

PRODUCT BROCHURE

SureWave SFC 250 kVA to 10 MVA

Static Frequency Converter



- Minimize operating and maintenance costs
- High reliability provides maximum power availability
- Reduced CO₂ emissions

Customer values

Providing highly reliable, clean and efficient frequency conversion

Customer Values



10,000kVA

Scalable power from 250 kVA to 2.25 MVA for a single system. Parallel connection enables loads up to 10 MVA.



1,400,000 USD*

Savings over product lifetime compared with less efficient Rotary Frequency Converter systems.



15 minutes

System MTTR <15 minutes due to modular design enables fast replacement of parts to minimize unscheduled downtime.



900,000 hours

Power module MTBF provides superior system availability for continuous and critical loads.



\$ 351,000 kg*

CO₂ emissions are 351 tons lower than Rotary Frequency Converter throughout the lifespan of the product.

Note: *2.25MVA SFC block



Features vs. Benefits

Overview

Feature	Benefit
Modern power module design	High power density, compact footprint, high efficiency, and clean, stable sinewave output
Modular redundancy	High reliability with high availability for critical load
Bi-directional power flow capability	Allows supply to or from a ship
Double conversion	Ride through most common utility voltage sags and frequency variations, isolating and protecting sensitive load
Virtual Generator	Optimal and simple load sharing and grid interaction
Live load-bus synchronization	Allows the SureWave to synchronize with an AC live load-bus, and seamlessly take over the load
Overall robust system design	Superior overload capability, superb fault clearing capacity, and exceptional industrial load profile handling
Optimized termination cabinets	Functional cable routing options for easy installation and maintenance
Quick connect modules	Fast replacement, low MTTR, high system availability and operational safety
ABB Ability	Remote monitoring

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Maximize your availability
 Minimize your operation expenses
 Trust what's Sure

SureWave SFC

About

SureWave Static Frequency Converters are commonly used to interconnect 50 Hz and 60 Hz systems.

The SureWave SFC combines ABB's years of experience with market trends and knowledge and has driven the need to create the next generation Static Frequency Converter – ABB's SureWave SFC.

The new generation of Static Frequency Converter (SFC) allows the connection of 60 Hz powered equipment to a 50 Hz supply network and 50 Hz powered equipment to a 60 Hz supply network.

Additionally, the SureWave SFC can stabilize the frequency to allow the correct operation of sensitive equipment when the supply is not sufficiently regulated. Also, the SureWave SFC can convert the supply voltage to a different voltage to match the requirement of the load - An isolation transformer might be required if the voltage is out of the SFC specifications.

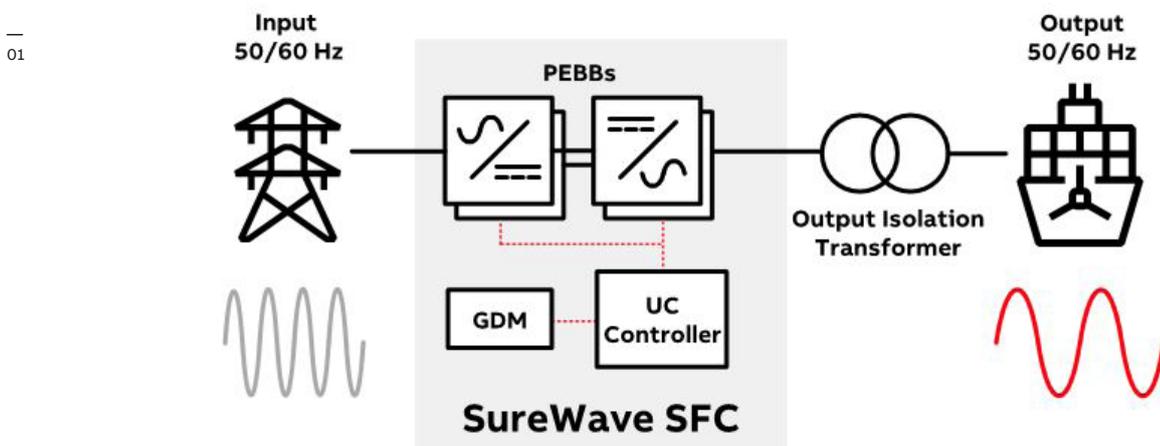
How it works

The system functions by converting the input AC power through a sine-wave rectifier to a DC link and then through an AC sine-wave inverter to produce a clean, full sine-wave output at the new

frequency and voltage. For correct operation of the power electronics an isolation transformer is required as part of the SFC system. The isolation transformer can be applied to the input or output of the SFC.

The SureWave SFC is extremely flexible in terms of paralleling with other voltage sources, either generators or multiple SFC units. Parallel load sharing is achieved using frequency and voltage droop profiles programmed into the converter. Starting the SFC into the live bus is greatly simplified due to the automatic output synchronization feature. This enables a full seamless transfer from generator supply to SFC supply on the output bus.

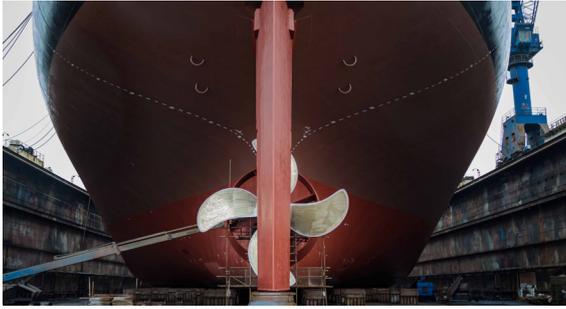
Sharing the load with different power sources e.g., diesel generators and interacting with the electrical network is never an issue, due to the "Virtual Generator" feature which fundamentally emulates the response of a typical generator by digitally synthesizing the operation of the AVR, inertia and governor of a typical generator.



Typical applications

Providing complete grid interconnection

Marine sector



Electrification of shipyards and drydocks



Onboard frequency conversion solutions



Shore to ship power



Replacement of rotary frequency converters

Industrial sector



Different frequency grids interconnection



Different frequency industrial relocation



Replacement of rotary frequency converters



As a clean power supply stabilizing voltage and frequency for sensitive load

Technical Specifications

SureWave SFC

Class	Description
AC voltage	(380 – 480) V line-line
AC frequency range	(50 – 60) Hz
Efficiency	96% (typical @100% load)
THDi at the input terminals	< 3% (at rated load)
THDv at the output terminals	< 2.5% (linear load)
Overload capability	250% for 2 seconds
Graphic Display Module (GDM)	Functional, high resolution, resistive 10" display
Acoustic noise	<80 dBA @ 1 m
Cooling exhaust	Top hat
Input termination cabinet (only for >750 kVA)	Left or right
Cable entry (only for >750 kVA)	Top or bottom
Communication	MODBUS TCP/IP, Ethernet

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SureWave SFC: Front on image

Product Range

SureWave SFC

	1 PE120			2 PE120			3 PE120		
Module pairs	1	2	3	4	5	6	7	8	9
Termination Cabinet	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
I/O Breaker	N/A	N/A	N/A	E4.2 2000	E4.2 2000	E4.2 2000	E4.2 3200	E4.2 3200	E4.2 3200
Breaker rating current [A]	N/A	N/A	N/A	2000	2000	2000	3200	3200	3200
Nominal output current [A]	300	600	900	1200	1500	1800	2100	2400	2700
Nominal output power [kVA]	250	500	750	1000	1250	1500	1750	2000	2250
Max output power [kW]	225	450	675	900	1125	1350	1575	1800	2025





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