

ARC LAMP POWER SUPPLIES

PRODUCT DESCRIPTION & APPLICATION

The YD Series are high voltage, switching power supplies designed specifically for igniting and powering arc lamps for Nd:YAG and other solid state laser systems.

The YD Series is available in three power levels and with power factor correction. All three models: YD4, YD6, YD8 representing 4, 6 and 8kW power levels respectively; have the same mechanical dimensions, are air cooled, and can operate from single or three phase AC power sources. Each unit is easily controlled through a 26 pin control connector.

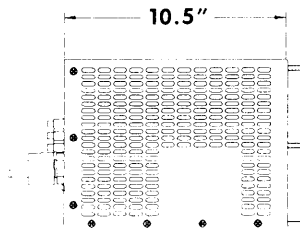
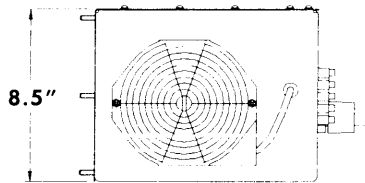
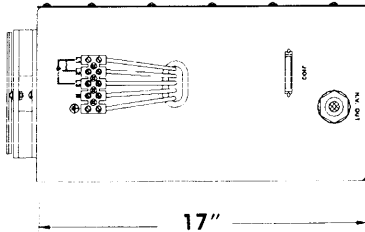
A high frequency IGBT pulse width modulated (PWM) regulator is used to efficiently generate the output power. A high performance control module precisely regulates the output current, automatically compensating for line, load, temperature, rep rate, and program voltage variations. Normal external fault conditions such as arc lamp failure, line dropout, open or short circuit load, and over-temperature will not damage the unit. The lamp trigger circuit is included in the unit, and provides the high voltage pulse and boost voltage required to reliably start an arc lamp.

Active Power Factor Correction
YD4-PC and YD6-PC models are equipped with power factor correction circuitry that reduces the RMS input current and its harmonic distortion when operating from a single phase AC input source. The YD4-PC and YD6-PC input power factor will typically be greater than 0.99, and the line current total harmonic distortion (THD) will typically be less than 6%. The active power factor corrected models also achieve a higher output voltage as shown in the specifications.

CONFIGURATIONS

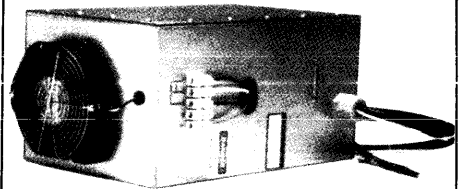
Model	Max. Output Power	Power Factor Correction
YD4-SC	4kW	No
YD4-PC	4kW	Yes
YD6-SC	6kW	No
YD6-PC	6kW	Yes
YD8-SC	8kW	No

All six models are packaged in a compact OEM configuration, all having the same mechanical dimensions. Units are suitable for remote operation and ideal for low cost, high volume OEM applications.



YD SERIES 4 to 8kW

**MODELS YD4
YD6
YD8**



LASER POWER SUPPLY

- COMPACT SIZE
- REMOTE CONTROL INTERFACE
- INTEGRAL BOOST AND IGNITER CIRCUITRY
- ACTIVE POWER FACTOR CORRECTION AVAILABLE
- AIR COOLED
- IGBT PULSE WIDTH MODULATED TECHNOLOGY
- SHORT AND OPEN CIRCUIT PROTECTED
- AC LINE DROP OUT, AND OVER TEMPERATURE PROTECTED
- PULSE CAPABILITY
- OPTIONAL DESIGN FOR PARALLEL OPERATION

ARC LAMP POWER SUPPLIES

4 kW to 8 kW

YAG DRIVE SPECIFICATIONS

Output Power

YD4-SC 150V, 35A, 4kW max.
 YD4-PC 250V, 35A, 4kW max.
 YD6-SC 150V, 50A, 6kW max.
 YD6-PC 250V, 50A, 6kW max.
 YD8-SC 250V, 50A, 8kW max.

Input Power Requirements

Voltage:

1 Phase 180-264VAC, 50/60 Hz
 3 Phase 180-264VAC, 50/60 Hz

Current:

YD4-SC 1 Phase, 40A max.
 3 Phase, 20A max.
 YD4-PC 1 Phase, 30A max.
 3 Phase, 20A max.
 YD6-SC 3 Phase, 30A max.
 YD6-PC 1 Phase, 40A max.
 3 Phase, 25A max.
 YD8-SC 3 Phase, 35A max.

Igniter

25kV

Boost

1kV

Efficiency

SC Models: 87%
 PC Models: 85%

Weight

46 lbs., 21 kg.

Regulation

$\pm 1.0\%$ over full line and load range

Ripple

DC to 1kHz:
 750mA pk-pk max.
 1kHz to 20MHz:
 10% of I_{out} , pk-pk max.

Inrush Current

Limited to below full power level

Pulsing

Up to 1kHz, 300 μ sec rise and fall times, 75% modulation

Protection

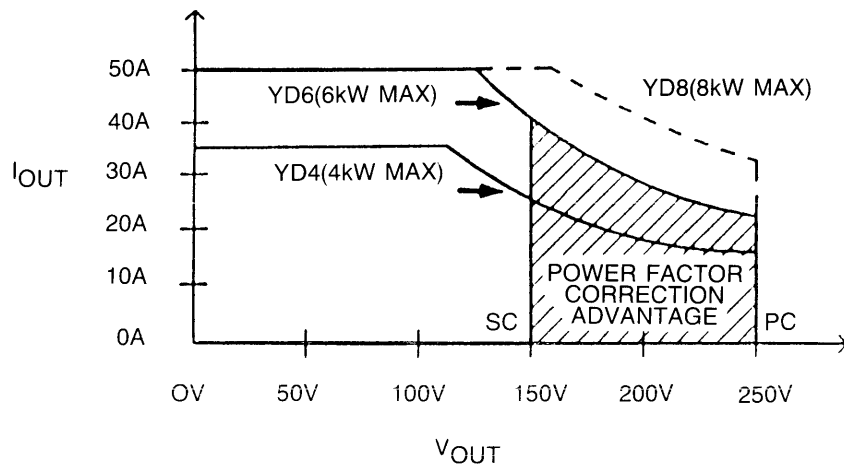
Short circuit, open circuit and arc lamp failures will not damage the power supply. Automatic shut-down on Overtemp, Current Limit, Maximum duty cycle clamp to limit output voltage. Highly buffered I/O for noise immunity in severe electrical environments.

Cooling

Forced air, -20°C to 40°C inlet temp 10% to 90% R.H. non-condensing

Options

Custom igniter voltage, parallel operation for higher power.

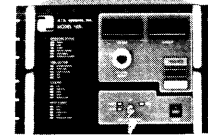
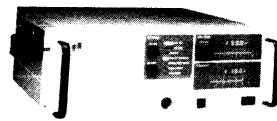
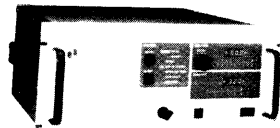
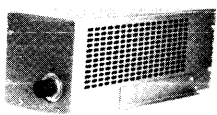


PC MODEL vs SC MODEL COMPARISON

For High Voltage Capacitor Charging Supplies

From 500 J/s To 30 kJ/s

Advanced high voltage current sources specifically designed to charge capacitors in discharge driven applications.



MODEL CHARGE RATE

500 500 J/s

102 1000 J/s

152 1500 J/s

MODEL CHARGE RATE

402 4000 J/s

802 8000 J/s

MODEL CHARGE RATE

203 20 kJ/s

303 30 kJ/s