80 Amp LORAIN®
DC-DC Converter Mounting Frame with 20 Amp Converter Modules

DC Power for
Business-Critical Continuity™

Key Benefits and Features

- Modular design provides for system redundancy and easy expansion of operating capacity in small increments
- Hot insertion capability allows for system expansion without disruption
- Unique frame design fits into a PCU slot of the rectifier shelf, thus conserving valuable space for additional equipment
- Isolated input to output
- UL recognized to ensure safe and reliable performance
- NEBS level 3 compliance meets or exceeds industry standards

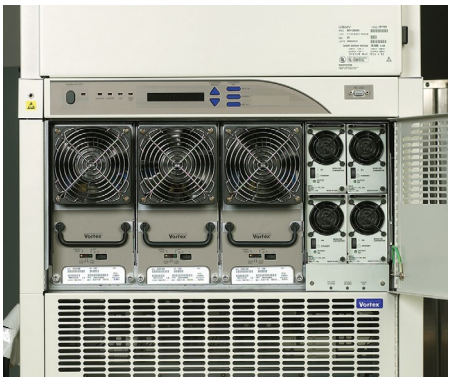
Standard Features

- Converter MINOR alarm
- Converter MAJOR alarm
- Current limiting
- Over-voltage protection
- Over-temperature protection
- Load sharing for parallel operation
- Easily accessible output connections for simplified installation

Compact, cost effective, modular design, ideal for -48 VDC applications requiring +24 VDC output.

Description

The LORAIN® modular DC to DC converter system provides up to 320 amps at +24 VDC via high frequency switch mode converters rated at 20 amps each. A unique frame design mounts into a PCU slot in the rectifier shelf and can accommodate four converter modules. Four of these frames can be configured in a system. Distribution devices for the +24 volt output are located in the main distribution cabinet and are available in various quantities. -48 VDC input and expandable +24 VDC output makes this system ideal for both cellular radio and microwave sites with dual voltage requirements.



Vortex® Power System
with 80 Amp Converter Frame

Modular design allows the converter's capacity to expand as your system expands. The MHSB80FRM converter frame can accept four individual, 20-amp plug-in converter modules. The modules can be easily installed live without system interruption.

Application

The LORAIN® DC to DC converter system's compact size and expandability makes it ideal for -48 VDC wireless sites requiring +24 VDC output.

Additional Information

For additional specification, engineering or installation information, specify model MHSB80FRM spec. number 588249600 (frame) and model MHSB20A spec. number 486800128 (module).

Compatible Vortex® Shelves and Systems

Emerson Model Number	Specification Number
V200ICAB	588700701
V200ECAB	588700801
V260ICAB	588703600
V260ECAB	588703700
1231V2	582125000, 582125100
V260/340ECAB	588704700

EMERSON
Network Power

80 Amp LORAIN® DC-DC Converter Mounting Frame with 20 Amp Converter Modules

Specifications

80 amp Converter Frame

Input	
Voltage	-48.0 volts DC nominal, with range of -42 to -56 volts DC
Current	52.4 amps maximum (at full load with four 20 amp modules, 42VDC input)
Circuit Protection	20 amp fuse is located in the negative input lead of each converter module.
Filtering	Noise reflected back to the battery is less than 32dBrnC and is within the parameters set forth in Telcordia technical reference TR-TSY-000009, using test measurements in PUB43802, pages 5 and 6.
Efficiency	87% typical
Output	
Voltage	+24.0 VDC
Current	20 amps per DC-DC converter module, up to a total of 80 amps per frame with four modules installed.
Regulation	Steady state output voltage remains within ±0.5 volt of the pre-adjusted voltage for any load current from no load to full load and over the specified input voltage range.
Dynamic Response	For a step load change of 50% within the range of 10% to 100% of full rated current, the maximum voltage transient will not exceed 5% of the initial steady state voltage.
Filtering	Voice band noise is less than 32dBrnC. Wide band noise does not exceed 150 mV peak to peak over the frequency range of 0 to 20 MHz. Wide band noise does not exceed 15 mV rms over the frequency range of 0 Hz to 20 MHz.
Protection	
Overvoltage	Each DC-DC converter module will automatically shut down and lock out should its output voltage exceed 115% to 125% of nominal voltage. Manual restart is necessary after the overvoltage condition is corrected.
Overcurrent	When the output current of a DC-DC converter module increases to a preset value between 102.5% to 115% of rated full load, the output voltage of the module will automatically decrease to limit current to this value. The output will recover to within specified limits when the overload condition is removed.
Over Temperature	Each DC-DC converter module will automatically shut down if the internal temperature of the module exceeds a pre-determined value. Operation will automatically resume after the over-temperature condition is removed.
Status/Alarm Indicators	
Frame	Minor Alarm LED (yellow) and contact single DC-DC Converter Module failure Major Alarm LED (red) and contact two or more DC-DC Converter Module failures Input OK LED (green) the input voltage source is within operating limits
Module	Output OK LED (green) and contact output voltage is between the low and high voltage alarm limits and fan is operating normally
Environmental	
Operating Temperature	-40°C to +65°C (-40°F to +149°F)
Storage Temperature	-40°C to +85°C (-40°F to +185°F)
Humidity	0% to 95% relative humidity, non-condensing
Altitude	The maximum operating ambient temperature should be derated linearly (1°C per 1000 ft) at elevation above 3000 ft.
Audible Noise	The audible noise at any point 5 ft from any vertical surface of the cabinet shall not exceed 60dB-A per ANSI S1.4.
EMI/RFI Suppression	When mounted in a rectifier shelf, this unit conforms to the requirements of FCC Part 15, Subpart B, Class B and EN55022, Class B for radiated and conducted noise.

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