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PULSE POWER

MODEL PPS

PULSE POWER™ MODE

Output: Pulses only

Pulse Rating: 200% of DC current rating up to 50% duty cycle
100% of DC voltage rating up to 100% duty cycle

Base Level: None

CONVENTIONAL DC MODE

Output: DC only

Duty: 100% of rated DC current and voltage continuous

CONTROL ADJUSTMENTS

Rapid's solid state thyristors (SCR) Pulse Power™ power supply incorporates the following control adjustments with the power supply in the Pulse Power™ mode:

- Current Adjust – controls the current level in the pulsing mode
- Voltage Limiting – limits the voltage when the power supply is in the current mode
- Voltage Adjust – controls the high level voltage pulsing mode (used mainly for barrel plating operations)
- Current Limiting – limits the current when the power supply is in the voltage mode
- Automatic Crossover – automatically crosses from current to voltage mode or from voltage to current mode
- On-time Adjust – determines the amount of time (4 to 30 milliseconds scaled in 5 millisecond divisions) of preset current or voltage output*
- Off-time Adjust – determines the amount of time (4 to 30 milliseconds scaled in 5 millisecond divisions) of zero current or zero voltage output*

*On and off-time adjust are located inside the remote control console.

MODEL PPD

PULSE POWER™ MODE

Output: combinations of DC and pulsing

Pulse Rating: 200% of DC current rating up to 50% duty cycle
100% of DC voltage rating up to 100% duty cycle

Base Level: adjustable from 0 – 100% current or voltage rating

CONVENTIONAL DC MODE

Output: DC only

Duty: 100% of rated DC current and voltage continuous

CONTROL ADJUSTMENTS

Same as model PPS, except that during the off-time cycle, the base level potentiometer determines the minimum DC current or voltage level. This level is adjustable from zero to full rated DC current or voltage output.

BASE LEVEL VOLTAGE AND CURRENT ADJUST

Controls the low level DC amplitude in the off-time adjust mode (see description above). The purpose of the base level is to supply a current above the zero level to avoid lamination. Chrome and nickel are metals that do require a base level.

OPERATION AS A CONVENTIONAL DC POWER SUPPLY – MODEL PPS AND PPD

To operate as a conventional DC power supply, switch the pulse power/conventional DC toggle switch to conventional DC.

SPECIFICATIONS

MODEL PPS

- AC input power: 208-240, 440-480, 550-600 volts, 3-phase, 60hz
Option: 50hz, contact sales office for other AC input voltages
- Output: Pulses
Note: Conventional DC is also standard on this model.
- Control: Thyristor (SCR)
- Regulation: PP/ACC/AVS/CL/VL/AC/RC (see identifications below)

MODEL PPD

- AC input power: 208-240, 440-480, 550-600 volts, 3-phase, 60hz
Option: 50hz, contact sales office for other AC input voltages
- Output: Combination of DC and pulses
Note: Conventional DC and/or pulses **only** are standard on this model.
- Control: Thyristor (SCR)
- Regulation: PP/BA/ACC/AVS/CL/VL/AC/RC (see identifications below)

PP – Pulse Power™

BA – Base adjust

ACC – Automatic constant current ±1%

AVS – Automatic voltage stabilization ±1%

CL – Current limit

VL – Voltage limit

AC – Automatic crossover between ACC and AVS
or AVS and ACC

RC – Remote control

DESCRIPTION OF MODEL PPD

The model PPD power supply is a Pulse Power™ power supply with the addition of a base level control. The base level potentiometer controls the level (0to 100% of rated DC current or voltage) to which the current or voltage will go during the off-time of the pulse, as opposed to model PPS where the current or voltage always goes to zero during the off-time.

The maximum peak current which the model PPD power supply will deliver is twice the DC current rating of the power supply. Average current is controlled by the current setting potentiometer, while the peak current is a function of duty cycle and base level. The power supply is self protecting to limit the peak current to twice the rated DC current of the power supply.

Calculation of the peak current is as follows:

Peak Current =

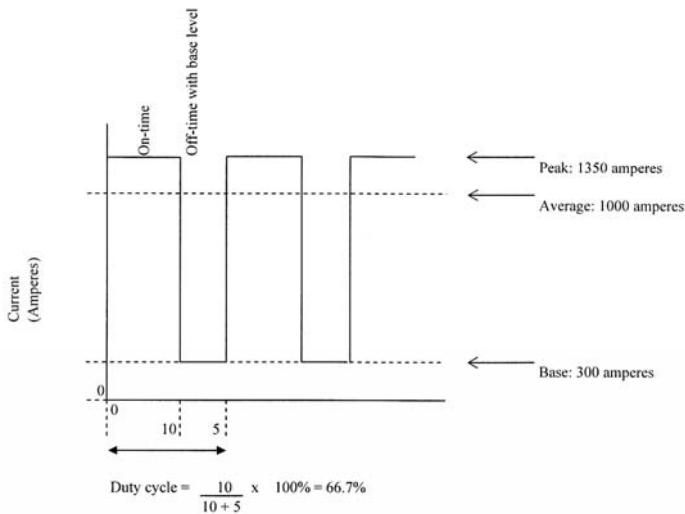
$$[(100 \times \text{average current/duty cycle}) - (\text{base current} \times \text{off-time/on-time})]$$

EXAMPLE ONE

A 1000 ampere power supply model PPD running at 1000 ampere average with on-time of 10 milliseconds and off-time of 5 milliseconds (i.e. duty cycle of 66.7%) and a base level of 30%:

Peak Current =

$$[(100 \times 1000/66.7) - (300 \times 5/10)] = 1350 \text{ ampere peak}$$



EXAMPLE TWO

Same power supply running at about 1000 ampere average with on-time of 5 milliseconds and off-time of 10 milliseconds (duty cycle of 33.3%) and base level of 30%:

Peak Current =

$$[(100 \times 1000/33.3) - 300 \times 10/5] = 2367 \text{ ampere peak}$$

The power supply will shut down and average current will have to be reduced to:

Average current =

$$[(\text{Duty cycle} \times \text{max. allowable peak current}) + (\text{Base current} \times \text{off-time/on-time})] / 100$$

$$= [(33.3 \times 2000) - (300 \times 10/5)] / 100 = 867 \text{ ampere average}$$

