

5.3 POWER AMPLIFIERS (POWER MODULES PA-0103 AND PA-0205)

The power module consists of a regulated dual output DC power supply set at ± 12 Volts (± 15 for PA0205) and a linear power operational amplifier. A breadboard is also mounted on the chassis which could be used to implement signal conditioning circuitry. This module is used to drive the DC motors of the experimental setups and can be used for other devices in your laboratory.

One section of the module is labelled "DC Power Supply" and has three binding posts labelled +12V, GND and -12V (± 15 for PA-0205). These may be used to power active components on the breadboard as well as to bias the sensors. *Note that biasing the sensors with the PA-0205 Power supply instead of PA-0103 will change the sensitivity of the sensor by a factor of 1.25.*

Another section is labelled "Power Operational Amplifier" and has four binding posts. It can be used in any standard op-amp configuration (summer, inverter, buffer etc.). Its two inputs are labelled (-) for the inverting input and (+) for the non-inverting input. The output is also labelled and a binding post adjacent to it is labelled GND. The load should be connected between the output terminal and GND. The Power Op-Amp must have a feedback path from the output to the negative input otherwise its output will saturate. The module is protected by a 2.0 Ampere (5 Ampere for PA-0205) slow-blow fuse.

a) DC POWER SUPPLY

	PA-0103	PA-0205
AC input	< 1 mV. p-p	< 1 mV. p-p
Output ripple	+12 V. and -12 V.	+15 V. and -15 V.
DC Output	+/- 0.03%	+/- 0.03%
Stability	3 Amperes	5 Amperes
Maximum output current	110/220 Volts	110/220 Volts
Short circuit protection	Automatic, self recovering	Automatic, self recovering

b) POWER OPERATIONAL AMPLIFIER

	PA-0103	PA-0205
Maximum current output	3 Amperes	5 Amperes
Maximum power output	40 Watts	75 Watts
Power bandwidth	60 KHz.	60 KHz.
Small signal bandwidth	700 KHz.	700 KHz.
Slew rate	9 V/microsec.	9V/microsec.