Table 1-1. Specifications, Model 6024A

All performance specifications are at rear terminals with a resistive load.

INPUT POWER:

Two internal switches and one internal jumper permit operation from 120, 220, or 240Vac (−13%, +6%); 48-63Hz; 320W maximum. Maximum input current is 5.3A rms for 120Vac, 2.9A rms for 220Vac, and 2.7A rms for 240Vac. A three-wire detachable line cord is supplied.

INPUT PROTECTION:

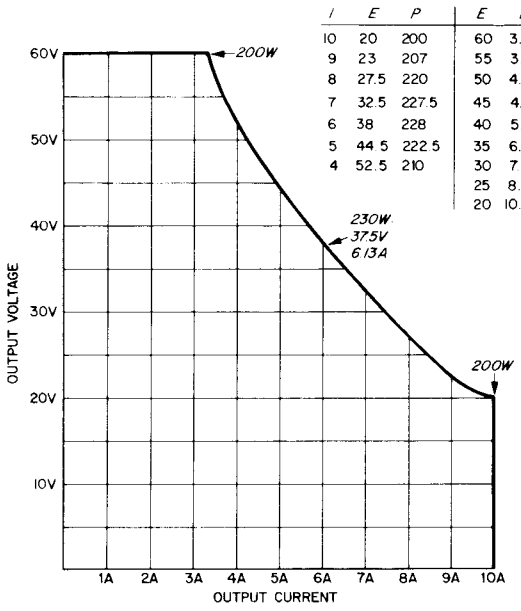
The ac input is protected by a rear-panel mounted fuse; 6A for 120Vac, 4A for 220Vac and 240Vac.

PEAK INRUSH CURRENT:
(typical values)

@25°C ambient, 25A
30 seconds after turn-off, 30A
@55°C ambient, 50A
30 seconds after turn-off, 60A

DC OUTPUT:

Adjustable from 0 to 60V and 0 to 10A. Maximum output power is 200W at extremes of voltage and current, increases to approximately 230W at mid-range. (This power is available at load with up to 0.5V drop in each load lead.) See graph:



I	E	P	E	I	P
10	20	200	60	3.3	200
9	23	207	55	3.7	204
8	27.5	220	50	4.2	210
7	32.5	227.5	45	4.9	221
6	38	228	40	5.7	228
5	44.5	222.5	35	6.5	228
4	52.5	210	30	7.5	225
			25	8.5	213
			20	10.0	200

LOAD EFFECT (LOAD REGULATION):

Constant Voltage - Less than 0.01% of output voltage plus 3mV for a load change equal to the maximum available current rating of the supply at the set voltage.

Constant Current - Less than 0.01% of output current plus 3mA for a load change equal to the maximum available voltage rating of the supply at the set current.

SOURCE EFFECT (LINE REGULATION):

Constant Voltage - Less than 0.01% of output voltage plus 2mV for any line voltage change within rating.

Constant Current - Less than 0.01% of output current plus 2mA for any line voltage change within rating.

PARD (Ripple and Noise), 20Hz to 20MHz:

Constant Voltage - Less than 3mV rms and 30mV p-p.

Constant Current - Less than 5mA rms.

TEMPERATURE COEFFICIENT:

Constant Voltage - Less than 0.01% plus 1mV change in output per degree Celsius change in ambient after 30-minute warmup.

Constant Current - Less than 0.03% plus 1mA change in output per degree Celsius change in ambient after 30-minute warmup.

DRIFT (Stability):

(Change in output over an 8-hour interval under constant line, load, and ambient temperature after 30-minute warmup).

Constant Voltage - Less than 0.03% of output plus 3mV.

Constant Current - Less than 0.03% of output plus 3mA.

LOAD TRANSIENT RECOVERY TIME:

Less than 1ms is required for output voltage recovery (in constant voltage operation) to within 75mV of the nominal output following a change in output current from 90% to 100% or 100% to 90% of maximum current rating.

RESOLUTION:

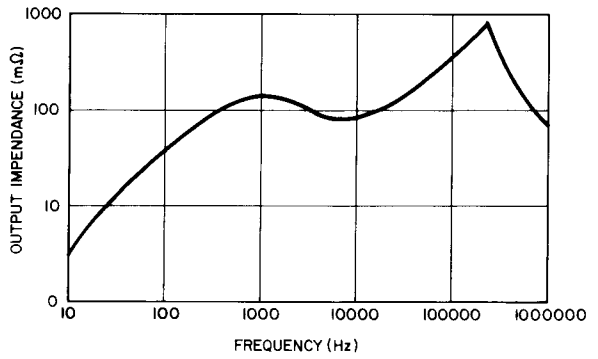
(Minimum output voltage or current change that can be obtained using the 10-turn front-panel controls)

Constant Voltage - 20mV

Constant Current - 5mA

Table 1-1. Specifications, Model 6024A (continued)

OUTPUT IMPEDANCE (Typical):



DC OUTPUT ISOLATION:

Either output terminal may be floated up to ±240Vdc (including output voltage) from earth ground.

OVERVOLTAGE PROTECTION:

Trip voltage adjustable from 2V to 64V. Minimum setting above output voltage to avoid false tripping is 1.5V.

REVERSE VOLTAGE PROTECTION:

(Maximum permissible reverse current caused by reverse voltage impressed across output terminals) 10A continuous.

REMOTE SENSING:

Maintains nominal voltage at load by correcting for load-lead voltage drop of up to 0.5V per lead.

REMOTE PROGRAMMING:

Resistance Programming - 0 to 2.5K provides zero to maximum rated voltage or current output.
Accuracy: CV; 0.8% + 1mV CC; 2.4% + 1mA

Voltage Programming - 0 to 5V provides zero to maximum rated voltage or current output.
Accuracy: CV; 0.2% + 1mV CC; 0.9% + 1mA

Current Programming - 2mA to 0mA current sink provides zero to maximum rated voltage or current output (with user-provided 2.5k resistor).
Accuracy: CV; 0.2% + 0.36V + accuracy of resistor
CC; 0.9% + 0.15A + accuracy of resistor

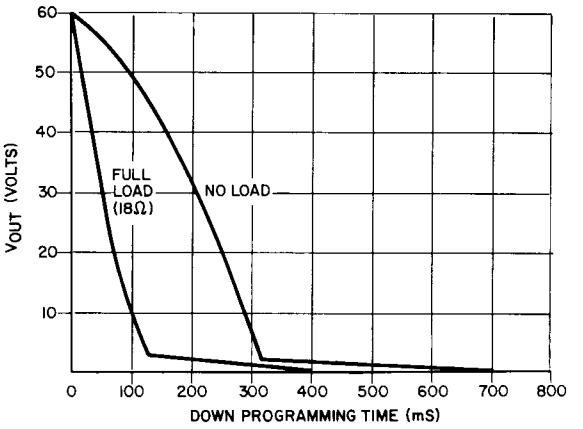
PROGRAMMING RESPONSE TIME:

Maximum time for output voltage to change from 0V to 60V or 60V to 2V and settle within 60mV band (0.1% of maximum rated output).

Up: Full Load (18Ω)	200mS
No Load	200mS
Down: Full Load (18Ω)	300mS
No Load	600mS

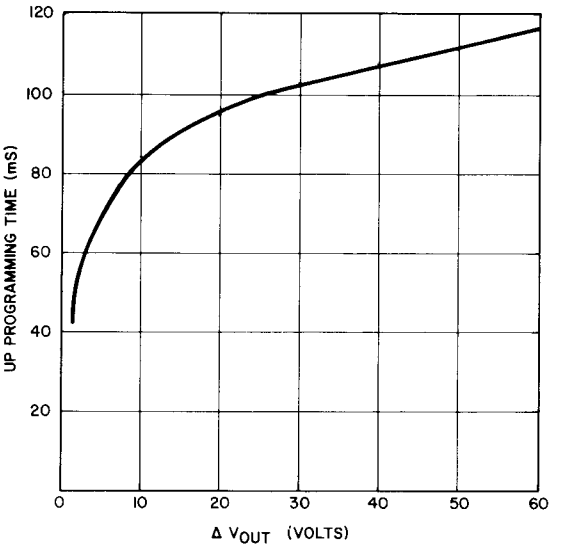
Typical response time, for excursions other than full-scale

Down: On graph, read difference in time between initial output voltage and final output voltage; add settling time



Plus 125ms if final voltage≥2V
or 500ms if final voltage<2V to settle within 60mV band (0.1% of maximum rated output)

Up: On graph, read time for change in output voltage



CURRENT MONITORING OUTPUT:

0 to 5V output from rear-panel terminal indicates zero to maximum rated current output; accuracy, 0.9% + 7mV output impedance, 10k.

Table 1-1. Specifications, Model 6024A (continued)

METERS AND INDICATORS:

Voltmeter - Continuously reading 70V scale with secondary scale indicating amperes available; accuracy, ±3% of full scale.

Ammeter - Continuously reading 12A scale with secondary scale indicating volts available; accuracy, ±3% of full scale

VOLTAGE Indicator - Green LED indicates Constant Voltage operation.

CURRENT Indicator - Green LED indicates Constant Current operation.

OUTPUT UNREGULATED Indicator - Red LED indicates that output is unregulated because of any of the following conditions: overrange operation, overvoltage, over temperature, or low-input-power shutdown.

OVP Indicator - Red LED indicates shutdown caused by voltage at output terminals exceeding preset limit.

MULTIPLE UNIT OPERATION:

Auto-Parallel - Up to eight units may be connected in parallel to increase total output current capability while maintaining control from a single unit.

Auto-Series - Up to four units (eight if center-tapped to ground) may be connected in series to increase total output voltage to 240Vdc (480Vdc if center-tapped to ground) while maintaining control from a single unit.

Auto-Tracking - Any number of units may have either one of their output terminals connected to a common bus so that all outputs track, at some fraction, the output of a single, controlled, unit.

TEMPERATURE RATINGS:

Operating: 0 to +55°C Storage: –40 to +75°C

Unit is fan cooled. A termostat turns off unit if temperature rises above a critical level; resets automatically.

OPTIONS:

Option 002 (System Interface) specifications are listed in Appendix A.

Option 100 (100Vac Input) specifications are listed in Appendix B.

CERTIFICATION:

Unit complies with these requirements:

IEC 348 - Safety Requirements for Electronic Measuring Apparatus.

CSA Electrical Bulletin 556B - Electronic Instruments and Scientific Apparatus for Special Use and Applications.

VDE 0871/6.78 Level A - RFI Suppression of Radio Frequency Equipment for Industrial, Scientific, and Medical, (ISM) and Similar Purposes.

VDE 0411 - Electronic Measuring Instruments and Automatic Controls.

DIMENSIONS:

See Figure 2-1.

WEIGHT:

Net: 5.4kg (12 lb) Shipping: 7.3kg (16 lb)