

3-15 amp Modular DC-DC Converter with 3 amp Converter Modules

Key Features

- **Modular Design**—for expansion of operating capacity in small increments
- **High Efficiency**—for greater energy savings
- **Positive or Negative Input**—to match your system requirements
- **Compact Design**—requires less than 7" (17.78cm) of vertical rack space
- **Quiet Operation**—permits installation near the system, eliminating long cable runs
- **UL Listed**—compliance with local codes

Description

The Lorain® MZHSA15CAB DC-DC converter utilizes the latest technology to produce a compact, high efficiency unit with modular design. Expand capacity from 3 amps to 15 amps (in 3 amp increments) as demand grows while minimizing rack space utilization. Significant energy savings can be realized with 82% minimum converter efficiency at nominal input and 15 amp load.

These converters will accept either positive or negative 24 VDC input and have 12 amp fuses on both the negative and positive input leads. Output capacities range from 3 amps to 15 amps of -48 VDC power, depending upon the number of modules in use. The system capacity expands with simple front accessible plug-in modules which do not require system shutdown for installation or replacement.

The unit features a converter fail alarm, current limiting, overvoltage protection, overtemperature protection, slope load sharing for parallel operation and easily accessible input and output connections for simplified installation.

Application

The MZHSA15CAB's compact size, ability to configure to either polarity, and expandability, is ideal for 24 VDC wireless sites requiring -48 VDC power.

Additional Information

For additional specification, engineering and installation information, specify model MZHSA15CAB, spec. number 588240600 (cabinet) and spec. number 486808500 (module).

Specifications

Input

Voltage: 24.0 (21 to 28) VDC, either polarity

Current: 36.3 amps (at full load e/w five 3 amp modules)

Circuit Protection: 12 amp fuses are located in both the negative and positive input leads of each converter module.

Recommended Input Fusing: (External to unit) 50 amp fuse (with five 3 amp modules installed)

Filtering: Noise reflected back to the battery is less than 22dBmC and is within the parameters set forth in Bellcore technical reference TR-TSY-000009.

Efficiency: 82% minimum, nominal input, 15 amp load.



Model MZHSA15CAB DC-DC Converter

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Specifications (continued)

Output

Voltage: -48.0 VDC

Current:

15 amp maximum with a +40° C (+104° F) ambient temperature

12 amp maximum with a +50° C (+122° F) ambient temperature

(3/2.4 amps per DC-DC converter module, respectively)

Regulation: Steady state output voltage remains within ± 1 volt of the set point for any load current from no load to full load for the specified input voltage range.

Dynamic Response: For a step load change of 50% within the range of 10% to 100% of full load, the maximum voltage transient does not exceed 5% of the initial steady state voltage.

Filtering: Voice band noise is less than 22dBmC. Wide band noise does not exceed 100 mV peak to peak over the frequency range of 0 to 20 MHz.

Load Sharing: Each DC-DC converter module has slope load sharing and an output isolation diode for parallel operation.

Protection

Overvoltage Protection: Each DC-DC converter module will automatically shut down and lock out should its output voltage exceed 115% to 135% of nominal voltage.

Overcurrent Protection: When the output current of each DC-DC converter module tries to increase beyond a preset value (105% to 125% of full load), the output voltage of the module will decrease to limit current to this value. The output will recover to within specified limits when the overload condition is removed.

Overtemperature Protection: Each DC-DC converter module will automatically shut down and lock out should the internal temperature of the module exceed +95° C (+203° F) $\pm 5\%$.

Failure Alarm: A red LED is located on the front of each DC-DC converter module. The LED will illuminate if the voltage drops below 40 VDC. A converter fail alarm is extended through a set of Form C relay contacts to a terminal block in the rear of the cabinet.

Environmental

Operating Temperature:

0° C to +45° C (+32° F to +113° F) at 12 amps

0° C to +35° C (+32° F to +95° F) at 15 amps

Storage Temperature: -40° C to +85° C (-40° F to +185° F)

Humidity: 0% to 95% relative humidity, non-condensing

Ventilation/Altitude: The maximum ambient operating temperature should be derated linearly from +50° C (+122° F) at sea level to +40° C (+104° F) at an elevation of 10,000' (3,048m)

Audible Noise: Operating frequency is beyond audible range.

Heat Dissipation: When equipped with:

(1) module, 106 Btu/hr maximum

(5) modules, 521 Btu/hr maximum

EMI/RFI Suppression: This unit conforms to the radiated noise requirements of FCC rules Part 15, Subpart B, Class A. Additionally, conducted EMI on the DC input and output leads conforms to the requirements of NEMA PE-7-1985.

Physical Characteristics

Mounting: This unit is designed for 19" (48.26cm) relay rack mounting. For 23" (58.42cm) mounting, order two 23" (58.42cm) adapter plates.

Dimensions:

Height: 6.78" (17.22cm)

Width: 19" (48.26cm)

Depth: 6.67" (16.93cm)

Weight: 16 lbs. (7.26 kgs)



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