

Technical Bulletin #12

To: Coulometrics Support Personnel
From: Engineering Dept.
Date: REV 8-19-2004
Subject: Mechanical, Electrical & Electronic Specifications CM5200

Mechanical:Overall Dimensions

Width: 16 inches.
Depth: 20 inches. (with power cord fittings, etc.)
Height: 26 inches. (with carrousel, etc.)
Weight: 65 lbs.

Electrical :Power Requirements:

Rating on unit: 2000 watts. (120 volts @ 16.7 amps) (220 volts @ 9.09 amps)
Circuit requires 120 volts AC @ 20 amps.
Power Cordset: 120 volts AC @ 20 amp plug standard.

Voltage Requirements:

120 volts AC 50/60 Hz. or 240 volts AC 50/60 Hz. (UIC configurable with optional transformer to be supplied for 220 volt units only.)
Current Draw:13.6 amps @ 120 volts. (typical maximum)

Fuse Requirements Main Fuses:

@ 120 volts, 2 each, 20 amp 250 volt type 326.
@ 240 volts, 2 each, 10 amp 250 volt type 326.

Fuse Requirements Front & Rear Heater circuits:

@ 120 volts, 2 each, 10 amp 250 type 326.
@ 220 volts, 2 each, 5 amp 220 volt type 326.

Fuse Requirements Power Supply safety P.C.B:

SLO-BLO TYPE 3AB 3/10 amp 250 V

Furnace Specifications :

Front and rear heating units each with the following:

1. Two heating elements, 390 watt output .
2. 1 PID, autotuning heating controller.
3. User adjustable setpoint from ambient to 1100 deg C. UIC sets limit to 1100 on Controller.
4. Unit uses two type K thermocouples for each furnace . One for PID controller, one for over-temp safety circuit.
5. Over-temp safety shutdown set by UIC to be 1150 deg.
6. Provisions for optional PID controllers with serial output are provided in the cabling and CM110-046 PCB.

Electronic Specifications:**CM110-045 Power Supply Safety Circuit:**

1. Provides the CM110-046 with:
 - A. +5VDC and ground.
 - B. Safety circuit logic level.
2. The CM110-045 PS/SC PCB receives logic levels from **CM110-046** for controlling the valve and carousel motors.
3. 120 volts AC input.
4. 300 ma. fuse, slow-blow, 250V.
5. The power supply generates +5VDC and +24 VDC. The +24VDC is adjustable from +1.4VDC to +36 VDC.
6. LEDs and buzzer:
 - A. Red LED represents +5VDC.
 - B. Yellow LED represents safety circuit #1 -- Front heater.
 - C. Green LED represents safety circuit #2 -- Rear heater.
 - D. Buzzer is an audible alarm when an over-temp condition occurs.

Note: When an over temp condition occurs an on-board relay turns off the heater controllers.

7. The front and rear safety circuit trip points are adjustable from 25 C to 1250 C, but the max. trip set- point setting is 1100 C. This is done by adjusting R13 & R36.

CM110-046 Microcontroller P.C.B.:
Microcontroller based system with:

1. Proprietary Coulometer interface port.
2. RS232C Serial interface.
3. User adjustable Purge and Drop time.
4. User selectable baud rate.(Current firmware does not support Baud rate change)
5. Status indicators for all I/O with Ready, Purge and Drop brought to front user control panel.
6. Firmware on EPROM. Current Version of Firmware is CM5200V5. This software supports the following:
 - User selectable Purge time from 1 to 17 seconds. (with one 73 second test position)
 - User selectable Drop time from .5 to 4.3 seconds.(with one 73 second test position)
 - Baud rate fixed at 1200, no parity, 8 data bits, 1 stop bit.
 - Full cycle start from front user control panel.
 - Valve cycle start from front user control panel.
 - Accepts Ctrl+ S,(ASCII 19 or 13h) from serial interface port to start a full analysis cycle.
 - Provides confirmation of cycle by sending ASCII "OK+ CR + LF".
 - Provide visual confirmation of serial communication by flashing Ready, Purge and Drop indicators once.
7. CM110-046 PCB supports 5011/5012 Coulometer interface operation via 5 pin din .