



**CL3001**



- ✓ **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 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)

**CL3001**

## 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† ± (ppm of output μV)		
	Ppm output	μV	Resolution
0 to 100.000 mV	30	3	1 mV
0 to 1.00000V	30	10	10 μV
0 to 10.0000V	30	100	100 μV
0 to 100.000V	30	1 mV	1 mV

### DC Voltage Specifications, Isolated Input

Range	Absolute Uncertainty† ± (ppm of reading mV)		
	Ppm rdg	mV	Resolution
0 to 10.0000V	50	0.2	100 μV
0 to 100.000V	50	2.0	1 mV

### DC Current Specifications, Output

Range	Absolute Uncertainty† ± (ppm of output μA)		
	Ppm rdg	μA	Resolution
0 to 100.000 mA	50	1	1 μA

### DC Current Specifications, Isolated Input

Range	Absolute Uncertainty† ± (ppm of reading μA)		
	Ppm rdg	μA	Resolution
0 to 50.000 mA	100	1	0.1 μA

1. Loop power: 24V ±10%  
2. HART® resistor: 250 Ω ±3%  
3. Maximum rated loop current: 24 mA

### Resistance Specifications, Output

Range	Absolute Uncertainty† ±Ohms		
	Ω	Resolution	Nominal Current
5 to 400.000 Ω	0.015	0.001 Ω	1 to 3 mA
5 to 4.00000 kΩ	0.25	0.01 Ω	0.1 to 1 mA

1. Continuously variable from 0 to 4 kΩ.  
2. For currents lower than shown, the specification becomes:  
New Spec. = Stated Spec. x Imin/Iactual.  
For example, a 500 μA stimulus measuring 100 Ω has a specification of:  
0.015 Ω x 1 mA/500 μA = 0.03 Ω.

† Values are best in range



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

### Resistance Specifications, Input

Range	Absolute Uncertainty† ± (ppm of reading Ω)		
	Ppm rdg	Ω	Resolution
5 to 400.000 Ω	20	0.035	0.001 Ω
5 to 4.00000 kΩ	20	0.35	0.01 Ω

1. Loop power: 24V ±10%  
2. HART resistor: 250Ω ±3%  
3. Maximum rated loop current: 24mA

### RTD and Thermistor Specifications, Output

Type	Range				Absolute Uncertainty†	
	°C		°F		°C	°F
Pt 385, 100 Ω	-200	800	-328	1472	0.04	0.07
Pt 3926, 100 Ω	-200	630	-328	1166	0.04	0.07
Pt 3916, 100Ω	-200	630	-328	1166	0.03	0.05
Pt 385, 200 Ω	-200	630	-328	1166	0.38	0.68
Pt 385, 500 Ω	-200	630	-328	1166	0.15	0.27
Pt 385, 1000 Ω	-200	630	-328	1166	0.07	0.13
Ni120, 120 Ω	-80	260	-112	500	0.02	0.04
Cu 427, 10 Ω	-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†	
	°C		°F		°C	°F
Pt 385, 100 Ω	-200	800	-328	1472	0.012	0.07
Pt 3926, 100 Ω	-200	630	-328	1166	0.011	0.022
Pt 3916, 100 Ω	-200	630	-328	1166	0.006	0.011
Pt 385, 200 Ω	-200	630	-328	1166	0.009	0.016
Pt 385, 500 Ω	-200	630	-328	1166	0.008	0.014
Pt 385, 1000 Ω	-200	630	-328	1166	0.012	0.022
Ni120, 120 Ω	-80	260	-112	500	0.010	0.018
Cu 427, 10 Ω	-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

† Values are best in range

To Order Visit <a href="http://omega.com/cl3001">omega.com/cl3001</a> for Pricing and Details	
Model No.	Description
CL3001	Precision lab calibrator

Comes complete with calibration certificate, operator's manual, power cord 0.9 m (3'), and thermocouple shorting connector.

Ordering Example: CL3001, precision lab calibrator.

OCW-2 OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 3 years.

### Accessories

Model No.	Description
PCL-PMA	Pressure module adaptor
CL-300-CABLE-(*)-2	Thermocouple extension cables
TAC-CAB	0.9 m (3') test leads
PCL422-TL	Stackable test leads

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