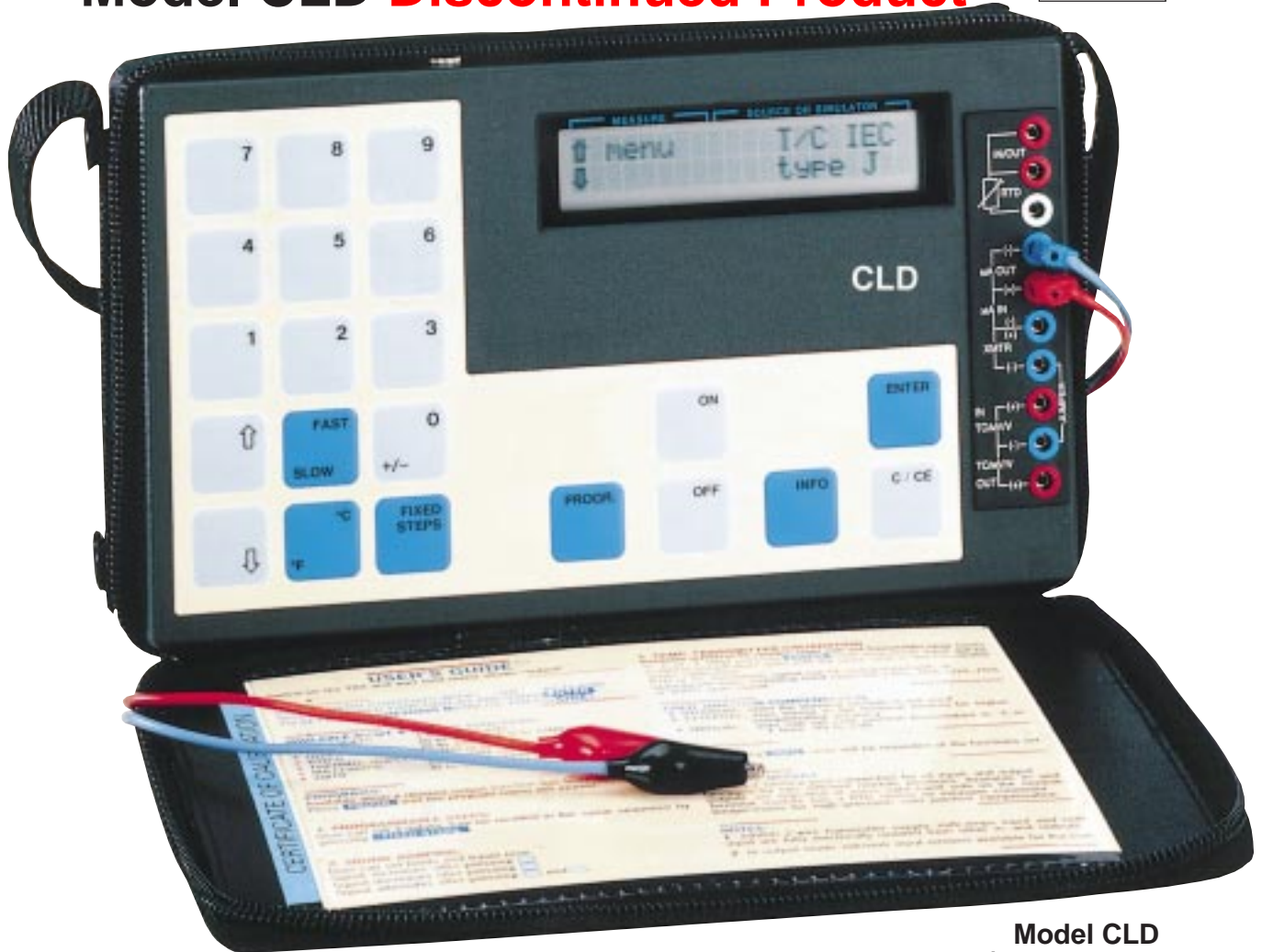


# Calibrator for Temperature, Current and Voltage

Model CLD **Discontinued Product**



Model CLD  
**\$1990**

Includes test leads and carrying case as shown

- ✓ Simulates and Reads Ohms, RTD's and Thermocouples
- ✓ Sources and Reads Millivolts, Volts and Milliamps
- ✓ Powers and Reads 2-Wire Transmitters
- ✓ Simulates 2-Wire Transmitters
- ✓ Keystroke Function Memory
- ✓ Simultaneous Input and Output Reading
- ✓ Auto-Stepping for Hands-Free Calibration
- ✓ Tx Simulation at Control System Inputs

# Model CLD: Compact Technology for RTD and Thermocouple Instrumentation

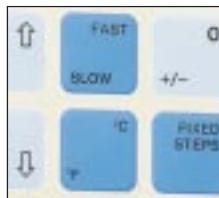


Use your CLD calibrator to quickly calibrate thermocouple, RTD and process input instrumentation

## A True Field Calibrator

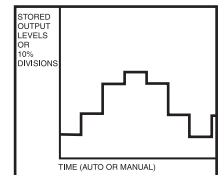
Designed to simulate and measure RTD's, thermocouples and resistors. The CLD also sources and reads milliamps, millivolts and volts. To carry out fast calibrations, model CLD reads and powers temperature transmitters simultaneous with RTD or thermocouple simulation.

Tactile type membrane keys give reliable feedback for all your keypad operations in any environment. The calibrator has a rugged industrial casing and rain tight front panel components. A strong and handy carrying case protect the tester when stored in a toolbox and accommodates the test leads and instructions. Special straps allows the user to carry the tester in front with both hands free.



## Simulation and Output Signals

Source and simulation signals can be ramped up and down manually in two speeds. Temperature units are displayed in °C or °F; memorized "switch-on" preference can be set by the user. Up to six output values for each type of signal can be temporarily stored and recalled manually or automatically (auto-stepping). Step timer setting is adjustable from 10 to 100 seconds. Temporarily stored data saved in the keystroke memory remain available for later use. Unit can also output fixed steps in 10% divisions of free selectable spans in both manual and auto-stepping mode.



## Easy to Operate

The model CLD has menu-driven operations for all functions. Simply press the up/down keys to scroll the menu ingredients and press "enter" to confirm your choice. Input and output data are displayed in a clear and logical manner. Operation and connection errors, like loop resistance mismatch and cold junction temperature sensor absence, are monitored.

## Keystroking

Keystroking eliminates time consuming keypad operations for functions you frequently use. One key stroke recalls every function previously stored, after you switch the calibrator on. Up to six functions can be stored and recalled.

## Unique Features to Calibrate Temperature Transmitters

2-wire temperature transmitters can be connected in a closed calibration loop. Transmitters will be powered and read while receiving a simulated sensor signal. After converting transmitter output milliamps, both Tx output and input signals are simultaneously displayed in temperature units (°C or °F) for fast and easy comparison and calibration. In addition, calibrator can output RTD's and thermocouple signals preset at 25% span divisions.





### Milliamps Converted to Read Engineering Units

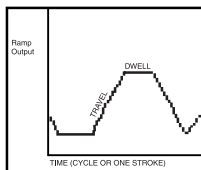
Transmitter output or simulation readings may be scaled into engineering units like psi, pascal, bar etc. The calibrator also reads and simulates DP-transmitters directly in square root converted flow units on 4-20 mA and 0-20 mA ranges.

### Tx Simulation at Control System Inputs

Simulating non-linearized temperature transmitters (Tx) allows the user to check and calibrate 4-20 mA system input hardware and software quickly and easily. User can set or manipulate temperatures in °C or °F related to any available sensor and send the appropriate milliamps to the system input. Milliamps can be monitored simultaneously on calibrator display.

### Output Ramp Function

Output or simulation signals are increased or decreased automatically proportional to time. Travel limits, travel time and dwelling time can be set in an easy manner. Alternate increase and decrease can be programmed to simulate a process signal for dynamic testing of control loops. Ramp function is also useful to test valves and alarm levels.



### The "Info" Key

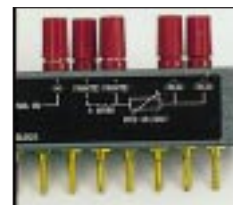
To ensure a clear and simple presentation of the readings, several settings, such as those for thermocouples, are not continuously displayed. Pressing the info key shows what menu selections were made previously.



### Accurate Cold Junction Compensation

Every calibrator on the market heats up even when dissipation is limited to a few Watts. Therefore, instrument built-in sensors to compensate for cold junction emf's read too high a temperature (0.5°C or 1.0°F error is not exceptional).

To avoid this undesirable effect, a Pt100 cold junction sensor has been accommodated in a separate terminal block. The terminal block also has rugged binding connectors to fix loose wire ends.



### Extended Use on Alkaline Batteries

The CLD calibrator can operate for more than 20 hours on one set of alkaline batteries. Battery condition is precisely monitored indicating replacement priorities at two levels. User can easily change replacement levels into recharge levels when rechargeable NiCd batteries are preferred. For bench use, the calibrator may be powered using an optional AC line adaptor.

### Service Friendly

A sound mechanical concept allows replacement each individual circuit board, replacement while comprehensive instructions for recalibration are part of the user guide. Last calibration date annunciation reminds the user to maintain quality assurance over longer periods of time. The CLD has been programmed to perform self diagnoses to annunciate any malfunction.

# Model CLD, Calibrator for Temperature Current and Voltage

Function	Range	Resolution % of span	1 year accuracy	Remarks
Measure mVolts	0 to 120 mVdc	0.01 mV	±0.025%	R - input > 20 MΩ
Output mVolts	-10 to +120 mV	0.01 mV	±0.025%	R - output 0.2 Ω
Measure Volts	0 to 120 Vdc	0.01 V	±0.05%	R - input > 1 MΩ
Output Volts	0 to 12 Vdc	0.001 V	±0.025%	R - output 0.2 Ω
Measure mA	0 to 52 mAdc	0.01 mA	±0.05%	R - input 10.5 Ω fused
Output mA	0 to 24 mAdc	0.01 mA	±0.05%	R - max. 900 Ω
Transmitter Sim.	0 to 24 mAdc	0.01 mA	±0.05%	V - max. ext. 56 Volts
Meas./Sim. Ohm	0 to 390Ω	0.1 Ω	±0.1 Ω	1.25mA excitation current for Ohm and, RTD measurement
Meas./Sim. Pt100	-200 to 850°C (-328 to 1562°F)	0.1°C/0.1°F	±0.25°C/0.5°F	
Meas./Sim. Ni100	-60 to 250°C (-76 to 482°F)	0.1°C/0.2°F	±0.25°C/0.5°F	
Meas./Sim. Ni120	-80 to 260°C (-112 to 500°F)	0.1°C/0.2°F	±0.25°C/0.5°F	
Meas./Sim. Cu10	-200 to 260°C (-328 to 500°F)	2°C/4°F	±2°C/4°F	
Meas./Sim. TC-J/L	-100 to 1190°C (-148 to 2174°F)	0.2°C/0.4°F	±0.4°C/0.8°F	
Meas./Sim. TC-J/L	-210 to -100°C (-346 to -148°F)	0.4°C/0.8°F	±1°C/2°F	
Meas./Sim. TC-K	-210 to 1370°C (-346 to 2498°F)	0.2°C/0.4°F	±0.6°C/1.2°F	
Meas./Sim. TC-K	-230 to -210°C (-382 to -346°F)	1°C/2°F	±2°C/4°F	
Meas./Sim. TC-T/U	-75 to 400°C (-103 to 752°F)	0.2°C/0.4°F	±0.5°C/1°F	
Meas./Sim. TC-T/U	-180 to -75°C (-292 to -103°F)	0.4°C/0.8°F	±1°C/2°F	
Meas./Sim. TC-T/U	-250 to -180°C (-418 to -292°F)	0.6°C/1.2°F	±1.6°C/3.2°F	
Meas./Sim. TC-B	540 to 1810°C (1004 to 3290°F)	1°C/2°F	±2.5°C/5°F	
Meas./Sim. TC-B	315 to 540°C (599 to 1004°F)	2°C/4°F	±6°C/12°F	
Meas./Sim. TC-B	180 to 315°C (356 to 599°F)	4°C/7°F	±8°C/16°F	
Meas./Sim. TC-R/S	100 to 1760°C (212 to 3200°F)	0.7°C/1.4°F	±2°C/4°F	
Meas./Sim. TC-R/S	-50 to 100°C (-58 to 212°F)	2°C/4°F	±5°C/10°F	
Meas./Sim. TC-E	0 to 1000°C (32 to 1832°F)	0.1°C / 0.2°F	±0.3°C/ 0.6°F	
Meas./Sim. TC-E	-250 to 0°C (-418 to 32°F)	0.8°C / 1.6°F	±2°C/ 4°F	
Meas./Sim. TC-N	-20 to 1300°C (-4 to 2372°F)	0.2°C / 0.4°F	±0.6°C/ 1.2°F	
Meas./Sim. TC-N	-200 to -20°C (-328 to -4°F)	1°C / 2°F	±2°C/ 4°F	



**CLD Calibrator for temperature, current and voltage**

**Notes:** Ranges for thermocouples are in accordance with IEC 548-1 and DIN 43710 (U and L)  
 Ranges for RTD's are in accordance with IEC 715 (Pt100), DIN 43760 (Ni 100), JIS C 1604 (D-100, 392), Minco 7 (Ni120), Minco 16-9 (Cu10).  
 Thermocouple type N is Nicrosil/Nisil, Scale IPTS-68

**Special functions:**

1. Fixed steps (2 to 6 programmable or fixed 10% divisions)
2. Signal ramping (up/dwell/down)
3. Scaling (engineering units)
4. Temperature Tx calibration
5. Temperature Tx simulation
6. Keystroking

**Reference:** 22°C (71.6°F) ±1°C  
**Calibration:** Traceable to ECC standards with correlation to NIST  
**Long Term Stability:** ±0.03% of range/year  
**Indicated Accuracies:** Specified for 15 to 35°C (60 to 95°F). Outside these limits; ±1 lsd on zero and ±0.001% (0.0005%) of range/°C(°F)  
**Operating Temperature:** -10 to 50°C (14 to 122°F)  
**Storage Temperature:** -20 to 70°C (-4 to 158°F)  
**Warm-Up Time:** 2 minutes in a constant ambient temperature  
**Relative Humidity:** 0 to 90% non-condensing

**Cold Junction Compensation (Automatic at 0°C/32°F):** ±0.25°C (0.5°F) with the Pt100 sensor in the Terminal Block or ±0.8°C (1.4°F) with an RTD sensor in the CLD housing or manually by the user within -99°C/°F to 99°C/°F  
**Excitation Current, RTD Sim.:** 5 mA max., either polarity (from and external source)  
**Read-Out:** 4 / 2 or 4 digits, depending on the selected function. Text in English  
**Batteries:** 4 x 1.5 Volt, type LR14 (Size C)  
**Battery Life:** 25 hours with alkaline batteries 20°C (68°F), 8 hours with 20 mA load, 11 hours with NiCd at 20°C (68°F), 8 hours with 20 mA load  
**Low Battery Indication:** Pre-warning alternately flashes "poor battery condition." After approx. 15 minutes, unit stops working annunciating "replace (charge) batteries".  
**External Power Supply:** 2.5 mm plug, 6 Volts at 300 mA (1000 mA peak)  
**Connections:** Suitable for 2 mm test plugs or loose wire ends (with terminal block)

To Order (Specify Model No.)		
Model Number	Price	DISCONTINUED PRODUCT!
CLD	\$1990	Calibrator for temperature, current and voltage
CLBPS	110	Charger/power supply 115/230 V - 50Hz/60 Hz
DTB	195	Terminal block for CLD

**Protection:** IP53  
**Housing:** Textured high-impact ABS plastic  
**Size:** 200 x 117 X 32 mm (8.0 x 4.7 x 1.3") without carrying case  
**Weight:** 0.9 kg (2 lb) including batteries, carrying case and test leads

**Ordering example:** CLD, Calibrator for temperature, current and voltage, \$1990.  
 includes carrying case, set of batteries, instruction guide, spare fuse, terminal block and test leads.

**DISCONTINUED PRODUCT**



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