Chapter 1
DESCRIPTION OF EQUIPMENT

1.1 PURPOSE AND CAPABILITIES

The Power Ten P60, P80, and D3 Series power supplies are general purpose power supplies designed specifically for laboratory test and systems applications requiring variable DC sources with good ripple and regulation characteristics. The P60 power supplies include five separate series: P62, P63, P66, P83, and P86. The D3 power supplies are dual output supplies that can have two supplies with the same output voltage or two with different output voltages. The power supplies of each series are constant current/constant voltage supplies with an automatic crossover feature. The P62 Series models provide up to 3000 watts, the P63 models up to10 kilowatts, the P83 up to 15 kilowatts, the P66 models up to 20 kilowatts, and the P86 up to 30 kilowatts, each over a wide range of voltage and current levels. The D3 Series models provide a total combined output power of 6.6 kilowatts.

1.2 TECHNICAL CHARACTERISTICS

The physical, electrical, and environmental characteristics for the P62, P63, P66, P83, P86, and D3 Series are listed in Tables 1-1 through 1-6.

Table 1-1
P62 Series Technical Characteristics

PARAMETERS	SPECIFICATIONS
PHYSICAL CHARACTERISTICS:	
Width	19.00 in.
Depth	18.00 in
Height	3.50 in.
Weight	45 lbs max.
ELECTRICAL CHARACTERISTICS:	
Input Power (Standard)	
Voltage	190-253 VAC
Frequency	47 to 63 Hz
Phases	Single, 2-wire plus gnd
Regulation (Line or Load)	
Voltage	0.1% of max. output voltage
Current	0.2% of max. output current
Transient Response	A 30% step load will recover to within 2% of original value within 10ms.
Stability	±0.05% of set point per 8 hrs. after warm-up and at a fixed line, load and temp.
Remote Control/Monitor	On/Off control via contact closure, 6-120 VDC or 12-240 VAC, and TTL or CMOS switch, output voltage and current monitor, OVP limit set, and summary fault status
Power Density	2.5 Watts/cubic in.
Power Factor	0.72

Table 1-1
P62 Series Technical Characteristics – Continued

PARAMETERS	SPECIFICATIONS
Remote Programming	
Resistive:	
Constant Voltage (0-100%)	0 - 5k ohms
Constant Current (0-100%)	0 - 5k ohms
Voltage:	
Constant Voltage (0-100%)	0 - 5/10 VDC
Constant Current (0-100%)	0 - 5/10 VDC
Remote Sensing	Terminals are provided to sense output voltage at point of load. Maximum line drop 3% of rated voltage per line, or 3V, whichever is less.
ENVIRONMENTAL CHARACTERISTICS:	
Temperature Coefficient	0.02%/°C of max. output voltage rating for voltage set point. 0.03%/°C of max. output current rating for current set point.
Ambient Temperature	
Operating	0 to 50°C
Storage	-20° to 70°C
Cooling	Internal fans
Agency Approvals (excluding 600 volt models)	TÜV NRTL to UL1950 TÜV to IEC 950 CE mark

Table 1-2
P63, P66, P83, P86, and D3 Series Technical Characteristics

PARAMETERS	SPECIFICATIONS	
PHYSICAL CHARACTERISTICS:		
	P63, D3	**P66**
Width	19.00 in.	19.00 in.
Depth	22.00 in	22.00 in.
Height	5.25 in.	10.5 in.
Weight	120 lbs max.	163 lbs max.
ELECTRICAL CHARACTERISTICS		
Input Power		
Voltage		
Standard	208-230 VAC (tested to 190-253 VAC)	
Options	400 VAC (tested to 360-440 VAC) 480 VAC (tested to 432-528 VAC)	
Frequency	47 to 63 Hz	
Phases	3-phase, 3-wire plus ground	
Regulation (Line or Load)		
Voltage	0.1% of max. output voltage	
Current	0.5% of max. output current	
Transient Response	A 30% step load will recover to within 2% of original value within 10ms.	
Stability	±0.05% of set point after 8 hr. warm-up at fixed line, load and temp.	
Remote Control/Monitor	On/Off control via contact closure, 6-120 VDC or 12-120 VAC, and TTL or CMOS switch, output voltage and current monitor, OVP limit set, summary fault status.	
Power Density	4.5 Watts/cubic in. (10 & 20 KW) 6.8 Watts/cubic in. (15 & 30 KW)	
Power Factor	.72 min.	
Efficiency	80% minimum at full load	

Table 1-2
P63, P66, P83, P86, and D3 Series Technical Characteristics - Continued

PARAMETERS	SPECIFICATIONS
Remote Programming	
Resistive:	
Constant Voltage (0-100%)	0 - 5k ohms
Constant Current (0-100%)	0 - 5k ohms
Voltage:	
Constant Voltage (0-100%)	0 - 5 VDC or 0 -10 VDC
Constant Current (0-100%)	0 - 5 VDC or 0 -10 VDC
Remote Sensing	Terminals are provided to sense output voltage at point of load. Maximum line drop 3% of rated voltage per line, or 3V, whichever is less.
ENVIRONMENTAL CHARACTERISTICS:	
Temperature Coefficient	0.02%/°C of max. output voltage rating for voltage set point. 0.03%/°C of max. output current rating for current set point.
Ambient Temperature	
Operating	0 to 50°C
Storage	-40° to 75°C
Cooling	Internal fans
Agency Approvals (excluding 600 volt models)	TÜV NRTL to UL1950 TÜV to IEC 950 CE mark

Table 1-3
Available Voltages and Currents

V Out	2KW	3KW	3.3W	6.6W	10KW	13.3W	16.6W	20KW	5KW	10KW	15KW	20KW	25KW	30KW	PS1	PS2
5	325		500	1000	1500	2000	2500	3000							500	500
8	250	350	400	800	1200	1600	2000	2400							400	400
10	200	300	330	660	1000	1300	1650	2000							330	330
12.5			265	530	800	1060	1325	1600							265	265
15	130	200	220	440	660	880	1100	1320							220	220
20	100	150	166	330	500	665	830	1000							166	166
25			132	265	400	520	650	800							132	132
30	66	100	110	220	330	440	550	660							110	110
40	50	75	83	166	250	330	415	500							83	83
50	40	60	66	133	200	265	330	400							66	66
60	33	50	55	110	166	220	275	330							55	55
80	25	37							62	125	187	250	312	375		
100	20	30							50	100	150	200	250	300		
120	16	25														
130									38	76	115	153	192	230		
150	13	20							33	66	100	133	166	200		
200	10	15							25	50	75	100	125	150		
250	8	12							20	40	60	80	100	120		
300	6.6	10							16	33	50	66	83	100		
400	5	7.5							12	15	37	50	62	75		
600			5.5	11	16	22	27	33								

Note:

- Dual output supplies are available in the P63 (3U) chassis with a combination of any two voltages and 3300 watts per voltage.

Output P-P Ripple - Typical

RATING	*3300	* P60, P80, D3	*P60 Low Noise
5-15V	30 mV RMS	50 mV	30 mV
20-60V	30 mV RMS	75 mV	45 mV
80V	50 mV RMS	100 mV	
100V	50 mV RMS	125 mV	
120V	50 mV RMS	135 mV	
150V	50 mV RMS	150 mV	
200V		175 mV	
250-300V		200 mV	
400V		225 mV	

* P-P noise is measured across a 1 uF capacitor at the end of a 6' load cable with the supply operating at full load and at nominal input line voltage.

** RMS noise is measured directly across the output terminals with the supply operating af full load and at nominal input line voltage.