RELIANCE ELECTRIC

February, 2013

SS4000

Bidirectional Converter with Sinusoidal PWM Technique

SS4000

is a regenerative converter with the PWM technique involving generation of digital pure-sine waveform.

In combination with an inverter drive, SS4000 achieves amazing energy savings and cost effectiveness through efficient use of power.

SS4000 reduces the effects of high harmonic radiation and is suitable to serve as a common DC bus supply multiple drives can share.

What is a sinusoidal PWM converter?

In SS4000, the duty cycle is modulated such that the average voltage of the waveform corresponds to a pure sine wave. Minimizing harmonics of the output by the use of automatic switching techniques, SS4000 provides a capacitive-voltage-balancing capability.

Constant converter output voltage allowing motoring and regeneration to full capacity

The input current waveform is shaped closely to the input voltage sinusoidal waveform.
SS4000 detects the converter output voltage and automatically gets control of monitoring and regeneration capabilities.
SS4000 is designed to provide a constant output voltage.

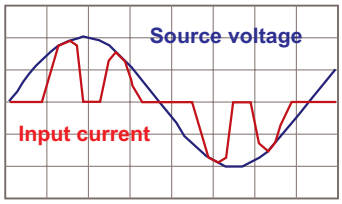
Major cost reduction of power systems

Through the control of power factor and sinusoidal PWM technique, SS4000 makes an inexpensive and reliable pure-sine wave converter with less harmonic energy delivered to a load and less power loss.
This feature brings on significant cost savings over the entire facility including power transmitting cable and power receiving system.
Compared to conventional diode-rectified converters, SS4000 reduces power supply capacity by up to 70%.

Sinusoidal PWM strategies for reducing total harmonic distortion in the output sine wave and minimizing impact of harmonics caused by a capacitor or transformer on a power system

Conventional converter (Diode rectifier)

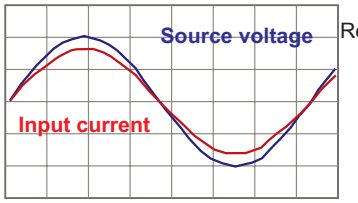
Motoring



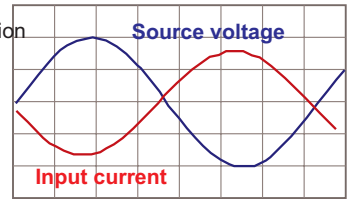
Distortion **80%** (Rated current)

SS4000 (Sinusoidal PWM)

Motoring



Regeneration



Distortion **5%** (Rated current)

SS4000 Specifications

230V

Output capacity	7.5 kW	18.5 kW			65 kW		
Parallel connections of units	Single	Single	Two	Three	Single	Two	Three
Model	SS4207	SS4218	SS4218 SS4218P	SS4218 SS4218P SS4218P	SS4265	SS4265 SS4265P	SS4265 SS4265P SS4265P
Motor capacity	7.5	18.5	37	55	65	130	195
Input power factor	0.95 or higher						
Carrier frequency	5, 10 (Standard), 15						
Output voltage	350 (Standard)						
Rated output current	28	65	130	195	190	380	570
Max output current	42	97.5	195	292.5	285	570	855
Protection	Against overcurrent, overload, overvoltage, low voltage, phase loss						

460V

Output capacity	15 kW	37 kW			125 kW		
Parallel connections of units	Single	Single	Two	Three	Single	Two	Three
Model	SS4415	SS4437	SS4437 SS4437P	SS4437 SS4437P SS4437P	SS441B	SS441B SS441BP	SS441B SS441BP SS441BP
Motor capacity	15	37	75	110	125	250	375
Input power factor	0.95 or higher						
Carrier frequency	5, 10 (Standard), 15				5, 10 (Standard), 15		
Output voltage	700 (Standard)						
Rated output current	28	65	130	195	190	380	570
Max output current	42	97.5	195	292.5	285	570	855
Protection	Against overcurrent, overload, overvoltage, low voltage, phase loss						

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