



INFORMATION & SPECIFICATIONS DATA SHEET

TEMPERATURE & PROCESS INSTRUMENTS - CON

MC1210 High Accuracy Multifunction Process Calibrator with HART® Compatibility

The MC-1200 provides a feature set unmatched in high accuracy, hand-held calibrators in its price range. The MC-1200 Calibrator provide the functions and accuracy associated with fixed-installation, laboratory instrument, and has everything needed for virtually any calibration task. Measure and source thermocouples, RTDs, current, voltage, and frequency, and source pulse trains.

A built-in 250 Ohm resistor for HART™ compatibility, compatibility with smart transmitters and PLCs, full fuseless protection, are just some of the additional features that make the MC-1200 the single most indispensable tool available for virtually any calibration task.

Features

- ▶ New ClearBrite High Graphic Display
- ▶ 3 Key Martel Menu System
- ▶ Measure and source T/Cs (13 types), RTDs (13 types), Ohms, current, voltage, frequency; source pulse trains
- ▶ Isolated mA/V read-back circuit for complete transmitter calibration
- ▶ Communication port compatible with both Fluke 700 Series and Beta Calibrator pressure modules
- ▶ Built-in 24V supply can drive 4 to 20mA loops up to 1000 Ohms
- ▶ Direct entry of custom RTD coefficients (Ro, A, B, C)
- ▶ Highest accuracy in class to 0.015% of reading
- ▶ Meets CE requirements and is designed to IEC 1010 safety standards
- ▶ RS-232 interface

Environmental Specifications

Operating Temperature: -10°C to +50°C (-14°F to 122°F)

Storage Temperature: -20°C to +70°C (-4°F to 158°F)

Stability: ±0.005% of reading/°C outside of 23 °C ± 5°C

Power Requirements: 6Vdc; Batteries 4 AA alkaline (supplied) or optional Nicad rechargeable

Mechanical

Dimensions: 8.5" H x 4.2" W x 2.1" D (22 x 12 x 5.3 cm)

Weight: 1.8 lbs (0.82 kg)

Signal Specifications

Thermocouple: Types and Ranges: See table below

Accuracy: See Table Below

RTD's: Types and Ranges: See table below

Accuracy: See Table Below

New MC1210 Multifunction Temperature and Process Calibrator



Each instrument includes Instruction Manual, Test Leads, Rubber Boot and NIST Certificate.

Voltage Read and Source

Source: 0.000 to 20.000 Vdc

Read: Isolated 0.000 to 30.000 Vdc; Non-Isolated 0.000 to 20.000 VDC

mV: Read/Source: -10.000 to +75.000 mV

Current (mA)

Source: 0.000 to 24.000 mA

Read: Isolated: 0.000 to 24.000 mA; Non-Isolated: 0.000 to 24.000 mA

Frequency: (1 to 20 V selectable amplitude)

CPM Source and Read: 2.0 to 600.0 CPM

Hz Source and Read: 1.0 to 1000.0 Hz

kHz Source and Read: 1.0 to 10.00 kHz

Pulse (Source only): 1 to 20 V selectable amplitude)

Pulses: 1 to 30,000.0 - 2 CPM to 10 kHz

Ohms

Source: 5.0 to 4000 Ohms

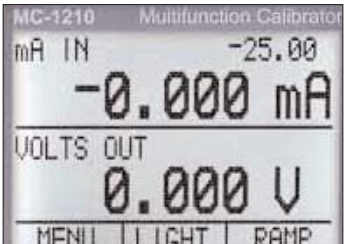
Read: 0.00 to 4000.0 Ohms



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MC1210 features a new large ClearBrite High Graphic Display easy to read dual display. The upper display is used for the measurement of volts, current, and pressure. The lower display can be used to measure volts, current, pressure, resistance temperature detectors (RTDs), thermocouples, frequency, and resistance, and to source pulse trains.



| Thermocouple Read and Source (All errors included) | | |
|--|-------------------------------------|-----------------|
| Type | Min/Max Temperature Range | Accuracy |
| J | -210.0 to 0.0°C (-346 to 32°F) | 0.4°C (0.7°F) |
| | 0 to 800.0°C (32 to 1472°F) | 0.2°C (0.4°F) |
| | 800.0 to 1200.0°C (1472 to 2192°F) | 0.3°C (0.5°F) |
| K | -200.0 to 0.0°C (-328 to 32°F) | 0.6°C (1.1°F) |
| | 0 to 1000°C (32 to 1832°F) | 0.3°C (0.5°F) |
| | 1000.0 to 1372.0°C (1832 to 2502°F) | 0.5°C (0.9°F) |
| T | -250.0 to 0.0°C (-418 to 32°F) | 0.6°C (1.1°F) |
| | 0 to 400.0°C (32 to 752°F) | 0.2°C (0.4°F) |
| E | -250.0 to -100.0°C (-418 to 212°F) | 0.6°C (1.1°F) |
| | -100.0 to 1000.0°C (-148 to 1832°F) | 0.2°C (0.4°F) |
| R/S | 0 to 1767.0°C (32 to 3212°F) | 1.2°C (2.2°F) |
| B | 600.0 to 800.0°C (1112 to 1472°F) | 1.2°C (2.2°F) |
| | 800.0 to 1000.0°C (1472 to 1832°F) | 1.3°C (2.4°F) |
| | 1000.0 to 1820.0°C (1832 to 3308°F) | 1.5°C (2.7°F) |
| C | 0 to 1000.0°C (32 to 1832°F) | 0.6°C (1.1°F) |
| | 1000.0 to 2316.0°C (1832 to 3320°F) | 2.3°C (4.2°F) |
| XK | -200.0 to 800.0°C (-328 to 1472°F) | 0.2°C (0.4°F) |
| BP | 0 to 800.0°C (32 to 1472°F) | 0.9°C (1.6°F) |
| | 800.0 to 2500.0°C (1472 to 4532°F) | 2.3°C (4.2°F) |
| L | -200.0 to 0.0°C (-328 to 32°F) | 0.25°C (0.45°F) |
| | 0 to 900.0°C (32 to 1652°F) | 0.2°C (0.4°F) |
| U | -200.0 to 0.0°C (-328 to 32°F) | 0.5°C (0.9°F) |
| | 0 to 600.0°C (32 to 1112°F) | 0.25°C (0.45°F) |
| N | -200.0 to 0.0°C (-328 to 32°F) | 0.8°C (1.4°F) |
| | 0 to 1300.0°C (32 to 2370°F) | 0.4°C (0.7°F) |
| mV Read/Source | -10.00 to 75.00 mV | 0.015% ±0.02 mV |

*All TC errors include CJC errors CJC error outside of 23 ± 5°C is 0.05°C/°C (In °C add .2 for cold junction compensation error.)

| Process Signal Type | Read Accuracy | Source Accuracy |
|---|---------------------------|---------------------------|
| Current (mA) | ±0.015% of reading, ±2 µA | ±0.015% of reading, ±2 µA |
| CPM | ±0.05% of reading, ±1 LSD | ±0.05% of reading |
| Hz | ±0.05% of reading, ±1 LSD | ±0.05% of reading |
| kHz | ±0.05% of reading, ±1 LSD | ±0.125% of reading |
| Ohms works with all pulsed transmitters down to 5 ms | | |
| 400 Ohm Range | ±0.025% of reading, ±0.05 | ±0.025% of reading, ±0.05 |
| 4000 Ohm Range | ±0.025% of reading, ±0.5 | ±0.025% of reading, ±0.5 |



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| RTD Read and Source | | |
|---------------------|-----------------------------------|---------------|
| Type | Min/Max Temperature Range | Accuracy |
| Pt100 (385) | -200.0 to 100.0°C (-328 to 212°F) | 0.2°C (0.4°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.3°C (0.5°F) |
| | 300.0 to 600.0°C (572 to 1112°F) | 0.4°C (0.7°F) |
| | 600.0 to 800.0°C (1112 to 1472°F) | 0.5°C (0.9°F) |
| Pt200 (385) | -200.0 to 100.0°C (-328 to 212°F) | 0.8°C (1.4°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.9°C (1.9°F) |
| | 300.0 to 630.0°C (572 to 1166°F) | 1.0°C (1.8°F) |
| Pt500 (385) | -200.0 to 100.0°C (-328 to 212°F) | 0.4°C (0.7°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.5°C (0.9°F) |
| | 300.0 to 630.0°C (572 to 1166°F) | 0.6°C (1.1°F) |
| Pt1000 (385) | -200.0 to 100.0°C (-328 to 212°F) | 0.2°C (0.4°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.3°C (0.5°F) |
| | 300.0 to 630.0°C (572 to 1166°F) | 0.4°C (0.7°F) |
| Pt385-10 | -200.0 to 100.0°C (-328 to 212°F) | 1.4°C (2.5°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 1.6°C (2.9°F) |
| | 300.0 to 600.0°C (572 to 1112°F) | 1.8°C (3.2°F) |
| | 600.0 to 800.0°C (1112 to 1472°F) | 2.0°C (3.6°F) |
| Pt385-50 | -200.0 to 100.0°C (-328 to 212°F) | 0.4°C (0.7°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.5°C (0.9°F) |
| | 300.0 to 600.0°C (572 to 1112°F) | 0.6°C (1.1°F) |
| | 600.0 to 800.0°C (1112 to 1472°F) | 0.7°C (1.3°F) |
| Pt100 (3926) | -200.0 to 100.0°C (-328 to 212°F) | 0.2°C (0.4°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.3°C (0.5°F) |
| | 300.0 to 630.0°C (572 to 1166°F) | 0.4°C (0.7°F) |
| Pt100 (3916) | -200.0 to 100.0°C (-328 to 212°F) | 0.2°C (0.4°F) |
| | 100.0 to 300.0°C (212 to 572°F) | 0.3°C (0.5°F) |
| | 300.0 to 630.0°C (572 to 1166°F) | 0.4°C (0.7°F) |
| Ni120 (672) | -80.0 to 260.0°C (-112 to 500°F) | 0.2°C (0.4°F) |
| Cu10 | -100.0 to 260.0°C (-148 to 500°F) | 1.4°C (2.5°F) |
| Cu50 | -180.0 to 200.0°C (-292 to 392°F) | 0.4°C (0.7°F) |
| Cu100 | -180.0 to 200.0°C (-292 to 392°F) | 0.3°C (0.5°F) |
| YSI400 | 15.00 to 50.00 (59 to 122°F) | 0.1°C (0.2°F) |

| Order Information | | |
|--------------------|---|------------|
| Part Number | Description | Price |
| MC1200 | Multifunction Calibrator, Each instrument includes Instruction Manual, Test Leads, Protective Rubber Boot and NIST Calibration Certificate. | \$2,333.00 |
| MC-1210-50 | Dual Display Multifunction Calibrator as above except with 50 mA Read/Source capability | \$2,333.00 |
| Accessories | Description | |
| 80340 | AC Adapter/Charger (Universal voltage and international adapters) | \$48.00 |
| 10077 | AA Nicad Battery (4 required) | \$10.50 ea |
| 80029 | T/C wire kit J, K, T, E with mini plug | \$129.00 |
| 80036 | T/C wire kit R, S, N, B with mini plug | \$147.00 |

* Price Subject to change without notice, please visit our web site for the latest pricing and specifications

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