Frequently Asked Questions

Q What is a power supply and what does it do?

A A power supply is an electronic device that converts AC line power to one or more individual DC outputs.

Q What is an unregulated power supply and where are they used?

A An unregulated power supply provides DC voltage for applications that do not require close tolerance DC output regulation. Typical applications for unregulated power supplies are DC motors, relays, and solenoids.

Q What is a regulated linear DC power supply and where are they used?

A This is a power supply that, through additional circuitry, series pass transistors and linear IC's; provides a regulated, low noise DC voltage. Typical applications are IC's, microprocessors, keyboards and disc drives.

Q How are the input connections made on linears?

A All of the linear power supplies offered require the AC input to be connected directly to the transformer.

Q How are the output connections made on linears?

A All of the output connections on the linears are via solder barrett terminals. The linears require the customer to solder directly to the turret terminals.

Q What is a switching power supply?

A This is a supply which converts the AC source to a high voltage (typically 350 VDC). This high voltage is used in turning on and off power switching transistors or MOSFETs to produce a DC current and voltage. The high voltage and high switching frequency (20 KHz to 100 KHz) allows a switchmode power supply to be more efficient. That is, it needs less AC current to produce equivalent DC current than a linear power supply, resulting in less heat and a smaller package.

Q Can power supplies be operated at line frequencies other than 60 Hz?

A Yes, the Standard Power line of DC power supplies operates on 50 to 60 Hz.

Q What is efficiency?

A Efficiency is the ratio of the output power to input power. It is generally measured at full load and nominal line conditions and expressed as a percentage.

Q What is overvoltage protection (OVP)?

A Overvoltage protection is a protection mechanism for the load circuitry that prevents the output voltage from exceeding a preset limit.

Q If a switcher's output shuts down the overvoltage protection circuit, can the unit turn on by itself?

A No, you must manually re-cycle (turn off, then turn on) the AC input power.

Q Do all power supplies require an AC ground?

A Yes, all AC input connections require a ground. On the switching power supplies, the ground is provided on the AC barrier strip or chassis. Linear power supplies have AC grounding directly on the transformer or chassis.

Q Can a power supply be loaded according to its wattage rating alone?

A No, each output on a power supply is rated for voltage and current. The power supply is selected for each application according to the voltage and current requirements.

Q What is meant by regulation in a power supply?

A Regulation is the change in value of DC output voltage resulting from a change in either the output's load or the AC line voltage.

Q What is a regulator?

A The regulator is the part of the power supply that controls the output voltage level when there is a change in the line or load.

Q What is remote sensing?

A Remote sensing is a method of moving the point of regulation from the output terminals to the load.

Q Why should the sense terminals be connected in either local or remote?

A If the sense leads are not connected, this could cause the output voltage to go high. If the output has over-voltage protection, the output will shut down.

Q Are there any special considerations that provisions must be made for when remote sensing?

A Yes, when remote sensing is used, the sense leads must be as short as possible and twisted to avoid picking up stray noise.

Q What is foldback current limit?

A Foldback current limit is a protective circuit of the power supply output. The foldback current limit is preset at 120% of the rated output current of the supply. If this output value is exceeded, the circuit folds back the current so that only 40% of the rated current is delivered. This prevents the power supply from trying to deliver more than it is capable of and overheating.

Q If the current limit foldback is activated, does the power supply have to be manually reset?

A No, the unit will reset automatically.

Q What would be some possible causes of a power supply overheating?

A A. Outputs overloaded.

B. Poor ventilation.

C. Improper connection on primary side of transformer.

D. AC input voltage too high.

E. Power supply is running at full load in an environment that exceeds temperature specs. The power supply should be derated.

Q What are floating outputs?

A Floating outputs are outputs on the supply that do not share a common return which enable the user to switch polarities.

Q What is switching frequency?

A Switching frequency is the rate at which the high source voltage is switched in a switching regulator.

Q What is the switching frequency of Standard Power switchers?

A 20 to 100 KHz.

Q What is meant by the adjustment range of the output of a power supply?

A The adjustment range is how much the output of the supply can be adjusted or changed from its rated output. This is expressed as a percentage and is accomplished through the use of a potentiometer.

Q What is ripple?

A Ripple or PARD, as it is sometimes referred to, is the Periodic and Random Deviation of the output voltage. This is usually noise induced from other sources.

Q What is hold-up time?

A Hold-up time is the total time an output will remain within its regulation after the input line voltage has been turned off.

Q What is the mean time between failure (MTBF)?

A The MTBF is the parameter used to compare the reliabilities of power supplies. It is expressed in hours.

Q Are UL designations acceptable everywhere?

A Not necessarily. There are similar agencies all over the world, but their specifications for safety vary. Many of Standard Power's products are certified to CSA and CE licensed by TUV for IEC and VDE.