



## Regulated Floating High Voltage Power Supply

### Features:

- High Efficiency
- Stability: <50PPM/°C
- Temperature Range: -55°C to 75°C (Case)
- Voltage and Resistance Programmable

### Electrical Characteristics:

Input Voltage:	28 VDC +/- 10%
Input Current:	100mA NL
Input Current:	700mA FL
Load Regulation:	0.01% NL – FL
Line regulation:	0.01%

### M Series Description and Application Notes:

The M Series precision switching supplies are extremely efficient DC to DC converters for applications requiring a highly regulated source of high voltage that is controllable over a wide range of load conditions. These compact units are used in medical, RF, and airborne displays. Due to the high power volumetric efficiency, they also find uses in capacitor charging equipment. The output polarity is fixed and specified at time of purchase. Output return and input return are common.

A twenty turn potentiometer located on the top of the unit sets the maximum output voltage. Pin 2 provides a 5-volt reference which may be coupled into Pin 3, which represents the top of the potentiometer. A 20-kOhm resistor connected between Pins 2 and 3 may also be used to adjust the output, and will lower this by a factor of 3. The output may also be programmed by an external voltage of 0 to 5 volts applied to Pin 3 with five volts yielding full output. Since the input current at pin 3 is small, they may be driven directly from a DAC. Current into the control pin is less than 0.5mA. Each unit is fully encapsulated in RTV and is packaged in an anodized aluminum case which provides electrostatic shielding.

The M Series high voltage power supplies are regulated by virtue of Pulse Width Modulation topology. The normal input voltage of 28 VDC is stepped up by resonant action to a high voltage output which is referenced to the input ground. The output voltage of the M unit is NOT FLOATING. The output high voltage return and the input power return are internally connected together.

The output voltage may be controlled in two different ways. In the voltage programming mode, a control voltage between 0 - 5 VDC will adjust the output between 0 and full output. In the resistance programming mode, a resistor placed between Pin 2 (5.0-V reference output) and Pin 3 (Vcontrol) will set the output to a voltage which depends on the value of the resistance used. Typically a 10-k Ohm resistor will set the output voltage to 50%. Zero resistance yields full output.

The maximum output current ability is set for each unit to be 120% above the nominal value determined by the maximum current. The current limit circuitry internal to the M high voltage power supply has a reaction time constant of less than 0.1 second.

### Product Selection Table

Model	Output Voltage	Output Current	Ripple
M-13	0 to 1300 VDC	7.7mA	1%
M-25	0 to 2.5 KVDC	4mA	1%
M-50	0 to 5 KVDC	2mA	1%
M-100	0 to 10 KVDC	1mA	1%

### M Series Outline Drawing

