

Instrulab Inc.

Prices start at
\$1495

4200C Series Temperature Monitors

Measures to 0.004°C system accuracy

Calibrates to 0.0001Ω resolution

- Single and dual channel, ΔT ($T_1 - T_2$)
- Accepts 10Ω, 25.5Ω or 100Ω Platinum RTDs
- Resolution to 0.001°
- -200°C to +962°C temperature ranges
- Programmable Linearization (ITS-90)
- IEEE-488 and RS-232C interface
- Other options available
- Choice of calibrated sensors
- VuTEMP™ Virtual Instrument software using LabVIEW™



Proven Performance

The redesigned 4200C Series family of Temperature Monitors represents a natural evolution incorporating many improvements both large and small. The original 4200 Series instruments may be found in hundreds of Metrology Departments, Cal Labs and Instrument Shops around the world. Where temperature is being measured accurately or platinum RTD sensors are being calibrated, you are likely to find a 4200 Series instrument in service.

Features

Programmable to ITS-90 Scale

Optimum accuracy is attained using calibrated platinum RTD sensors with a programmable Temperature Monitor. The 4200C Series family allows the user to conveniently enter ITS-90 coefficients of a calibrated RTD into the instrument's nonvolatile memory. With both instrument and sensor calibrated, traceable to NIST, the combination may then be used to calibrate lower level sensors.

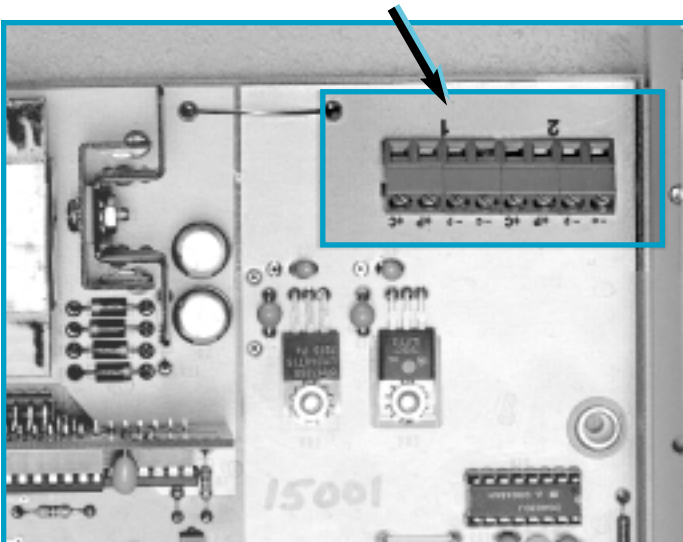
Accurate and Versatile

Once ITS-90 coefficients have been stored, the instrument and RTD combination become a very accurate and versatile temperature measurement system. The front panel *UNITS* pushbutton allows the display to indicate in °F, °C or Ohms. On dual channel models you can display temperature in one channel and resistance in the other channel to allow for development of custom R vs. T curves or to generate calibration coefficients using the ITS-90 formula. When displaying in Ohms an extra digit of resolution enhances the calibration accuracy.

Models are available for SPRTs of 25.5 and Secondary or Working Standard PRTs from 10 to 100. Usable temperature measurements may be made from -200°C to +962°C on various models. The Instrulab 4200C Series is the most versatile family of

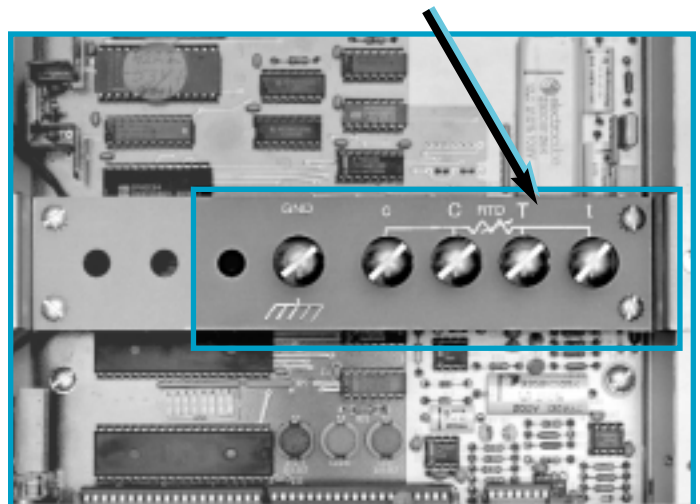
STANDARD SENSOR TERMINATION

Standard termination for sensors having tinned leads.



OPTION 30 — Gold-plated Terminals

Clearly marked, large gold-plated terminals for convenient, low-resistance connection of SPRT and shielded cable. These are standard on 4221C/4222C and optional on other models.



high accuracy temperature instruments available.

Delta T (Inputs 1 minus 2)

Often the difference between two measured temperatures is as important as the traceable accuracy. Model 4212C allows for display of delta T information using the *UNITS* pushbutton. This function is also useful in calibrating an unknown RTD to a traceable sensor over a narrow temperature band without having to use the ITS-90 formula or coefficients.

Remote Operation

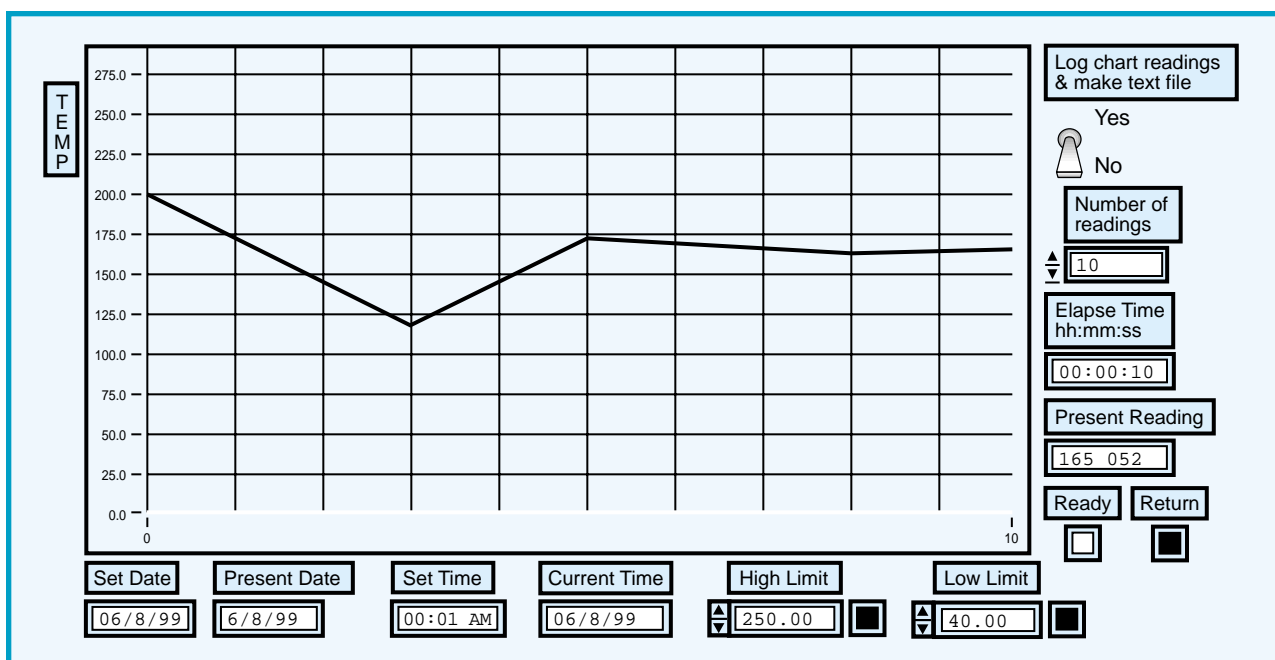
4200C Series instruments can be equipped with RS-232C or IEEE-488 options. With either interface, remote access allows for: channel selection and output of data in °F, °C or Ohms; verifying old and/or programming new ITS-90 coefficients. These options make the 4200C Series easy to integrate into existing lab operation.

VuTEMP Virtual Instrument Software

To assist the user in accessing, organizing and presenting measured data in a usable format, Instrulab offers VuTEMP. This software was developed from our many years of temperature measurement and calibration experience to make the 4200C Series truly user-friendly and to enhance your investment significantly.

VuTEMP software is designed to produce Virtual Instruments using Labview. The illustration below shows its ability to: monitor present readings, graph temperature vs. time, start recording at a preset time, select and indicate number of readings per recording, indicate elapsed time of recording, set and indicate status of limits, select text file.

VuTEMP can also be custom designed to provide a Virtual Instrument for your specific application.



Platinum RTD Sensors Available

Instrulab offers a full line of RTD sensors for use with the 4200C Series family. They range from uncalibrated industrial-grade to NIST traceable, calibrated Secondary Standards and SPRTs. Also offered is a high temperature sensor which can be calibrated and used to measure up to 962°C. If you have a calibrated sensor in use at the time of purchase of a 4200C instrument, Instrulab will be pleased to enter your ITS-90 coefficients into memory prior to shipment. See separate bulletins for complete listing of Platinum RTD Sensors.

Recalibration Service

Recalibration interval for 4200C Series instruments and most RTD sensors is one year. Instrulab offers NIST traceable calibration services at modest prices and with prompt turn around.

Specifications

Model	No. of Inputs	Sensors R ₀	Resolution	Max Input	Ohmeter Uncertainty	Ambient Temperature	Temperature Coefficient Ref. 23°C
4201C	1	10	0.01°F/°C 0.001	340	±0.003 or 20 ppm	23±3°C	±2ppm +0.0001 /°C
4202C	2	25.5					
4212C	2+ T	100					
With Option 27	—	100					
With Option 33	—		0.001°F/°C 0.0001	±0.0006 or 6 ppm			
4221C	1	25.5	0.001°F/°C 0.0001	110	±3ppm + 0.0003	23±2°C	±2ppm + 0.00005 /°C
4222C	2						

Instrument Measurement Range

-218 to +962°C
-360 to +1764°F

Ambient Operating Temperature

Models 4201C, 4202C, 4212C 5 to 45°C
Models 4221C, 4222C 15 to 35°C

Re-Calibration Interval

1 year

Display

0.4" red LEDs, six digits plus F, Ohms, C, polarity indication; light bars for "units" and control "status"

Weight

Net 9 lbs. (4kg). Shipping 12 lbs. (5kg).

Power

115VAC standard, 230VAC optionally, 50/400 Hz, 12 VA nominal

Size

3 1/2" high x 8 1/2" wide x 11 3/8" deep, Half Rack

Instrument Uncertainty

Model(s)	Option	Sensor R ₀	Instrument Uncertainty in °C and °F When Used With Listed Sensor R ₀ and Option										
			°C °F	-200 328	-100 148	0 32	100 212	200 392	300 572	400 752	500 932	660 1,220	962 1,764
4201C 4202C 4212C	—	100	±°C ±°F	0.02 0.04	0.02 0.04	0.02 0.04	0.02 0.04	0.02 0.04	0.02 0.04	0.02 0.04	0.03 0.05	— —	— —
4201C 4202C 4212C	27	100	±°C ±°F	0.005 0.009	0.005 0.009	0.005 0.009	0.006 0.011	0.007 0.013	0.009 0.016	0.011 0.020	0.013 0.023	— —	— —
4201C 4202C 4212C	33	100	±°C ±°F	0.003 0.005	0.003 0.005	0.004 0.007	0.004 0.007	0.005 0.009	0.006 0.011	0.006 0.011	0.007 0.013	— —	— —
4201C 4202C 4212C	—	10	±°C ±°F	— —	— —	0.08 0.14	0.08 0.14	0.08 0.14	0.08 0.14	0.09 0.16	0.09 0.16	0.10 0.18	0.11 0.20
4221C 4222C	—	25.5	±°C ±°F	0.003 0.005	0.003 0.005	0.004 0.007	0.004 0.007	0.005 0.009	0.005 0.009	0.006 0.011	0.006 0.011	0.007 0.013	— —

Options

Descriptions	Designation	4201C	4202C	4212C	4221C	4222C
Rack Panel Adapters (pair)	06	•	•	•	•	•
230 VAC Operation	07	•	•	•	•	•
Analog Output (DAC)	08	•	•	•	•	•
RS232C Interface	14	•	•	•	•	•
IEEE488 Interface	15	•	•	•	•	•
Reduced Excitation (.707 mA)	16A	•	•	•	NA	NA
R ₀ Greater Than 100 Ω		Consult Factory				
3 Wire RTDs		Consult Factory				
0.001°F or °C Resolution	27	•	•	•	Std	Std
1 Input Large Gold-Plated Studs	30	•	•	•	Std	NA
2 Input Large Gold-Plated Studs	31	•	•	•	NA	Std
Extended Ohms Range 0-410 Ω	32	•	•	•	NA	NA
0.001°F or °C, 0.0001 Ω Resolution	33	•	•	•	Std	Std

Instrulab Inc.

(800) 241-2241

FAX (937) 223-1705

P. O. Box 98

Dayton, OH 45404-0098 USA

Website: www.instrulab.com

E-mail: sales@instrulab.com