

Fast switch-mode open-frame power supply 4-8kW, ideal for volatile loads, to recharge capacitor banks or as RF generator supply



### Shortform Data

property	value	unit
output current	53-160	A
output voltage	50-150	V
output power	4000-8000	W

### Applications

- supply for volatile loads
- RF generators
- electroplating
- welding
- high power laser diode driver
- preregulator for linear laser diode driver
- capacitor bank recharger

### Benefits

- immediate reaction to overcurrent, overvoltage or shorts
- high speed current limiting/regulation
- voltage modulation up to 100 Hz
- Analog control input

## Your Task

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Many applications need an adjustable and modulated DC voltage source driving a highly volatile load. Examples are plasma generation, welding, electroplating or capacitor bank recharge.

To supply a stable voltage the power supply must be able to vary its output current very quickly.

## Our Solution

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A special topology avoids any restriction on the rate of current variation. This is true although an isolating transformer is used. Output voltage and current are controlled on a pulse-by-pulse basis. Thus there is an immediate reaction to overvoltage or overcurrent at the output. There is no restriction on the repetition rate of overload or short conditions at the output.

This power supply is the ideal choice for driving volatile loads. The power supply becomes extremely robust because any overload condition that may damage the unit is inherently avoided.

Well dimensioned power semiconductors result in a low operating temperature and thus a high reliability.

The compact design and the open-frame construction will make integration in your project a simple task. This is true as well for the engineer as it is for the purchase department.

## Function

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The 4kW and 8kW supplies from Redline are open-frame switch mode power supplies for driving volatile loads with controlled voltage or current. Example loads are power amplifiers, radio frequency generators.

A microcontroller controls the operation of the power supply including soft start and inrush current limitation. There is additional computing power available to implement more sophisticated control schemes like current or voltage ramps, power regulation or reaction to special load conditions. All operation parameters and adjustments are stored in memory. Thus there are no trimmers which the end user may manipulate.

The output voltage is controlled from 0 to 100% by an analog voltage of 0 to 10V. On/off switching is done via an additional enable input.

An additional auxiliary supply delivers 10A at 15V.

## Usage

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The units are ready to be mounted on any water or air cooler.

A high-performance mains filter reducing the interference level is available as an option. An active soft start circuit avoids excessive inrush current when the unit is connected to mains. Mains input is connected to a screw terminal connector. The output is connected to bolts.

Overall dimensions are 400 x 400 mm (or less) with a low profile of only 65mm. The dimensions are specified for mounting the unit into a 19 inch case. It requires only two height units including a water cooler.

A matching mains filter is available. Please contact us for your exact requirements.

## Specifications

Operating Range	min	typ	max	unit
output voltage	0		(1)	V
output current	0		(1)	A
output power			4/8	kW
auxiliary supply voltage (2)		15		V
auxiliary supply current			10	A

(1) Versions with different output ratings are available, see order codes.

(2) The auxiliary supply ground is connected to main supply ground.

Properties	min	typ	max	unit
output current rise time 10/90% (3)		100		$\mu$ s
output current fall time 90/10%		100		$\mu$ s
output ripple voltage		200		mV <sub>eff</sub>

(3) Rise and fall times are dependent on load condition. The values shown assume 50V output voltage and full output current.

Environment	min	typ	max	unit
cooling plate temperature	0		40	°C
storage temperature	-10		70	°C
mains voltage	3x 360	3x 400	3x 440	V <sub>rms</sub>
mains frequency	3x 45		3x 65	Hz

Dimensions	min	typ	max	unit
height		65		mm
width		260		mm
depth		400		mm

## Order Code

number	description
<b>45.17.150.4405</b>	4kW 3x400Vac 0-50V 80A
<b>45.17.150.7405</b>	8kW 3x400Vac 0-50V 160A
<b>45.18.150.7415</b>	8kW 3x400Vac 0-150V 53A

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