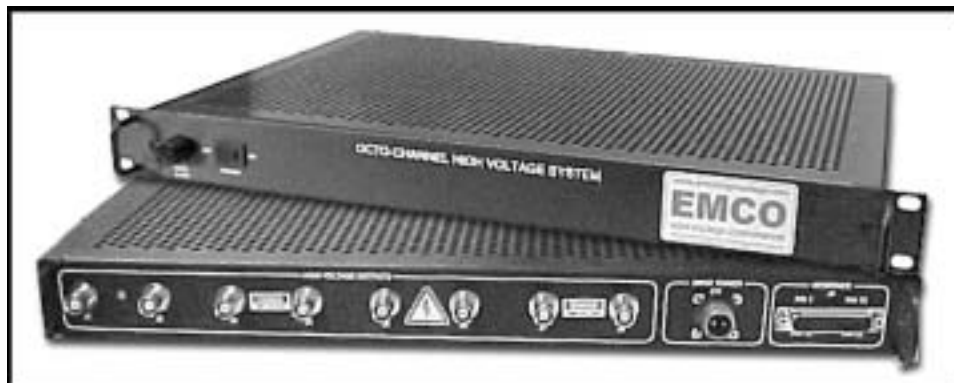# Multi-Output, Programmable High Voltage System

Octo-Channel High Voltage System
Eight Outputs of 0 to 200V through 0 to 8000V Available

The Octo-Channel High Voltage System is a high performance, easy to use system providing eight independently programmable high voltage outputs in a rack mountable enclosure. Each channel features 0 to 100% programmability, high accuracy, high stability, very low ripple, output voltage monitoring and overload, arc and short circuit protection. Eight outputs of 0 to 200 Volts through 0 to 8000 Volts are available in any combination of voltage and polarity. Suitable for detector arrays, wire chambers and other applications requiring multiple precision high voltage outputs, the system is designed for easy integration into a computer controlled environment using commercially available data acquisition boards. Input power is through an Amphenol circular connector (mate supplied). Controls and monitoring are via a 25 pin sub-miniature D connector (mate supplied) and the outputs are via eight SHV connectors (MHV optional). 6kV and 8kV outputs use Amp connector P/N 861611-2 (mate supplied, unassembled) and 200V outputs utilize a standard BNC female.   Modular system components are pre-fabricated and inventoried to allow for rapid custom configuration and delivery.

FEATURES
High Stability
8 Independently Programmable HV Channels
1 Watt Output Power Per Channel [5]
Very Low Ripple
0 to 100% Programmable
High Accuracy
Voltage Monitors
Overload, Arc & Short Circuit Protected

OPTIONS
MHV Connectors (Up to 5KV Outputs Only)
Flying Leads
12V or 15V Input

APPLICATIONS
Detector Arrays
Wire Chambers
Multiple Output, High Voltage Applications

ELECTRICAL SPECIFICATIONS[4]
INPUT VOLTAGE: +24 VDC (+/-20%)
INPUT CURRENT: <2A
OUTPUT VOLTAGE: Customer Specified, See Table
OUTPUT POWER: 1 watt per channel
PROGRAMMING INPUTS: 0 to +5V, <100µA, all models
LINE REGULATION: <0.001%
LOAD REGULATION: <0.07% to 0.75%, depending on model
OUTPUT VOLTAGE TEMP. COEFFICIENT: <50ppm/°C
OUTPUT VOLTAGE STABILITY: 0.01%/hr to 0.1%/hr depending on model
VOLTAGE MONITOR POLARITY: Corresponds to Vout Polarity
ACCURACY: <0.5% (15% TO 100% Vout)
OPERATING TEMP: -10° to +50°C
STORAGE TEMP: -25° TO +95°C
WEIGHT: <5 lbs. (2.3 kg.)

TABLE 1

OUTPUT VOLTAGE[1]	OUTPUT CURRENT[5]	RIPPLE P-P	OUTPUT VOLTAGE MONITOR
0 to 200V[2]	0 to 5.00 mA	<0.010%	100:1
0 to 500V	0 to 2.00 mA	<0.002%	100:1
0 to 600V	0 to 1.67 mA	<0.002%	100:1
0 to 1000V	0 to 1.00 mA	<0.001%	1000:1
0 to 1250V	0 to 1.00 mA	<0.001%	1000:1
0 to 1500V	0 to 0.67 mA	<0.001%	1000:1
0 to 2000V	0 to 0.50 mA	<0.001%	1000:1
0 to 3000V	0 to 0.33 mA	<0.050%	1000:1
0 to 4000V	0 to 0.25 mA	<0.050%	1000:1
0 to 5000V	0 to 0.20 mA	<0.050%	1000:1
0 to 6000V [3]	0 to 0.166 mA	<0.050%	1000:1
0 to 8000V [3]	0 to 0.125 mA	<0.200%	1000:1

*Notes:
1. Specify positive or negative polarity when ordering.
2. 200V outputs via standard BNC female connector.
3. 6000V & 8000V Outputs via Amp connector P/N 861611-2 (mate supplied, unassembled).
4. Specifications after 30 min warm up.
5. At Maximum Rated Output Voltage.

We reserve the right to make changes without notification

OCTO-CHANNEL HIGH VOLTAGE SYSTEM
Detailed Description

The Octo-Channel High Voltage System provides eight programmable high voltage outputs. Each channel is independently regulated to maintain a stable output voltage despite variances in output current, input voltage, temperature and over time. Each regulated output is referenced to the Programming Voltage for that channel. Hence, changing the Programming Voltage changes the Output Voltage. The Output Voltage linearly tracks the Programming Voltage from 0% to 100%, allowing for easy control of the high voltage. Each Output has a Voltage Monitor. The Voltage Monitor is a direct sampling of the high voltage output in either a 100:1 or 1000:1 ratio, depending on model (custom ratios available).

A TTL compatible enable/disable shuts off power to all high voltage circuits when switched high (5V) or left open. This pin must be connected to TTL low (0V or ground) to enable the system. This feature allows for total remote shutdown and ON/OFF control of the system. For local ON/OFF control, a lighted switch is provided on the front panel. When the switch is on (RED), power is provided to all high voltage channels. However, the outputs will not come up without the presence of Programming Voltages for each channel.

Output Voltages are available in twelve ranges from 0 to 200 VDC through 0 to 8000 VDC (see table 1). Positive and negative polarities are available and must be specified when ordering. Different voltage ranges and polarities may be specified. Modular construction allows for easy interchangeability and flexibility for final configuration.

Output Current capability ranges from zero (no load) to 5 milliamps, depending on model.[*5]On all models, output power for each channel is rated at 1 watt maximum at full output voltage. Each channel is protected against damage from overload, short circuits and arcing to ground.

The system is powered from +24VDC (+/-20%) and consumes less than 2 amps of current. The system can also be ordered with 12 VDC or 15 VDC as an option. If a DC source is not readily available, a commercially available AC/DC power supply capable of 2 amps at 24 VDC will power the system.

The Octo-Channel High Voltage System is packaged in a low profile (1 ¾" high) standard 19" rack mount enclosure. Input power is through an Amphenol circular connector P/N 97-3102A-10SL-04P (mate supplied). Controls and monitoring are via a 25 pin sub-miniature D connector (mate supplied) and the outputs are via panel mounted SHV connectors (MHV optional). 6kV & 8kV outputs use Amp connector P/N 861611-2 (mate supplied, unassembled) and 200V output utilize a standard BNC female.

For accurate operation, the input power return **must** be routed using a separate conductor other than the Programming Return. The Programming voltage source(s) must be referenced to the Programming Return and not to a common ground. If the power return and the programming returns share the same line, voltage drops due to higher current on the input return will introduce an error on the programming inputs. The programming return should be used to reference the control and monitoring circuits directly to the system. All grounds are internally connected. The Enable/Disable function is open-collector compatible, TTL low = ON, TTL high or open = OFF.

Table 2

PIN #	J9 (SUB-MIN "D" 25P)
1	SPARE
2	SPARE
3	ENABLE: TTL LOW = ON
4	PROGRAMMING RETURN
5	PROGRAMMING VOLTS #1
6	PROGRAMMING VOLTS #2
7	PROGRAMMING VOLTS #3
8	PROGRAMMING VOLTS #4
9	PROGRAMMING VOLTS #5
10	PROGRAMMING VOLTS #6
11	PROGRAMMING VOLTS #7
12	PROGRAMMING VOLTS #8
13	VOLTAGE MONITOR #1
14	VOLTAGE MONITOR #2
15	VOLTAGE MONITOR #3
16	VOLTAGE MONITOR #4
17	VOLTAGE MONITOR #5
18	VOLTAGE MONITOR #6
19	VOLTAGE MONITOR #7
20	VOLTAGE MONITOR #8
21-25	SPARES

Table 3

PIN#	J10 (INPUT POWER)
1	INPUT POWER (+)
2	POWER RETURN/CASE

17.28
(438.9)

FRONT VIEW

OCTO-CHANNEL HIGH VOLTAGE SYSTEM

FUSE   POWER

EMCO

1.74
(44.20)

19.00
(482.60)

12.00
(304.80)

EMCO

1.64 (41.66)

REAR VIEW

AMPHENOL # 97-3102A-10SL-04P
(MATE SUPPLIED)

HIGH VOLTAGE OUTPUTS

DANGER
HIGH VOLTAGE

INPUT POWER
J10

INTERFACE
J9

J1   J2   J3   J4   J5   J6   J7   J8

HIGH VOLTAGE OUTPUT
8 PLACES

MALE 25P SUB MIN-D
(MATE SUPPLIED)

Dimensions are in Inches
Dimensional Tolerances: ±0.03 (.76mm)
(Metric Equivalents in parenthesis)