

Series 205B

30 Watt Regulated DC Output High Voltage Power Supplies for Laboratory or System Applications

Operating Manual for Series 205B



- Up To 50 kV Output
- Reversible Polarity
- Digital V & I Metering
- Digital Programming Available
- Accurate Remote Analog Programming
- Short Circuit / Arc Protected
- Low Ripple And Noise
- Custom And OEM Designs
- CE Certified

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General

The Series 205B is a family of precision regulated linear power supplies with output voltages up to 50kV. The units are fully enclosed and can be operated as bench top instruments or mounted into a 19" rack. These stable, low noise high voltage power supplies feature reversible polarity, remote analog programming and monitoring, front panel digital voltage and current metering, and calibrated direct reading front panel voltage controls. All units have arc and short circuit protection for safe, reliable operation.

The output high voltage of the Series 205B can be remotely programmed or controlled via the precision front panel direct reading controls. All models can be adjusted over their full output voltage range using an analog programming 0 to +5V signal or with an external potentiometer.

Remote analog monitoring of the high voltage output is standard on all Series 205B power supplies. Signals proportional to the output voltage and output current are provided at the rear panel I/O connector. A logic output signal indicating high voltage polarity and a logic ENABLE input are also standard.

Output

MODEL		OUTPUT			
SERIES 205B	VOLTAGE	V-DISPLAY RESOLUTION	CURRENT	I-DISPLAY RESOLUTION	RIPPLE (pk-pk)
205B-01R	0 to 1kV	1V	0 to 30mA	10 μ A	10mV
205B-03R	0 to 3kV	1V	0 to 10mA	10 μ A	30mV
205B-05R	0 to 5kV	1V	0 to 5mA	1 μ A	50mV
205B-10R	0 to 10kV	10V	0 to 2.5mA	1 μ A	100mV
205B-20R	0 to 20kV	10V	0 to 1mA	1 μ A	300mV
205B-30R	0 to 30kV	10V	0 to 0.5mA	1 μ A	400mV
205B-50R	0 to 50kV	10V	0 to 0.3mA	1 μ A	2V

Polarity:

For 1kV through 5kV models polarity reversal is achieved by a screwdriver switch accessible at the rear panel of the unit. For 10kV through 50kV models polarity reversal is achieved by the reversal of an internal connector. The selected polarity is displayed by a front panel LED indicator.

Input

Power:

115 Vac $\pm 10\%$ @ 1.0 Ampere, 50-60Hz.

230 Vac $\pm 10\%$ @ 0.5 Ampere, 50-60Hz.

Performance

Line Regulation:

$\pm 0.001\%$ for $\pm 10\%$ input line change.

Load Regulation:

$\pm 0.005\%$ 0 to maximum rated output current change.

Ripple:

See [chart](#) above.

Temperature Coefficient (0 to 50°C):

50ppm per °C.

Storage Temperature:

-40°C to +85°C

Stability (after 1 hr warm-up):

0.01% per hr., 0.02% per 8hrs.

Features

Front Panel Meters:

Front panel 4 digit LED meter, switch selectable for reading the output voltage or current. The meter accuracy is \pm (0.1% of reading + 0.1 % of maximum) for voltage and \pm (0.25% of reading + 0.25% of maximum) for current.

Front Panel Controls:

Calibrated front panel direct reading multi-turn precision potentiometer and switches. Accuracy is \pm (0.25% of setting + 0.05% of maximum) for models up to and including 20kV; \pm (0.25% of setting + 0.05% of maximum) for 30kV and 50kV units.

Resolution:

200mV for models up to and including 20kV; 0.2% of maximum for 30kV and 50kV models.

Remote Programming:

0 to +5 Volt dc analog input signal proportional to 0 to maximum rated output. Accuracy is \pm (0.1% of setting + 0.1% of maximum). The programming input impedance is greater than 1 megohm.

Analog Output Voltage Monitor:

0 to +5 Volts proportional to 0 to maximum output high voltage. Accuracy is \pm (0.1% of reading + 0.1% of maximum). The monitor output impedance is 10 kilohms.

Analog Output Current Monitor:

0 to +5 Volts proportional to 0 to maximum output current. Accuracy is \pm (0.5% of reading + 0.25% of maximum). The monitor output impedance is 10 kilohms.

Interlock:

Remote interlock disables (low), enables (high) the high voltage output. Signal is normally high and supply will default to an "enabled" condition.

Current Limit:

Automatic current limiting occurs at approximately 105% of maximum rated output current at maximum rated output voltage. The allowable output current at any set voltage must be derated linearly down to 30% of maximum at 0 output voltage. Supply is self-restoring upon removal of cause of limit condition.

Protection:

Arc and short circuit, self restoring.

Mechanical

Size:

All models up to and including 20kV are 19" W x 3½" H x 9-5/8" D (483 x 89 x 244mm).

30kV and 50kV models are 19" W x 5-¼" H x 16" D (483 x 133 x 406mm).

Weight:

All models up to and including 20kV weigh 20lbs (9.1kg). 30kV and 50kV models weigh 35lbs (15.9kg).

High Voltage Connector:

All models up to and including 5kV: Bertan P/N JDK output connector, Bertan P/N PDB mating connector (MHV Type UG-932/U) included. **Preassembled HV cable** must be purchased separately.

All 10kV, 20kV and 30kV models: Bertan P/N JJA output connector, Bertan P/N 405787 mating connector kit included. **Preassembled HV cable** must be purchased separately.

50kV models: Bertan P/N JJB output connector, Bertan P/N 405786 mating connector kit. The mating high voltage connector is provided with each unit. **Preassembled HV cable** must be purchased separately.

Power Input Connector:

3-wire IEC line cord receptacle. Detachable line cord is included.

Low Voltage I/O Connector:

The PROGRAMMING/MONITOR connector is a standard 9 pin "D" type connector. A mating connector is provided with each unit.

Custom Models

Series 205B can be economically and quickly modified to satisfy custom applications. Other output voltage and/or current ratings, custom control features, digital programming, or special mechanical constraints are some of the varied requirements which can be satisfied. Contact **Bertan Sales Engineering** for a prompt review of your application.

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- **Specification (this document)**
- **Installation and Operating Manual**



