

FC Series 120 Watt Regulated High Voltage DC Power Supplies

1 to 60kV,
1.75" Panel

CE Compliant

The FC Series are sophisticated, 120 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.

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, 12 lbs.

Features

Low Stored Energy. Most models exhibit less than 1 joule 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 FC 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/off switch complete the panel controls.

L.E.D.'s indicate when high voltage is on, the output polarity, and whether the supply is operating in a voltage or current regulating mode. For the blank panel version, only a power on/off switch is provided on the panel.

Remote Control Facilities. As standard, all FC 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. FC Series power supplies occupy only 1.75 inches of panel height. Net weight is less than 12 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.



Designing Solutions for High Voltage Power Supply Applications

GLASSMAN HIGH VOLTAGE INC.

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

GLASSMAN EUROPE Limited (UK)
+44 1256 883007 FAX +44 1256 883017
E-mail: Glassman_europe@glassmanhv.com

GLASSMAN JAPAN High Voltage Limited
+81 45 902 9988 FAX +81 45 902 2268
E-mail: Glassman_japan@glassmanhv.com

Specifications

(Specifications apply from 5 to 100% rated voltage. Operation is guaranteed down to 0% of rated voltage with a slight degradation of ripple, regulation, and stability.)

Input: 102-132V RMS, single-phase, 48-420 Hz, <2.5A. Connector per IEC 320 with mating line cord terminated with NEMA 5-15 plug.

Efficiency: Typically 80% 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% for specified line variations and 0.005% + 0.5 mV/mA for load variations.

Dynamic Voltage Regulation: For load transients from 10% to 100% and 100% to 10%, typical deviation is 2% of output voltage with recovery to within 1% in 500 μs and to 0.1% in 1 ms.

Ripple: <0.02% of rated voltage plus 300mV RMS at full load.

Current Regulation: Better than 0.1% from short circuit to rated voltage at any load condition.

Voltage Monitor: 0 to +10 V equivalent to 0 to rated voltage. Accuracy, 0.5% of reading +0.2% rated.

Current Monitor: 0 to +10 V equivalent to 0 to rated current. Accuracy, 1% of reading +0.05% rated. Reversible polarity 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: 400 ms typical with a 10% resistive load using either HV on/off or remote programming control.

Temperature Coefficient: 0.01% per degree C.

Ambient Temperature: -20 to +50 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.

Remote Controls: A five 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.

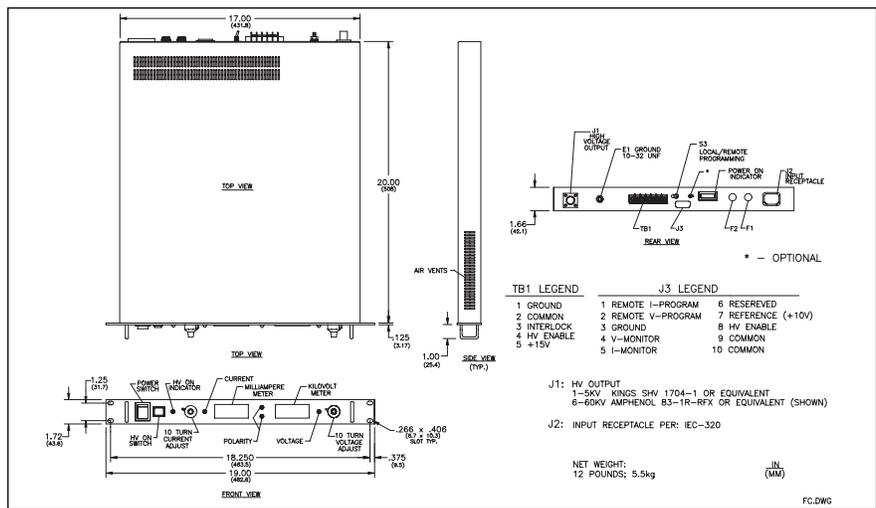
Options

Symbol	Description
100	90 to 110VRMS input, 48-420Hz. NEMA 5-15 Plug.
220	198 to 250VRMS input, 48-420Hz. NEMA 6-15 Plug.
NC	Blank front panel, power switch only.
CT	Current trip. Power supply trips off when the load current reaches the programmed level. This option has a rear panel switch that selects either "trip" operation or current limiting.
ZR	Zero start interlock. Voltage control, local or remote, must be at zero before HV will enable.
SS	Slow start ramp. Specify standard times of 1, 2, 3, 5, 10, 15, 20, or 30 s +/- 20%.
X13	0-5 V voltage and current program/monitor.
HVS	High voltage status indicator. Normally open relay contacts that close when HV is enabled. Contacts are rated for 24VDC at 1A maximum.

Please consult factory for special requirements.

Models

Positive Polarity	Negative Polarity	Reversible Polarity	Output Voltage	Output Current	Stored Energy	Output Cable
FC1P120	FC1N120	FC1R120	0 - 1kV	0 - 120mA	0.2 J	RG - 58
FC1.5P80	FC1.5N80	FC1.5R80	0 - 1.5kV	0 - 80mA	0.45 J	RG - 58
FC2P60	FC2N60	FC2R60	0 - 2kV	0 - 60mA	0.1 J	RG - 58
FC3P40	FC3N40	FC3R40	0 - 3kV	0 - 40mA	0.2 J	RG - 58
FC5P24	FC5N24	FC5R24	0 - 5kV	0 - 24mA	0.3 J	RG - 58
FC6P20	FC6N20	FC6R20	0 - 6kV	0 - 20mA	0.25 J	RG - 8U
FC8P15	FC8N15	FC8R15	0 - 8kV	0 - 15mA	0.3 J	RG - 8U
FC10P12	FC10N12	FC10R12	0 - 10kV	0 - 12mA	0.4 J	RG - 8U
FC12P10	FC12N10	FC12R10	0 - 12kV	0 - 10mA	0.7 J	RG - 8U
FC15P8	FC15N8	FC15R8	0 - 15kV	0 - 8mA	1.1 J	RG - 8U
FC20P6	FC20N6	FC20R6	0 - 20kV	0 - 6mA	0.85 J	RG - 8U
FC25P4.8	FC25N4.8	FC25R4.8	0 - 25kV	0 - 4.8mA	1 J	RG - 8U
FC30P4	FC30N4	FC30R4	0 - 30kV	0 - 4mA	1 J	RG - 8U
FC40P3	FC40N3	FC40R3	0 - 40kV	0 - 3mA	1.5 J	RG - 8U
FC50P2.4	FC50N2.4	FC50R2.4	0 - 50kV	0 - 2.4mA	2 J	RG - 8U
FC60P2	FC60N2	FC60R2	0 - 60kV	0 - 2mA	2.4 J	RG - 8U



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.



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