

# 6-30 amp, DC-DC Converters

## Key Features

- **High Efficiency**—for long term energy savings
- **Current Limiting**—permits parallel operation
- **Compact Design**—reduces rack space requirements
- **Quiet Operation**—enables location close to the system to eliminate the need for long cable runs.

## Description

The Lorain® HS series of DC-DC converters utilize a high frequency technology that combines top performance characteristics with high efficiency operation for both long life and low operating costs.

The common, compact cabinet can be configured to deliver a wide range of output voltage and current combinations to accurately meet your system requirements. Each provides quiet operation, accommodations to wide input voltage step changes, and current limiting circuitry to permit parallel operation.

The HS series have many popular standard features. All models have a series output diode which connects in either the negative or positive lead, enabling parallel/redundant operation with other converters. The 24 volt models also have a shunt output diode which permits connecting the converters' outputs in series with a battery to maintain the battery to a load in the event of a converter failure. The series also have an adjustable voltage limiter with alarms. The high voltage output alarm automatically shuts down the converter in the event that output exceeds the preset limit and activates the alarm relay. The low voltage alarm activates when the input or output voltage decreases below the preset limit or if the converter is manually shut down. Activation of this alarm, for any reason, will illuminate the "Converter Fail" LED, provide two pair of closed loops, and extend ground when connected.

Operating controls and adjustments are easily accessible and the reversible mounting angles simplify installation and converter system design.

Models HSB16A and HSB30A may be furnished with optional circuitry which enables the output voltage to be adjusted over the range of 20 to 24 volts.

## Application

The Lorain HS series of DC-DC converters are ideal for many wireline and wireless applications where performance and efficiency are critical.

## Additional Information

For additional specification, engineering, and installation information, specify model and spec. number per table on back.



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## Specifications

### Input

Voltage: See table below

Current: See table below

Filtering: Noise reflected back to a 100 amp hour battery is less than 26dBrnC

Protection:

Undervoltage — Low battery voltage sensing circuit causes output voltage and current to be reduced to zero when input voltage decreases to a predetermined limit

Fusing — See table below

### Output

Voltage: See table below

Current: See table below

Regulation:

Static — Steady-state output voltage remains within  $\pm 2\%$  of the adjusted voltage for any load current from no load to full load for the specified input voltage range

Dynamic — For a step load change of 50% of full load within the range of 10% to 100% of full rated current, the maximum voltage transient will not exceed  $\pm 5\%$  of the initial steady-state voltage

Filtering:

Voice Band — Noise is less than 26dBrnC

Wide Band — Does not exceed 1% of rated output voltage (peak-to-peak) over the frequency range of 10 Hz to 50 MHz

### Protection

Fusing — See table below

Current Limiting — Circuit limits DC output current to 100% to 110% (adjustable) of full load

Overvoltage — Voltage trip circuit breaker and high voltage sensing circuit disconnects the input voltage when the output voltage exceeds a predetermined value

### Environmental

Operating Temperature: 0° C to +50° C (+32° F to +122° F)

Storage Temperature: -20° C to +65° C (-4° F to +149° F)

Heat Dissipation: See table below

Ventilation Requirements: The unit should be mounted so that bottom and top ventilating openings are not blocked and air entering the bottom of the cabinet does not exceed +50° C (+122° F)

Audible Noise: Operating frequency is beyond audible range

### Physical Characteristics

Mounting: unit furnished with mounting angles for either 19" (48.26cm) with 1.75" (4.45cm) multiple drilling or 23" (58.42cm) with 1" (2.54cm) or 1.75" (4.45cm) multiple drilling.

Dimensions:

Height: 5.19" (13.18cm)

Width: 17.13" (43.50cm)

Depth: 12" (50.48cm)

DC-DC CONVERTER SELECTION											
Model	Spec. No.	Input			Output			Full Load Typical Efficiency	Heat Distribution Btu/hr.	Weight lbs. (kgs.)	
		Volts	amps	Fuse	Volts	amps	Fuse			Net	Shipping
HSB16A	563500800	-48	12.6	15A	±24	16	20A	81%	310	22 (9.98)	27 (12.25)
HSB30A	564500300		23.5	30A		30	40A		585		
HSB6H	588240500		17.6/ 35.2	50A	±130	6/12	10A	88%	338	26 (11.79)	31 (14.06)



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