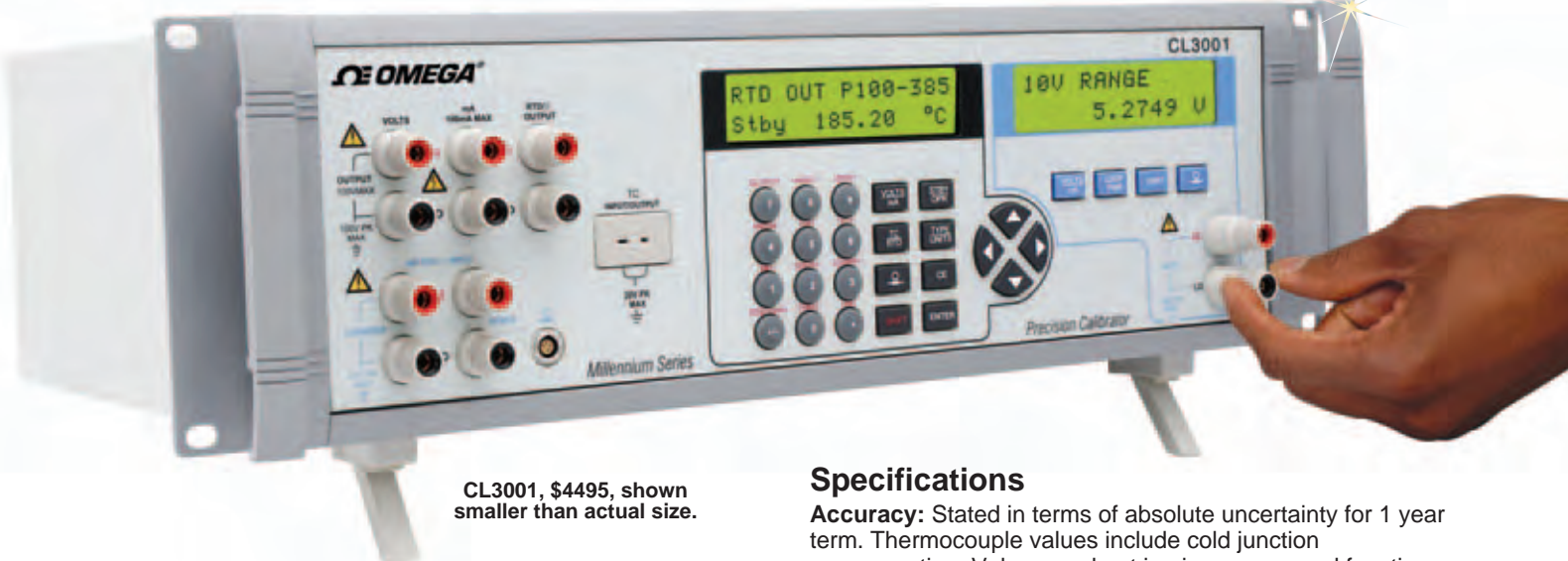


# Lab Calibrator



CL3001, \$4495, shown smaller than actual size.

CL3001  
\$4495



- ✓ 0.0025% Calibration Accuracy
- ✓ Source/Read Thermocouple, RTD, Voltage, Current and Pressure
- ✓ Custom RTD and SPRT Profiles
- ✓ RS232, USB and IEEE-488 Remote Control
- ✓ Isolated Measurement Channel
- ✓ Includes NIST Certificate with Calibration Data

The OMEGA® CL3001 calibrator is an accurate full-featured temperature, DC and pressure calibrator intended for R&D, manufacturing and calibration lab applications. The units simple design and ease of operation allow users to quickly familiarize themselves with its operations and features. Time saving functions like the ability to save, recall and automatically cycle through setpoints for each output range, the ability to enter user definable RTD curves, and a complete remote interface are several key features offered by the CL3001.

The CL3001 includes an isolated measurement channel consisting of two voltage ranges: 10V and 100V DC, milliAmp range 0 to 52 mA, milliAmp range. The isolated measurement includes 24 Vdc power, and accuracy of 0.005% of reading on voltage ranges. Measuring pressure with a PCL-PMA pressure module adaptor, the CL3001 will work with all OMEGA PCL-PM pressure modules. For information on these see specifications under PCL1200, please visit

[omega.com/pcl1200](http://omega.com/pcl1200)

## Specifications

**Accuracy:** Stated in terms of absolute uncertainty for 1 year term. Thermocouple values include cold junction compensation. Values are best in given range and function. For breakdown of each range please refer to the manual [omega.com/cl3001](http://omega.com/cl3001)

**Display:** Primary input/output display and the isolated measurement channel display each have 2 line, 16 character fields

**Temperature Units:** User selectable, °F/°C

**Communication:** RS232, IEEE-488 (31 available addresses)

**Operating Ambient:** Less than 80% RH, 0 to 50°C (32 to 122°F), temperature Cal 18 to 28°C (64 to 82°F)

**Power:** 100V/120V or 220V/240V, ±10%, line frequency 47 to 63 Hz

**Dimensions:** 13.3 cm H (5.25") plus 2.9 cm (1.15") for extended feet width standard rack width 48.3 cm (19") 30.0 cm D (11.81") overall

**Weight:** 4 kg (9 lb)

**Input/Output Functions:** Include save, recall and automatically cycle through setpoints for each output range, the ability to enter user definable RTD curves, and remote interface command set.

## Thermocouple Specification, Output/Input

Type	Range				Absolute Uncertainty <sup>†</sup>	
	°C		°F		°C	°F
K	-200	1372	-328	2502	0.16	0.29
J	-210	1200	-346	2192	0.16	0.29
T	-250	400	-418	752	0.14	0.25
E	-250	1000	1000	1832	0.15	0.27
N	-200	1300	-328	2372	0.18	0.32
L	-200	900	-328	1652	0.17	0.31
U	-200	600	-328	1112	0.56	1.01
XK	-200	800	-328	1472	0.13	0.23
R	0	1750	32	3182	0.33	0.59
S	0	1750	32	3182	0.36	0.65
B	600	1820	1112	3308	0.39	0.70
C	0	2316	324	201	0.26	0.47
BP	0	2500	324	532	0.32	0.58

<sup>†</sup> Values are best in range



#### DC Voltage Specifications, Output

Range	Absolute Uncertainty <sup>†</sup> ± (ppm of output $\mu$ V)		
	Ppm output	$\mu$ V	Resolution
0 to 100.000 mV	30	3	1 mV
0 to 1.00000V	30	10	10 $\mu$ V
0 to 10.0000V	30	100	100 $\mu$ V
0 to 100.000V	30	1 mV	1 mV

#### DC Voltage Specifications, Isolated Input

Range	Absolute Uncertainty <sup>†</sup> ± (ppm of reading mV)		
	Ppm rdg	mV	Resolution
0 to 10.0000V	50	0.2	100 $\mu$ V
0 to 100.000V	50	2.0	1 mV

#### DC Current Specifications, Output

Range	Absolute Uncertainty <sup>†</sup> ± (ppm of output $\mu$ A)		
	Ppm rdg	$\mu$ A	Resolution
0 to 100.000 mA	50	1	1 $\mu$ A

#### DC Current Specifications, Isolated Input

Range	Absolute Uncertainty <sup>†</sup> ± (ppm of reading $\mu$ A)		
	Ppm rdg	$\mu$ A	Resolution
0 to 50.000 mA	100	1	0.1 $\mu$ A
1. Loop power: 24V $\pm$ 10% 2. HART <sup>®</sup> resistor: 250 $\Omega$ $\pm$ 3% 3. Maximum rated loop current: 24 mA			

#### Resistance Specifications, Output

Range	Absolute Uncertainty <sup>†</sup> ± Ohms		
	$\Omega$	Resolution	Nominal Current
5 to 400.000 $\Omega$	0.015	0.001 $\Omega$	1 to 3 mA
5 to 4.00000 k $\Omega$	0.25	0.01 $\Omega$	0.1 to 1 mA
1. Continuously variable from 0 to 4 k $\Omega$ . 2. For currents lower than shown, the specification becomes: New Spec. = Stated Spec. x Imin/Iactual. For example, a 500 $\mu$ A stimulus measuring 100 $\Omega$ has a specification of: 0.015 $\Omega$ x 1 mA/500 $\mu$ A = 0.03 $\Omega$ .			

<sup>†</sup> Values are best in range

#### Resistance Specifications, Input

Range	Absolute Uncertainty <sup>†</sup> ± (ppm of reading $\Omega$ )		
	Ppm rdg	$\Omega$	Resolution
5 to 400.000 $\Omega$	20	0.035	0.001 $\Omega$
5 to 4.00000 k $\Omega$	20	0.35	0.01 $\Omega$
1. Loop power: 24V $\pm$ 10% 2. HART resistor: 250 $\Omega$ $\pm$ 3% 3. Maximum rated loop current: 24mA			

#### RTD and Thermistor Specifications, Output

Type	Range				Absolute Uncertainty <sup>†</sup>	
	$^{\circ}$ C		$^{\circ}$ F		$^{\circ}$ C	$^{\circ}$ F
Pt 385, 100 $\Omega$	-200	800	-328	1472	0.04	0.07
Pt 3926, 100 $\Omega$	-200	630	-328	1166	0.04	0.07
Pt 3916, 100 $\Omega$	-200	630	-328	1166	0.03	0.05
Pt 385, 200 $\Omega$	-200	630	-328	1166	0.38	0.68
Pt 385, 500 $\Omega$	-200	630	-328	1166	0.15	0.27
Pt 385, 1000 $\Omega$	-200	630	-328	1166	0.07	0.13
Ni120, 120 $\Omega$	-80	260	-112	500	0.02	0.04
Cu 427, 10 $\Omega$	-100	260	-148	500	0.38	0.68
YSI 400	15	50	59	122	0.007	0.013

#### RTD and Thermistor Specifications, Input

Type	Range				Absolute Uncertainty <sup>†</sup>	
	$^{\circ}$ C		$^{\circ}$ F		$^{\circ}$ C	$^{\circ}$ F
Pt 385, 100 $\Omega$	-200	800	-328	1472	0.012	0.07
Pt 3926, 100 $\Omega$	-200	630	-328	1166	0.011	0.022
Pt 3916, 100 $\Omega$	-200	630	-328	1166	0.006	0.011
Pt 385, 200 $\Omega$	-200	630	-328	1166	0.009	0.016
Pt 385, 500 $\Omega$	-200	630	-328	1166	0.008	0.014
Pt 385, 1000 $\Omega$	-200	630	-328	1166	0.012	0.022
Ni120, 120 $\Omega$	-80	260	-112	500	0.010	0.018
Cu 427, 10 $\Omega$	-100	260	-148	500	0.069	0.124
YSI 400	15	50	59	122	0.007	0.013
SPRT	-200	660	-328	1220	0.06	0.011

<sup>†</sup> Values are best in range

**AVAILABLE FOR FAST DELIVERY!**

#### To Order (Specify Model Number)

Model No.	Price	Description
<b>CL3001</b>	<b>\$4495</b>	Precision lab calibrator

Comes complete with NIST certificate, operator's manual, power cord, and thermocouple shorting connector.

Ordering Example: CL3001, precision lab calibrator, \$4495.

#### Accessories

Model No.	Price	Description
<b>PCL-PMA</b>	<b>\$310</b>	Pressure module adaptor
<b>CL-300-CABLE-(*)-2</b>	<b>10</b>	Thermocouple extension cables
<b>TAC-CAB</b>	<b>8</b>	0.9 m (3') test leads
<b>PCL422-TL</b>	<b>17</b>	Stackable test leads

\* Male mini-connector to spade lug, insert one thermocouple type J, K, T, E, R, S, B, N.

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