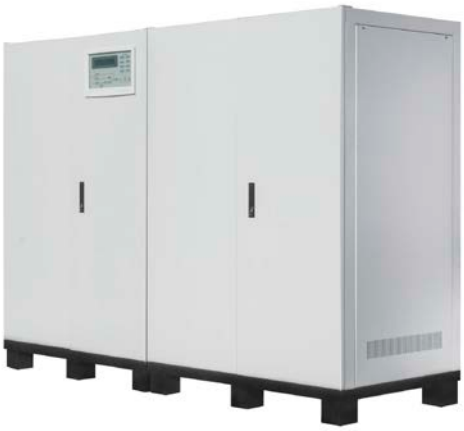
SATECH POWER
Industrial Grade Power System

Static (FIXED) Voltage / Frequency Converter

SPF Series 10KVA～1000KVA

- ***USA MILITARY Approved***
- **Frequency Conversion :**
  - **50Hz ←→ 60Hz, 50Hz ←→ 400Hz,**
  - **60Hz ←→ 400Hz Fixed**
  - ***400Hz Input / Output Fixed***
- **Output Frequency Adjustable**
- **10% Output Voltage Adjustable**
- **50Hz/60Hz Output Frequency Selectable**
- **Single and Three Phase Configurations**
- ***BATTERY Added for UPS Backup*** **(Option)**



Application

- **Voltage and / or Frequency Conversion**
- **Power Conditioning & Freq. Stabilization**
- Factory Automation Equipment
- Auto-test Equipment
- Alarm / Security Monitoring Systems
- Cellular Sites
- Export Product Testing
- Laboratory
- Medical Equipment
- Precise Measuring & Testing Equipment
  Sophisticated Monitoring Systems
- Sophisticated Instruments
- TV & Radio Broadcasting Stations
- **Option: 400HZ APPLICATIONS:**
  - **Military System Diagnostics**
  - **Telecommunication Facilities**
  - **Avionics, Marine, Missile, Projectile Facilities**
  - **Airport Grounding Facilities include Airport Terminal, Control Tower**
  - **Navigation**
  - **Any Facilities / Instruments have 400Hz frequency Power System**

Factory Automation Equipment

Sophisticated Instruments

Alarm / Security Monitoring Systems

Cellular Sites

Laboratory

Export Product Testing

Cruise

Airport Terminal

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SATECH POWER

USA Military Approved Power System

SPF Series Static (FIXED) Voltage / Frequency Converter

The SPF series Static (FIXED) Voltage / Frequency Converter is available from 10 to 1000 KVA as standard, in single or three-phase output configurations and may be customized to reach up to 2000KVA.

Power Conditioning & Frequency Stabilization

The SPF series provides clean and stable, regulated power to the load, and the chosen crystal oscillator controlled frequency, free from any spikes, surges, lightning and frequency fluctuation.

High Efficiency, Optimum Stability, and Superior Heat Dissipation

By use of advanced Technology DPS, IGBT and Switching Components to increase the reliability, efficiency and heat dissipation.

Complete Input to Output True Galvanic Isolation design

Solve ultimately power problems, including noise, lightning, ground leakage current, and CEMF (Couter -electromotive Force) etc.

Ruggedness

The rectifier employs phase control technology to regulate the DC bus Voltage. This is the most efficient method to charge the batteries.

The SCR used are inherently rugged. Additionally, a large inductor is added at the input to avoid deforming the AC source waveform.

Reliable Input Protection

Circuit breakers are placed in each individual input loop to ensure power can continuous through another loop in case of breaker trip caused by an abnormal condition.

Diagnostic Panel with LCD and LED Display

400Hz Input / Output Frequency (Option)

Precise frequency (oscillated by crystal oscillator). Designed for application of Airforce, Military, Navy, Aviation, Navigation …etc.

+/-20% Wide Input Voltage Range

The SPF series is designed to accept a wide input range, it can work effectively under any unstable AC source. All of the input components used are specially selected to handle extremely high voltage and high current.

Multi-CPU Design and Software / Hardware Cooperate Control

Make the SPF series extremely high reliable.

Plug & Play Modular design

The power circuit is separated into several modules plugged into several slots in the unit, which are easy to pull out, permitting quick maintenance and easier trouble-shooting (MTTR <25 minutes).

Tolerate Harsh Environment

Each component is chosen with large safety margin to accommodate Extreme environments, such as temperature, humidity, altitude, shock or Contamination.

Intelligent Fan Rotation Rate Control

The fan rotation rate can automatically change according to the load condition, so that the fan's life expectancy is extended and audible noise is reduced.

BATTERY added for UPS Backup (Option)

The SPF series can be started without an AC source, that is, can be started with battery power only. This is possible because current limit circuitry is added, preventing the problem of large inrush current from blowing the battery fuse and damaging the DC capacitors when batteries are connected to an empty DC bus (before the DC bus is energized).

Reasonable Heat Evacuation Passage Design

Control circuitry and power circuitry are physically separated. Thus, the SPF series can operate under harsh environment.

Serial & Parallel Redundant Connection (Option)

12-Pulse Full Controlled Rectifier (Option)

Reduce harmonic current for 80KVA and above SPF series.

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Technical Specification (3-Phase Input / 3-Phase Output)

MODEL	SPF 3310	SPF 3315	SPF 3320	SPF 3330	SPF 3340	SPF 3350	SPF 3360	SPF 3380	SPF 33100	SPF 33120	SPF 33160
Capacity (KVA)	10	15	20	30	40	50	60	80	100	120	160
INPUT											
Input Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/460VΔ **(Option:480VΔ/600VΔ)** 3phase+N:200VY/208VY/220V/380VY/400VY/415VY/440VY **(Option:480VY/600VY)**										
Input Voltage Range	±20% (> ±20% is available upon request)										
Input Frequency	50Hz or 60Hz or 400Hz (Please specify)										
Input Frequency Range	±3Hz (wider ranges offered, please consult)										
Power Walk In	0% ~ 100%: 20Sec										
Efficiency	≒ 98%										
Rectification Type	6 Pulse Standard, 12 Pulse Optional								12 Pulse Standard		
OUTPUT											
Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/460VΔ **(Option:480VΔ/600VΔ)** 3phase+N:200VY/208VY/220V/380VY/400VY/415VY/440VY **(Option:480VY/600VY)** **(Option: ±10% adjustable from nominal)**										
Voltage Regulation	±1% from Set Point										
Frequency (Select One)	50 or 60Hz ±0.1Hz **(Option-1: 400Hz)(Option-2: Switch Selectable 50/60Hz)** **(Option-3: Frequency Adjustable ±10% from nominal)**										
Wave Form	Pure Sine Wave										
Power Factor	0.8										
Phase Shift	120% ±0.5° (100% Unbalance Load)										
Total Harmonic Distortion	< 3% (0~100% Linear Load)										
Overload Capacity	<110% Continuous, 125%/15Mins, 150%/5Mins, >150%/30Secs										
Efficiency (100% Load) (%)	93	93	93	93	93.5	93.5	94	94.5	94.5	95	95
Overall Efficiency (%)	91	91	91	91	91.5	92	92	92.5	92.5	93	93
Max. Heat Dissipation (kw)	1.1	1.2	1.3	1.9	2.6	3.0	3.5	4.6	5.4	6.5	8.7
BTU/h @ Full Load (K)	2.4	3.6	4.8	6.5	8.9	10.3	12	16	19	22	30
PROTECTION											
Over/Under Voltage	Alarm										
Output Short Circuit	Current Limited and cut-off and fuse and breaker										
Overload	Auto-shutdown 1 Minute. Auto Restore when back to normal										
Over Temperature	Auto-shutdown										
Lightning / EMC Filter	MOV / Input & Output (FCC CLASS A)										
Galvanic Isolation	Input & Output True Galvanic Isolation										
INDICATORS & ALARM											
LCD Data Display	Real Time Status, Data or Historical Events, Parameters, Real Time Clock, Inv & Buzzer										
LED Data Display	Up to date information (Status) to The User & Audible Alarm										
INTERFACE											
Communication Interface	Contact Closure, RS-232/485 Supports Remote Control Module Option: SNMP Card, Modbus										
STANDARDS											
EMI/EMC	EN50091-1,-2, CE Approved										
UL (Option)	ANS/UL1778, 4th Edition, Rev.July 28'06, CAN/CSA C22.2 #107.3-05.Rev.July'06										
OUTLOOKS											
Capacity (KVA)	10	15	20	30	40	50	60	80	100	120	160
Size (H*W*D/mm)	1600*550*800							1600*1100*800			
Net Weight at 220/380V (Kgs)	370	410	450	580	600	710	850	980	1150	1300	1620
ENVIRONMENT											
Audible Noise(at 1m)(dBA)	＜65							＜67			
Relative Humidity	0%~90%（Non-Condensing）										
Operating Temperature	0~40℃（32~104℉）										
Altitude	＜1500M Above Sea Level										

10~60KVA

80~160KVA

Remarks:
1. Different specifications required are available
2. All specifications mentioned above are subject to change without prior notice.

Technical Specification (3-Phase Input / 3-Phase Output)

200~320KVA

400~1000KVA

MODEL	SPF 33200	SPF 33250	SPF 33300	SPF 33320	SPF 33400	SPF 33450	SPF 33500	SPF 33600	SPF 33800	SPF 331000
Capacity (KVA)	200	250	300	320	400	450	500	600	800	1000
INPUT										
Input Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/415VΔ/460VΔ (Option:480VΔ/600VΔ) 3phase+N:200VY/ 208VY/220VY/380VY/400VY/415VY/440VY (Option:480VY/600VY)									
Input Voltage Range	±20% (> ±20% is available upon request)									
Input Frequency	50Hz or 60Hz or 400Hz (Please specify)									
Input Frequency Range	±3Hz (wider ranges offered, please consult)									
Power Walk In	0% ~ 100%: 20Sec									
Efficiency	≒ 98%									
Rectification Type	12 Pulse Standard									
OUTPUT										
Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/460VΔ (Option:480VΔ/600VΔ) 3phase+N:200VY/208VY/220VY/380VY/400VY/415VY/440VY (Option:480VY/600VY) (Option: ±10% adjustable from nominal)									
Voltage Regulation	±1% from Set Point									
Frequency (Select One)	50Hz or 60Hz ±1% (Option-1: 400Hz) (Option-2: Switch Selectable 50/60Hz) (Option-3: Frequency Adjustable ±10% from nominal)									
Wave Form	Pure Sine Wave									
Power Factor	0.8									
Phase Shift	120% ±0.5° (100% Unbalance Load)									
Total Harmonic Distortion	< 3% (0~100% Linear Load)									
Overload Capacity	<110% Continuous, 125%/15Minutes, 150%/5Minutes, >150%/30seconds									
Efficiency(100% Load) (%)	95	95	95	95	95	95	94.5	94.5	95	96.5
Overall Efficiency (%)	93	93	93	93	94	94	95	95	95	96
Max.Heat Dissipation (kw)	13	13.5	1.9	17.4	21.7	25.2	27	32.6	43.4	56.4
PROTECTION										
Over/Under Voltage	Alarm									
Output Short Circuit	Current Limited and cut-off and fuse and breaker									
Overload	Auto-shutdown 1 Minute. Auto Restore when back to normal									
Over Temperature	Auto-shutdown									
Lightning / EMC Filter	MOV / Input & Output (FCC CLASS A)									
Galvanic Isolation	Input & Output True Galvanic Isolation									
INDICATORS & ALARM										
LCD Data Display	Real Time Status,Data or Historical Events, Parameters, Real Time Clock, Inv & Buzzer									
LED Data Display	Up to date information (Status) to The User & Audible Alarm									
INTERFACE										
Communication Interface	Contact Closure, RS-232/485 Supports Remote Control Module Option: SNMP Card, Modbus									
STANDARDS										
EMI/EMC	EN50091-1,-2, CE Approved									
UL (Option)	ANS/UL 778, 4th Edition, Rev. July 28 '06, CAN/CSA C22.2 #107.3-05.Rev.July'06									
OUTLOOKS										
Capacity (KVA)	180	250	300	320	400	450	500	600	800	1000
Size – Height (mm)	1600				1900	1900	1900	1900		1900
Size – Width (mm)	2240				2240	3380	3380	3910		4460
Size – Depth (mm)	800				1000	1000	1000	1000		1000
N.W. at 220/380V (Kgs)	2450	2650	2900	2980	3720	3780	5000	6400	6500	8000
ENVIRONMENT										
Audible Noise(at 1m)(dBA)	＜67					<75	<75	<80	<85	
Relative Humidity	0%~90%（Non-Condensing）									
Operating Temperature	0~40℃（32~104℉）									
Altitude	＜1500M Above Sea Level									

Remarks:
1. Different specifications required are available
2. All specifications mentioned above are subject to change without prior notice.

Technical Specification (3-Phase Input / 1-Phase Output)

MODEL	SPF 3110	SPF 3115	SPF 3120	SPF 3130	SPF 3140	SPF 3150	SPF 3160	SPF 3180
Capacity (KVA)	10	15	20	30	40	50	60	80
INPUT								
Input Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/460VΔ **(Option:480VΔ/600VΔ)** 3phase+N:200VY/ 208VY/220V/380VY/400VY/415VY/440VY **(Option:480VY/600VY)**							
Input Voltage Range	±20% (> ±20% is available upon request)							
Input Frequency	50Hz or 60Hz or 400Hz (Please specify)							
Input Frequency Range	±3Hz (wider ranges offered, please consult)							
Power Walk In	0% ~ 100%: 20Sec							
Efficiency	≒ 98%							
OUTPUT								
Voltage (Select One)	1 Phase 100V/110V/115V/120V/ 200V/208V/220V/230V/240V **(Option: ± 10% adjustable from nominal)**							
Phase	1 Phase, 2W+G (Optional 3W)							
Voltage Regulation	± 1% from Set Point							
Frequency (Select One)	50 or 60Hz ±0.1Hz **(Option-1: 400Hz)** **(Option-2: Switch Selectable 50/60Hz)** **(Option-3: Frequency Adjustable ±10% from nominal)**							
Power Factor	0.8							
Total Harmonic Distortion	< 3% (0~100% Linear Load)							
Overload Capacity	<110% Continuous, 125%/15Minutes, 150%/5Minutes, >150%/30seconds							
Efficiency (100% Load) (%)	93	93	93	93	93.5	93.5	94	94.5
Overall Efficiency (%)	91	91	91	91	91.5	92	92	92.5
Max. Heat Dissipation (kw)	1.1	1.2	1.3	1.9	2.6	3.0	3.5	4.6
BTU/h @ Full Load (k)	2.4	3.6	4.8	6.5	8.9	10.3	12	16
PROTECTION								
Over/Under Voltage	Alarm							
Output Short Circuit	Current Limited and cut-off and fuse and breaker							
Overload	Auto-shutdown 1 Minute. Auto Restore when back to normal							
Over Temperature	Auto-shutdown							
Lightning / EMC Filter	MOV / Input & Output (FCC CLASS A)							
Galvanic Isolation	Input & Output True Galvanic Isolation							
INDICATORS & ALARM								
LCD Data Display	Real Time Status,Data or Historical Events, Parameters, Real Time Clock, Inv & Buzzer							
LED Data Display	Up to date information (Status) to The User & Audible Alarm							
INTERFACE								
Communication Interface	Contact Closure, RS-232/485 Supports Remote Control Module Option: SNMP Card, Modbus							
STANDARDS								
EMI/EMC	EN50091-1,-2, CE Approved							
UL (Option)	ANS/UL 1778, 4th Edition, Rev. July 28 '06, CAN/CSA C22.2 #107.3-05.Rev.July'06							
OUTLOOK								
Capacity (KVA)	10	15	20	30	40	50	60	80
Size (H*W*D/mm)	1600*550*800							1600*1100 *800
Net Weight at 220/380V (Kgs)	370	400	450	580	600	710	850	980
ENVIRONMENT								
Audible Noise (At 1m) (dBA)	＜65							＜67
Relative Humidity	0%~90% （Non-Condensing）							
Operating Temperature	0~40℃（32~104℉）							
Altitude	＜1500M Above Sea Level							

10~60KVA

80~160KVA

Remarks:
1. Different specifications required are available
2. All specifications mentioned above are subject to change without prior notice.

Technical Specification (1-Phase Input / 3-Phase Output)

10~60KVA

80~160KVA

MODEL	SPF 1310	SPF 1315	SPF 1320	SPF 1330	SPF 1340	SPF 1350	SPF 1360	SPF 1380
Capacity (KVA)	10	15	20	30	40	50	60	80
INPUT								
Voltage (Select One)	1 Phase 100V/110V/115V/120V/ 200V/208V/220V/230V/240V							
Voltage Range	±20% (> ±20% is available upon request)							
Input Frequency	50Hz or 60Hz or 400Hz (Please specify)							
Input Frequency Range	±3Hz (wider ranges offered, please consult)							
Power Walk In	0% ~ 100%: 20Sec							
Efficiency	≒ 98%							
OUTPUT								
Voltage (Select One)	3phase 3W:200VΔ/220VΔ/380VΔ/460VΔ **(Option:480VΔ/600VΔ)** 3phase+N:200VY/208VY/220VY/380VY/400VY/415VY/440VY **(Option:480VY/600VY)** **(Option: ± 10% adjustable from nominal)**							
Voltage Regulation	±1% from Set Point							
Frequency (Select One)	50 or 60Hz ± 0.1Hz **(Option-1: 400Hz)** **(Option-2: Switch Selectable 50/60Hz)** **(Option-3: Frequency Adjustable ±10% from nominal)**							
Power Factor	0.8							
Phase Shift	120% ±0.5° (100% Unbalance Load)							
Distortion (THD)	< 3% (0~100% Linear Load)							
Overload Capacity	<110% Continuous, 125%/15Minutes, 150%/5Minutes, >150%/30seconds							
Efficiency (100% Load) (%)	93	93	93	93	93.5	93.5	94	94.5
Overall Efficiency (%)	91	91	91	91	91.5	92	92	92.5
Max.Heat Dissipation (kw)	1.1	1.2	1.3	1.9	2.6k	3.0	3.5	4.6
BTU/h @ Full Load (k)	2.4	3.6	4.8	6.5	8.9	10.3	12	16
PROTECTION								
Over/Under Voltage	Alarm							
Output Short Circuit	Current Limited and cut-off and fuse and breaker							
Overload	Auto-shutdown 1 Minute. Auto Restore when back to normal							
Over Temperature	Auto-shutdown							
Lightning / EMC Filter	MOV / Input & Output (FCC CLASS A)							
Galvanic Isolation	Input & Output True Galvanic Isolation							
INDICATORS & ALARM								
LCD Data Display	Real Time Status, Data or Historical Events, Parameters, Real Time Clock, Inv & Buzzer							
LED Data Display	Up to date information (Status) to The User & Audible Alarm							
INTERFACE								
Communication Interface	Contact Closure, RS-232/485 Supports Remote Control Module Option: SNMP Card, Modbus							
STANDARDS								
EMI/EMC	EN50091-1,-2, CE Approved							
UL (Option)	ANS/UL 1778, 4th Edition, Rev. July 28 '06, CAN/CSA C22.2 No.107.3-05.Rev.July'06							
OUTLOOKS								
Capacity (KVA)	10	15	20	30	40	50	60	80
Size (H*W*D/mm)	600*550*800							1600*1100 *800
Net Weight at 220/380V(Kgs)	370	400	450	580	600	710	850	980
ENVIRONMENT								
Audible Noise(at 1m)(dBA)	＜65dBA							＜67dBA
Relative Humidity	0%~90% (Non-Condensing)							
Operating Temperature	0~40℃ (32~104℉)							
Altitude	＜1500M Above Sea Level							

Remarks:

1. Different specifications required are available
2. All specifications mentioned above are subject to change without prior notice.

Technical Specification (1-Phase Input / 1-Phase Output)

MODEL	SPF 1110	SPF 1115	SPF 1120	SPF 1130	SPF 1140	SPF 1150	SPF 1160
Capacity (KVA)	10	15	20	30	40	50	60
INPUT							
Voltage (Select One)	1 Phase 100V/110V/115V/120V/ 200V/208V/220V/230V/240V						
Voltage Range	±20% （>±20% is available upon request）						
Frequency	50Hz or 60Hz or 400Hz ±3Hz (Please specify)						
Power Walk In	0~100%: 20 seconds						
OUTPUT							
Voltage (Select One)	1 Phase 100V/110V/115V/120V/ 200V/208V/220V/230V/240V **(Option: ±10% adjustable from nominal)**						
Phase	1 Phase, 2W+G (Optional 3W)						
Voltage Regulation	± 1% from Set Point						
Frequency (Select One)	50 or 60Hz ± 0.1Hz **(Option: 400Hz)** **(Option: Switch Selectable 50/60Hz)** **(Option: Frequency Adjustable ±10% from nominal)**						
Wave Form	Pure Sine Wave						
Power Factor	0.8						
Total Harmonic Distortion	< 3%　(0~100% Linear Load)						
Overload Capacity	<110% Continuous, 125%/15Minutes, 150%/5Minutes, >150%/30seconds						
Efficiency (100% Load) (%)	93	93	93	93	93.5	93.5	94
Overall Efficiency (%)	91	91	91	91	91.5	92	92
Max. Heat Dissipation (kw)	1.1	1.2	1.3	1.9	2.6	3.0	3.5
BTU/h @ Full Load (K)	2.4	3.6	4.8	6.5	8.9	10.3	12
PROTECTION							
Over/Under Voltage	Alarm						
Output Short Circuit	Current Limited and cut-off and fuse and breaker						
Overload	Auto-shutdown 1 Minute.　Auto Restore when back to normal						
Over Temperature	Auto-shutdown						
Lightning / EMC Filter	MOV / Input & Output (FCC CLASS A)						
Galvanic Isolation	Input & Output True Galvanic Isolation						
INDICATORS & ALARM							
LCD Data Display	Real Time Status, Data or Historical Events, Parameters, Real Time Clock, Inv & Buzzer						
LED Data Display	Up to date information (Status) to The User & Audible Alarm						
INTERFACE							
Communication Interface	Contact Closure, RS-232/485 Supports Remote Control Module Option: SNMP Card, Modbus						
STANDARDS							
EMI/EMC	EN50091-1,-2, CE Approved						
UL (Option)	ANS/UL 1778, 4th Edition, Rev. July 28 '06, CAN/CSA C22.2 No.107.3-05. Rev. July'06						
OUTLOOK							
Capacity (KVA)	10	15	20	30	40	50	60
Size (H*W*D/mm)	1600*550*800						
Net Weight at 220V (Kgs)	370	400	450	580	600	710	850
ENVIRONMENT							
Audible Noise(at 1m)(dBA)	＜65						
Relative Humidity	0%~90%（Non-Condensing）						
Operating Temperature	0~40℃（32~104℉）						
Altitude	＜1500M Above Sea Level						

10~60KVA

Remarks: 1. Different specifications required are available
2. All specifications mentioned above are subject to change without prior notice.

Peripheral Options

Communications Options

- **UPSCAN™ - Remote Control Panel**
  A hand held remote display and control module with LCD and LED display that can monitor up to 99 Frequency Converters via RS-485 at a remote distance up to <1,000M (up to 3,000feet.)

- **GPRS MODEM - Auto-dialing Module**
  In case of abnormal situation, it will automatically dial to specified service center for help. Multiple phone numbers can be set and no dedicated line is required.

- **NET AGENT**
  Can provide real-time three phases information of Frequency Converter connected on the line and monitor 31 Frequency Converters max. with one PC.

- **3 Phase SNMP Card**
  Can monitor and manage the Frequency Converters through Web browser and Java applet, providing simultaneously three phases data acquisition.

- **Emergency Stop Switch (EPO)**
  Be installed outside or nearby the Frequency Converters for stopping the Frequency Converters output in case of emergency.

Other Options

- **Shock Mount Option**
  The cabinet can be shock mounted using optional rubber or coil type isolators. This will enable the unit to withstand shock levels as specified in MIL-S-901.

- **Ruggedizing Option**
- **Casters & Levelers**
- **Cable Entrance Direction**
  Cable entry can be from Front, Side, Rear or Top side

PRODUCT QUARANTEE

Reliability and Serviceability (MTBF & MTTR)

Reliability is a feature that is designed and integrated into every piece of equipment that carries the Satech Power name. This is accomplished by utilizing state of the art circuitry which substantially reduces the total number of components (especially heat producing components). The result is greater efficiency, high reliability and low cost. A study of installed units has indicated a MTBF of over 300,000 hours! MTBF figures are based upon ground fixed normal 25-degree ambient temperature and proper and preventive maintenance.

The MTTR for all items offered is approximately 30 minutes. Part of the maintenance and repair philosophy of the units is to use the BIT equipment to aid in fault isolation. At that point, a decision is made to either replace an LRU or a component within the power supply with a spare. The construction methods used throughout the SPF Series provide for user friendly service. All circuit boards are plug in and are easily accessed from the front of the system. Power modules are designed on slide out trays for easy access to all power semiconductors and similar power components. The MTTR value specified is based upon proper training of local maintenance technicians and engineers.

Military and Rugged Commercial (COTS) Designs

The SPF series feature robust construction quality and rugged designs. They are suitable for demanding military, industrial, and commercial applications. Most products can be equipped to meet MIL-STD-461, MIL-STD-810, MIL-STD-901, MIL-STD-167, MIL-STD-1399, MIL-STD-1472, and other important specifications as required, please consult the factory about your specific application.