

Lamp Power Supply Pulse2004

Datasheet

Pulsed power supply for xenon arc lamps for application in solid state lasers, dermatology, photo exposure etc.



Shortform Data

property	value	unit
pulse current	300	A
pulse voltage	400	V
pulse energy	1300	J
average power	750	W

Applications

- pulsed and cw solid state lasers (YAG)
- photo exposure
- dermatology (medical or cosmetic)
- depilation (hair removal)

Benefits

- pulsed and cw operation
- power factor correction (PFC)
- ignition, booster and simmer built in
- adjustable simmer current
- compact dimensions
- easy mounting
- low noise level

Your Task

Xenon flashlamps are used to produce flashing light with high intensity.

They are used for photographic exposure of rapidly moving objects with high repetition rate, enabling high production throughput.

Flashlamps are also used for pumping solid state lasers (NdYag).

A new application field is the cosmetic and medical treatment of the human skin. With intense pulsed light aging effects, such as dark spots or malformations, can be removed or diluted. You can also remove hair from certain areas of the skin.

Our Solution

The pulse current is controlled and regulated. It is constant during the whole pulse. Opposite to a simple capacitor discharge circuit you have two decisive advantages: First life expectancy of the lamp is greatly enhanced. Second one pulse looks like the others, no matter how much worn the lamp already is.

Function

The pulsed power supply Pulse2004 is a switchmode supply for driving flashlamps.

An adjustable simmer current source is built in. For igniting the lamp a series ignition transformer is built in, together with a booster circuit to increase ignition reliability. Thus there are no external components required to operate the lamp.

During the pulse the lamp current is regulated, not the lamp voltage. This is done by an inverter with output choke. This arrangement prohibits any current spike at the output. The controller is designed for a highly dynamic lamp current typical for pulsing. Thus you will see practically no over- or undershooting of the lamp current, even with a rapidly changing current preset.

The power switches work on a frequency far beyond the audible range. Thus the unit features a very quiet operation.

The capacitor bank is charged via a current limiter. This arrangement guarantees a high power factor, and it avoids high current peaks or blind currents on the mains line. A mains filter suppresses high frequency interferences deriving from the power switches.

All power switches are robust high-speed MOSFET's.

You can control all the operation via a digital, serial interface. The interface can be customized. The standard setup is a bidirectional interface on 9-pin SUB-D connector.

Mains and lamp are connected to touch-proof terminals.

Cooling is done by internal fans. Thus there is no active external cooling required..

Usage

The pulsed power supply Pulse2004 must only be operated inside closed cabinets or similar enclosures.

Specifications

Operating Range	min	typ	max	unit
pulse current			300	A
pulse voltage (given by load)			400	V
pulse energy			1300	J
average power			2000	W
Properties	min	typ	max	unit
output current rise time 10/90% (*2)		(1)		ms
output current fall time 90/10%		(1)		ms
output ripple current		(1) (2)		A _{rms}

(1) Rise and fall times are dependent on load condition.

(2) The AC component consist mainly of spectral components with a frequency of more than 50 kHz.

Environment	min	typ	max	unit
operating ambient temperature	0		40	°C
storage ambient temperature	-10		70	°C
mains voltage	207	230	253	V _{rms}
mains current		6	12	A _{rms}
mains frequency	45		65	Hz
Dimensions	min	typ	max	unit
width		300 (3)		mm
depth		300		mm
height		300		mm

(3) The dimensions given include the mounting flanges.

Order Code

number	description
45.32.100.3131	750W 1300J 300A

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