CP POWER
AND AUTOMATION LTD

The SCSFC Range

Energy Efficiency with Superior Electrical Protection

The SCSFC range is a frequency converter (SFC) range featuring high-performance, on-line double conversion technology (VFI). It provides reliable power supply while achieving significant energy and cost savings in terms of installation and operation. It achieves this through its unity input power factor (PF=1) and low input current distortion rate (THDi even lower than 1%). Its power factor (PF=0.9), provides optimum electrical protection to existing systems and low output voltage harmonic distortion (THDv down to below 0.5%). This makes it capable of converting any type of linear load (resistive, inductive or capacitive), non-linear load (electronic equipment, servers, etc.) or combinations of the two. The SCSFC range provides maximum adaptability including, the possibility of parallel redundant expansion and extensive communication options. The unit's lightweight design and reduced size enables it to be easily installed.

The SCSFC range allows for conversion from 50Hz to 60Hz or 60Hz to 50Hz via a selectable output. The unit comes with the option to add batteries in the event that some autonomy is required.

The Lowest Input Current Distortion THDi in the Market

The unit provides input current distortion THDi < 1% (1) at full load, and even THDi < 5% with only 10% load. This prevents contamination of upstream mains supply, enables use of smaller power generators, cabling, protections, etc., and contributes to improving the quality of the power.

Unity Input Power Factor

The unit offers near unity power factor, irrespective of the load percentage (from 10% load, the PF is greater than 0.99). This results in less reactive power consumption and reduces operating and installation costs.

Compact Design

The unit provides maximum power density in a small amount of space. The backup batteries are often located in the same cabinet. This allows for up to 60% less space.

Availability

Fourth generation trench gate IGBT technology

The fourth generation insulated-gate bipolar transistors (IGBTs) allow for higher switching frequencies with lower losses. This reduces acoustic noise while increasing performance.

DSP (Digital Signal Processing) Control

The DSP control provides excellent computing power for complex digital control loops. The unit provides an excellent distribution of output current when connected to a parallel system. The current control provides greater immunity and increases the unit's reliability.

Excellent THDv Output Distortion

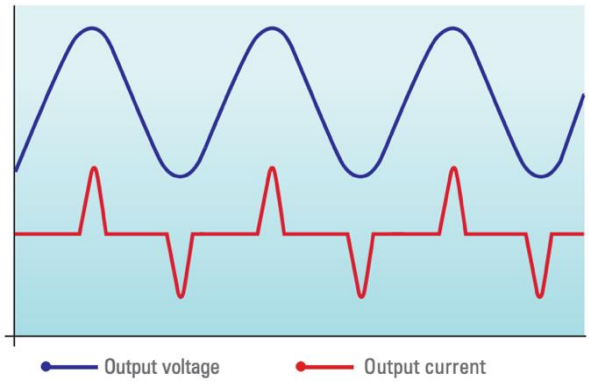
The unit operates with excellent THDv output distortion (THDv < 0.5 % at full linear load and THDv < 1.5 % with nonlinear load). This allows a perfect sinusoidal supply voltage for high crest factor critical loads, improving the unit's functioning and longevity. The units are fully flexible and adaptable different environments.

Optional Battery Care and Monitoring (Batt-Watch)

Improvement of battery charging functions and monitoring of essential parameters has extended the battery life, reduced the amount of time to charge the batteries and the maintenance costs.

Static and Maintenance Bypass

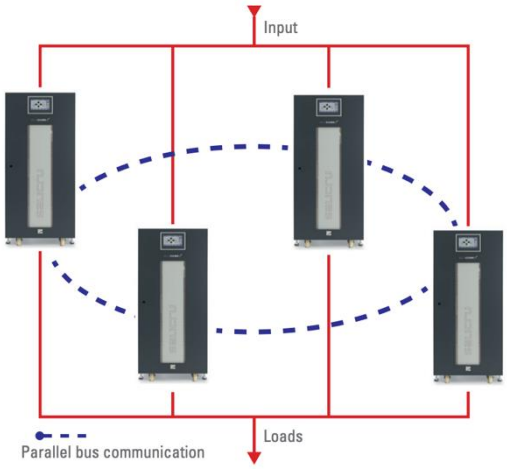
The static and maintenance bypass enables loads to be transferred without interruption directly to the mains in the event of severe overload or for maintenance work. This provides greater availability of service in a number of different situations (severe overload, short circuit, malfunction, etc.).



Flexibility and Adaptability

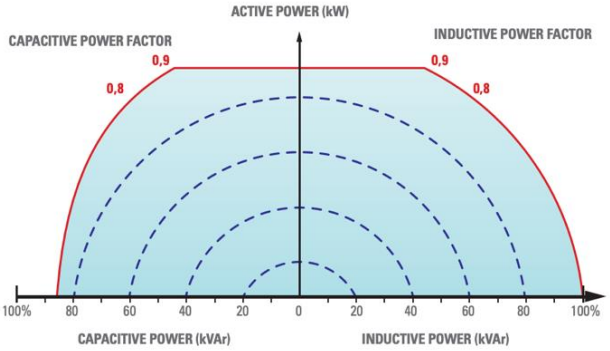
Parallel-Redundant Configuration (N+1)

The unit has been designed to connect up to 4 units without the need for additional hardware for installations with redundancy objectives or for increased power. This improves the systems safety and reliability in critical installations.



Output power factor = 0.9

The SCSFC series has optimum energy protection for existing equipment with active power supplies. This provides a greater power protection capability and versatility for the type of loads to be protected.



Soft Start for Power Walk-in Rectifier

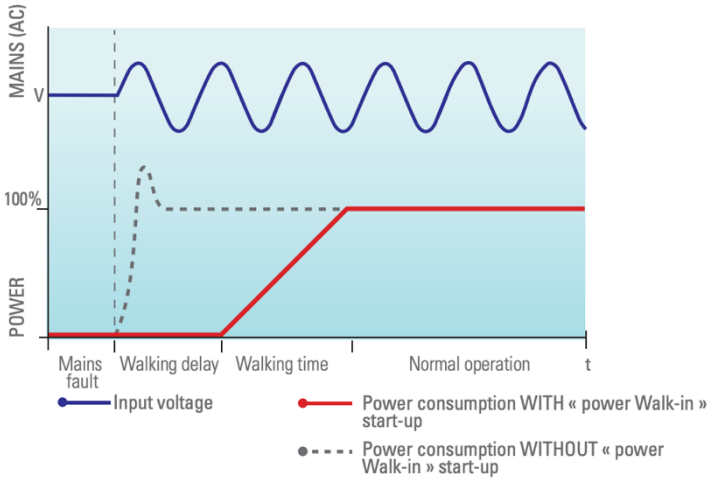
The rectifier will start-up progressively based on a pre-set time when the SFC is in battery discharge and the mains is restored. This applies only if the option to include batteries has been taken.

Input/ Output Configuration Flexibility

All voltage input and output combinations (three/three, three/ single, single/single, single/three) are available up to 60 kVA.

Wide Range of Options Available

These include; an extended backup, charger for Ni-Cd and gel batteries, external manual bypass, separate bypass line, humidity and temperature sensors, frequency converters, battery monitoring, battery sets for parallel systems, and customisation of the unit according to the needs of each installation.



Easy installation and service

Incorporation of wheels

On models up to 120 kVA, the SFC systems are equipped with wheels. This makes the device easier to move when installing and during maintenance.

Front access for connections and operations

All connections and operations are carried out from the front of the device. This facilitates operability, eliminating the need for side or rear access.

Management and Communication

Backup Calculation (Optional)

The unit will provide an estimation of the remaining backup time in the event of a prolonged mains voltage outage. This is valuable information in the event that power is lost.

Extensive Control and Monitoring Options

The unit has a 7" touch screen panel (standard from 80 kVA, optional up to 60 kVA) and multiple communication options.

Android Wireless Link Application

Access to the UPS measurements, alarms and operation is available from any Android smartphone or tablet through Bluetooth communication.

Extensive Communication Options

The unit comes complete with monitoring, management and shutdown software, as well as adapters and communication ports for any IT environment. Integration of the UPS with the environment in which it operates.

Communications

The SCSFC series incorporates a completely autonomous communication system that can report on the status of the unit and enable it to carry out pre-set actions.

> Relay interface.

> RS-232/485 port.

> 1 x free slot.

MODBUS/SEC protocol:

> To facilitate communication with network management systems.

2 x connectors for parallel connection:

> No need for additional hardware for parallel/redundant operation.

Looking After the Environment

More than 80% recyclable materials

The majority of the unit's components are recyclable, making it very environmentally friendly.

TSS - Technical Support & Service

Technicians are able to provide support should you need it.

> **Start-up:** Cabling checks, start-up and training course.

> **Telephone technical support**

> **Preventative/corrective intervention**

> **Maintenance contracts**

> **Training**

Options

- Extended backup times: In cases where greater backup is required, additional battery cabinets are available.
- Monitoring and management software: For sending emails and SMS messages and performing scheduled shutdowns, etc.
- Shutdown software: For computers in heterogeneous networks, where different operating systems coexist.
- Ethernet/SNMP adapter: Enables management of the UPS without the need for an associated PC.
- Android wireless link.
- 1 x additional RS-232/485 serial port.
- Temperature and humidity sensors.
- External manual bypass.
- 7” colour touch screen, up to 60 kVA
- BACS II: Monitoring, regulation and alarm system for lead batteries.
- Battery set for parallel systems.
- Dual-level charger for NiCd and gel batteries.
- Voltage input/output configurations up to 60 kVA single/single-phase, three/single-phase and single/three phase.
- Isolation transformer: For instances when complete galvanic isolation between the UPS input and output is required.

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Technical Specifications

TECHNOLOGY			On-line, double conversion, HF, DSP control
INPUT	Nominal voltage [1]		Single-phase 120 / 127 / 220 / 230 / 240 V Three-phase 3 x 208 / 3 x 220 / 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+N)
	Voltage margin		+15% / -20% (configurable)
	Frequency		50 / 60 Hz
	Total Harmonic Distortion (THDi)	7.5 ÷ 20 kVA	100% load: <1.5% / 50% load: <2.5% / 10% load: <6.0%
		30 ÷ 80 kVA	100% load: <1.0% / 50% load: <2.0% / 10% load: <5.0%
		100 ÷ 200 kVA	100% load: <1.5% / 50% load: <2.0% / 10% load: <6.0%
	Power factor		1 from 10% load
	Rectifier topology		Three-phase IGBT full wave, soft start, PFC, transformerless
OUTPUT	Nominal voltage [1]		Single-phase 120 / 127 / 220 / 230 / 240 V Three-phase 3 x 208 / 3 x 220 / 3 x 380 / 3 x 400 / 3 x 415 V (3Ph+N)
	Accuracy	State	± 1% steady / ± 2% dynamic
		Response time	20 ms for load steps 0% ÷ 100% and voltage drop up to -5%
	Frequency	Synchronised	50/60 Hz ±5 Hz (selectable)
		Free running	50/60 Hz ±0.05%
	Maximum synchronisation speed		From 1 Hz/s to 10 Hz/s (programmable)
	Total Harmonic Distortion (THDv)	Linear load	<0.5%
		Nonlinear load	<1.5% (EN-62040-3)
	Output Power Factor		0.9
	Admissible overload		125% for 10 min / 150% for 60 s
	Admissible crest factor		>3:1
	Total efficiency in On-line mode		7.5÷60 kVA: 92.0%÷93.0% / 80÷200 kVA: 94.0%÷95.0%
	Efficiency in Smart Eco-mode		Up to 98,4%
STATIC BYPASS	Type and activation criteria		Solid state, controlled by microprocessor
	Transfer time	On-line mode	Nil
		Smart Eco-mode	4 ms (typical)
	Transfer to bypass		Immediate, for overloads exceeding 150%
	Retransfer		Automatic, after alarm deactivation
MANUAL BYPASS	Type		Without interruption
BATTERIES	Type (standard)		Lead acid, sealed, maintenance free
	Charge voltage regulation		Batt-Watch
COMMUNICATION	Ports		1 x RS232/RS485 + 1xUSB, with Modbus protocol
	Interface to relays		4 x AC failure, bypass, low battery and general
	Free slots		1, for SNMP/SICRES
	Display	Up to 60 kVA	LCD display, LEDs and keyboard
		From 80 kVA	Touch screen 7" color
GENERAL	Operating temperature		0° C ÷ +40° C
	Relative humidity		Up to 95%, non-condensing
	Operating altitude		2,400 masl [3]
	Acoustic noise at 1 metre		<52 dB(A) [2]
STANDARDS	Safety		EN-62040-1-2; EN-60950-1
	Electromagnetic Compatibility (EMC)		EN-62040-2
	Operating		VFI-SS-111 according to EN 62040-3
	Quality and Environmental Management		ISO 9001 and ISO 14001

Information subject to change without notice.

(1) Single-phase 120 / 127 V available up to 30 kVA inclusive and three-phase 3 x 208 / 3 x 220 V available up to 100 kVA inclusive.
(2) <65 dB(A) for 80 to 120 kVA models / <70 dB(A) for 160 and 200 kVA models.
(3) Power derating for higher altitudes up to 5000 masl.