Chapter 2
Product Specifications

The following are the specifications for the multi-channel electronic load:

Dimensions and Weight:

Height: 8.72 in.

Width: 19.00 in.

Depth: 20.60 in.

Weight: 38 lbs.

Operating Conditions for any Single Channel

Operating Voltage: 4.0V (at 50A*) to 150 VDC
*derated current can be obtained at lower operating voltages. (See Figure 2-1)

Maximum Operating Current: 50A

Maximum Operating Power: 250 watts (See Figure 2-2)

Current Mode

Range: 0.5 – 50.0 amps*

Resolution: 10.0 mA

Accuracy: 0.2% F.S., ±75 mA
*usable range – range minimum is 0.0 amps ±100 mA

Resistive Mode

Resistive mode has four ranges depending on the output voltage of the unit under test.

Note: For good accuracy in Resistive Mode, the value of resistance in ohms should be smaller than the value of voltage in volts.

Range 1

UUT Output Voltage: 4.0 – 14.0V

Resistance (ohms): 0.096 – 4.8

Resolution (ohms): 0.096

Accuracy: ±1.5% of setting, ±0.096 ohms

Range 2

UUT Output Voltage:	4.0 – 50.0V
Resistance (ohms):	0.33 – 15
Resolution (ohms):	0.33
Accuracy:	±1.5% of setting, ±0.33 ohms

Range 3

UUT Output Voltage:	10.0 – 125V
Resistance (ohms):	0.75 – 30
Resolution (ohms):	0.75
Accuracy:	±5% of setting, ±0.75 ohms

Range 4

UUT Output Voltage:	10.0 – 150V
Resistance (ohms):	1 – 40
Resolution (ohms):	1
Accuracy:	±5% of setting, ±1.0 ohms

Current Measurement

Resolution:	4 1/2 digits
Accuracy:	±1% of setting, ±10 mA
Linearity:	±1 display count
Temperature drift:	80 ppm/°C
Self Calibration:	Offset and gain calibration once per second
Update rate:	50 ms

Voltage Measurement*

Resolution:	4 1/2 digits
Accuracy:	±1% of setting, ±10 mV
Linearity:	±1 display count
Temperature drift:	80 ppm/°C
Self Calibration:	Offset and gain calibration once per second
Update rate:	50 ms

* with remote sense lines connected (see Figure 1-2, rear panel)

External Modulation Interface

Description

The external modulation feature of the Model 2103A Electronic Load enables the user to input waveforms or DC control voltages to control the load current. When the external modulation is used, the load acts as a transconductance (voltage to current) amplifier. The load inputs remain floating and isolated even if more than one load section is connected to the same external input.

Specifications

Number of External Inputs:	8
Current Ranges:	0 to 50 amps
Input Voltage for Full Scale Output:	5.0 volts
Bandwidth:	–3 dB at 45 kHz

Operation

Connecting the Signal Source

The external signal source is interfaced to the Model 2103A Load on the rear panel. There are 8 BNC connectors, labeled 1 to 8, one for each channel of the load. Use a standard BNC cable to connect the load channel to the external signal source.

Programming the Model 2103A Load

To use the external modulation of a given load channel, select the channel using the left arrow key, the right arrow key, or the ALL key and press "EXTERNAL MODULATION" in the "MODE" field. The "EXTERNAL MODULATION" LED will turn on indicating that the channel is in external modulation mode. The voltage input is linearly proportional to the loaded current.

Analog Meas. Out

Description

The BNC connector on the rear panel of the unit is provided so that it supplies the user with means of observing the waveforms for voltage and current in real time. The interface is a standard BNC connector.

Specification

Current:	
Range:	0 – 50.0 amps 50.0 amps = 1.875 volts ±1%, ±0.5 mV
Voltage:	
Range:	0 – 150 volts 150 volts = 5.18 volts ±1%, ±1 mV
Bandwidth:	–3 dB at 50 kHz
Probe:	A high impedance probe should be used

Operation

The current or voltage waveforms for a particular channel may be displayed using the ANALOG MEAS OUT connector on the rear panel. This may be activated by selecting the measurement function from the front panel or via the GPIB interface.

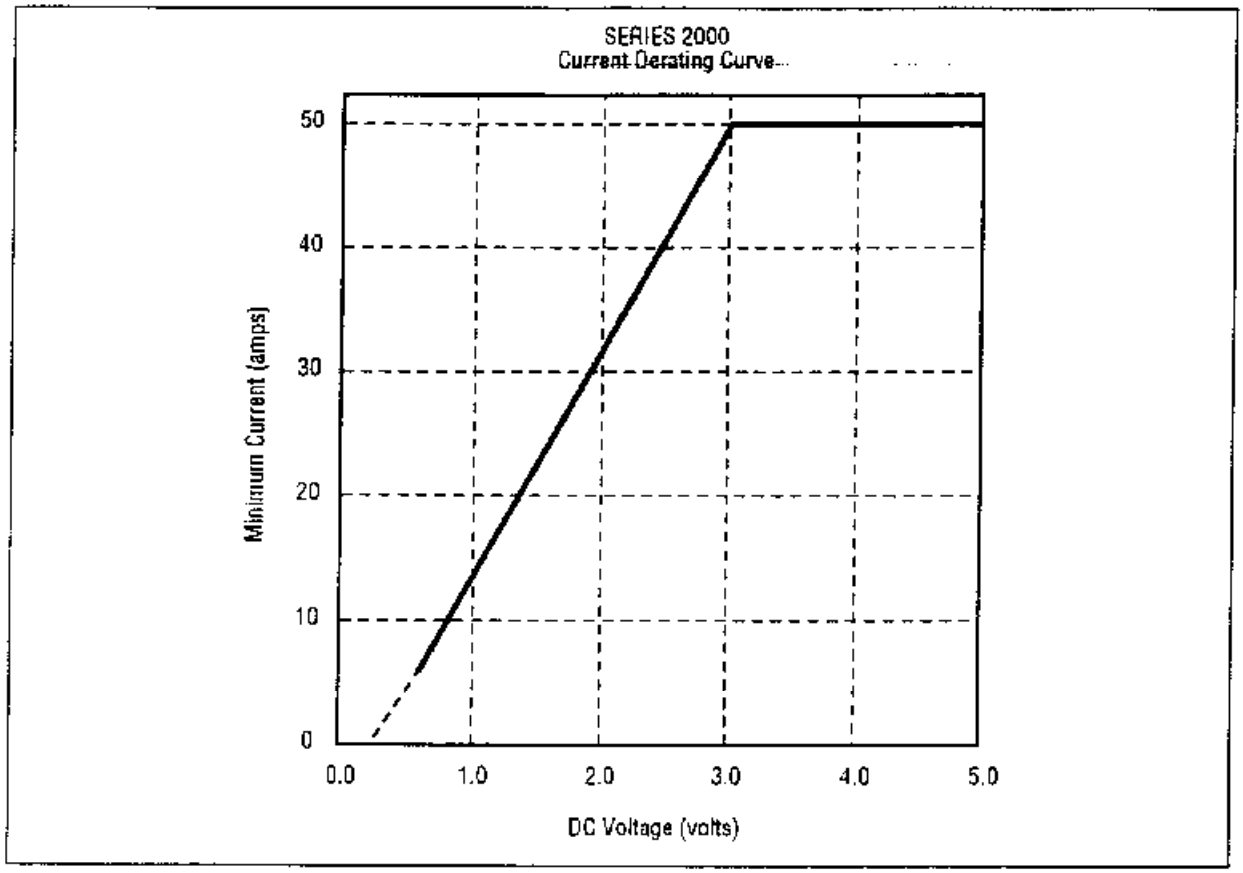

Figure 2-1. Current Derating Curve.

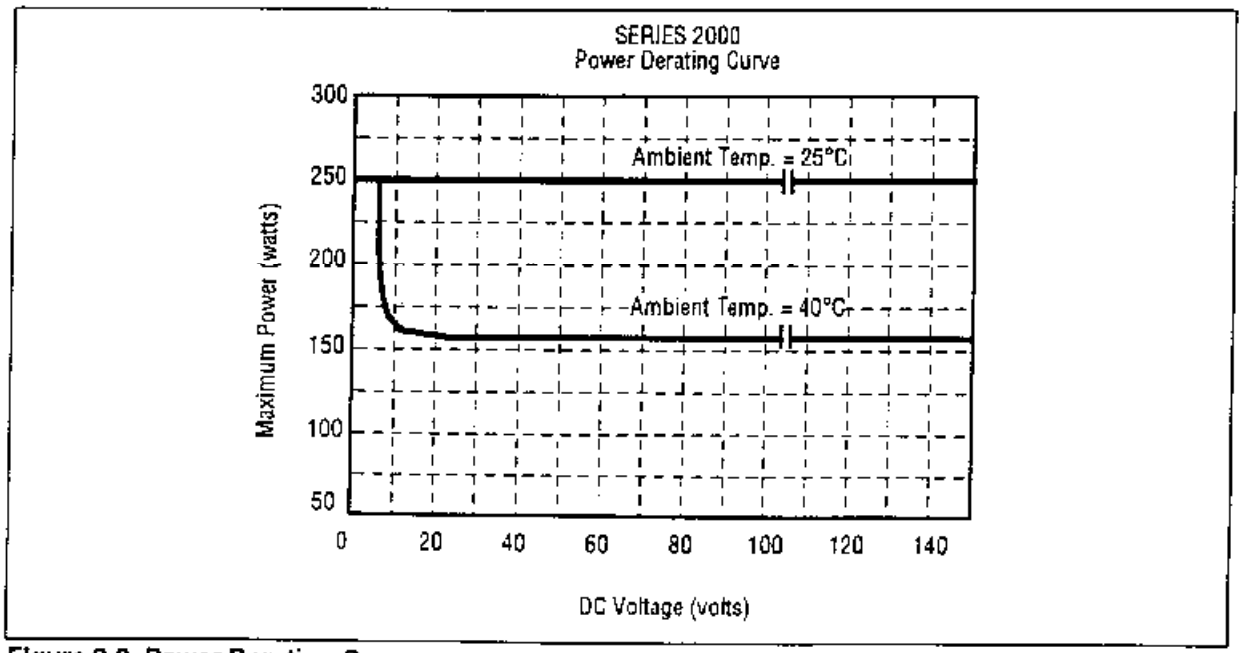

Figure 2-2. Power Derating Curve.