UNIVERSAL PORTABLE CALIBRATOR — MICROCAL

- Modes : Measure and Source (Calibrate)
- B, E, J, K, R, S, T, W1, W3 & W5 thermocouples and Pt100 RTD measure in °C or °F, and simulate in °C or °F
- Millivolts (-199.99 to +199.99) and milliamps (0 to 19999 microamps)
- High accuracy : ± 0.02% of FS ± 2 counts (except ohms)
- High resolution : 0.1 °C or °F, 10 µV, 1 µA, 0.02
- 2x16 character dot-matrix LCD display
- Membrane keypad
- Ni-cad batteries for 4 to 8 hours operation on single charge
- Compact : 220x80x220 mm
- Lightweight : 1.5 kg
- Available with NPL traceable internal or 3rd party certificate

GENERAL

MICROCAL is a precision thermometer/calibrator for measurement of process signals and calibration of process instrumentation.

It can :
Measure/Source millivolts (0 to ±199.99 mV)
Measure/Calibrate in °C/°F (-270 °C to +1820°C, -454 °F to +3308°F)
Measure/Source milliamps (0 to 19999 µA)

MICROCAL is a state-of-the-art instrument featuring a microprocessor based closed loop design. This means that the programmed output is continuously compared with a highly stable reference, and automatically corrected for any errors.

Thus the accuracy achieved is extremely high : typically, better than ±0.02% of FS.

Further, use of the microcomputer allows direct display in °C/°F of thermocouple and RTD inputs, as well as automatic and manual cold-junction compensation for thermocouples.

The use of membrane keypad for function selection and setting instead of mechanical push button switches greatly enhances reliability.

CALIBRATION CERTIFICATE

MICROCAL is supplied with a detailed internal calibration certificate with traceability to national/international standards.

This is supplied free of charge.

If a third party calibration certificate is required, it can be supplied at extra cost. Please provide a minimum additional time of 2 months for this.

FUNCTIONS

Temperature Measurement

In this mode the instrument displays the linearised temperature of the thermocouple or RTD sensor on the display. The units can be °C or °F.

For thermocouples, the cold junction temperature can be automatically corrected for, or set manually.

Millivolts Measurement

The measured millivolts of a thermocouple or any source can be displayed directly.

Calibration in °C/°F

In this mode MICROCAL generates the emf corresponding to any required temperature for the selected thermocouple.

This can be referenced to any cold junction temperature manually. It can also be automatically compensated.

Millivolts Source

The required millivolts (-199.99 to 199.99 mV) are directly sourced.

Milliamps Measurement

The instrument measures and displays the milliamp input (0 to 19999 µA).

Milliamps Source

The instrument fuctions as a powered transmitter generating any set current value (0 to 19999 µA) into a load of upto 500 .

radix

TABLE 1

THERMOCOUPLE TYPE	RANGE (°C)	LINEARITY ERROR (°C)	RESOLUTION (°C)	RANGE (°F)	LINEARITY ERROR (°F)	RESOLUTION (°F)
J	-210 to 760	0.25	0.2	-346 to 1400	0.5	0.4
Fe/Constantan						
K	-270 to 1372	0.25	0.25	-454 to 2501	0.5	0.5
Chromel/Alumel						
T	-270 to 400	0.1	0.2	-454 to 752	0.2	0.4
Cu/Constantan						
E	-271 to 1000	0.25	0.2	-454 to 1832	0.5	0.4
Chromel/Constantan						
R	0 to 1768	0.25	0.8	32 to 3214	0.5	1.6
Pt-13% Rh/Pt						
S	0 to 1768	0.25	0.8	32 to 3214	0.5	1.6
Pt-10% Rh/Pt						
B	400 to 1820	0.5	0.8	752 to 3308	1.0	1.6
Pt-6% Rh/Pt-30% Rh						
W1	0 to 2320	1.0	1.0	32 to 4200	2.0	2.0
Tungsten/ Tungsten-26% Rhenium						
W3	0 to 2320	1.0	1.0	32 to 4200	2.0	2.0
Tungsten-3% Rhenium/ Tungsten-25% Rhenium						
W5	0 to 2320	1.0	1.0	32 to 4200	2.0	2.0
Tungsten-5% Rhenium/ Tungsten-26% Rhenium						
Pt100, 3-wire RTD	-150 to 600	0.25	0.1	-240 to 1110	0.5	0.2

❖ J, K, T, E, R, S, B conform to BS 4927, IEC 584-1 and ASTME 230. W1, W3, W5 conform to tables provided by Hoskins Manufacturing Company. Pt100 conforms to DIN 43760.

TABLE 2

FUNCTION	RANGE	RESOLUTION
mV	-199.99 to 199.99 mV	10 Microvolts
mA	0 to 19999 µA	1 Microampere
Pt100	0 to 400.00	0.02 Ohms

TABLE 3

	ACCURACY
Thermocouple, Millivolt	±60 µV
Milliamps	±6 µA
Pt100, 3-wire RTD	±0.5

SPECIFICATIONS

Display	2x16 character dot-matrix LCD display
Error messages	Display flashes messages to indicate conditions such overrange, underrange, incorrect key operations, etc.
Display update rate	2 readings/second
Warm-up time	Less than one minute
Modes	a) Millivolts Measure b) Millivolts Source c) °C/°F Measure d) °C/°F Source e) Milliamps Measure f) Milliamps Source
Ranges	See Tables 1 & 2
Resolution	See Tables 1 & 2
Accuracy	See Table 3
Temperature coefficient of accuracy	0.004%/°C
Maximum output current (mV/°C/°F source modes)	0.5 mA below 60 mV 0.3 mA above 60 mV
Maximum burden (mA source mode)	500
Operating temperature	0 to 40 °C
Humidity	0 to 80% RH, non condensing
Batteries	1.2V x 8 size R6 Ni-Cad cells
Battery life	4 to 8 hours per charge
Battery charger	Included
Dimensions (in mm)	220(W)x80(H)x220(D)
Weight	1.6 kg (ohms module 0.35 kg)

radix

Radix Electrosystems Pvt Ltd
B-14, 2nd Floor, Ghanshyam Indl Estate
Veera Desai Road, Andheri (West)
Mumbai - 400 053, India
Tel : + 91 22 26730101 Fax : + 91 22 26731891
Email : sales@radix.co.in www.radix.co.in

BANGALORE Tel : 25286211, Fax : 25342931
BARODA Telefax : 2491749
CHENNAI Tel : 28293345, Fax : 28290341
HYDERABAD Tel : 27898403/27818386, Fax : 27819327
NAGPUR Tel : 2551318/19/20, Fax : 2551914
NEW DELHI Tel : 25786350, Fax : 2576 2094
PUNE Tel : 24479759, Fax : 24482796

C:\1014\LEAFLET\MICROCAL.CDR\R4\P2\2