks are used in multiple configurations so pay careful attention to how the test leads are connected for the specific application.

OPERATING PROCEDURE

1. Turn on power and select the desired thermocouple type by depressing the T/C SELECT key. Once the desired T/C is selected, it will remain in memory until a new T/C type is selected.
2. Select either Input or Output mode depending on whether you want to read a thermocouple or simulate a thermocouple signal.
3. Connect the appropriate thermocouple to the mini-connector on the top of the CL220.
4. If you are using the CL220 in the output mode use the STEP or SCROLL keys to set the output. The STEP key will step in 100° increments and the SCROLL key allows single degree increments which will increase in speed if the switch is depressed for several seconds.

OPERATING MODES

1. When operating in the thermocouple output mode, the CL220 has the ability to simulate up to 4 T/C types (J, K, T, E) into devices which measure thermocouples:

Note: If the CL220 is improperly connected to a low impedance load (either a short or near short) the display will flash "ERROR".

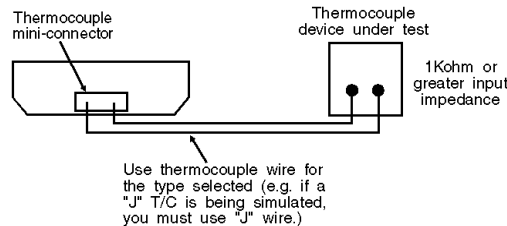


FIGURE 1
SIMULATING A THERMOCOUPLE OUTPUT

2. When operating in the thermocouple Read Mode the CL220 can be used to read the temperature of a thermocouple probe.

In this mode, the CL220 will detect an open circuit should the thermocouple junction malfunction. In this case, the display will flash "OPEN". It will also flash "OPEN" if no probe is connected in the Input Mode.

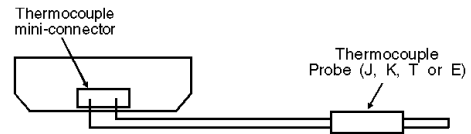


FIGURE 2
READING A THERMOCOUPLE PROBE

SPECIFICATIONS

Ranges	J -100 to 1000°C K -100 to 1200°C T -100 to 400°C E -100 to 950°C	} All ranges can be read in °C or °F
Resolution	1°C or 1°F	
Accuracy	±1°C above 0°C; ±1.5°C below 0°C ¹	
Operating Temp.	0 to 50°C	
Storage Temp.	-20 to 60°C	
Temperature Coef.	.01% F.S./°C	
Power ²	9V alkaline battery (Yields approx. 25 hrs. of operation)	
Case Size	1.43" x 3.15" x 5.7"	
Weight	12 oz.	

Notes: ¹ Accuracy is at 23°C ±2°C and includes CJC error.
² A low battery indication is given at 5.5 volts.

MAINTENANCE

Generally, with normal usage, this calibrator should hold its rated specifications for at least 12 months. Beyond this, it should remain within 1.5X of its specification over its useful life, provided it is not abused or tampered with. If after the stated warranty period, the device falls out of calibration, it can be returned to Omega for re-calibration. Please call 1-800-826-6342 for pricing and return information.