

# Power Ten P 63/66 Series

2.5–20 kW

## High Power Analog DC Supplies

5–50 V

- Digital Displays
  - Power supply rating
  - Output power, voltage and current
  - All power, voltage and current set points and limits
- Up to 3000 Amps in a single 6U package



66–3000 A



208

400

480

↔ GPIB ↔ RS232

Power Ten P Series supplies are the first choice for semiconductor burn-in systems worldwide and are providing solutions to high power DC voltage requirements in many other diverse applications. These include:

- Process Control
- Medical Systems
- Production Test
- Electromagnets
- ATE
- Battery Chargers
- Ion Implant
- Radar Systems
- High Power Lasers
- Research / Labs

Over 54 different output voltage and current combinations are available as standard products. Power Ten designs employ efficient and cost effective switching technology – including pulse width modulation (PWM) and zero crossing topology to achieve both high efficiency and high-density packaging. A 10 kW model is available in a 5–1/4” high (3U), rackmounted configuration.

Product quality starts with engineering as a design criteria and is ensured by our highly trained staff of manufacturing and test personnel. Long-term reliability is achieved by care in the derating of components combined with a conservative approach to mechanical and thermal design.

# P 63/66 Series : Product Specifications

P 63 Series	P 66 Series
2.5 kW, 3.3 kW, 6.6 kW and 10 kW	13 kW, 16.5 kW and 20 kW
	
3-Phase Input Power	3-Phase Input Power
Low Peak-to-Peak Ripple & Noise	Low Peak-to-Peak Ripple & Noise
Certified to UL/CSA 61010 and IEC/EN 61010-1 CE Compliant (LVD and EMC directive)	CE Compliant (LVD and EMC directive)
Optional IEEE 488.2 and RS-232 Remote Programming with SCPI Protocol	Optional IEEE 488.2 and RS-232 Remote Programming with SCPI Protocol
<b>Input Voltage</b> 190-253 VAC, 47-63 Hz (Standard) 360-440 VAC, 47-63 Hz (Option) 432-528 VAC, 47-63 Hz (Option)	<b>Input Voltage</b> C: 190-253 VAC, 47-63 Hz (Standard) D: 360-440 VAC, 47-63 Hz (Option) E: 432-528 VAC, 47-63 Hz (Option)
<b>Input Current @ 208 VAC</b> (Typical) At 3.3 kW Output: 15A At 6.6 kW Output: 28A At 10.0 kW Output: 41A Operates from Delta or Wye Source	<b>Input Current @ 208 VAC</b> (Typical) At 13 kW Output: 54A At 16.5 kW Output: 67A At 20 kW Output: 80A Operates from Delta or Wye Source
<b>Weight:</b> 3.3 kW: 40 Lbs. 6.6 kW: 60 Lbs. 10.0 kW: 80 Lbs.	<b>Weight:</b> 13 kW: 120 Lbs. 16.5 kW: 140 Lbs. 20 kW: 160 Lbs.
Dimensions: 19" (W) X 5.25" (H) X 22" (D)	Dimensions: 19" (W) X 10.5" (H) X 22" (D)
AC Input Interface: 3 wire + GND (#10-32 threaded studs) (208 VAC)	AC Input Interface: 3 wire + GND (#1/4-20 threaded studs) (208 VAC)
DC Output Interface: Bus bars with 0.390" interface holes for output ≤50 VDC.	DC Output Interface: Bus bars with 0.410" interface holes for output ≤50 VDC..
Control/Monitor Interface: DB 25-pin female connector	Control/Monitor Interface: DB 25-pin female connector

\*Note: All specifications herein @ 25°C ± 5°C and subject to change without notice

Common Specifications		
Regulation	Line: For input voltage variation over the AC input voltage range, with constant rated load. Load: For 0-100% load variation, with constant nominal line voltage.	
Voltage	0.1% of maximum rated output	
Current	0.5% of maximum rated output	
Transient Response	A 30% current step load will recover to within $\pm 2\%$ of set voltage within 10 msec.	
Stability	$\pm 0.05\%$ of set point per 8 hours after 30 minutes warm-up at fixed line, load and temperature.	
Temperature Coefficient	0.02%/°C of rated output voltage, 0.03%/°C of rated output current Change in output per °C change in ambient temperature, with constant line and load	
Operating Temperature	0 to +50°C, No derating	
Storage Temperature	-20 to +70°C	
Cooling	Internal fans	
Controls (Front Panel)	On/Off switch, DC volts adjust, DC amps adjust, OVP preset adjust (limit set)	
Meters/Indicators	LCD DC voltmeter, ammeter and OVP limit set. LED indicators for voltage mode, current mode. OVP fault and fault	
Built-In Protection	Over Voltage, Current limit Fold back, Over Temperature, Brown Out, Turn On Surge Limit, Slow Start	
Remote Control/Monitor (Rear Panel)	On/Off control via contact closure, 6-120 VDC, TTL or CMOS switch, output voltage and current monitor, OVP limit set, summary fault status on P60 Series.	
Remote Sensing	Terminals provided to sense output voltage at load. Line drop subtracts from the maximum available output voltage at full rated power.	
Operational Features	Master/Slave, Series, Parallel	
Regulatory	CE mark (LVD and EMC directive), Certified to UL/cUL 61010 (Up to 10kW output), EMC is to IEC 61326-1	
<b>Remote Programming</b>	<b>Voltage (0 to 100%)</b>	<b>Current (0 to 100%)</b>
Resistive	0-5K ohms	0-5K ohms
Voltage	0-5 VDC or 10 VDC	0-5 VDC or 10 VDC
Programmable Functions		
Output Voltage and Current		
Soft Limits for Voltage and Current		
Over Voltage Protection		
Output Enable/Disable		
Maskable Fault Interrupt		
Hold and Trigger		
Readback Functions		
Actual Measured Voltage and Current		
Voltage and Current Settings		
Soft Voltage and Current Limits		
Over Voltage Protection Setting		
Status and Accumulated Status Registers		
Programming Error Codes		
Fault Codes		
Manufacturer, Power Supply Model and Firmware Version Identification		

# P 63/66 Series : Product Specifications

## Remote Computer Programming Options

IEEE 488.2 and RS-232 Interface Option enables the power supply to be operated from a computer with full remote programming control and monitoring. The slave interface option allows multichannel control from a single bus address.

Programming Resolution	Voltage: 0.03% of full scale Current: 0.03% of full scale Over voltage Protection: 0.03% of full scale (full scale is 120% of maximum output voltage)
Programming Accuracy	Voltage: $\pm (0.1\% + 0.1\%$ of maximum output voltage) Current: $\pm (0.1\% + 0.4\%$ of maximum output voltage)*
Overvoltage Protection	$\pm (0.5\% + 0.5\%$ of maximum output voltage)
Readback Resolution	Voltage and Current: $\pm 0.03\%$ of full scale
Readback Accuracy	Voltage: $\pm (0.1\% + 0.15\%$ of full scale output voltage) Current: $\pm (0.1\% + 0.4\%$ of full scale output current)* * After 30 minutes operation with fixed line, load and temperature.

## Isolated Analog Control Option (AB)

Fully Isolates Control Inputs

Eliminates System Ground-Loops

### Specifications

Input to Output Isolation: 500V

Linearity Control to Power Output:  $\pm 1\%$  (20-100% of Output)

Isolation Mode Rejection: 10 KV/ $\mu$ S

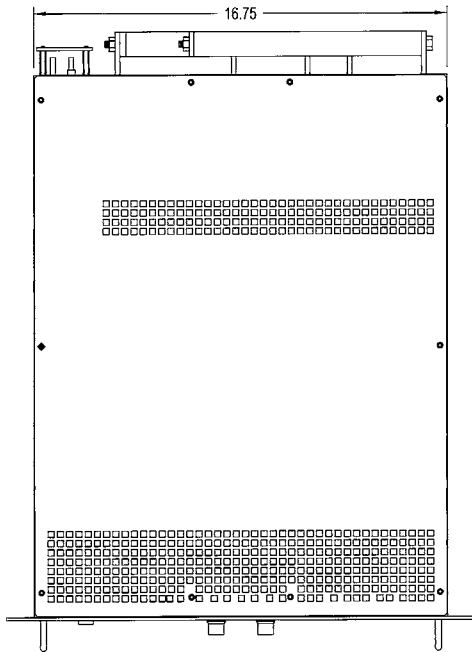
Isolation Mode Rejection Ratio: >100 dB

This control isolation option for all Power Ten power supply models fully isolates the remote control signals. This isolation allows users to control power supplies not connected to a common ground. In addition, in systems with high ambient noise or with large ground loop currents the control ground can be isolated from the power ground eliminating problems.

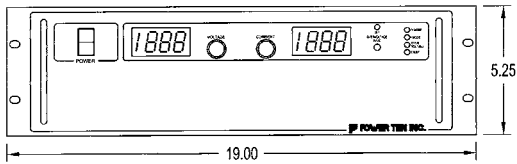
Model	Output DC		Output p-p Ripple	Model	Output DC		Output p-p Ripple
	Volts	Amps			Volts	Amps	
P63 Series: 2.5 kW to 10 kW*				P66 Series: 10 kW to 20 kW*			
P63C-5500	0-5	500	50 mV	P66C-52000	0-5	2000	50 mV
P63C-51000	0-5	1000	50 mV	P66C-52500	0-5	2500	50 mV
P63C-51500	0-5	1500	50 mV	P66C-53000	0-5	3000	50 mV
P63C-8400	0-8	400	50 mV	P66C-81600	0-8	1600	50 mV
P63C-8800	0-8	800	50 mV	P66C-82000	0-8	2000	50 mV
P63C-81200	0-8	1200	50 mV	P66C-82400	0-8	2400	50 mV
P63C-10330	0-10	330	50 mV	P66C-101300	0-10	1300	50 mV
P63C-10660	0-10	660	50 mV	P66C-101650	0-10	1650	50 mV
P63C-101000	0-10	1000	50 mV	P66C-102000	0-10	2000	50 mV
P63C-12.5265	0-12.5	265	50 mV	P66C-12.51060	0-12.5	1060	50 mV
P63C-12.5530	0-12.5	530	50 mV	P66C-12.51325	0-12.5	1325	50 mV
P63C-12.5800	0-12.5	800	50 mV	P66C-12.51600	0-12.5	1600	50 mV
P63C-15220	0-15	220	50 mV	P66C-15880	0-15	880	50 mV
P63C-15440	0-15	440	50 mV	P66C-151100	0-15	1100	50 mV
P63C-15660	0-15	660	50 mV	P66C-151320	0-15	1320	50 mV
P63C-20166	0-20	166	75 mV	P66C-20665	0-20	665	75 mV
P63C-20330	0-20	330	75 mV	P66C-20830	0-20	830	75 mV
P63C-20500	0-20	500	75 mV	P66C-201000	0-20	1000	75 mV
P63C-25134	0-25	132	75 mV	P66C-25520	0-25	520	75 mV
P63C-25265	0-25	265	75 mV	P66C-25650	0-25	650	75 mV
P63C-25400	0-25	400	75 mV	P66C-25800	0-25	800	75 mV
P63C-30110	0-30	110	75 mV	P66C-30440	0-30	440	75 mV
P63C-30220	0-30	220	75 mV	P66C-30550	0-30	550	75 mV
P63C-30330	0-30	330	75 mV	P66C-30660	0-30	660	75 mV
P63C-5066	0-50	66	75 mV	P66C-50265	0-50	265	75 mV
P63C-50133	0-50	133	75 mV	P66C-50330	0-50	330	75 mV
P63C-50200	0-50	200	75 mV	P66C-50400	0-50	400	75 mV

\*Note: For high power 40V models and models above 50V, see SG Series.

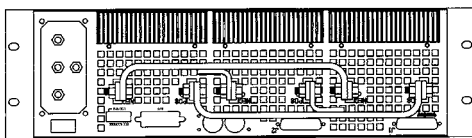
**P63**



**Top View**

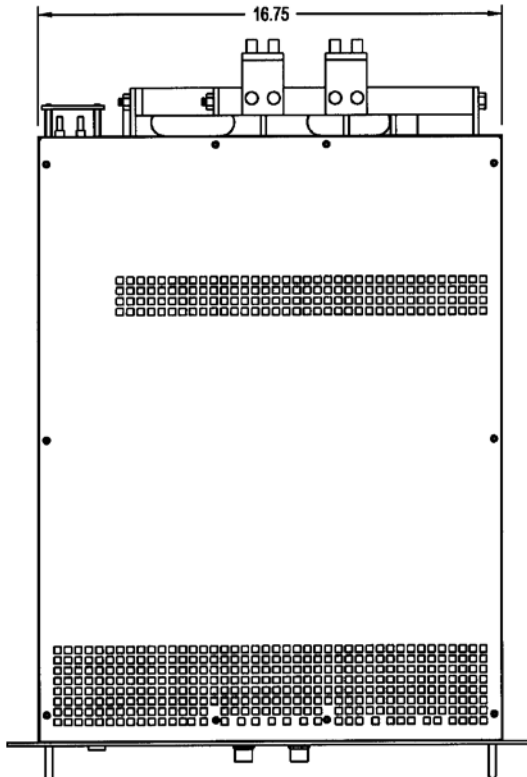


**Front View**

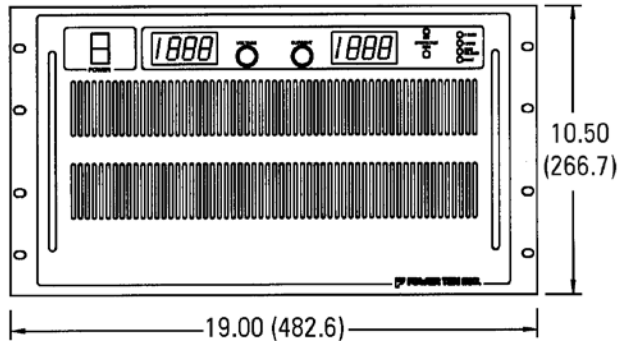


**Rear View**

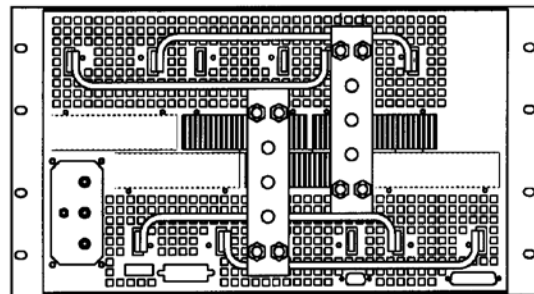
**P66**



**Top View**



**Front View**

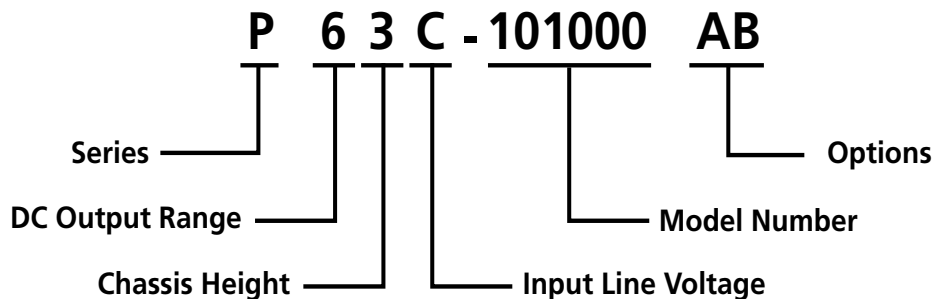


**Rear View**

Dimensions in inches (millimeters)

# P 63/66 Series

## Model Number Description



## Options and Accessories

AB	Isolated Analog Input
R	IEEE-488.2 Interface and RS-232C Interface
J	Shaft Locks
990-323-90	L Brackets (2 Required and is for all P Series)
105-300-26	Rack Slide Kit (for all of P Series) Optional IEEE 488.2 and RS-232 Programming with SCPI protocol.

## J1 Connector

1	Remote Output Enable	14	TTL/CMOS On/Off Control
2	Remote Return for Pins 1 and 14	15	Remote Voltage Programming Input
3	Remote OVP Programming Input	16	Remote Current Programming Input
4	Voltage Return for Pins 9, 15 or 21	17	Fault State
5	Remote On/Off	18	Shutdown Fault
6	Circuit Common	19	Output Voltage Monitor
7	Current Monitor Output	20	Voltage Return for Pins 9, 15 or 21
8	Local Voltage Control Monitor	21	Voltage Control Resistance
9	Remote Voltage Programming Input	22	Current Control Resistance
10	Remote Current Programming Input	23	Current Return for Pins 10, 16 or 22
11	Local Current Control Monitor	24	Circuit Common
12	Remote Sense -	25	Current Return for Pins 10, 16 or 22
13	Remote Sense +		