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 if 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 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.

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 or calibration,
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.

OMEGA is a registered trademark of OMEGA ENGINEERING, INC.

Changing the Temperature Setpoint (cont'd...)

Pressing and holding a key will cause the setpoint temperature to advance more quickly to a desired value. Three scanning speeds are provided: slow, medium and fast. The lower setpoint limit and upper setpoint limit are at -23 and 257F, respectively. While the min. and max. setting are changeable, it is not advised as it may result in damage to the calibrator.

Heat-Up/Cool-Down Transition Time

Temperature Change	Time
-5°C (23°F) to 23°C (73.4°F)	1 minute
23°C (73.4°F) to 100°C (212°F)	3 minutes
100°C (212°F) to 125°C (257°F)	5 minutes

Heating Times

Temperature Change	Time
125°C (257°F) to 100°C (212°F)	1 minute
100°C (212°F) to 0°C (32°F)	8 minutes
0°C (32°F) to -5°C (23°F)	4 minutes

Cooling Times

Testing/Calibrating Temperature Probes

When calibrating probes at different temperature points, start at the lowest temperature and work up to the highest temperature. Do not jump up and down from a very hot temperature to a relatively cooler temperature. This will reduce the time it takes for the probe well to re-stabilize after you change the setpoint. When placing probes into the well, make sure the probe tip goes all the way down to the bottom of the probe well, the full 4.5". This will insure the degree of highest accuracy possible when taking your reading.

After calibrating each probe, remove it from the well and place it on a protected surface to cool. If you have another probe to calibrate, place it into the probe well and allow the calibrator a few minutes to re-stabilize.

Overheat Reset Switch

If the unit is operated at high temperatures in elevated ambient temperatures, an overheat condition may occur. In an overheat situation a mechanical reset switch inside the unit will pop and open the heater circuit. The controller will still have power. While the controller will be demanding heat from the heater, the process temperature will fall or rise continuously until it equalizes with room temperature. If an overheat condition occurs, let the unit cool off for one hour. If this does not correct the problem, contact the factory.

Cooling Down Your Calibrator

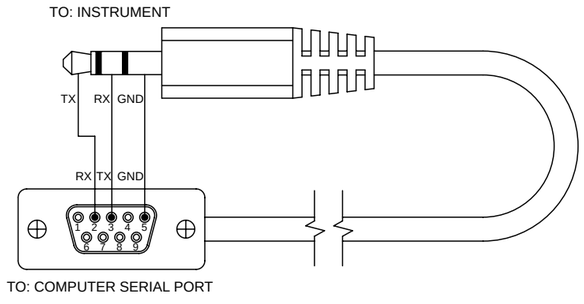
NOTE:

Do not remove the power cord, main line power or turn the calibrator off until completing the cool-down procedure.

When you have completed working with the calibrator you must cool the unit down to ambient temperature if you intend to move your unit and/or return to storage.

Serial Cable Connection

The CL1500 features a serial port that allows bi-directional data transfer via a three conductor cable consisting of signal ground, receive input, and transmit output. It is recommended that less than fifty feet of cable be used between the computer and this instrument. For detailed information on RS232 Communication and Software refer to Section 4 in the User's Guide



Connecting the CL1500 to a Computer's Serial Port

QUICK START

For complete product manual:
www.omega.com/manuals/manualpdf/M4695.pdf

CL1500

Bench-Top Dry Block Calibrator

OMEGA®
omega.com info@omega.com

Servicing North America:

U.S.A.: Toll-Free: 1-800-826-6342 (USA & Canada Only)
Customer Service: 1-800-622-2378 (USA & Canada Only)
Engineering Service: 1-800-872-9436 (USA & Canada Only)
Tel: (203) 359-1660 Fax: (203) 359-7700
e-mail: info@omega.com

For Other Locations Visit omega.com/worldwide

START HERE

Using This Quick Start Manual

Use this Quick Start Manual with your CL1500 Series Bench-Top Dry Block Calibrator for easy installation and basic operation. For detailed information, refer to the User's Guide (Manual Number M4695).

PRECAUTIONS:

- Follow all safety precautions and operating instructions outlined in this quick start and accompanying User's Guide.
- Never leave your calibrator unattended when in use.
- Keep out of reach of all children.
- Never touch the probe well or probes when hot without proper protection.
- Never place any objects other than temperature probes in the well.
- Do not operate in flammable or explosive environments.
- Never operate with a power cord other than the one provided with your unit.
- Turn unit off and disconnect main power cord before attempting any maintenance or fuse replacement.
- Never disconnect main power cord or main power source when unit is still hot.
- Do not connect and or operate this unit to a non-grounded, non-polarized outlet or power source.
- This unit is intended for indoor use only. Avoid exposure to moisture or high humidity.
- Never operate the unit outside.
- Do not return your unit to storage when hot, allow unit to cool down to ambient temperature.

General Information

The Model CL1500 is a portable, rugged, bench-top, hot/cold dry block calibration source with a built-in precision PID digital controller. The calibrator is used to test and calibrate temperature probes of various diameters. The calibration block has 6 holes to accommodate probes of varying diameter. It is available in both standard and metric versions. It can be set to any temperature between -5 to 125°C (+23 to 257°F).

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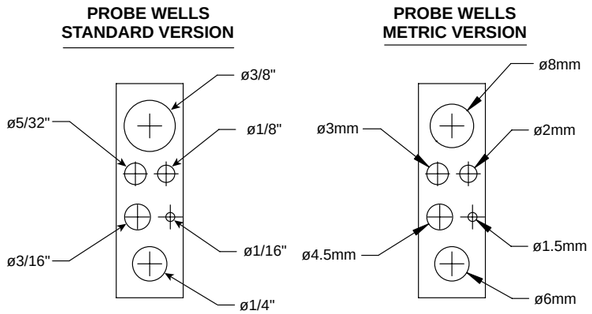
Available Models

Model No.*	Probe Well Style	Hole Size
CL1500	Standard	See Fig. 2
CL1500M	Metric	

* Add suffix -230 for 230 Vac Models.



Probe Wells (With Dimensions)

Mounting

Mount the unit on a bench, table top or shelf in a horizontal position and operate at least ten inches from any air obstructions to the fan, front panel, rear panel, bottom and top of the unit, in an ambient environment between the specified 0 to 45°C (32 to 113°F).

Ambient Temperature

The calibration block of the CL1500 can achieve any temperature within the specified temperature range of -5 to 125°C (+23 to 257°F) when being operated in normal ambient temperature 23°C (72°F) environments. As long as the ambient temperature does not exceed 25°C (75°F), the block will achieve its lower limit temperature of -5°C (23°F). The minimum block temperature the unit can achieve is proportionally higher with increased ambient temperature. An increase in Ambient temperature of 1°C (1.8°F) above the 23°C (72°F) increases the minimum probe well temperature by approximately 0.8°C (1.4°F).

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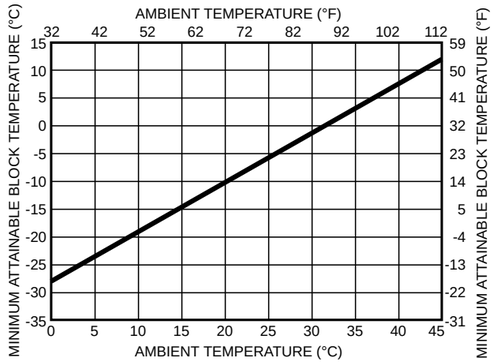

The Effect of Increased Ambient Temperature on Operating Temperature

Power Connection

International (230 Vac~, 50/60 Hz Models only)

On "-230Vac" models an International style power cord with the proper color code and approvals is provided with stripped wire ends for connection to the proper connector used in your country or local area, this connector is not provided. Make sure when installing your connector to the wire ends that the ground connection has been made.

Certification: CE (CL1500 ~230VAC only)

WARNING

High voltage is present at the power cord connection and inside the calibrator's enclosure when connected to the AC mains supply. Do not remove the top or bottom cover of the calibrator for any reason.

Front Panel Controls and Indicators

Front Panel

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Process Temperature
This field displays the current temperature of the calibration block.

Setpoint Temperature
This field displays the desired calibration block temperature. Once the block reaches this desired temperature, both displays will read the same value.

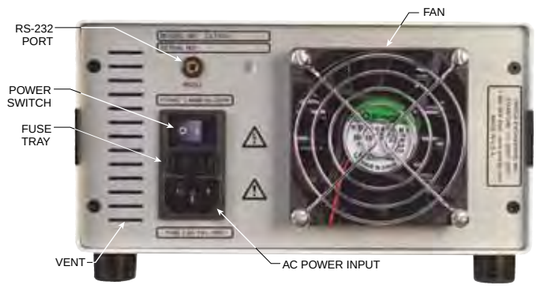
Parameter/Access Key:
Used to index through parameters or to access Menu levels.

Raise Key: Used to scroll up through available parameter settings, increase values or change menu levels (Hold for fast-step progression).

Lower Key: Used to scroll down through available parameter settings, decrease values or change menu levels (Hold for fast-step progression).

Mode Key: This key is inactive.
Press to save settings and exit a menu level

Back Panel Connections



Back Panel

Changing the Temperature Setpoint

The CL1500's upper display indicates the calibration block temperature known as (PV) Process Variable, while the lower display indicates the programmed setpoint known as (SV) Setpoint Variable. Changes to the setpoint, units of measure and communication settings are made via the raise and lower keys.