

Product Brochure

# ABB Power Converter Solutions

## PCS100 SFC, 125 kVA to 10 MVA

### Static Frequency Converter

Power and productivity  
for a better world™



# Providing highly reliable, clean and efficient frequency conversion

## Product overview

A state of the art static frequency converter, the PCS100 SFC uses ABB's latest modular converter design providing highly reliable, clean and efficient power conversion. The system is internally configured as a parallel arrangement of modular rectifiers and inverters all controlled by a central master controller. Each rectifier draws a clean sinewave current at unity power factor from the utility supply. Each inverter produces a clean sinewave voltage to supply the output load.

The inverter modules use the latest high performance Insulated Gate Bipolar Transistor (IGBT) power switching devices controlled by a micro-controller. Each module has an LED display indicating the module number or status. A serial communication backplane links each module back to a master controller. The modular design makes the system compact and highly serviceable. In the unlikely event of a failure, individual converter modules can be removed and replaced with minimal downtime. This only requires simple disconnection of power cables and unplugging of the control cables.

Each PCS100 SFC requires a transformer for correct operation, which can be connected to the input or the output. This provides isolation of common mode voltages generated by the PCS100 SFC's power electronic converters and allows matching of the converters operating voltage (300 V to 480 V) to customer requirements (LV or MV).

## Typical applications

- 50 to 60Hz or 60 to 50Hz industrial applications
- Dockside converter allows generators to be turned off while at port to save fuel and eliminate pollution
- Replacement of motor generator sets
- As a clean power supply to isolate an unstable grid from a critical load

## PCS100 Static Frequency Converter (SFC)



# PCS100 SFC, 125 kVA to 2000 kVA

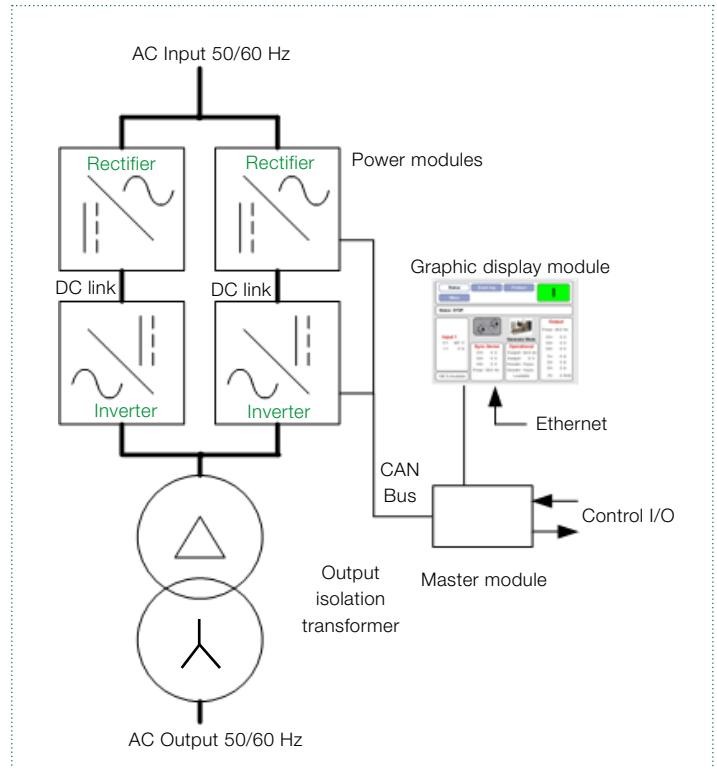
## User benefits

- Minimize operating and maintenance costs
- High reliability provides maximum power availability
- Keeps equipment running through utility voltage sags and frequency variation
- Protects sensitive and expensive loads
- Compact design requires minimal space

## Features

- High efficiency power conversion
- Clean sinewave output voltage
- Unity power factor, sinewave, active rectifier design
- Modular design giving high reliability and short repair times
- Fully isolated AC connection using an output transformer
- Wide range of voltages available; 50Hz and 60Hz
- Small footprint design
- Touch screen color graphic display (GDM)
- Internal web server and Modbus TCP allows remote monitoring
- Output cable voltage drop compensation
- Seamless generator change over option (synchronization)
- Generator emulation and load sharing

## Single line diagram



## Technical specifications

Input	
Connection voltage	200 to 480 VAC (any LV and MV with transformer)
Connection frequency	25 to 65 Hz
Line power factor	Unity (adjustable)
AC current distortion	< 3.0 % at rated power
Output	
Output voltage	380 to 480 VAC (any LV and MV with transformer)
Output frequency	50 or 60 Hz
Voltage harmonics	THD < 3.0 %
Efficiency of system	95% typical (at full power)
Converter capacity	100% model rating
Max overload capacity	30 seconds 150%
Short circuit limit	0.5 seconds 200%
Standards	
Safety, EMC	Designed to CE mark req IEC62103
UL	Pending

## Environmental

Enclosure rating	IP21 or IP23
Pollution degree rating	2
Min operating temp	0°C, 32°F
Max operating temp	50°C, 122°F (derated >40°C, 104°F)
Cooling	Forced ventilation
Humidity	< 95% non-condensing
Noise	75-85 dBA @ 2m
Standard Color	RAL7035

## Interface

User interface	Graphic display module touch panel
Access protocol	Ethernet, Modbus-TCP, dry contacts
	Optional Modbus RS485, Analog I/O
Sag Ride ThroughTime	2 sec at 50% supply voltage, 80% load

## Model ratings and dimensions

Model	Current Rating (A) @ 40°C	Load kVA @ 480V <sup>1)</sup>	Converter/Connection Cabinet		Transformer Cabinet		Number of module pairs
			Dimensions HWD in / mm <sup>2) 4)</sup>	Weight lbs / kg	Dimensions HWD in / mm <sup>2)</sup>	Weight lbs / kg <sup>3)</sup>	
SFC-0125	150	125	84.8 x 31.9 x 31.7 2154 x 809 x 804	1,896 / 860	Included in converter cabinet		1
SFC-0250	300	250	84.8 x 31.9 x 31.7 2154 x 809 x 804	1,325 / 601	84.8 x 31.9 x 31.7 2154 x 809 x 804	2,002 / 908	2
SFC-0375	450	375	84.8 x 31.9 x 31.7 2154 x 809 x 804	1,678 / 761	84.8 x 47.6 x 31.7 2154 x 1209 x 804	3,329 / 1,510	3
SFC-0500	600	500	90.7 x 63.3 x 31.7 2304 x 1609 x 804	3,314 / 1,503	90.7 x 47.6 x 31.7 2304 x 1209 x 804	4,211 / 1,910	4
SFC-0625	750	625	90.7 x 79.1 x 31.7 2304 x 2009 x 804	3,907 / 1,772	90.7 x 47.6 x 31.7 2304 x 1209 x 804	5,093 / 2,310	5
SFC-0750	900	750	90.7 x 94.8 x 31.7 2304 x 2409 x 804	4,259 / 1,932	86.6 x 88.6 x 63 2200 x 2250 x 1600	6,173 / 2,800	6
SFC-0875	1050	875	90.7 x 110.6 x 31.7 2304 x 2809 x 804	5,088 / 2,308	86.6 x 88.6 x 63 2200 x 2250 x 1600	6,614 / 3,000	7
SFC-1000	1200	1000	90.7 x 126.3 x 31.7 2304 x 3209 x 804	5,701 / 2,586	86.6 x 88.6 x 63 2200 x 2250 x 1600	7,055 / 3,200	8
SFC-1125	1350	1125	90.7 x 126.3 x 31.7 2304 x 3209 x 804	6,054 / 2,746	86.6 x 88.6 x 63 2200 x 2250 x 1600	7,496 / 3,400	9
SFC-1250	1500	1250	90.7 x 173.6 x 31.7 2304 x 4409 x 804	7,511 / 3,407	92.5 x 90.6 x 63 2350 x 2300 x 1600	8,157 / 3,700	10
SFC-1375	1650	1375	90.7 x 189.3 x 31.7 2304 x 4809 x 804	8,157 / 3,700	92.5 x 90.6 x 63 2350 x 2300 x 1600	8,488 / 3,850	11
SFC-1500	1800	1500	90.7 x 189.3 x 31.7 2304 x 4809 x 804	8,510 / 3,860	92.5 x 90.6 x 63 2350 x 2300 x 1600	8,818 / 4,000	12
SFC-1625	1950	1625	90.7 x 205.1 x 31.7 2304 x 5209 x 804	9,365 / 4,248	92.5 x 90.6 x 63 2350 x 2300 x 1600	9,039 / 4,100	13
SFC-1750	2100	1750	90.7 x 220.8 x 31.7 2304 x 5609 x 804	10,031 / 4,550	92.5 x 90.6 x 63 2350 x 2300 x 1600	9,370 / 4,250	14
SFC-1875	2250	1875	90.7 x 220.8 x 31.7 2304 x 5609 x 804	10,384 / 4,710	92.5 x 90.6 x 63 2350 x 2300 x 1600	9,700 / 4,400	15
SFC-2000	2400	2000	90.7 x 236.6 x 31.7 2304 x 6009 x 804	11,248 / 5,102	92.5 x 90.6 x 63 2350 x 2300 x 1600	10,141 / 4,600	16

All specs are subject to change without prior notice.

- 1) Parallel load sharing allows operation of multiple PCS100 SFC's up to 10MVA
- 2) Dimensions are for side-by-side configuration. Back to back configuration dimensions will vary
- 3) Weights are for LV transformers. For MV, transformers add 25% approx
- 4) For IP23 enclosure, add 100mm to depth.

For more information please contact:

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