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ZENONE
POWER ELECTRONIC TEST EQUIPMENTS
High-power technology

Frequency converters FVC1K series

- *Single or three-phase output with neutral*
- *powers from 5KVA up to 300KVA*
- *output frequency 40 - 200Hz, 15 – 80Hz, 200 – 350Hz, 350 – 450Hz*
- *connectable in parallel over 1MVA*
- *reduced sizes and high performance*
- *output voltage on request*
- *high bandwidth*
- *overload capability up to 200% for 1'*
- *multi-scale systems*
- *access to PID adjustment parameters*
- *easy to use, easy maintenance and calibration*
- *precision better than 1%*
- *low harmonic distortion*
- *insulated output*
- *software for PC control*

Typical applications

- Conversion 50/60/400Hz
- Devices and equipments tests with power supply different from the grid
- Trafo, coils and cores tests
- Avionics

Description and applications

The converters of the FVC series are robust, economical, easy to use static equipments. Developed for intensive use on production lines are ideal for research and development laboratories. They provide a symmetrical and balanced sinusoidal three-phase system with the possibility of continuously varying voltage and frequency output. They are designed to work on unbalanced loads up to 100% with possibility of feeding single-phase loads by connecting one phase and neutral or two phases. The power range goes from **5KVA** up to **300KVA** with the possibility of parallel up to over **1MVA** with output voltages ranging from 200V up to 1000V L - L. The possibility of having two scales selectable to suit different power requirements allows to have the maximum adaptation to the load without penalizing the output power. Equipped with a modern and simple user interface which makes setup and parameter readings very simple and intuitive. They are realized in table rack (low powers), in wheeled cabinet (medium powers) or cabinet.

Programmable via serial RS485 optional USB, LAN or optic fiber. 4 digital I / O and 4 analog I / O they guarantee a perfect integration with automatic test lines. The output voltage can be regulated with continuity from 0 to the maximum value, as well as the frequency from its minimum value to the maximum value with steps of 0.01 Hz. All devices are equipped with "**sensing**" for the compensation of the drop along the cables (up to 10% of the F.S.). They bear abrupt load variations with typical <2 mS recovery times for load variations of 50%.
All the equipments can be fitted with regenerative module allowing use in a bidirectional way with grid input of energy.
The range includes models for use in **40-200HZ** generic power, models up to **450Hz** for use in avionics and **15Hz** models for use in the railway sector.
The FVCM series also lends itself as **THREE ONE PHASE** converter.

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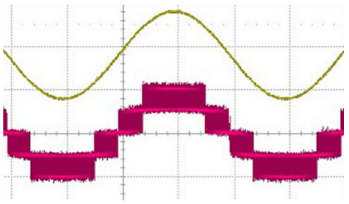
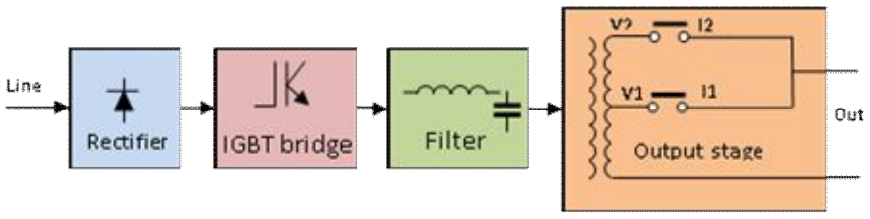
Main features

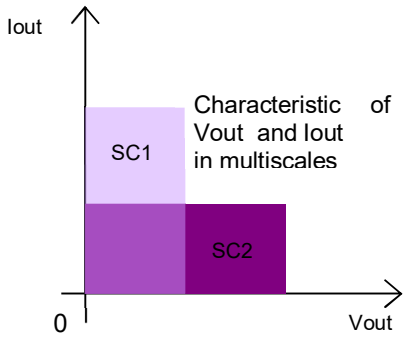
Output features	
Output voltage	100V ÷ 1000V L-L
Minimum regulated voltage	0V
Waveform	Sinusoidal
Accuracy	Tip. 1% F.S.
Number of scales	1 standard / 2 optional
Output frequency	BF: 40 ÷ 200Hz, MF: 200 ÷350Hz; HF: 350 ÷ 450Hz; LF: 15 ÷ 80Hz
Frequency resolution	0.01Hz
Frequency accuracy	0.15%
Line regulation	Typ 1% F.S.
Load regulation	Typ 1% F.S.
Linearity	0.5% F.S.
DC offset	0%
Max output ripple HF	Typ 0.5%F.S.
Maximum power	300KVA, parallelable over 1MVA
Output connections	Internal terminals or CEE socket
Overload	120% standard, optional 200%
Number of phases	Models T: 3 + N, models M 1
Bandwidth	Depends on the model
Max THD at 50-60Hz	Typ 0.5%
Maximum time in overload	1 minute
Recovery time for load variation of 50%	Tip. 2mS
Maximum voltage recovered from sensing	10% f.s.
Cos φ of the load	0.2 ÷ 1
Conversion efficiency	>95%

Measures	
Voltage	On the three phases
current	On the three phases
Power	On the three phases
Accuracy	1% F.S.
Controls on the front	
Run/stop	buttom
Voltage setting	potentiometer
Frequency setting	potentiometer
other	Main switch, emergency, views
Supply	
Line voltage	400V 3F ± 10%
Frequency	45 ÷ 65Hz
Cosphi	Typ 0.85
Line protection	Automatic switch
Connections	Internal
Other	
Dimensions	According to the model 19" rack or cabinet
Weight	According to the model
Output connections	Internal or on CEE socket
Operating temperature	5 ÷ 40°C
Storage temperature	-5 ÷60°C
Protection	IP20
Cooling	Forced air
Noise a 1mt	Typ 65dbA
Safety and EMC	CE (EMC and LVDT)
Insulation	
Line / output / GND	2500Vrms
Output / GND	1500Vrms
Maximum output voltage applicable / GND	It depends on the output voltage
Interfaces	
Communication	RS485 Optional USB,LAN, Optic fiber
Digital inputs	2, 24V NPN + emergency circuit
Digital outputs	2, 24V PNP
Analog inputs	2, 0 ÷ 10V
Analog outputs	2, 0 ÷ 10V





Principled and modulation schemes



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Avilable powers
5KVA
10KVA
15KVA
20KVA
30KVA
50KVA
75KVA
100KVA
150KVA
200KVA
300KVA

Available standard voltages
150V
300V
500V
700V
900V
1000V
Double scale
150/300V
250/500V
350/700V
450/900V
500/1000V
Other voltages on request

Options / Finishings on request	
/M-FVC-SW	Software GImanager
/PCR	Interface for parallel
/LAN	LAN interface
/FIB	Optic fiber interface
/Sout	Access to particular output (specify)
/USB	USB interface
/Cons	Separate control unit (3 mt cable)

Modular assembly for easy maintenance

Available designs
Table Rack
Wheeled Cabinet
Cabinet

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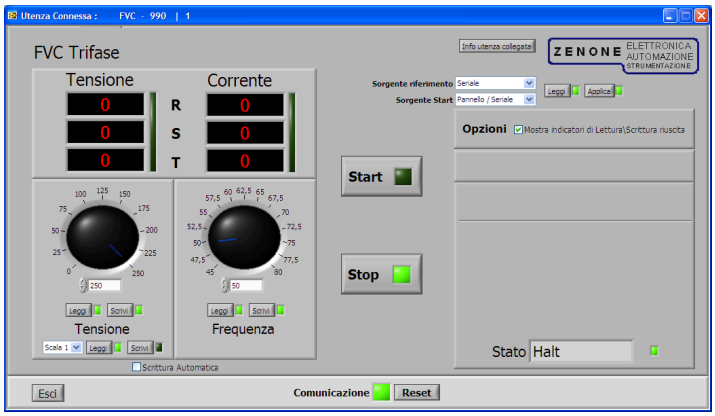
Software FVCmanager



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Other Zenone Elettronica products

- Current Sources GI1K series
- Pulsed Current Sources GI1K xxx SI series
- Current Sources GIS1K series with bandwidth from DC up to 2.5KHz
- Single-phase voltage sources GV1K series
- Single-phase voltage sources GTS1K series with bandwidth from DC up to 2.5KHz

- Fast Power Supplies AL3000 and AL3000R series with voltages from 10V to 1200V, currents up to 10KA and power ratings from 10KW to 1MW
- Fully bidirectional R Models

ZENONE ELETTRONICA HISTORY

Founded in 1990 in Mirabella Eclano (AV) 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 technological level, focusing on testing equipments for measurement laboratories and production lines

ORDERS INFORMATIONS