



## ► CS IS – CS WAVE: Industrial DC/AC converters with high quality performances

The current industrial processes, more and more specialized, include a great variety of critical loads that should be fed and protected properly. In fact, it is easy to find out loads that are fed in alternating current, meanwhile other ones are in direct current. This variety in the electric power supply has made that the applied solutions has to be re-studied and optimized, by supplying those loads with one or another voltage but, at the same time, assuring the global efficiency of the set.

The DC/AC converters, **CS IS** and **CS WAVE** series of SALICRU, are based on advanced technical solutions like the high switching frequency with magnetic flow control, the bi-directional operating, the transformerless structure or the control by tracking with the purpose of obtaining the highest efficiency, low distortion and high stability. The **CS WAVE** series is in charge of the conversion up to 2000 VA while the **CS IS** series makes the same in higher powers. The permissible DC nominal voltages go from 24 to 220 Vdc.



► CS 4000-IS Model



► CS 1000-WAVE Model



► CS 2000-WAVE Model

## ► QUALITY PERFORMANCES

- PWM modulation <sup>(1)</sup> + magnetic flow control <sup>(2)</sup> technologies.
- Bi-directional operating <sup>(2)</sup>.
- Control by tracking: output wave compared step by step against a pre-recorded signal <sup>(2)</sup>.
- Static bypass (standard in CS WAVE).
- Wide voltage range and output powers availability.
- High input voltage fluctuation.
- Protection against input reverse polarity.
- Harmonic distortion (THDv) < 3%.
- LCD panel, as standard.
- Communication through relay interface or RS-232 / RS-485.
- Digital control of the servosystem.
- Short-circuit tolerance.
- Excellent dynamic behaviour.
- High efficiency.
- Automatic start up when input voltage is restored.
- Soft start.
- Effective input, output, harmonic and bypass filtering.
- Isolation transformer at the bypass input (optional).
- Possibility of Eco-Mode operating.
- 19" rack or floorstanding enclosure formats <sup>(1)</sup>.
- 2 in 1 format floorstanding / rack <sup>(2)</sup>.

<sup>(1)</sup> CS IS

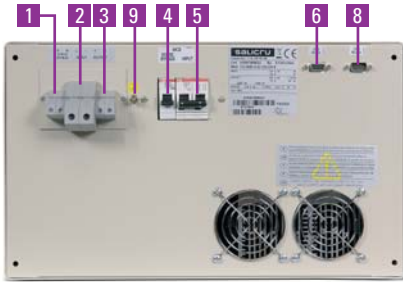
<sup>(2)</sup> CS WAVE

## ► APPLICATIONS: Energy conversion for industrial plants

The **CS IS** and **CS WAVE** series of SALICRU provides an alternating current of quality from a direct current energy source (usually batteries) for the most varied industrial applications like cogeneration and biomass plants, gas generating, water distributors, power stations, telecommunications, etc.

## CONNECTIVITY

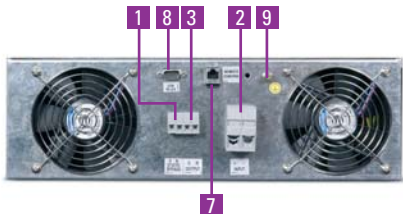
1. Static bypass terminals.
2. DC input terminals.
3. AC output terminals.
4. Static bypass circuit breaker.
5. DC input circuit breaker.
6. RS-232 or RS-485 interface.
7. RS-485 interface.
8. Relay interface.
9. Main earthing terminal.



► CS 4000-IS model



► CS 1000-WAVE model



► CS 2000-WAVE model

## OPTIONALS

### CS IS

- Static bypass.
- Input, output, battery, bypass and harmonic filters.
- Isolation transformer at bypass line.
- Psophometric filter.

### CS WAVE

- Manual bypass.
- Isolation transformer at bypass line.

## SERVICES

- Before and after sales advice service.
- Multiple formulas of maintenance and telemaintenance.



## TECHNICAL SPECIFICATIONS

MODEL		CS WAVE	CS IS	
TECHNOLOGY		PWM technology with flow control at 33kHz	PWM modulation	
INPUT	DC nominal voltage	24 V, 48 V, 120 V, 125 V	24 V, 48 V, 110 V, 120 V, 125 V, 220 V	
	Voltage range	- 17%, + 20%		
OUTPUT	AC nominal voltage	230 V	110 V, 120 V, 127 V, 220 V, 230 V, 240 V	
	Accuracy	± 2%		
	Frequency	50 Hz		
	Frequency range	Synchronised	- 0,5 Hz + + 1 Hz	0,1 Hz + 9,9 Hz in steps of 0,1 Hz
		Free running	± 0,01 Hz	
	Permissible power factor		0,7 lagging to 0,7 leading	
	Steady state		± 2%	± 1%
	For load steps of 100%		± 5%	± 2%
	Response time till 98%		1 ms	10 ms
	Slew rate		1 Hz / s	
THDv	Linear loads	< 3%	< 2%	
	Non-linear loads	< 5%	< 3%	
Permissible overload		125% for 1 minute / short-circuit for 1 second	150% for 30 seconds / 125% for 45 seconds	
Efficiency		Up to 92%		
Crest factor		3 to 1		
Short-circuit output		Yes		
BYPASS	Technology	Static with semiconductors		
	Permissible overload of 400%	2 seconds	10 seconds	
	Transference time	Nil		
GENERALS	Operating temperature	0° C + + 40° C	- 10° C + + 40° C	
	Cooling	Forced		
	Relative humidity	Up to 95%, non-condensing		
	Maximum operating altitude	2400 m.a.s.l.		
INDICATORS	LCD panel	ON/OFF, screen selection, input and output voltages, inverter and bypass frequencies, % output power	Bypass input/output voltages, output power, input/output frequencies, DC input voltage, heatsink temperature, alarm menu, setting screens.	
	Optical	NA	Equipment ON, bypass ON, inverter ON, general alarm	
COMMUNICATIONS	Ports	Relay interface and RS-485	Relay interface and RS-232 or RS-485	
STANDARDS	Safety	EN 60950-1		
	Electromagnetic compatibility (EMC)	EN 61204-3; ETS 300 386-2		
	Marking	CE		
	Quality and environmental management	ISO 9001 and ISO 14001 TÜV		

Data liable to changes without prior notice.

## RANGE

MODEL	POWER (VA)	INPUT VOLTAGE (Vdc)						DIMENSIONS (D x W x H mm)		WEIGHT (Kg)
		24	48	110	120	125	220	CASE	RACK	
CS 500-WAVE	500		•					385 x 425 x 85	385 x 483 x 2U	10
CS 800-WAVE	800	•						425 x 425 x 128	425 x 483 x 3U	19
CS 1000-WAVE	1000		•		•	•		385 x 425 x 85	385 x 483 x 2U	10
CS 2000-WAVE	2000		•		•	•		425 x 425 x 128	425 x 483 x 3U	19
CS 3000-IS	3000	•	•	•	•	•		585 x 436 x 465	550 x 483 x 6U	67
CS 4000-IS	4000		•	•	•	•		585 x 436 x 465	550 x 483 x 6U <sup>(1)</sup>	69
CS 5000-IS	5000		•	•	•	•		585 x 436 x 465	550 x 483 x 6U <sup>(1)</sup>	75
CS 6000-IS	6000			•	•	•		585 x 436 x 465	-	85
CS 8000-IS	8000			•	•	•		600 x 600 x 1000 <sup>(2)</sup>	-	135
CS 10000-IS	10000			•	•	•		600 x 600 x 1000 <sup>(2)</sup>	-	140
CS 12000-IS	12000				•	•		600 x 600 x 1000 <sup>(2)</sup>	-	155
CS 15000-IS	15000					•		600 x 600 x 1000 <sup>(2)</sup>	-	173
CS 20000-IS	20000					•		600 x 600 x 1000 <sup>(2)</sup>	-	200

(1) No filters

(2) Cabinet

For other powers and/or configurations consult.

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