

# FC SERIES

## STATIC FREQUENCY CONVERTER

### Product Description

FC Series Static Frequency Converter, an advanced industrial electronic converter that converts alternating current (AC) of one frequency to alternating current of another frequency. SPE Frequency Converter consists of a Thyristor rectifier to produce direct current which is then inverted (IGBT Inverter) to produce AC of the desired frequency. If voltage conversion is desired, a transformer will usually be included in either the ac input or output circuitry and this transformer may also provide galvanic isolation between the input and output ac circuits. A battery may also be added to the dc circuitry to improve the converter's ride-through of brief outages in the input power. FC is fully monitored and controlled separately by DSP (Digital Signal Processor) controller.

### Key Features

- Single / 3-Phase full sinus output waveform
- 50 Hz, 60Hz, 83 1/3 Hz, 400 Hz output frequency
- Internal isolation transformer at output
- Ability to drive nonlinear loads
- Reliable IPM (Intelligent Power Module) technology IGBT
- DSP (Digital Signal Processor) control
- Space Vector Control technology
- 2x16 / 4x20 Character LCD display for monitoring an adjustments
- Audible alarm
- Programmable dry contact outputs and Modbus Communication (Option)
- Adjustable switching frequency
- Advanced pc program for PC connection
- Ability to set up / adjust all operational parameters through front panel and PC communication
- Input, Output over voltage, over current, short circuit, over temperature protections
- Ability of control via external digital input or communication
- Programmable automatic restart
- Ability of cold start and battery operation



## Applications

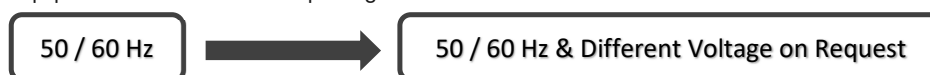
**Aerospace:** Other than the conversion of bulk power from one distribution standard to another, frequency converter is used in the aerospace and airline industries where frequency 400Hz is required.



**Shipboard operation:** Used in shipyard for equipment which require power supply with 50/60Hz. Frequency converter can be installed onboard for equipment and connecting vessel to another port with different electricity standard.



**Industry:** When using imported equipment from different electricity standard such as USA (208V/60Hz) or Japan (200V/60Hz), Korean (220V/60Hz) to Vietnam (380V/50Hz) need a frequency converter. Or it is used in production line where equipment is tested before exporting.



## Technical Specifications

Model (KVA)	FC-	3 - 10	15	20	30	40	60	80	100	120	160	200	300	400
Power (KW)		2.4 - 8	12	16	24	32	48	64	80	96	128	160	240	320
INPUT														
Input Voltage (Vac)	3 x 190 Vac + N 50/60/400Hz / 3 x 380 Vac + N 50/60/400Hz 3 x 400 Vac + N 50/60/400Hz / 3 x 440 Vac + N 50/60/400Hz													
Frequency & Tolerance	50Hz / 60Hz Automatic Selectable ± 10 %													
Rectifier Type	6 or 12 -pulse Thyristor or IGBT													
OUTPUT														
Output Voltage	Single Phase Output : 115 / 120 / 200 / 220V / 230 Vac + N 3-Phase Output : 115/200 / 120/208 / 220/380 / 230/400 / 240/400 Vac ±1% w/o neutral													
Frequency	50Hz / 60Hz / 83 1/3Hz / 400Hz ± 1%													
Efficiency (Differ in DC Nominal)	> 88 - 93%													
Total Harmonic Distortion	< 3 % with linear load													
Power Factor	0.8													
Crest Factor	3 : 1													
Technology	Space Vector Control													
Short-Circuit Protection	Electronic Short Circuit Protection													
GENERAL SYSTEM DATA														
LCD Display	Output Voltage & Current / Input Voltage / DC Bus Voltage / Inverter Frequency (Output Frequency)													
Alarm Notifications (LCD)	Overload / Abnormal AC Input / Thyristor & IGBT Fault / Over Temperature / DSP Error													
Cooling	Forced Cooling													
Acoustic Noise (dB)	< 56 to < 70													
Comm. and Monitoring	LED Indicators, Dry contact and RS232 (Standard) or RS485, Modbus, SNMP, GSM (Option)													
Operating Temperature	Operating Temperature - 10°C to + 50°C													
Storage Temperature	Storage Temperature - 20°C to + 70°C													
Relative Humidity	Relative Humidity 0 - 90% (Non-condensing)													
Operating Altitude	Operating Altitude <1000m													
Applicable Standards	EN 50091-1, EN50091-2, IEC62040-1 & IEC62040-2													
Color / Protection Class	RAL 7035 / Standard IP20 (Other Color / IP level upon request)													
SPE-FC Series Industrial Frequency Converter powered by EPC. Specifications Can change without notice. Datasheet v1.1														