

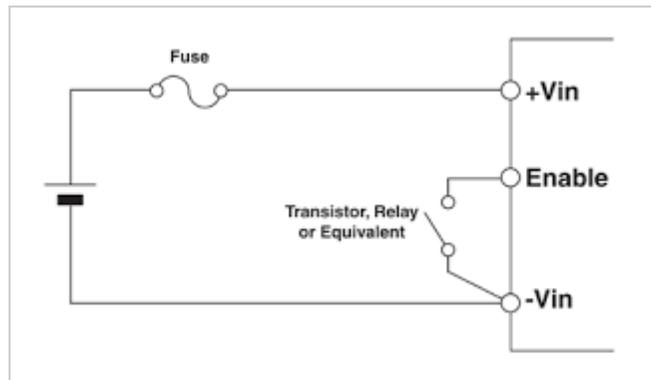
Wednesday, November 24, 2010

Using the Inhibit or Enable function on Power Supplies

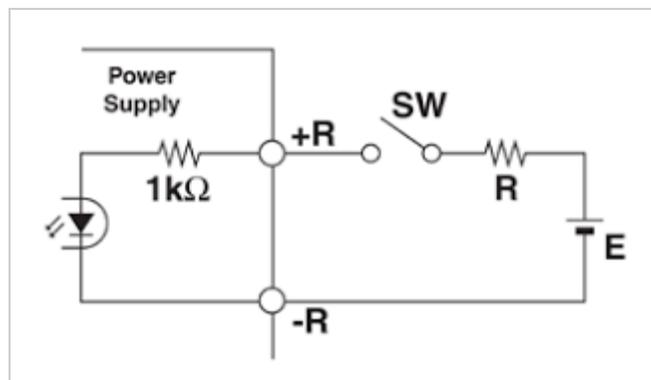
The inhibit or enable function allows the user to electronically turn on or off the output voltage of a power supply without having to interrupt the input AC or DC voltage with a relay or switch. This is useful during initial set up of the system, during maintenance or for saving energy during periods of non operation.

An easy way of remembering the difference between the two types is that "Inhibit" requires that the user has to do an action to turn off the output voltage, where as "Enable", the user has to do an action to turn on the output voltage.

It is standard with most DC-DC converters for example, to utilize an enable type function that requires the remote on / off pin to be connected to the negative input (primary side) to activate the output voltage. This is often referred to as "negative logic". First time users of DC-DC converters often forget to pull that pin low and call Tech Support to complain about a non functioning power supply.



AC-DC power supplies usually have a remote on / off referenced to the secondary side for safety reasons. An "Inhibit" type function, requiring an external voltage, is usually more popular on simple power supplies because once the output voltage is turned off, any auxiliary voltages driving the secondary control circuit is also turned off.



One way power supply designers overcome this is to have an integrated independent "stand-by" auxiliary output like the one used on pc power supplies. This is also used to power the secondary control circuit and allow a closed contact to the 0V terminal to enable the output.

If the system uses several power supplies, the remote on /off can be used to sequence the voltages. I know of thermal printer applications where if the 5V supply driving the control circuit goes faulty, they require the 24V motor drive be inhibited to avoid embarrassing amounts of paper shooting out!

Where several different voltages are used to drive processors, sequencing the output voltages is often critical to avoid damaging those devices. The 3.3V output is rarely allowed to be applied before the 5V is

present.

The industry standard I²C based PMBus is now gaining popularity. Power supplies such as TDK-Lambda's HFE series can be remotely turned on or off using the PMBus software, either as a group or individually for load shedding to save energy.

Posted by [Power Guy](#)