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Application Note Number 12

Product: Astec MVP Range of modular power supplies.
Application Overview: Wide range remote programming of MVP single output modules.

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Schematic

REMOTE VOLTAGE ADJUST

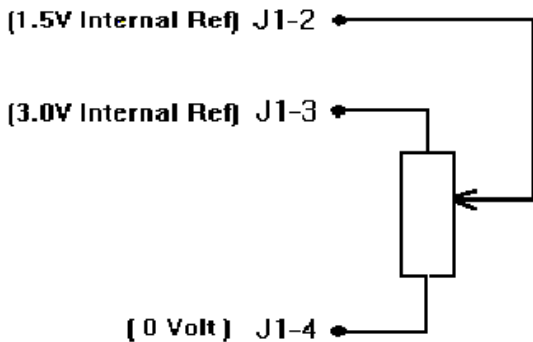


Figure 1

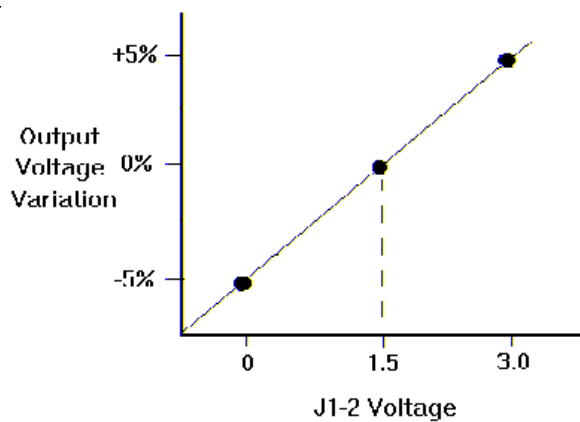


Figure 2

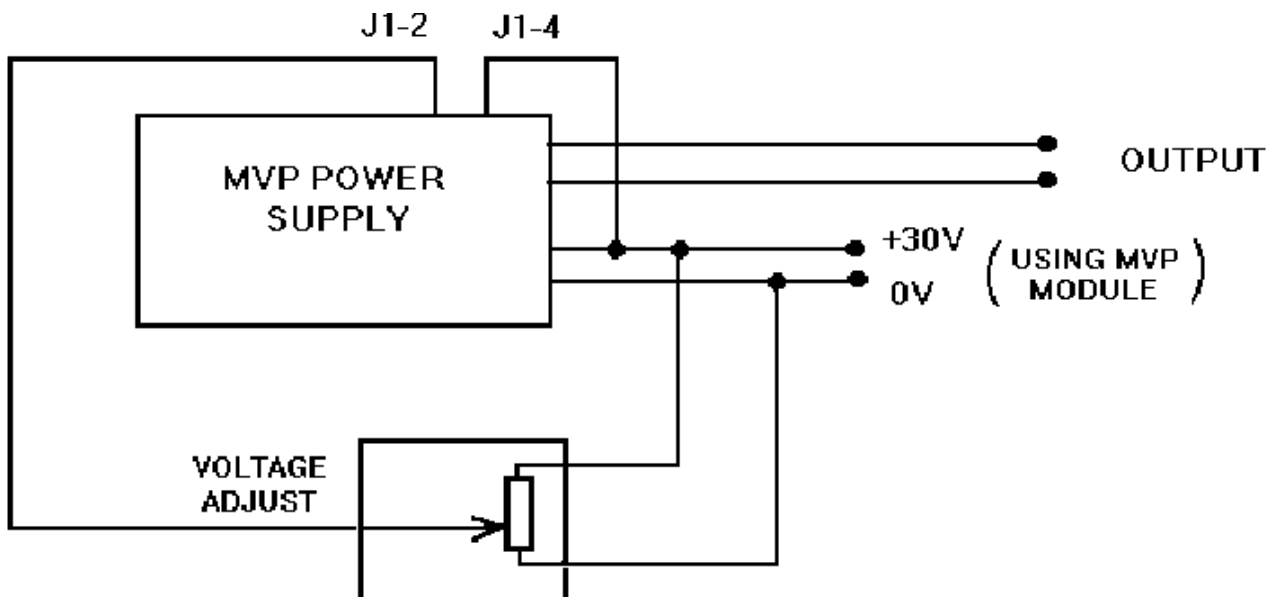


Figure 3

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Description

The Astec MVP range of switched mode power supplies are designed to be of a modular construction, enabling 'tailor made' solutions for customer applications.

The single output modules have factory adjustable output voltages ranging from 2-60vdc and include many features as standard. One of these features, the Remote Margining, enables the user to adjust the nominal o/p voltage of each module **remotely** by +/- 4-6% in addition to the +/- 10% adjustment via the pot.

If this function is not required the V Prog (pin J1-2) is left open circuit and the output voltage will remain at the pre-set nominal. In this configuration the voltage on J1-2 is fixed at approximately 1.5V. However, connecting pin J1-2 directly to either J1-3 or J1-4 will increase or decrease the voltage on J1-2, to approximately 3V or 0V. This will change the nominal o/p voltage by +/- 5% respectively. Additionally, connecting a 10K potentiometer across J1-3 and J1-4, see fig 1, will allow a linear adjustment of the nominal o/p voltage by approximately +/-5%, see Fig 2.

The output can be further reduced below the -5% point, by increasing the negative voltage applied to the V Prog (J1-2) pin. The following graph shows the range of adjustment possible by remote margining, from 110% to 10% of the nominal output voltage. However, when the voltage is reduced the current limit of the module is also reduced, limiting the maximum power available. The graph shows the power available for the modified output voltage. Additionally, noise and ripple measurements of the o/p are unaffected by the remote voltage margining function.

The negative voltage required by pin J1-2 can be simply obtained by using an additional MVP module, see Fig 3. Due to the isolated output the connection between modules is straightforward. The following block diagram shows the general layout. The voltage control block could be a simple potentiometer or even a DA converter driven by a computer.

Remote Margining of single output MVP modules.

