FX Series
300 Watt
Regulated
High Voltage
DC Power
Supplies
1 to 60kV,
1.75” Panel
CE Compliant

The FX Series are sophisticated, 300 Watt, high voltage power supplies in a small and lightweight package. They are air insulated, fast response units with tight regulation. Fully compliant with the European harmonized EMI directive, EN50082-2, and with the low voltage (safety) directive, 73/23/EEC.

With the PFC option, line harmonics are within the European harmonized standard, EN61000-3-2 specifications.

Models from 0 to 1kV through 0 to 60kV, 1.75” H x 19” W x 20.25” D, 14 lbs.

Features

- **Arc Quench.** The HV output is inhibited for a short period after each load arc to help extinguish the arc.
- **Arc Count.** Internal circuitry constantly senses and integrates arcs that occur over a given time. In the event a system or load arcing problem develops and exceeds factory-set parameters, the power supply will cycle off in an attempt to clear the fault and then automatically restart after a preset “off dwell time”.
- **Low Stored Energy.** Most models exhibit less than 3 joules of stored energy.
- **Pulse-Width Modulation.** Off-the-line-pulse-width modulation provides high efficiency and a reduced parts count for improved reliability.
- **Air Insulated.** The FX Series features “air” as the primary dielectric medium. No oil or encapsulation is used to impede serviceability or increase weight.
- **Constant Voltage/Constant Current Operation.** Automatic crossover from constant-voltage to constant-current regulation provides protection against overloads, arcs, and short circuits.
- **Low Ripple.** Ripple is less than 0.02% of rated voltage at full load.

- **Tight Regulation.** Voltage regulation is better than 0.005% for allowable line and load variations. Current regulation is better than 0.05% from short circuit to rated voltage.
- **Front Panel Controls.** Separate 10-turn controls with locking vernier dials are used to set voltage and current levels. A high voltage enable (on) switch and an AC power on/offswitch complete the panel controls.
- **Remote Control Facilities.** As standard, all FX Series supplies provide output voltage and current program/monitor signals, high voltage enable, safety interlock terminals, and a +10 volt reference source.
- **Small Size and Weight.** FX Series power supplies occupy only 1.75 inches of panel height. Net weight is less than 14 pounds.
- **Warranty.** Standard power supplies are warranted for three years; OEM and modified power supplies are warranted for one year. A formal warranty statement is available.
Specifications

(Specifications apply from 5 to 100% rated voltage. Operation is guaranteed down to 0% of rated voltage with a slight degradation in performance.)

Input: 102-132V RMS, single-phase, 48-400 Hz. <8 A. Connector per IEC 320 with mating line cord terminated with NEMA 5-15 plug.

Efficiency: Typically 85% at full load.

Output: Continuous, stable adjustment, from 0 to rated voltage or current by panel mounted 10-turn potentiometers with 0.05% resolution, or by external 0 to 10V signals is provided. Voltage accuracy is 0.5% of setting +0.2% of rated. Repeatability is <0.1% of rated.

Stored Energy: See Models chart.

Static Voltage Regulation: Better than 0.005%

Voltage Rise/Decay Time Constant:
- warmup, 0.05% per 8 hours.
- 0.01% per hour after 1/2 hour + 0.1% of rated.

Rated except reversible models: 1% of reading +10 V reference, interlock, voltage and current program/monitor. HV enable, ground, and local control. A rear panel toggle switch selects either local or remote operation.

External Interlock: Open off, closed on. Normally latching except for blank panel version where it is non-latching.

Dynamic Voltage Regulation:
- For load transition.
- +10 V equivalent to 0 to +10 V RMS at full load.

Voltage Monitor:
- 0 to +10 V equivalent to 0 to +10 V.

Current Monitor:
- 0 to +10 V equivalent to 0 to +10 V.

Current Regulation:
- Better than 0.1% from short circuit to rated voltage at any load condition.
- Accuracy, 0.5% of reading +0.2% at rated voltage.

Current Monitor: 0 to +10 V equivalent to 0 to rated current. Accuracy, 1% of reading +0.05% rated except reversible models: 1% of reading + 0.1% of rated.

Stability: 0.01% per hour after 1/2 hour warmup, 0.05% per 8 hours.

Voltage Rise/Decay Time Constant: 50 ms typical with a 50% resistive load using either HV on/off or remote programming control.

Temperature Coefficient: 0.01% per degree C.

Ambient Temperature: -20 to +40 degrees C, operating; -40 to +85 degrees C, storage.

Polarity: Available with either positive, negative, or reversible polarity with respect to chassis ground.

Protection: Automatic current regulation protects against all overloads, including arcs and shorts. Fuses, surge-limiting resistors, and low energy components provide ultimate protection.

Arc Quench: An arc quench feature provides sensing of each load arc and quickly inhibits the HV output for approximately 20 ms after each arc. Standard on 8 - 60 kV models; optional on 1- 6 kV models.

Arc Count: Internal circuitry senses the number of arcs caused by external load discharges. If the rate of consecutive arcs exceeds approximately one arc per second for five seconds, the supply will turn off for approximately 5 seconds to allow clearance of the fault. After this period the supply will automatically return to the programmed kV value with the rise time constant indicated. If the load fault still exists, the above cycle will repeat. Standard on 8 - 60 kV models; optional on 1-6 kV models.

Remote Controls: A three position terminal block and a 15 Pin “D” connector are provided for all remote functions, including common, +10 V reference, interlock, voltage and current program/monitor, HV enable, ground, and local control. A rear panel toggle switch selects either local or remote operation.

External Interlock: Open off, closed on. Normally latching except for blank panel version where it is non-latching.

Options

Symbol | Description
--- | ---
100 | 90 to 110V RMS input, 48-400Hz.
200 | 180 to 220V RMS, 48-63Hz, NEMA 6-15 plug.
220 | 198 to 264V RMS input, 48-400Hz.

PFC Power Factor Corrected. AC Input line rated for 198 to 264VAC, 48-63Hz, 400VA maximum. Active correction circuitry achieves an AC input line current harmonic content well below the maximum specified in EN61000-3-2.

NC | Blank front panel, power switch only.
5V | ±5V voltage and current program/monitor.

Remote HV Enable: 0-1.5 V off, 2.5-15 V on.

Accessories: Detachable 8 foot shielded high voltage coaxial cable (see Models chart for cable type), 6 foot detachable line cord, and mating 15 Pin “D” connector and shell are provided.

Models

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Positive Polarity</th>
<th>Negative Polarity</th>
<th>Reversible Polarity</th>
<th>Output Voltage</th>
<th>Output Current</th>
<th>Stored Energy</th>
<th>Output Cable</th>
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<tbody>
<tr>
<td>FX1P300</td>
<td>FX1N300</td>
<td>FX1R300</td>
<td>0 - 1kV</td>
<td>0 - 300mA</td>
<td>0.35J</td>
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<td>0 - 150mA</td>
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<td>0 - 5mA</td>
<td>3.5J</td>
<td>RG - 8U</td>
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</tbody>
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Please consult factory for special requirements.

GLASSMAN HIGH VOLTAGE INC.

Designing Solutions for High Voltage Power Supply Applications

124 West Main Street, PO Box 317, High Bridge, NJ 08829-0317
(908) 638-3800  Fax (908) 638-3700  www.glassmanhv.com