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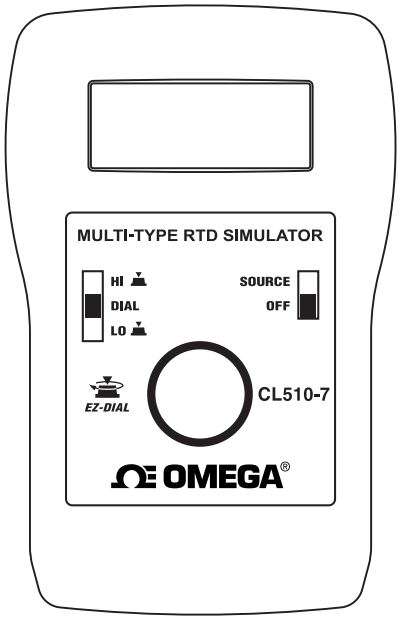

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MADE IN USA

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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
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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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CL510 Field Calibration Procedure

Suggested Equipment:

1. Precision OHM Meter with accuracy of 0.0275% at 400 Ω.

Enabling Calibration:

Install a fresh battery and allow 15 minutes for the CL510 to stabilize to ambient temperature. Remove the EZ-Dial Knob, battery cover and the four black Phillips head screws. While holding the CL510 face down in one hand, carefully separate the top and bottom of the housing. Place the unit into calibration mode by shorting the calibration via located on the bottom left side on the PCB with tweezers and turning the UUT on. Verify the CL510 is in Calibration mode by viewing the top Left of the LCD for the word CAL.

Source OHM Calibration:

LO Calibration:

1. Connect the CL510 terminals to an Ohm meter in four wire Mode.
2. Slide the EZ-Check™ switch to the LO Position indicated by displaying a LO on the left side of the display.
3. Dial the CL510 so the meter reads 0.00 Ω.
4. Press the EZ-Dial Knob down.
5. The display will flash “STORED” to confirm that the value was stored.

HI Calibration:

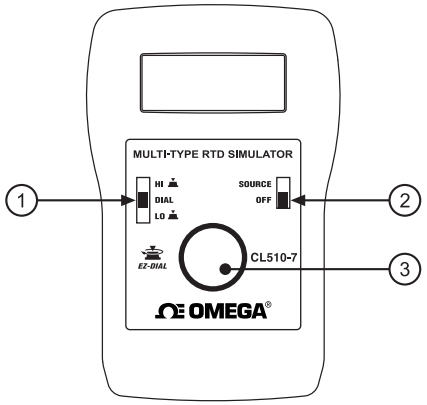
1. Slide the EZ-Check™ switch to the HI Position indicated by displaying a HI on the left side of the display.
2. Dial the CL510 so the meter reads 400.00 Ω.
3. Press the EZ-Dial Knob down.
4. The display will flash “STORED” to confirm that the value was stored.

Completion of Calibration:

Turn the CL510 off. Next time the unit is turned on the CL510 will be Calibrated and in normal operational mode.

CL510 Series Operating Instructions

Basic Keypad Operations



① **EZ-Check™ Switch**
Slide the switch to select from three user stored values for the desired calibration points. The user can select HI, DIAL, and LO positions. These values can easily be changed to suit the calibration requirements.

② **ON/OFF Switch**
Slide the **ON/OFF** to turn the CL510 on or off.

③ **EZ-Dial™ Knob**
The **EZ-Dial™ Knob** has two adjustment speeds. Simply turning the **EZ-Dial™ Knob** will select fine adjustments. While pressing down and turning the **EZ-Dial™ Knob** will make course adjustments.

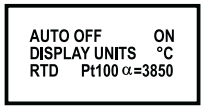
*Note: When the **EZ-Check™ Switch** is in the HI or LO position, pressing and holding the **EZ-Dial™ Knob** without turning will store a new HI or LO EZ-Check™ value.*

CL510 Configuration

Instructions for Enabling and Disabling the Configuration Options

1. Turn the CL510 on with the ON/OFF Switch②.
2. Press the EZ-Dial™ Knob ③while the “PRESS EZ-DIAL KNOB FOR CONFIGURATION” message is displayed.
3. Select options by turning the EZ-Dial™ Knob until the arrow points to the desired option.
4. The option can be enabled or disabled by pressing the EZ-Dial™ Knob.

The CL510 configuration menu will exit automatically after 5 seconds of inactivity and go to normal operation with the options selected. These options are recalled at turn on until they are changed again.



CL510 Configuration Menu

CL510 Configuration Menu

Auto Off **ON (default)/OFF**
If Auto Off is ON, the unit will turn off after 30 minutes to save battery life, if there is no user activity. If Auto Off is OFF the unit will stay on until it is turned off from the keypad. This is typically useful for manual loading or continuous use.

Display Units **°C (default)/°F**
Pressing the EZ-Dial™ Knob to toggles between °C or °F

RTD **{rtd type}**

CL510: The RTD type is fixed as ordered from the factory and cannot be changed.
{rtd type} is **one** of:
Pt100 α=3850 (default), Pt100 α=3902, Pt100 α=3916, Pt100 α=3926, Cu10 α=427, Ni110 Bristol, Ni120 α=672, Ω

CL510-7: To change RTD type, press the EZ-Dial™ Knob. Turn the EZ-Dial™ Knob to scroll through the list of available types. Press again to save and return to the configuration menu.
{rtd type} is **any** of:
Pt100 α=3850 (default), Pt100 α=3902, Pt100 α=3916, Pt100 α=3926, Cu10 α=427, Ni110 Bristol, Ni120 α=672, Ω

EZ-Dial™ Knob

Turn the EZ-Dial™ Knob to adjust the output up or down. Fine adjustments can be made by turning the EZ-Dial™ Knob. Coarse adjustments can be made by pressing and turning the EZ-Dial™. New values can be stored into the HI and LO EZ-Check™ positions by pressing down on the EZ-Dial™ Knob until "STORED" is indicated on the display.

EZ-Check™ Switch

The EZ-Check™ Switch has three positions: HI, DIAL, and LO. Its position is shown at the left edge of the display with "HI" and "LO" indicators. The output is adjustable in all three positions. The EZ-Check™ Switch allows user-selected values to be stored in the HI and LO positions when used in combination with the EZ-Dial™ Knob.

To store new EZ-Check™ value(s):

1. Dial the display to match the desired stored outputs for the HI or LO positions.
2. Press down on the EZ-Dial™ Knob until the confirmation message "STORED" appears.
3. Recall the values by moving the switch between HI, DIAL, and LO.

Operational description: When returning to previously set EZ-Check™ positions, the DIAL position always recalls the last output value it was dialed to. The HI and LO positions will recall the last STORED value, NOT the last output value it was last dialed to.

Hint: For faster calibrations, the product has been designed so the position of the switch can be felt. This tactile feature allows continuous monitoring of the device being calibrated without looking back at the CL510 display. This is also useful in poor lighting or under difficult operating conditions.

Specifications

General Specifications:

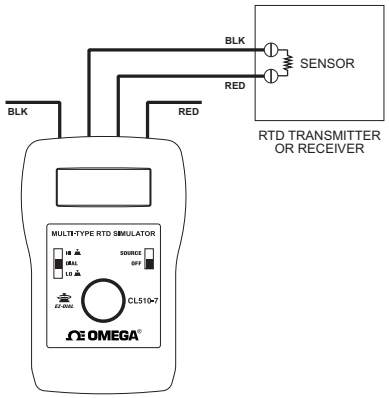
(Unless otherwise indicated all specifications are rated from a nominal 23 °C, 70 % RH for 1 year from calibration)

Temperature Range	-25 to 60 °C (-10 to 140 °F)
Relative Humidity Range	10 % ≤RH ≤90 % (0 to 35 °C), Non-condensing
	10 % ≤RH ≤70 % (35 to 60 °C), Non-condensing
Size	4.9 X 3.15 X 1.82 inches (125.5 X 80 X 46.2 mm)
Weight	9.1 oz (258 grams)
Battery	9V Alkaline provides 45 hours of continuous use
Miscellaneous	Low battery indication with nominal 1 hour of operation left
	Protection to 60V DC or AC peak up to 30 seconds in duration
	High contrast graphic liquid crystal display with *0.357" (9.07 mm)* high digits
RTD Curve Simulation Specifications (ITS-90 Curves):	
Accuracy	±(0.015% of Setting in Ω + 0.05Ω)
Typical accuracies for RTD curves are:	
Pt100	±0.25°C (±0.5°F)
Cu10	±1.5°C (±3°F)
Ni110, Ni 120Ω	±0.25°C (±0.5°F)
Allowable Excitation Current	100 μA to 10.2 mA, steady or pulsed/intermittent/smart
for accuracies below 100μA add	±10 μV/Excitation Current (units are in Ω)
Pulsed Excitation Current Compatibility	DC to 0.01 second pulse widths
Output Dial Adjustment Resolution	0.1°F or 0.1°C Adjustment Resolution for Model 511
	1°C or 1°F Adjustment Resolution for Model 510
Temperature Coefficient	±0.05Ω/°C Ambient

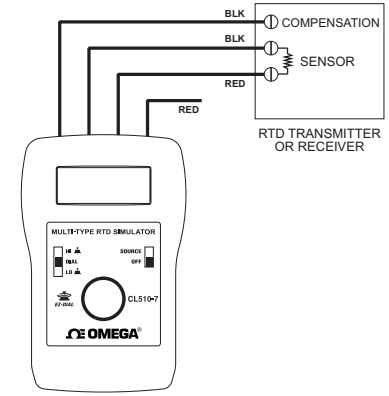
CL510 Series Operating Instructions

Connection Diagrams

Two Wire Connection to Transmitter



Three Wire Connection to Transmitter



Four Wire Connection to Transmitter