FVC2k SERIES FREQUENCY CONVERTERS

FVC2k Series

High Power AC Frequency Converters

Key Features:

- Three Phase AC Output
- Power levels from **3KVA up to 1000KVA**
- Voltages ranges **up to 1000V**$_{L-L}$ **| 577V**$_{L-N}$
- Single or Dual Voltage Ranges
- Output Frequency 40Hz - 200Hz
  Available alternate frequency ranges:
  - 15Hz - 80Hz
  - 200Hz - 350Hz
  - 350Hz - 450Hz
- Overload capability 120% or 200%
- Low distortion sine wave output
- Custom configurations on request
- Standard RS232, RS485 and Analog Input
- Optional Fiber Optic Interface
- Easy to use, easy maintenance and calibration
- Embedded Web Server for browser control

General Description

The FVC2k Series frequency converters are robust, economical and easy to use solid-state frequency converters. Developed for intensive use on production lines, these supplies are also well suited for research and development labs.

These frequency converters provide a symmetrical, balanced and well regulated three-phase sinusoidal output voltage with the ability to vary voltage and frequency. Available models range from as small as 3kVA all the way up to 1000kVA. This supports a wide range of AC power test requirements that cannot be supported by the local utility grid. Limit testing of AC powered equipment is simple using the FVC2k power sources. They can also be used as basic voltage regulators or frequency converters.

The FVC2k Series are very economical offering an excellent price/performance ratio. Typical applications include 50/60Hz to 400Hz conversion for avionics, transformer testing and AC Motor testing.

The output waveform is sinusoidal with low distortion of less than 0.5% THD even in the presence of asymmetrical loads. FVC2k converters support resistive, inductive as well as capacitive loads.

The dual voltage range models allows adaptation to different requirements for AC voltage and current combinations eliminating the need to oversize the unit's power level.

The output voltage is adjustable form 0 to full scale and voltage feedback is performed on each individual output phase. External voltage sense to compensate for line drop is standard.

Standard models support 40Hz to 200Hz output frequencies with 0.1Hz programming resolution but alternative frequency ranges are available as well to support railway or avionics test requirements.

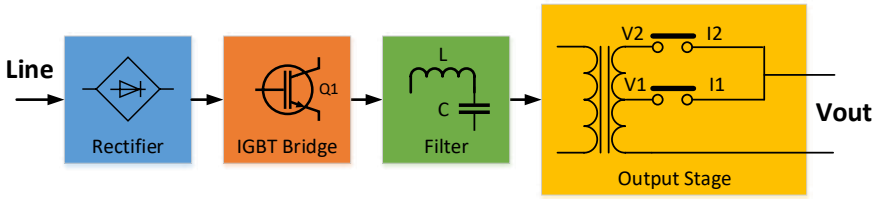
Higher power models are all Three-phase (FVC**T**2k models).

Standard overload capability for FCV units is 120% but 200% overload models are available to support high inrush current applications like motor or pump testing.

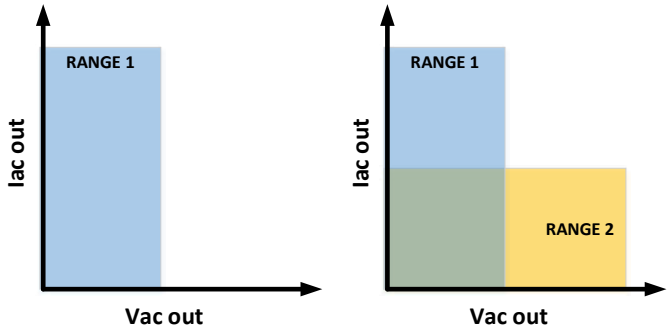
North American Sales & Support

Topology

Using an isolation dual back-to-back full bridge topology, the FVC2k Series provides efficient and reliable solid state power conversion in non-regenerative mode. The FVC2k is available with either a single AC voltage range or with dual, switchable voltage ranges. Output power remains the same in either of these two voltage ranges. This is illustrated in the diagram to the right.



FVC2k Series Topology



Single Voltage Range

Dual Voltage Range

Front Panel Controls

A large color touch screen offers intuitive menu driven operation of the AC power source and provides easy to read output measurement information to the operator. Settings can be slewed using a multi-turn potentiometer providing precision control over frequnecy, voltage and current limit set points.

Browser Interface

In addition to front panel operation, a standard embedded web server function allows remote operation of the power source from a web browser Interface when using the Ethernet interface.

Typical Applications

- Facility power supply for stable, regulated voltage and frequency.
- Frequency conversion from 50Hz or 60Hz to 400Hz
- AC powered product limit and immunity testing
- Transformer, coil, motor or pump testing

Technical Specification

AC Output specifications	
Output voltage	0 V ~ 1000 Vac L-L 0 V ~ 577 Vac L-N
Waveform	Sinusoidal
Voltage Resolution	5 Digits
Output voltage ranges	1 std. or 2 optional
Output frequency ranges (select one only)	BF: 40 ~ 200 Hz MF: 200 ~ 350 Hz HF: 350 ~ 450 Hz 15Hz: 15 ~ 80 Hz
Frequency resolution	0.01 Hz
Frequency accuracy	0.15 %
Line regulation	Typ. 1.0% F.S.
Load regulation	Typ. 1.0% F.S.
DC offset	0V (Transformer coupled)
Max HF residual ripple HF	Typ. 0.3% F.S.
AC output connections	Internal terminals or output cable with CEE connector
Maximum output power	1000kVA continuous
Overload output power(1)	120% or 200%, 1 min.
Output phases	3 Phs + N > 30 kVA
Output current	Model dependent
Overload time at Ipeak	1 minute
Current Limit Programming	RMS. Output trip if set limit exceeded
Settling time 50% load step	2 msec
Porgrammamble V ramps	Standard
V_{THD}	50/60Hz: < 0.5% 400Hz: < 4%
Voltage sense	Internal or External
Allowable power factor	0.2 ~ 1.0
Protection & Safety	Over-current, Short circuit, Over temp.

Example of an opened 250kVA FVCT2k Unit

Measurements	
Output voltage	R, S, T - Vrms L-N
Output current	R,S, T - Irms
Cos Phi Power	Watt
Output frequency	Hz
AC Input specifications	
Line voltage	400V or 480V 3 Phs ± 10%
Frequency	45 ~ 65Hz
Max. compensation voltage	10 Volts
Line protection	Automatic breaker
AC input connections	Internal terminals or power supply cable with CEE connector
Mechanical and Environmental	
Dimensions	Depends on model
Weight	Depends on model
Operating temperature	5 ~ 40°C / 41 ~ 104°F
Storage temperature	-5 ~ 60°C / 23 ~ 140°F
Altitude max.	1000 m / 3280 ft
Protection	IP20B
Cooling	Forced air
Noise at 1mt	Typ. 65dbA
Safety and EMC	CE (EMC & LVDT)
Insulation	
Line / output / GND	2500 Vrms
Output / GND	1500 Vrms
Maximum output voltage	Depends on output voltage range
Remote Control Interfaces	
Communication	RS485 std. USB Option or Optical Fiber Option
Analog inputs	0 ~ 10V, voltage & frequency
External	L.V. N.C voltage free circuit guard
Ship kit items	
Included	Manual in PDF form, Calibration Certificate.

Notes: (1) 200% overload models available up to 200kVA. 120% overload models available up to 600kVA.

FVC2k SERIES - FREQUENCY CONVERTERS

Available Configurations

Contact PPST Solutions to discuss your application requirements and configure an optimal power supply or system configuration.

Standard Voltage Ranges LL | LN
150V | 87V
300V | 173V
500V | 289V
690V | 400V
900V | 520V
1000V | 577V
Dual V Ranges
150/300V | 81V/137V
300/600V | 173V/346V
345/690V | 200V/400V
450/900V | 260V/520V
500/1000V | 289V/577V
/Vxxxx special

Output Power
5KVA
10KVA
15KVA
20KVA
30KVA
50KVA
75KVA
100KVA
150KVA
200KVA
300KVA
400KVA
500KVA
600KVA

Options	
/PID	PID Software
/Wheels	Casters for cabinet systems less than 50kVA
/FIB	Optic fiber interface
/USB	USB interface
/Vxxxx	Special voltage range, i.e. V1000 = 1000V_{LL} F.S.
/PCR	Parallel Card

Zenone Elettronica History

Founded in 1990 in Mirabella Eclano (AV), Italy by a staff with high experience in the power electronics sector, Zenone Elettronica has quickly become a leader in the development and manufacture of power electronics with a high level of technological sophistication, focusing on test equipment for measurement laboratories and production lines.

Order Example

FVCT2k-400V-100KVA-1-BF-OVL120%

- FVC-2k Series
- T = 3-Phase
- Output voltage V_{LN}
- Output power
- No. of voltage ranges: 1 or 2
- Frequency range: BF = 40 ~ 200 Hz; MF = 200 ~ 350 Hz; HF = 350 ~ 450 Hz; Option: 15 ~ 80 Hz
- Overload capability: 120% or 200%

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