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The units are fully enclosed and designed to mount in a standard 19" rack. A wide range of stable output voltages, up to 50kV, are provided. The output voltage is controlled by the calibrated front panel controls or from a remote voltage or resistance programming source. The front panel meter provides a continuous reading of either output voltage or current. Output current and voltage monitoring signals are also available for remote monitoring.

Units are either fixed polarity, suffix P for positive or N for negative, or reversible polarity, suffix R. Reversible polarity units include either a polarity switch on the rear panel or an internal polarity reversing assembly (see Section 2.3.1 and 2.3.2).

The Series 205A/210 units consist of a DC power-supply which converts the AC line power to a low DC voltage, and a DC-to DC converter which generates the high DC voltage. Low voltage electronic solid state circuits are mounted on a single plug-in printed circuit board and the high voltage assembly is fully encapsulated in silicone rubber for reliable, arc-free, stable operation

## ELECTRICAL SPECIFICATIONS

### INPUT - 205A:

115V @ 1A, 230V @ 1/2A, 50/60Hz

### Line Regulation:

0.001%

### Load Regulation:

0.005%

### Stability:

0.01%/hr, 0.02%/8 hr

### Temp Coeff:

50 ppm/'C over the range of 0 to 50', C

### Resolution and Resetability:

0.2 volt (20V on 50kV Model)

### Calibration Accuracy:

0.25% of dial reading plus 0.05% of max. voltage (1% on 50kV models).

### Protection:

Short circuit and arc protected, self restoring.

## OUTPUT

MODEL	VOLTAGE	CURRENT	RIPPLE (pk-pk)
210-05R	0 to 5kV	0 to 40mA	200mV

The 75kV and 100kV models are fixed polarity and must be ordered as suffix P or suffix N denoting positive or negative polarity high voltage output. All other units have reversible polarity. Ripple is measured peak to peak at maximum output.

## MECHANICAL SPECIFICATIONS

#### Size:

All units are 19 inch (483mm) wide standard rack mount and 5¼ inches (133mm) high. Models up through 5kV are 11 inches (279mm) deep. All units above 5kV are 16 inches (406mm) deep.

Weight: See Chart

High Voltage Connector: See Chart Note: Except where noted below, preassembled HV cable must be purchased separately.

MODEL	OUTPUT	MATING	lbs (kg)
210-05R	JAC	PAE	34 (15)

The mating high voltage connector is provided with each unit. For 75kV and 100kV models the mating connector, assembled to 3 meters of high voltage shielded cable, is provided. Note: Bertan P/N PAE is equivalent to Kings SHV type 1705-14.

#### Power Input Connector:

A captive 3-wire line cord and NEMA plug is included.

#### Low Voltage I/O Connector:

The PROGRAMMING/MONITOR connector P/N JKB provides all remote control and monitor functions. The mating connector P/N PKB is provided.

#### Cooling:

Internal fan.

#### REVERSIBLE POLARITY MODELS 205A/210-01R, -03R, AND -05R.

The screwdriver operated POLARITY SELECTOR switch is accessible at the rear panel of the instrument.

#### VOLTAGE CONTROLS

The output voltage is set by the controls on the front panel. A continuous 10 turn digital dial directly reads from 0 to 1000 volts with a resolution of 0.2 volts on all models of the SERIES 205A/210 except the MODELS 205A/210-50P and 205A/210-50N.

A 1kV selector switch, with up to ten positions as appropriate, is used on all 3kV to 30kV models.

A 5kV selector switch, with up to six positions as appropriate, is used on the MODELS 205A/210-20R/P/N - 30R/P/N.

Output voltage is the sum of the dial settings as described above. The MODELS 205A/210 -50R/P/N do not include the 1kV and 5kV selector switches. The continuous five turn digital dial, which reads from 0 to 500 with a resolution of 0.2 division, is used to vary output voltage over the range 0 to 50,000V. Output voltage is thus 100 times dial reading. Resolution and resetability are 20 volts. 2.5 METER

A 3-1/2" front panel METER provides a continuous reading of output voltage or current with an accuracy of +2% of full scale. Voltage or current readings are selected with the toggle switch located next to the meter.

2.5.1 The front panel meter and remote monitoring terminals indicate output voltage current only when the unit is on.

#### 2.6 CURRENT LIMITING

The SERIES 205A/210 includes a current limiting circuit that drops the output voltage to a safe level when

the rated output current is exceeded by approximately 25%.

## 2.7 HIGH VOLTAGE OUTPUT

The HIGH VOLTAGE OUTPUT connector is located on the rear panel. An appropriate shielded mating connector is supplied with each unit. Assembly instructions for the mating connector are shown in Figure 7.

**CAUTION: THIS UNIT CAN STORE HAZARDOUS VOLTAGE. COMPLETELY DISCHARGE HIGH VOLTAGE AT REAR PANEL GROUND TERMINAL BEFORE ATTEMPTING REMOVAL OF HIGH VOLTAGE CABLE.**

## 2.8 REMOTE PROGRAMMING

The output high voltage can be remotely programmed from either an external voltage source or with an external potentiometer from the internal reference voltage source. The rear panel REMOTE/LOCAL switch selects either remote programming or front panel control of the output high voltage. When this switch is in the REMOTE position, the front panel controls have no effect on the output voltage and need not, therefore, be returned to zero. When the switch is in the LOCAL position, the front panel controls determine the output high voltage independent of any programming input. A 0 to -5 volt programming voltage, applied to PIN B of the J2 PROGRAMMING/MONITOR connector jack on the rear panel, will remotely program the output high voltage from zero to maximum high voltage output. Programming can also be accomplished using a potentiometer connected between PINS A (-SV) and C (GND) with the wiper connected to PIN B. The potentiometer should be a low temperature coefficient wirewound or cermet type, 5 k ohm to 20 k ohm resistance value. The output is proportional to the programming input.

## 2.9 REMOTE METERING

Remote current and voltage monitoring signals are available at PINS D and E respectively of the PROGRAMMING/MONITOR connector. A 0-5V voltmeter or 0-100uA current meter may be used to monitor both current (PIN D) and voltage (PIN E) for the output range. Both outputs are positive polarity regardless of the actual polarity of the output voltage.

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