

MicroCal 200/200+ MicroCal 2000+

Accurate and Reliable
365 Days a Year

Table IN - OUT Range

	Total range	Accuracy Range	Resolution	MicroCal 200	MicroCal 200+	MicroCal 2000+
				Accuracy (% of rdg)	Accuracy (% of rdg)	Resolution Accuracy (% of rdg)
Tc J	-210 ... 1200°C	-190 ... 1200°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-350 ... 2200°F	-310 ... 2192°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc K	-270 ... 1370°C	-160 ... 1260°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	454 ... 2500°F	-256 ... 2300°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc T	-270 ... 400°C	-130 ... 400°C	0.01°C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-454 ... 760°F	-238 ... 752°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc R	-50 ... 1760°C	150 ... 1760°C	0.1 °C	±(0.02% + 0.2 °C)	±(0.01% + 0.2 °C)	0.01°C ±(0.005% + 0.2 °C)
	-60 ... 3200°F	302 ... 3200°F	0.1 °F	±(0.02% + 0.36°F)	±(0.01% + 0.36°F)	0.1 °F ±(0.005% + 0.36°F)
Tc S	-50 ... 1760°C	170 ... 1760°C	0.1 °C	±(0.02% + 0.2 °C)	±(0.01% + 0.2 °C)	0.01°C ±(0.005% + 0.2 °C)
	-60 ... 3200°F	338 ... 3200°F	0.1 °F	±(0.02% + 0.36°F)	±(0.01% + 0.36°F)	0.1 °F ±(0.005% + 0.36°F)
Tc B	50 ... 1820°C	920 ... 1820°C	0.1 °C	±(0.02% + 0.3 °C)	±(0.01% + 0.3 °C)	0.01°C ±(0.01% + 0.3 °C)
	140 ... 3310°F	1688 ... 3308°F	0.1 °F	±(0.02% + 0.54°F)	±(0.01% + 0.54°F)	0.1 °F ±(0.01% + 0.54°F)
Tc C	0 ... 2300°C	0 ... 2000°C	0.1 °C	±(0.02% + 0.2 °C)	±(0.01% + 0.2 °C)	0.1 °C ±(0.01% + 0.2 °C)
	32 ... 4172°F	32 ... 3632°F	0.1 °F	±(0.02% + 0.36°F)	±(0.01% + 0.36°F)	0.1 °F ±(0.01% + 0.36°F)
Tc G	0 ... 2300°C	190 ... 2300°C	0.1 °C	±(0.02% + 0.3 °C)	±(0.01% + 0.3 °C)	0.1 °C ±(0.01% + 0.3 °C)
	32 ... 4172°F	374 ... 4172°F	0.1 °F	±(0.02% + 0.54°F)	±(0.01% + 0.54°F)	0.1 °F ±(0.01% + 0.54°F)
Tc D	0 ... 2300°C	0 ... 2130°C	0.1 °C	±(0.02% + 0.3 °C)	±(0.01% + 0.3 °C)	0.1 °C ±(0.01% + 0.3 °C)
	32 ... 4172°F	32 ... 3866°F	0.1 °F	±(0.02% + 0.54°F)	±(0.01% + 0.54°F)	0.1 °F ±(0.01% + 0.54°F)
Tc U	-200 ... 400°C	-160 ... 400°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-330 ... 760°F	-256 ... 752°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc L	-200 ... 760°C	-200 ... 760°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-330 ... 1400°F	-328 ... 1400°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc N	-270 ... 1300°C	0 ... 1300°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-450 ... 2380°F	32 ... 2372°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc E	-270 ... 1000°C	-200 ... 1000°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-454 ... 1840°F	-328 ... 1832°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Tc F	0 ... 1400°C	0 ... 1400°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	32 ... 2560°F	32 ... 2552°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Pt100 IEC OIML a 3926	-200 ... 850°C	-200 ... 850°C	0.01°C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.01°C ±(0.005% + 0.05°C)
	-330 ... 1570°F	-328 ... 1562°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.005% + 0.09°F)
Pt100 a 3902	-200 ... 650°C	-200 ... 650°C	0.01°C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.01°C ±(0.005% + 0.05°C)
	-330 ... 1210°F	-328 ... 1210°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.005% + 0.09°F)
Pt100 JIS SAMA	-200 ... 600°C	-200 ... 600°C	0.01°C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.01°C ±(0.005% + 0.05°C)
	-330 ... 1120°F	-328 ... 1112°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.005% + 0.09°F)
Pt 200	-200 ... 850°C	-200 ... 850°C	0.1 °C	±(0.02% + 0.15°C)	±(0.01% + 0.15°C)	0.01°C ±(0.005% + 0.15°C)
	-330 ... 1570°F	-328 ... 1562°F	0.1 °F	±(0.02% + 0.27°F)	±(0.01% + 0.27°F)	0.1 °F ±(0.005% + 0.27°F)
Pt 500	-200 ... 850°C	-200 ... 530°C	0.1 °C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-330 ... 1570°F	-328 ... 986°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
Pt1000 IEC OIML	-200 ... 850°C	-200 ... 850°C	0.01°C	±(0.02% + 0.1 °C)	±(0.01% + 0.1 °C)	0.01°C ±(0.005% + 0.1 °C)
	-330 ... 1570°F	-328 ... 1562°F	0.1 °F	±(0.02% + 0.18°F)	±(0.01% + 0.18°F)	0.1 °F ±(0.005% + 0.18°F)
CU10	-70 ... 150°C	-70 ... 150°C	0.1 °C	±(0.02% + 0.4 °C)	±(0.01% + 0.4 °C)	0.1 °C ±(0.01% + 0.4 °C)
	-100 ... 310°F	-94 ... 302°F	0.1 °F	±(0.02% + 0.72°F)	±(0.01% + 0.72°F)	0.1 °F ±(0.01% + 0.72°F)
CU100	-180 ... 150°C	-180 ... 150°C	0.1 °C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.1 °C ±(0.01% + 0.05°C)
	-300 ... 310°F	-292 ... 302°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.01% + 0.09°F)
Ni100	-60 ... 180°C	-60 ... 180°C	0.1 °C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.1 °C ±(0.01% + 0.05°C)
	-80 ... 360°F	-76 ... 356°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.01% + 0.09°F)
Ni120	0 ... 150°C	0 ... 150°C	0.1 °C	±(0.02% + 0.05°C)	±(0.01% + 0.05°C)	0.1 °C ±(0.01% + 0.05°C)
	32 ... 310°F	32 ... 302°F	0.1 °F	±(0.02% + 0.09°F)	±(0.01% + 0.09°F)	0.1 °F ±(0.01% + 0.09°F)
mV (L)	-20 ... +200mV		1 μV	±(0.02% + 2 μV)	±(0.01% + 2 μV)	0.1 μV ±(0.0035% + 1 μV)
mV (H)	-0.2 ... +2 V		10 μV	±(0.02% + 10 μV)	±(0.01% + 10 μV)	1 μV ±(0.005% + 10 μV)
V	-2 ... +20 V		0.1 mV	±(0.02% + 0.08mV)	±(0.01% + 0.08mV)	10 μV ±(0.005% + 0.08mV)
mA (In)	-5 ... +50 mA		0.1 μA	±(0.02% + 0.4 μA)	±(0.01% + 0.4 μA)	0.1 μA ±(0.005% + 0.4 μA)
mA (Out)	0 ... +50 mA		0.1 μA	±(0.02% + 0.4 μA)	±(0.01% + 0.4 μA)	0.1 μA ±(0.005% + 0.4 μA)
Ω IN	0 ... 500 Ω		1 mΩ	±(0.02% + 12 mΩ)	±(0.01% + 12 mΩ)	1 mΩ ±(0.005% + 12 mΩ)
Ω OUT	0 ... 5000 Ω		0.01 Ω	±(0.02% + 120 mΩ)	±(0.01% + 120 mΩ)	0.01 Ω ±(0.005% + 120 mΩ)
	0 ... 500 Ω		1 mΩ	±(0.02% + 20 mΩ)	±(0.01% + 20 mΩ)	1 mΩ ±(0.005% + 12 mΩ)
Frequency	1 ... 200 Hz		0.001 Hz	±(0.005% + 0.001 Hz)	±(0.005% + 0.001 Hz)	0.001 Hz ±(0.005% + 0.001 Hz)
	1 ... 2000 Hz		0.01	±(0.005% + 0.001 Hz)	±(0.005% + 0.001 Hz)	0.01 Hz ±(0.005% + 0.001 Hz)
Pulse counter	1 ... 20000 Hz		0.1 Hz	±(0.005% + 0.001 Hz)	±(0.005% + 0.001 Hz)	0.1 Hz ±(0.005% + 0.001 Hz)
	0 ... 10 ⁶ counts		1 count	infinite	infinite	1 count infinite
Pulse (Out)	0 ... 6000 pulse/min		1 pulse/min	1 pulse / min	1 pulse / min	1 pulse / min
	0 ... 36000 pulse/h		1 pulse/h	1 pulse / min	1 pulse / min	1 pulse / min

Note:
 • The MicroCal 200/200+ relative accuracies shown above are stated for 360 days and the operative conditions are from +70°F to +77°F
 • The MicroCal 2000+ relative accuracies shown above are stated for 360 days and the operative conditions are from +64°F to +82°F
 • Typical 2 years relative accuracy can be estimated by multiplying the "% of reading" specifications by 1.4.
 • All input ranges: additional error ±1 digit.
 • E Instruments traceability chart and uncertainty can be supplied on request.

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 주소: 경기도 성남시 분당구 야탑3동 306-5번지 102호 우: 463-856 Http:// www.is77.co.kr
 Tel: 82-31-704-2401 Fax: 82-31-704-2421 E-mail: is@is77.co.kr

Bulletin 08-44.1 US

MicroCal 200/200+ MicroCal 2000+

2-Channels High Accuracy Multifunctional Calibrators

Indisputably, One of
 the Most Accurate
 (±0.0035% rdg)
 Portable Calibrators
 Available Today !



CalpMan Plus
 Software for Automatic
 Calibration and
 Documenting in
 Compliance with ISO9000

MicroCal PM200
 Module to Generate & to
 Measure Pressure

All descriptions are related to a fully optioned instrument.
 See last page for the different configurations.

MicroCal 200/200+ MicroCal 2000+

To Keep Your Test and Process Equipment Accurately Calibrated for ISO 9000 Compliance

Performance

The **MicroCal 200/200+** and **MicroCal 2000+** are multifunctional calibrators with insulated channels. The instruments are portable and developed to meet the needs of instrumentation engineers and Quality managers, both in laboratory and in field work.

This units are accurate, rugged, compact and easy to use. They are the ideal solution to simulate and measure simultaneously: Voltage, current, resistance, thermocouple, resistance thermometers, frequency and pulse. Advanced flexibility and high performance has been achieved using a 32 bit microprocessor and a fast A/D conversion technology. The calibrator's internal memory stores all data for normalized IEC, DIN and JIS thermoelectric sensors for both IPTS68 and ITS90 International Temperature Scale. The microprocessor performs automatic linearization and cold junction compensation to assure high accuracy. It is possible to set the calibrator to execute menu-driven calibration procedures for your instruments in field work.

Both Channel 1 (Out) and Channel 2 (In) have the following operative mode capabilities:

- millivolts
- volts
- milliamperes (active and passive loop)
- Ohms
- temperature with thermocouples
- temperature with resistance thermometers
- frequency
- pulse

Remote auxiliary inputs are available for:

- Relative humidity and temperature module
- Two internal sensors and built-in hand pump pressure module

The ergonomic case design allows the user the calibrator in three different

ways.

- **Portable**

Two different leather cases, with a cover and shoulder strap, are available upon request for instrument alone or instrument, printer and accessories. These are extremely useful for practical use since they leave one hand free for instrument tuning.

- **Panel mounting**

It requires a panel cutout of 9.7" x 3.5". The instrument bezel flange butts against the front of the mounting plate; two lateral mounting brackets fit over the instrument rear panel

- **Table top**

The case is equipped with 2 pivot feet to change the vertical viewing angle when using the instrument on the top of a table.

Quality System

Research, development, production, inspection and certification activities are defined by methods and procedures of the E Instruments Quality System inspected for compliance and certified ISO9001 by GASTEC, a Dutch notified body.



EMC Conformity

The instrument case, made in shock-resistant injection moulded ABS + polycarbonate has an internal metal coating to fulfill the prevision of the directive 89/336/CEE Electromagnetic Compatibility.



Panel Mounting

MicroCal 200/200+ MicroCal 2000+

High Technology for Daily Use On-Site and Laboratory

Specifications

IN/OUT parameters:	Signal type: mV, V, mA, W, KW, frequency, pulses
	thermocouples type: J, K, T, R, S, B, N, C, E, U, L, F, G, D
	resistance thermometers: Pt100 IEC, OIML, USLAB, US, SAMA, JIS, Pt200, 500, 1000, 1000 OIML, Ni100, Ni120, Cu10, Cu100
Reference junction compensation:	internal automatic: from -10 °C to +55 °C (14°F to 130°F)
	external adjustable: from -50 °C to +100 °C (-58°F to 210°F)
	remote with external Pt100: from -10°C to +100 °C (14°F to 210°F)
Rj compensation drift:	± 0.015°C/°C (from -10 °C to +55 °C)
Rj compensation error:	internal : ±0.15°C (±0.3°F)
	remote : ±0.3°C (±0.6°F)
Common mode rejection:	>140 dB at ac operation
Normal mode rejection:	>70 dB at 50 or 60 Hz
Temperature stability:	MicroCal 200/200+: for temperature exceeding the band +18°C to +28°C (from +64 °C to +84 °F)
	full scale: ± 8 ppm/°C
	zero: ± 0.2 μV /°C
	MicroCal 2000+: for temperature exceeding the band +21°C to +25°C (from +70 °C to +77 °F)
	full scale: ± 3 ppm/°C
	zero: ± 0.2 μV /°C
Output impedance (emf output):	< 0.5 Ω with 0.5 mA maximum current
Input impedance (mV, V and Tc ranges):	>10 MΩ
Input impedance (mA ranges):	<140 Ω @ 1 mA
Source resistance effects:	±1 μV error for 1000 Ω source resistance
Rtd and Ω simulation excitation current:	MicroCal 200/200+: from 0.01 to 5 mA
	MicroCal 2000+: from 0.01 to 2 mA
Rtd and Ω measurement excitation current:	~ 0.4 mA @ 400Ω
	~ 0.04 mA @ 4000Ω
Rtd connection:	2, 3, and 4 wires
Rtd cable compensation:	up to 100 Ω (each wire)
Rtd cable compensation error (Pt100):	±0.005°C/Ω of total wire
Maximum load resistance:	1000 Ω @ 20 mA
Display:	graphic LCD 240 x 64 dots display with LED backlight device
Measurement sampling time:	250 ms
Output noise (at 300 Hz):	<2 μVpp for ranges up to 200 mV f.s.,
	<10 μVpp for ranges up to 2 V f.s.
	<80 μVpp for ranges up to 20 V f.s.
	full bidirectional TTL (a RS232 adapter normal or insulated, is available as an option)
Digital interface:	
Channel 1 Channel 2 insulation:	50 Vdc
Calculation functions:	hold, max, min, offset, average
Selection °C/°F/K:	through the configuration procedure
In/Out data memory:	20 data with manual or automatic recall
Logging mode:	1500 input data items (optional memory card for memory extension)
Convert function:	displays the electrical equivalent of the engineering unit
Scale factor:	5 different settings with zero and span programmable within -399999 and +999999
Square root:	in combination with scale factor
Calibration:	self learning technique with automatic procedure
Power supply:	external charger and rechargeable Ni-Cd battery
Self contained operation:	6h on Tc and mV input/output (backlight Off)
	3.5h with 20 mA simulation (backlight Off)
	5h at 90% and 6h at 99% with instrument switched off.
Recharging time:	The battery charging is active only with the instrument switched off.
	100 - 120 - 230 Vac through the external battery charger
Line operation:	
Line transformer insulation:	2500 Vac
Firmware release identification:	release code on the display
Operating environment temperature range:	from -10 °C to +55 °C (from 14 °C to 130 °F)
Storage temperature range:	from -30 °C to +60 °C (from -22 °C to 140 °F)
Case:	Injection moulded ABS with internal metal coating
Dimensions:	264 x 96 x 172 mm (10.4"x3.8"x6.8") DIN size
Weights:	nett: 8.8 lb. gross: 12.1 lb.

MicroCal 200/200+ MicroCal 2000+

**Easy to Use
Easy to Order**

Ordering Code

CalpMan 2000 Software
Standard Agencies and Quality Auditors require, to keep the compliance with ISO 9000, collection, organization and analysis of traceable documents. CalpMan 2000 Windows® based supporting software, is able to transfer a selection of calibration routines from a PC to the internal memory of the instrument in order to simplify field calibrations selecting the required TAG number. E Instruments CalpMan 2000 grants the option to document the calibration/inspection activities.

Cat. 39xx - A - B - C - D

cat. 3916 Microcal 200
cat. 3918 Microcal 200+
cat. 3928 Microcal 2000+

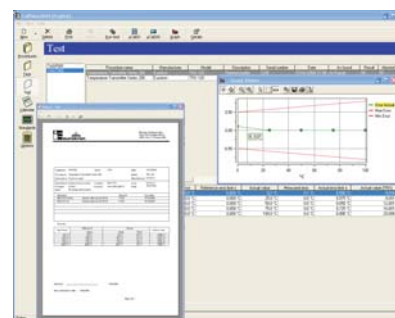
Each instrument is supplied with battery charger, RS232 cable, PC software packages (Logman, LinMan, and CalpMan) Report of Calibration and Instruction Manual.

Table A Options:	
0	None
3	TTL/RS232 insulated converter

Table B Line setting - Line cord plug	
1	120 V 50/60Hz - USA plug
2	230 V 50/60Hz - Schuko plug
3	230 V 50/60Hz - UK plug
4	230 V 50/60Hz - European plug
5	100 V 50/60Hz - USA/Japan plug
9	special

Table C Accessories	
0	None
1	Leather case with shoulder strap (cat. BB880015) for instrument only
4	External impact printer
5	Leather case with shoulder strap (cat. BB880011) for instrument and printer
6	Brackets for panel mounting

Table D Report of Calibration	
1	E Instruments Report
9	Special



CalpMan 2004



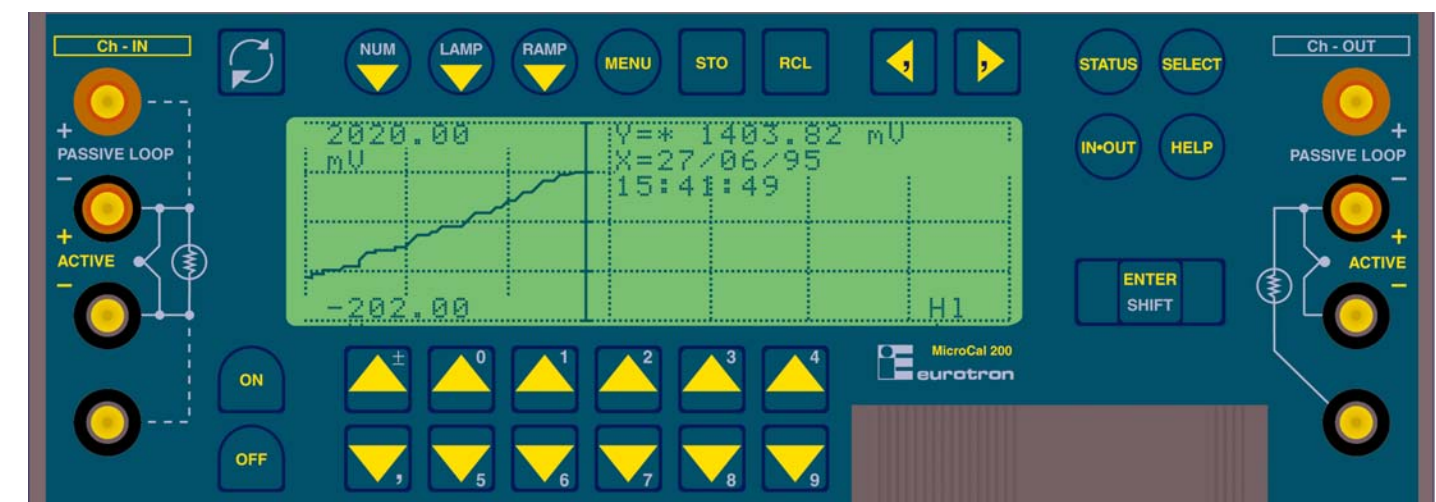
MicroCal PM200

MicroCal 200/200+ MicroCal 2000+

INSTRUMENT HIGHLIGHTS

Comparative Table	MicroCal 200	MicroCal 200+	MicroCal 2000+
Accuracy	0.02% rdg	0.01% rdg	0.0035% rdg
32-bit microprocessor and flash memory for firmware upgrading through serial interface	●	●	●
All normalized IEC, DIN, JIS thermocouples	●	●	●
Pt, Ni, Cu resistance thermometers	●	●	●
mA, mV, V, W, frequency, pulse, counter	●	●	●
IPTS 68 and ITS 90 linearization	●	●	●
Current output mode directly on active or passive loops	●	●	●
Bidirectional serial interface	●	●	●
Communication bus for extension to pressure and other optional modules	●	●	●
Optional dedicated external impact type printer	Option	Option	Option
Panel mounting brackets	Option	Option	Option
Traceable Report of Calibration	●	●	●
RAM extension with PCMCIA memory card		●	●
Non-volatile memory with real-time clock	●	●	●
Logging and direct real-time graph with movable cursor to read the required actual value	●	●	●
mV and V I/O display	6 digits	6 digits	7 digits (0.1 μV)

Display & Keyboard
The large graphic display with back light allows a simultaneous indication of the measured and the simulated value (large digit), together with all data related to the signal as: engineering unit, type of sensor or signal, temperature scale, cold junction selection, battery level, etc. A swap key allow to change the position of the IN and OUT parameters on the display. The operative set-up mode is simplified by a sequence of menu pages that only require <Select> and <Enter> instructions. A full set of instruction pages are memory stored for direct operator assistance. The relevant instruction may be recalled through the <Help> key.



Real Time Graphic Logging

MicroCal 200/200+



MicroCal 2000+



Digital interface
The instruments includes a full bi-directional TTL level digital interface for communication with a computer. A TTL/RS232 adaptor, normal or with galvanic insulation, is available upon request.

MicroCal 200/200+ MicroCal 2000+

Firmware

The firmware is stored inside a flash memory and allows a fast and easy upgrade of the instrument using a standard PC. Firmware includes the following capabilities:

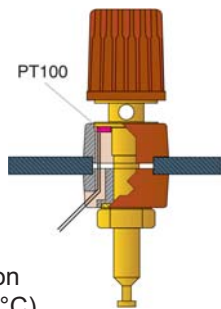
- multiple measurement and generation mode
- signal processing: filter, average, min, max
- PC downloadable test procedure
- DataLogger and graphic recorder
- switch test routine
- ramping and stepping for dynamic testing
- user definable linearization
- user entry of probe specific calibration coefficients.

Scale Factor - Square Root

All non-temperature ranges are fully programmable to read both input and output values in terms of engineering units. Four programmable alphanumeric characters are available on the display to show the symbol of the parameter being measured (i.e. mbar, % RH, % CO, etc.) The unit allows the mA reading and output to be related to flow when using a ΔP transmitter across a calibrated flange.

Rj Compensation

Accurate and fast response compensation, through a special low thermal capacity design of binding posts, incorporates a thin film, high accuracy Pt100 as cold junction reference. The internal reference allows the maximum accuracy for the 14 to 130°F temperature range. An external Pt100 sensor can be connected for special application (from 14 to +210°C). It is possible



to manually set the compensation temperature (from -58 to +210°F) by keyboard.

Transmitter Simulation

The calibrator can be connected to your system inputs to simulate 4-20 mA transmitters. It has an adequate power to drive 20 mA into a load of 1000 Ω in source mode. For fast loop checks, preprogrammed steps can be recalled to output 4, 8, 12, 16 and 20 mA or % equivalent. Since the instrument has two separate channels. It is possible to read the error directly in % (In/Out). The operator can set and change temperature values while obtaining the equivalent output mA. The mA mode may be connected directly either on passive or on active current loops.

Frequency - Counts

The "Out" mode is designed to generate zero based square pulse, with an adjustable amplitude, at a frequency up to 20 KHz. A preset

number of pulses may be programmed and transmitted to test or to calibrate totalizers and counters. The instrument can be configured to measure frequency and count pulse (totalizer mode). Technical units in Hz, pulse/h and pulse/m. The threshold is adjustable from 0 to 20 V with 0.01 V resolution.

Calculated Readings

The units allow measurements of unstable input signals through a programmable averaging or min, max identification. A hold feature is also included from a keyboard or external contact instructions.

Programmable Signal Converter

The instrument can be used as a temporary signal converter replacement. Any input signal (including remote auxiliary inputs) can be converted into any of the available output signals. The galvanic insulation between the input and output channels allow to use this feature in field work applications as well.

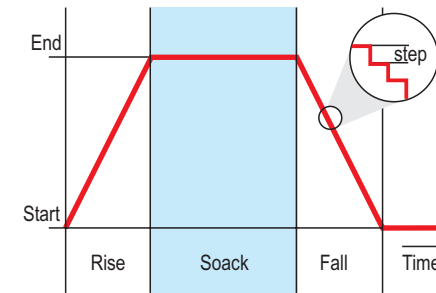
MicroCal 200/200+ MicroCal 2000+

To Document the Inspection and Calibration Activities

- mode or a direct numeric entry;
- direct keyboard access to n. 20 programmable memory stored values;

Report of Calibration

Each MicroCal unit is factory calibrated and certified against the highest E Instruments Standards, which are periodically certified by an Internationally recognized laboratory to ensure performance. The units are also shipped with a Report of Calibration stating the nominal and actual values and the deviation errors.



Pressure Module

An optional pressure module is available with one or two internal sensors. The MicroCal PM200 is an intelligent module and it is used to extend the MicroCal capability to pressure in/out. Microcal Pm200 can incorporate pressure/vacuum pump, volume adjuster and ventilation valve. External sensors can be used to measure pressure up to 700bar. See MicroCal PM200 bulletin for more specifications.

Temperature Modules

An optional set of temperature calibrators are available for Tc and Rtd certification. The MicroCal T series can be used together with a Personal Computer, a calibrator MicroCal 200/200+, a scanner, and a CalpMan Plus Windows® software package to improve a true automatic temperature calibration system.

Using the RS232 interfaces of the instruments, it is possible, through a PC, to program the complete test procedure for your thermocouple or resistance thermometer to be certified. The MicroCal 200/200+ and MicroCal 2000+ are able to read the testing thermo-elements with the desired accuracy and the software calculate the errors and prepare the certificate. See MicroCal T bulletin for more specifications.

LogMan Software

Supporting software for DOS/Windows to download any stored data from internal memory to PC. Data can be saved on disks, loaded from disks, viewed in numeric or graphic mode and also printed in numeric or graphic mode.

LinMan Software

Supporting software for DOS/Windows to setup the instrument with Tcx, Rtdx special linearization. The program allows highly accurate temperature measurement with a calibrated Pt100 loading the coefficients of the Calibration Report.

CalpMan Software

Standard Agencies and Quality Auditors require the collection, organization and analysis of traceable documents. A supporting software for DOS/Windows (Calpman - Calibration Procedure Manager) is available to transfer a selection of calibration routines (test points, error and warning bands, etc.) from a PC to the internal memory of the instrument in order to automate field calibrations. Select the appropriate tag number by keyboard directly. The calibrator will ask you step by step for all operation, test, and calibration data ("before" and "after" values), which can be stored in the unit's memory and down-loaded to a PC to document the calibration activity.