

Portable Temperature Calibrators

- ✓ NIST Traceable Standard
- ✓ All Normalized IEC, DIN and JIS Thermocouples
- ✓ IPTS68 and ITS90 Linearizations
- ✓ RJ Internal or External with Direct Keyboard Selection
- ✓ mA, mV, V (up to 10 V), Ω
- ✓ Thermoformed Metal-Click Tactile Polycarbonate Membrane Keyboard
- ✓ 60 Memory Stored Values for Different Simulation Programs
- ✓ Single Value, Multi-Step or Continuous Ramp/Cycle Simulation
- ✓ Rechargeable Ni-H Batteries
- ✓ Report of Calibration Included
- ✓ Built-in Loop Power Supply

CL526
\$1665



CL526, \$1665, shown slightly smaller than actual size.

PERFORMANCE

A highly accurate and powerful system for testing, measuring and calibrating built into a single compact portable instrument. The OMEGA® CL526 indicator-simulator is a multifunction instrument designed to meet, in a modern and practical way, the needs of instrumentation engineers, both in laboratory and field work. Accurate, compact, rugged and easy to use, it is the ideal solution for measuring and simulating:

- Millivolts
- Volts
- Milliamperes
- Ohms
- Thermocouples
- Resistance Thermometers

The CL526 has been developed using the most advanced microprocessor technology to provide high accuracy on extended ranges and a powerful operating flexibility.

The modular firmware includes the algorithms of thermocouples and resistance thermometers in accordance with IEC, DIN and JIS standards.

IPTS68 and ITS90 linearization are memory stored and can be selected through the keyboard.

A unique internal automatic RJ compensation system allows the



CL526 to provide accurate input and output readings in operating conditions with a temperature range of -5 to 50°C (23 to 122°F).

Further, external compensation is available with temperature adjustable from -50 to 100°C (-58 to 212°F).

The selection of operating functions is made on a thermoformed polycarbonate membrane keyboard which assures up to one million operations per key.

Two thick film membrane "slidewires" (patent pending) are used to set the simulated signal value.

Measured or simulated values are

indicated on a high quality LCD dot matrix display which provides good contrast even in poor lighting conditions.

A menu-driven procedure allows for 7 different simulation programs of 60 memory-stored values, or for continuous or step ramp values.

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

The case, made of shock-resistant ABS, is ergonomically designed for easy practical use.

The instrument is powered by four Ni-H rechargeable batteries; an external battery charger is supplied as a standard accessory.

GENERAL FEATURES

Flexibility

Advanced flexibility of performance has been achieved using microprocessor technology. Each instrument, through a menu-driven procedure, allows measurement or simulation of mV, mA, or any normalized IEC, DIN and JIS thermoelectric sensor J, K, T, R, S, B, C, U, L, G, D, N, E, F, Pt100, Ni100, Ni120, Ω . The microprocessor performs automatic polynomial linearization and cold junction compensation to assure high accuracy.

Self-Calibration

The hardware-firmware design allows for an automatic calibration of the instrument. The calibration procedure is protected by a security code.

Keyboard

A thermoformed metal-click tactile polycarbonate membrane keyboard, with a working life of one million operations per key, seals the internal electronics from the surrounding environment. Contact closure of the membrane keys is acknowledged, as a coded signal, directly by the microprocessor. Two membrane slidewires (patent pending) allow operator setting of the simulation value.

Display

The high contrast alphanumeric LCD display with dot matrix (7 x 5 dots per character - 16 characters) allows easy reading even in poor light conditions.

Simultaneous indication of the measured or simulated value, engineering unit, type of sensor or signal, temperature scale and RJ mode.



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Scale Factor

Easy menu-driven set-up to read or simulate electrical signal values in terms of engineering units. Four programmable alphanumeric characters are available on the display to show the symbol of the parameter (*i.e.*, mbar, % RH, % CO, etc.).

Square Root

Can be programmed during the set-up procedure (linear ranges only), e.g. to obtain direct readings of flow from a dP transmitter signal. The display limits are 0 to +2500.

Average Measurements

For the measurements of unstable input signals by a progressive averaging of a programmable number of conversions.

Simulation Programs

Menu-driven set up to generate:

- 1) A continuous or step ramp output where total time, start point, end point and size of the step are requested by the set-up procedure to run the program;

- 2) A continuous programmable cycle rise, soak, fall;

- 3) A manual repeat increment through the keyboard; and

- 4) 60 memory stored values (20 groups of 3 memories) for 7 different simulation programs.

Carrying Case

A protective leather case with cover and shoulder strap is supplied as a standard accessory.

Quality Assurance Program

The modern technology and strict procedures of our Quality Assurance Program applied during the design/development, production and final inspection guarantee the long-term reliability of this instrument.

Report of Calibration

Each CL526 indicator-simulator is factory calibrated against OMEGA® Standards, and shipped with a Report of Calibration stating the nominal and actual values and deviation errors.

Specifications

IN/OUT Parameters: See table

International Temperature Scale:

IPTS68 and ITS90

Reference Junction (RJ)

Compensation: -5 to 50°C

(23 to 122°F) automatic with Pt100

sensor or external with manual

setting from -50 to 100°C

(-58 to 212°F)

RJ Compensation Drift:

± 0.015°C/°C

RJ Compensation Error: ± 0.15 °C

Common Mode Rejection:

>130 dB at 50/60 Hz

Normal Mode Rejection:

>70 dB at 50/60 Hz

Temperature Stability:

For temperatures exceeding

18 to 28°C (64 to 84°F)

Span: ± 0.0025% of the reading/°C

Zero: ± 0.2 µV/°C

Output Impedance (emf output):

<0.5 Ω with maximum current of

0.5 mA

Input Impedance:

>10 MΩ (> 1 MΩ 10 V range)

Source Resistance Effects: 1 µV

error for 1000 Ω source resistance

Max Input Voltage:

50 V (mV, V, Tc) 5 V (RTD)

Max Input Current:

100 mA (mA) 6 mA (RTD)

RTD & Ω Simulation Excitation

Current: from 0.2 to 5 mA

RTD & Ω Measurement Excitation

Current: 0.25 mA

RTD Cable Comp. Limit:

100 Ω (each wire)

RTD Cable Compensation Error:

±0.005°C/Ω of total cable resistance

Shunt Resistance (mA ranges):

38 Ω

Maximum Resistance Load:

1000 Ω at 20 mA

Engineering Unit Indications:

4 characters directly on the display

Scale Factor:

Zero and span programmable

within -10000 and +10000

Square Root:

In combination with scale factor

(display limits 0 and +2500)

Calibration: Automatic procedure

INPUT-OUTPUT RANGES				
Sensor or parameter	Total Range	High Accuracy Range	Resolution	Accuracy (% of reading)
T/C type J	-210 to 1200°C -346 to 2192°F	-170 to 1200°C -274 to 2192°F	0.1°C 0.1°F	±(0.02% +0.15°C) ±(0.02% +0.27°F)
T/C type K	-270 to 1370°C -454 to 2498°F	-120 to 1300°C -184 to 2372°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type T	-270 to 400°C -454 to 752°F	-120 to 400°C -184 to 752°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type R	0 to 1760°C 32 to 3200°F	500 to 1700°C 932 to 3092°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type S	0 to 1760°C 32 to 3200°F	800 to 1760°C 1472 to 3200°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type B	200 to 1820°C 392 to 3308°F	1000 to 1820°C 1832 to 3308°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type C	0 to 2300°C 32 to 4172°F	0 to 2300°C 32 to 4172°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type G	0 to 2300°C 32 to 4172°F	200 to 2300°C 392 to 4172°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type D	0 to 2300°C 32 to 4172°F	0 to 2200°C 32 to 3992°F	0.1°C 0.1°F	±(0.02% +0.5°C) ±(0.02% +0.9°F)
T/C type U	-200 to 400°C -328 to 752°F	-120 to 400°C -184 to 752°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type L	-200 to 760°C -328 to 1400°F	-180 to 760°C -292 to 1400°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type N	0 to 1300°C 32 to 2372°F	0 to 1300°C 32 to 2372°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type E	-270 to 1000°C -454 to 1832°F	-150 to 1000°C -238 to 1832°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
T/C type F	0 to 1400°C 32 to 2552°F	0 to 1400°C 32 to 2552°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
Pt 100 IEC	-200 to 850°C -328 to 1562°F	-200 to 600°C -328 to 1112°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
Pt100 JIS	-200 to 600°C -328 to 1112°F	-200 to 600°C -328 to 1112°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
Pt100 US	-200 to 850°C -328 to 1562°F	-200 to 600°C -328 to 1112°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
Ni100	-60 to 180°C -76 to 356°F	-60 to 180°C -76 to 356°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
Ni120	0 to 150°C 32 to 302°F	0 to 150°C 32 to 302°F	0.1°C 0.1°F	±(0.02% +0.1°C) ±(0.02% +0.18°F)
mV	-18 to 21	-18 to 21	1 µV	±(0.02% +3 µV)
mV	0 to 100	0 to 21 21 to 53 53 to 100	10 µV 10 µV 10 µV	±(0.02% +3 µV) ±(0.02% +3 µV) ±(0.02% +6 µV)
mV	0 to 1000	0 to 1000	0.1 mV	±(0.02% +40 µV)
V	0 to 10	0 to 10	1 mV	±(0.02% +0.4 mV)
mA	0 to 21	0 to 21	1 µA	±(0.02% +0.5 µA)
Ω (In)	0 to 400	0 to 400	10 mΩ	±(0.02% +38 mΩ)
Ω (Out)	0 to 400	0 to 400	10 mΩ	±(0.03% +78 mΩ)

Note: The accuracies shown above are stated for 360 days and operative conditions from 18 to 28°C (64 to 84°F)

Typical 90-day accuracy can be estimated by dividing the “% of reading” specifications by 1.8.

Typical 2-year accuracy can be estimated by multiplying the “% of reading” specifications by 1.5.

All input ranges: additional error ±1 digit.

Simulated Ω scale low limit 19 Ω.



- 1 IN/OUT terminals
- 2 Membrane slidewires to set the simulation value
- 3 Battery charger connector
- 4 Digital interface

KEYBOARD FUNCTIONS

- ON:** Power ON switch
- OFF:** Power OFF switch
- IPTS68 - ITS90:** Temperature scale selection
- RJ int -ext:** Reference junction selection
- STORE:** Memory load
Parameter selection or decimal point position
- START:** Low limit setting on ramp or cycle simulation
- END:** High limit setting of the simulation cycle
- STEP:** Step value setting of the simulation cycle
- TIME:** Total time setting
- SOAK:** Soak time setting of the simulation cycle
- MODE:** Program cycle mode selection
- 0,1,2:** IN/OUT memories
- SELECT:** Parameter selection procedure
- AVERAGE:** Average measurement
- CONVERT:** Technical unit to electrical equivalent signal
- IN/OUT:** IN/OUT function selection
- AUTO RAMP:** Ramp program start
- PROGRAM X:** Scale factor program
- BATTERY:** Battery voltage indication
- LAMP:** Display backlight (special - only on request)
- ENTER:** Memory load key - Extended functions
- SHIFT:** Key secondary function

- Power Supply:** 4 Ni-H batteries
1.25 V 1.2 A/ hour (included)
- Battery Life:** 14 hours on measuring function (5 h with 20 mA simulation)
- Recharge Time:** 12 h at 90%
(instrument switched off)
- Battery Voltage:** Value indicated on the display release code on the display
- Operating Environment**
- Temperature Range:** From -5 to +50°C (23 to 122°F)
- Storage Temperature Range:** From -30 to 60°C (-22 to 140°F)
- Case:** ABS with internal metal coating
- Dimensions:** 120 x 60 x 230 mm (4.7 x 2.4 x 9.1")
- Weight:** net 1 kg (2.2 lb) gross
1.5 kg (3.3 lb)

AVAILABLE FOR FAST DELIVERY!

To Order (Specify Model Number)		
Model No.	Price	Description
CL526	\$1665	Multifunction calibrator, 110 Vac

To order 220 Vac model, add suffix "-220V" to model number at no additional charge.

Accessory

Model	Price	Description
GE-1320	\$100	Reference Book: ISA Handbook Measurement Equat 

Each unit comes with: operator's manual, batteries, battery charger, leather case with shoulder strap, NIST calibration report and built-in 24 Vdc loop power supply for transmitter excitation.

Ordering Example: CL526, multifunction calibrator, \$1665.

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years (\$350)
\$1665 + 350 = \$2015.



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