

HV-12

Compact, multichannel high voltage power for PMT groups and arrays



- 12 Channels (0-1250 V)
- Serial Digital Control (RS-232)
- Low Temperature Coefficient
- Excellent Temperature Tracking
- 12 VDC input
- Mix and Match Polarities
- Mix and Match Alternate voltages
- 4.1" x 7.2" x 2.3" (104 mm x 183 mm x 58 mm)

HV-12

The HV-12 multichannel HV supply is designed for applications where up to 12 PMTs are being used and is ideal in applications where the PMTs must be gain-matched precisely - and then remain stable with temperature.

The HV-12 contains no knobs or multitrans trimmers and, after initial setup of limit values, does not require physical access to set or adjust any or all of the output voltages. The design includes precision temperature-compensated references and carefully matched temperature coefficients to minimize differential drift between supplies.

Each of the twelve outputs is individually remotely programmable via a simple serial digital (RS-232) interface, either through a Windows™ application or via direct serial commands. Output voltages can be programmed from 0 to 1250 V and supply 1 mA max. The HV-12 uses a 12 bit DAC to provide a voltage resolution of approximately 0.3 volts for each channel.

Supplies are grouped onto three cards of four supplies each (channels 1-4, channels 5-8, and channels 9-12). The four supplies on each card share a single precision reference and thus track each other extremely well.

Other output voltages are available and almost any combination of voltages and polarities can be mixed and matched to order in a single unit.

An HV monitor option is available which allows (8-bit) monitoring of each channel with resolution of 5 V.

A voltage ramping option is available which limits the rate at which voltage changes occur at the output. With the option (-R) installed, voltages will ramp at no greater than ± 100 V/s.

Remote Commands

The HV-12 is designed for simple and flexible control of twelve HV channels. The command set allows programming of individual channels or grouping of channels together to provide simultaneous control of two to twelve channels.

Increment and decrement commands allow fine adjustment of individual channels or groups of channels.

Commanded voltages are retained in non-volatile memory in case of power loss. Voltages are restored immediately on power up or at 100 V/s ramp-up (option -R).

Commands which change any parameter are password-protected. Set points and monitor voltages can be read out at any time but cannot be changed without logging in with the proper password. A special hardware-protected setup mode provides setup of limit values and changing passwords.



Noise and Ripple Control

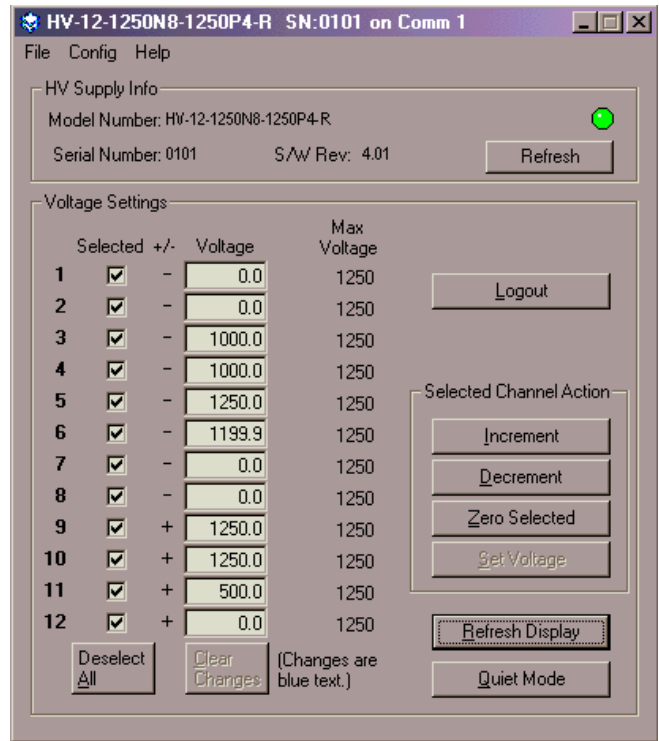
The HV-12 is designed with high-quality filtering components for low noise and ripple. Microprocessor and communication sections shut down on command or when idle, eliminating microprocessor-induced noise. The HV sections utilize a quasi-sine wave oscillator for minimum harmonic noise.

Input Protection

Power input is protected from reverse voltage and ESD and safeguarded by a resettable overcurrent protection device rated at 4 A. Each HV module is individually protected by resettable overcurrent protection device. Serial interface lines are also ESD protected and current limited.

Command Interface

The HV-12 is commanded through a simple serial interface with either a standard command-line dialogue or a Windows™-based user interface (see next column). An application to control the HV-12 through a Palm-compatible device is also available. Protected commands are available only when logged in. Special mode commands are available only in the hardware-protected mode.



Specifications:

Input 11.5 to 16 VDC 3.1A max.
Switchcraft EN3P6M connector (mate provided)

Outputs 0 to +1250 V, 1.0 mA max.
(other voltages or polarities available)
LEMO ERN.0S.2.250.CTL connector

Ripple <.004% Full Load (50 mV)

Temperature Coefficient < 100 ppm/°C maximum any one channel (< 60 ppm/°C typical)

Differential Temperature Coefficient
< 30 ppm/°C for supplies on a single board
< 50 ppm/°C for supplies on separate boards

Serial Command Interface
RS-232 19.2 kbaud, 8 bits, no parity, 2 stop bits, no handshake (other rates available by option)

Input Connector Pinout

- 1 Power Return
- 2 RS-232 OUT (To DTE)
- 3 RS-232 IN (From DTE)
- 4 +12 VDC
- 5 Serial ground
- 6 Case Ground

Overall Dimensions
4.1" x 7.2" x 2.3" (104 mm x 183 mm x 58 mm)

Mounting Pattern
6.3" x 3.3" (160 mm x 84 mm) rectangle

Ordering:

An example unit specification is HV-12-1250P8N4, where:
12 = # of HV outputs,
1250 is the maximum voltage per output,
P8 indicates 8 positive outputs, and
N4 indicates 4 negative outputs.

Options:

- B Alternate baud rate (-B09600 for 9600 baud)
- E Ethernet Connectivity (coming soon!)
- M HV Monitor option
- R ramp-up feature - voltages ramp at 100 V/s maximum, including powerup restore

-V Alternate voltages

Vmax (V)	I _{max} (mA)	Ripple(mV full load)
600	1.67	<25
1000	1.0	<30
1500	0.67	<30

Example: A unit with eight -1250 supplies in channels 1-8 and four +1500 supplies in channels 9-12, the ramp-up and monitoring options would be specified as:
HV-12-1250N8-1500P4-MR

