ADJUSTABLE OUTPUT

DC/DC Converter

eDC-2420 2.5W Step Up Converter
eDC-2416N 1.6W Negative Output Converter

Technical Manual rev. 1R0

e-Gizmo 2W DC/DC Boost Converters generates a variable supply voltage from a single 5V source. Two variants are currently available. eDC-2420 generates a positive voltage of up to +24VDC from a single +5VDC input. The other, eDC-2416N- a negative output DC/DC converter, generates up to -24VDC from a single +5VDC input. The negative output DC/DC converter has somewhat lower output rating (1.6W) due to its less efficient conversion when operated this way.

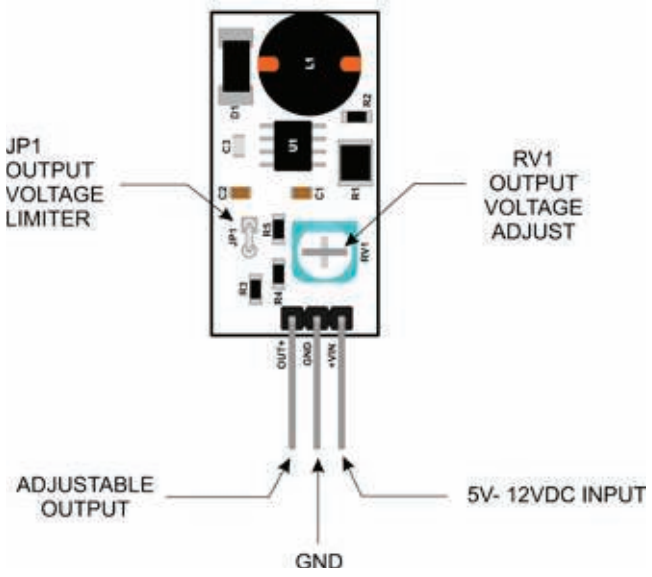
Both converters will work with up to +12VDC input. Higher input voltage correspondingly results in increased output wattage reserve. For example, the 2W eDC-2420 can actually churn up up to 4W when operated with +12VDC input. Keep in mind though that the positive converter eDC-2420, a boost converter it is, will not be able to output any voltage lower than its input.

The eDC-2420 has a pin configuration similar to that of three terminal fixed positive voltage regulators, while the eDC-2416N adopted the pin out of three terminal negative voltage regulators- albeit, with positive input. In most cases, you can use these DC/DC converters as drop-in replacement of these linear regulators.

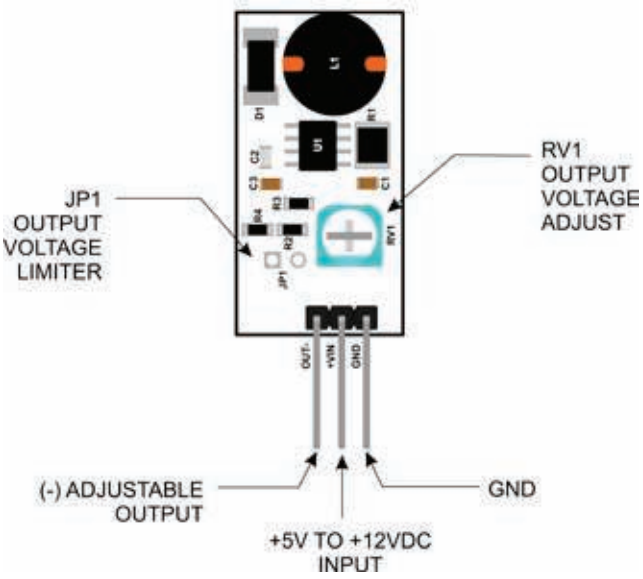
eDC-2420 Step Up DC/DC converter can generate up to 24VDC output from a single +5V input. Available output power ranges from 2.5W with 5.0V input, rising in proportion to the input up to 7.5W at +12V input.

eDC-2416N Negative Output DC/DC converter. From a single +5VDC source, it can generate a negative output voltage of up to -16VDC at 1.6W. It is possible to adjust the output voltage up to about -22VDC, but available output power drops to 0.6W. Increasing the input voltage to +6.0V will make available power climb back to 1.6W. At +12V input, as much as 3.8W is available at -22VDC output.

eDC-2420
POSITIVE OUTPUT DC/DC BOOST CONVERTER



eDC-2416N
NEGATIVE OUTPUT DC/DC BOOST CONVERTER



eDC-2420
POSITIVE OUTPUT DC/DC BOOST CONVERTER

JP1 - Output Voltage Limiter Jumper

This feature can be used to limit the adjustment range of the output voltage.

With the jumper installed, the open circuit voltage can be adjusted from approximately
+6.5V to +26VDC

Without the jumper, the open circuit voltage addjustment range is around:
+5.7V to +15VDC

RV1 - Rotate to adjust output voltage.

OUT+ - Output terminal

GND - Common Ground

+VIN - +5V to +12VDC Input. Higher output power (current) can be obtained with higher input voltage. The output voltage, however, cannot be adjusted any lower than the input voltage.

eDC-2416N
NEGATIVE OUTPUT DC/DC BOOST CONVERTER

JP1 - Output Voltage Limiter Jumper

This feature can be used to limit the adjustment range of the output voltage.

With the jumper installed, the open circuit voltage can be adjusted from approximately
-2.5 to -17VDC

Without the jumper, the open circuit voltage addjustment range is around:
-8.5V to -22VDC

RV1 - Rotate to adjust output voltage.

OUT- - Output terminal (-)

GND - Common Ground

+VIN - +5V to +12VDC Input. Higher output power (current) can be obtained with higher input voltage.

Measured data for both converters can be downloaded from their corresponding product page at www.e-gizmo.com .

APPLICATION EXAMPLES

Impotant: An external input and output capacitor is required for proper operation! Use low ESR type for best results.

Figure 3. *The eDC-2420 has the same pin layout as the positive three terminal voltage regulator, hence can be used as a drop-in replacement for such devices.*

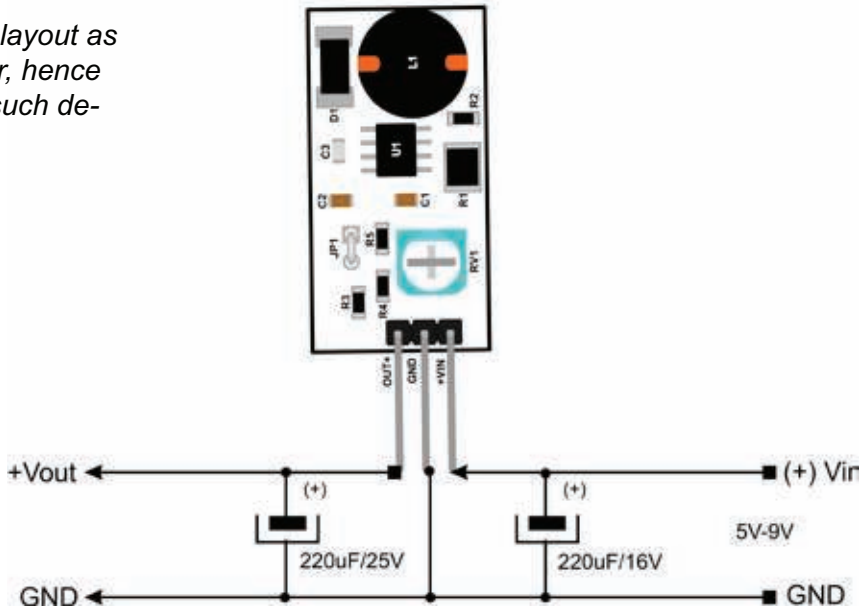
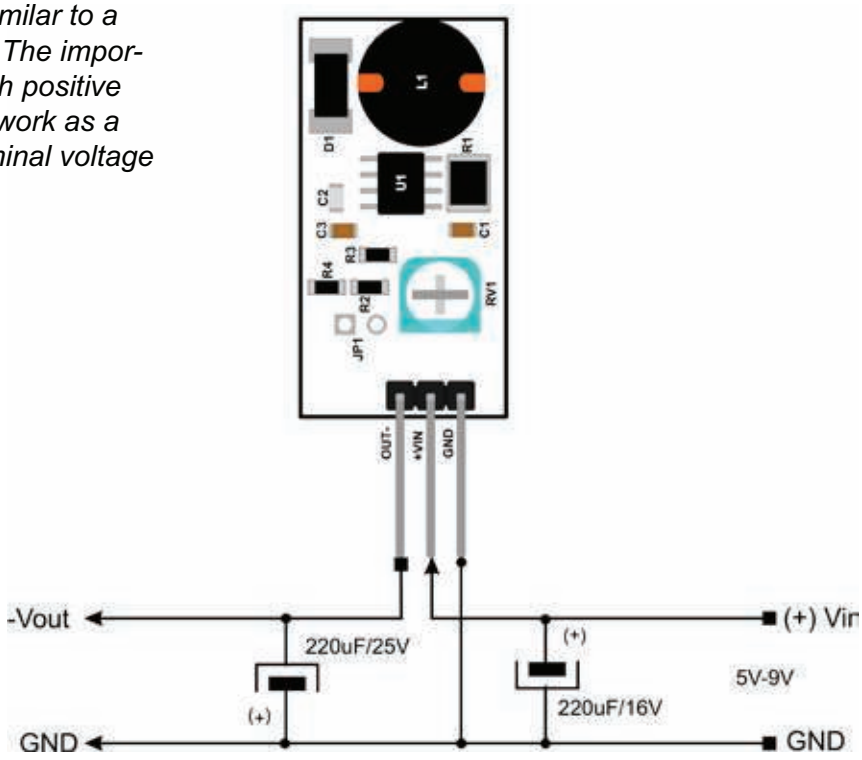


Figure 4. *The eDC-2416N has pin layout similar to a standard negative three terminal regulator. The important difference is the eDC-2416N works with positive input voltage. With that in mind, it may not work as a drop-in replacement for negative three terminal voltage regulators.*



By combining the above circuits, a split +/- output power supply circuit from a single voltage source can be easily constructed.