

## SYSTEM OVERVIEW

**Description:** -48 VDC @ up to 12000 Amperes Power System

The Vertiv™ NetSure™ 7100 DC Power System is an integrated power system containing -48 VDC rectifiers, optional +24 VDC converters, optional -58 VDC converters, optional inverter system, intelligent control, metering, monitoring, and distribution.

This power system is designed to power a load while charging a positive grounded battery. This power system is capable of operating in a batteryless installation or off battery for maintenance purposes. The power system is designed for operation with the positive output grounded.

This system consists of the following components.

- **Distribution Cabinet**

The system always includes a minimum of one distribution cabinet, which provides DC distribution through fuses and/or circuit breakers. The distribution cabinet is factory mounted in a relay rack, on shipping brackets, or in an enclosure as specified when ordered.

Four different sizes of distribution cabinets are available to accept from one (1) to four (4) distribution panels. A variety of distribution panels are available that provide load distribution, battery distribution, and dual voltage load distribution for use with +24 VDC converters or -58 VDC converters. These distribution panels are configured to accept either bullet nose type circuit breakers and TPS/TLS fuseholders, TPH fuses, or GJ/218 circuit breakers. A bulk output panel is also available.

The distribution cabinet may be equipped with low voltage load disconnect (LVLD), low voltage battery disconnect (LVBD), and manual battery disconnect.

- **Controller**

**NCU:** The controller provides power system control (including optional low voltage battery disconnect (LVBD) and low voltage load disconnect (LVLD) control), rectifier control (including a charge control function), converter control, inverter control, metering functions, monitoring functions, and local/remote alarm functions. The controller also supports rectifier temperature compensation if the system is equipped with a temperature probe(s). Temperature probe(s) may also be designated to monitor ambient temperature and/or battery temperature. The controller also provides data acquisition, system alarm management, and advanced battery and energy management. The controller contains a color LCD display and keypad for local access. The controller provides an Ethernet port and comes with comprehensive webpages for remote access. The controller has SNMP v3 capability for remote system management. The controller supports software upgrade via its USB port. Refer to the NCU Controller Instructions (UM1M830BNA) for more information.

- **Module Mounting Assembly (Spec. No. 588705300)**

The system may contain one or more Spec. No. 588705300 module mounting assemblies, each of which houses 2000 watt rectifier modules, optional +24 VDC, 1500 watt DC-DC converter modules, and optional 1600W average (2000W peak) DC-DC converter modules.

- **Rectifier Modules (for use in Spec. No. 588705300)**

The system contains 2000 watt rectifier modules; which provide load power, battery float current, and battery recharge current during normal operating conditions. Refer to the Rectifier Instructions (UM1R482000e3) for more information.

- **Optional -48 VDC to +24 VDC Converter Modules (for use in Spec. No. 588705300)**

Where +24 VDC load power is also required, 1500 watt DC-DC converter modules are available. Refer to the Converter Instructions (UM1C48241500) for more information.

- **Optional -48 VDC to -58 VDC Converter Modules (for use in Spec. No. 588705300)**

Where -58 VDC load power is also required, converter modules are available. These converters operate from the main -48 VDC system bus to provide -58 VDC load power. Refer to the Converter Instructions (UM1C48582000P3) for more information.

- **Module Mounting Assembly (Spec. No. 588705400)**

The system may contain one or more Spec. No. 588705400 module mounting assemblies, each of which houses up to six (6) 3500 watt rectifier modules.

- **Rectifier Modules (for use in Spec. No. 588705400)**

The system contains 3500 watt rectifier modules; which provide load power, battery float current, and battery recharge current during normal operating conditions. Refer to the Rectifier Instructions (UM1R483500e3) for more information.

- **Optional Inverter System**

120 VAC @ up to 12 kVA Inverter System

The system contains one or more inverter module mounting shelves and AC distribution.

The inverter system can be set to operate in one of the three input power modes, AC Input Power Mode, DC Input Power Mode, and DC Input Only Power Mode:

- In the AC Input Power Mode, each inverter module operates with the commercial AC input to supply 120 VAC power to the loads. In the event commercial AC power fails or becomes abnormal, the inverter modules immediately transfer operation with the 48 VDC input to power to the inverters.
- In the DC Input Power Mode, each inverter module operates with the 48 VDC input to supply 120 VAC power to the loads. In the event DC power fails or becomes abnormal or an inverter module fails, the inverter module immediately transfers operation with the commercial 120 VAC input to power to the inverters.
- In the DC Input Only Power Mode, each inverter module operates with the 48 VDC input to supply 120 VAC power to the loads. In the event DC power fails or becomes abnormal or an inverter module fails, the inverter module shuts off.

The inverter system contains an EPO (Emergency Power Off) function. Connection points for a normally closed external EPO switch are provided on the customer interface board. If an external EPO switch is wired to the customer interface board, activating the switch to open the circuit activates the EPO function. The EPO function shuts down and locks out the inverters. When the EPO switch is returned to normal (closed loop), the inverters remain off. The inverters will restart when the AC and DC power inputs are removed and restored after 30 seconds or more (until the LEDs on the modules extinguish) (depending on the synchronizing time with the system). (Note that there is an EPO shorting link factory installed that can be replaced with a customer provided switch.)

**Note:** *The power system's ESTOP function described in the power system Installation Manual (IM582137100) is factory wired into the inverter system's EPO function. If an EPO switch is not wired, the inverter system will still respond to the power system's ESTOP function.*

This inverter system consists of the following components. Note that the inverter systems are pre-configured and do not have expansion shelves. Note the ratings are not only determined by the maximum number of inverters the system can be provided with, but also the rating of the AC distribution panel. The overall system rating cannot exceed the AC distribution panel rating.

- **Inverter Module Mounting Shelf(s)**

The inverter system consists of one or more inverter module mounting shelves, depending on power rating. The inverter module mounting shelves house the inverter modules.

- **Inverter Modules**

The inverter system contains 1 kVA/1 kW inverter modules (1 kVA at 40 °C and 0.5 kVA at 65 °C), supplying 120 VAC power from a commercial AC power source or from a 48 VDC input. Refer to the Inverter Instructions (UM1I1201000) for more information.

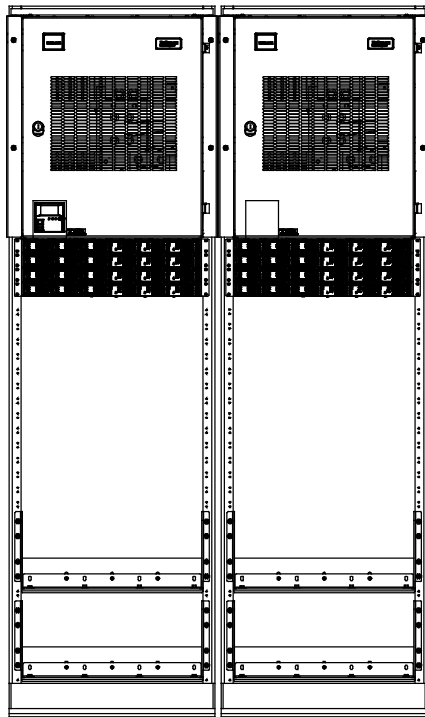
- **AC Load Distribution Shelf**

The inverter system consists of one or more AC load distribution shelves, depending on power rating. A choice of a bulk output AC load distribution shelf or a NEMA output AC load distribution shelf is provided.

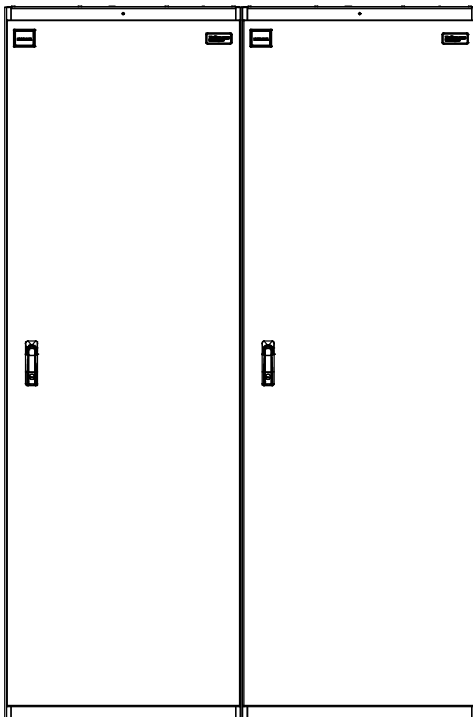


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Main Bay      Supplemental Bay  
(E/W Spec. No. 588705300  
or 588705400 Module  
Mounting Assemblies)



Main Bay Enclosure      Supplemental Bay Enclosure  
(Installed in an Enclosure)

# Vertiv™ NetSure™ 7100 DC Power System

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### General Specifications

See detailed specifications on page 215.

Family:	NetSure™
System Spec. No.:	582127000
System Model:	7100
System AC Input Voltage:	<p><u>582127000 List 40, 41:</u> Nominal 208 VAC, 240 VAC, 277 VAC, single phase, 50 Hz / 60 Hz, with an operating range of 176 VAC to 305 VAC. Acceptable input frequency range is 45 Hz to 65 Hz.</p> <p><u>582127000 List 42:</u> Nominal 208 VAC, 240 VAC, three-phase (3L+PE), 50 Hz / 60 Hz, with an operating range of 176 VAC to 275 VAC. Acceptable input frequency range is 45 Hz to 65 Hz.</p> <p><u>582127000 List 43:</u> Nominal 277/480 VAC, three-phase (3L+N+PE), 50 Hz / 60 Hz, with an operating range of 176/305 VAC to 305/528 VAC. Acceptable input frequency range is 45 Hz to 65 Hz. (For use with 588705000, 588705400, and 588705500 module mounting assemblies.)</p> <p><u>582127000 List 100, 101, 102, 203, 500, 501, 502, 503:</u> Nominal 208 VAC, 240 VAC, single phase, 50 Hz / 60 Hz, with an operating range of 176 VAC to 275 VAC. Acceptable input frequency range is 45 Hz to 65 Hz.</p> <p><u>582127000 List 600, 601, 900, 901:</u> Nominal 208 VAC, 240 VAC, 277 VAC, single phase, 50 Hz / 60 Hz, with an operating range of 176 VAC to 305 VAC. Acceptable input frequency range is 45 Hz to 65 Hz.</p>
System Output Capacity:	
System:	12000 A maximum distribution and battery charge/discharge capacity, 12000 A maximum rectifier capacity.
Bay:	<p><u>All List EXCEPT 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901:</u> 2000 A maximum distribution and battery charge/discharge capacity, 2500 A maximum rectifier capacity (when used with 588705400 shelves).</p> <p><u>All List EXCEPT 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901:</u> 1500 A @ -48 VDC and 520 A @ +24 VDC or 500 A @ -58 VDC, maximum (when used with 588705300).</p> <p><u>582127000 List 100, 101, 102, 203:</u> 1000 A @ -48 VDC and 500 A @ +24 VDC, maximum.</p> <p><u>582127000 List 500, 501, 502, 503:</u> 1000 A @ -48 VDC and 429 A @ -56VDC, maximum.</p> <p><u>582127000 List 600, 601:</u> Maximum Output Power in Discharge Mode = 28,800 watts (600A at 48.0VDC to 496A at 58.0VDC) at 65°C operating ambient. Maximum Output Power in Float Mode = 23040 watts (480A at 48.0VDC to 397A at 58.0VDC) at 65°C operating ambient. Maximum Output Power in Charge Mode = 23040 watts (480A at 48.0VDC to 397A at 58.0VDC) +120A of current to charge batteries; at 65°C operating ambient.</p> <p><u>582127000 List 900, 901:</u> Maximum Output Power in Discharge Mode = 43200 watts (900A at 48.0VDC to 745A at 58.0VDC) at 65°C operating ambient. Maximum Output Power in Float Mode = 34560 watts (720A at 48.0VDC to 596A at 58.0VDC) at 65°C operating ambient. Maximum Output Power in Charge Mode = 34560 watts (720A at 48.0VDC to 596A at 58.0VDC) +180A of current to charge batteries; at 65°C operating ambient.</p>
Distribution Panel:	Refer to the individual distribution panels list descriptions under “List Descriptions (582127000)” starting on page 29.
1R482000e3 Rectifier Rating:	See UM1R482000e3.
1R483500e Rectifier Rating:	See UM1R483500e.
1R483500e3 Rectifier Rating:	See UM1R483500e3.

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1R484000e Rectifier Rating:	See UM1R483500e.
1C48241500 Converter Rating:	See UM1C48241500.
1C48582000P3 Converter Rating:	See UM1C48582000P3.
System Agency Approval:	UL 1801 Listed (“c UL”), NEBS.
Relay Rack Mounted Option:	
Framework Type:	Relay Rack
Mounting Width:	23 Inches, nominal
Mounting Depth:	
Distribution Cabinet:	20.09 Inches
Module	
Mounting Assembly:	20.09 Inches
Battery Tray:	22.5 Inches
Enclosure P/N 563524 or 564881 Mounted Option:	
Framework Type:	Enclosure
Enclosure Width:	28 Inches
Enclosure Depth:	28 Inches
Enclosure Height:	84 Inches
Rack Mounted in an OSP Enclosure Option (582127000 List 600, 601, 900, 901)	
Framework Type:	Relay Rack
Mounting Width:	23 Inches, nominal
Mounting Depth:	20 Inches, nominal
Access:	All Except 582127000 Lists 600, 601, 900, 901: Front for installation, operation, and maintenance. Rear for supplemental bay expansion, rectifier shelf expansion and battery tray installation.  582127000 Lists 600, 601, 900, 901: Front and rear for installation, operation, and maintenance.
Supplemental Bay(s) Available:	Five (5), dependent on configuration
Control:	Microprocessor
Color:	Enclosure: Textured Dark Gray (P/N 563524) or Textured White (P/N 564881)  Distribution Cabinet, Relay Racks and Module Faceplates: Dark Gray Module Mounting Assembly and Module Bodies: Bright Zinc Plating
Environment:	
Relay Rack Mounted Option and Enclosure P/N 563524 or 564881 Mounted Option:	-40 °C to +40 °C (-40 °F to +104 °F)
Rack Mounted in an OSP Enclosure Option (582127000 List 600, 601, 900, 901):	-40 °C to +65 °C (-40 °F to +149 °F)

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### Optional Inverter System:

AC Input Voltage:	Nominal 120 VAC, single phase, 50 Hz or 60 Hz. Operating range 96 VAC to 140 VAC. Acceptable frequency range 47 Hz to 53 Hz or 57 Hz to 63 Hz.
DC Input Voltage:	Nominal -48 VDC. Operating range -42 VDC to -58.5 VDC.
AC Output Voltage:	120 VAC, 50 Hz or 60 Hz
AC Output Capacity:	<a href="#">582127000 List 50</a> : 6 kVA, maximum <a href="#">582127000 List 51</a> : 6 kVA maximum (5.76 kVA per NEC breaker de-rating) <a href="#">582127000 List 52</a> : 12 kVA, maximum <a href="#">582127000 List 53</a> : 12 kVA maximum (11.5 kVA per NEC breaker de-rating)
111201000 Inverter Rating:	See UM111201000
Environment:	-40 °C to +65 °C (-40 °F to +149 °F)

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**582127000 (Relay Rack)**

COMMON EQUIPMENT

- [List 1:](#) Main Bay
- [List 2:](#) 1<sup>st</sup> Supplemental Bay, In-Line w/ Main Bay
- [List 3:](#) 2<sup>nd</sup> through 5<sup>th</sup> Supplemental Bay, In-Line w/ Main Bay
- [List 5:](#) 1<sup>st</sup> through 5<sup>th</sup> Supplemental Bay, Remote Location

DISTRIBUTION CABINET  
(4-Row Cabinet Shown)

- [List 24](#) (4-Row)
- [List 23](#) (3-Row)
- [List 22](#) (2-Row)
- [List 21](#) (1-Row)

Controller (Main Bay)  
[1M830DNA](#)

SM-DU (Supplemental Bays):  
(located behind blank panel)

[List 32:](#) Module Mounting  
Assembly Interface

Module Mounting Assembly:  
58870530001, 58870530003

Rectifier Module:  
[1R482000e3](#)

Optional DC-DC  
Converter Module:  
[1C48241500](#)

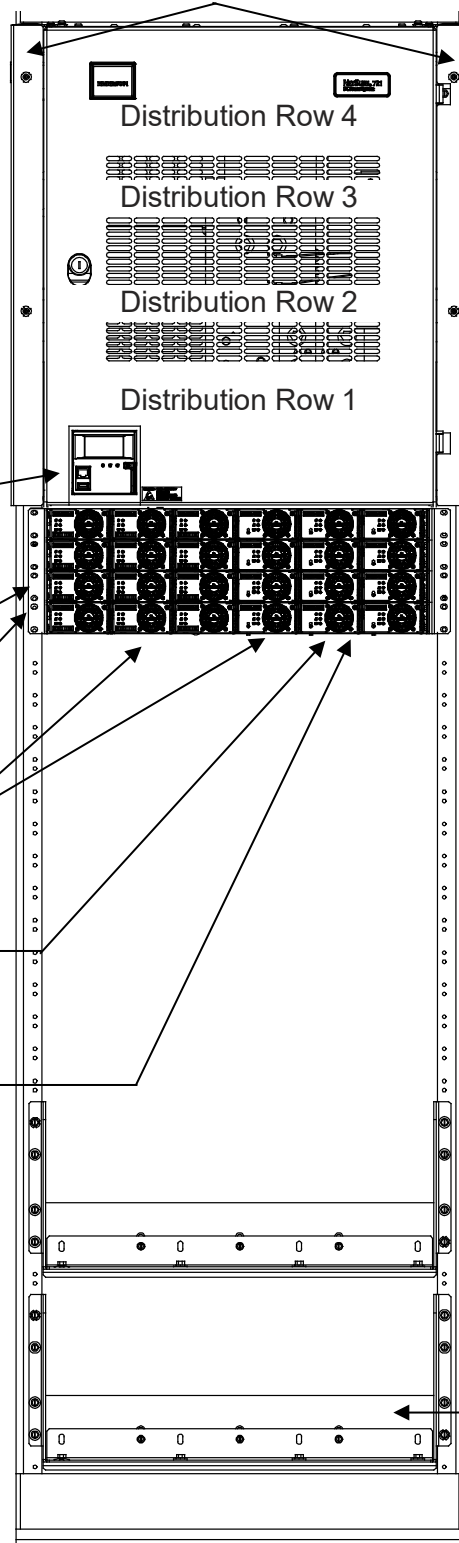
[List 60:](#) +24V DC-DC  
Converter Option

[List 62:](#) -58V DC-DC  
Converter Option

Optional DC-DC  
Converter Module:  
[1C48582000P3](#)

FRONT ACCESS AC TERMINATION ASSEMBLY

- [List 40:](#) 1 AC Feed per 1 Rectifier (1 to 5 Assemblies), Single Phase
- [List 41:](#) 1 AC Feed per 2 Rectifiers (1 to 5 Assemblies), Single Phase
- [List 42:](#) 1 AC Feed per 3 Rectifiers (1 to 5 Assemblies), 3-Phase, 3-Wire



DISTRIBUTION PANELS

- [Single Voltage Distribution Panels](#)
- [Dual Voltage Distribution Panels](#)
- [Battery Disconnect Return Bar Panel](#)
- [Bulk Output Panel](#)

BATTERY DISCONNECT CONTACTORS

- [List CA:](#) 600A
- [List CB:](#) 1200A
- [List CC:](#) 2000A

LOW VOLTAGE DISCONNECT OPTIONS

- [List LB:](#) Low Voltage Battery Disconnect (LVBD)
- [List LL:](#) Low Voltage Load Disconnect (LVLD)

Other Options

- [List 4:](#) Distribution Only Bay Distribution Cabinet Bottom Rear Cover
- [List 28:](#) DC Conduit Box
- [List 29:](#) Distribution Cabinet Top Shield
- [List 33:](#) Module Mounting Assembly Field Expansion Kit
- [List 90:](#) Battery Shunt, 800A
- [List 91:](#) Battery Shunt, 2000A
- [List 92:](#) Battery Shunt, 2500A
- [List MB:](#) Manual Battery Disconnect
- [List 93:](#) Optional Battery Tray  
or  
[List 95:](#) Optional Battery Tray

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 582127000 (Relay Rack)

#### COMMON EQUIPMENT

- [List 1:](#) Main Bay
- [List 2:](#) 1<sup>st</sup> Supplemental Bay, In-Line w/ Main Bay
- [List 3:](#) 2<sup>nd</sup> through 5<sup>th</sup> Supplemental Bay, In-Line w/ Main Bay
- [List 5:](#) 1<sup>st</sup> through 5<sup>th</sup> Supplemental Bay, Remote Location

- DISTRIBUTION CABINET**  
(4-Row Cabinet Shown)
- [List 24](#) (4-Row)
  - [List 23](#) (3-Row)
  - [List 22](#) (2-Row)
  - [List 21](#) (1-Row)

Controller (Main Bay)  
[1M830DNA](#)

SM-DU (Supplemental Bays):  
(located behind blank panel)

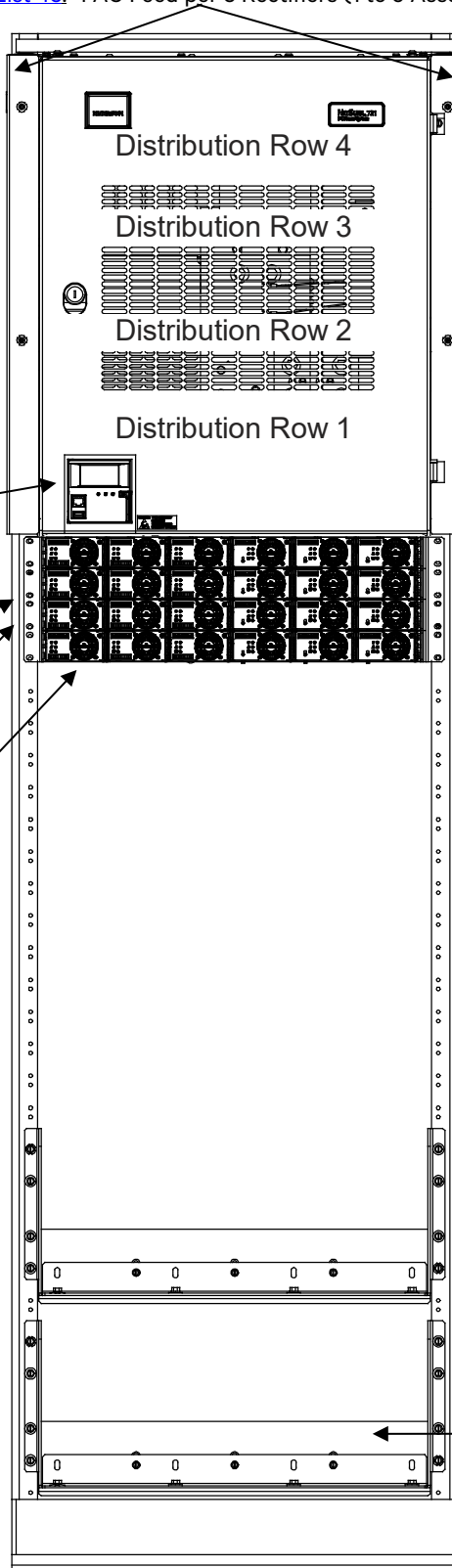
[List 36:](#) Module Mounting Assembly Interface

Module Mounting Assembly:  
58870540001, 58870540002,  
58870540003, 58870540004

Rectifier Module:  
[1R483500e3](#)

#### FRONT ACCESS AC TERMINATION ASSEMBLY

- [List 40:](#) 1 AC Feed per 1 Rectifier (1 to 5 Assemblies), Single Phase
- [List 41:](#) 1 AC Feed per 2 Rectifiers (1 to 5 Assemblies), Single Phase
- [List 42:](#) 1 AC Feed per 3 Rectifiers (1 to 5 Assemblies), 3-Phase, 3-Wire
- [List 43:](#) 1 AC Feed per 3 Rectifiers (1 to 5 Assemblies), 3-Phase, 4-Wire



#### DISTRIBUTION PANELS

- [Single Voltage Distribution Panels](#)
- [Dual Voltage Distribution Panels](#)
- [Battery Disconnect Distribution Panels](#)
- [Return Bar Panel](#)
- [Bulk Output Panel](#)

#### BATTERY DISCONNECT CONTACTORS

- [List CA:](#) 600A
- [List CB:](#) 1200A
- [List CC:](#) 2000A

#### LOW VOLTAGE DISCONNECT OPTIONS

- [List LB:](#) Low Voltage Battery Disconnect (LVBD)
- [List LL:](#) Low Voltage Load Disconnect (LVLDD)

#### Other Options

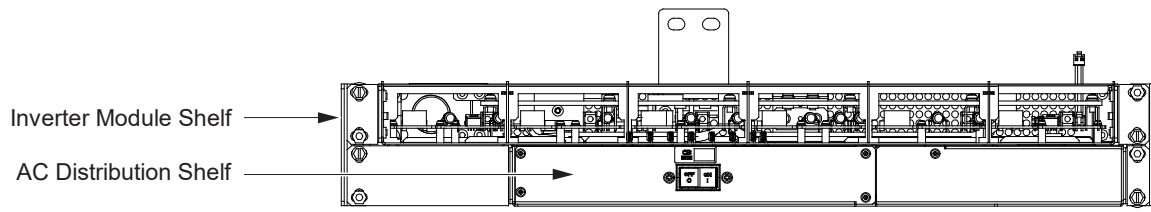
- [List 4:](#) Distribution Only Bay Distribution Cabinet Bottom Rear Cover
- [List 28:](#) DC Conduit Box
- [List 29:](#) Distribution Cabinet Top Shield
- [List 37:](#) Module Mounting Assembly Field Expansion Kit
- [List 90:](#) Battery Shunt, 800A
- [List 91:](#) Battery Shunt, 2000A
- [List 92:](#) Battery Shunt, 2500A
- [List MB:](#) Manual Battery Disconnect
- [List 93:](#) Optional Battery Tray  
or  
[List 95:](#) Optional Battery Tray

# Vertiv™ NetSure™ 7100 DC Power System

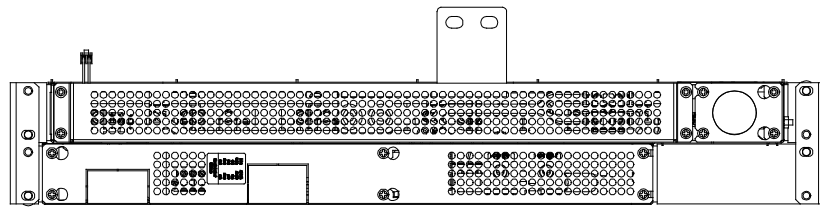
## System Application Guide

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### 582127000 List 50

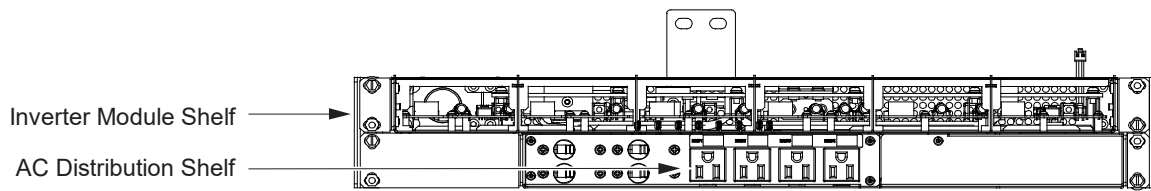


Front View

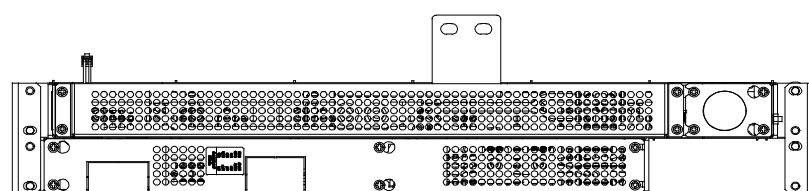


Rear View

### 582127000 List 51



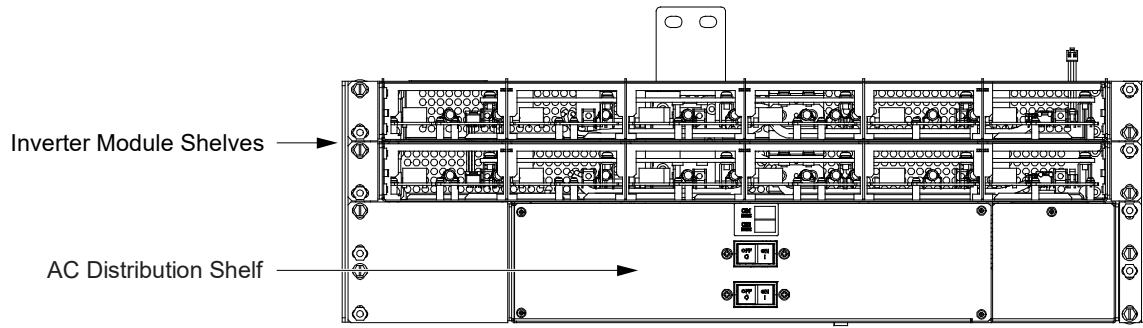
Front View



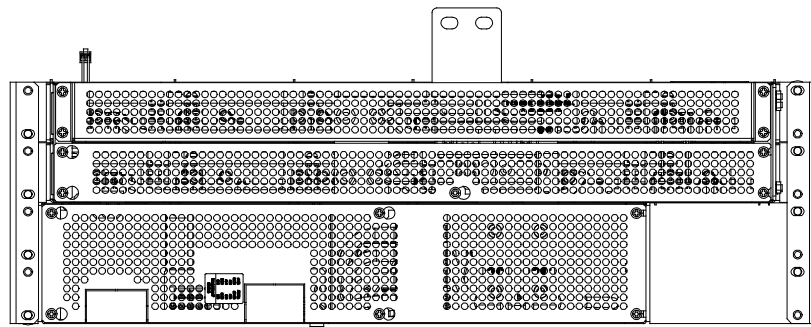
Rear View

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582127000 List 52

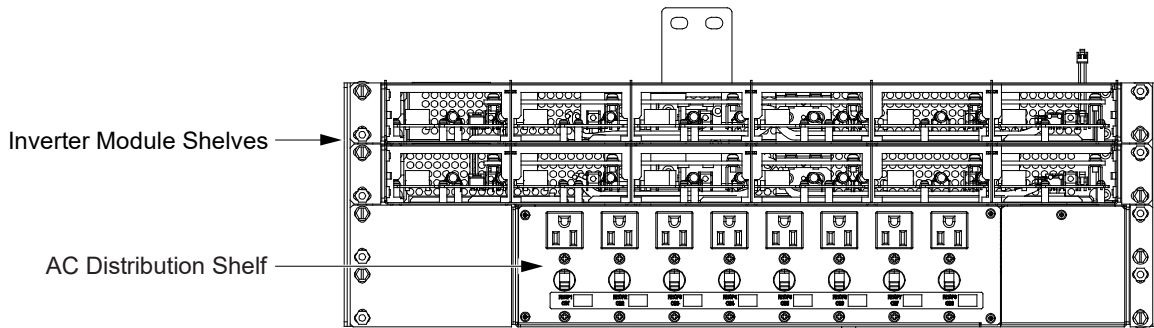


Front View

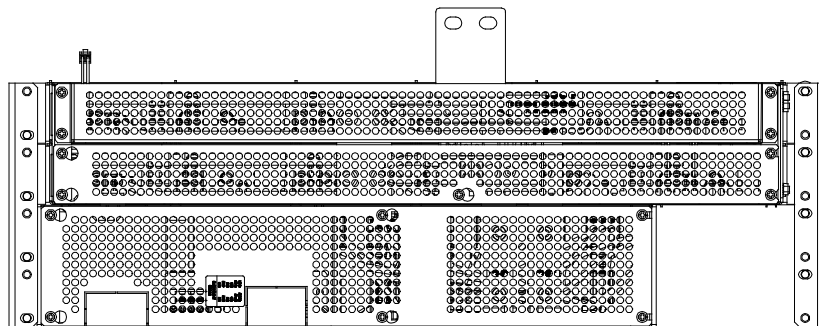


Rear View

582127000 List 53



Front View



Rear View

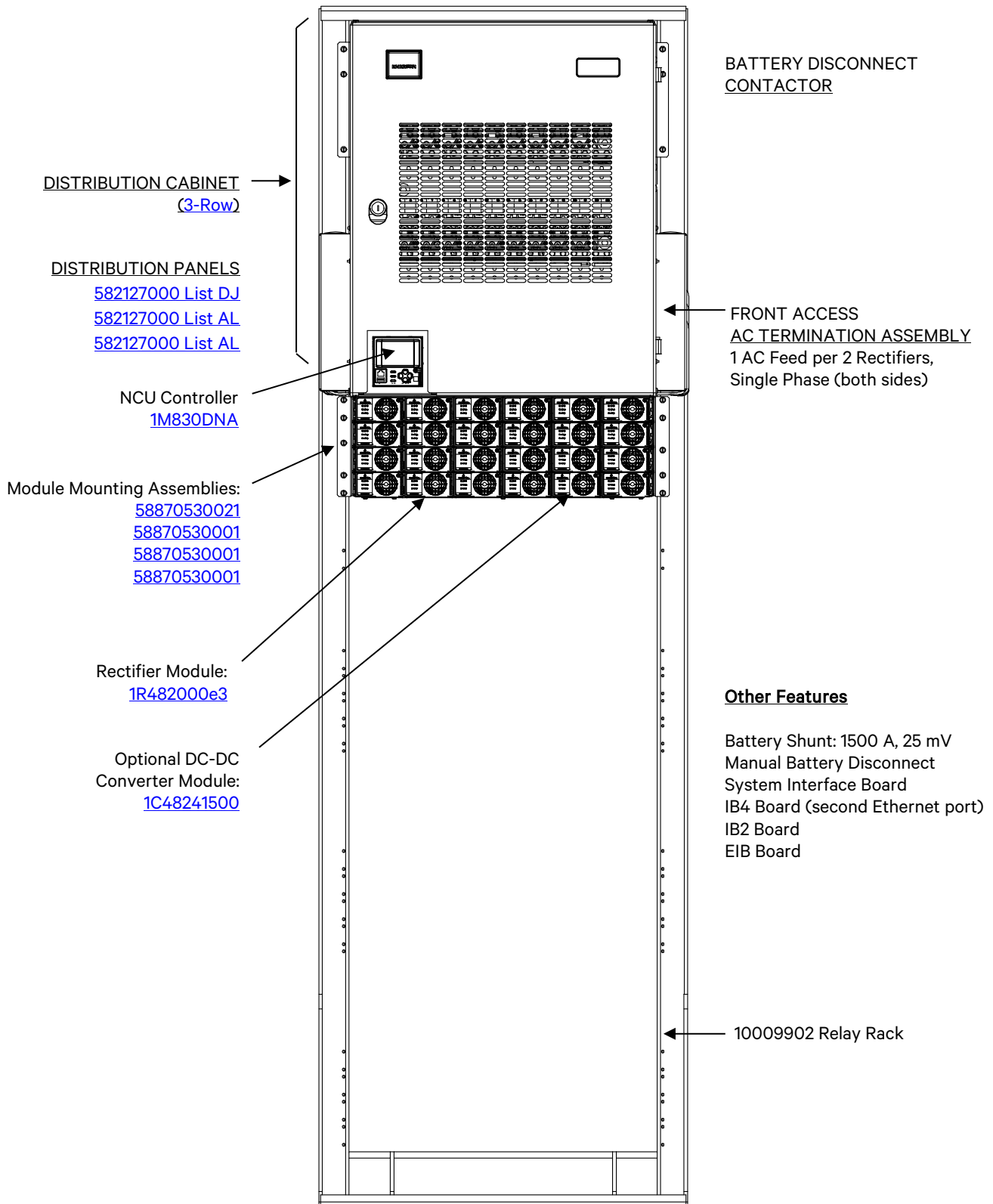
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 582127000 List 100 (Relay Rack)

#### SPD (Surge Protection Device)

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.

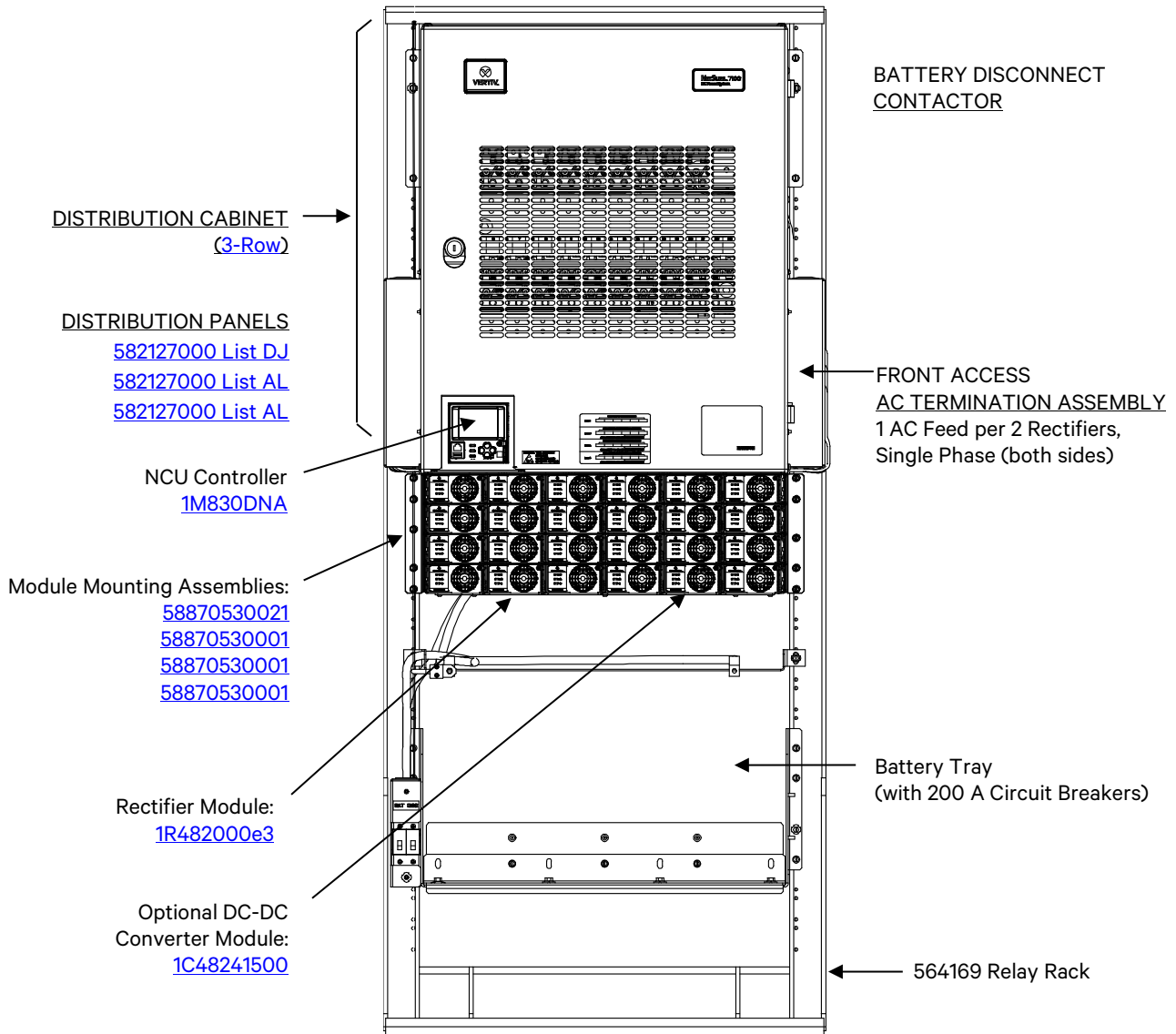




Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

**582127000 List 101 (Relay Rack)**

SPD (Surge Protection Device)  
Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



**Other Features**

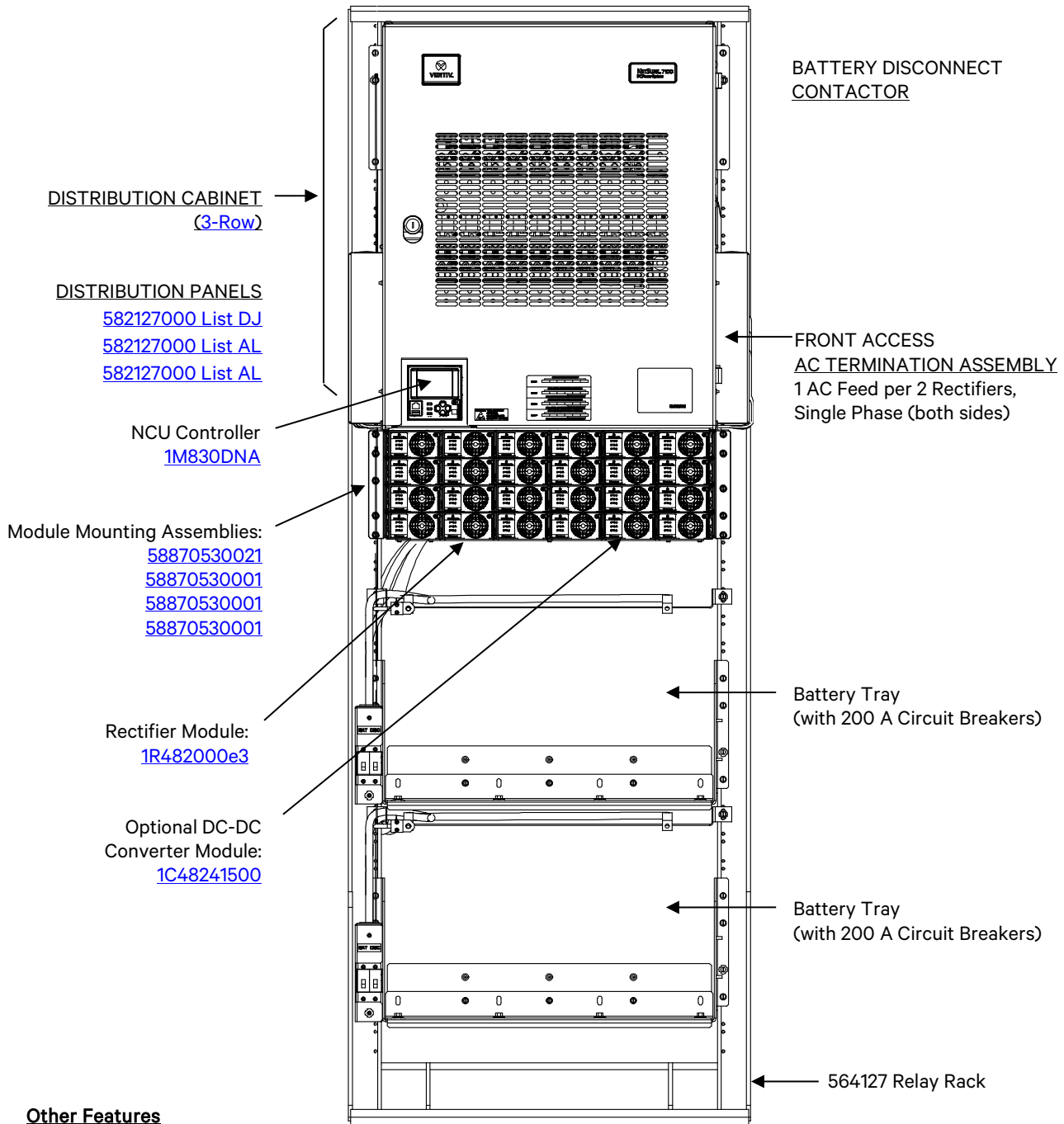
- Battery Shunt: 1500 A, 25 mV
- Manual Battery Disconnect
- System Interface Board
- IB4 Board (second Ethernet port)
- IB2 Board
- EIB Board

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 582127000 List 102 (Relay Rack)

**SPD (Surge Protection Device)**  
Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



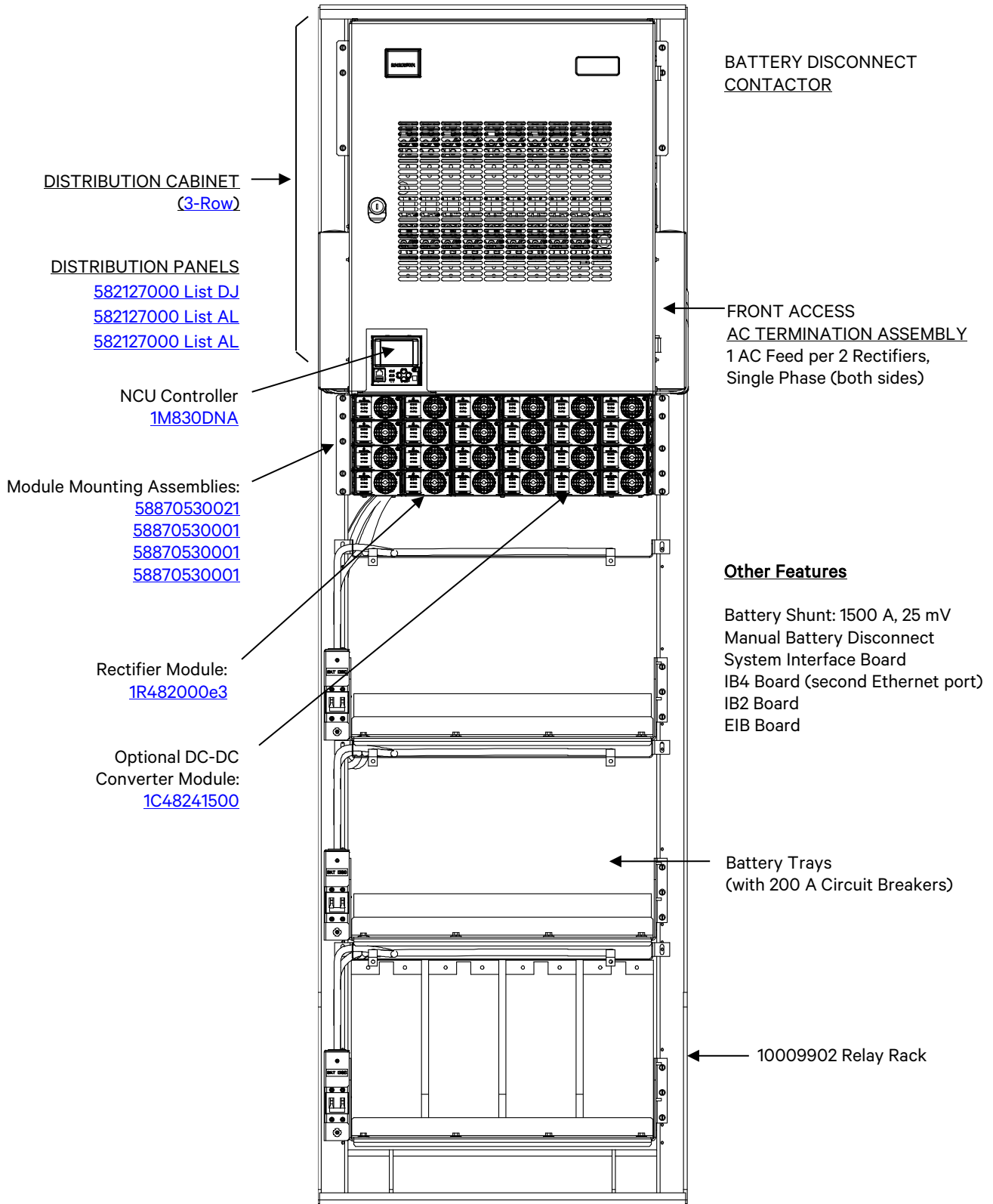
### Other Features

- Battery Shunt: 1500 A, 25 mV
- Manual Battery Disconnect
- System Interface Board
- IB4 Board (second Ethernet port)
- IB2 Board
- EIB Board

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

**582127000 List 203 (Relay Rack)**

SPD (Surge Protection Device)  
Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



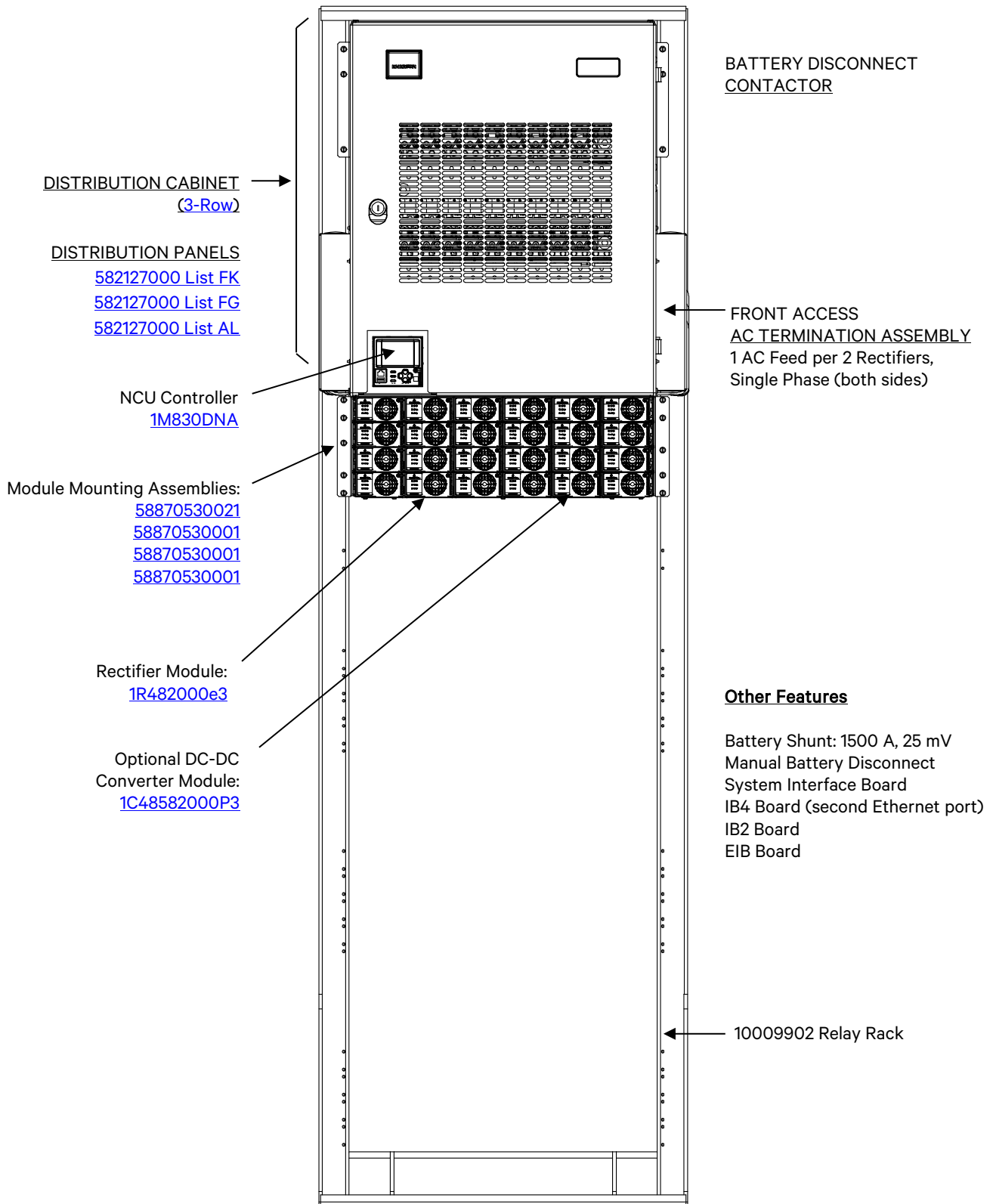
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 582127000 List 500 (Relay Rack)

#### SPD (Surge Protection Device)

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



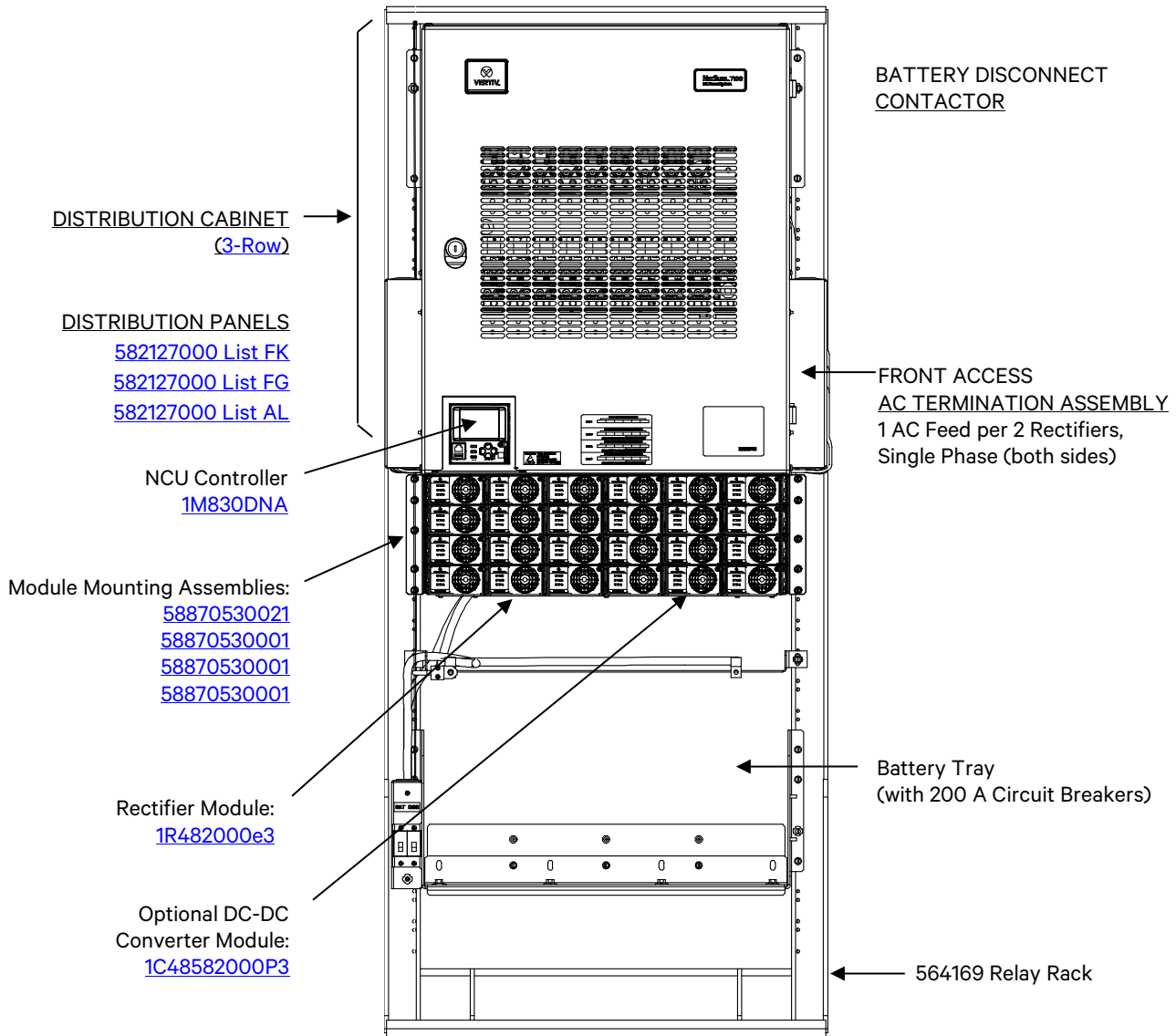
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 582127000 List 501 (Relay Rack)

#### SPD (Surge Protection Device)

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



### Other Features

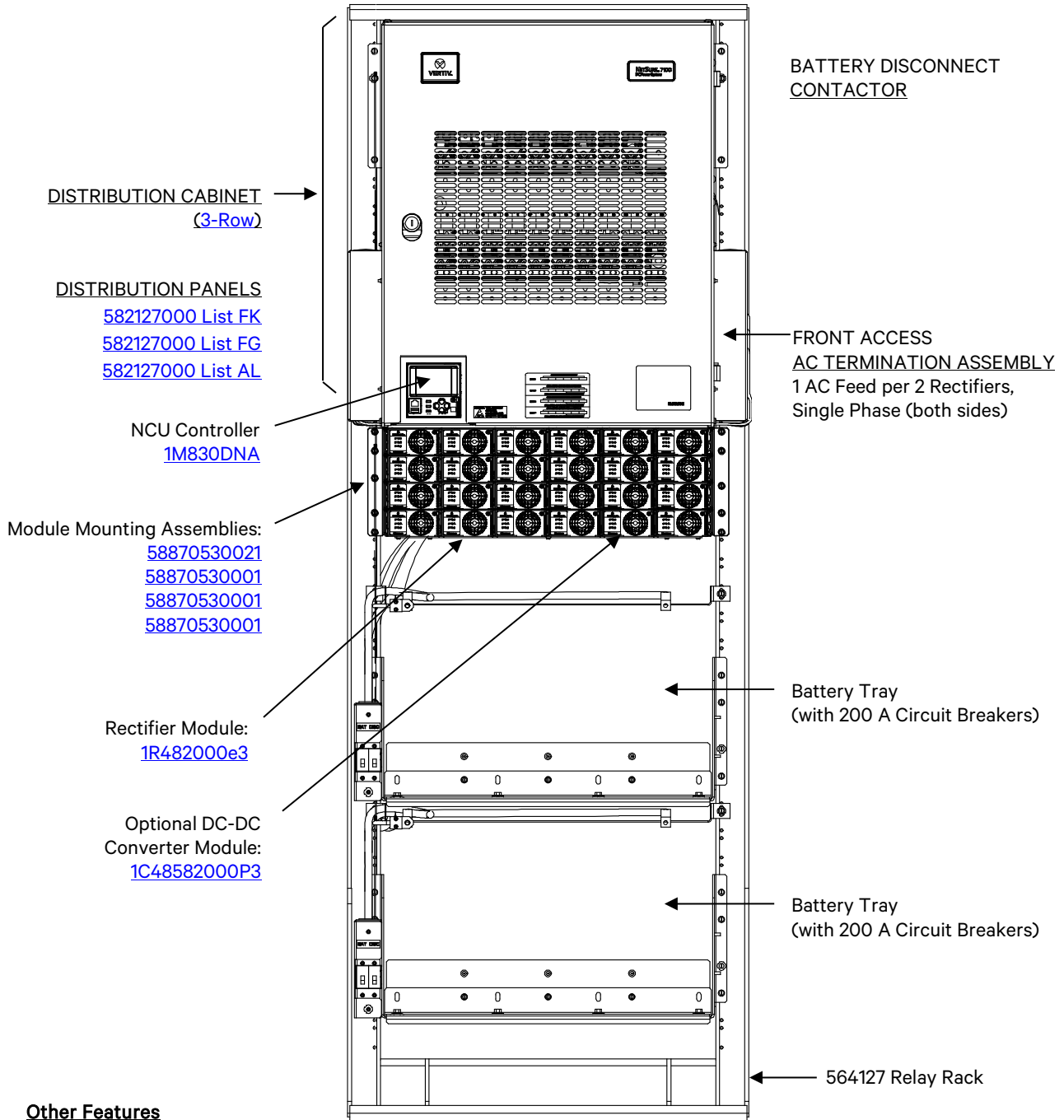
- Battery Shunt: 1500 A, 25 mV
- Manual Battery Disconnect
- System Interface Board
- IB4 Board (second Ethernet port)
- IB2 Board
- EIB Board

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System Application Guide

**582127000 List 502 (Relay Rack)**

SPD (Surge Protection Device)

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



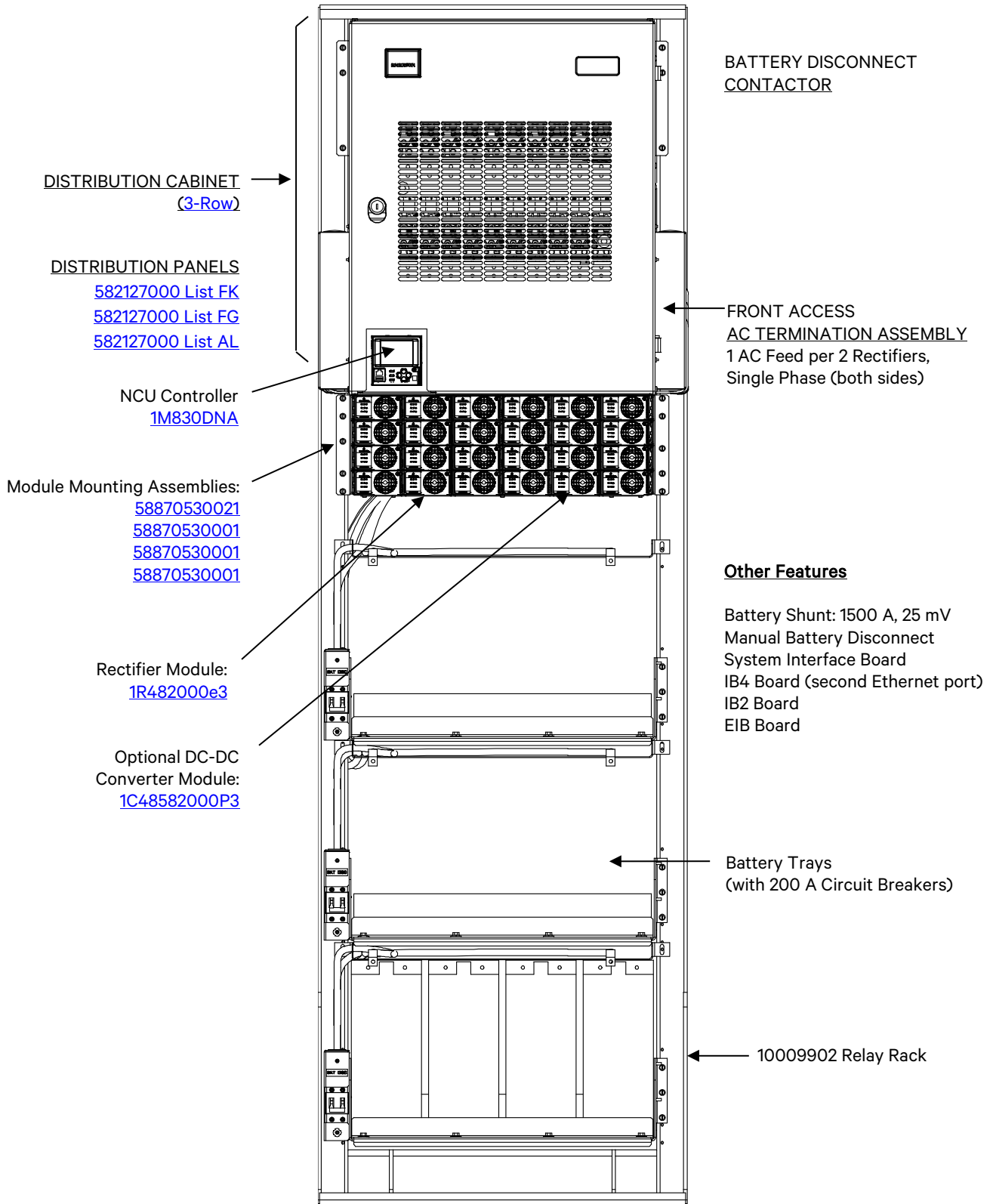
**Other Features**

- Battery Shunt: 1500 A, 25 mV
- Manual Battery Disconnect
- System Interface Board
- IB4 Board (second Ethernet port)
- IB2 Board
- EIB Board

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**582127000 List 503 (Relay Rack)**

SPD (Surge Protection Device)  
Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). The SPD assemblies are mounted to the underside of the distribution cabinet top cover.



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### 582127000 (Enclosure)

#### COMMON EQUIPMENT

- [List 1:](#) Main Bay
- [List 7:](#) 1<sup>st</sup> Supplemental Bay, In-Line w/ Main Bay
- [List 8:](#) 2<sup>nd</sup> through 5<sup>th</sup> Supplemental Bay, In-Line w/ Main Bay

- DISTRIBUTION CABINET**  
(4-Row Cabinet Shown)
- [List 24](#) (4-Row)
  - [List 23](#) (3-Row)

- Controller (Main Bay)  
[1M830DNA](#)
- SM-DU (Supplemental Bays):  
(located behind blank panel)

- [List 36:](#) Module Mounting Assembly Interface

- Module Mounting Assembly:  
58870540001, 58870540002,  
58870540003, 58870540004

- Rectifier Module Positions:  
[1R483500e3](#)

#### FRONT ACCESS AC TERMINATION ASSEMBLY (Inside Distribution Cabinet)

- [List 40:](#) 1 AC Feed per 1 Rectifier (1 to 6 Assemblies), Single Phase
- [List 41:](#) 1 AC Feed per 2 Rectifiers (1 to 6 Assemblies), Single Phase
- [List 42:](#) 1 AC Feed per 3 Rectifiers (1 to 6 Assemblies), 3-Phase, 3-Wire
- [List 43:](#) 1 AC Feed per 3 Rectifiers (1 to 6 Assemblies), 3-Phase, 4-Wire

#### DISTRIBUTION PANELS

- [Single Voltage Distribution Panels](#)
- [Battery Disconnect Distribution Panels](#)
- [Return Bar Panel](#)
- [Bulk Output Panel](#)

#### BATTERY DISCONNECT CONTACTORS

- [List CA:](#) 600A
- [List CB:](#) 1200A
- [List CC:](#) 2000A

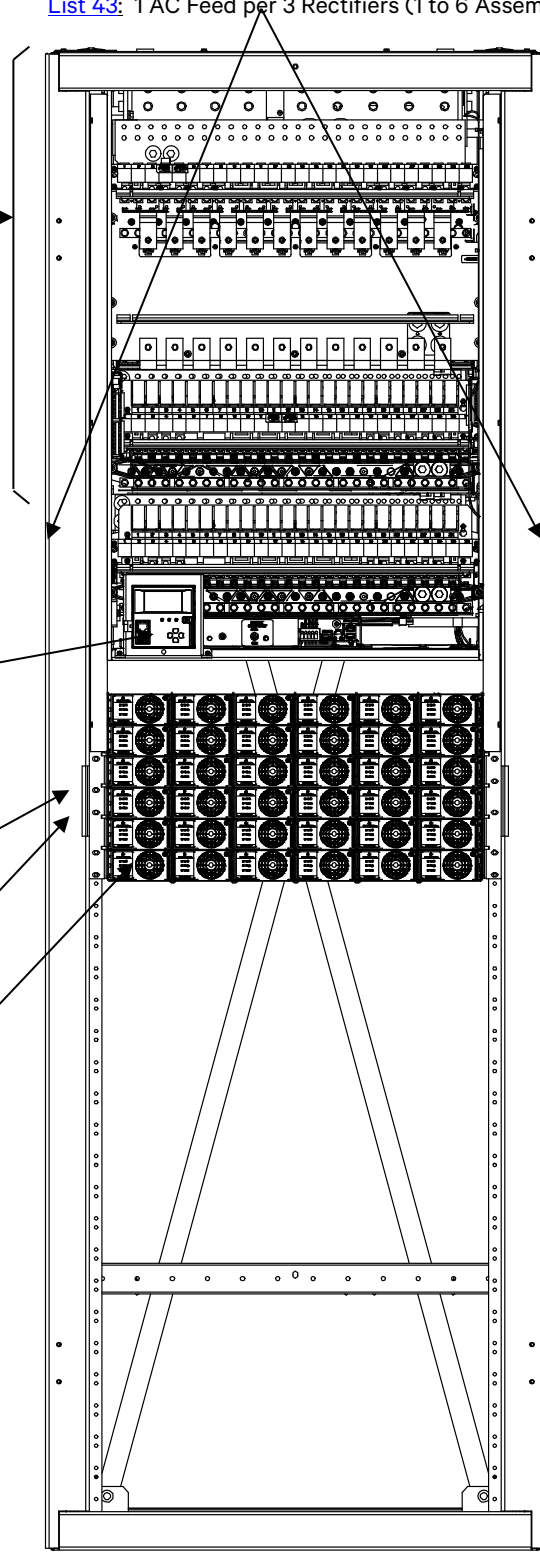
#### LOW VOLTAGE DISCONNECT OPTIONS

- [List LB:](#) Low Voltage Battery Disconnect (LVBD)
- [List LL:](#) Low Voltage Load Disconnect (LVLD)

#### Other Options

- [List 4:](#) Distribution Only Bay
- [Distribution Cabinet Bottom Rear Cover](#)
- [List 37:](#) Module Mounting Assembly Field Expansion Kit
- [List 92:](#) Battery Shunt, 2500A
- [List MB:](#) Manual Battery Disconnect

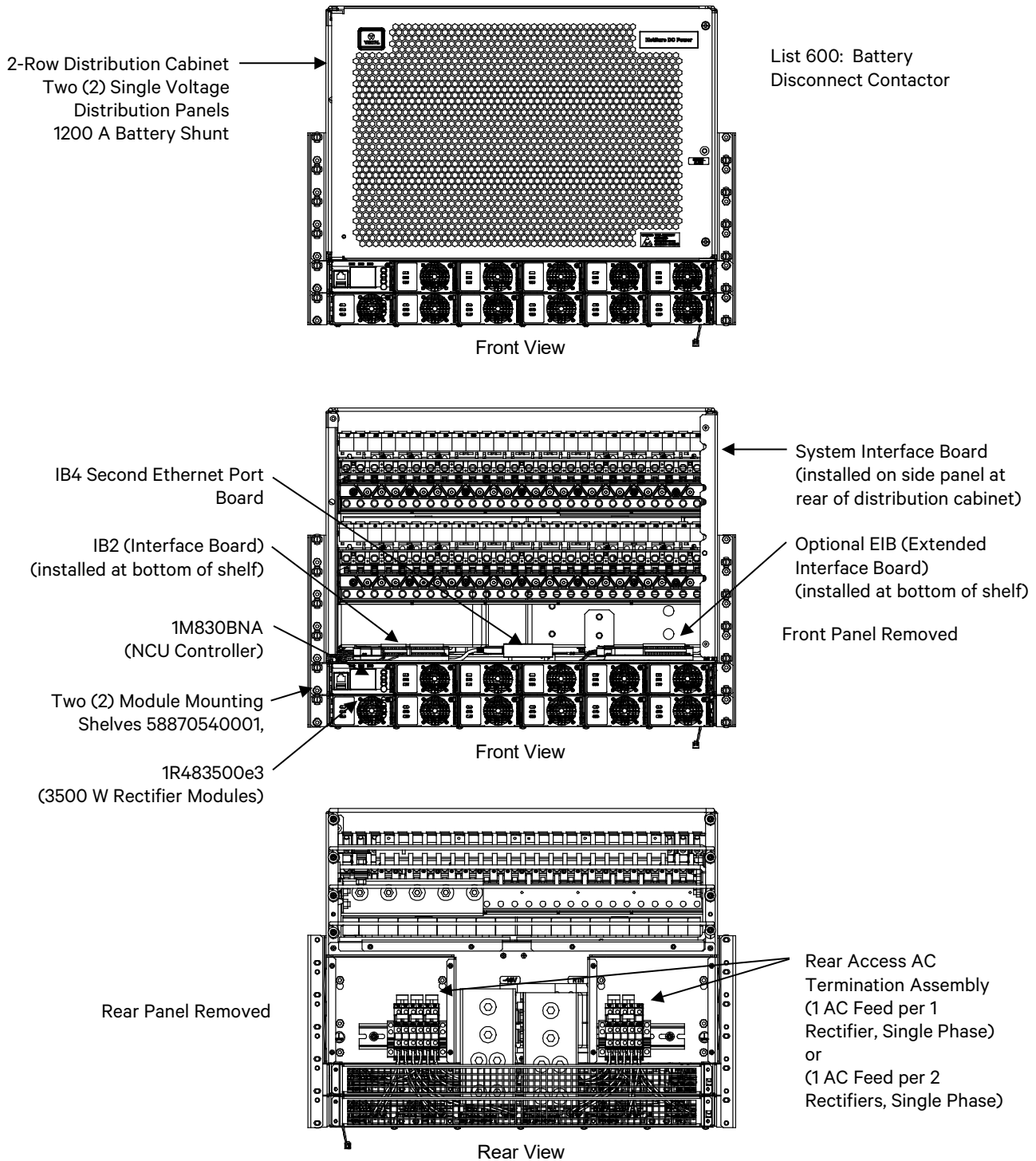
- ← Enclosure  
(563524 or 564881)





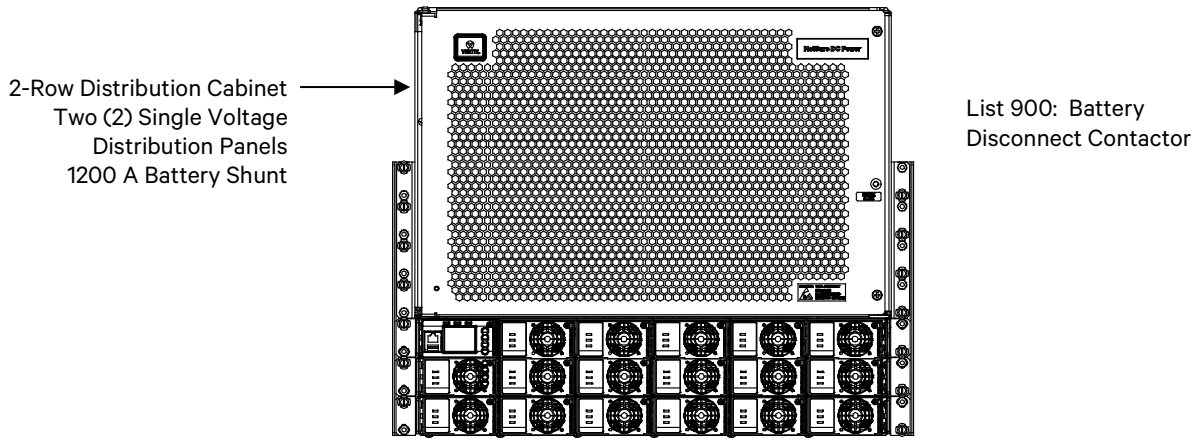
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582127000 List 600, 601 (rack mounted in an OSP enclosure)

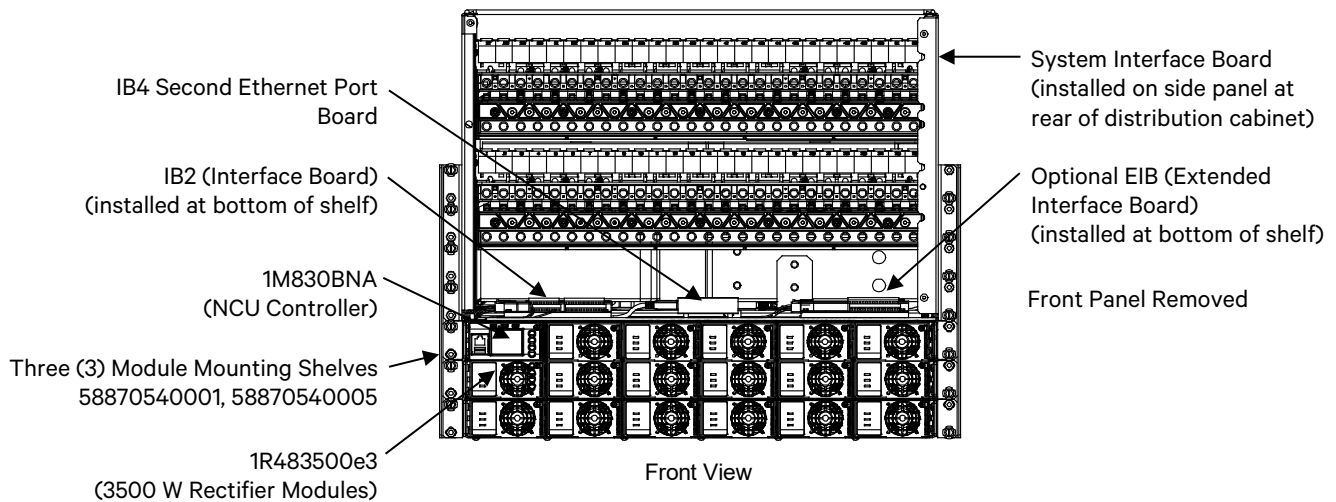


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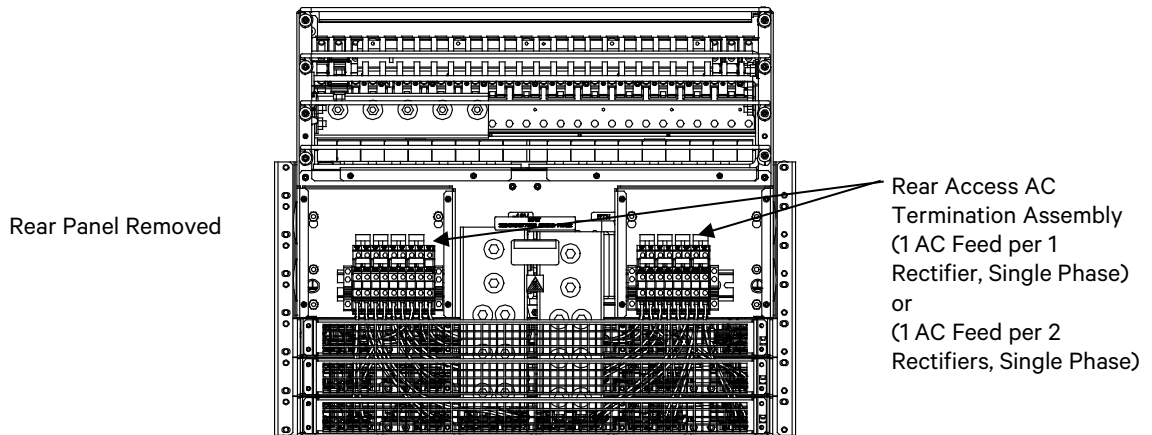
582127000 List 900, 901 (rack mounted in an OSP enclosure)



Front View



Front View



Rear View

## LIST DESCRIPTIONS (582127000)

### List Numbers (582127000)

#### **List 1: Main Bay Common Equipment (Power and Distribution), For System Mounted in a Relay Rack, on Shipping Rails, or in an Enclosure**

##### **Features**

- ◆ Provides common equipment for one “power and distribution” bay rated for up to 2000 amperes of distribution. System components factory mounted in a relay rack, on shipping rails, or in an enclosure as specified when ordered.
- ◆ Accepts one (1) distribution cabinet (options are 1-row, 2-row, 3-row, or 4-row cabinet). 1-row and 2-row distribution cabinets are only available in the relay rack or shipping rails option.
- ◆ Accepts one (1) controller.
- ◆ Includes the IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).
- ◆ Accepts a second optional IB2 controller interface board. See Restrictions. See page 97.
- ◆ Accepts the optional EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs). See page 98.
- ◆ Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705400 (including expansion assemblies).  
or  
Accepts up to six (6) module mounting assemblies Spec. No. 588705300 (including expansion assemblies). Relay rack or shipping rails option only.

##### **Restrictions**

System components factory mounted in a relay rack, on shipping rails, or in an enclosure as specified when ordered.

Cannot put a system installed in an enclosure next to a system installed in a relay rack.

When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

The system can contain a maximum of three (3) Interface Boards, (1) IB2 and (2) EIB or (2) IB2 and (1) EIB.

Cannot include List [93](#) and List [95](#) battery tray option if it is to be used in conjunction with a List 2 adjacent supplemental bay.

##### **Ordering Notes**

- 1) Order a relay rack or shipping brackets per “[Relay Racks and Shipping Brackets](#)” on page 113 if desired. If required, order relay rack transition plates per “[Transition Plates to Mount Relay Rack on Top of GNB Absolyte IIP Batteries](#)” on page 114. A relay rack, shipping rails, or enclosure must be specified when ordered. If required, order Relay Rack Isolation Kit as applicable per “Relay Rack Isolation Kit” on page 114.
- 2) Order an enclosure per “Enclosure and Enclosure Options” on page 115 if desired. A relay rack, shipping rails, or enclosure must be specified when ordered.
- 3) Order one (1) List [21](#), [22](#), [23](#), or [24](#) distribution cabinet. List 21 and List 22 distribution cabinets are only available in the relay rack or shipping rails option.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per “[Single Voltage Distribution Panel](#)”, “[Dual Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52. Dual voltage panels are not available in the enclosure option.
  - b) Order battery disconnect contactors and low voltage disconnect options as required per “[Battery Disconnect Contactors](#)” and “[Low Voltage Disconnect Options](#)” starting on page 85.
  - c) Order one (1) NCU controller (P/N [1M830DNA](#)) with the desired configuration.
  - d) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
  - e) Order the optional EIB controller extended interface board as required (see page 98).
  - f) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
  - g) Order optional [temperature probes](#) for ambient and battery temperature monitoring, as required. The temperature probe(s) may also be used for the battery charge temperature compensation feature and BTRM (Battery Thermal Runaway Management). Refer to “[Optional Temperature Probes](#)” for additional information.
  - h) Order optional SM-Temp Temperature Concentrator (Supervisory Module for Temperature Probes) as desired (shipped loose) (see page 102).

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**Note:** A system can have up to (8) SM-Temp modules (each of which can accept up to eight temperature probes) that can be used in the power system for ambient and battery monitoring.

- i) Order optional [SM-DU+ Shunt Monitoring](#) (P/N 548078) for any fuse panel with shunts (Lists AF, AH, BF, or BH) or any GJ/218 panels (Lists AC, AD, BC, BD, AM, or AP) that are equipped with shunted breakers. (The SM-DU+ is factory-wired to the shunts.)
  - j) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
  - k) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
  - l) Order a distribution cabinet top shield as required per List [29](#). Not available in the enclosure option.
  - m) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
  - n) Refer to “In-Line Fuse and Resistor Pigtail Kits” on page 99 for in-line resistor pigtails for use with shunt inputs and in-line fuse pigtails for use with battery midpoint inputs connected to an IB2 or EIB.
- 4) [1R482000e3 Rectifier / 1C48241500 Converter Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705300 as required per List [32](#). Order field expansion module mounting assembly(s) per List [33](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003). Not available in the enclosure option.
    - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), or [42](#) if module mounting assembly 58870530001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870530003. See “Module Mounting Assembly” starting on page 106).
    - b) Order rectifier modules as required, P/N [1R482000e3](#).
    - c) Order optional converter interface components per List [60](#).
    - d) Order optional DC-DC converter modules as required, P/N [1C48241500](#).
    - e) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
  - 5) [1R482000e3 Rectifier / 1C48582000P3 Converter Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705300 as required per List [32](#). Order field expansion module mounting assembly(s) per List [33](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003). Not available in the enclosure option.
    - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), or [42](#) if module mounting assembly 58870530001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870530003. See “Module Mounting Assembly” starting on page 106).
    - b) Order rectifier modules as required, P/N [1R482000e3](#).
    - c) Order optional converter interface components per List [62](#).
    - d) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#).
    - e) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
  - 6) [1R483500e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).
    - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
    - b) Order rectifier modules as required, P/N [1R483500e3](#).
    - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
  - 7) Order battery trays as required per List [93](#) or List [95](#). Not available in the shipping rails option.
    - a) Order batteries as required per “[Batteries](#)” on page 50.
    - b) Order “[Optional Battery Tray Battery Disconnect Circuit Breaker and Housing Kits](#)” as required.
    - c) Order “[Optional Battery Tray Front Battery Cover Kits](#)” as required.

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### **List 2: 1<sup>st</sup> Supplemental Bay Common Equipment (Power and Distribution or Distribution Only), Located In-Line with Main Bay, For System Mounted in a Relay Rack Only**

#### **Features**

- ◆ Provides common equipment for one bussed “power and distribution or distribution only” bay rated for up to 2000 amperes of distribution. Includes interbay power busbars and communications cable. System components factory mounted in a relay rack as specified when ordered.
- ◆ Mounts to either left or right side of List 1 Main Bay.
- ◆ Accepts one (1) distribution cabinet (options are 3-row or 4-row cabinet).
- ◆ Includes SM-DU (provides bay interface to the system controller).
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705300 or 588705400 (including expansion assemblies).

#### **Restrictions**

System components factory mounted in a relay rack as specified when ordered. Not available with enclosure or shipping rails.

When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

Will not accept List [21](#) and [22](#) distribution cabinet.

(List 21 and 22 are not provided with connection points for interbay busbars.)

Will not accept List [60](#) converter interface components.

Will not accept dual voltage distribution panels.

Will not accept List [93](#) and List [95](#) battery trays option.

Order maximum of one (1) List 2.

Rear access required for installation of inter-bay busbars.

If low voltage disconnect (List LL) is to be included, the Main Bay (List 1) of the system must also have low voltage disconnect (List LL or List LB).

#### **Ordering Notes**

- 1) Order a relay rack per “[Relay Racks and Shipping Brackets](#)” on page 113. If required, order Relay Rack Isolation Kit as applicable per “Relay Rack Isolation Kit” on page 114.
- 2) Order one (1) List [23](#) or [24](#) distribution cabinet.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per “[Single Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
  - b) Order low voltage disconnect options as required per “[Low Voltage Disconnect Options](#)” starting on page 95.
  - c) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
  - d) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
  - e) Order a distribution cabinet top shield as required per List [29](#).
  - f) If distribution only, order a bottom rear distribution cabinet cover per List [4](#).
  - g) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
- 3) **1R482000e3 Rectifier Option:** Order interface components for module mounting assembly(s) Spec. No. 588705300 as required per List [32](#). Order field expansion module mounting assembly(s) per List [33](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003).
  - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), or [42](#) if module mounting assembly 58870530001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870530003. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R482000e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 4) **1R483500e3 Rectifier Option:** Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting

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assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).

- a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
- b) Order rectifier modules as required, P/N [1R483500e3](#).
- c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **List 3: 2<sup>nd</sup> through 5<sup>th</sup> Supplemental Bays Common Equipment (Power and Distribution or Distribution Only), Located In-Line with Main Bay, For System Mounted in a Relay Rack Only**

#### **Features**

- ◆ Provides common equipment for one bussed “power and distribution or distribution only” bay rated for up to 2000 amperes of distribution. Includes interbay power busbars and communications cable. System components factory mounted in a relay rack as specified when ordered.
- ◆ Mounts to either left or right side of List [2](#) Supplemental Bay or another List [3](#) Supplementary bay.
- ◆ Accepts one (1) distribution cabinet (options are 3-row or 4-row cabinet).
- ◆ Includes SM-DU (provides bay interface to the system controller).
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705300 or 588705400 (including expansion assemblies).

#### **Restrictions**

System components factory mounted in a relay rack as specified when ordered. Not available with enclosure or shipping rails. When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

Will not accept List [21](#) and [22](#) distribution cabinet.

(List 21 and 22 are not provided with connection points for interbay busbars.)

Will not accept List [60](#) converter interface components.

Will not accept dual voltage distribution panels.

Order maximum of four (4) List 3.

Will not accept List [93](#) and List [95](#) battery trays option.

Rear access required for installation of inter-bay busbars.

If low voltage disconnect (List LL) is to be included, the Main Bay (List 1) of the system must also have low voltage disconnect (List LL or List LB).

#### **Ordering Notes**

- 1) Order a relay rack per “[Relay Racks and Shipping Brackets](#)” on page 113. If required, order Relay Rack Isolation Kit as applicable per “Relay Rack Isolation Kit” on page 114.
- 2) Order one (1) List [23](#) or [24](#) distribution cabinet.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per “[Single Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
  - b) Order low voltage disconnect options as required per “[Low Voltage Disconnect Options](#)” starting on page 95.
  - c) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
  - d) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
  - e) Order a distribution cabinet top shield as required per List [29](#).
  - f) If distribution only, order a bottom rear distribution cabinet cover per List [4](#).
  - g) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
- 3) [1R482000e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705300 as required per List [32](#). Order field expansion module mounting assembly(s) per List [33](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003).

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- a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), or [42](#) if module mounting assembly 58870530001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870530003. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R482000e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 4) [1R483500e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).
- a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R483500e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **List 4: Distribution Only Bay Distribution Cabinet Bottom Rear Cover**

#### **Features**

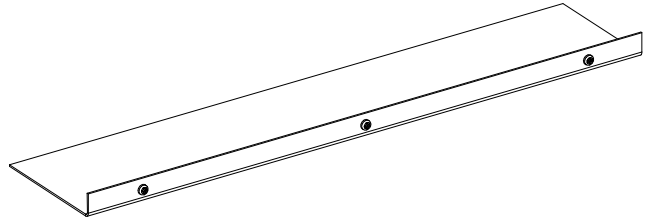
- ◆ Bottom rear cover shield for use when a supplemental bay is configured for “distribution only” (no module mounting assembly).

#### **Restrictions**

Module mounting assembly(s) cannot be mounted in a bay when List 4 is installed.

#### **Ordering Notes**

- 1) Order when a supplemental distribution bay is configured for “distribution only” (no module mounting assembly).



### **List 5: 1<sup>st</sup> through 5<sup>th</sup> Supplemental Bay Common Equipment (Power and Distribution or Distribution Only), Located Remote from Main Bay**

#### **Features**

- ◆ Provides common equipment for one remote “power and distribution or distribution only” bay rated for up to 2000 amperes of distribution. Includes interbay communications cabling. System components factory mounted in a relay rack, on shipping rails, or in an enclosure as specified when ordered.
- ◆ Accepts one (1) distribution cabinet (options are 1-row, 2-row, 3-row, or 4-row cabinet).
- ◆ Includes SM-DU (provides bay interface to the system controller).
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705300 or 588705400 (including expansion assemblies).

#### **Restrictions**

System components factory mounted in a relay rack, on shipping rails, or in an enclosure as specified when ordered.

When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

Will not accept List [60](#) converter interface components.

Will not accept dual voltage distribution panels.

Order maximum of five (5) List 5.

Interbay power cabling is not included, and must be separately provided per site requirements.

If low voltage disconnect (List LL) is to be included, the Main Bay (List 1) of the system must also have low voltage disconnect (List LL or List LB).

Optional battery shunt will not read battery current properly (due to cabling to bays tied to battery input termination bars) and should be disabled. Battery current can be calculated by controller.



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### Ordering Notes

- 1) Order a relay rack or shipping brackets per [“Relay Racks and Shipping Brackets”](#) on page 113. If required, order relay rack transition plates per [“Transition Plates to Mount Relay Rack on Top of GNB Absolyte IIP Batteries”](#) on page 114. A relay rack, shipping rails, or enclosure must be specified when ordered. If required, order Relay Rack Isolation Kit as applicable per “Relay Rack Isolation Kit” on page 114.
- 2) Order an enclosure per “Enclosure” on page 115 if desired. A relay rack, shipping rails, or enclosure must be specified when ordered.
- 3) Order one (1) List [21](#), [22](#), [23](#), or [24](#) distribution cabinet.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per [“Single Voltage Distribution Panel”](#), [“Battery Disconnect Distribution Panel”](#), [“Return Bar Panel”](#), and [“Bulk Output Panel”](#) starting on page 52.
  - b) Order low voltage disconnect options as required per [“Low Voltage Disconnect Options”](#) starting on page 95.
  - c) Order fuses and/or circuit breakers as required per [“Distribution Devices”](#) starting on page 122.
  - d) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per [“Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations”](#) starting on page 134.
  - e) Order a distribution cabinet top shield as required per List [29](#).
  - f) If distribution only, order a bottom rear distribution cabinet cover per List 4.
  - g) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
- 4) [1R482000e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705300 as required per List [32](#). Order field expansion module mounting assembly(s) per List [33](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003).
  - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), or [42](#) if module mounting assembly 58870530001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870530003. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R482000e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 5) [1R483500e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).
  - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R483500e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order battery trays as required per List [93](#) or List [95](#).
  - a) Order batteries as required per [“Batteries”](#) under ACCESSORY DESCRIPTIONS.
  - b) Order [“Optional Battery Tray Battery Disconnect Circuit Breaker and Housing Kits”](#) as required.
  - c) Order [“Optional Battery Tray Front Battery Cover Kits”](#) as required.



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### **List 7: 1<sup>st</sup> Supplemental Bay Common Equipment (Power and Distribution or Distribution Only), Located In-Line with Main Bay, Enclosure Mounted Option Only**

#### **Features**

- ◆ Provides common equipment for one bussed “power and distribution or distribution only” bay rated for up to 2000 amperes of distribution. Includes interbay power busbars and communications cable. System components factory mounted in an enclosure as specified when ordered.
- ◆ Mounts to either left or right side of List [1](#) Main Bay.
- ◆ Accepts one (1) distribution cabinet (options are 3-row or 4-row cabinet).
- ◆ Includes SM-DU (provides bay interface to the system controller).
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705400 (including expansion assemblies).
- ◆ Includes enclosure joining kit P/N 563677.

#### **Restrictions**

System components factory mounted in an enclosure as specified when ordered.

Cannot put List 7 system next to a system in a relay rack.

When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

Will not accept List [21](#) and [22](#) distribution cabinet.

(List 21 and 22 are not provided with connection points for interbay busbars.)

Will not accept List [93](#) and List [95](#) battery trays option.

Order maximum of one (1) List 7.

Rear access required for installation of inter-bay busbars.

If low voltage disconnect (List LL) is to be included, the Main Bay (List 1) of the system must also have low voltage disconnect (List LL or List LB).

#### **Ordering Notes**

- 1) Order an enclosure and enclosure options per “Enclosure” on page 115.
- 2) Order one (1) List [23](#) or [24](#) distribution cabinet.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per “[Single Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
  - b) Order low voltage disconnect options as required per “[Low Voltage Disconnect Options](#)” starting on page 95.
  - c) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
  - d) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
  - e) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
- 3) [1R483500e3 Rectifier Option](#): Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).
  - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R483500e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

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### **List 8: 2<sup>nd</sup> through 5<sup>th</sup> Supplemental Bay Common Equipment (Power and Distribution or Distribution Only), Located In-Line with Main Bay, Enclosure Mounted Option Only**

#### **Features**

- ◆ Provides common equipment for one bussed “power and distribution or distribution only” bay rated for up to 2000 amperes of distribution. Includes interbay power busbars and communications cable. System components factory mounted in an enclosure as specified when ordered.
- ◆ Mounts to either left or right side of List [2](#) Supplemental Bay.
- ◆ Accepts one (1) distribution cabinet (options are 3-row or 4-row cabinet).
- ◆ Includes SM-DU (provides bay interface to the system controller).
- ◆ Accepts up to six (6) module mounting assemblies Spec. No. 588705400 (including expansion assemblies).
- ◆ Includes enclosure joining kit P/N 563677.

#### **Restrictions**

System components factory mounted in an enclosure as specified when ordered.

Cannot put List 8 system next to a system in a relay rack.

When the system is equipped with a List [40](#), [41](#), [42](#), or [43](#) front access input termination assembly, refer to the restrictions under these list descriptions.

Will not accept List [21](#) and [22](#) distribution cabinet.

(List 21 and 22 are not provided with connection points for interbay busbars.)

Will not accept List [93](#) and List [95](#) battery tray option.

Order maximum of four (4) List 8.

Rear access required for installation of inter-bay busbars.

If low voltage disconnect (List LL) is to be included, the Main Bay (List 1) of the system must also have low voltage disconnect (List LL or List LB).

#### **Ordering Notes**

- 1) Order an enclosure and enclosure options per “Enclosure” on page 115.
- 2) Order one (1) List [23](#) or [24](#) distribution cabinet.
  - a) Order up to four (4) (per the capacity of the distribution cabinet ordered) distribution panels, battery disconnect panels, return bar panel, and/or bulk output panel as required per “[Single Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
  - b) Order battery disconnect contactors and low voltage disconnect options as required per “[Battery Disconnect Contactors](#)” and “[Low Voltage Disconnect Options](#)” starting on page 85.
  - c) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
  - d) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
  - e) Order a battery shunt as required per List [90](#), [91](#), or [92](#).
- 3) **1R483500e3 Rectifier Option:** Order interface components for module mounting assembly(s) Spec. No. 588705400 as required per List [36](#). Order field expansion module mounting assembly(s) per List [37](#). Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004).
  - a) Order the front access AC Input Termination Assembly per List [40](#), [41](#), [42](#), or [43](#) if module mounting assembly 58870540001 ordered (or order module mounting assemblies that accommodate AC input cable assemblies or line cords; 58870540002, 58870540003, 58870540004. See “Module Mounting Assembly” starting on page 106).
  - b) Order rectifier modules as required, P/N [1R483500e3](#).
  - c) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

**List 21: One-Row Distribution Cabinet, For System Mounted in a Relay Rack or on Shipping Rails Only**

**Features**

- ◆ Accepts one (1) distribution panel.
- ◆ Rated for up to 600 amperes of distribution.

**Restrictions**

System mounted in a relay rack or on shipping rails only.

For use in [List 1](#) and [List 5](#) bays.

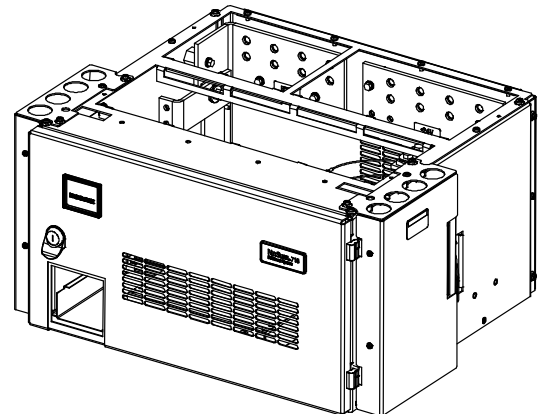
Cannot be ordered with [List 1](#) if it is to be used with a [List 2](#).

Not available for [List 2](#) and [List 3](#) bays (no interbay busbar landings available).

Battery disconnect panels cannot be ordered for use in a List 21.

**Ordering Notes**

- 1) Order one (1) distribution panel as required per “[Single Voltage Distribution Panel](#)”, “[Dual Voltage Distribution Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
- 2) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
- 3) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
- 4) Order battery contactor, battery shunt, and low voltage disconnect options as required.



**List 22: Two-Row Distribution Cabinet, For System Mounted in a Relay Rack or on Shipping Rails Only**

**Features**

- ◆ Accepts up to two (2) total distribution panels, battery disconnect distribution panels, and/or return bar panel.
- ◆ Rated for up to 1200 amperes of distribution.

**Restrictions**

System mounted in a relay rack or on shipping rails only.

For use in [List 1](#) and [List 5](#) bays.

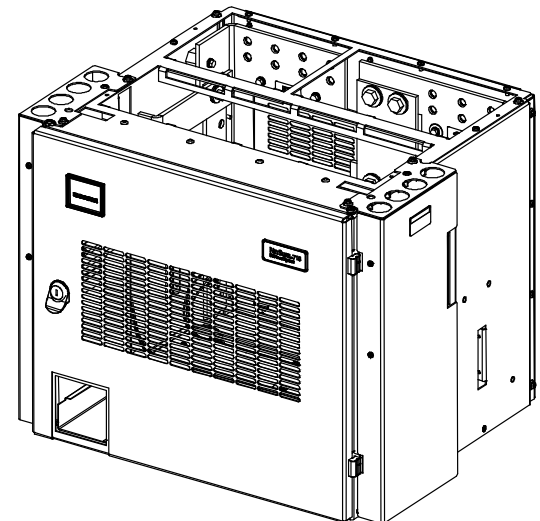
Cannot be ordered with [List 1](#) if it is to be used with a [List 2](#).

Not available for [List 2](#) and [List 3](#) bays (no interbay busbar landings available).

The List LL Low Voltage Load Disconnect (LVLD) option cannot be installed in the field for systems that are not equipped with any LVLD's from the factory. Field replacement of factory installed LVLD contactors is still available.

**Ordering Notes**

- 1) Order up to two (2) distribution panels as required per “[Single Voltage Distribution Panel](#)”, “[Dual Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
- 2) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
- 3) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
- 4) Order battery contactor, battery shunt, and low voltage disconnect options as required.



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### List 23: Three-Row Distribution Cabinet, For System Mounted in a Relay Rack, on Shipping Rails, or in an Enclosure

#### Features

- ◆ Accepts up to three (3) total distribution panels, battery disconnect distribution panels, and/or return bar panel.
- ◆ Rated for up to 1800 amperes of distribution.

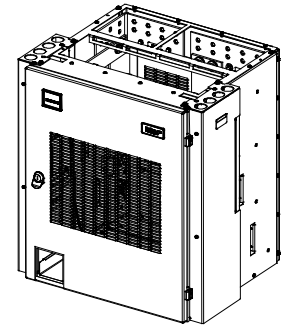
#### Restrictions

For use in [List 1](#), [List 2](#), [List 3](#), [List 5](#), [List 7](#) and [List 8](#).

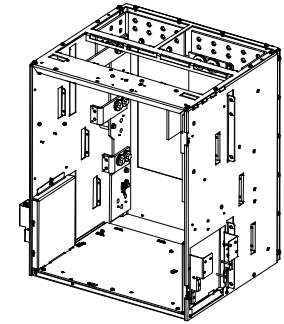
The List LL Low Voltage Load Disconnect (LVLD) option cannot be installed in the field for systems that are not equipped with any LVLD's from the factory. Field replacement of factory installed LVLD contactors is still available.

#### Ordering Notes

- 1) Order up to three (3) distribution panels as required per “[Single Voltage Distribution Panel](#)”, “[Dual Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
- 2) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
- 3) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
- 4) Order battery contactor, battery shunt, and low voltage disconnect options as required.



Relay Rack Installation



Cabinet Installation

### List 24: Four-Row Distribution Cabinet, For System Mounted in a Relay Rack, on Shipping Rails, or in an Enclosure

#### Features

- ◆ Accepts up to four (4) total distribution panels, battery disconnect distribution panels, and/or return bar panel.
- ◆ Rated for up to 2000 amperes of distribution.

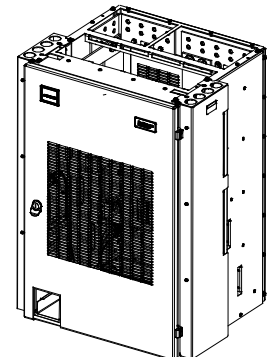
#### Restrictions

For use in [List 1](#), [List 2](#), [List 3](#), [List 5](#), [List 7](#) and [List 8](#).

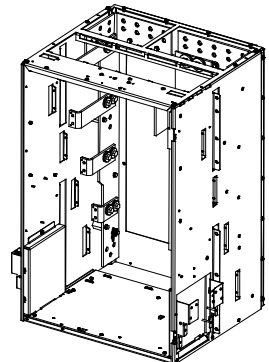
The List LL Low Voltage Load Disconnect (LVLD) option cannot be installed in the field for systems that are not equipped with any LVLD's from the factory. Field replacement of factory installed LVLD contactors is still available.

#### Ordering Notes

- 1) Order up to four (4) distribution panels as required per “[Single Voltage Distribution Panel](#)”, “[Dual Voltage Distribution Panel](#)”, “[Battery Disconnect Distribution Panel](#)”, “[Return Bar Panel](#)”, and “[Bulk Output Panel](#)” starting on page 52.
- 2) Order fuses and/or circuit breakers as required per “[Distribution Devices](#)” starting on page 122.
- 3) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per “[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)” starting on page 134.
- 4) Order battery contactor, battery shunt, and low voltage disconnect options as required.



Relay Rack Installation



Cabinet Installation

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### **List 29: Top Shield for Distribution Cabinet, For System Mounted in a Relay Rack Only**

#### **Features**

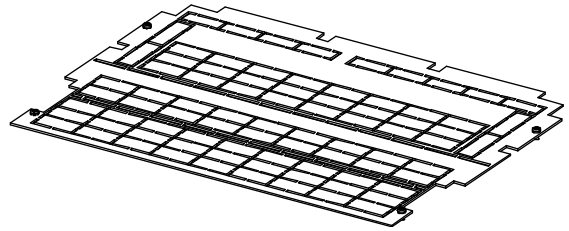
- ◆ Plastic shield covers all wiring access openings in top of distribution cabinet. Individual cutouts can be removed for wiring as required for specific installation.

#### **Restrictions**

Not for use with systems mounted in an enclosure.

#### **Ordering Notes**

- 1) Where closed top cover is required, order one (1) List 29 for each List [21](#), [22](#), [23](#), and [24](#) ordered.



### **List 32: Module Mounting Assembly Interface Components (for Spec. No. 588705300), For System Mounted in a Relay Rack or on Shipping Rails Only**

#### **Features**

- ◆ Provides components to add one (1) to five (5) module mounting assembly(s) (Spec. No. 588705300) to a Main or Supplemental Bay.
- ◆ Refer to “Module Mounting Assembly” starting on page 106 for module mounting assembly information.

#### **Restrictions**

Not for use with systems mounted in an enclosure.

Includes 'module mounting assembly-to-power system/distribution cabinet' interconnect components only. The module mounting assembly(s) must be ordered separately. Refer to [List 60](#) or [List 62](#) if converters are to be used in the module mounting assembly (main bay only).

Each bay (when used with a List 40, 41, or 42) can be equipped with a maximum of five (5) module mounting assemblies (see List 33 for expansion assemblies).

#### **Ordering Notes**

- 1) Order one (1) List 32 per module mounting assembly(s) Spec. No. 588705300 to be installed in the bay with these interconnect components (one to five) and specify the number of rows in the distribution cabinet so correct busbars can be provided.
- 2) Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870530001, 58870530003). (58870530001 required when List [40](#), [41](#), or [42](#) ordered with the system.)
- 3) Order rectifier modules as required per P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48241500](#) (Main Bay Only). Requires [List 60](#) to be installed in Main Bay.
- 5) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#) (Main Bay Only). Requires [List 62](#) to be installed in Main Bay.
- 6) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

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### **List 33: Module Mounting Assembly Field Expansion Kit (for Spec. No. 58870530003), For System Mounted in a Relay Rack or on Shipping Rails Only**

#### **Features**

- ◆ Provides a field expansion module mounting assembly Spec. No. 58870530003.

#### **Restrictions**

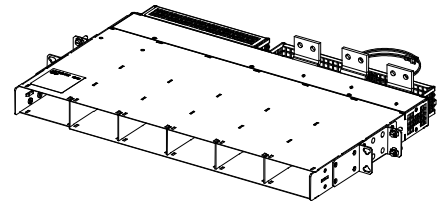
Not for use with systems mounted in an enclosure.

Maximum of two (2) List 33 per bay (total number of shelves in a bay cannot exceed six, maximum of ten shelves (60 total rectifiers plus converters) per multi-bay system).

AC inputs MUST be wired directly to the expansion assembly(s).

#### **Ordering Notes**

- 1) Order List 33 for a module mounting assembly Spec. No. 58870530003 to be added in the field.
- 2) Order rectifier modules as required per P/N [1R482000e3](#).
- 3) Order optional DC-DC converter modules as required, P/N [1C48241500](#) (Main Bay Only). Requires [List 60](#) to be installed in Main Bay.
- 4) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#) (Main Bay Only). Requires [List 62](#) to be installed in Main Bay.
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order Rectifier AC Input Cable Assemblies per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 or order Rectifier AC Input Line Cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.



### **List 36: Module Mounting Assembly Interface Components (for Spec. No. 588705400)**

#### **Features**

- ◆ Provides components to add one (1) to five (5) (relay rack mounted option) or one (1) to six (6) (enclosure mounted option) module mounting assembly(s) (Spec. No. 588705400) to a Main or Supplemental Bay.
- ◆ Refer to “Module Mounting Assembly” starting on page 106 for module mounting assembly information.

#### **Restrictions**

Includes 'module mounting assembly-to-power system/distribution cabinet' interconnect components only. The module mounting assembly(s) must be ordered separately.

Relay Rack Mounted Option: Each bay (when used with a List 40, 41, 42 or 43) can be equipped with a maximum of five (5) module mounting assemblies (see List 37 for expansion assemblies).

Enclosure Mounted Option: Each bay (when used with a List 40, 41, 42 or 43) can be equipped with a maximum of six (6) module mounting assemblies (see List 37 for expansion assemblies).

#### **Ordering Notes**

- 1) Order one (1) List 36 per module mounting assembly(s) Spec. No. 588705400 to be installed in the bay with these interconnect components and specify the number of rows in the distribution cabinet so correct busbars can be provided.
- 2) Order module mounting assembly(s) as required. See “Module Mounting Assembly” starting on page 106 (choices are 58870540001, 58870540002, 58870540003, 58870540004). (58870540001 required when List [40](#), [41](#), [42](#) or [43](#) ordered with the system.)
- 3) Order rectifier modules as required per P/N [1R483500e3](#).
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.



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### List 37: Module Mounting Assembly Field Expansion Kit (for Spec. No. 588705400)

#### Features

- ◆ Provides busbars and mounting hardware to tie the DC output busbars in a field installed module mounting assembly Spec. No. 588705400 to the system's DC busbars.

#### Restrictions

For use only for expansion shelf mounted directly beneath a 588705400 shelf.

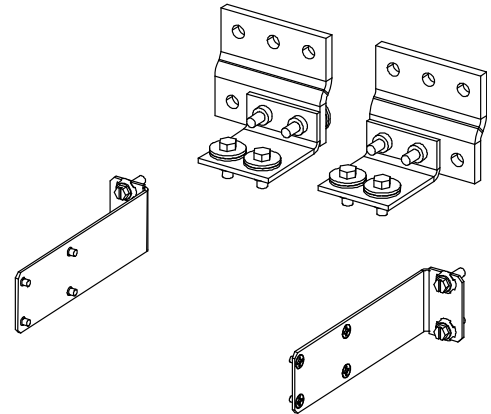
Maximum of two (2) List 37 per bay (total number of shelves in a bay cannot exceed six).

AC inputs MUST be wired directly to the expansion assembly(s).

Field expansion shelf is not available if the system is equipped with the inverter system.

#### Ordering Notes

- 1) Order List 37 for a module mounting assembly Spec. No. 588705400 to be added in the field beneath a 588705400 shelf.
- 2) Order List 37A for the first module mounting assembly Spec. No. 588705400 to be added in a system with 588705000 or 588705500 shelves, if required.
- 3) Order List 37 for the second module mounting assembly Spec. No. 588705400 to be added in a system with 588705000 or 588705500 shelves, if required.
- 4) Order a module mounting assembly as required. See "Module Mounting Assembly" starting on page 106 (choices are 58870540002, 58870540003, 58870540004).
- 5) Order rectifier modules as required per P/N [1R483500e3](#).
- 6) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 7) Order Rectifier AC Input Cable Assemblies per "588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies" on page 109 or order Rectifier AC Input Line Cords per "588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords" on page 110.



### List 37A: Module Mounting Assembly Field Expansion Kit (for Spec. No. 588705400), For System Originally Configured with 588705000 or 588705500 Shelves

#### Features

- ◆ Provides busbars and mounting hardware to tie the DC output busbars in a field installed module mounting assembly Spec. No. 588705400 to the module mounting assembly 588705000 or 588705500.

#### Restrictions

System mounted with 588705000 or 588705500 only.

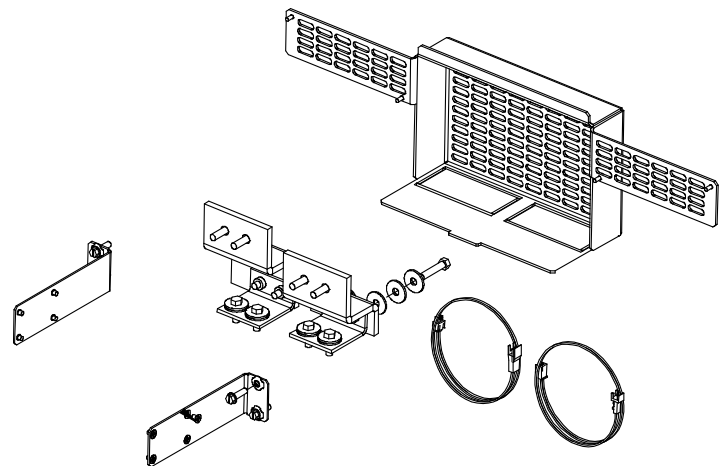
One (1) List 37A per bay (total number of shelves in a bay cannot exceed six).

AC inputs MUST be wired directly to the expansion assembly(s).

Field expansion shelf is not available if the system is equipped with the inverter system.

#### Ordering Notes

- 1) Order List 37A for the first module mounting assembly Spec. No. 588705400 to be added in the field beneath a 588705000 or 588705500 shelf.
- 2) Order List 37 if an additional module mounting assembly Spec. No. 588705400 to be added.
- 3) Order a module mounting assembly as required. See "Module Mounting Assembly" starting on page 106 (choices are 58870540002, 58870540003, 58870540004).
- 4) Order rectifier modules as required per P/N [1R483500e3](#).



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- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order Rectifier AC Input Cable Assemblies per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 or order Rectifier AC Input Line Cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.

### **List 40: Front Access AC Input Termination Assembly (1 AC Feed per 1 Rectifier, Single Phase)**

#### **Features**

- ◆ Provides AC input terminal blocks for connection of single phase 208 VAC, 240 VAC, 277 VAC input feeds for all rectifier positions in the bay. One (1) AC input feed required per one (1) rectifier position. Refer to “AC Input Connections to AC Input Termination Assembly List 40 Illustration when Used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 1 Rectifier, Single Phase)” on page 144 for specific wiring details.

#### **Restrictions**

For use with 58870530001 or 58870540001 module mounting assemblies only.

To be used with a maximum of five module mounting assemblies for relay rack, maximum of six module mounting assemblies for enclosure.

588705300 only rated for 208 VAC, 240 VAC.

Factory installed only.

For initial installation, only. Initial module mounting assemblies are factory wired to List 40. If a field expansion module mounting assembly is added to the system, AC inputs MUST be wired directly to the assembly.

#### **Ordering Notes**

- 1) Order either List 40, 41, 42, or 43 for each bay (or order module mounting assemblies with AC input line cords, AC input cable assemblies, or AC input terminal blocks). See “Module Mounting Assembly” starting on page 106.

### **List 41: Front Access AC Input Termination Assembly (1 AC Feed per 2 Rectifiers, Single Phase)**

#### **Features**

- ◆ Provides AC input terminal blocks for connection of single phase 208 VAC, 240 VAC, 277 VAC input feeds for all rectifier positions in the bay. One (1) AC input feed required per two (2) rectifier positions. Refer to “AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with Five (5) Shelves Installed” on page 145 for specific wiring details.

#### **Restrictions**

For use with 58870530001 or 58870540001 module mounting assemblies only.

To be used with a maximum of five module mounting assemblies for relay rack, maximum of six module mounting assemblies for enclosure.

588705300 only rated for 208 VAC, 240 VAC.

Factory installed only.

For initial installation, only. Initial module mounting assemblies are factory wired to List 41. If a field expansion module mounting assembly is added to the system, AC inputs MUST be wired directly to the assembly.

#### **Ordering Notes**

- 1) Order either List 40, 41, 42, or 43 for each bay (or order module mounting assemblies with AC input line cords, AC input cable assemblies, or AC input terminal blocks). See “Module Mounting Assembly” starting on page 106.



**List 42: Front Access AC Input Termination Assembly (1 AC Feed per 3 Rectifiers, 3-Phase)**

**Features**

- ◆ Provides AC input terminal blocks for connection of three phase 208 VAC, 240 VAC input feeds for all rectifier positions in the bay. One (1) AC input feed required per three (3) rectifier positions. Refer to “AC Input Connections to AC Input Termination Assembly List 42 Illustration when used with 588705300 or 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC) (1 Feed per 3 Rectifiers, Three Phase)” on page 150 for specific wiring details.

**Note:** *The three-phase input is internally distributed within the system to provide a single-phase line to line connection to each rectifier position, evenly distributed across the three phases.*

**Restrictions**

For use with 58870530001 or 58870540001 module mounting assemblies only.

To be used with a maximum of five module mounting assemblies for relay rack, maximum of six module mounting assemblies for enclosure.

Factory installed only.

For initial installation, only. Initial module mounting assemblies are factory wired to List 42. If a field expansion module mounting assembly is added to the system, AC inputs MUST be wired directly to the assembly.

**Ordering Notes**

- 1) Order either List 40, 41, 42, or 43 for each bay (or order module mounting assemblies with AC input line cords, AC input cable assemblies, or AC input terminal blocks). See “Module Mounting Assembly” starting on page 106.

**List 43: Front Access AC Input Termination Assembly (1 AC Feed per 3 Rectifiers, 3-Phase)**

**Features**

- ◆ Provides AC input terminal blocks for connection of three phase 277/480 VAC input feeds for all rectifier positions in the bay. One (1) AC input feed required per three (3) rectifier positions. Refer to “AC Input Connections to AC Input Termination Assembly List 43 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 277/480 VAC) (1 Feed per 3 Rectifiers, Three Phase)” on page 151 for specific wiring details.

**Note:** *The three-phase input is internally distributed within the system to provide a single-phase line to neutral connection to each rectifier position, evenly distributed across the three phases.*

**Restrictions**

For use with 58870540001 module mounting assemblies only.

To be used with a maximum of five module mounting assemblies for relay rack, maximum of six module mounting assemblies for enclosure.

Factory installed only.

For initial installation, only. Initial module mounting assemblies are factory wired to List 43. If a field expansion module mounting assembly is added to the system, AC inputs MUST be wired directly to the assembly.

**Ordering Notes**

- 1) Order either List 40, 41, 42, or 43 for each bay (or order module mounting assemblies with AC input line cords, AC input cable assemblies, or AC input terminal blocks). See “Module Mounting Assembly” starting on page 106.

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### **List 50: Inverter System, 23", up to 6kVA maximum, Bulk Output**

#### **Features**

- ◆ Provides a bulk output inverter system.
- ◆ One (1) 6-position inverter module mounting shelf.
- ◆ One (1) 1U bulk output AC distribution shelf (includes one 70 A circuit breaker).
- ◆ Includes the EPO (Emergency Power Off) board which provides the EPO function.

#### **Restrictions**

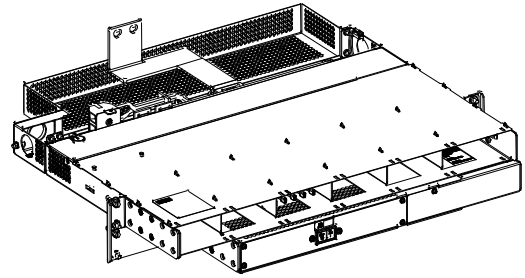
Not a stand-alone system. Factory integrated into a Vertiv™ Power System.

For use with 588705400 rectifier shelves only. Field rectifier expansion shelf is not available if the system is equipped with the inverter system.

Maximum system output power when equipped with one (1) 23-inch-wide inverter shelf is 6kVA at 40 °C and 3kVA at 65 °C.

#### **Ordering Notes**

- 1) Order List 50 as required.
- 2) Order either individual inverter module feeds or dual inverter module feeds. The necessary breakers will be provided with the inverter module feeds.
- 3) Order List AL for the bottom row to accommodate the DC input breakers for the inverter modules.



### **List 51: Inverter System, 23", up to 6kVA maximum (5.76kVA per NEC breaker de-rating), NEMA Outlet Output**

#### **Features**

- ◆ Provides a NEMA output inverter system.
- ◆ One (1) 6-position inverter module mounting shelf.
- ◆ One (1) 1U NEMA output AC distribution shelf (includes four 15 A circuit breakers).
- ◆ Includes the EPO (Emergency Power Off) board which provides the EPO function.

#### **Restrictions**

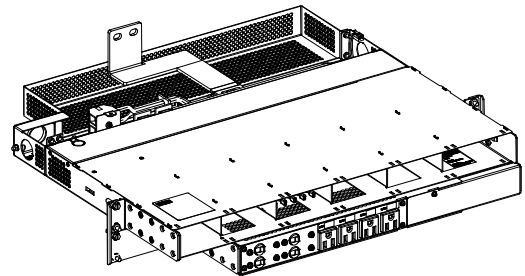
Not a stand-alone system. Factory integrated into a Vertiv™ Power System.

For use with 588705400 rectifier shelves only. Field rectifier expansion shelf is not available if the system is equipped with the inverter system.

Maximum system output power when equipped with one (1) 23-inch-wide inverter shelf is 5.76kVA at 40 °C and 3kVA at 65 °C.

#### **Ordering Notes**

- 1) Order List 51 as required.
- 2) Order either individual inverter module feeds or dual inverter module feeds. The necessary breakers will be provided with the inverter module feeds.
- 3) Order List AL for the bottom row to accommodate the DC input breakers for the inverter modules.



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### **List 52: Inverter System, 23", up to 12kVA maximum, Bulk Output**

#### **Features**

- ◆ Provides a bulk output inverter system.
- ◆ Two (2) 6-position inverter module mounting shelves.
- ◆ One (1) 2U bulk output AC distribution shelf (includes two 70 A circuit breakers).
- ◆ Includes the EPO (Emergency Power Off) board which provides the EPO function.

#### **Restrictions**

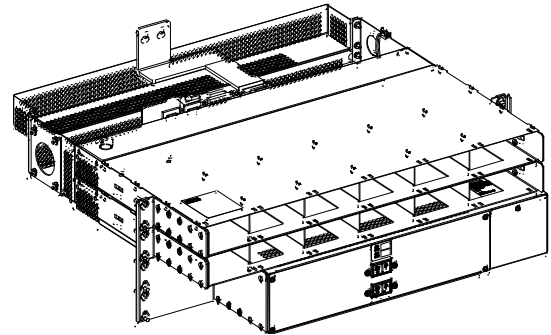
Not a stand-alone system. Factory integrated into a Vertiv™ Power System.

For use with 588705400 rectifier shelves only. Field rectifier expansion shelf is not available if the system is equipped with the inverter system.

Maximum system output power when equipped with two (2) 23-inch-wide inverter shelf is 12kVA at 40 °C and 6kVA at 65 °C.

#### **Ordering Notes**

- 1) Order List 52 as required.
- 2) Order either individual inverter module feeds or dual inverter module feeds. The necessary breakers will be provided with the inverter module feeds.
- 3) Order List AL for the bottom row to accommodate the DC input breakers for the inverter modules.



### **List 53: Inverter System, 23", up to 12kVA maximum (11.5kVA per NEC breaker de-rating), NEMA Outlet Output**

#### **Features**

- ◆ Provides a NEMA output inverter system.
- ◆ Two (2) 6-position inverter module mounting shelves.
- ◆ One (1) 2U NEMA output AC distribution shelf (includes eight 15 A circuit breakers).
- ◆ Includes the EPO (Emergency Power Off) board which provides the EPO function.

#### **Restrictions**

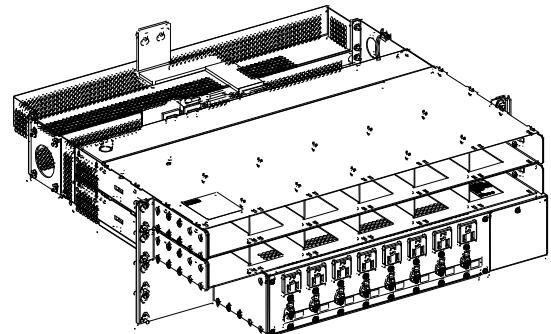
Not a stand-alone system. Factory integrated into a Vertiv™ Power System.

For use with 588705400 rectifier shelves only. Field rectifier expansion shelf is not available if the system is equipped with the inverter system.

Maximum system output power when equipped with two (2) 23-inch-wide inverter shelf is 11.5kVA at 40 °C and 6kVA at 65 °C.

#### **Ordering Notes**

- 1) Order List 53 as required.
- 2) Order either individual inverter module feeds or dual inverter module feeds. The necessary breakers will be provided with the inverter module feeds.
- 3) Order List AL for the bottom row to accommodate the DC input breakers for the inverter modules.



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### **List 60: +24V Converter Interface Components (for Spec. No. 588705300), For System Mounted in a Relay Rack or on Shipping Rails Only**

#### **Features**

- ◆ Provides components to interface +24V converters in Spec. No. 588705300 module mounting assemblies to the distribution cabinet.

#### **Restrictions**

Not for use with systems mounted in an enclosure.

Must be used in systems equipped with Spec. No. 588705300 module mounting assemblies.

Must be installed in main bay **only**.

If the system does not include a dual voltage distribution panel, the converter power cabling will be provided as ship-loose material.

#### **Ordering Notes**

- 1) Order List 60 as required. Quantity of List 60 must equal the quantity of module mounting assembly(s) Spec. No. 588705300 installed in the bay with a maximum of four (4) List 60. Note that if five (5) assemblies are in the bay, the quantity of List 60 is still four (4).
- 2) Specify the number of module mounting assembly(s) Spec. No. 588705300 installed in the bay (one to five) so correct busbars can be provided.
- 3) Order up to three (3) converter modules, P/N [1C48241500](#), per module mounting assembly. Each List 60 allows the three right-most shelf positions (when viewed from the front) to accept either converter or rectifier modules.
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **List 62: -58V Converter Interface Components (for Spec. No. 588705300), For System Mounted in a Relay Rack or on Shipping Rails Only**

#### **Features**

- ◆ Provides components to interface -58V converters in Spec. No. 588705300 module mounting assemblies to the distribution cabinet.

#### **Restrictions**

Not for use with systems mounted in an enclosure.

Must be used in systems equipped with Spec. No. 588705300 module mounting assemblies.

Must be installed in main bay **only**.

If the system does not include a dual voltage distribution panel, the converter power cabling will be provided as ship-loose material.

#### **Ordering Notes**

- 1) Order List 62 as required. Quantity of List 62 must equal the quantity of module mounting assembly(s) Spec. No. 588705300 installed in the bay with a maximum of four (4) List 62. Note that if five (5) assemblies are in the bay, the quantity of List 62 is still four (4).
- 2) Specify the number of module mounting assembly(s) Spec. No. 588705300 installed in the bay (one to five) so correct busbars can be provided.
- 3) Order up to three (3) converter modules, P/N [1C48582000P3](#), per module mounting assembly. Each List 62 allows the three right-most shelf positions (when viewed from the front) to accept either converter or rectifier modules.
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

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### **List 90: Optional Battery Shunt, 800 A**

#### **Features**

- ◆ Provides an 800 A battery shunt.

#### **Restrictions**

For use with List 21 only.

Cannot be used with low voltage load disconnect (LVLD) in a List 21.

#### **Ordering Notes**

- 1) Order as required.

### **List 91: Optional Battery Shunt, 2000 A**

#### **Features**

- ◆ Provides a 2000 A battery shunt.

#### **Restrictions**

For use with List 22 only.

#### **Ordering Notes**

- 1) Order as required.

### **List 92: Optional Battery Shunt, 2500 A**

#### **Features**

- ◆ Provides a 2500 A battery shunt.

#### **Restrictions**

For use with List 23 and 24 only. Not for use with List 5.

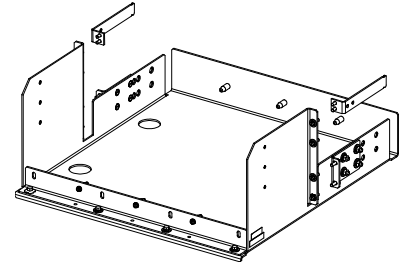
#### **Ordering Notes**

- 1) Order as required.

**List 93: Optional Battery Tray, Pre-Cabled, For System Mounted in a Relay Rack Only, 22.5" Deep**

**Features**

- ◆ Each List 93 provides one (1) battery tray factory mounted in the 23" wide system relay rack specified when ordered. Each battery tray holds four (4) 12 V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48 VDC string per tray.
- ◆ Battery trays can be ordered with or without a battery disconnect circuit breaker. When a circuit breaker is ordered, it is provided in the -48 VDC lead of each battery string (1 circuit breaker per tray).
- ◆ Battery tray dimensions are 21.3" wide X 22.5" deep. Refer to "[List 93 \(Battery Tray\)](#)" under *PHYSICAL SIZE INFORMATION* for a typical battery tray arrangement.
- ◆ Battery spacers included.



**Restrictions**

Designed to accommodate the batteries listed under "[Batteries](#)" in the ACCESSORY DESCRIPTIONS section.

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 6RU, 7RU, or 8RU apart as determined by battery selected. If no battery selected, factory spaces battery trays 8RU apart. Spacing can be increased above that required for the battery selected up to a maximum of 8RU.

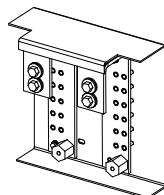
Cable size for each tray is 2 AWG for optional battery disconnect circuit breaker selected up to 150 A and 1/0 AWG for circuit breaker selected over 150 A or if circuit breaker is not selected.

Maximum number of List 93 per relay rack is four (4).

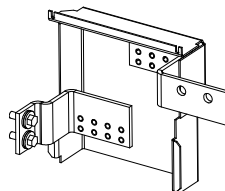
Not a stand-alone battery system. Must be used as part of a power system that includes a List 1 (or List 5) with a List 21, 22, 23, or 24.

**Ordering Notes**

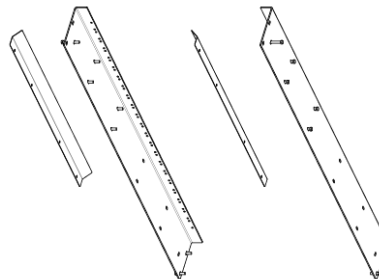
- 1) Order up to four (4) battery trays per relay rack, as required.
- 2) Order battery tray mounting kit P/N 565004 for use with enclosure P/N 563524 and P/N 564881.
- 3) Order battery cable termination kit, one per bay. P/N 553584 for use with List 21, P/N 555478 for use with Lists 22, 23 and 24.
- 4) Order batteries separately. See "[Batteries](#)" in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- 5) If optional battery tray battery disconnect circuit breaker is desired, order per "[Optional Battery Tray Battery Disconnect Circuit Breaker and Housing Kits](#)" in the ACCESSORY DESCRIPTIONS section. You can order either optional battery tray battery disconnect circuit breaker or optional battery tray Anderson battery connector kit, not both.
- 6) If optional battery tray Anderson battery connector kit is desired, order per "[Optional Battery Tray Anderson Battery Connector Kit](#)" in the ACCESSORY DESCRIPTIONS section. You can order either optional battery tray battery disconnect circuit breaker or optional battery tray Anderson battery connector kit, not both.
- 7) If optional battery tray front battery cover is desired, order per "[Optional Battery Tray Front Battery Cover Kits](#)" in the ACCESSORY DESCRIPTIONS section.



P/N 553584



P/N 555478



P/N 565004

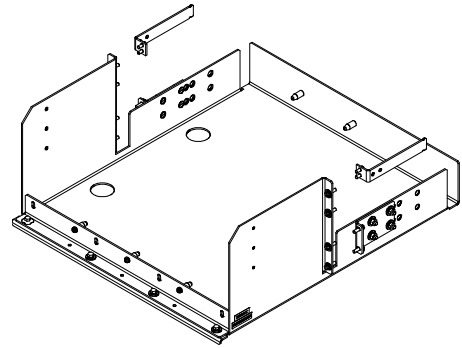
# Vertiv™ NetSure™ 7100 DC Power System

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### List 95: Optional Battery Tray, Pre-Cabled, For System Mounted in a Relay Rack Only, 24.79" Deep

#### Features

- ◆ Each List 95 provides one (1) battery tray factory mounted in the 23" wide system relay rack specified when ordered. Each battery tray holds four (4) 12 V front terminal valve regulated lead acid (VRLA) batteries. Battery cabling is factory provided and connected to the system's main busbars. Batteries are configured as one (1) 48 VDC string per tray.
- ◆ Battery trays can be ordered with or without a battery disconnect circuit breaker. When a circuit breaker is ordered, it is provided in the -48 VDC lead of each battery string (1 circuit breaker per tray).
- ◆ Battery tray dimensions are 21.3" wide X 24.79" deep. Refer to "[List 95 \(Battery Tray\)](#)" under *PHYSICAL SIZE INFORMATION* for a typical battery tray arrangement.
- ◆ Battery spacers included.



#### Restrictions

Designed to accommodate the batteries listed under "[Batteries](#)" in the ACCESSORY DESCRIPTIONS section.

A single battery tray must mount at bottom of relay rack. Multiple battery trays must mount starting at bottom of relay rack and working upward. Factory spaces battery trays 6RU, 7RU, or 8RU apart as determined by battery selected. If no battery selected, factory spaces battery trays 8RU apart. Spacing can be increased above that required for the battery selected up to a maximum of 8RU.

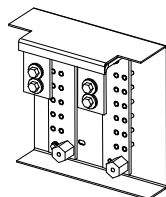
Cable size for each tray is 2 AWG for optional battery disconnect circuit breaker selected up to 150 A and 1/0 AWG for circuit breaker selected over 150 A or if circuit breaker is not selected.

Maximum number of List 95 per relay rack is four (4).

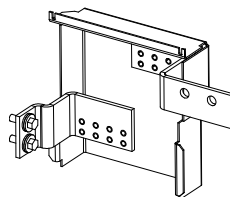
Not a stand-alone battery system. Must be used as part of a power system that includes a List 1 (or List 5) with a List 21, 22, 23, or 24.

#### Ordering Notes

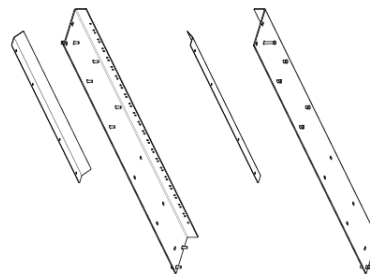
- 1) Order up to four (4) battery trays per relay rack, as required.
- 2) Order battery tray mounting kit P/N 565004 for use with enclosure P/N 563524 and P/N 564881.
- 3) Order battery cable termination kit, one per bay. P/N 553584 for use with List 21, P/N 555478 for use with Lists 22, 23 and 24.
- 4) Order batteries separately. See "[Batteries](#)" in the ACCESSORY DESCRIPTIONS section. Battery cables and lugs factory provided and connected.
- 5) If optional battery tray battery disconnect circuit breaker is desired, order per "[Optional Battery Tray Battery Disconnect Circuit Breaker and Housing Kits](#)" in the ACCESSORY DESCRIPTIONS section. You can order either optional battery tray battery disconnect circuit breaker or optional battery tray Anderson battery connector kit, not both.
- 6) If optional battery tray Anderson battery connector kit is desired, order per "[Optional Battery Tray Anderson Battery Connector Kit](#)" in the ACCESSORY DESCRIPTIONS section. You can order either optional battery tray battery disconnect circuit breaker or optional battery tray Anderson battery connector kit, not both.
- 7) If optional battery tray front battery cover is desired, order per "[Optional Battery Tray Front Battery Cover Kits](#)" in the ACCESSORY DESCRIPTIONS section.



P/N 553584



P/N 555478



P/N 565004

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### Batteries

#### Restrictions

For use in List [93](#) and List [95](#) battery trays.

#### Ordering Notes

- 1) Order batteries from Table 1 as required for List [93](#).

Manufacturer*	Manufacturer P/N	P/N (12 V Module)	Capacity (A-Hr)	Dimension W x L x H (Inches) (per 12 V Module)	Min Tray Spacing (RU)	Weight (lb) (per 12V Module)	Lug Kit 2 AWG	Lug Kit 1/0 AWG
C&D	TEL12-160F	140456	157	5.0 x 22.0 x 11.10	7	116.8	528236	528237
C&D	TEL12-180F	--	181	5.0 x 22.0 x 12.60	8	132.3	528236	528237
C&D	TEL12-210F	554579	202	5.0 x 22.0 x 12.60	8	132.3	528236	528237
Deka	12AVR-150ET	122018	150	4.90 x 22.00 x 11.75	8	115	528234	528235
Deka	12AVR-170ET	541381	170	4.90 x 22.0 x 12.60	8	120	528234	528235
Deka	HT170ET	--	164	4.93 x 22.17 x 12.58	8	118	528234	528235
Enersys	12V155FS	122010	155	4.90 x 22.10 x 11.10	7	106.9	528234	528235
Enersys	12V170FS	--	170	4.90 x 22.10 x 11.10	7	112	528234	528235
Enersys	SBS 170F	--	170	4.92 x 22.10 x 11.10	7	116	528234	528235
Enersys	SBS 190F	--	190	4.90 x 22.10 x 12.40	8	132	528234	528235
FIAMM	12FAT100	--	100	4.96 x 21.97 x 9.06	6	95	528234	528235
FIAMM	12FAT155	--	155	4.96 x 21.97 x 12.64	8	129	528234	528235
FIAMM	12FAT180	--	100	4.96 x 21.97 x 12.64	8	134	528234	528235
Northstar	NSB155FT RED	--	155	4.90 x 22.0 x 11.00	7	101	528234	528235
Northstar	NSB170FT RED	126111	170	4.90 x 22.00 x 12.60	8	116	528234	528235
Northstar	NSB190FT RED	--	190	4.90 x 22.00 x 12.60	8	123	528234	528235
Northstar	NSB155FT HT	--	154	4.90 x 22.00 x 11.0	7	117	528234	528235
Northstar	NSB170FT HT	--	174	4.90 x 22.00 x 12.60	8	121	528234	528235
Northstar	NSB190FT HT	--	190	4.90 x 22.00 x 12.60	8	132	528234	528235
GS Yuasa	PYL12V160FT	--	160	4.90 x 21.90 x 11.0	7	116.2	528234	528235
GS Yuasa	PYL12V185FT	--	185	4.90 x 21.90 x 12.50	8	133.8	528234	528235

\* See [Battery Manufacturer Information](#)

Table 1  
Batteries and Battery Lug Kits for List [93](#)

- 2) Order batteries from Table 2, as required for List [95](#).

Manufacturer*	Manufacturer P/N	P/N (12 V Module)	Capacity (A-Hr)	Dimension W x L x H (Inches) (per 12 V Module)	Min Tray Spacing (RU)	Weight (lb) (per 12V Module)	Lug Kit 2 AWG	Lug Kit 1/0 AWG
Deka	12AVR-200ET	--	200	4.97 x 24.3 x 12.74	8	151	528234	528235
Deka	HT200ET	--	200	4.97 x 24.15 x 12.74	8	151	528234	528235

\* See [Battery Manufacturer Information](#)

Table 2  
Batteries and Battery Lug Kits for List [95](#)



**Optional Battery Tray Battery Disconnect Circuit Breaker and Housing Kits**

**Features**

- ◆ Provides a battery disconnect circuit breaker housing factory mounted on the left or right side of the List 93 and List 95 battery trays. Selected circuit breaker factory installed and wired.

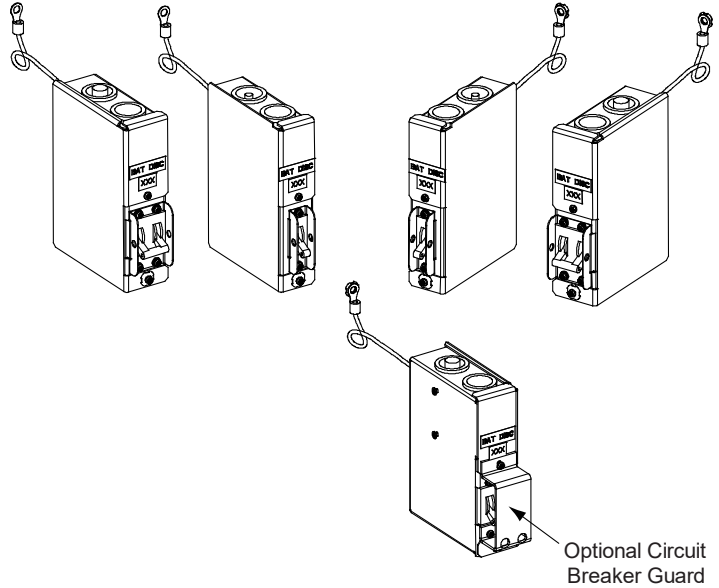
**Restrictions**

For use in List 93 and List 95 battery trays.

Factory wires battery trays with 2 AWG cables for battery disconnect circuit breaker selected up to 150 A and 1/0 AWG cables for circuit breaker selected over 150 A.

**Ordering Notes**

- 1) For each battery tray, order one (1) circuit breaker from Table 3.
- 2) For each double-pole circuit breaker ordered, order an optional circuit breaker guard P/N 548014, if desired, to block front access to circuit breaker handle.
- 3) For each battery tray ordered, order one (1) battery circuit breaker housing kit from Table 4.



Ampere Rating	P/N Electrical/Mechanical Trip <sup>1</sup> (Black Handle)	No. of Poles
50	256694300	1-Pole
60	256694700	
70	256695100	
75	256695500	
100	256695900	
125	100762	2-Pole
150	100763	
200	121810	

Circuit Breaker Alarm Operation:

<sup>1</sup>Provides an alarm during an electrical or manual trip condition.

Table 3  
Battery Tray Battery Disconnect Circuit Breakers

Part Number	Description
559813	Single Pole, Right Side Mounted
559814	Single Pole, Left Side Mounted
559815	Double Pole, Right Side Mounted
559816	Double Pole, Left Side Mounted

Table 4  
Battery Tray Battery Disconnect Circuit Breaker Housing Kits

**Optional Battery Tray Front Battery Cover Kits**

**Features**

- ◆ Provides a front battery cover to the List 93 and List 95 battery trays.

**Restrictions**

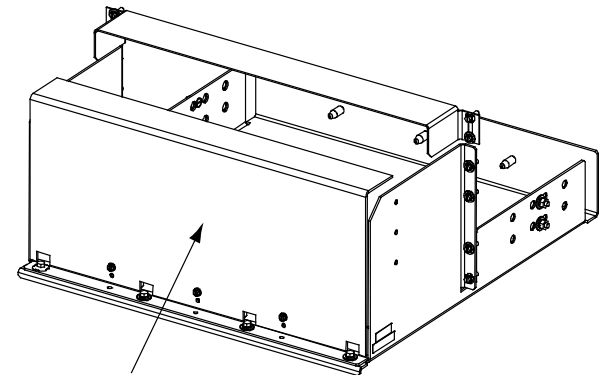
For use in List 93 and List 95 battery trays.

**Ordering Notes**

- 1) Order one (1) kit per tray from Table 5, as required.

Part Number	Height
562128	8U
562053	7U
562145	6U

Table 5



**Optional Battery Tray Anderson Battery Connector Kit**

**Features**

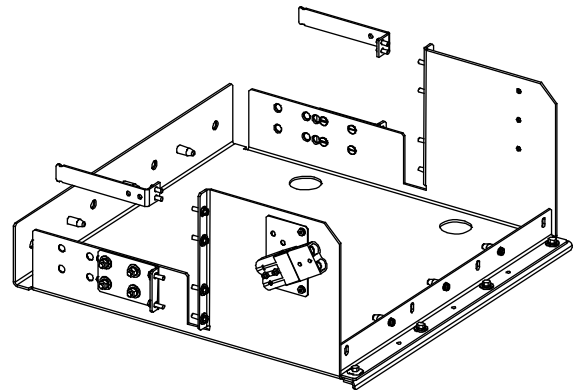
- ◆ Provides an Anderson battery connector (SB 120) factory mounted on the left or right side of the List 93 and List 95 battery trays.

**Restrictions**

For use in List 93 and List 95 battery trays.

**Ordering Notes**

- 1) For each battery tray, order one (1) Anderson battery tray connector kit P/N 563297.



**List 100: Power and Distribution Bay (Fully Configured)**

**Features**

- ◆ Provides a “power and distribution” bay rated for 1000 A @ -48 VDC and 500 A @ +24 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also “582127000 List 100 (Relay Rack)” on page 16.
  - All system components mounted in a 7' x 23" seismic Zone-4 rated relay rack.
  - Includes a 3-row distribution cabinet.
  - Includes one (1) List DJ distribution panel in the top row.
  - Includes two (2) List AL distribution panels in the lower two rows.
  - Includes the NCU controller (with custom configuration).
  - Includes a battery disconnect contactor providing low voltage and manual battery disconnect.
  - Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.
  - Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).
  - Accepts a second optional IB2 controller interface board. See page 97.
  - Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs. and eight (8) battery midpoint inputs).
  - Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.
  - Includes three (3) 556155 temperature probes.
  - Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller’s front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

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Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). Also includes a 75 A circuit breaker factory installed in Row 2 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### **Ordering Notes**

- 1) Order fuses and/or circuit breakers as required per [“Distribution Devices”](#) starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per [“Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations”](#) starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48241500](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 7) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 8) For a field installed battery tray, order P/N 563206.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502 and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to “Special Application Rectifier Bus Landing Point Kit P/N 563686” on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### **List 101: Power and Distribution Bay (Fully Configured with One Battery Tray)**

#### **Features**

- ◆ Provides a “power and distribution” bay rated for 1000 A @ -48 VDC and 500 A @ +24 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also “582127000 List 101 (Relay Rack)” on page 19.

All system components mounted in a 5' x 23" seismic Zone-4 rated relay rack.

Includes a 3-row distribution cabinet.

Includes one (1) List DJ distribution panel in the top row.

Includes two (2) List AL distribution panels in the lower two rows.

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

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Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes one (1) battery tray with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). Also includes a 75 A circuit breaker factory installed in Row 2 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### Ordering Notes

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48241500](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### List 102: Power and Distribution Bay (Fully Configured with Two Battery Trays)

#### Features

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 500 A @ +24 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 102 (Relay Rack)" on page 20.

All system components mounted in a 6' x 23" seismic Zone-4 rated relay rack.

Includes a 3-row distribution cabinet.

Includes one (1) List DJ distribution panel in the top row.

Includes two (2) List AL distribution panels in the lower two rows.

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

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Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes two (2) battery trays with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). Also includes a 75 A circuit breaker factory installed in Row 2 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### Ordering Notes

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48241500](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### List 203: Power and Distribution Bay (Fully Configured with Three Battery Trays)

#### Features

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 500 A @ +24 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 203 (Relay Rack)" on page 21.

All system components mounted in a 7' x 23" seismic Zone-4 rated relay rack.

Includes a 3-row distribution cabinet.

Includes one (1) List DJ distribution panel in the top row.

Includes two (2) List AL distribution panels in the lower two rows.

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

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Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes three (3) battery trays with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus). Also includes a 75 A circuit breaker factory installed in Row 2 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### **Ordering Notes**

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48241500](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### **List 500: Power and Distribution Bay (Fully Configured)**

#### **Features**

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 414 A @ -58 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 500 (Relay Rack)" on page 22.

All system components mounted in a 7' x 23" seismic Zone-4 rated relay rack.

Includes a 3-row distribution cabinet.

Includes one (1) List FK distribution panel in the top row.

Includes one (1) List FG distribution panel in the middle row.

Includes one (1) List AL distribution panel in the bottom row.

Includes the NCU controller (with custom configuration).

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.



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Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). Also includes two (2) 75 A circuit breakers factory installed in Row 2 distribution panel position #26 and Row 3 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### **Ordering Notes**

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 7) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 8) For a field installed battery tray, order P/N 563206.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### **List 501: Power and Distribution Bay (Fully Configured with One Battery Tray)**

#### **Features**

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 500 A @ -58 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 501 (Relay Rack)" on page 23.

All system components mounted in a 5' x 23" seismic Zone-4 rated relay rack.

Includes a 3-row distribution cabinet.

Includes one (1) List FK distribution panel in the top row.

Includes one (1) List FG distribution panel in the middle row.

Includes one (1) List AL distribution panel in the bottom row.

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

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Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs. and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes one (1) battery tray with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). Also includes two (2) 75 A circuit breakers factory installed in Row 2 distribution panel position #26 and Row 3 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### **Ordering Notes**

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R482000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### **List 502: Power and Distribution Bay (Fully Configured with Two Battery Trays)**

#### **Features**

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 500 A @ -58 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 502 (Relay Rack)" on page 24.
  - All system components mounted in a 6' x 23" seismic Zone-4 rated relay rack.
  - Includes a 3-row distribution cabinet.
  - Includes one (1) List FK distribution panel in the top row.
  - Includes one (1) List FG distribution panel in the middle row.
  - Includes one (1) List AL distribution panel in the bottom row.
  - Includes a battery disconnect contactor providing low voltage and manual battery disconnect.



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Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes two (2) battery trays with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). Also includes two (2) 75 A circuit breakers factory installed in Row 2 distribution panel position #26 and Row 3 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### Ordering Notes

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R4-82000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

### List 503: Power and Distribution Bay (Fully Configured with Three Battery Trays)

#### Features

- ◆ Provides a "power and distribution" bay rated for 1000 A @ -48 VDC and 500 A @ -58 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also "582127000 List 503 (Relay Rack)" on page 2521.
  - All system components mounted in a 7' x 23" seismic Zone-4 rated relay rack.
  - Includes a 3-row distribution cabinet.
  - Includes one (1) List FK distribution panel in the top row.

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Includes one (1) List FG distribution panel in the middle row.

Includes one (1) List AL distribution panel in the bottom row.

Includes a battery disconnect contactor providing low voltage and manual battery disconnect.

Includes the NCU controller with custom configuration.

Includes a system interface board which provides manual battery disconnect, system voltage test points, two (2) temperature inputs, two (2) battery CB/Fuse alarm inputs, and a CAN interface connector.

Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).

Accepts a second optional IB2 controller interface board. See page 97.

Includes one (1) EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs).

Accepts a second optional EIB controller extended interface board. See Restrictions. See page 98.

Includes three (3) 556155 temperature probes.

Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

Includes one (1) rectifier only shelf (six positions accept rectifiers only).

Includes three (3) rectifier/converter shelves (three positions accept rectifiers only, three positions accept rectifiers or converters).

Includes front access AC input termination assemblies with two rectifiers per AC feed, single phase.

Includes three (3) battery trays with 200 A disconnect circuit breakers.

Includes factory installed and wired SPD (Surge Protection Device) Assemblies (Row 2 -48 VDC Bus, Row 3 -58 VDC Bus). Also includes two (2) 75 A circuit breakers factory installed in Row 2 distribution panel position #26 and Row 3 distribution panel position #26 (connected to the SPD Assemblies).

- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000100 and UM582127000100.

### **Ordering Notes**

- 1) Order fuses and/or circuit breakers as required per "[Distribution Devices](#)" starting on page 122.
- 2) Order input and load distribution lugs, lug adapters, and lug hardware kits as required per "[Recommended Wire Sizes, Branch Circuit Protection, Crimp Lugs, and Wiring Illustrations](#)" starting on page 134.
- 3) Order rectifier modules as required, P/N [1R4-82000e3](#).
- 4) Order optional DC-DC converter modules as required, P/N [1C48582000P3](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 6) Order batteries as required per "[Batteries](#)" on page 50. Three (3) P/N 562674 battery trays provided.
- 7) Order optional second IB2 controller interface board as required. See Restrictions. See page 97.
- 8) Order optional second EIB controller interface board as required. See Restrictions. See page 98.
- 9) Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables. Refer to "Special Application Rectifier Bus Landing Point Kit P/N 563686" on page 132.
- 10) A generator input circuit breaker kit P/N 564219 is available. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system.
- 11) If required, order Relay Rack Isolation Kit as applicable per "Relay Rack Isolation Kit" on page 114.

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### List 600, 601: Power and Distribution Bay (Fully Configured)

#### Features

- ◆ Provides a “power and distribution” bay rated for 600 A @ -48 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also “582127000 List 600, 601 (rack mounted in an OSP enclosure)” on page 27.  
Includes a 2-row distribution cabinet equipped with two (2) single voltage distribution panels (26-distribution positions each). Visible on the front door is a critical alarm indicator which illuminates if the NCU controller issues a critical alarm.  
List 600 Only: Includes a battery disconnect contactor providing low voltage battery disconnect (LVBD).  
Includes a system interface board which provides a CAN interface connector.  
Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).  
Accepts the optional EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs). See page 98.  
Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller’s front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).  
Includes one (1) controller/rectifier shelf (positions for 1 controller and 5 rectifiers).  
Includes one (1) rectifier shelf (positions for 6 rectifiers).  
Includes a rear access AC input termination assembly configurable for either one rectifier per AC feed or two rectifiers per AC feed, single phase.
- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000900 and UM582127000900.

#### Ordering Notes

- 1) Order one (1) NCU controller (P/N [1M830BNA](#)) with the desired configuration.
- 2) Order the optional EIB controller extended interface board as required (see page 98).
- 3) Order optional [temperature probes](#) for ambient and battery temperature monitoring, as required. The temperature probe(s) may also be used for the battery charge temperature compensation feature and BTRM (Battery Thermal Runaway Management). Refer to “[Optional Temperature Probes](#)” for additional information.
- 4) Order optional SM-Temp Temperature Concentrator (Supervisory Module for Temperature Probes) as desired (shipped loose) (see page 102).  
**Note:** A system can have up to (8) SM-Temp modules (each of which can accept up to eight temperature probes) that can be used in the power system for ambient and battery monitoring.
- 5) Order fuses and/or circuit breakers as required per “Bullet Nose Type Circuit Breakers and Bullet Nose Type Fuseholders e/w TPS/TLS Fuses” on page 122.
- 6) Order 6-position GMT fuse block P/N 549017 and fuses as required per “Optional Bullet Nose Type 6-Position GMT Distribution Fuse Block, P/N 549017, (6) GMT Fuse Positions” on page 126.
- 7) Order output lugs as required per “Crimp Lugs” starting on page 116. Order output lug hardware kit P/N 548185 as required per “Lug Hardware Kits” starting on page 120.
- 8) Order load distribution lugs as required per “Crimp Lugs” starting on page 116. Order load distribution lug adapters P/N 559805 for 3-pole devices, P/N 559804 for 2-pole devices, and P/N 559803 for 1-pole devices as required per “Lug Adapters” starting on page 118. Order load distribution lug hardware kit P/N 541084 as required per “Lug Hardware Kits” starting on page 120.
- 9) Order rectifier modules as required, P/N [1R483500e3](#).
- 10) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 11) Order power extend converters and other material as required per “Optional eSure™ Power Extend Converter” on page 105.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

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### List 900, 901: Power and Distribution Bay (Fully Configured)

#### Features

- ◆ Provides a “power and distribution” bay rated for 900 A @ -48 VDC, maximum.
- ◆ This is a preconfigured power system which is orderable by specifying one List number. This power system is preconfigured as follows. See also “582127000 List 900, 901 (rack mounted in an OSP enclosure)” on page 28.  
Includes a 2-row distribution cabinet equipped with two (2) single voltage distribution panels (26-distribution positions each). Visible on the front door is a critical alarm indicator which illuminates if the NCU controller issues a critical alarm.  
List 900 Only: Includes a battery disconnect contactor providing low voltage battery disconnect (LVBD).  
Includes a system interface board which provides a CAN interface connector.  
Includes one (1) IB2 controller interface board (provides eight (8) programmable form C- relay outputs, eight (8) programmable binary inputs, and two (2) temperature inputs).  
Accepts the optional EIB controller extended interface board (provides five (5) programmable form-C relay outputs, two (2) temperature inputs, three (3) shunt inputs, and eight (8) battery midpoint inputs). See page 98.  
Includes the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller’s front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).  
Includes one (1) controller/rectifier shelf (positions for 1 controller and 5 rectifiers).  
Includes two (2) rectifier shelves (positions for 6 rectifiers each).  
Includes a rear access AC input termination assembly configurable for either one rectifier per AC feed or two rectifiers per AC feed, single phase.
- ◆ This system includes separate installation and user manuals specific to its configuration. Refer to IM582127000900 and UM582127000900.

#### Ordering Notes

- 1) Order one (1) NCU controller (P/N [1M830BNA](#)) with the desired configuration.
- 2) Order the optional EIB controller extended interface board as required (see page 98).
- 3) Order optional [temperature probes](#) for ambient and battery temperature monitoring, as required. The temperature probe(s) may also be used for the battery charge temperature compensation feature and BTRM (Battery Thermal Runaway Management). Refer to “[Optional Temperature Probes](#)” for additional information.
- 4) Order optional SM-Temp Temperature Concentrator (Supervisory Module for Temperature Probes) as desired (shipped loose) (see page 102).  
**Note:** A system can have up to (8) SM-Temp modules (each of which can accept up to eight temperature probes) that can be used in the power system for ambient and battery monitoring.
- 5) Order fuses and/or circuit breakers as required per “Bullet Nose Type Circuit Breakers and Bullet Nose Type Fuseholders e/w TPS/TLS Fuses” on page 122.
- 6) Order 6-position GMT fuse block P/N 549017 and fuses as required per “Optional Bullet Nose Type 6-Position GMT Distribution Fuse Block, P/N 549017, (6) GMT Fuse Positions” on page 126.
- 7) Order output lugs as required per “Crimp Lugs” starting on page 116. Order output lug hardware kit P/N 548185 as required per “Lug Hardware Kits” starting on page 120.
- 8) Order load distribution lugs as required per “Crimp Lugs” starting on page 116. Order load distribution lug adapters P/N 559805 for 3-pole devices, P/N 559804 for 2-pole devices, and P/N 559803 for 1-pole devices as required per “Lug Adapters” starting on page 118. Order load distribution lug hardware kit P/N 541084 as required per “Lug Hardware Kits” starting on page 120.
- 9) Order rectifier modules as required, P/N [1R483500e3](#).
- 10) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.
- 11) Order power extend converters and other material as required per “Optional eSure™ Power Extend Converter” on page 105.

## Single Voltage Distribution Panels

**List AC: -48 VDC Distribution Panel (with Return Busbar) and**

**List AD: -48 VDC Distribution Panel (without Return Busbar),**

**(4) GJ/218 Circuit Breaker Positions**

### Features

- ◆ (4) -48 VDC Load Distribution Circuit Breaker Mounting Positions:  
100 A to 800 A GJ/218 Type Circuit Breakers.
- ◆ List AC includes a return busbar; List AD does not include a return busbar.
- ◆ 600 A Maximum Capacity.  
Maximum current rating of each landing point is 360 A.

### Restrictions

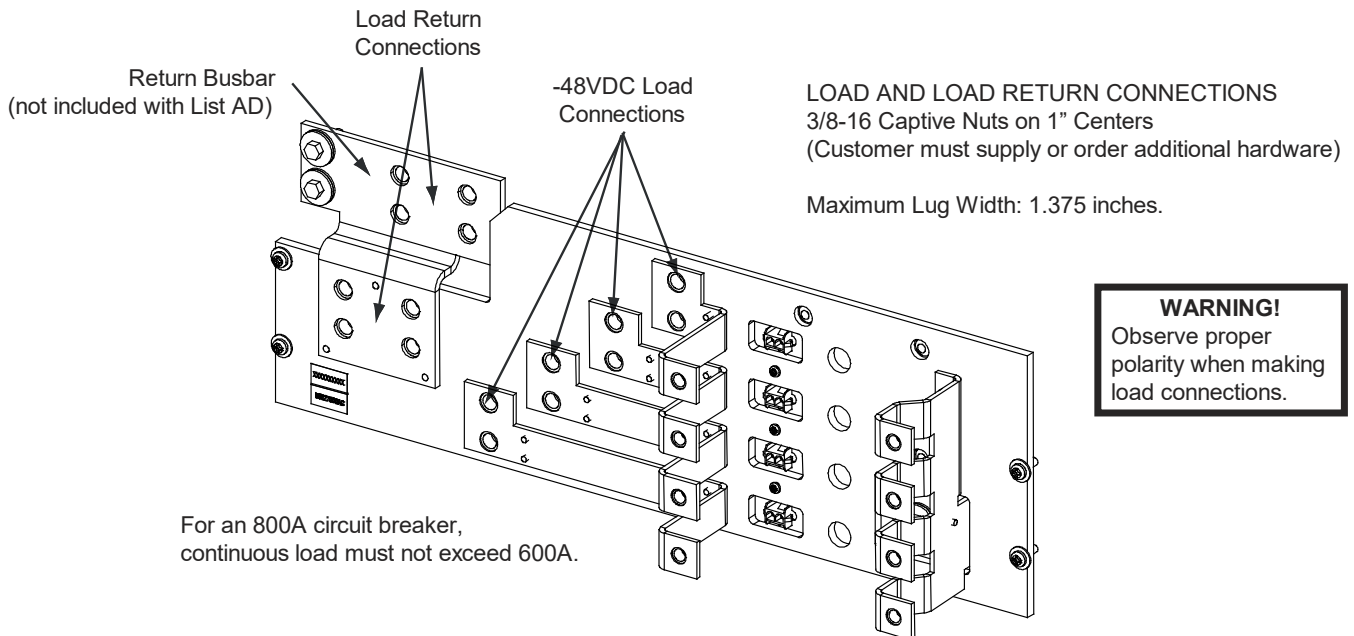
Can be installed in any bus row 1-4 of a 1-, 2-, 3-, or 4-row distribution cabinet.

Maximum lug width, 1.375 inches.

For an 800 A circuit breaker, continuous load must not exceed 600 A.

### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL per panel as required.
- 3) **List AD:** To terminate load returns within the distribution cabinet, order List GA as required.
- 4) Order circuit breakers and associated jumper kits as required per Table 27.
- 5) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 6) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 7) Order return and load bus bar assemblies per Table 6 for List AC or Table 7 for List AD.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List AF: -48 VDC Distribution Panel,

#### (2) TPH Fuse Positions (with Shunts) (without Return Busbar)

##### Features

- ◆ (2) -48 VDC Distribution Fuse Mounting Positions:  
70 A to 600 A TPH Type Fuses.
- ◆ Includes shunts, 800 A / 25 mV. Each shunt is equipped with 10' jumpers for connection to monitoring device. If the system is equipped with an SM-DU+, the leads are trimmed and connected to the SM-DU+ (internal to the distribution cabinet).
- ◆ Does NOT include a return busbar.
- ◆ 600 A Maximum Capacity.

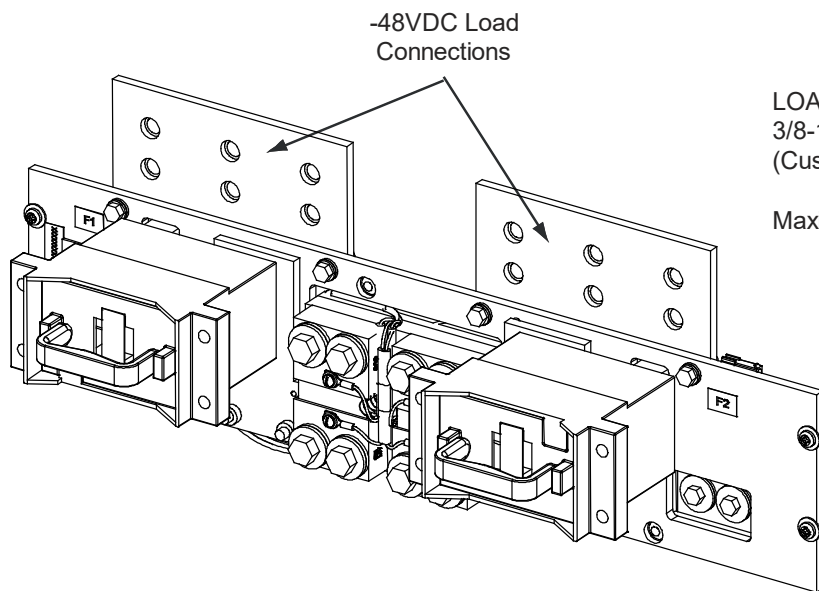
##### Restrictions

Can be installed in any row 1-4 of a 1-, 2-, 3-, or 4-row distribution cabinet.

Maximum lug width, 1.88 inches.

##### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL per panel as required.
- 3) To terminate load returns within the distribution cabinet, order List GA as required.
- 4) Order fuses as required per Table 28. Order replacement alarm fuses (1/4 A) per Table 29.
- 5) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 6) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 7) Order return and load bus bar assemblies per Table 7.



##### LOAD CONNECTIONS

3/8-16 Captive Nuts on 1" Centers  
(Customer must supply or order additional hardware)

Maximum Lug Width: 1.88 inches.

##### WARNING!

Observe proper polarity when making load connections.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List AH: -48 VDC Distribution Panel,

#### (4) TPH Fuse Positions (with Shunts) (without Return Busbar)

##### Features

- ◆ (4) -48 VDC Distribution Fuse Mounting Positions:  
70 A to 400 A TPH Type Fuses.
- ◆ Includes shunts, 600 A / 25 mV. Each shunt is equipped with 10' jumpers for connection to monitoring device. If the system is equipped with an SM-DU+, the leads are trimmed and connected to the SM-DU+ (internal to the distribution cabinet).
- ◆ Does NOT include a return busbar.
- ◆ 600 A Maximum Capacity.

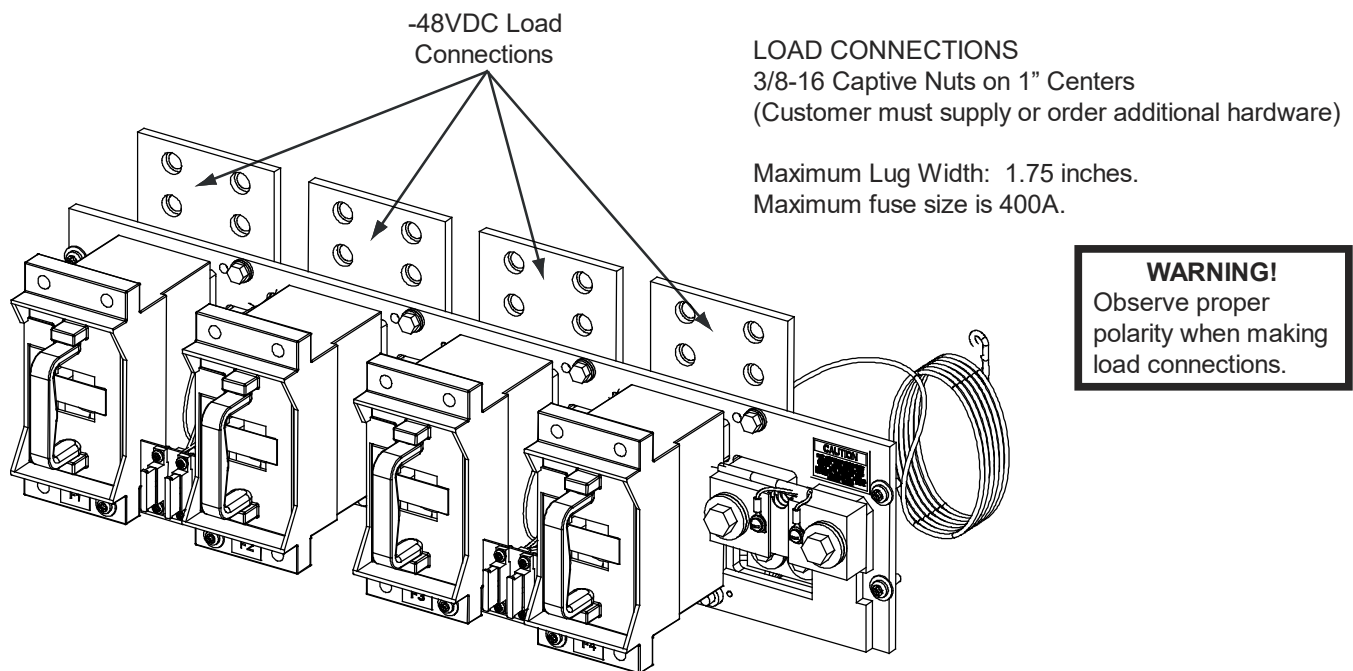
##### Restrictions

Cannot be installed in row 1 (bottom row) of a system with a List 2, 3, 5, or 6 (supplemental bay).

Maximum lug width, 1.75 inches.

##### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL per panel as required.
- 3) To terminate load returns within the distribution cabinet, order List GA as required.
- 4) Order fuses as required per Table 28. Order replacement alarm fuses (1/4 A) per Table 29.
- 5) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 6) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 7) Order return and load bus bar assemblies per Table 7.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List AL: -48 VDC Distribution Panel (with Return Busbar) and List AN: -48 V Distribution Panel (without Return Busbar) (26) Bullet/TPS/TLS Circuit Breaker/Fuse Positions

#### Features

- ◆ (26) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers, or accepts  
“[Optional Bullet Nose Type 6-Position GMT Distribution Fuse Block \(P/N 549017\)](#)”.
- ◆ List AL includes a return busbar; List AN does not include a return busbar.
- ◆ 600 A Maximum Capacity.

#### Restrictions

Can be installed in any row 1-4 of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** *100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.*

Maximum lug width, 0.625 inches.

#### Ordering Notes

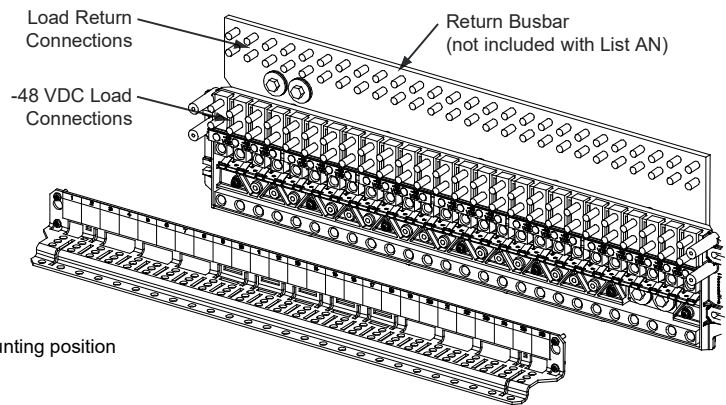
- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL per panel as required.
- 3) List AN: To terminate load returns within the distribution cabinet, order List GA as required.
- 4) Order circuit breakers as required per Table 23 or Table 24.
- 5) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 6) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 7) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 8) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 9) Order return and load bus bar assemblies per Table 8 for List AL or Table 9 for List AN.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply or order additional hardware)

Maximum Lug Width: 0.625 inches.

#### WARNING!

Observe proper  
polarity when making  
load connections.



Caution: A 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### **List AM: -48 VDC Distribution Panel (with Return Busbar) and List AP: -48 VDC Distribution Panel (without Return Busbar)** **(12) GJ/218 Circuit Breaker Positions**

#### **Features**

- ◆ (12) -48 VDC Load Distribution Circuit Breaker Mounting Positions:  
100 A to 800 A GJ/218 Type Circuit Breakers.
- ◆ Includes a return busbar
- ◆ 1600 A Maximum Capacity.  
Maximum current rating of each landing point is 360 A.

#### **Restrictions**

Unless otherwise specified circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

Can be installed in any two adjacent bus rows 1-2, 2-3, or 3-4 of a 2-, 3-, or 4-row distribution cabinet.

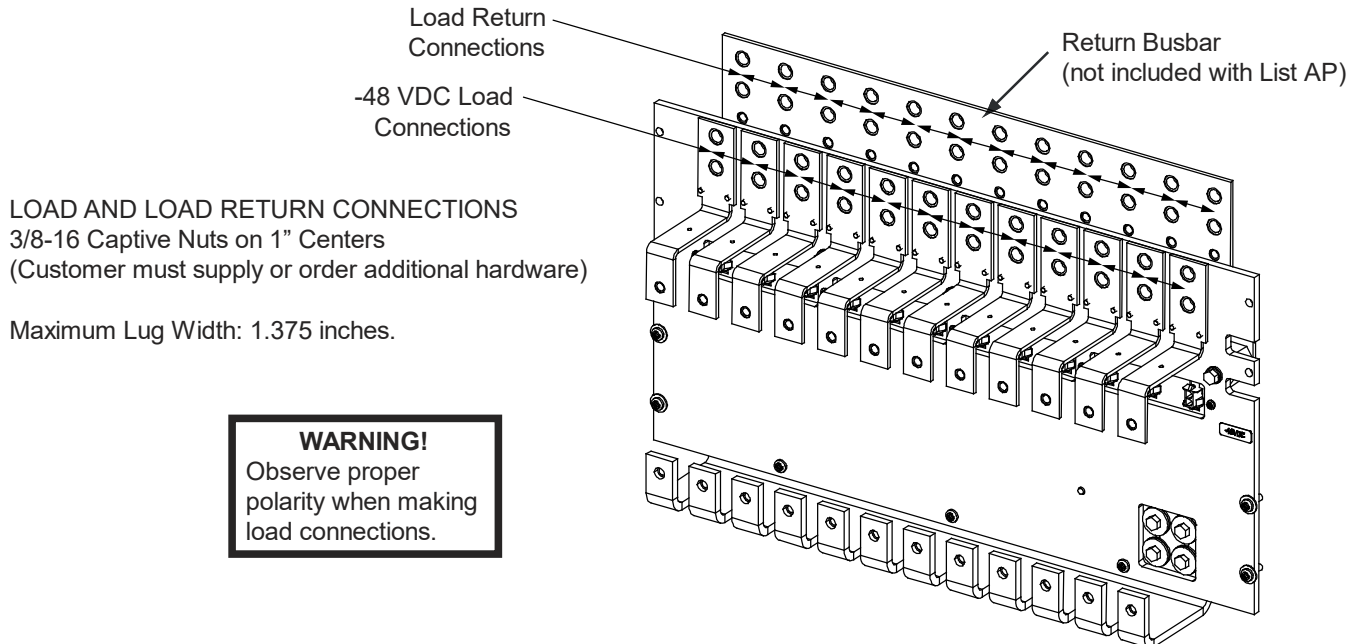
List LL is not available in any row if the system is equipped with one or more List EA, List AM, or List AP.

Maximum lug width, 1.375 inches.

For an 800 A circuit breaker, continuous load must not exceed 600 A.

#### **Ordering Notes**

- 1) Specify rows for panel location(s) (each List AM and AP requires two rows).
- 2) Order circuit breakers and associated jumper kits as required per Table 27.
- 3) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 4) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 5) Order return and load bus bar assemblies per Table 10 for List AM or Table 11 for List AP.



## Dual Voltage Distribution Panels

### List DE: -48 VDC / +24 VDC Distribution Panel, (22) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (4) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (22) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(4) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

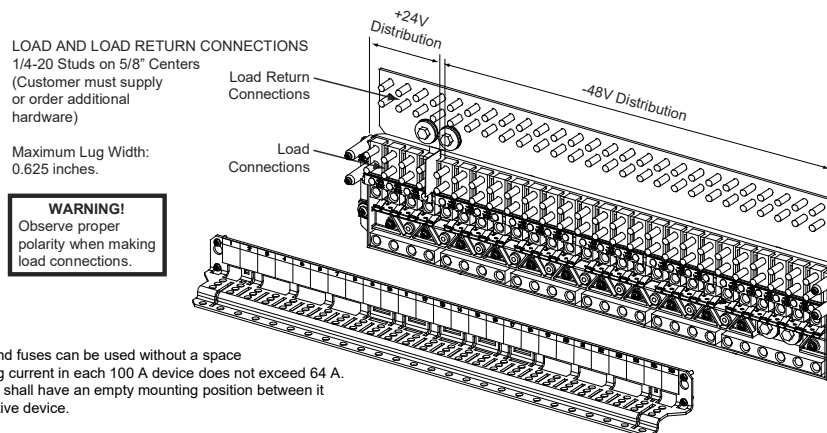
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** *100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.*

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List DF: -48 VDC / +24 VDC Distribution Panel, (18) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (8) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (18) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(8) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

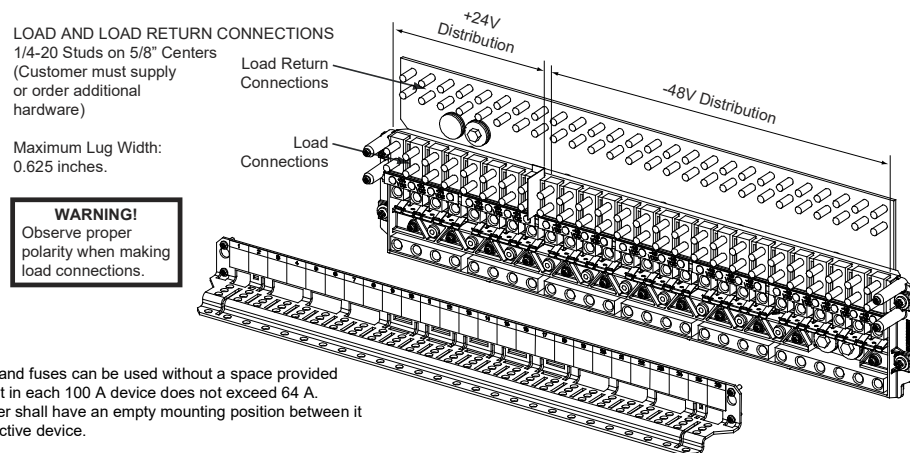
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List DG: -48 VDC / +24 VDC Distribution Panel, (14) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (12) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (14) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(12) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

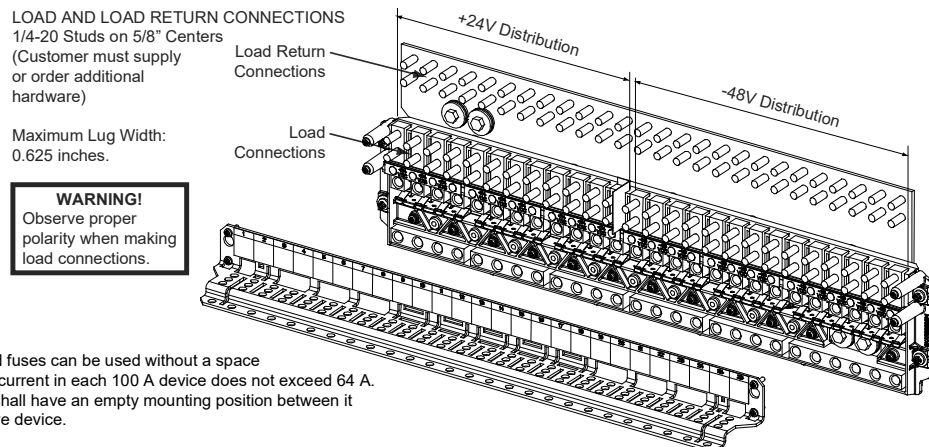
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List DH: -48 VDC / +24 VDC Distribution Panel, (10) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (16) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (10) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(16) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

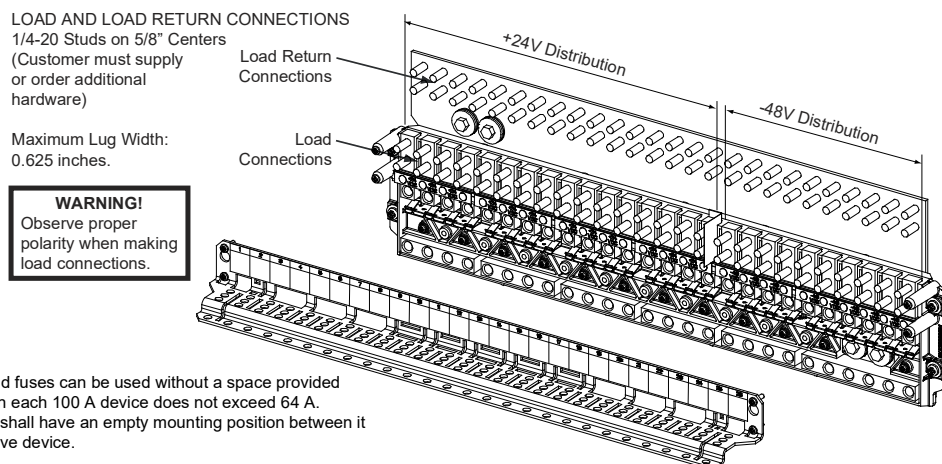
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.





# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List DJ: -48 VDC / +24 VDC Distribution Panel, (6) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (20) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (6) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(20) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet with the following exception: cannot be installed in row 1 when an LVD contactor is installed in row 1.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

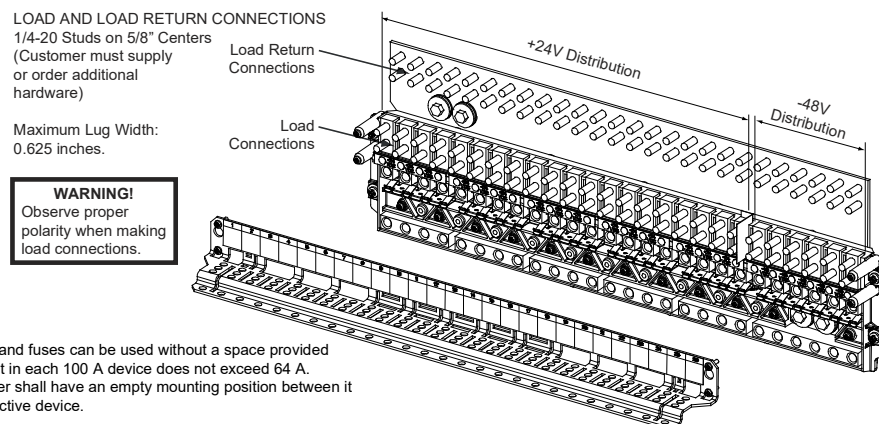
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** *100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.*

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List DK: -48 VDC / +24 VDC Distribution Panel, (26) +24 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (26) +24 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 500 A Maximum +24 V Distribution Capacity.  
If reconfigured in the field; 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum +24 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 2-, 3-, or 4-row distribution cabinet. Not for use in List 21.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

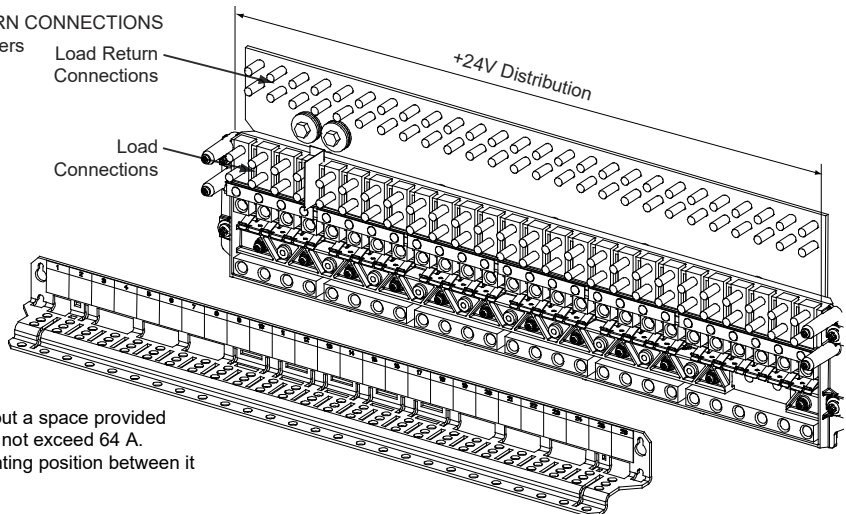
#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order circuit breakers as required per Table 23 or Table 24.
- 3) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 4) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 5) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 6) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 7) Order return and load bus bar assemblies per Table 12.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
0.625 inches.

**WARNING!**  
Observe proper  
polarity when making  
load connections.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FE: -48 VDC / -58 VDC Distribution Panel, (22) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (4) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (22) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(4) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

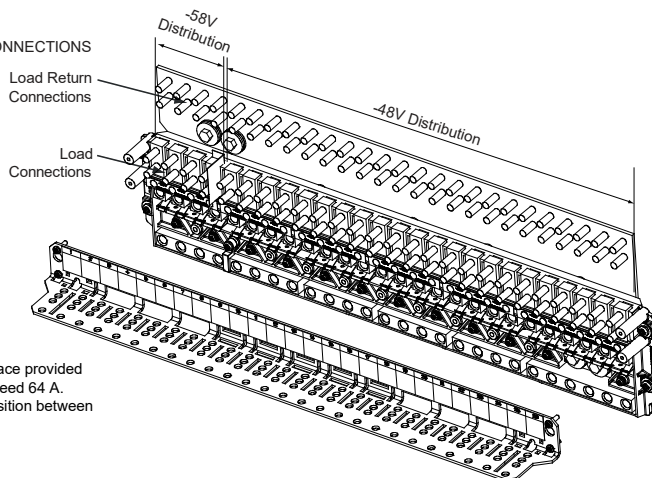
#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
0.625 inches.

**WARNING!**  
Observe proper  
polarity when making  
load connections.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FF: -48 VDC / -58 VDC Distribution Panel, (18) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (8) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (18) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(8) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

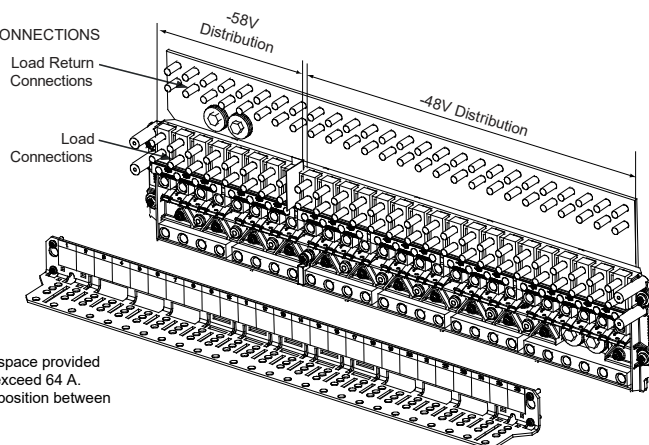
#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
0.625 inches.

**WARNING!**  
Observe proper  
polarity when making  
load connections.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FG: -48 VDC / -58 VDC Distribution Panel, (14) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (12) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (14) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(12) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

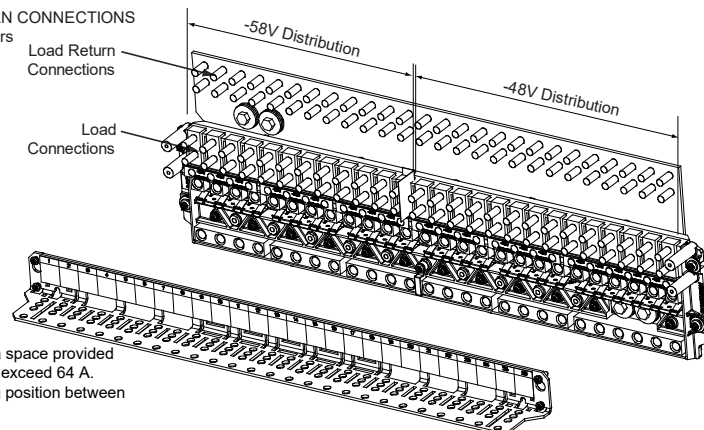
#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
0.625 inches.

**WARNING!**  
Observe proper  
polarity when making  
load connections.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FH: -48 VDC / -58 VDC Distribution Panel, (10) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (16) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (10) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(16) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

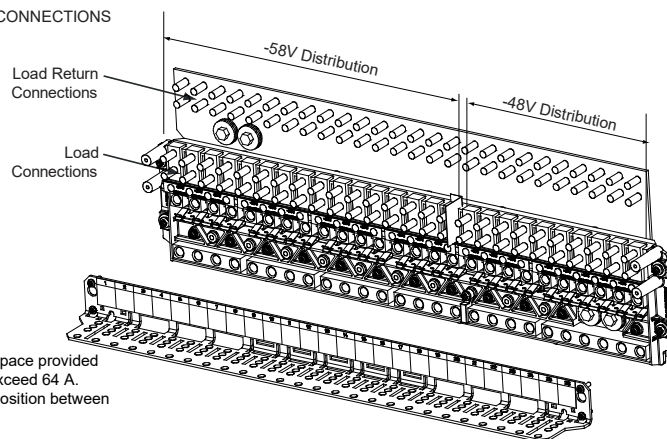
#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.

LOAD AND LOAD RETURN CONNECTIONS  
1/4-20 Studs on 5/8" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
0.625 inches.

**WARNING!**  
Observe proper  
polarity when making  
load connections.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FJ: -48 VDC / -58 VDC Distribution Panel, (6) -48 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar) and (20) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (6) -48 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
(20) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 1-, 2-, 3-, or 4-row distribution cabinet with the following exception: cannot be installed in row 1 when an LVD contactor is installed in row 1.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

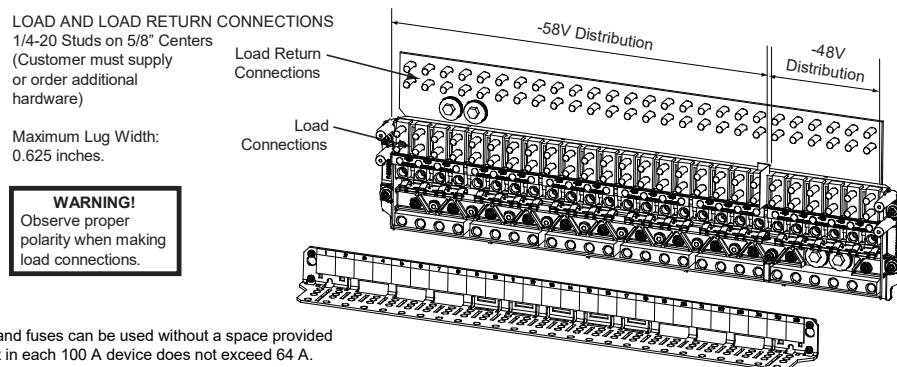
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order low voltage load disconnect List LL (for 48 V positions) as required.
- 3) Order circuit breakers as required per Table 23 or Table 24.
- 4) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 5) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 6) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 7) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 8) Order return and load bus bar assemblies per Table 8.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List FK: -48 VDC / -58 VDC Distribution Panel, (26) -58 VDC Bullet/TPS/TLS Circuit Breaker/Fuse Positions (with Return Busbar)

#### Features

- ◆ (26) -58 VDC Load Distribution Fuse / Circuit Breaker Mounting Positions:  
3 A to 100 A TPS/TLS Type Fuses,  
1 A to 300 A Bullet Nose Type Circuit Breakers.
- ◆ Includes a return busbar.
- ◆ 500 A Maximum -58 V Distribution Capacity.  
If reconfigured in the field; 600 A Maximum Total Capacity:  
600 A Maximum -48 VDC Distribution Capacity.  
500 A Maximum -58 VDC Distribution Capacity.

#### Restrictions

Cannot be used in a supplemental bay.

Limit two (2) dual voltage distribution panels per power system. If two dual voltage distribution panels are ordered, they must be mounted in adjacent rows. Maximum subsystem current capacity of the second panel is 255 A based on the cables that are provided to connect it to the first panel.

Can be installed in any row of a 2-, 3-, or 4-row distribution cabinet. Not for use in List 21.

Unless otherwise specified fuses and/or circuit breakers are mounted from left to right, starting with the highest capacity and working to the lowest capacity.

125 A, 150 A, 175 A, and 200 A circuit breakers occupy two mounting positions.

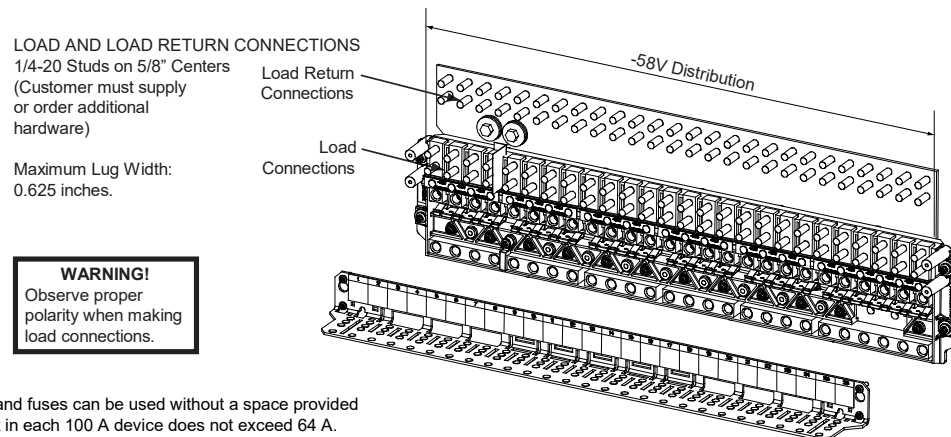
225 A, 250 A, and 300 A circuit breakers occupy three mounting positions.

**Caution:** 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.

Maximum lug width, 0.625 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) Order circuit breakers as required per Table 23 or Table 24.
- 3) Order fuses as required per Table 25. Also order one (1) P/N 117201 bullet nose type fuseholder per fuse ordered. Order replacement alarm fuses (18/100 A) per Table 29.
- 4) Order 6-position GMT fuse block P/N 549017 and fuses per Table 26 as required.
- 5) Order load lugs (two hole, 1/4" bolt clearance hole, 5/8" centers) as required for each distribution position per Table 50.
- 6) Order lug hardware kit (P/N 541084) as required. Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware (nuts, flat washers, and lock washers), enough for sixteen (16) lug landing points.
- 7) Order return and load bus bar assemblies per Table 12.



Caution: 100 A circuit breakers and fuses can be used without a space provided the continuous operating current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker shall have an empty mounting position between it and any other overcurrent protective device.



## Battery Disconnect Distribution Panels

**List BC: Battery Disconnect Distribution Panel (with Return Busbar) and**

**List BD: Battery Disconnect Distribution Panel (without Return Busbar).**

### **(4) GJ/218 Circuit Breaker Battery Disconnect Positions**

#### **Features**

- ◆ (4) -48 VDC Battery Disconnect Circuit Breaker Mounting Positions:  
100 A to 800 A GJ/218 Type Circuit Breakers.
- ◆ List BC Includes a return busbar; List BD does not include a return busbar.
- ◆ 600 A Maximum Capacity.  
Maximum current rating of each landing point is 360 A.

#### **Restrictions**

Cannot be used with List 21.

Must be installed in top row only (limit one battery disconnect panel per distribution cabinet).

Maximum lug width, 1.375 inches.

For an 800 A circuit breaker, load must not exceed 600 A.

#### **Ordering Notes**

- 1) Order circuit breakers and associated jumper kits as required per Table 27.
- 2) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 3) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 4) Order return and load bus bar assemblies per Table 13 for List BC. No return or load bus bars required for List BD.

### BATTERY AND BATTERY RETURN CONNECTIONS

3/8-16 Captive Nuts on 1" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width:  
1.375 inches.

Return Busbar  
(not included  
with List BD)

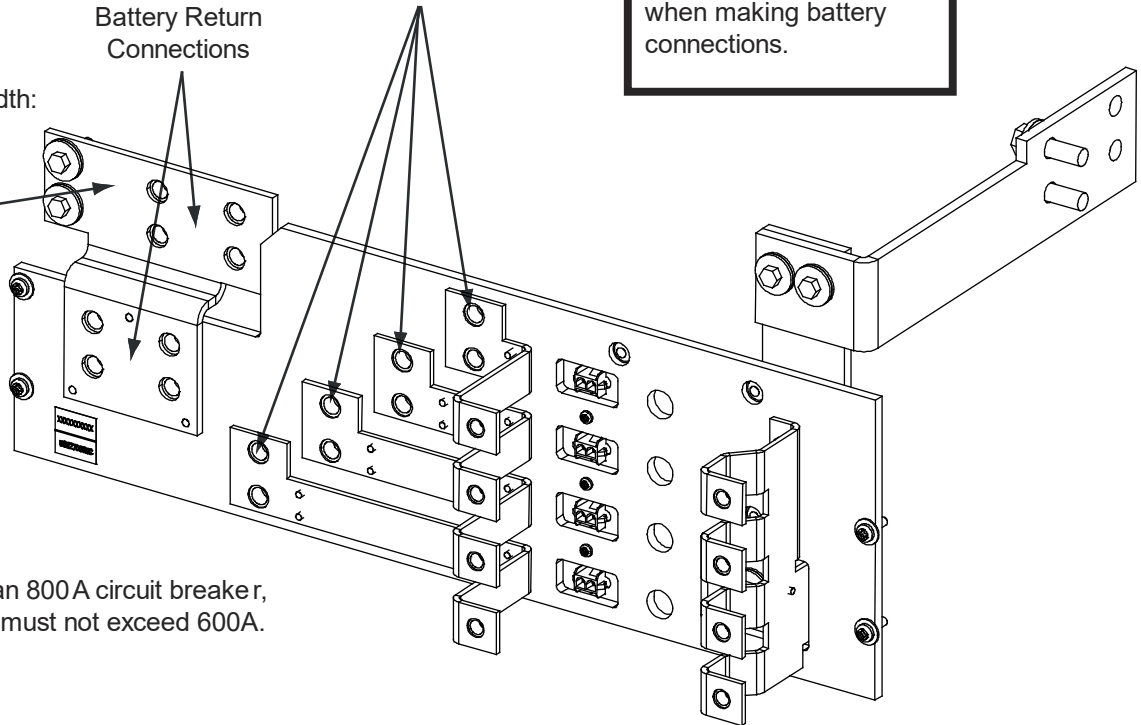
Battery Return  
Connections

-48VDC Battery  
Connections

#### **WARNING!**

Observe proper polarity  
when making battery  
connections.

For an 800A circuit breaker,  
load must not exceed 600A.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List BF: Battery Disconnect Distribution Panel, (2) TPH Fuse Battery Disconnect Positions (with Shunts) (without Return Busbar)

#### Features

- ◆ (2) -48 VDC Battery Disconnect Fuse Mounting Positions:  
70 A to 600 A TPH Type Fuses.
- ◆ Includes shunts, 800 A / 25 mV. Each shunt is equipped with 10' jumpers for connection to monitoring device. If the system is equipped with an SM-DU+, the leads are trimmed and connected to the SM-DU+ (internal to the distribution cabinet).
- ◆ Does NOT include a return busbar.
- ◆ 1200 A Maximum Capacity.

#### Restrictions

Cannot be used with List 21.

Must be installed in top row only (limit one battery disconnect panel per distribution cabinet).

Maximum lug width, 1.88 inches.

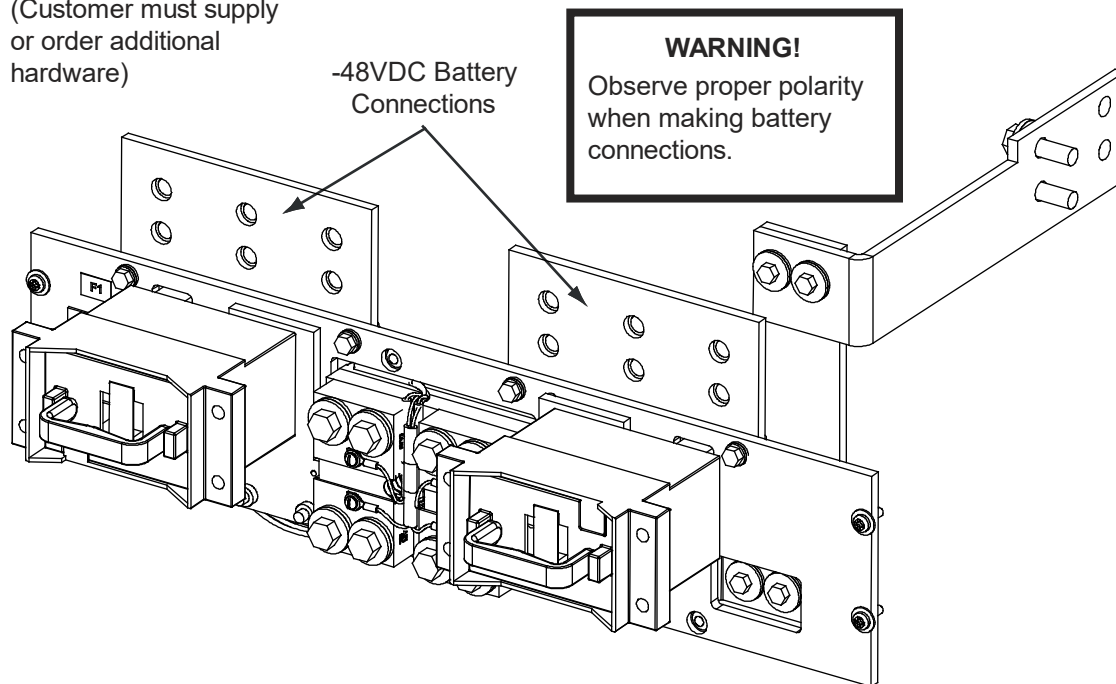
#### Ordering Notes

- 1) Order fuses as required per Table 28. Order replacement alarm fuses (1/4 A) per Table 29.
- 2) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 3) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 4) No return or load bus bars required.

#### BATTERY CONNECTIONS

3/8-16 Captive Nuts on 1" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width: 1.88 inches.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List BH: Battery Disconnect Distribution Panel, (4) TPH Fuse Battery Disconnect Positions (with Shunts) (without Return Busbar)

#### Features

- ◆ (4) -48 VDC Battery Disconnect Fuse Mounting Positions:  
70 A to 400 A TPH Type Fuses.
- ◆ Includes shunts, 600 A / 25 mV. Each shunt is equipped with 10' jumpers for connection to monitoring device. If the system is equipped with an SM-DU+, the leads are trimmed and connected to the SM-DU+ (internal to the distribution cabinet).
- ◆ Does NOT include a return busbar.
- ◆ 1200 A Maximum Capacity.

#### Restrictions

Cannot be used with List 21.

Must be installed in top row only (limit one battery disconnect panel per distribution cabinet).

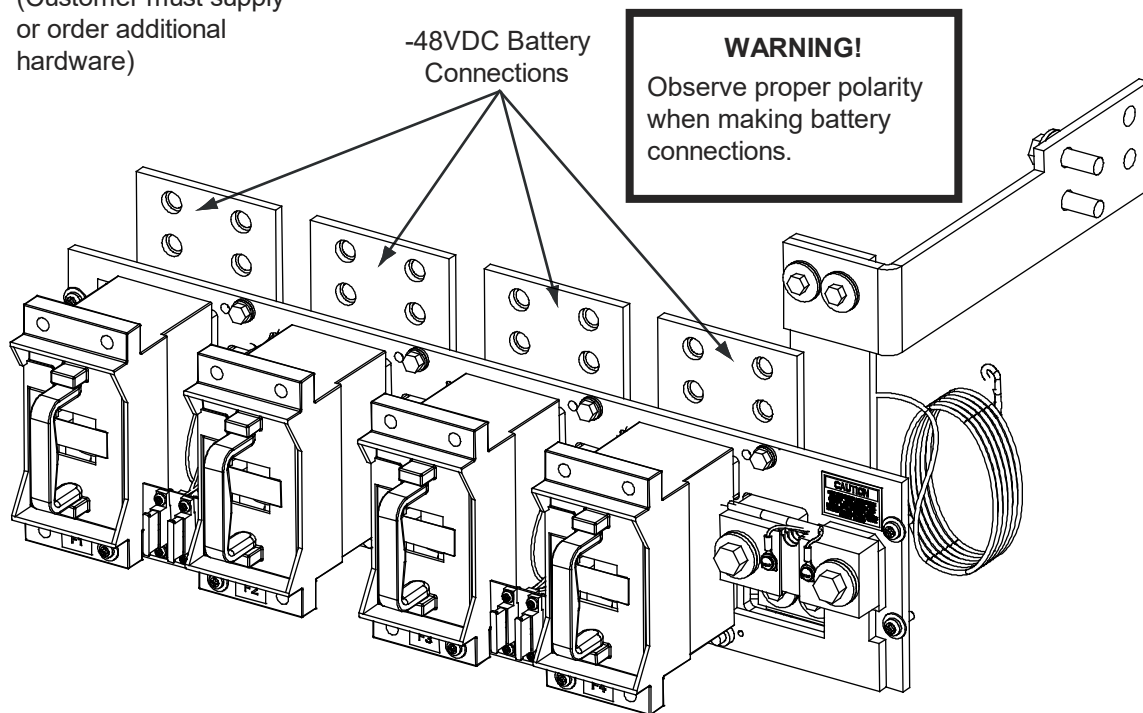
Maximum lug width, 1.75 inches.

#### Ordering Notes

- 1) Order fuses as required per Table 28. Order replacement alarm fuses (1/4 A) per Table 29.
- 2) Order load lugs (two hole, 3/8" bolt clearance hole, 1" centers) as required for each distribution position per Table 51.
- 3) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 4) No return or load bus bars required.

BATTERY CONNECTIONS  
3/8-16 Captive Nuts on 1" Centers  
(Customer must supply  
or order additional  
hardware)

Maximum Lug Width: 1.75 inches.  
Maximum fuse size is 400A.





## Return Bar Panel

### List GA: Return Bar Panel

#### Features

- ◆ Return bar panel for use with distribution panels when internal load returns are required.
- ◆ 1200 A Maximum Capacity.

#### Restrictions

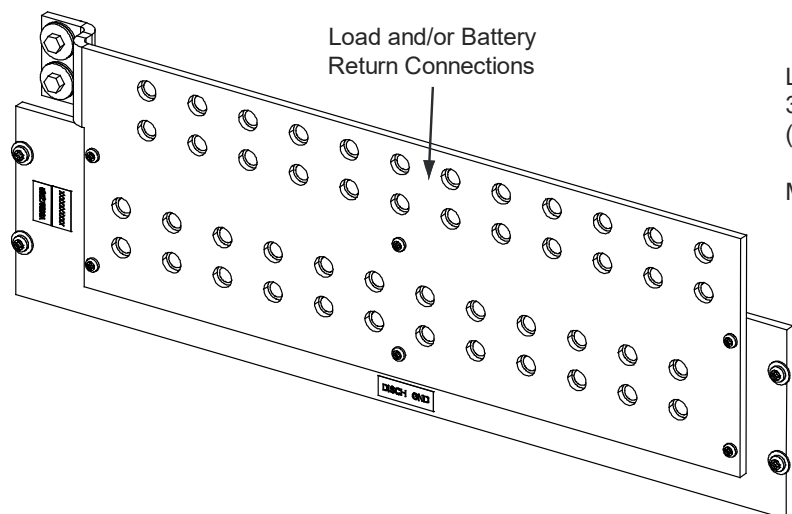
Cannot be used in a 1- row distribution cabinet.

Can be installed in any row 1-4 of a 2-, 3-, or 4-row distribution cabinet.

Maximum lug width, 1.38 inches.

#### Ordering Notes

- 1) Specify row for panel location(s).
- 2) To terminate load and/or battery returns within the distribution cabinet, order List GA as required.
- 3) Order lug hardware kit (P/N 548184) as required. Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware (bolts, flat washers, and lock washers), enough for eight (8) lug landing points.
- 4) Order return and load bus bar assemblies per Table 14.



LOAD AND/OR BATTERY RETURN CONNECTIONS  
3/8-16 Captive Nuts on 1" Centers  
(Customer must supply or order additional hardware)

Maximum Lug Width: 1.38 inches.

## Bulk Output Panel

### List EA: Bulk Output Panel

#### Features

- ◆ Provides a bulk output panel with five (5) landing points per polarity.
- ◆ 1600 A Maximum Capacity.

#### Restrictions

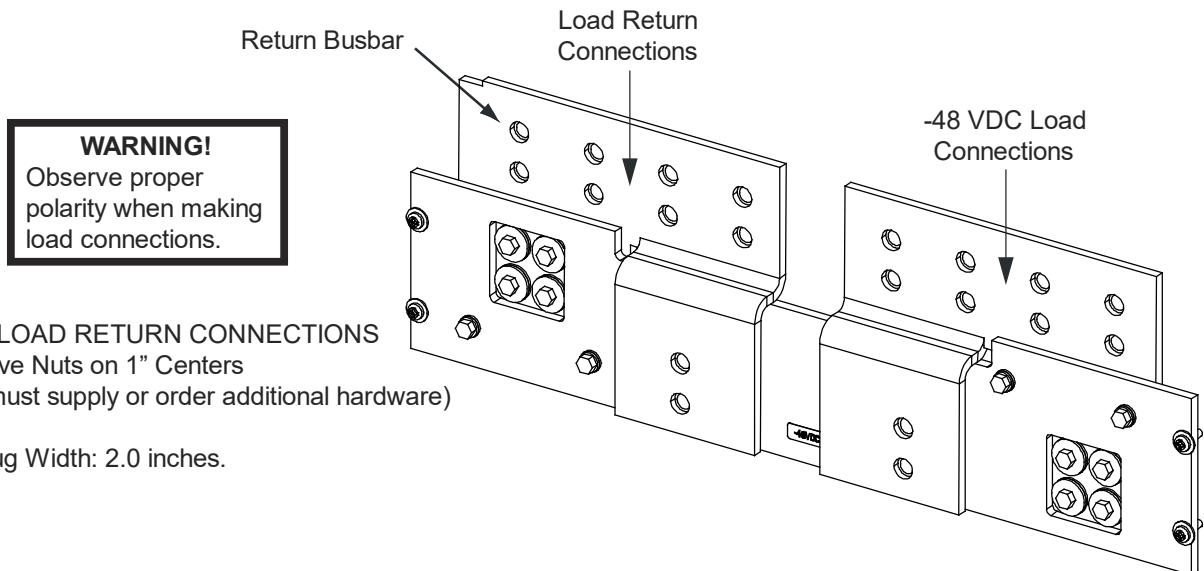
Not available with List 21 (1-row cabinet).

List LL is not available in any row if the system is equipped with one or more List EA, List AM, or List AP.

Maximum lug width, 2.0 inches.

#### Ordering Notes

- 1) Order as required.
- 2) Specify row for panel location(s).
- 3) Order return and load bus bar assemblies per Table 15.



Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in Row	Return Bar	Load Bar	
				W/O LVD	W/LVD
AC	1 Row	1	60022287 ASS'Y (548271 Busbar)	Included in DU Cabinet	Included in DU Cabinet
	2 Row	2	60022299 ASS'Y (548273 Busbar)	60022304 ASS'Y (561773 Busbar)	60022462 ASS'Y (561988 Busbar)
		1	60022287 ASS'Y (548271 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	3 Row	3	60022300 ASS'Y (548274 Busbar)	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		2	60022288 ASS'Y (548272 Busbar)	60022303 ASS'Y (561881 Busbar)	60022461 ASS'Y (561878 Busbar)
		1	60022287 ASS'Y (548271 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	4 Row	4	60022300 ASS'Y (548274 Busbar)	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		3	60022299 ASS'Y (548273 Busbar)	60022304 ASS'Y (561773 Busbar)	60022463 ASS'Y (561509 Busbar)
		2	60022288 ASS'Y (548272 Busbar)	60022302 ASS'Y (561772 Busbar)	60022460 ASS'Y (561508 Busbar)
		1	60022287 ASS'Y (548271 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)

Table 6

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in Row	Return Bar	Load Bar	
				W/O LVD	W/LVD
AD, AF, AH	1 Row	1	No connection. No Busbar Req'd.	Included in DU Cabinet	Included in DU Cabinet
	2 Row	2	No connection. No Busbar Req'd.	60022304 ASS'Y (561773 Busbar)	60022462 ASS'Y (561988 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	3 Row	3	No connection. No Busbar Req'd.	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		2	No connection. No Busbar Req'd.	60022303 ASS'Y (561881 Busbar)	60022461 ASS'Y (561878 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	4 Row	4	No connection. No Busbar Req'd.	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		3	No connection. No Busbar Req'd.	60022304 ASS'Y (561773 Busbar)	60022463 ASS'Y (561509 Busbar)
		2	No connection. No Busbar Req'd.	60022302 ASS'Y (561772 Busbar)	60022460 ASS'Y (561508 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)

Table 7

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in Row	Return Bar	Load Bar	
				W/O LVD	W/LVD
AL, DE, DF, DG, DH, DJ, FE, FF, FG, FH, FJ	1 Row	1	548271 Busbar	Included in DU Cabinet	Included in DU Cabinet
	2 Row	2	562507 ASS'Y (562501 Busbar)	60022304 ASS'Y (561773 Busbar)	60022462 ASS'Y (561988 Busbar)
		1	562434 ASS'Y (561804 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	3 Row	3	562432 ASS'Y (561802 Busbar)	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		2	562433 ASS'Y (561803 Busbar)	60022303 ASS'Y (561881 Busbar)	60022461 ASS'Y (561878 Busbar)
		1	562434 ASS'Y (561804 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	4 Row	4	562432 ASS'Y (561802 Busbar)	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		3	562435 ASS'Y (562352 Busbar)	60022304 ASS'Y (561773 Busbar)	60022463 ASS'Y (561509 Busbar)
		2	562433 ASS'Y (561803 Busbar)	60022302 ASS'Y (561772 Busbar)	60022460 ASS'Y (561508 Busbar)
		1	562434 ASS'Y (561804 Busbar)	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)

Table 8

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in Row	Return Bar	Load Bar	
				W/O LVD	W/LVD
AN	1 Row	1	No connection. No Busbar Req'd.	Included in DU Cabinet	Included in DU Cabinet
	2 Row	2	No connection. No Busbar Req'd.	60022304 ASS'Y (561773 Busbar)	60022462 ASS'Y (561988 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	3 Row	3	No connection. No Busbar Req'd.	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		2	No connection. No Busbar Req'd.	60022303 ASS'Y (561881 Busbar)	60022461 ASS'Y (561878 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)
	4 Row	4	No connection. No Busbar Req'd.	60022306 ASS'Y (561774 Busbar)	60022464 ASS'Y (561510 Busbar)
		3	No connection. No Busbar Req'd.	60022304 ASS'Y (561773 Busbar)	60022463 ASS'Y (561509 Busbar)
		2	No connection. No Busbar Req'd.	60022302 ASS'Y (561772 Busbar)	60022460 ASS'Y (561508 Busbar)
		1	No connection. No Busbar Req'd.	60022301 ASS'Y (562822 Busbar)	60022459 ASS'Y (548351 Busbar)

Table 9

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in Rows	Return Bar	Load Bar	
				W/O LVD	W/LVD
AM	2 Row	1 and 2	562449 ASS'Y (562406 Busbar)	562443 ASS'Y (562400 Busbar)	Not Available
	3 Row	2 and 3	562448 ASS'Y (562405 Busbar)	562447 ASS'Y (562404 Busbar)	Not Available
		1 and 2	10032382 ASS'Y (10032379 Busbar)	10032384 ASS'Y (10032383 Busbar)	Not Available
	4 Row	3 and 4	562444 ASS'Y (562401 Busbar)	562441 ASS'Y (562398 Busbar)	Not Available
		2 and 3	562445 ASS'Y (562402 Busbar)	562442 ASS'Y (562399 Busbar)	Not Available
		1 and 2	562446 ASS'Y (562403 Busbar)	562443 ASS'Y (562400 Busbar)	Not Available

Table 10

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in	Return Bar	Load Bar	
				W/O LVD	W/LVD
AP	2 Row	1 and 2	No connection. No Busbar Req'd.	562443 ASS'Y (562400 Busbar)	Not Available
	3 Row	2 and 3	No connection. No Busbar Req'd.	562447 ASS'Y (562404 Busbar)	Not Available
		1 and 2	No connection. No Busbar Req'd.	10032384 ASS'Y (10032383 Busbar)	Not Available
	4 Row	3 and 4	No connection. No Busbar Req'd.	562441 ASS'Y (562398 Busbar)	Not Available
		2 and 3	No connection. No Busbar Req'd.	562442 ASS'Y (562399 Busbar)	Not Available
		1 and 2	No connection. No Busbar Req'd.	562443 ASS'Y (562400 Busbar)	Not Available

Table 11



Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in	Return Bar	Load Bar	
				W/O LVD	W/LVD
DK, FK	2 Row	2	562507 ASS'Y (562501 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	562434 ASS'Y (561804 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
	3 Row	3	562432 ASS'Y (561802 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		2	562433 ASS'Y (561803 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	562434 ASS'Y (561804 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
	4 Row	4	562432 ASS'Y (561802 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		3	562435 ASS'Y (562352 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		2	562433 ASS'Y (561803 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	562434 ASS'Y (561804 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.

Table 12

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in	Return Bar	Load Bar	
				W/O LVD	W/LVD
BC	2 Row	2	60022299 ASS'Y (548273 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	Not Available		
	3 Row	3	60022300 ASS'Y (548274 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		2	Not Available		
		1	Not Available		
	4 Row	4	60022300 ASS'Y (548274 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		3	Not Available		
		2	Not Available		
		1	Not Available		

Table 13

DU Panel List	DU Cabinet Size	Panel Installed in	Return Bar	Load Bar	
				W/O LVD	W/LVD
GA	2 Row	2	60022299 ASS'Y (548273 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	60022287 ASS'Y (548271 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
	3 Row	3	60022300 ASS'Y (548274 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		2	60022288 ASS'Y (548272 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	60022287 ASS'Y (548271 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
	4 Row	4	60022300 ASS'Y (548274 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		3	60022299 ASS'Y (548273 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		2	60022288 ASS'Y (548272 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.
		1	60022287 ASS'Y (548271 Busbar)	No connection. No Busbar Req'd.	No connection. No Busbar Req'd.

Table 14

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

DU Panel List	DU Cabinet Size	Panel Installed in	Return Bar	Load Bar	
				W/O LVD	W/LVD
EA	2 Row	2	562470 ASS'Y (562454 Busbar)	562474 ASS'Y (562458 Busbar)	Not Available
		1	562472 ASS'Y (562456 Busbar)	562476 ASS'Y (562460 Busbar)	Not Available
	3 Row	3	562469 ASS'Y (562453 Busbar)	562473 ASS'Y (562457 Busbar)	Not Available
		2	562477 ASS'Y (562468 Busbar)	562452 ASS'Y (562864 Busbar)	Not Available
		1	562472 ASS'Y (562456 Busbar)	562476 ASS'Y (562460 Busbar)	Not Available
	4 Row	4	562469 ASS'Y (562453 Busbar)	562473 ASS'Y (562457 Busbar)	Not Available
		3	562470 ASS'Y (562454 Busbar)	562474 ASS'Y (562458 Busbar)	Not Available
		2	562471 ASS'Y (562455 Busbar)	562475 ASS'Y (562459 Busbar)	Not Available
		1	562472 ASS'Y (562456 Busbar)	562476 ASS'Y (562460 Busbar)	Not Available

Table 15

## **Battery Disconnect Contactors**

### **List CA: 600 A Battery Disconnect Contactor**

#### **Features**

- ◆ Provides a battery disconnect contactor which is mounted within the main bay distribution cabinet.

#### **Restrictions**

Main bay only.

Must be used with List LB, MB, or both.

For use with List 21 only.

Can only use LVLD or LVBD on List 21, not both.

#### **Ordering Notes**

- 1) Order as required.

### **List CB: 1200 A Battery Disconnect Contactor**

#### **Features**

- ◆ Provides a battery disconnect contactor which is mounted within the main bay distribution cabinet.

#### **Restrictions**

Main bay only.

Must be used with List LB, MB, or both.

For use with List 22, 23, or 24 only.

If used in List 23 or 24, system capacity is reduced to 1200 A.

#### **Ordering Notes**

- 1) Order as required.

### **List CC: 2000 A Battery Disconnect Contactor**

#### **Features**

- ◆ Provides a battery disconnect contactor which is mounted within the main bay distribution cabinet.

#### **Restrictions**

Main bay only.

Must be used with List LB, MB, or both.

For use with List 22, 23, or 24 only.

#### **Ordering Notes**

- 1) Order as required.

## Low Voltage Disconnect Options

### **List LB: Low Voltage Battery Disconnect (LVBD)**

#### **Features**

- ◆ Adds Low Voltage Battery Disconnect (LVBD) to the system.
- ◆ Adds LVD Driver circuit card P/N 563696 or LVD Driver Lite circuit card P/N 547873 to the main bay distribution cabinet.

#### **Restrictions**

Must be used with List CA, CB, or CC.

Installed in main bay only.

#### **Ordering Notes**

- 1) Order if low voltage battery disconnect (LVBD) is required.
- 2) Can be combined with manual battery disconnect (List MB) if required.

### **List LL: Low Voltage Load Disconnect (LVLD)**

#### **Features**

- ◆ Adds low voltage load disconnect (LVLD) to a distribution panel.
- ◆ Adds LVD Driver circuit card P/N 563696 (main bay) / 563718 (supplemental bay) or LVD Driver Lite circuit card P/N 547873 (main bay) / 547874 (supplemental bay) to a distribution cabinet, one per distribution cabinet.

#### **Restrictions**

Must be used with List AC through AL, AN, DE through DJ. Not available with Lists AM, AP, DK or EA.

In a List 22, List 23, List 24; the List LL Low Voltage Load Disconnect (LVLD) option cannot be installed in the field for systems that are not equipped with any LVLD's from the factory. Field replacement of factory installed LVLD contactors is still available.

Cannot use List LL in row 1 if row 1 is equipped with List DJ.

Capacity is reduced to 500 amps for any row equipped with List LL.

#### **Ordering Notes**

- 1) Order low voltage load disconnect (LVLD) per load distribution panel (one per row) as required. Specify by row.

## Manual Battery Disconnect Option

### **List MB: Manual Battery Disconnect**

#### **Features**

- ◆ Adds manual battery disconnect to the system.
- ◆ Adds manual disconnect circuit card P/N 540973 to the system.

#### **Restrictions**

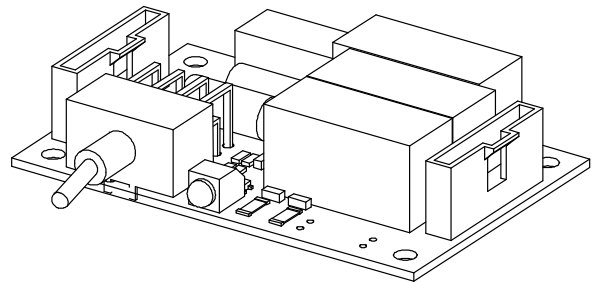
Must be used with List CA, CB, or CC.

Installed in main bay only.

If this option is to be used as a Maintenance Battery Disconnect only, at least one rectifier requires to be active and providing voltage to the system for proper operation.

#### **Ordering Notes**

- 1) Order if manual battery disconnect is required.
- 2) Can be combined with low voltage battery disconnect (List LB) if required.



## ACCESSORY DESCRIPTIONS

### Controller

#### **NCU Controller, P/N 1M830DNA or 1M830BNA**

##### **Features**

- ◆ Provides the system controller.
- ◆ Factory programmed with the configuration file required for the system configuration ordered.

**Note:** For custom NCU configurations, contact Vertiv.

##### **Restrictions**

Only one (1) controller per power system is required.

Mounts in the main bay (List 1) distribution cabinet or module mounting shelf (List 600, 601, 900, 901).

Cannot be installed in a List 2, List 3, List 5, List 7, or List 8 supplemental bay.

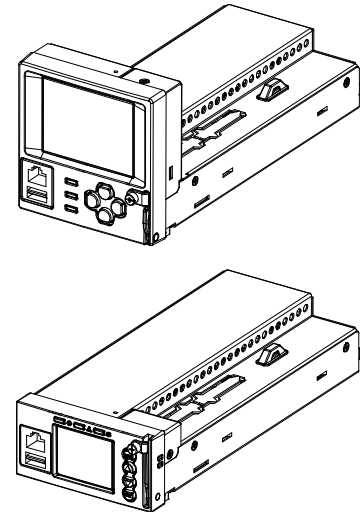
##### **Ordering Notes**

- 1) Order one (1) controller (P/N 1M830DNA) with the desired configuration for use with List 1.
- 2) Order one (1) NCU controller (P/N 1M830BNA) with the desired configuration for use with Lists 600, 601, 900, and 901.
- 3) Ordering an NCU for replacing an NCU or as a spare NCU.

If the NCU is to be used as a replacement in a specific system, it should be ordered with the same configuration file as the original NCU controller. This is identified by a six-digit number. If the controller part number ends with a six-digit number, for example, 1M830BNA559242, the configuration file number is the last six characters. If the part number does not have these characters, the configuration file number can be found on the controller nameplate – “Programmed with Configuration File #####”. The controller may also have a Unique Identification Number (UIN). This number indicates that certain parameters were set at the factory to match the controller to the options selected with the power plant (such as low voltage disconnect, load and battery shunt ratings, etc.). If the controller has a UIN, the plant will have shipped with a USB drive labelled with the UIN. The UIN label may also be located near the controller slot in the system. If the controller has a UIN, provide this UIN number, along with the configuration number, when ordering so that the new controller will match that of the original controller shipped with the system. The user manual provided with the controller provides instructions for replacing and programming the controller. It is important to follow these instructions carefully. The user manual also provides instructions for saving certain controller files that are created when changes are made to the system after leaving the factory. These files can be programmed into the replacement controller so it can match the latest saved state of the original controller.

If the NCU is being ordered as a spare part for any of a group of power plants, the same procedure can be followed. If the replacement controller's configuration does not match that of the original controller, the original files can be retrieved from the USB drive shipped with the plant, if available. If the USB drive is not available, contact the factory or technical assistance center to obtain a copy of the original configuration file (all package) so it can be programmed into the new controller.

The NCU programming files are unique to the NCU. Files from an SCU+ or ACU+ are not compatible with the NCU and **MUST NOT BE** loaded into an NCU.



## NCU Controller 2nd Ethernet Port Kits

### NCU Controller 2nd Ethernet Port Add-On Kit, P/N 559252

#### **Features**

- ◆ Provides the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

#### **Restrictions**

For use only with NCU controller, not the ACU+ controller. Factory installed in a main bay if initially ordered with the power system. Field installable only into a main bay if initially ordered with the NCU controller.

Not for use in List 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901 (2nd Ethernet port is factory provided).

#### **Ordering Notes**

- 1) If a second Ethernet port is required, order kit P/N 559252. For field upgrade of systems originally configured with the ACU+ controller, order kit P/N 559251. The field upgrade must also include the NCU controller replacing the ACU+ controller.

### NCU Controller 2nd Ethernet Port Retrofit Kit, P/N 559251

#### **Features**

- ◆ Provides a complete control module assembly that allows an IB4 board to be connected to the NCU in an older main bay.
- ◆ Provides the IB4 board with a second Ethernet port. The Ethernet port located on the NCU Controller's front panel can be used to connect a computer directly to the NCU. The Ethernet port located on the IB4 board can be used to connect the NCU to your Local Area Network (LAN).

#### **Restrictions**

Field installable only into a main bay if initially ordered with the ACU+ controller. The field upgrade must also include the NCU controller replacing the ACU+ controller.

Not for use in List 100, 101, 102, 203, 500, 501, 502, 503, 600, 601, 900, 901 (2nd Ethernet port is factory provided).

#### **Ordering Notes**

- 1) For field upgrade of systems originally configured with the ACU+ controller, order kit P/N 559251. The field upgrade must also include the NCU controller replacing the ACU+ controller.

## Optional Second IB2 (Controller Interface Board), P/N 555286 or MA4C5U31

#### **Features**

- ◆ Provides connections for up to two (2) temperature probes.
- ◆ Provides connections for the eight (8) programmable form C- relay outputs located on the board.
- ◆ Provides connections for the eight (8) programmable binary digital inputs located on the board.

**Note:** An IB2 (Controller Interface Board) is factory provided with the system. The IB2 provides eight (8) programmable form C- relay outputs, eight (8) programmable binary digital inputs and two (2) temperature inputs.

#### **Restrictions**

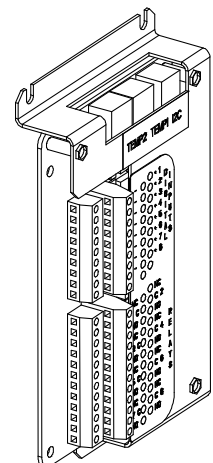
A second IB2 or EIB controller interface board requires an NCU not an ACU+. The system can contain only three (3) interface boards, (1) IB2 and (2) EIB or (2) IB2 and (1) EIB.

Must be installed in the main bay.

Not available for List 600, 601, 900, 901.

#### **Ordering Notes**

- 1) Order a second optional IB2 Interface Board Assembly (P/N 555286 for List 1 or MA4C5U31 for Lists 100, 101, 102, 203, 500, 501, 502, and 503) per system as required. Also, order up to two (2) additional temperature probes, as desired.
- 2) Refer to "In-Line Fuse and Resistor Pigtail Kits" on page 99 for in-line resistor pigtails for use with shunt inputs and in-line fuse for sure with battery midpoint inputs.



### Optional EIB-1 and EIB-2 (Controller Extended Interface Board) (P/N 548120, MA455U41, and SXX2300238/1)

#### Features

- ◆ Provides connections for up to two (2) temperature probes.
- ◆ Provides connections for the five (5) programmable form C- relay outputs located on the board.
- ◆ Provides connections for the three (3) shunt inputs located on the board. Shunts must be installed in the hot (-48V) bus.
- ◆ Provides connections for the eight (8) battery midpoint inputs located on the board.

#### Restrictions

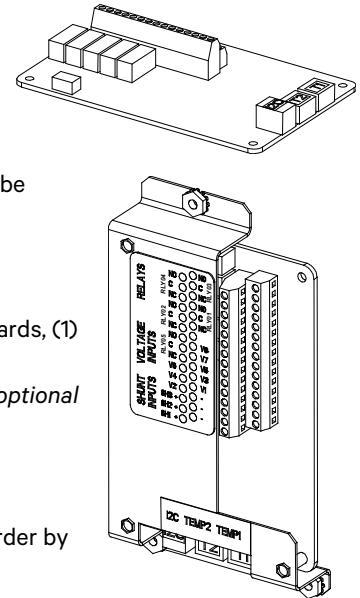
A List 1, 100, 101, 102, 203, 500, 501, 502, 503 system can contain only three (3) interface boards, (1) IB2 and (2) EIB or (2) IB2 and (1) EIB.

**Note:** A second IB2 or EIB controller interface board requires an NCU not an ACU+. The optional second EIB must be installed in the main bay.

A second EIB cannot be installed in a List 600, 601, 900, 901 system.

#### Ordering Notes

- 1) List 1: Order a second and/or first optional EIB Extended Interface Board Assembly. Order by P/N 548120 as required.
- 2) List 100, 101, 102, 203, 500, 501, 502, 503: Order a second optional EIB Extended Interface Board Assembly. Order by P/N MA455U41 as required.
- 3) List 600, 601, 900, 901: Order a second and/or first optional EIB Extended Interface Board Assembly. Order by P/N SXX2300238/1 as required.
- 4) Also order up to two (2) additional temperature probes, as desired. See “[Optional Temperature Probes](#)”.
- 5) Refer to “In-Line Fuse and Resistor Pigtail Kits” on page 99 for in-line resistor pigtails for use with shunt inputs and in-line fuse pigtails for use with battery midpoint inputs.



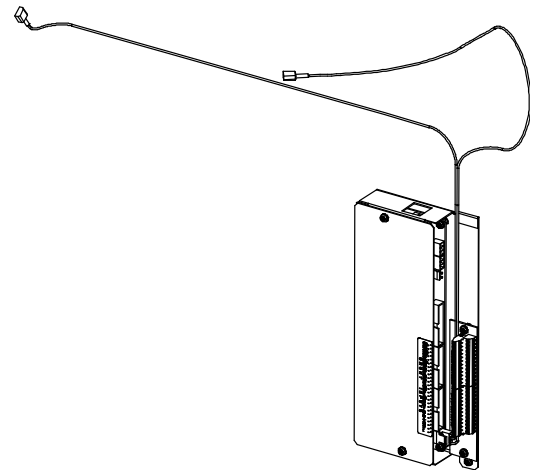
### Optional SM-DU+ Shunt Monitoring, P/N 548078

#### Features

- ◆ Provides twenty-five (25) shunt monitoring inputs. Shunts must be installed in the hot (-48V) bus.

#### Ordering Notes

- 1) Order optional SM-DU+ Shunt Monitoring for any fuse panel with shunts (Lists AF, AH, BF, or BH) or any GJ/218 panels (Lists AC, AD, BC, BD, AM, or AP) that are equipped with shunted breakers. (The SM-DU+ is factory-wired to the shunts.) Order by P/N 548078 as required.
- 2) Refer to “In-Line Fuse and Resistor Pigtail Kits” on page 99 for in-line resistor pigtails for use with shunt inputs and in-line fuse pigtails for use with battery midpoint inputs.





## **In-Line Fuse and Resistor Pigtail Kits**

In-line fuse kits should be used for connecting to battery or bus potentials for use with the digital inputs on the IB2 Interface Board and the battery midpoint/block voltage inputs on the EIB Extended Interface Board. In-line resistor kits should be used for connecting to shunts for use with the EIB Extended Interface Board and SMDU+ Shunt Interface Board.

### **1 A In-Line Fuse Pigtail Kit, P/N 431300200**

#### **Features**

- ◆ In-line fuse pigtail kit with 3/8" ring lug.

#### **Ordering Notes**

- 1) Order Kit P/N 431300200, as required.

### **1 A In-Line Fuse Pigtail Kit, P/N 431300300**

#### **Features**

- ◆ In-line fuse pigtail kit with 5/16" ring lug.

#### **Ordering Notes**

- 1) Order Kit P/N 431300300, as required.

### **1 A In-Line Fuse Pigtail Kit, P/N 535135**

#### **Features**

- ◆ In-line fuse pigtail kit with a splice connector, 3/8" ring lug, and 1/4" ring lug.

#### **Ordering Notes**

- 1) Order Kit P/N 535135, as required.

### **49.9 Ohm In-Line Resistor Pigtail Kit, P/N 424227900**

#### **Features**

- ◆ In-line resistor pigtail kit with 3/8" ring lug.

#### **Ordering Notes**

- 1) Order Kit P/N 424227900, as required.

### **49.9 Ohm In-Line Resistor Pigtail Kit, P/N 424228000**

#### **Features**

- ◆ In-line resistor pigtail kit with a splice connector.

#### **Ordering Notes**

- 1) Order Kit P/N 424228000, as required.

### **49.9 Ohm In-Line Resistor Pigtail Kit, P/N 424228100**

#### **Features**

- ◆ In-line resistor pigtail kit with 3/16" (#10) ring lug.

#### **Ordering Notes**

- 1) Order Kit P/N 424228100, as required.

## Optional Temperature Probes

### Features

- ◆ Up to two (2) temperature probes can be connected to each IB2 (Controller Interface Board). Up to two (2) temperature probes can be connected to each EIB (Controller Extended Interface Board). Up to two (2) temperature probes can be connected to the System Interface Board (List 100, 101, 102, 203, 500, 501, 502, 503 only). Any combination of the temperature probes can be programmed to monitor ambient temperature and/or battery temperature. A temperature probe set to monitor battery temperature can also be used for the rectifier battery charge temperature compensation feature, or the battery charge temperature compensation feature can be programmed to use the average or highest value of all battery temperature probes. The battery charge temperature compensation feature allows the controller to automatically increase or decrease the output voltage of the system to maintain battery float current as battery temperature decreases or increases, respectively. Battery life can be extended when an optimum charge voltage to the battery with respect to temperature is maintained. A temperature probe set to monitor battery temperature can also be used for the BTRM (Battery Thermal Runaway Management) feature. The BTRM feature lowers output voltage when a high temperature condition exists to control against battery thermal runaway.
- ◆ The temperature sensor end of the probe contains a tab with a 5/16" clearance hole for mounting.
- ◆ Temperature probes can also be used with the optional [SM-Temp Temperature Concentrator](#).

### Restrictions

A temperature probe programmed to monitor battery temperature should be mounted on the negative post of a battery cell to sense battery temperature. A temperature probe used for battery charge temperature compensation or BTRM (Battery Thermal Runaway Management) should also be mounted on the negative post of a battery cell. A temperature probe programmed to monitor ambient temperature should be mounted in a convenient location, away from direct sources of heat or cold.

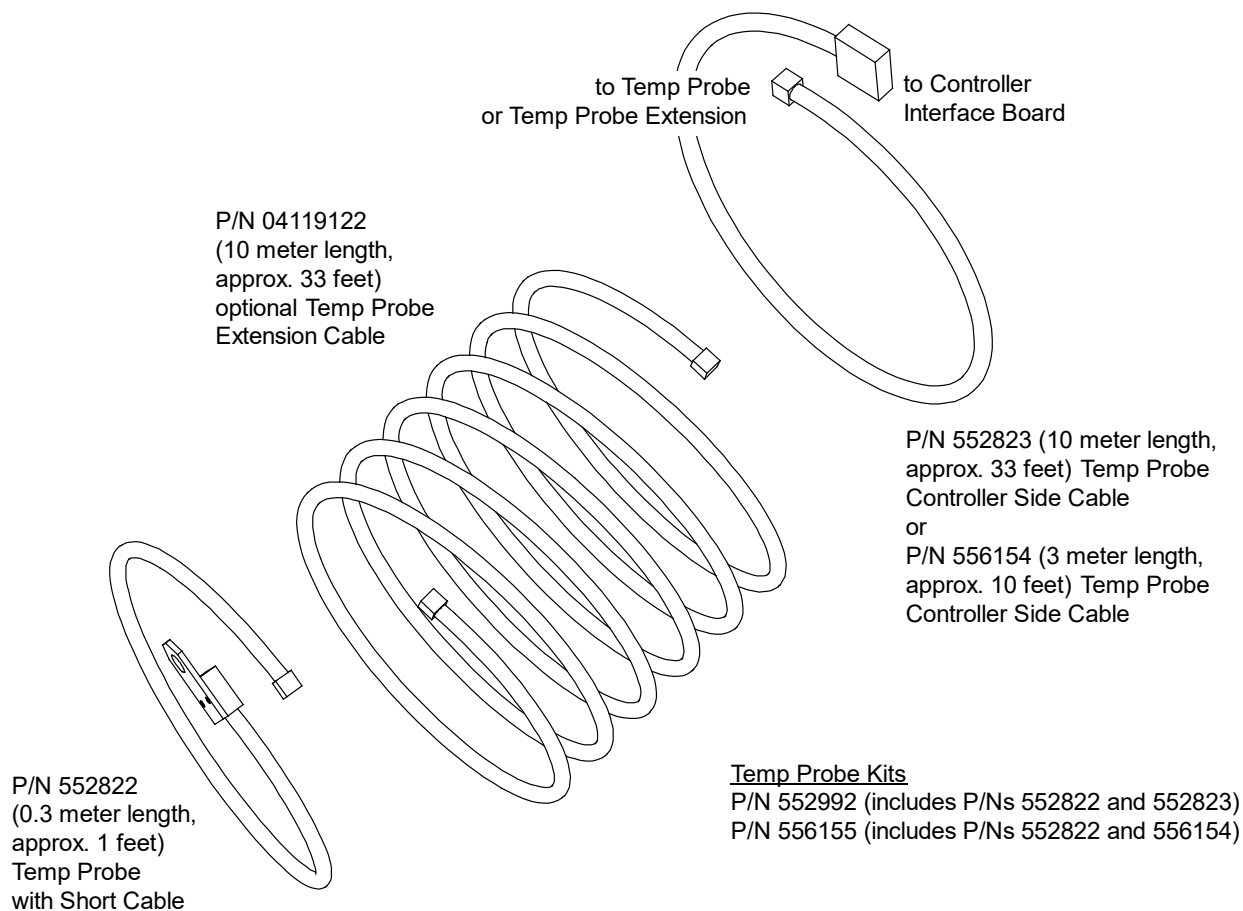
### Ordering Notes

- 1) Order temperature probes as required. Note that each temperature probe consists of two or three pieces which plug together to make a complete probe (see the following illustration). For a complete temperature probe, order one (1) P/N 552992 (10.3 meters) or one (1) P/N 556155 (3.3 meters). If additional length is required, order temperature probe extension cable P/N 04119122 (10 meters).
- 2) If more probes are desired, order one or more SM-Temp Temperature Concentrator, P/N 547490. See [SM-Temp Temperature Concentrator](#).

# Vertiv™ NetSure™ 7100 DC Power System

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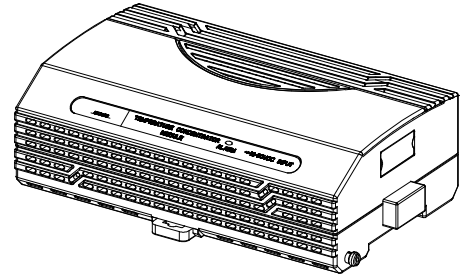
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## Optional SM-Temp Temperature Concentrator, P/N 547490

### Features

- ◆ Allows for multiple temperature probes to be used for ambient temperature monitoring, battery temperature monitoring, temperature compensation, and/or BTRM (Battery Thermal Runaway Management).
- ◆ Provides (8) temperature probe inputs per SM-Temp unit.
- ◆ Can cascade up to (8) SM-Temp units, connecting up to sixty-four (64) temperature probes.
- ◆ The SM-Temp Concentrator is connected at the end of the Controller's CAN Bus. Via the CAN Bus, the controller reads each temperature probe from each SM-Temp Concentrator.
- ◆ Refer to the SM-Temp Temperature Concentrator Instructions (UM547490) for more information.



### Restrictions

Requires ACU+ version 3.02 or later when SM-Temp is connected into the ACU+ CAN Bus.

### Ordering Notes

- 1) Order SM-Temp Temperature Concentrator, P/N 547490, as required.
- 2) Order up to (8) temperature probes for each concentrator. See "[Optional Temperature Probe](#)" above.
- 3) Order one (1) SM-Temp CAN Bus Interface Cable, P/N 562868, to connect the SM-Temp into the controller's CAN bus.
- 4) Order SM-Temp jumpers (P/N 552888) to interconnect SM-Temp units, as required. See "SM-Temp Jumpers, P/N 552888" on page 102.

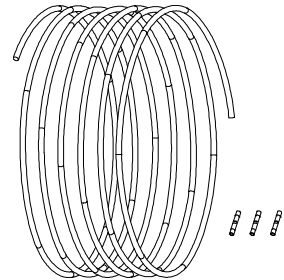
## SM-Temp Jumpers, P/N 552888

### Features

- ◆ Provides 20' of 18 AWG solid red / black twisted pair cable and three (3) wire splices for connecting the CAN bus of multiple SM-Temp modules together.

### Ordering Notes

- 1) Order P/N 552888 as required.



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### Rectifiers

#### **Rectifier Module, P/N 1R483500e3**

##### **Features**

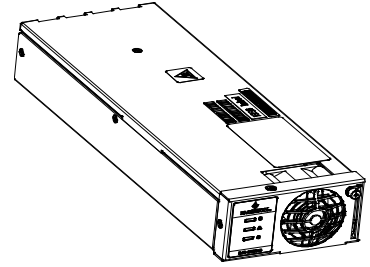
- ◆ Provides one (1) Model R48-3500e3, Spec. No. 1R483500e3, 3500 watt / -48 volt rectifier module.
- ◆ Refer to the Rectifier Instructions (UM1R483500e3) for more information.

##### **Restrictions**

For use in Spec. No. 588705400 module mounting assembly.

##### **Ordering Notes**

- 1) Order by P/N 1R483500e3 as required. Each Spec. No. 588705400 module mounting assembly holds up to six (6) rectifier modules (except the first shelf in a List 600, 601, 900, 901 which holds up to five (5) rectifier modules).



#### **Rectifier Module, P/N 1R482000e3**

##### **Features**

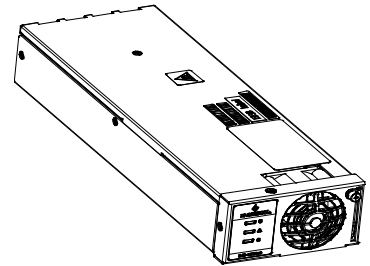
- ◆ Provides one (1) Model R48-2000e3, Spec. No. 1R482000e3, 2000 watt / -48 volt rectifier module.
- ◆ Refer to the Rectifier Instructions (UM1R482000e3) for more information.

##### **Restrictions**

For use in Spec. No. 588705300 module mounting assembly.

##### **Ordering Notes**

- 1) Order by P/N 1R482000e3 as required. Each Spec. No. 588705300 module mounting assembly holds up to six (6) rectifier modules.



#### **Rectifier Module, P/N 1R483500e**

##### **Features**

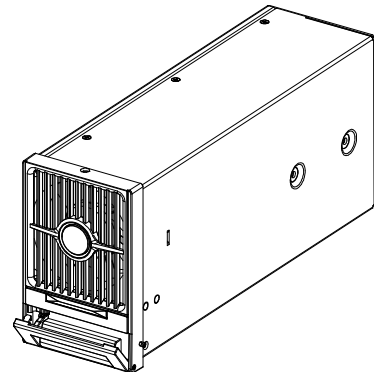
- ◆ Provides one (1) Model R48-3500e, Spec. No. 1R483500e, 3500 watt / -48 volt rectifier module.
- ◆ Refer to the Rectifier Instructions (UM1R483500e) for more information.

##### **Restrictions**

For use in Spec. No. 588705000 module mounting assembly Lists 21, 22, 31, 32, 33.

##### **Ordering Notes**

- 1) Order by P/N 1R483500e as required. Each Spec. No. 588705000 module mounting assembly holds up to six (6) rectifier modules.



#### **Rectifier Module, P/N 1R484000e**

##### **Features**

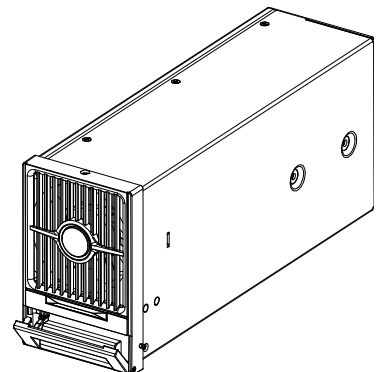
- ◆ Provides one (1) Model R48-4000e, Spec. No. 1R484000e, 4000 watt / -48 volt rectifier module.
- ◆ Refer to the Rectifier Instructions (UM1R483500e) for more information.

##### **Restrictions**

For use in Spec. No. 588705500 module mounting assembly Lists 01, 02, 03, 04, 05.

##### **Ordering Notes**

- 1) Order by P/N 1R484000e as required. Each Spec. No. 588705500 module mounting assembly holds up to six (6) rectifier modules.



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### Converters

#### **-48 VDC to +24 VDC Converter Module, P/N 1C48241500**

##### **Features**

- ◆ Provides one (1) Model C48/24-1500, Spec. No. 1C48241500, 1500 watt / -48 V to +24 V converter module.
- ◆ Refer to the Converter Instructions (UM1C48241500) for more information.

##### **Restrictions**

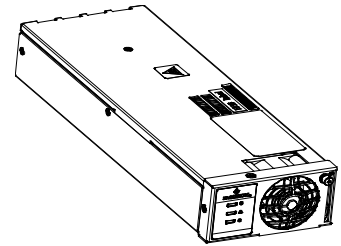
For use in Spec. No. 588705300 module mounting assembly.

Converters can be installed in main bay only.

Use with [List 60](#), [List 100](#), [List 101](#), [List 102](#), or [List 203](#).

##### **Ordering Notes**

- 1) Order by P/N 1C48241500 as required. Each Spec. No. 588705300 module mounting assembly holds up to three (3) converter modules (far right three mounting positions as viewed from the front).



#### **-48 VDC to -58 VDC Converter Module, P/N 1C48582000P3**

##### **Features**

- ◆ Provides one (1) Model C48/58-2000P3, Spec. No. 1C48582000P3, 2000 watt peak, 1600 watt average / -48 V to -58 V converter module.
- ◆ Refer to the Converter Instructions (UM1C48582000P3) for more information.

##### **Restrictions**

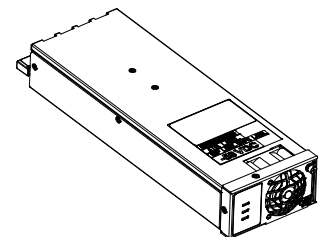
For use in Spec. No. 588705300 module mounting assembly.

Converters can be installed in main bay only.

Use with [List 62](#), [List 500](#), [List 501](#), [List 502](#) or [List 503](#).

##### **Ordering Notes**

- 1) Order by P/N 1C48582000P3 as required. Each Spec. No. 588705300 module mounting assembly holds up to three (3) converter modules (far right three mounting positions as viewed from the front).



### Inverters

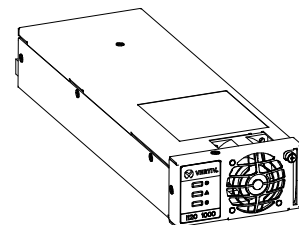
#### **Inverter Module, P/N 1I1201000**

##### **Features**

- ◆ Model I120-1000, Spec. No. 1I1201000, 120 VAC, 1kVA/1kW at 40 °C and 120 VAC / 0.5 kVA at 65 °C inverter module.
- ◆ Refer to the Inverter Instructions (UM1I1201000) for more information.

##### **Ordering Notes**

- 1) Order by P/N 1I1201000 as required.



### Module Mounting Position Blank Cover Panels

#### **Module Mounting Position Blank Cover Panel, P/N 21140440**

##### **Features**

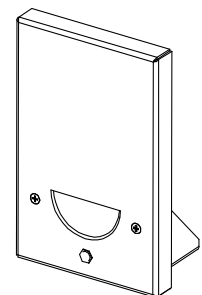
- ◆ Covers one (1) unused module mounting position.

##### **Restrictions**

For use in Spec. No. 588705000 and 588705500 module mounting assembly.

##### **Ordering Notes**

- 1) Order by P/N 21140440 as required. Order a module mounting position blank cover panel for each empty module mounting position in the system, as desired.



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### **Module Mounting Position Blank Cover Panel, P/N SXA1100035/1**

#### **Features**

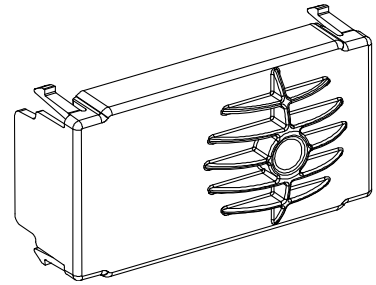
- ◆ Covers one (1) unused module mounting position.

#### **Restrictions**

For use in Spec. No. 588705300 and 588705400 module mounting assemblies and in optional inverter system.

#### **Ordering Notes**

- 1) Order by P/N SXA1100035/1 as required. Order a module mounting position blank cover panel for each empty module mounting position in the system, as desired.



### **Optional eSure™ Power Extend Converter**

#### **Features**

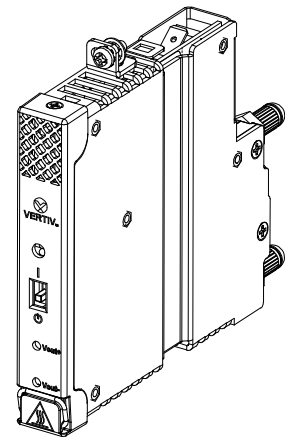
- ◆ The eSure Power Extend Converter (Model C48/58-1000B, Spec. No. 1C48581000B) is a compact DC/DC converter unit which offers efficient power conversion. It operates from a nominal -48 VDC source to provide regulated -58 VDC to the load for continuous operation to end of battery discharge. Refer to UM565050 and IM565391 for further information.

#### **Restrictions**

Only install the power extend converter into a -48 VDC distribution position. Non-repairable damage will occur if the power extend converter is plugged into a +24 VDC distribution position.

#### **Ordering Notes**

- 1) To add an eSure Power Extend Converter to a List AA (24-position bullet) distribution panel or List DA, DB, DC, DD (21-position bullet dual voltage) distribution panel or 582127000 List DE, DF, DG, DH, DJ, DK, FE, FG, FH, FJ, FK (26-position bullet dual voltage) distribution panel; refer to the material list in the eSure Power Extend Converter Calculator (link provided below).
- 2) To add an eSure Power Extend Converter to a List AL (26-position bullet) distribution panel; refer to the material list in the eSure Power Extend Converter Calculator (link provided below).
- 3) To add an eSure Power Extend Converter to a 582127000600, 582127000601, 582127000900, 582127000901 (26-position bullet) distribution panel; refer to the material list in the eSure Power Extend Converter Calculator (link provided below).



<https://www.vertiv.com/en-us/products-catalog/critical-power/dc-power-systems/esure-power-extend-converter-c4858-1000/#/downloads>

## Module Mounting Assembly

### **588705300 List 01:**

#### **Module Mounting Assembly Configured with Rectifier and -48 VDC to +24 VDC or -48 VDC to -58 VDC Converter Module Mounting Positions, 208 VAC, 240 VAC Input, No Rear Covers, and Factory Input Wiring Only**

##### **Features**

- ◆ Provides one (1) Model PSS48/250-23C, Spec. No. 58870530001 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ No output busbar cover assembly and input cover assembly provided. Rear covers will be provided as part of the factory configured system.

##### **Restrictions**

Module mounting assembly inputs MUST be factory wired into power system. For use with Lists 40, 41, and 42 front access AC input termination assemblies.

##### **Ordering Notes**

- 1) Order as required.
- 2) Order rectifier modules as required, P/N [1R482000e3](#).
- 3) Order converter modules as required, P/N [1C48241500](#).
- 4) Order converter modules as required, P/N [1C48582000P3](#).
- 5) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **588705300 List 03:**

#### **Module Mounting Assembly Configured with Rectifier and -48 VDC to +24 VDC or -48 VDC to -58 VDC Converter Module Mounting Positions, 208 VAC, 240 VAC Input, Single Phase, Rear Covers, and Rear Mount Molex Input Connectors**

##### **Features**

- ◆ Provides one (1) Model PSS48/250-23C, Spec. No. 58870530003 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ Output busbar and input cover assemblies provided. Input cover assembly is provided with rear input Molex connectors factory wired to the rectifier mounting positions.

**Note:** *Three (3) rectifier input Molex connectors furnished and factory wired to provide three (3) rectifier input feeds to the assembly. First rectifier input feeds rectifier mounting positions #1 and #2. Second rectifier input feeds rectifier mounting positions #3 and #4. Third rectifier input feeds rectifier mounting positions #5 and #6.*

##### **Restrictions**

AC inputs MUST be wired directly to the shelf.

##### **Ordering Notes**

- 1) Order as required.
- 2) Order rectifier modules as required, P/N [1R482000e3](#).
- 3) Order converter modules as required, P/N [1C48241500](#).
- 4) Order converter modules as required, P/N [1C48582000P3](#).
- 5) Order rectifier AC input cable assemblies per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 or order rectifier AC input line cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.
- 6) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.



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### **588705400 List 01:**

#### **Rectifier Module Mounting Assembly, 208 VAC / 240 VAC / 277 VAC Input, No Rear Covers, and Factory Input Wiring Only**

##### **Features**

- ◆ Provides one (1) Model PSS4850-1/23, Spec. No. 58870540001 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ No output busbar cover assembly and input cover assembly provided. Rear covers will be provided as part of the factory configured system.

##### **Restrictions**

Module mounting assembly inputs MUST be factory wired into power system. For use with Lists 40, 41, 42 and 43 front access AC input termination assemblies. For use with List 600, 601, 900, 901.

##### **Ordering Notes**

- 1) Order as required. Provided as part of a List 600, 601, 900, 901.
- 2) Order rectifier modules as required, P/N [1R483500e3](#).
- 3) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **588705400 List 02:**

#### **Rectifier Module Mounting Assembly, 208 VAC, 240 VAC, 277 VAC Input, Single-Phase, Rear Covers, and Rear Mount Molex Input Connectors**

##### **Features**

- ◆ Provides one (1) Model PSS4850-1/23, Spec. No. 58870540002 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ This module mounting assembly is equipped with individual rectifier module single-phase AC input feeds (one AC input branch circuit per rectifier module, six AC input branch circuits per module mounting assembly).
- ◆ Output busbar and input cover assemblies provided. Input cover assembly is provided with rear input Molex connectors factory wired to the rectifier mounting positions.

##### **Restrictions**

AC inputs MUST be wired directly to the shelf.

##### **Ordering Notes**

- 1) Order as required.
- 2) Order rectifier modules as required, P/N [1R483500e3](#).
- 3) Order Rectifier AC Input Cable Assemblies per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 or order Rectifier AC Input Line Cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **588705400 List 03:**

#### **Rectifier Module Mounting Assembly, 208 VAC, 240 VAC Input, Three-Phase, Rear Covers, and Rear Mount Molex Input Connectors**

##### **Features**

- ◆ Provides one (1) Model PSS4850-1/23, Spec. No. 58870540003 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ This module mounting assembly is equipped with two (2) three-phase AC input circuits. Each input circuit powers three (3) single-phase rectifier modules, each connected from line to line, evenly distributed across the phases.
- ◆ Output busbar and input cover assemblies provided. Input cover assembly is provided with rear input Molex connectors factory wired to the rectifier mounting positions.

##### **Restrictions**

AC inputs MUST be wired directly to the shelf.

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To maintain phase balance, rectifier modules should be installed in groups of three (all three on left and/or all three on right).

### **Ordering Notes**

- 1) Order as required.
- 2) Order rectifier modules as required, P/N [1R483500e3](#).
- 3) Order Rectifier AC Input Line Cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **588705400 List 04:**

#### **Rectifier Module Mounting Assembly, 277/480 VAC Input, Three-Phase, Rear Covers, and Rear Mount Molex Input Connectors**

##### **Features**

- ◆ Provides one (1) Model PSS4850-1/23, Spec. No. 58870540004 module mounting assembly.
- ◆ This module mounting assembly holds up to six (6) modules.
- ◆ This module mounting assembly is equipped with two (2) three-phase AC input circuits. Each input circuit powers three (3) single-phase rectifier modules, each connected from line to neutral, evenly distributed across the phases.
- ◆ Output busbar and input cover assemblies provided. Input cover assembly is provided with rear input Molex connectors factory wired to the rectifier mounting positions.

##### **Restrictions**

AC inputs MUST be wired directly to the shelf.

To maintain phase balance, rectifier modules should be installed in groups of three (all three on left and/or all three on right).

##### **Ordering Notes**

- 1) Order as required.
- 2) Order rectifier modules as required, P/N [1R483500e3](#).
- 3) Order Rectifier AC Input Line Cords per “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110.
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

### **588705400 List 05:**

#### **Controller/Rectifier Module Mounting Assembly, 208 VAC / 240 VAC / 277 VAC Input, No Rear Covers, and Factory Input Wiring Only**

##### **Features**

- ◆ Provides one (1) Model PSS4850-1/23, Spec. No. 58870540005 module mounting assembly.
- ◆ This module mounting assembly holds up to one (1) controller and five (5) rectifier modules.
- ◆ No output busbar cover assembly and input cover assembly provided. Rear covers will be provided as part of the factory configured system.

##### **Restrictions**

For use with List 600, 601, 900, 901.

Module mounting assembly inputs MUST be factory wired into power system.

##### **Ordering Notes**

- 1) Provided as part of a List 600, 601, 900, 901.
- 2) Order one (1) NCU controller (P/N 1M830BNA) with the desired configuration.
- 3) Order rectifier modules as required, P/N [1R483500e3](#).
- 4) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty rectifier module mounting position in the system, as desired.

## 588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies

### Rectifier AC Input Cable Assembly, P/N 535232

#### **Features**

- ◆ One (1) 30" long, 8 AWG (2L+PE), input cable assembly that is terminated on one end with a Molex plug which mates with the input receptacle on a module mounting assembly, and not terminated on the remaining end.

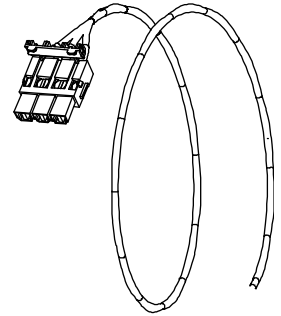
#### **Restrictions**

For use with 588705300 List 03 and 588705400 List 02.

Rated for 30 A.

#### **Ordering Notes**

- 1) Order input cable assemblies as required.



### Rectifier AC Input Cable Assembly, P/N 547898

#### **Features**

- ◆ One (1) 6' long, 8 AWG (2L+PE), input cable assembly that is terminated on one end with a Molex plug which mates with the input receptacle on a module mounting assembly, and not terminated on the remaining end.

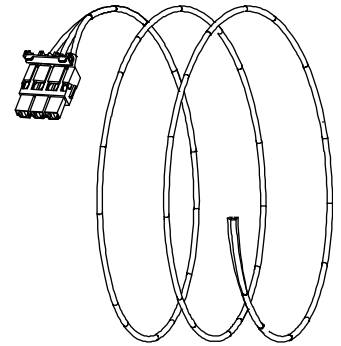
#### **Restrictions**

For use with 588705300 List 03 and 588705400 List 02.

Rated for 30 A.

#### **Ordering Notes**

- 1) Order input cable assemblies as required.



### Rectifier AC Input Cable Assembly, P/N 553202

#### **Features**

- ◆ One (1) 12' long, 8 AWG (2L+PE), AC input cable assembly that is terminated on one end with a Molex plug which mates with the input receptacle on a module mounting assembly, and not terminated on the remaining end.

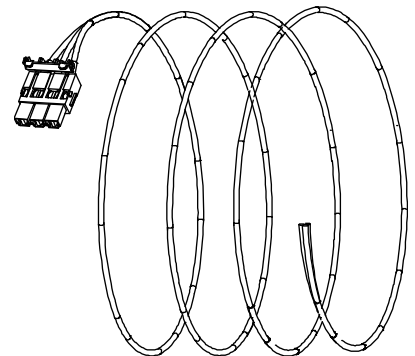
#### **Restrictions**

For use with 588705300 List 03 and 588705400 List 02.

Rated for 30 A.

#### **Ordering Notes**

- 1) Order input cable assemblies as required.



## 588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords

### Rectifier AC Input Line Cord, P/N 540946

#### **Features**

- ◆ One (1) 14' long, 8 AWG (2L+PE), AC input line cord that is terminated on one end with a Molex plug which mates with the AC input receptacle on a module mounting assembly, and terminated on the remaining end with a NEMA L6-30P twist-lock plug.

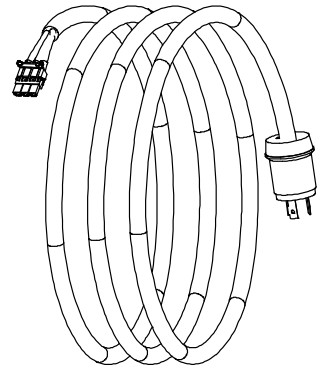
#### **Restrictions**

For use with 588705300 List 03 and 588705400 List 02.

For 208 VAC / 240 VAC only (rated for 30 A at 208 VAC / 240 VAC). (Size external overcurrent protection per plug rating. Refer to American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). For operation in countries where the NEC is not recognized, follow applicable codes.

#### **Ordering Notes**

- 1) Order AC input line cords as required.



### Rectifier AC Input Line Cord, P/N 545616

#### **Features**

- ◆ One (1) 6' long, 8 AWG (2L+PE), AC input line cord that is terminated on one end with a Molex plug which mates with the AC input receptacle on a module mounting assembly, and terminated on the remaining end with a NEMA L6-30P twist-lock plug.

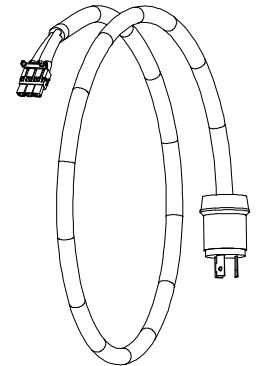
#### **Restrictions**

For use with 588705300 List 03 and 588705400 List 02.

For 208 VAC / 240 VAC only (rated for 30 A at 208 VAC / 240 VAC). (Size external overcurrent protection per plug rating. Refer to American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). For operation in countries where the NEC is not recognized, follow applicable codes.

#### **Ordering Notes**

- 1) Order AC input line cords as required.



### Rectifier AC Input Line Cord, P/N 545252

#### **Features**

- ◆ One (1) 14' long, 8 AWG (L+N+PE), AC input line cord that is terminated on one end with a Molex plug which mates with the AC input receptacle on a module mounting assembly, and terminated on the remaining end with a NEMA L5-30P twist-lock plug.

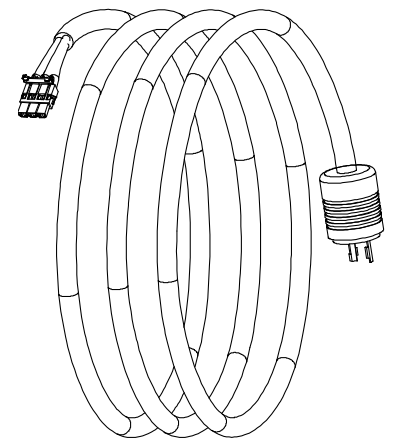
#### **Restrictions**

For use with 588705300 List 03.

For 120 VAC only (rated for 30 A at 120 VAC). (Size external overcurrent protection per plug rating. Refer to American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). For operation in countries where the NEC is not recognized, follow applicable codes.

#### **Ordering Notes**

- 1) Order AC input line cords as required.



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### **Rectifier AC Input Line Cord, P/N 562046**

#### **Features**

- ◆ One (1) 13' long, 8 AWG (3L+PE), AC input line cord that is terminated on one end with a Molex plug which mates with the AC input receptacle on a module mounting assembly, and terminated on the remaining end with a NEMA 15-50P plug.

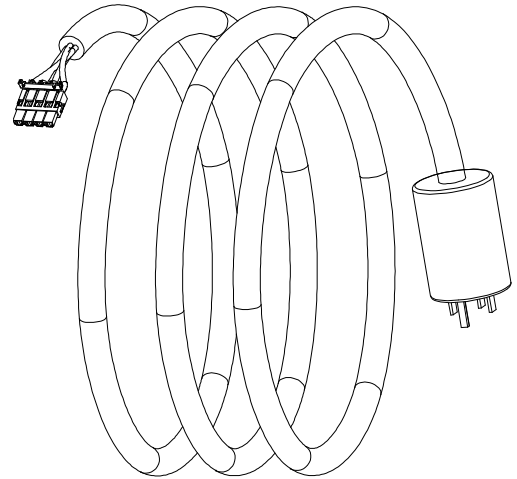
#### **Restrictions**

For use with 588705400 List 03.

For 208 VAC / 240 VAC only (rated for 50 A at 208 VAC / 240 VAC). (Size external overcurrent protection per plug rating. Refer to American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). For operation in countries where the NEC is not recognized, follow applicable codes.

#### **Ordering Notes**

- 1) Order AC input line cords as required.



### **Rectifier AC Input Line Cord, P/N 562045**

#### **Features**

- ◆ One (1) 13' long, 12 AWG (3L+N+PE), AC input line cord that is terminated on one end with a Molex plug which mates with the AC input receptacle on a module mounting assembly, and terminated on the remaining end with a NEMA L22-20P twist-lock plug.

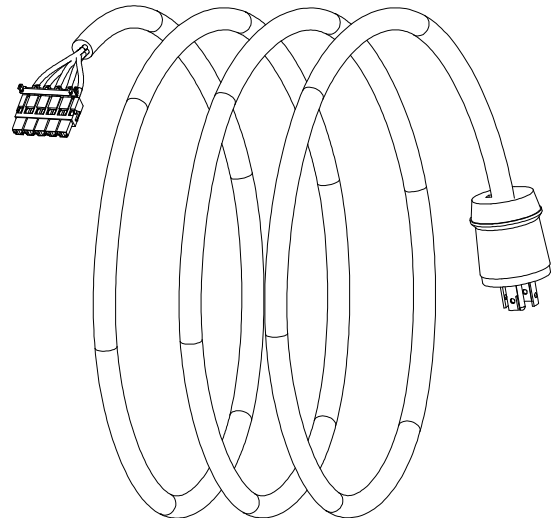
#### **Restrictions**

For use with 588705400 List 04.

For 277/480 VAC (3L+N+PE) only (rated for 20 A at 277/480 VAC). (Size external overcurrent protection per plug rating. Refer to American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). For operation in countries where the NEC is not recognized, follow applicable codes.

#### **Ordering Notes**

- 1) Order AC input line cords as required.



**Converter Interface Components (for Spec. No. 588705300), For System Mounted in a Relay Rack Only**

**Features**

- ◆ Provides components to interface converters in Spec. No. 588705300 module mounting assemblies to the distribution cabinet.

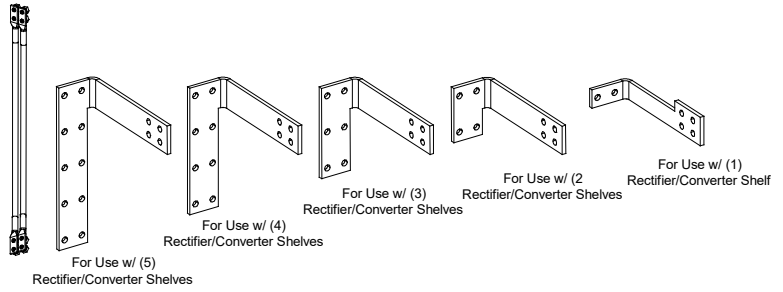
**Restrictions**

Not for use with systems mounted in an enclosure.

Must be used in systems equipped with Spec. No. 588705300 module mounting assemblies.

Must be installed in main bay **only**.

Must be used in conjunction with a dual voltage bus distribution panel.



**Ordering Notes**

- 1) Order the components listed in Table 16 to add converter capability to a system in the field that was not originally ordered with the List 60 or List 62 Converter Option.
- 2) Order up to three (3) converter modules, P/N [1C48241500](#) or [1C48582000P3](#), per module mounting assembly.
- 3) Order a module mounting position blank cover panel, P/N SXA1100035/1, for each empty module mounting position in the system, as desired.

Component	Part Number	Quantity
Converter Jumper	556228	Order one (1) per rectifier/converter assembly in the system, up to a maximum of four (4).
+24V Busbar	555264 when there are five (5) rectifier/converter assemblies in the system. 555730 when there are four (4) rectifier/converter assemblies in the system. 555733 when there are three (3) rectifier/converter assemblies in the system. 555736 when there are two (2) rectifier/converter assemblies in the system. 555739 when there are one (1) rectifier/converter assemblies in the system.	Order one (1) from the part numbers listed.
1/4-20 x 3/4" Bolt	227640400	Order two (2) per converter jumper ordered.
1/4-20 x 1" Bolt	227640600	Order two (2) per converter jumper ordered.
1/4" Flat Washer	214110100	Order six (6) per converter jumper ordered.
1/4" Lock Washer	215111100	Order four (4) per converter jumper ordered.
1/4-20 Nut	228557100	Order two (2) per converter jumper ordered.

Table 16

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### Relay Racks and Shipping Brackets

**Note:** System components are factory mounted in a relay rack, on shipping rails, or in an enclosure as specified when ordered.

#### Features

- ◆ The system can be factory mounted to a relay rack or on shipping brackets as specified when ordered.
- ◆ Relay racks (except P/N 562353 and P/N 10009902) are 23" standard mounting with 3" deep uprights. P/N 562353 and P/N 10009902 are 23" standard mounting with 6" deep upright.
- ◆ When ordered with shipping brackets, the system is mounted on shipping brackets bolted to a shipping skid. The shipping brackets can mount a system up to 22U high.

#### Ordering Notes

- 1) Order from relay racks and shipping brackets listed in Table 17.

Part Number	Size	Available Mounting Positions (1RU = 1-3/4")	Notes
509638 509639	Shipping Brackets	22RU	--
562360	43.156"H x 24.376"W x 15"D	23RU	Seismic (Note 1)
559817	51.906"H x 24.376"W x 15"D	28RU	Welded
564169	60.000"H x 25.800"W x 18"D	31RU	Seismic (Note 1)
559818	72.000"H x 24.375"W x 15"D	38RU	Welded
564127	72.000"H x 25.800"W x 18"D	38RU	Seismic (Note 1)
559820	84.000"H x 24.375"W x 15"D	45RU	Welded
562353	84.000"H x 25.800"W x 18"D	45RU	Seismic (Note 1)
10009902	84.000"H x 25.800"W x 18"D	45RU	Seismic (Note 2)
562355	85.750"H x 24.375"W x 15"D	46RU	Welded
559821	90.000"H x 24.375"W x 15"D	48RU	Welded
559822	96.000"H x 24.375"W x 15"D	51RU	Welded

**Note 1:** Complies with Bellcore Seismic Zone 4 requirements.

**Note 2:** Complies with Bellcore Seismic Zone 4 requirements, per FEA Analysis.

Table 17  
Available Relay Racks and Shipping Brackets

## Transition Plates to Mount Relay Rack on Top of GNB Absolyte IIP Batteries

### Features

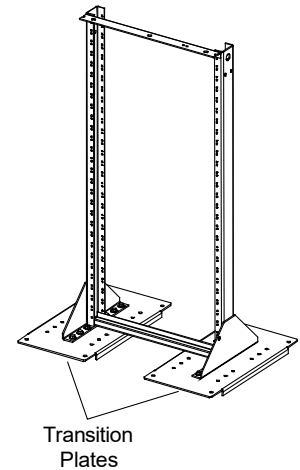
- ◆ Transition Plate Kits can be ordered to mount relay rack P/Ns 562360 or 559817 on top of GNB Absolyte IIP batteries.
- ◆ Each kit consists of two transition plates with three hole patterns and hardware (3/8") to mount the plates to the above listed relay racks. Customer must supply hardware to mount the transition plates to the battery.

### Restrictions

Used with relay rack P/Ns 562360 or 559817 only.

### Ordering Notes

- 1) Order P/N 509819 for a Transition Plate Kit to mount relay rack on top of a GNB 3-100A19, GNB 3-100A27, or GNB 3-100A33 battery.
- 2) Order P/N 514596 for a Transition Plate Kit to mount relay rack on top of a GNB 6-90A09 battery.
- 3) Order P/N 514880 for a Transition Plate Kit to mount relay rack on top of a GNB 3-100A21, GNB 3-100A25, or GNB 3-100A31 battery.



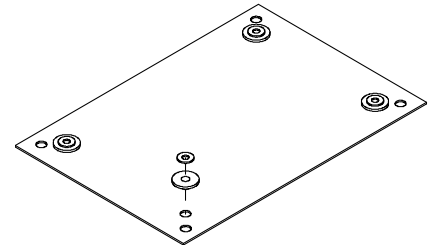
## Relay Rack Isolation Kit

### Features

- ◆ Provides electrical isolation of the relay rack from the concrete floor. Includes an insulating pad, four (4) insulating bushings, and four (4) flat washers to be used with the anchors used to mount the relay rack to the floor.

### Ordering Notes

- 1) Order P/N 10019125 for a Relay Rack Isolation Kit to be used with 23" seismic relay racks P/N 562353, PN 10009902, P/N 564127, and P/N 564169.





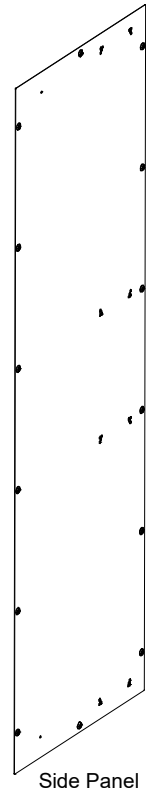
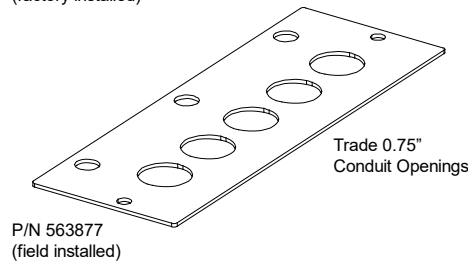
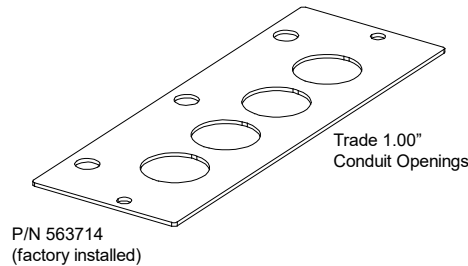
## Enclosure and Enclosure Options

### Features

- ◆ The system can be factory mounted in an enclosure as specified when ordered.
- ◆ Refer to “Enclosure, P/N 563524 or P/N 564881” on page 220 for dimensions.
- ◆ Reversible door. Default mounting is right handed.

### Ordering Notes

- 1) Order from available enclosures listed in Table 18.
- 2) Order enclosure side panels as required. P/N 563666 (dark gray) or P/N 564889 (white) provides one (1) side panel. Side panels are factory installed when ordered.
- 3) Order an enclosure mounted LED kit as required P/N 563678. Provides a factory installed LED located at the top of the enclosure visible from the front with the door closed. Illuminates red if a major or critical alarm activates.
- 4) If List 40 AC input assembly is ordered with six (6) rectifier shelves, two (2) P/N 563877 conduit plates will be provided. Each provides five (5) 3/4” conduit openings. Note that each enclosure is factory equipped with two (2) conduit plates that provide four (4) 1” conduit openings.
- 5) If desired, order lockable door handle P/N 10014497. This item will ship loose with the system for field replacement.



Part Number	Size	Available Mounting Positions (1RU = 1-3/4”)	Notes
563524	84”H x 28”W x 28”D	45RU	Dark Gray, Seismic (Note 1)
564881	84”H x 28”W x 28”D	45RU	White, Seismic (Note 1)

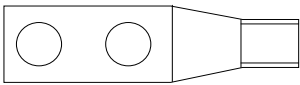
**Note 1:** Complies with Bellcore Seismic Zone 4 requirements.

Table 18  
Available Enclosures

**Crimp Lugs**

**Standard Crimp Lug Tables**

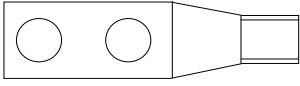
Lead Size	Part Number
14 AWG to 10 AWG	245342300
8 AWG	245390200
6 AWG	245346700
4 AWG	245346800
2 AWG	245346900



Lugs should be crimped per lug manufacturer's specifications.

Table 19  
Crimp Lug  
Two-Hole, 1/4" Bolt Clearance Hole, 5/8" Centers

Lead Size	Part Number
6 AWG	245349900
4 AWG	245350000
2 AWG	245348200
1/0 AWG	245347100
2/0 AWG	245347200
3/0 AWG	245347300
4/0 AWG	245347400
250 kcmil	245347500
300 kcmil	245347600
350 kcmil	245347700
400 kcmil	245347800
500 kcmil	245347900
600 kcmil	245348000
750 kcmil	245348100



Lugs should be crimped per lug manufacturer's specifications.

Table 20  
Crimp Lug  
Two-Hole, 3/8" Bolt Clearance Hole, 1" Centers

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### Special Application Crimp Lug / Strap Combination Table

#### Features

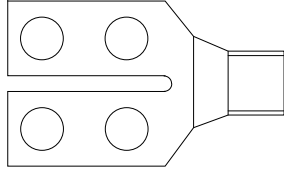
- ◆ Straps two fuseholder/circuit breaker wiring positions together, and provides a crimp-type lug which allows distribution wiring up to 350 kcmil size (maximum size of wire to be connected to a single position is 2 AWG). Designed for use with 125 A and larger bullet nose-type circuit breakers or TPS/TLS-type fuses, which require at least two mounting positions.

#### Restrictions

If used with bullet nose-type circuit breakers or TPS/TLS-type fuses smaller than 125 A, an empty mounting position is required adjacent to the distribution device.

#### Ordering Notes

- 1) Specify part number from Table 21 for desired lead size.

Lead Size	Part Number	
1/0 AWG	245393500	
2/0 AWG	245393600	
3/0 AWG	245393700	
4/0 AWG	245393800	
250 kcmil	514872	
350 kcmil	514873	

Lugs should be crimped per lug manufacturer's specifications.

Table 21  
Special Application Crimp Lug / Strap Combination  
(Two-Hole Lug, 1/4" Bolt Clearance Hole, 5/8" Centers)

## Lug Adapters (all Lists except Lists 600, 601, 900, 901)

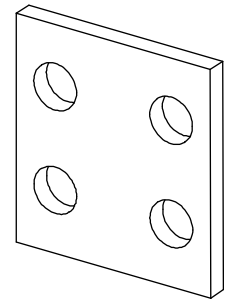
### **Busbar for 125 A, 150 A, and 200 A Bullet Nose Type Circuit Breaker, P/N 520989**

#### **Features**

- ◆ Provides a busbar that mounts on the two lug landing positions of a 125 A, 150 A, or 200 A bullet nose circuit breaker, and allows for use of one standard two-hole lug having 1/4" bolt clearance holes on 5/8" centers.

#### **Ordering Notes**

- 1) Order one (1) Part No. 520989 per 125 A, 150 A, and 200 A bullet nose circuit breaker ordered, as desired. See also P/Ns [522786](#) and [534449](#) in this section.



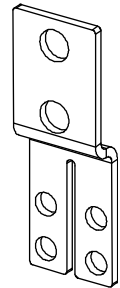
### **Busbar for 125 A, 150 A, and 200 A Bullet Nose Type Circuit Breaker, P/N 522786**

#### **Features**

- ◆ Provides a busbar that mounts on the two lug landing positions of a 125 A, 150 A, or 200 A bullet nose circuit breaker, and provides a landing for one standard two-hole lug having 3/8" bolt clearance holes on 1" centers.

#### **Ordering Notes**

- 1) Order one (1) Part No. 522786 per 125 A, 150 A, and 200 A bullet nose circuit breaker ordered, as desired. See also P/Ns [520989](#) and [534449](#) in this section.



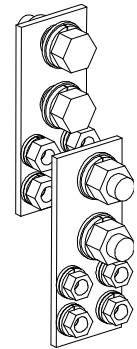
### **Lug Adapter Busbar Kit for 125 A, 150 A, and 200 A Bullet Nose Type Circuit Breaker, P/N 534449**

#### **Features**

- ◆ Includes one (1) busbar that mounts on the two lug landing positions of a 125 A, 150 A, or 200 A bullet nose circuit breaker, and provides a landing for one standard two-hole lug having 3/8" bolt clearance holes on 1" centers. Also includes one (1) busbar that mounts on two landings of the associated ground return bar (if furnished), and provides one landing for a standard two-hole lug having 3/8" bolt clearance holes on 1" centers. All busbar and lug mounting hardware is included.

#### **Ordering Notes**

- 1) Order one (1) Part No. 534449 per 125 A, 150 A, and 200 A bullet nose circuit breaker ordered, as desired. See also P/Ns [520989](#) and [522786](#) in this section.



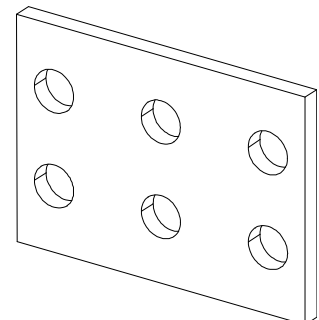
### **Busbar for 225 A through 300 A Bullet Nose Type Circuit Breaker, P/N 514717**

#### **Features**

- ◆ Provides a busbar that mounts on the three lug landing positions of a 225 A through 300 A bullet nose circuit breaker, and allows for use of a [Special Application Crimp Lug / Strap Combination](#) lug listed in Table 21.

#### **Ordering Notes**

- 1) Order one (1) P/N 514717 per 225 A through 300 A bullet nose circuit breaker ordered, as desired (see also [Lug Adapter Busbar Kit for 225 A through 300 A Bullet Nose Type Circuit Breaker, P/N 514714](#) for another option).



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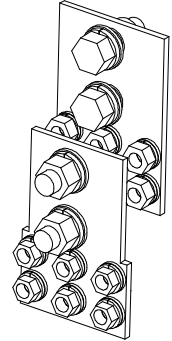
### **Lug Adapter Busbar Kit for 225 A through 300 A Bullet Nose Type Circuit Breaker, P/N 514714**

#### **Features**

- ◆ Includes one (1) busbar that mounts on the three lug landing positions of a 225 A through 300 A bullet nose circuit breaker, and provides one landing for a standard two-hole lug having 3/8" bolt clearance holes on 1" centers. Also includes one (1) busbar that mounts on three landings of the associated ground return bar (if furnished), and provides one landing for a standard two-hole lug having 3/8" bolt clearance Holes on 1" centers. All busbar and lug mounting hardware is included.

#### **Ordering Notes**

- 1) Order one (1) Part No. 514714 per 225 A through 300 A bullet nose circuit breaker ordered, as desired (see also [Busbar for 225 A through 300 A Bullet Nose Type Circuit Breaker, P/N 514717](#) for another option).



### **Lug Adapter Busbar Kit for 3-Pole GJ/218 Circuit Breaker Installed in a List AM and List AP Distribution Panel, P/N 562888**

#### **Features**

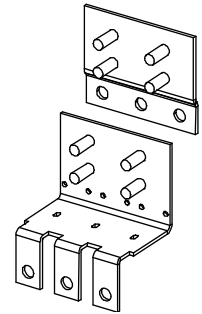
- ◆ Includes one (1) busbar that mounts on the three lug landing positions of a three-pole circuit breaker installed in a List AM or List AP distribution panel and one (1) busbar that mounts on the three landings of the associated ground return bar. These busbars provide two (2) landings for standard two-hole lugs having 3/8" bolt clearance holes on 1" centers.

#### **Restrictions**

Maximum lug width, 2.0 inches.

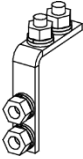
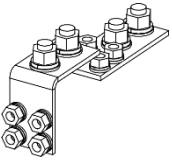
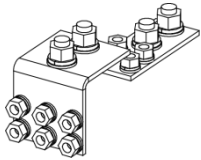
#### **Ordering Notes**

- 1) Order one (1) Part No. 562888 per three-pole GJ/218 circuit breaker ordered for a List AM or List AP Distribution Panel, as desired.



## Lug Adapters (Lists 600, 601, 900, 901)

See the table below.

Part Number	Description	
559803	<u>Busbar Lug Adapter Kit</u> : Converts one (1) load position (1/4-20 on 5/8" centers) to one (1) load landing (1/4-20 on 5/8" centers), right angle.	
559804	<u>Busbar Lug Adapter Kit</u> : Converts two (2) load positions (1/4-20 on 5/8" centers) to one (1) landing (3/8-16 on 1" centers). Right angle load busbar and straight return busbar for rear wiring egress.	
559805	<u>Busbar Lug Adapter Kit</u> : Converts three (3) load positions (1/4-20 on 5/8" centers) to one (1) landing (3/8-16 on 1" centers). Right angle load busbar and straight return busbar for rear wiring egress.	

Busbar lug adapter kits include hardware shown.

Unless otherwise specified, busbar lug adapter kits are factory installed when ordered with system.

Table 22  
Busbar Lug Adapter Kits

## Lug Hardware Kits

### 1/4-20 Hardware Kit, P/N 541084

#### Features

- ◆ Lug hardware kit provides thirty-two (32) sets of 1/4-20 hardware for bullet nose distribution panels. Kit includes (32) 1/4-20 Nuts, (32) 1/4" Flat Washers, and (32) 1/4" Lock Washers.

#### Ordering Notes

- 1) Order Kit P/N 541084, as required.

### 3/8-16 Hardware Kit, P/N 548184

#### Features

- ◆ Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware for GJ/218 distribution panels, TPH distribution panels, return bar panels, and battery busbars. Kit includes (16) 3/8-16 x 1-1/4" Bolts, (16) 3/8" Flat Washers, and (16) 3/8" Lock Washers.

#### Ordering Notes

- 1) Order Kit P/N 548184, as required.

### 3/8-16 Hardware Kit, P/N 548185

#### Features

- ◆ Lug hardware kit provides sixteen (16) sets of 3/8-16 hardware for Lists 600, 601, 900, 901 battery busbars. Kit includes (16) 3/8-16 Nuts, (16) 3/8" Flat Washers, and (16) 3/8" Lock Washers.

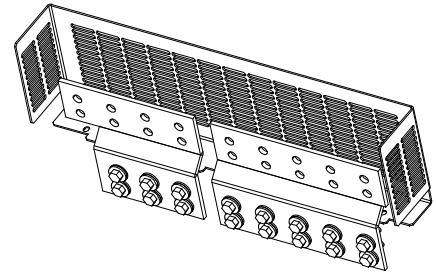
#### Ordering Notes

- 1) Order Kit P/N 548185, as required.

### Battery Busbar Extension Kit (P/N 562364)

#### Features

- ◆ Provides busbar extension plates and mounting hardware for extending battery busbars through the top of a List 23 and List 24 distribution cabinet. The hot side busbar extension plate (P/N 562363) provides five (5) pairs of clearance holes for 3/8" hardware on 1" centers, and the return side busbar extension plate (P/N 562362) provides four (4) pairs of clearance holes for 3/8" hardware on 1" centers. The hot side allows back-to-back lug landing for up to ten lugs and the return side allows back-to-back lug landing for up to eight lugs. See "Battery Input Illustrations" starting on page 203.



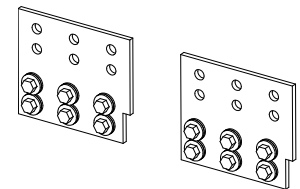
#### Ordering Notes

- 1) Order one (1) kit P/N 562364 per List 23 and List 24 distribution cabinet, as required.

### Battery Busbar Extension Kit (P/N 554541)

#### Features

- ◆ Provides busbar extension plates and mounting hardware for extending battery busbars through the top of a List 21 (1-Row) and List 22 (2-Row) distribution cabinet. Each busbar extension plate provides three pairs of clearance holes for 3/8" hardware on 1" centers. Allows back-to-back lug landing for up to six lugs per polarity. See "Battery Input Illustrations" on page 203.



#### Ordering Notes

- 1) Order one (1) kit P/N 554541 per List 21 and List 22 distribution cabinet, as required.

### Battery Landing Busbar Kit (P/N 553584), For System Mounted in a Relay Rack Only

#### Features

- ◆ Provides a Battery Landing Busbar Kit that attaches to the distribution cabinet's battery busbars and hangs off the back of the cabinet. Six (6) battery landing positions are provided (per polarity) (1/4-20 x 0.875" studs on 0.625" centers). See "Battery Input Illustrations" on page 203.

#### Restrictions

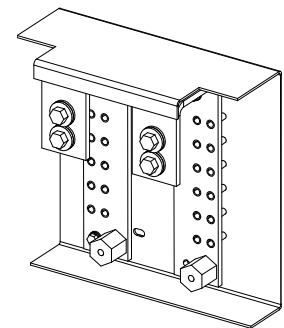
Not for use with systems mounted in an enclosure.

For use with List 21.

CANNOT be used with List 2 or List 3.

#### Ordering Notes

- 1) Order one (1) kit P/N 553584 per bay, as required.



## Battery Landing Busbar Kit (P/N 555478), For System Mounted in a Relay Rack Only

### Features

- ◆ Provides a Battery Landing Busbar Kit that attaches to the distribution cabinet's battery busbars and hangs off the back of the cabinet. Four (4) battery landing positions are provided (per polarity) for connection of up to eight (8) battery leads (back-to-back) (per polarity) (1/4-20 x 0.875" studs on 0.625" centers). See "Battery Input Illustrations" on page 203.

### Restrictions

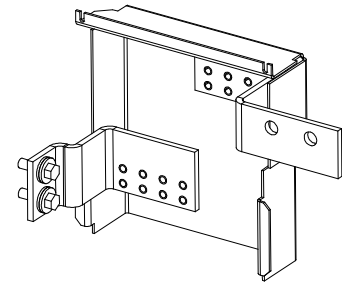
Not for use with systems mounted in an enclosure.

For use with Lists 22, 23, and 24.

CANNOT be used with List 2, List 3, List 7 or List 8.

### Ordering Notes

- 1) Order one (1) kit P/N 555478 per bay, as required.



## Distribution Devices

### Bullet Nose Type Circuit Breakers and Bullet Nose Type Fuseholders e/w TPS/TLS Fuses

#### Features

- ◆ Each circuit breaker (as listed in Table 23 and Table 24) plugs into one, two, or three mounting position(s) on a distribution panel containing bullet nose type distribution positions.
- ◆ A single fuseholder provides for installation of a 3 A to 100 A Bussmann TPS type or Littelfuse TLS type fuse (as listed in Table 25). This fuseholder plugs into a single mounting position on a distribution panel containing bullet nose type distribution positions. This fuseholder provides a GMT-A alarm type fuse, which operates open to provide an alarm indication if the associated distribution fuse opens.

#### Restrictions

For use in Lists AL, AN, DE, DF, DG, DH, DJ, DK, FE, FF, FG, FH, FJ FK, and Lists 600, 601, 900, 901.

Load should not exceed 80% of device rating.

Install distribution devices from left to right, starting with the highest capacity and working to the lowest capacity.

See the distribution panel list descriptions for additional restrictions.

#### Ordering Notes

- 1) Order circuit breakers as required per Table 23 or Table 24.
- 2) Order fuses as required per Table 25. For each fuse ordered, also order one (1) P/N 117201 bullet nose type fuseholder.
- 3) See Table 50 for recommended load distribution wire sizes and lugs.
- 4) When ordering 125 A through 300 A circuit breakers; associated crimp lugs may be ordered from Table 21.

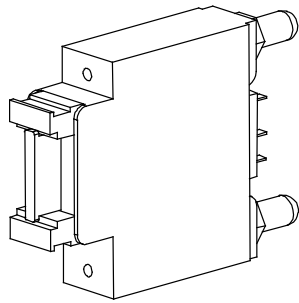
All Lists Except Lists 600, 601, 900, 901: When ordering 125 A through 200 A circuit breakers; lug adapter busbar kits P/N 520989, P/N 522786, or P/N 534449 may be ordered per circuit breaker (see "Lug Adapters (all Lists except Lists 600, 601, 900, 901)" on page 118).

All Lists Except Lists 600, 601, 900, 901: When ordering 225 A through 300 A circuit breakers; lug adapter busbar kit P/N 514714 or P/N 514717 may be ordered per circuit breaker (see "Lug Adapters (all Lists except Lists 600, 601, 900, 901)" on page 118).

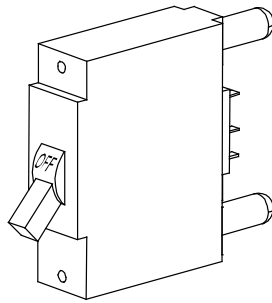
Lists 600, 601, 900, 901: When ordering 2-pole devices, busbar lug adapter kit P/N 559804 may be ordered per device (see "Lug Adapters (Lists 600, 601, 900, 901)" on page 120).

Lists 600, 601, 900, 901: When ordering 3-pole devices, busbar adapter kit P/N 559805 may be ordered per device (see "Lug Adapters (all Lists except Lists 600, 601, 900, 901)" on page 120).

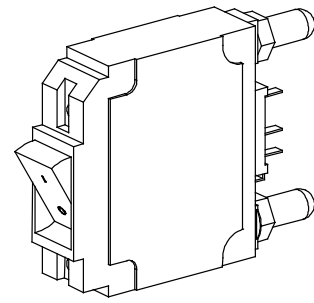




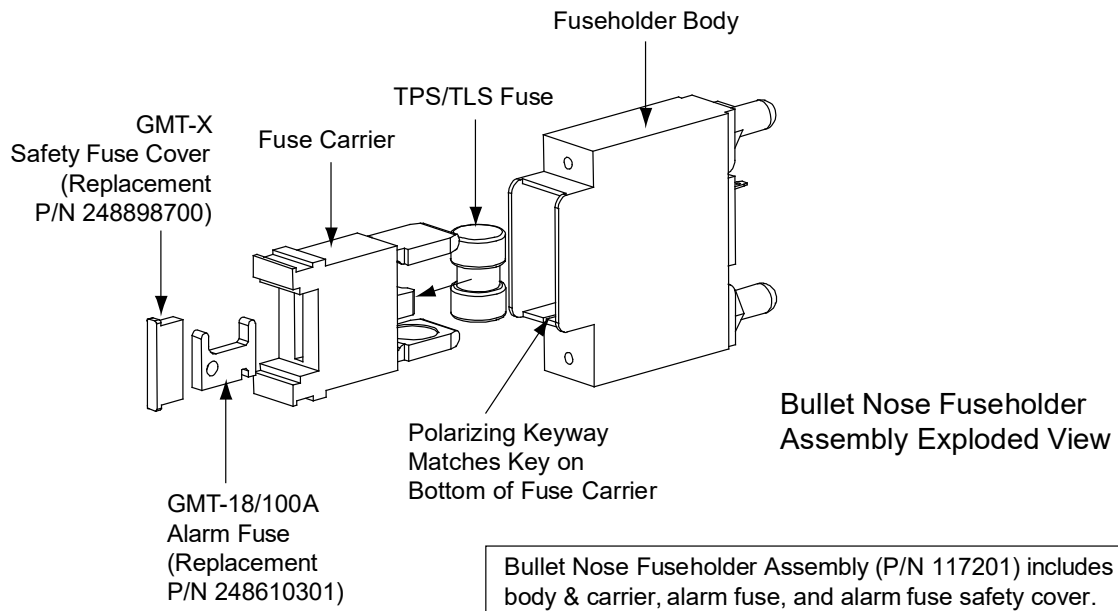
Bullet Nose Fuseholder



Toggle Handle  
 Bullet Nose Circuit Breaker



Rocker Handle  
 Bullet Nose Circuit Breaker



Bullet Nose Fuseholder  
 Assembly Exploded View

Bullet Nose Fuseholder Assembly (P/N 117201) includes body & carrier, alarm fuse, and alarm fuse safety cover.

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

Ampere Rating	Number of Poles	Number of Mounting Positions Required	Part Number	
			Electrical Trip <sup>1</sup> (White Handle)	Electrical/Mechanical Trip <sup>2</sup> (Black Handle)
1	1	1	102272	101596
3	1	1	102273	101597
5	1	1	102274	101598
10	1	1	102275	101599
15	1	1	102276	101600
20	1	1	102277	101601
25	1	1	102278	101602
30	1	1	102279	101603
35	1	1	102280	101604
40	1	1	102281	101605
45	1	1	121998	121997
50	1	1	102282	101606
60	1	1	102283	101607
70	1	1	102284	101608
75	1	1	102285	101609
80	1	1	121996	121995
90	1	1	138887	138888
100	1	2	102286	101610
125	2	3	516991	516838
150	2	3	516993	516839
175	2	3	144883	144884
200	2	3	121831	121832
225	3	4	144885	144886
250	3	4	121835	121836
300	3	4	149075	149076

Circuit Breaker Alarm Operation:

- <sup>1</sup> Provides an alarm during an electrical trip condition only.
- <sup>2</sup> Provides an alarm during an electrical or manual trip condition.

**Note:** *Electrical Trip only circuit breakers are not typically used for battery disconnect circuit breakers.*

Table 23  
Toggle Handle Bullet Nose Type Circuit Breakers

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

Ampere Rating	Number of Poles	Number of Mounting Positions Required	Part Number	
			Electrical Trip <sup>1</sup> (White Handle)	Electrical/ Mechanical Trip <sup>2</sup> (Black Handle)
1	1	1	142856	142878
3	1	1	142857	142879
5	1	1	142858	142880
10	1	1	142859	142881
15	1	1	142861	142882
20	1	1	142862	142883
25	1	1	142863	142884
30	1	1	142864	142885
35	1	1	142865	142886
40	1	1	142866	142887
45	1	1	142867	142888
50	1	1	142868	142889
60	1	1	142869	142890
70	1	1	142870	142891
75	1	1	142871	142892
80	1	1	142872	142901
100	1	2	142873	142902
125	2	3	142874	142903
150	2	3	142875	142904
200	2	3	142876	142905
250	3	4	142877	142906

Circuit Breaker Alarm Operation:

- <sup>1</sup> Provides an alarm during an electrical trip condition only.
- <sup>2</sup> Provides an alarm during an electrical or manual trip condition.

**Note:** *Electrical Trip only circuit breakers are not typically used for battery disconnect circuit breakers.*

Table 24  
Rocker Handle Bullet Nose Circuit Breakers

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

Ampere Rating	Part Number	Bussmann P/N	Littelfuse P/N
3	248230900	TPS-3	TLS003
5	248231000	TPS-5	TLS005
6	248231200	TPS-6	TLS006
10	248231500	TPS-10	TLS010
15	248231800	TPS-15	TLS015
20	248232100	TPS-20	TLS020
25	248232400	TPS-25	TLS025
30	248232700	TPS-30	TLS030
40	248233300	TPS-40	TLS040
50	248233900	TPS-50	TLS050
60	248234200	TPS-60	TLS060
70	248234500	TPS-70	TLS070
80	118413	--	TLS080
90	118414	--	TLS090
100	118415	--	TLS100
Bullet Nose Type Fuseholder		P/N 117201 (Includes Fuseholder, 18/100 A GMT-A Alarm Fuse, and GMT-X Safety Fuse Cover)	

Table 25  
Bullet Nose Type Fuseholders and TPS/TLS Fuses

### Optional Bullet Nose Type 6-Position GMT Distribution Fuse Block, P/N 549017, (6) GMT Fuse Positions

#### Features

- ◆ Provides six (6) load distribution fuse positions (1/4 A to 15 A GMT alarm-type fuses).
- ◆ Single voltage distribution (-48 V or +24 V).
- ◆ Mounts in two (2) distribution positions of a “bullet nose” distribution panel.
- ◆ Screw clamp type load and load return terminals provided.
- ◆ Includes six (6) dummy fuses equipped with safety fuse covers.

#### Restrictions

Can be used in a List AL, AN, DE, DF, DG, DH, DJ, DK, FE, FF, FG, FH, and FK distribution panel only or a List 600, 601, 900, 901.

Can only be installed in the 1-2, 3-4, 5-6, 7-8, 15-16, 17-18, 19-20, 21-22, 23-24, and 25-26 positions of the distribution panel.

Occupies two (2) bullet device mounting positions.

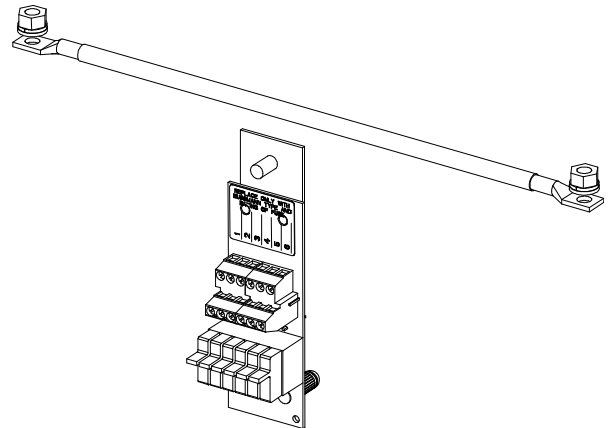
Terminal block wire size capacity is 26 AWG to 14 AWG.

35 A maximum capacity per block.

Maximum GMT fuse size is 15 A.

#### Ordering Notes

- 1) Order optional Bullet Nose Type 6-Position GMT Fuse Block (P/N 549017) as required. Provides one alarm fuse distribution assembly, ground return link, and hardware.
- 2) Order fuses as required per Table 26.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

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### **GMT Type Load Distribution Fuses**

#### **Features**

- ◆ An optional “Bullet Nose Type 6-Position GMT Distribution Fuse Block, P/N 549017” is available for additional load distribution.

#### **Restrictions**

When used for power distribution, load should not exceed 80% of device rating, except 10 and 15 amp fuses, for which load should not exceed 70% of device rating.

#### **Ordering Notes**

- 1) Order fuses as required per Table 26.

<b>Ampere Rating</b>	<b>Part Number</b>	<b>Fuse Color</b>
18/100 (GMT-A)	248610301	---
1/4	248610200	VIOLET
1/2	248610300	RED
3/4	248610500	BROWN
1-1/3	248610700	WHITE
2	248610800	ORANGE
3	248610900	BLUE
5	248611000	GREEN
7-1/2	248611300	BLACK-WHITE
10	248611200	RED-WHITE
15	248611500	RED-BLUE
Replacement Safety Fuse Cover (GMT-Y)	102774	---
Replacement Dummy Fuse	248872600	---

Table 26  
GMT Fuses

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

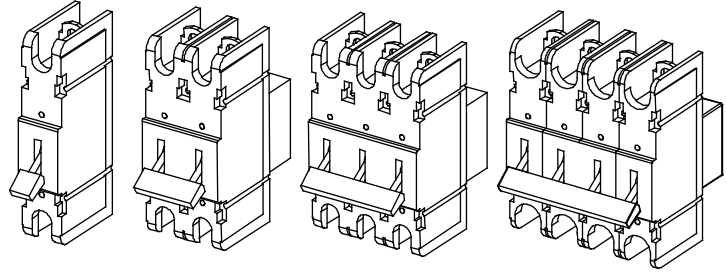
### GJ/218 Type Circuit Breakers

#### Restrictions

For use in Lists AC, AD, AM, AP, BC, and BD.  
 Load should not exceed 80% of device rating.  
 Refer to Table 27 for required distribution row mounting positions.

#### Ordering Notes

- 1) Order circuit breakers as required per Table 27.
- 2) Order a jumper kit as required for each circuit breaker per Table 27.
- 3) See Table 51 for recommended load distribution wire sizes and lugs.



GJ/218 Circuit Breakers

Ampere Rating	No. of Positions	P/N Electrical/ Mechanical Trip <sup>1</sup> without Internal Shunt	P/N Electrical Trip <sup>2</sup> without Internal Shunt	Breaker Mounting Kit (without Shunt)	P/N Electrical/ Mechanical Trip <sup>1</sup> with Internal Shunt (25 mV @ full rated load) <sup>3</sup>	P/N Electrical Trip <sup>2</sup> with Internal Shunt (25 mV @ full rated load) <sup>3</sup>	Breaker Mounting Kit (with Shunt)
100	1	256621700	256621300	503787	123580	516184	513731
125	1	256621600	256621400	503787	123631	516187	513731
150	1	256621800	256622400	503787	123632	516185	513731
175	1	256621900	256622500	503787	123633	516186	513731
200	1	256622200	256622600	503787	123634	516188	513731
225	1	256622900	256622700	503787	123635	516189	513731
250	1	256623500	256623400	503787	123636	516190	513731
300	2	256625300	103572	513961	550250	550253	554092
400	2	256626200	256626300	513961	550251	550254	554092
600	3	256628200	103571	513957	550252	550255	554093
800	4	121657	121658	554091	--	550249	554094

<sup>1,2</sup> Circuit Breaker Alarm Operation:

<sup>1</sup> Provides an alarm during an electrical or manual trip condition.

<sup>2</sup> Provides an alarm during an electrical trip condition only.

<sup>3</sup> Extended shunt leads are 22 AWG stranded wire, approximately 7-10 ft. long from exit point at bottom of distribution cabinet. Each shunt lead is equipped with a 49.9 ohm current limiting resistor. Shunt leads are factory wired to SM-DU+ (if ordered).

**Note:** Electrical Trip only circuit breakers are not typically used for battery disconnect circuit breakers.

Table 27  
GJ/218 Circuit Breakers

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

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### TPH Type Fuses

#### Restrictions

For use in Lists AF, AH, BF, and BH.

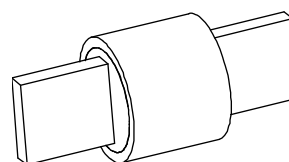
Load should not exceed 80% of device rating.

#### Ordering Notes

- 1) Order fuses as required per Table 28.
- 2) See Table 51 for recommended load distribution wire sizes and lugs.

Ampere Rating	Part Number
70	119437
80	119438
100	119440
150	119581
200	119582
225	119583
250	119584
300	119585
400	119586
500	119587
600	119588

Table 28  
TPH Fuses



TPH Fuse

### User Replaceable Alarm, Reference, and Control Fuses

#### Ordering Notes

- 1) Order replacement fuses as required per Table 29.

Assembly	Desig.	Function	Size (Amperes)	Type	Part No.
Distribution Panel with TPH Fuse Block(s)	FA	Fuse Alarm	1/4	Bussmann GMT	248610200
	--	--	--	Safety Fuse Cover (GMT-X)	248898700
TPS/TLS Fuseholders (P/N 117201)	FA	Fuse Alarm	18/100	Bussmann GMT-A	248610301
	--	--	--	Safety Fuse Cover (GMT-X)	248898700

Table 29  
User Replaceable Alarm, Reference, and Control Fuses



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### User Replaceable Components

#### Ordering Notes

- 1) Refer to the following table. Refer to the separate rectifier and converter descriptions in this section for their part numbers.

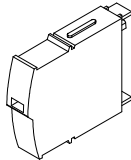
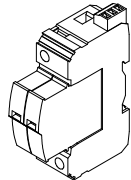
Item	Part Number	
NCU Controller	All Lists Except Lists 600, 601, 900, 901: 1M830DNA (order with appropriate software configuration.) Lists 600, 601, 900, 901: 1M830BNA (order with appropriate software configuration.)	
IB4 Second Ethernet Port Board	558076	
SM-DU	SMDU	
System Interface Board	556166 (all Lists except List 100, 101, 102, 203, 600, 601, 900, 901, 500, 501, 502, 503) 562662 (List 100, 101, 102, 203, 500, 501, 502, 503) 555484 (List 600, 601, 900, 901)	
IB2 Interface Board	MA4C5U31	
EIB Extended Interface Board	MA455U41	
Temp Probe Sensor	552822	
SM-DU+ with Shunt Interface Board	548078	
LVD Driver Circuit Card	563696 (Main Bay) and 563718 (Supplemental Bay)	
LVD Driver Lite Circuit Card	547873 (Main Bay) and 547874 (Supplemental Bay)	
Manual Battery Disconnect Circuit Card	540973	
Disconnect Contactor, 600 A	545468DCP (List LL, List CA)	
Disconnect Contactor, 1200 A	537496 (List CB, List 100, List 101, List 102, List 103, List 203, List 500, List 501, List 502, List 503, List 600, List 900)	
Disconnect Contactor, 2000 A	549026 (List CC)	
List 100, 101, 102, 203, 500, 501, 502, and 503 only: SPD (Surge Protection Device) Replacement Plug-in Module (Replacement module for SPD P/N 10034885. Each SPD P/N 10034885 has two P/N 10035033 replacement modules. Both modules should be replaced at the same time.)	10035033	
List 100, 101, 102, 203, 500, 501, 502, and 503 only: SPD (Surge Protection Device) Replacement Assembly (includes SPD mounting base with two installed P/N 10035033 SPD plug-in modules.)	10034885	

Table 30  
User Replaceable Components

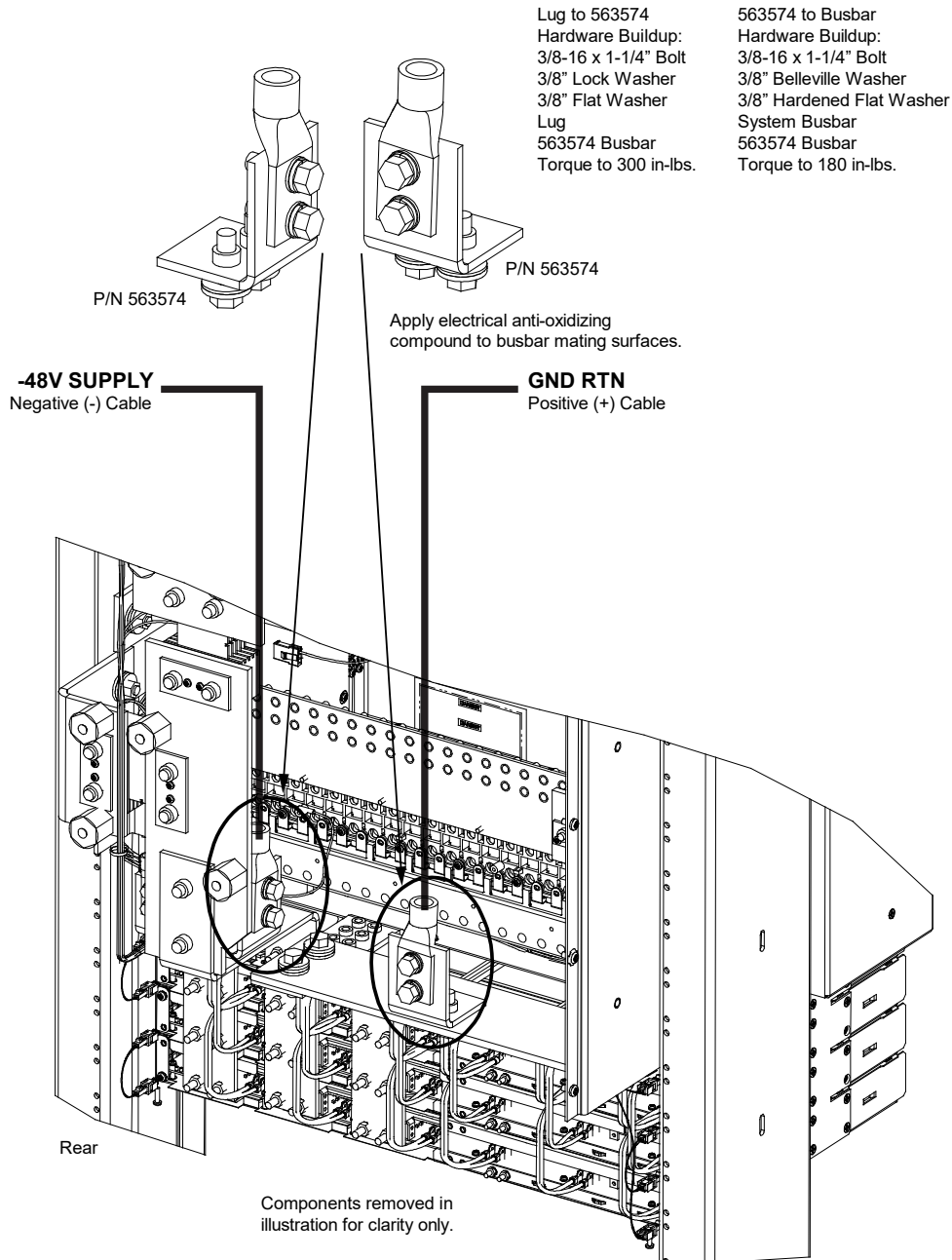
**Replacement Bay-to-Bay Interconnect Cable**

**Ordering Notes**

- 1) For a replacement cable, order P/N 514640 (25' Cat5 communications cable terminated in RJ-45 connectors).

**Special Application Rectifier Bus Landing Point Kit P/N 563686**

Special application rectifier bus landing point kit P/N 563686 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. Kit P/N 563686 includes two (2) P/N 563574 Bus Landing Point Assemblies. When installed, the kit provides rectifier bus landing points for 500 kcmil cables.



**Generator Input Circuit Breaker Kit P/N 564219**

Kit P/N 564219 is available for use with List 100, 101, 102, 203, 500, 501, 502, and 503. This kit provides the components to install a 400 A circuit breaker to feed the rectifier output bus of the power system through a shunt. A customer connects an external generator output to this circuit breaker which then supplies generator input power to the system. For field installation, refer to IM564219. For wiring a generator to the circuit breaker, refer to Figure 1.

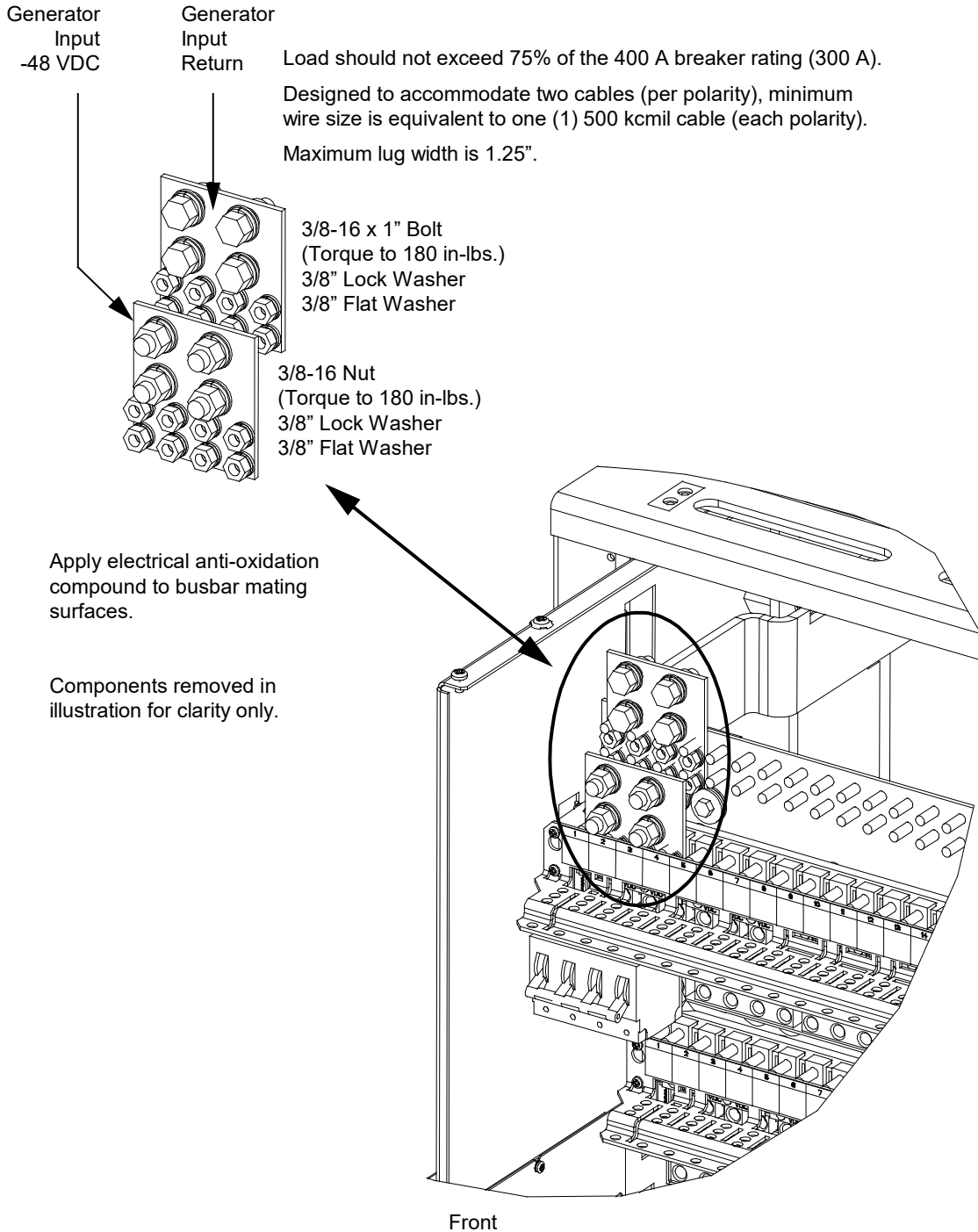


Figure 1  
Wiring Input Generator Kit P/N 564219

## RECOMMENDED WIRE SIZES, BRANCH CIRCUIT PROTECTION, CRIMP LUGS, AND WIRING ILLUSTRATIONS

### Relay Rack and Equipment Enclosure Frame Grounding Requirements

For relay rack and equipment enclosure frame grounding requirements, refer to the current edition of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC), applicable local codes, and your specific site requirements.

A customer's grounding network lead can be attached to the top of each relay rack or equipment enclosure. Provision is made for installing a lead with a two-hole lug that has 1/4" bolt clearance holes on 5/8" centers. Refer to Table 19 for lug selection.

### List 600, 601, 900, 901 Power System Shelf Frame Grounding Requirements

For List 600, 601, 900, 901 power system shelf frame grounding requirements, refer to the current edition of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC), applicable local codes, and your specific site requirements.

The frame grounding connection to the power system shelf is made by using grounding washers with the mounting hardware used to secure the power system shelf to the relay rack or equipment cabinet. Refer to the system installation manual for a procedure. Ensure that the relay rack or equipment cabinet is properly grounded.

Two sets of frame grounding studs are also provided on the rear of the power system shelf. These provide for the installation of a lead with a two-hole lug that has 1/4-inch bolt clearance holes on 5/8-inch centers. Connect a frame grounding lead to one set of studs as required. Refer to Figure 2 for location and recommended torque for this connection.

Recommended frame ground wire size is 6 AWG.

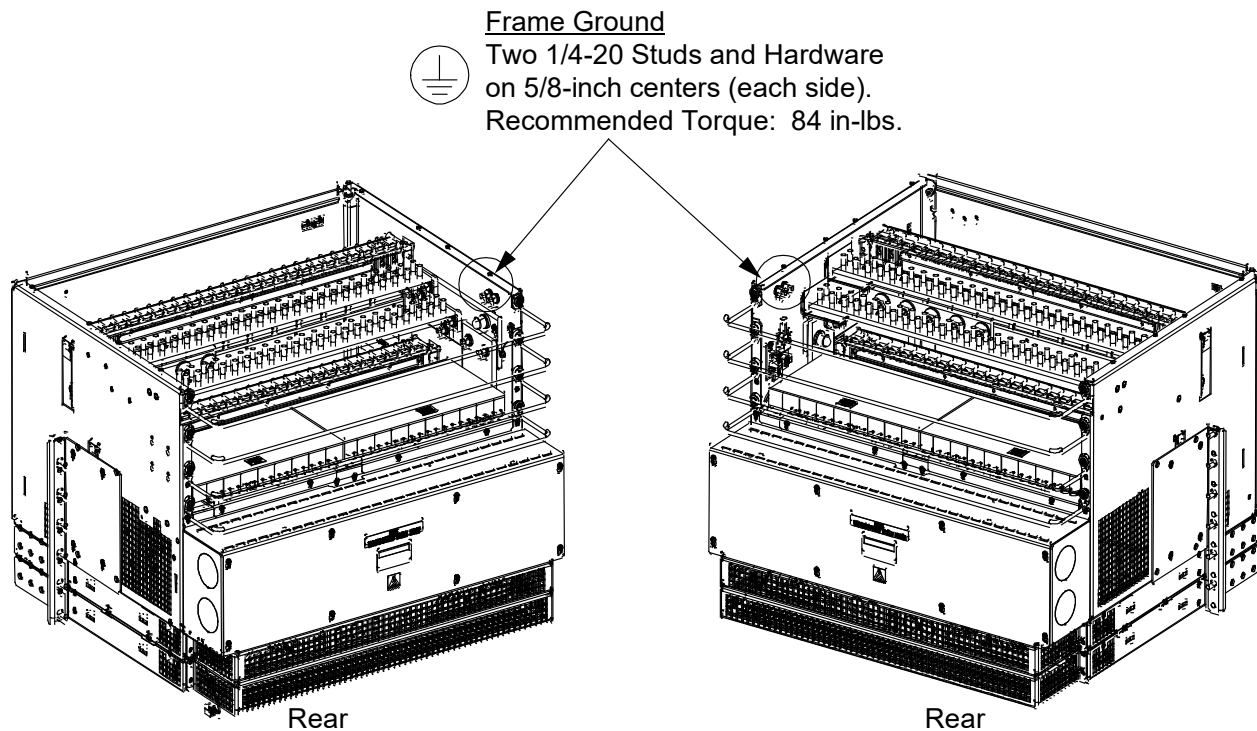


Figure 2  
List 600, 601, 900, 901 Power System Shelf Frame Ground Connection

### SPD (Surge Protection Device) (if equipped) Earth Ground Connection

A landing point is provided on the top of the distribution cabinet for an SPD (Surge Protection Device) (if installed) earth ground lead. If installed, the SPD (Surge Protection Device) Assemblies are located on the underneath side of the distribution cabinet top cover panel. A busbar accessed from the top of the distribution cabinet is provided for the SPD earth ground connection. The busbar has two (2) 1/4 20 x 1/2" long threaded studs on 5/8" centers. A 2-hole, 5/8" centers, 1/4" hardware, 2 AWG flex wire crimp lug is provided with the power system. An opening in the top cover permits the compression lug to be routed either to the left or to the right. Refer to Figure 3.

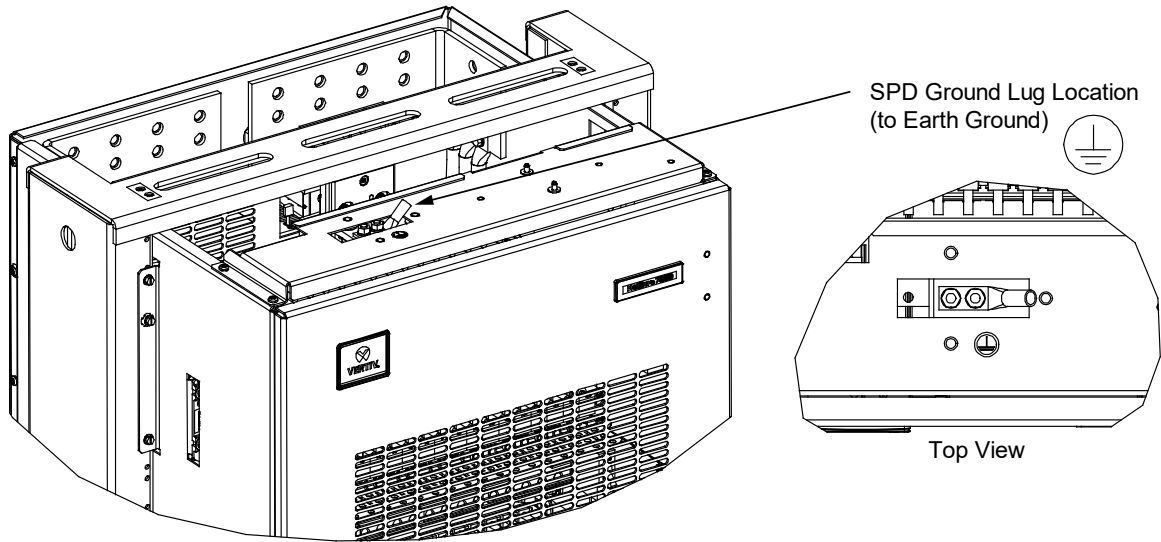


Figure 3  
SPD (Surge Protection Device) Earth Ground Connection (if equipped)

### **Field Installed Module Mounting Assembly Shelf Frame Grounding Connection**

#### **Spec. No. 588705300 and 588705400**

Located on the rear of the module mounting assembly are terminals for a ground connection (M4 hardware included). See Figure 4, Figure 5, Figure 6, Figure 7.

For module mounting assembly grounding requirements, refer to the current edition of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC), applicable local codes, and your specific site requirements.

## Rectifier AC Input Connections

### **AC Input Branch Circuit Protection and Wire Size Selection for AC Input Termination Assembly List 40, 41, 42 when used with 588705300 Module Mounting Assemblies with Rectifiers**

Refer to the following tables for recommended wire sizes and branch circuit protection.

<b>AC Input to List 40 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, Single Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 1 Rectifier" Single Phase Input Terminations (System with Spec. No. 58870530001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(7)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(2) (3) (4)</sup>	Conduit Size <sup>(5) (6)</sup>
208 VAC	10 A	15 A	14 AWG	3/4"
240 VAC	8.8 A	15 A	14 AWG	3/4"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>3</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> THHN 90°C Wire.
- <sup>5</sup> System with Four (4) Spec. No. 588705300 Rectifier Module Assemblies: Conduit sized for twelve (12) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>6</sup> System with Five (5) Spec. No. 588705300 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for twelve (12) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>7</sup> Input current based on R48-2000e3 rectifier module.

Table 31  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 40 "1 AC Feed per 1 Rectifier – Single Phase" AC Input Termination Assembly,  
System with Spec. No. 58870530001 Rectifier Module Assemblies

<b>AC Input to List 41 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, Single Phase, 50 Hz / 60 Hz) Provides “1 AC Feed per 2 Rectifiers” Single Phase Input Terminations (System with Spec. No. 58870530001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(8)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (5)</sup>	Conduit Size <sup>(6) (7)</sup>
208 VAC	20 A	25 A <sup>(2)</sup>	10 AWG	3/4”
240 VAC	17.5 A	25 A <sup>(2)</sup>	10 AWG	3/4”

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 30 A.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association’s (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> THHN 90°C Wire.
- <sup>6</sup> System with Four (4) Spec. No. 588705300 Rectifier Module Assemblies: Conduit sized for four (4) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for four (4) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>7</sup> System with Five (5) Spec. No. 588705300 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> Input current based on R48-2000e3 rectifier module.

Table 32  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 41 “1 AC Feed per 2 Rectifiers – Single Phase” AC Input Termination Assembly,  
System with Spec. No. 58870530001 Rectifier Module Assemblies



<b>AC Input to List 42 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, Three Phase, 50 Hz / 60 Hz) Provides “1 AC Feed per 3 Rectifiers” 3 Phase Input Terminations (System with Spec. No. 58870530001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(8)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (5)</sup>	Conduit Size
208 VAC	17.5 A	25 A <sup>(2)</sup>	10 AWG	1/2" <sup>(6)</sup> 3/4" <sup>(7)</sup>
240 VAC	15 A	20 A <sup>(2)</sup>	12 AWG	1/2" <sup>(6) (7)</sup>

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 30 A.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association’s (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> THHN 90°C Wire.
- <sup>6</sup> System with Four (4) Spec. No. 588705300 Rectifier Module Assemblies: Conduit sized for three (3) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for three (3) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>7</sup> System with Five (5) Spec. No. 588705300 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> Input current based on R48-2000e3 rectifier module.
- <sup>9</sup> The three-phase input is internally distributed within the system to provide a single-phase line to line connection to each rectifier position, evenly distributed across the three phases.

Table 33  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 42 “1 AC Feed per 3 Rectifiers – Three Phase” AC Input Termination Assembly,  
System with Spec. No. 58870530001 Rectifier Module Assemblies

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### **AC Input Branch Circuit Protection and Wire Size Selection for AC Input Termination Assembly List 40, 41, 42, 43 when used with 588705400 Module Mounting Assemblies with Rectifiers**

Refer to the following tables for recommended wire sizes and branch circuit protection.

<b>AC Input to List 40 AC Input Termination Assembly                      (Nominal 208 VAC, 240 VAC, 277 VAC, Single Phase, 50 Hz / 60 Hz)                      Provides "1 AC Feed per 1 Rectifier" Single Phase Input Terminations                      (System with Spec. No. 58870540001 Rectifier Module Assembly)</b>				
Input Voltage	Input Current <sup>(5)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (6)</sup>	Conduit Size <sup>7</sup>
208 VAC	17.9 A	25 A <sup>(2)</sup>	10 AWG	3/4" <sup>(7)</sup>
240 VAC	15.5 A	20 A	10 AWG	1" <sup>(8) (9)</sup>
277 VAC	13.5 A	20 A	10 AWG	1" <sup>(8) (9)</sup>

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 30 A @ 40 °C.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> Input current based on R48-3500e3 rectifier module.
- <sup>6</sup> THHN 90°C Wire.
- <sup>7</sup> System with Five (5) Spec. No. 588705400 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for eight (8) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for four (4) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> System with Five (5) Spec. No. 588705400 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for twelve (12) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes. Five (5) factory wired rectifier shelves is the maximum number of shelves available in the relay rack version of the equipment. The sixth rectifier shelf must be an expansion shelf.
- <sup>9</sup> System with Six (6) Spec. No. 588705400 Rectifier Module Assemblies: Conduit sized for twelve (12) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes. Six (6) factory wired and installed rectifier shelves are only available with the enclosure version of the equipment and must be used with the five (5) 3/4 inch conduit opening plate option.

Table 34  
 Recommended AC Input Branch Circuit Protection and Wire Size when Using  
 List 40 "1 AC Feed per 1 Rectifier – Single Phase" AC Input Termination Assembly,  
 System with Spec. No. 58870540001 Rectifier Module Assemblies

<b>AC Input to List 41 AC Input Termination Assembly</b> <b>(Nominal 208 VAC, 240 VAC, 277 VAC, Single Phase, 50 Hz / 60 Hz)</b> <b>Provides "1 AC Feed per 2 Rectifiers" Single Phase Input Terminations</b> <b>(System with Spec. No. 58870540001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(5)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (6)</sup>	Conduit Size
208 VAC	35.8 A	45 A	8 AWG	3/4" <sup>(7)</sup> 1" <sup>(8)</sup>
240 VAC	31.0 A	40 A <sup>(2)</sup>	8 AWG	3/4" <sup>(7)</sup> 1" <sup>(8)</sup>
277 VAC	27.0 A	35 A <sup>(2)</sup>	8 AWG	3/4" <sup>(7)</sup> 1" <sup>(8)</sup>

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 45 A @ 40 °C.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> Input current based on R48-3500e3 rectifier module.
- <sup>6</sup> THHN 90°C Wire.
- <sup>7</sup> System with Five (5) Spec. No. 588705400 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for four (4) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for four (4) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> System with Six (6) Spec. No. 588705400 Rectifier Module Assemblies: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.

Table 35  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 41 "1 AC Feed per 2 Rectifiers – Single Phase" AC Input Termination Assembly,  
System with Spec. No. 58870540001 Rectifier Module Assemblies

<b>AC Input to List 42 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, Three Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 3 Rectifiers" 3 Phase Input Terminations <sup>(9)</sup> (System with Spec. No. 58870540001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(5)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (6)</sup>	Conduit Size <sup>(7) (8)</sup>
208 VAC	31 A	40 A <sup>(2)</sup>	8 AWG	1"
240 VAC	27 A	35 A <sup>(2)</sup>	8 AWG	1"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 45 A @ 40 °C.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> Input current based on R48-3500e3 rectifier module.
- <sup>6</sup> THHN 90°C Wire.
- <sup>7</sup> System with Five (5) Spec. No. 588705400 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> System with Six (6) Spec. No. 588705400 Rectifier Module Assemblies: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>9</sup> The three-phase input is internally distributed within the system to provide a single-phase line to line connection to each rectifier position, evenly distributed across the three phases.

Table 36  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 42 "1 AC Feed per 3 Rectifiers – Three Phase" AC Input Termination Assembly,  
System with Spec. No. 58870540001 Rectifier Module Assemblies

<b>AC Input to List 43 AC Input Termination Assembly (Nominal 277/480 VAC, Three Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 3 Rectifiers" 3 Phase Input Terminations <sup>(8)</sup> (System with Spec. No. 58870540001 Rectifier Module Assemblies)</b>				
Input Voltage	Input Current <sup>(4)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(2) (3) (5)</sup>	Conduit Size <sup>(6) (7)</sup>
277/480 VAC	13.5 A	20 A	12 AWG	3/4"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>3</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Input current based on R48-3500e3 rectifier module.
- <sup>5</sup> THHN 90°C Wire.
- <sup>6</sup> System with Five (5) Spec. No. 588705400 Rectifier Module Assemblies / Assembly #6 is an Expansion Assembly: Conduit sized for six (6) current carrying conductors, two (2) neutrals, and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>7</sup> System with Six (6) Spec. No. 588705400 Rectifier Module Assemblies: Conduit sized for six (6) current carrying conductors, two (2) neutrals, and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>8</sup> The three-phase input is internally distributed within the system to provide a single-phase line to neutral connection to each rectifier position, evenly distributed across the three phases. If there is an input phase imbalance, the neutral may be carrying current up to the highest value of the line currents.

Table 37  
Recommended AC Input Branch Circuit Protection and Wire Size when Using  
List 43 "1 AC Feed per 3 Rectifiers – Three Phase" AC Input Termination Assembly,  
System with Spec. No. 58870540001 Rectifier Module Assemblies

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## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 40 Illustration when Used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 1 Rectifier, Single Phase)

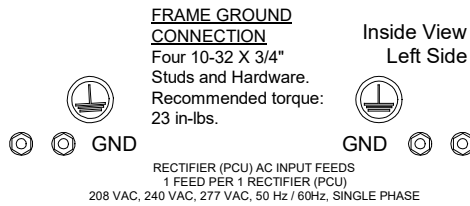
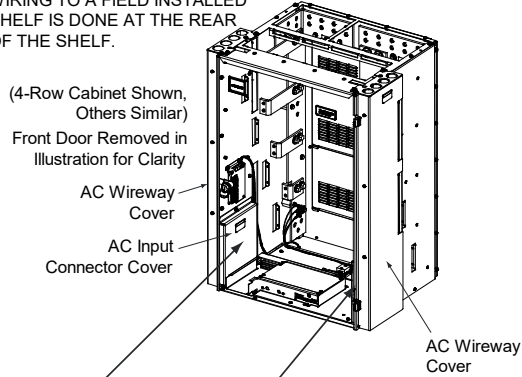
#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 1 RECTIFIER, SINGLE PHASE  
(582127000 LIST 40)

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

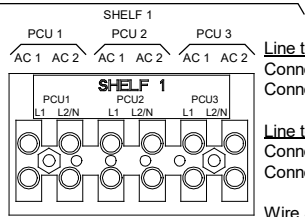
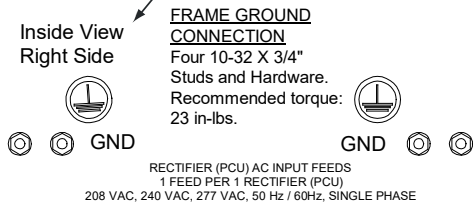
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5

Rectifier Module (PCU) Mounting Slots

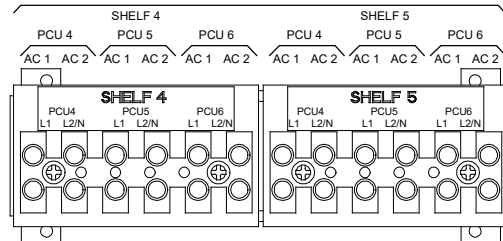
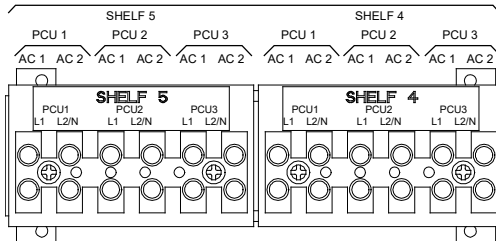
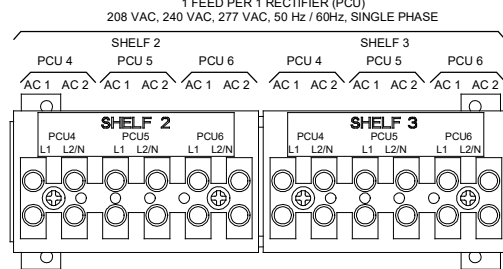
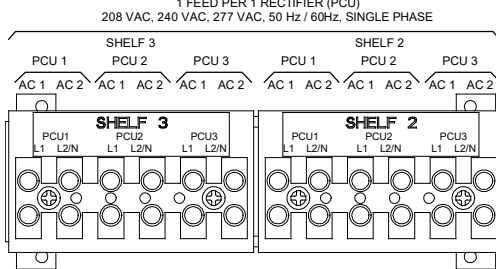
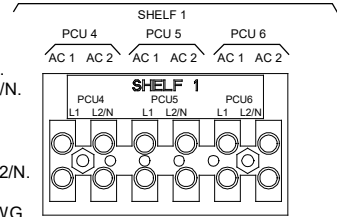


Inside View Left Side

Inside View Right Side



Wire Size Capacity: 10-24 AWG.  
Recommended Torque: 10 in-lbs.



Note: For fewer power shelves than shown, only the connections for the installed shelves are present.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with Five (5) Shelves Installed

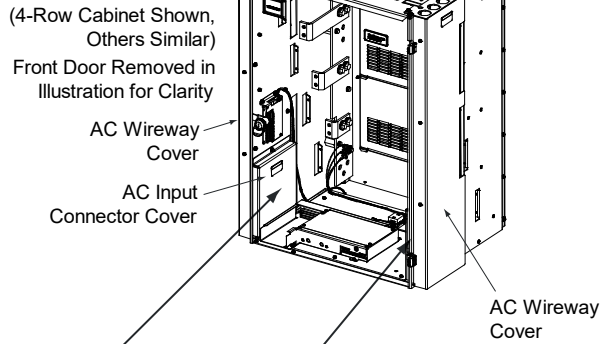
#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Five (5) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5

Rectifier Module (PCU) Mounting Slots

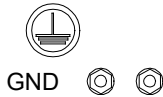


#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



#### Inside View Left Side

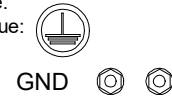


#### Inside View Right Side



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



#### Line to Line:

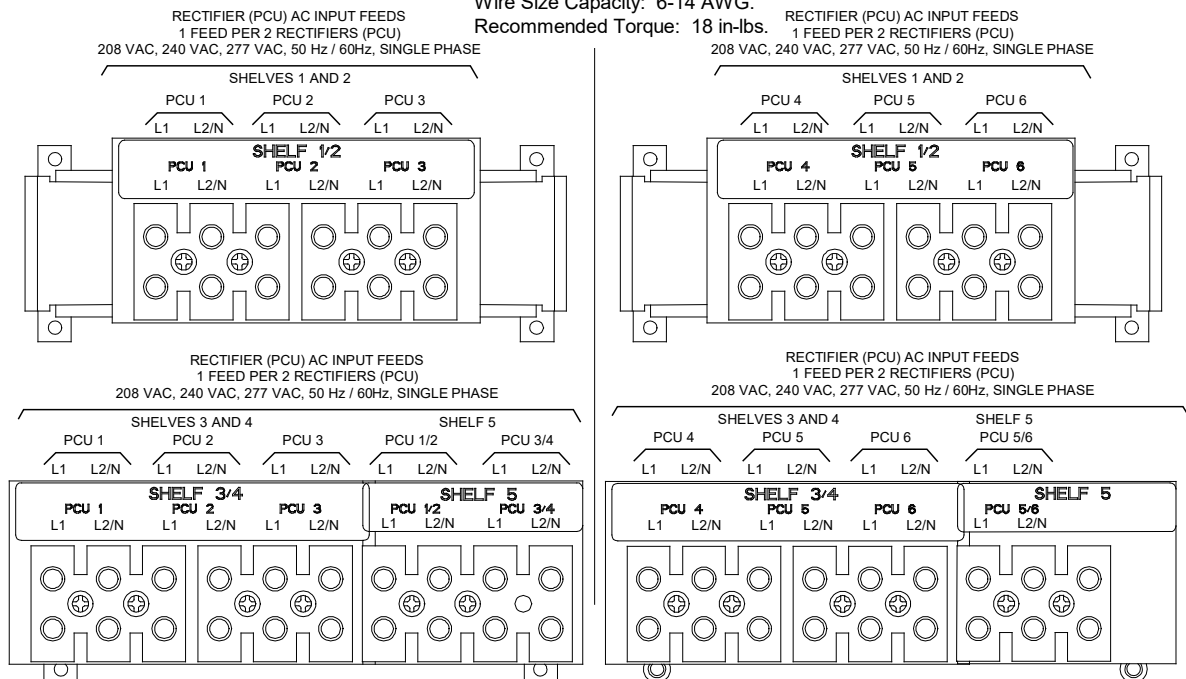
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

#### Line to Neutral:

Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

Wire Size Capacity: 6-14 AWG.

Recommended Torque: 18 in-lbs.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with Four (4) Shelves Installed

#### Installed in a Relay Rack

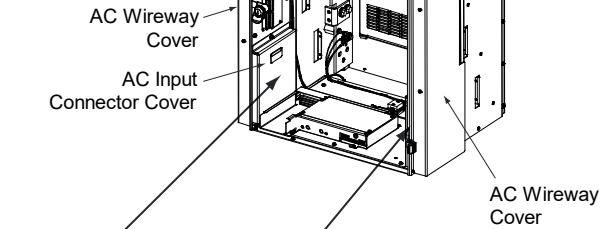
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Four (4) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1	
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #4

Rectifier Module (PCU) Mounting Slots

(4-Row Cabinet Shown,  
Others Similar)  
Front Door Removed in  
Illustration for Clarity

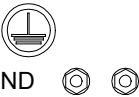


#### FRAME GROUND CONNECTION

Four 10-32 X 3/4"  
Studs and Hardware.  
Recommended torque:  
23 in-lbs.



#### Inside View Left Side

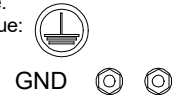


#### Inside View Right Side



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4"  
Studs and Hardware.  
Recommended torque:  
23 in-lbs.

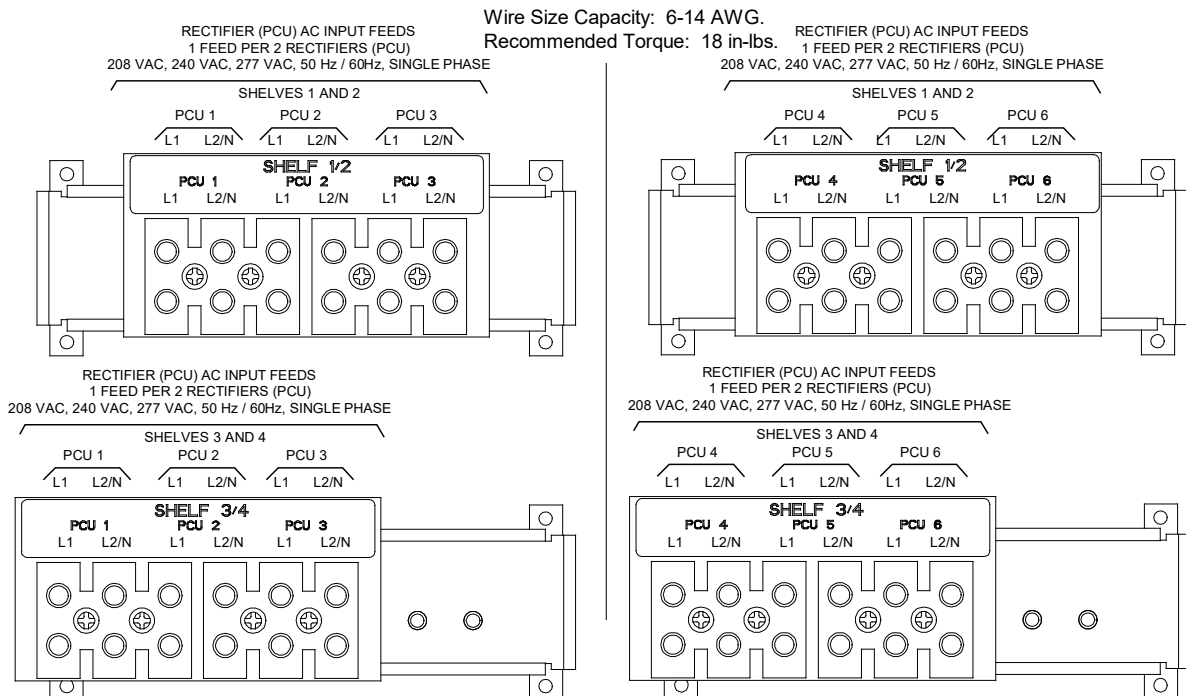


#### Line to Line:

Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

#### Line to Neutral

Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.





# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with Three (3) Shelves Installed

#### Installed in a Relay Rack

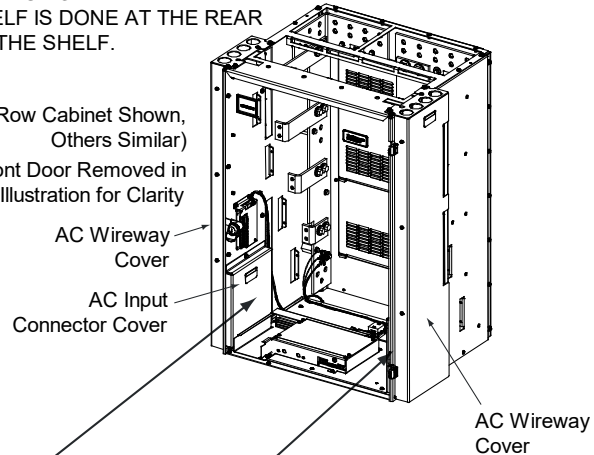
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Three (3) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1	
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #3

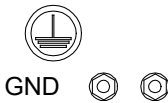
Rectifier Module (PCU) Mounting Slots

(4-Row Cabinet Shown, Others Similar)  
Front Door Removed in Illustration for Clarity



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

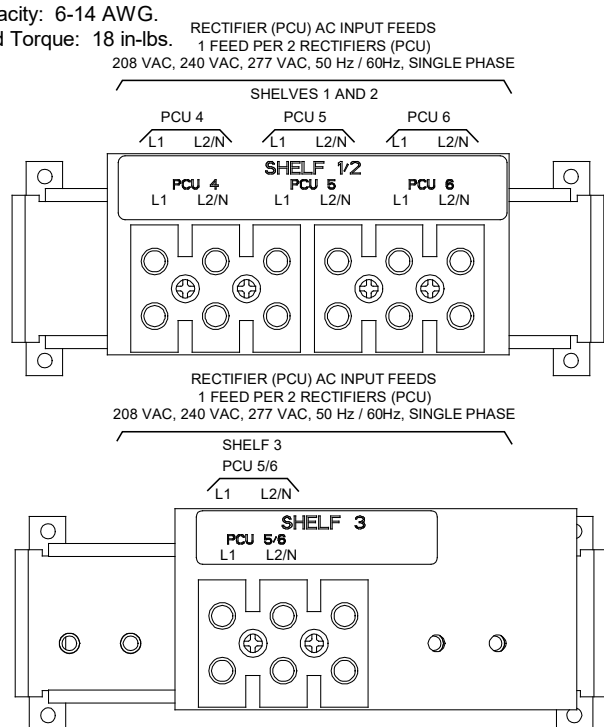
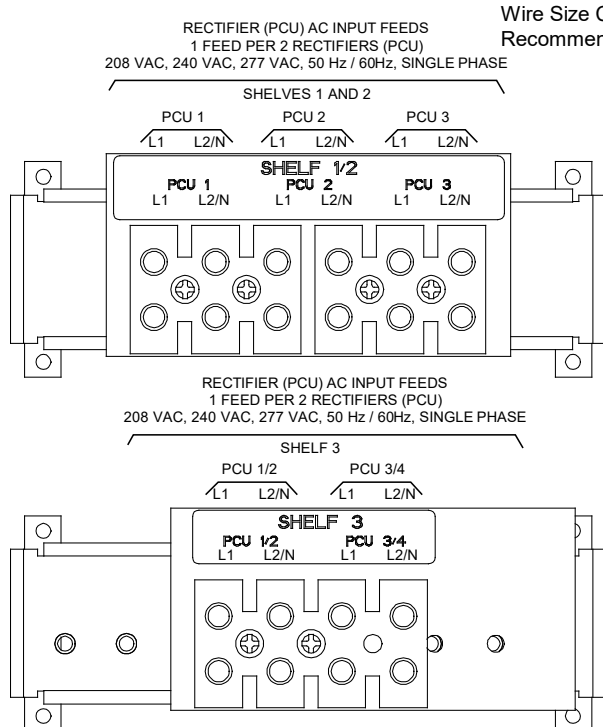
#### Inside View Right Side

#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



Line to Neutral:  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with Two (2) Shelves Installed

#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Two (2) Shelves Installed

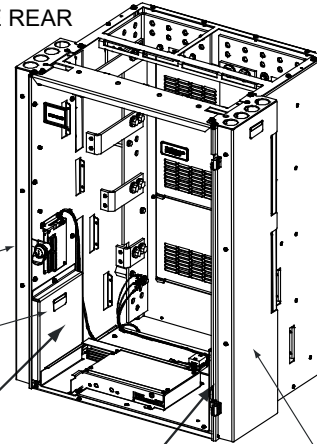
NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2

Rectifier Module (PCU) Mounting Slots

(4-Row Cabinet Shown,  
Others Similar)  
Front Door Removed in  
Illustration for Clarity

AC Wireway  
Cover  
AC Input  
Connector Cover



AC Wireway  
Cover

#### FRAME GROUND CONNECTION

Four 10-32 X 3/4"  
Studs and Hardware.  
Recommended torque:  
23 in-lbs.



#### Inside View Left Side



#### Inside View Right Side



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4"  
Studs and Hardware.  
Recommended torque:  
23 in-lbs.

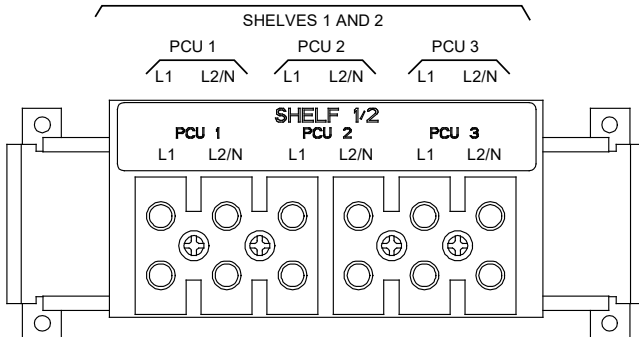


Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

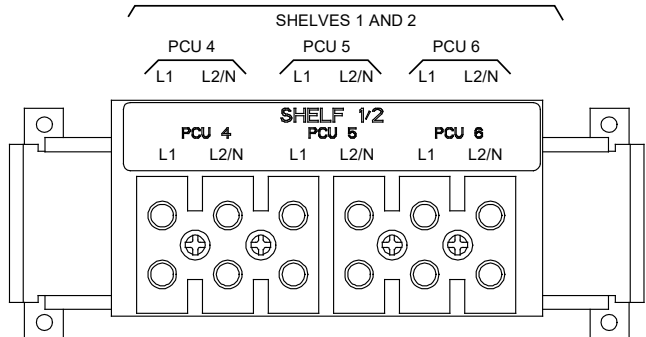
Line to Neutral:  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

Wire Size Capacity: 6-14 AWG.  
Recommended Torque: 18 in-lbs.

RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60Hz, SINGLE PHASE



# Vertiv™ NetSure™ 7100 DC Power System

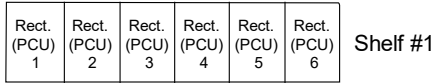
## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705300 (Nominal 208 VAC, 240 VAC) or 588705400 (Nominal 208 VAC, 240 VAC, 277 VAC) Module Mounting Assemblies with Rectifiers (1 Feed per 2 Rectifiers, Single Phase) - with One (1) Shelf Installed

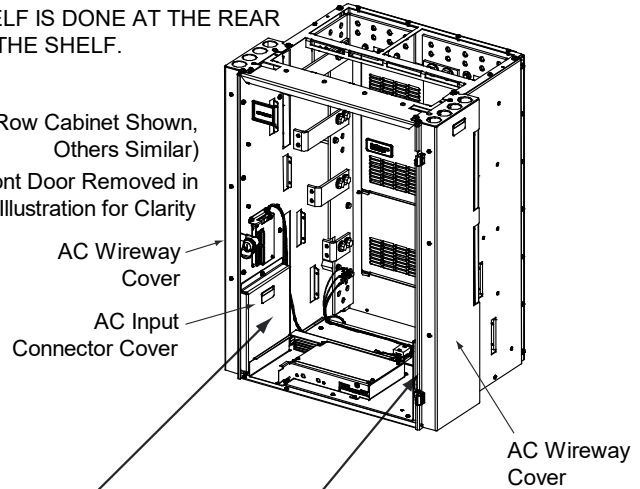
#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with One (1) Shelf Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.



(4-Row Cabinet Shown, Others Similar)  
Front Door Removed in Illustration for Clarity



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



#### Inside View Left Side



#### Inside View Right Side



#### FRAME GROUND CONNECTION

Four 10-32 X 3/4" Studs and Hardware.  
Recommended torque: 23 in-lbs.



#### Line to Line:

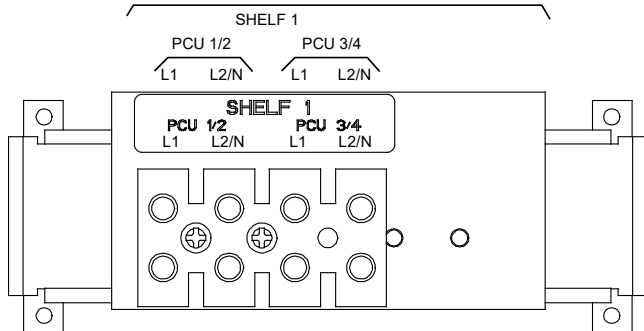
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

#### Line to Neutral

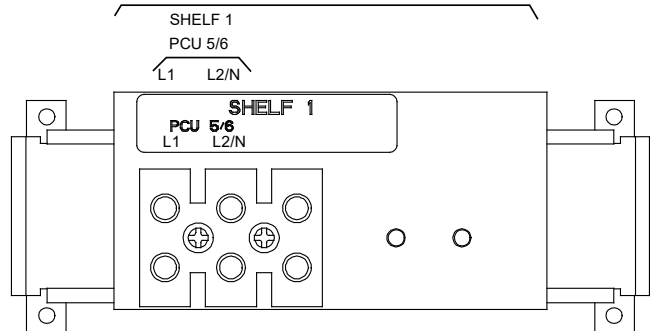
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

Wire Size Capacity: 6-14 AWG.  
Recommended Torque: 18 in-lbs.

RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60Hz, SINGLE PHASE



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 42 Illustration when used with 588705300 or 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC) (1 Feed per 3 Rectifiers, Three Phase)

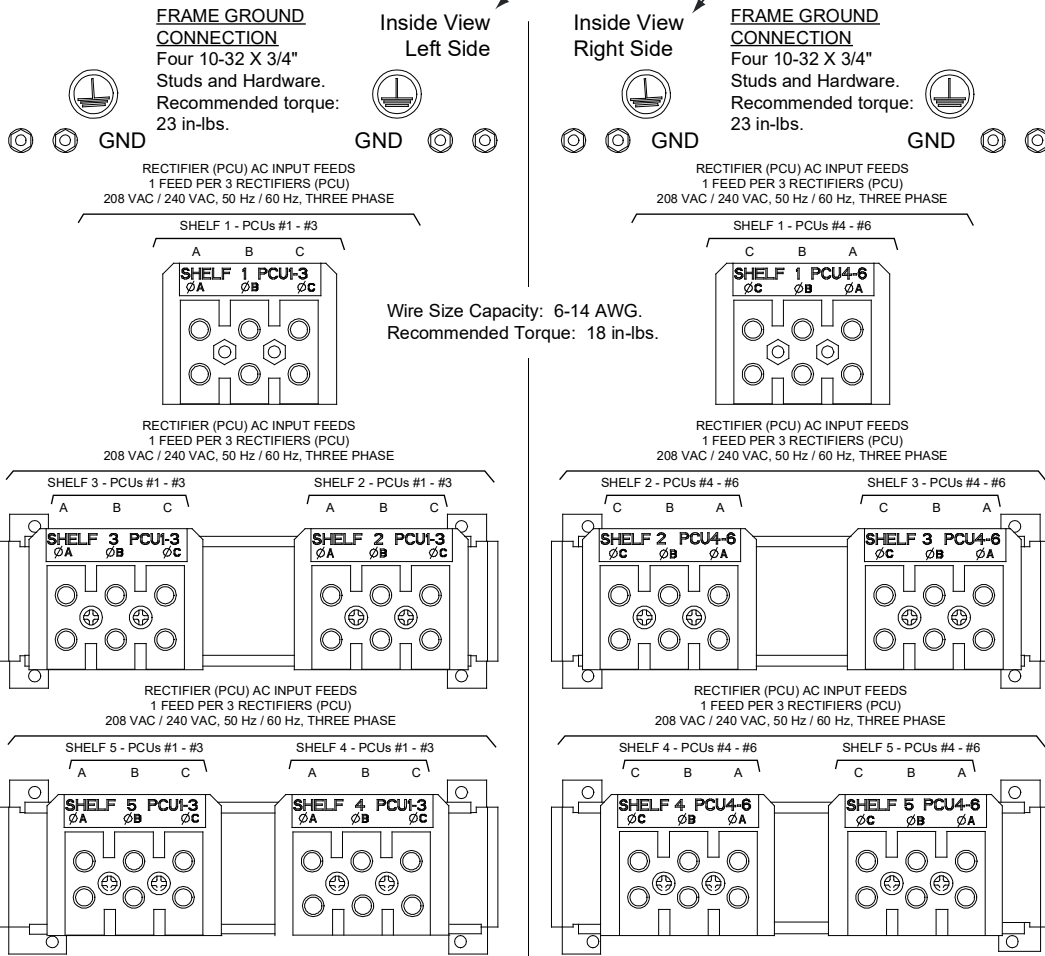
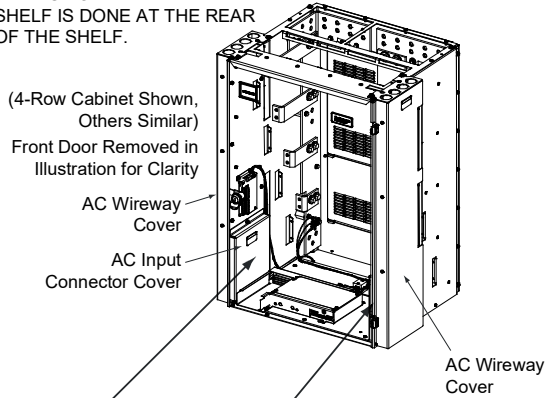
#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 3 RECTIFIERS, THREE PHASE  
(582127000 LIST 42)

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5

Rectifier Module (PCU) Mounting Slots



Note: For fewer power shelves than shown, only the connections for the installed shelves are present.

Note: The three-phase input is internally distributed within the system to provide a single-phase line to line connection to each rectifier position, evenly distributed across the three phases.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 43 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 277/480 VAC) (1 Feed per 3 Rectifiers, Three Phase)

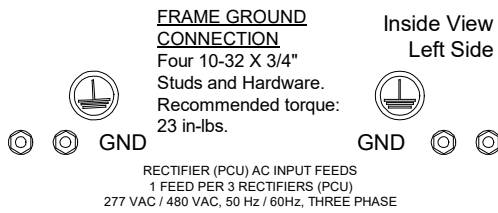
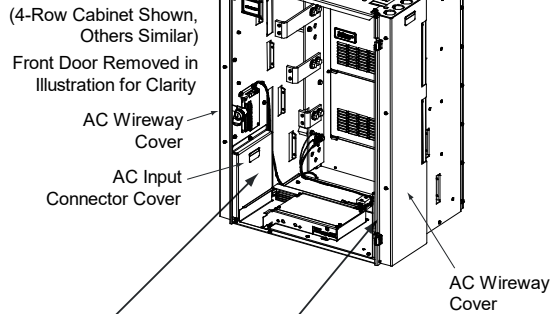
#### Installed in a Relay Rack

AC INPUT CONNECTIONS,  
1 FEED PER 3 RECTIFIERS, THREE PHASE  
(582127000 LIST 43)

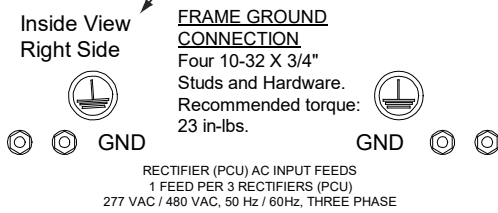
NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5

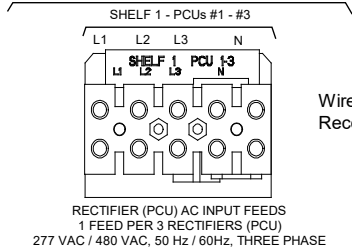
Rectifier Module (PCU) Mounting Slots



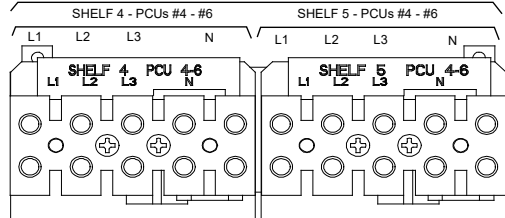
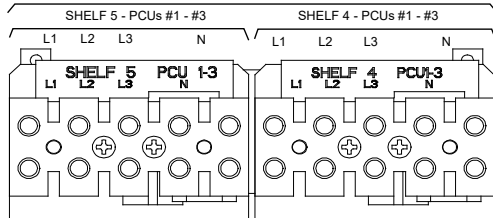
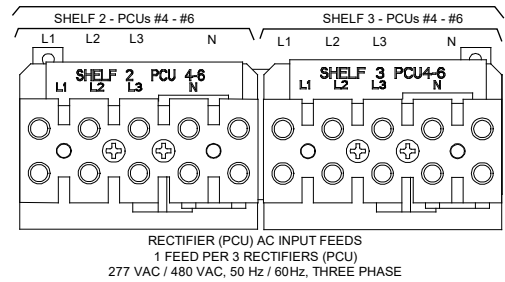
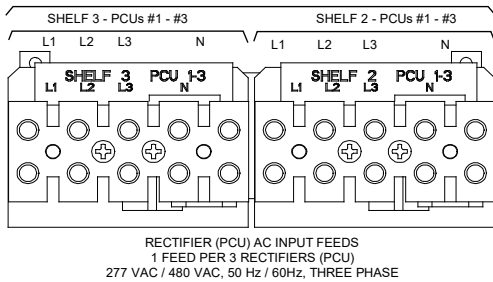
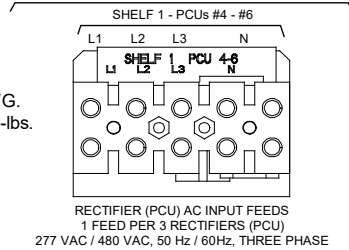
Inside View  
Left Side



Inside View  
Right Side



Wire Size Capacity: 6-14 AWG.  
Recommended Torque: 18 in-lbs.



Note: For fewer power shelves than shown, only the connections for the installed shelves are present.

Note: The three-phase input is internally distributed within the system to provide a single-phase line to neutral connection to each rectifier position, evenly distributed across the three phases.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 40 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 1 Rectifier, Single Phase)

#### Installed in an Enclosure

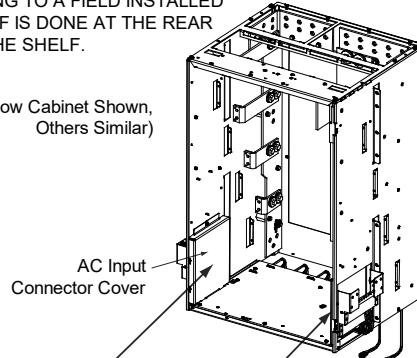
AC INPUT CONNECTIONS,  
1 FEED PER 1 RECTIFIER, SINGLE PHASE  
(582127000 LIST 40)

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #6

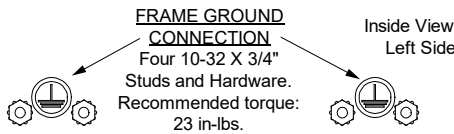
Rectifier Module (PCU) Mounting Slots

NOTE:  
WIRING TO A FIELD INSTALLED SHELF IS DONE AT THE REAR OF THE SHELF.

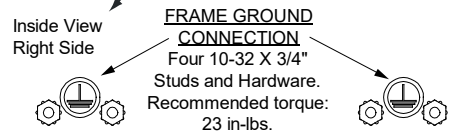
(4-Row Cabinet Shown, Others Similar)



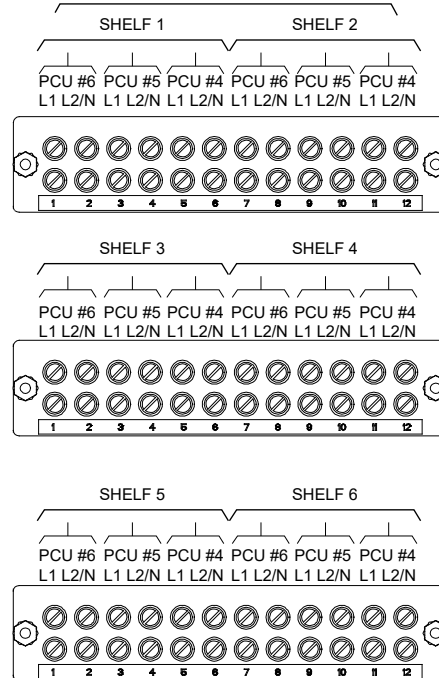
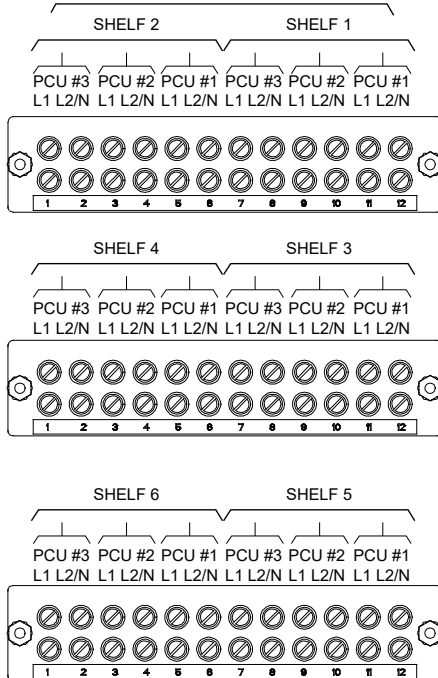
Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 1 RECTIFIER (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 1 RECTIFIER (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with Six (6) Shelves Installed

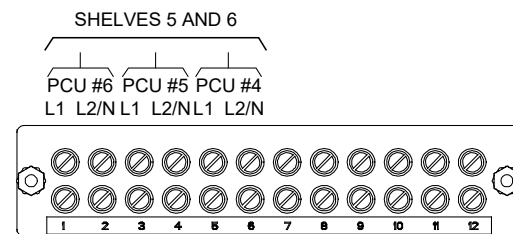
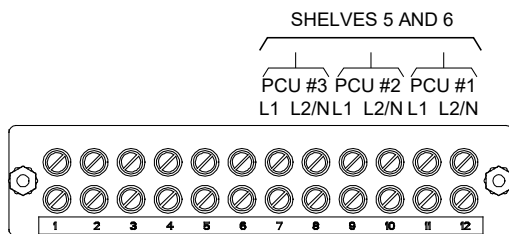
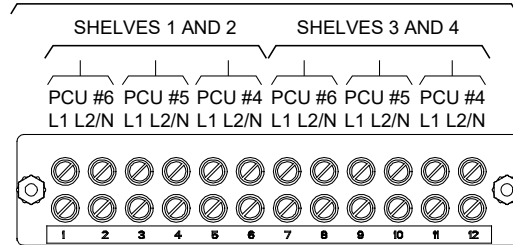
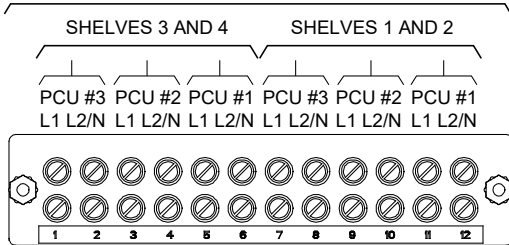
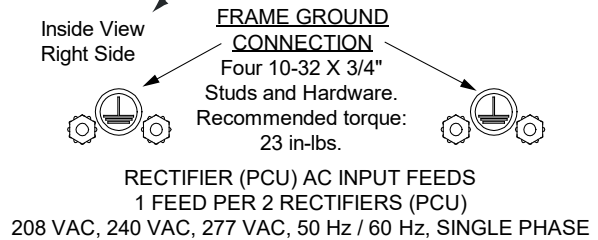
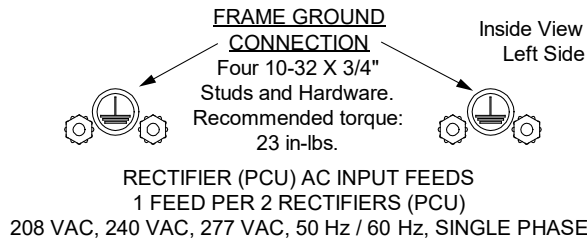
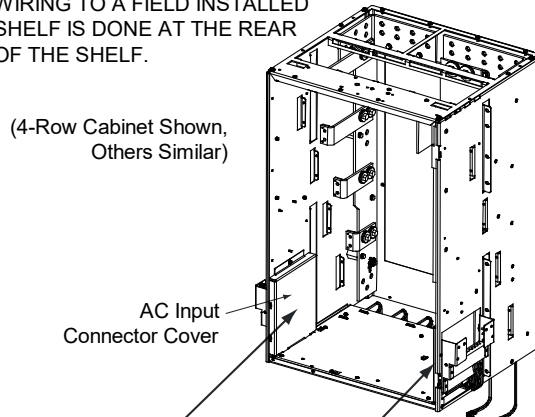
#### Installed in an Enclosure

AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Six (6) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #6

Rectifier Module (PCU) Mounting Slots



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral:  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with Five (5) Shelves Installed

#### Installed in an Enclosure

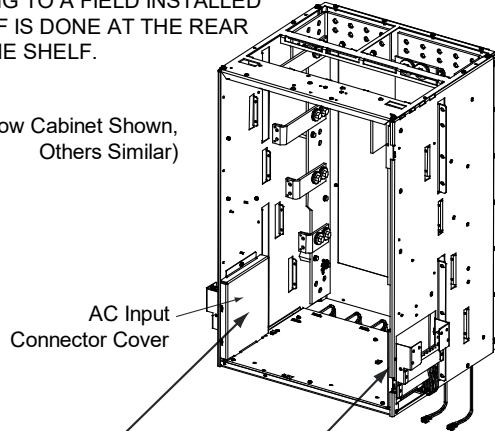
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Five (5) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

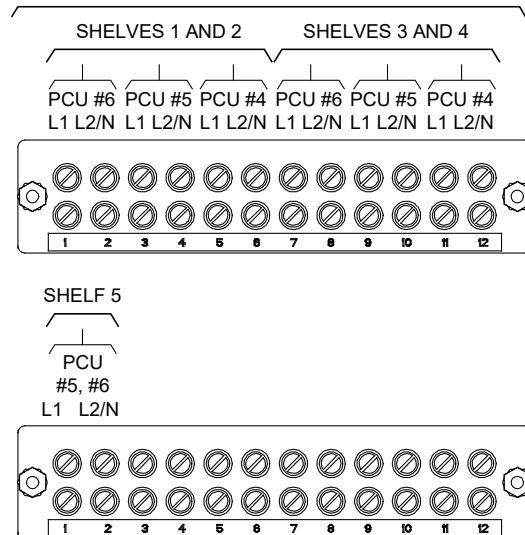
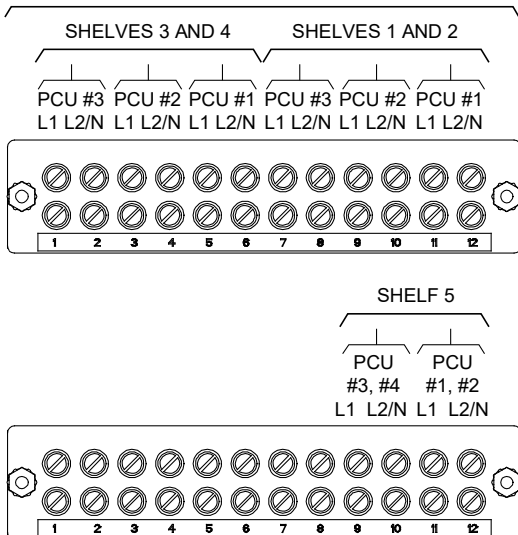
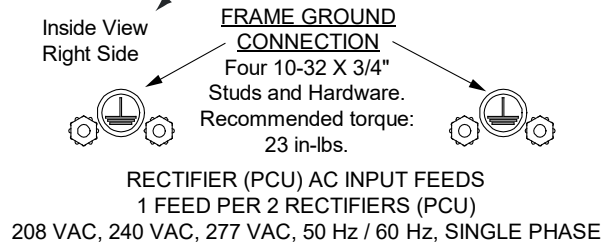
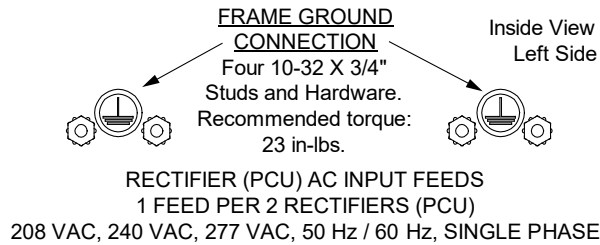
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5

Rectifier Module (PCU) Mounting Slots

(4-Row Cabinet Shown,  
Others Similar)



Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

**Line to Line:**  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

**Line to Neutral:**  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with Four (4) Shelves Installed

#### Installed in an Enclosure

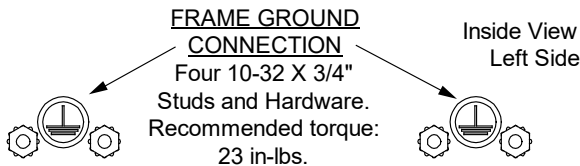
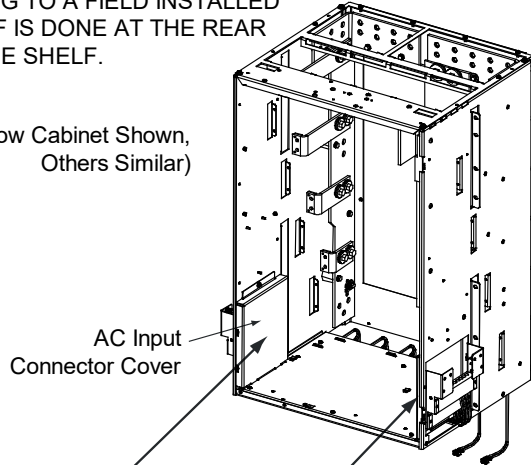
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Four (4) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

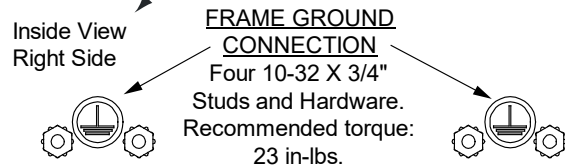
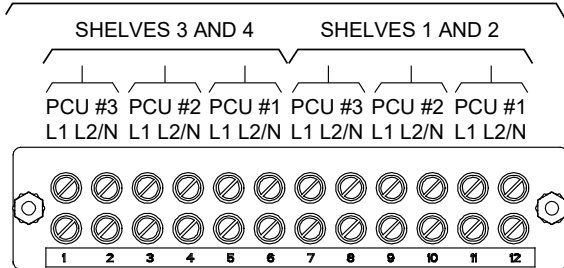
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4

Rectifier Module (PCU) Mounting Slots

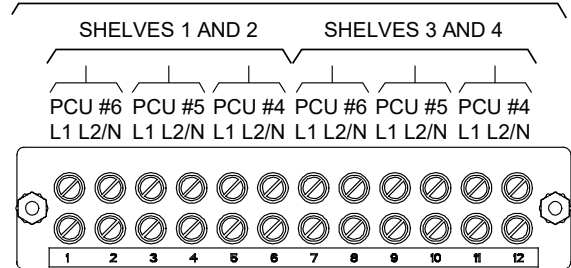
(4-Row Cabinet Shown,  
Others Similar)



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral:  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with Three (3) Shelves Installed

#### Installed in an Enclosure

AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Three (3) Shelves Installed

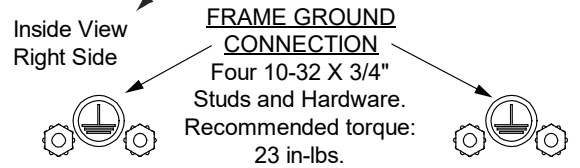
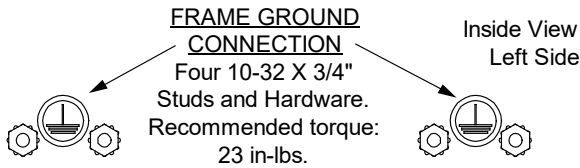
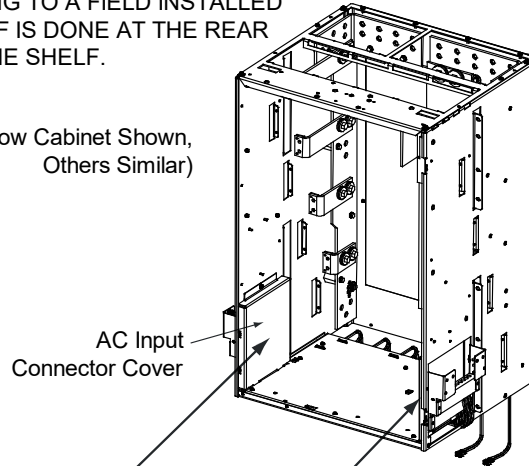
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3

Rectifier Module (PCU) Mounting Slots

Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.

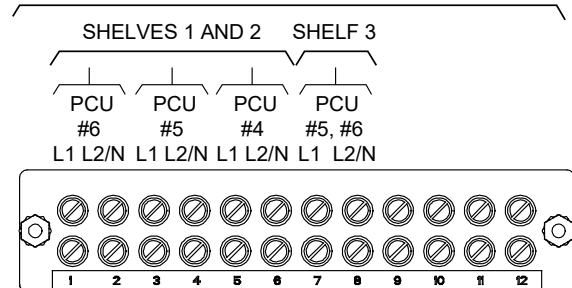
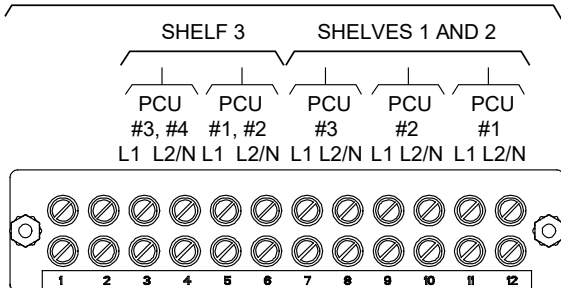
NOTE:  
WIRING TO A FIELD INSTALLED SHELF IS DONE AT THE REAR OF THE SHELF.

(4-Row Cabinet Shown, Others Similar)



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE

RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral:  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with Two (2) Shelves Installed

#### Installed in an Enclosure

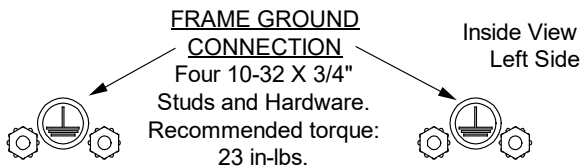
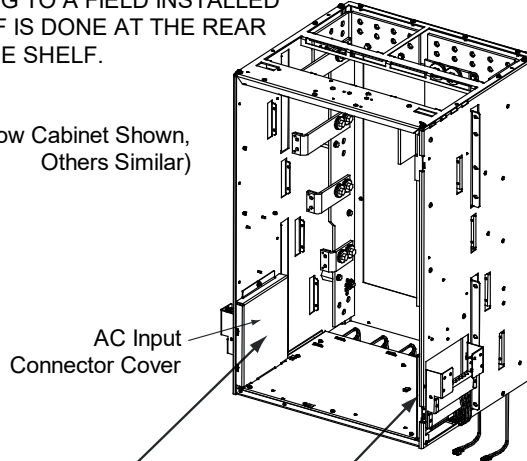
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with Two (2) Shelves Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

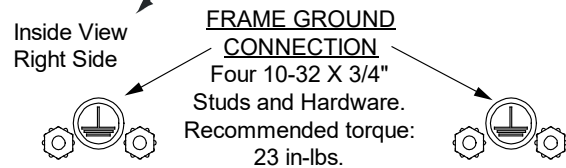
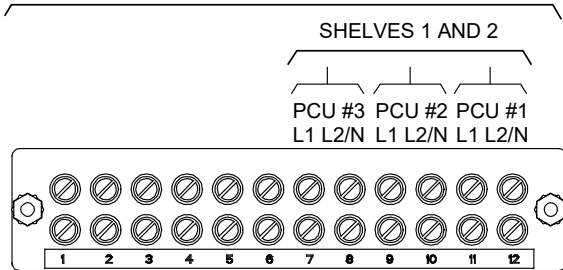
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2

Rectifier Module (PCU) Mounting Slots

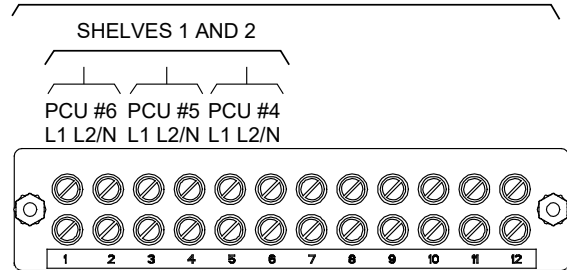
Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 41 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC, 277 VAC) (1 Feed per 2 Rectifiers, Single Phase) - with One (1) Shelf Installed

#### Installed in an Enclosure

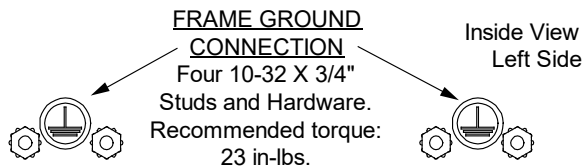
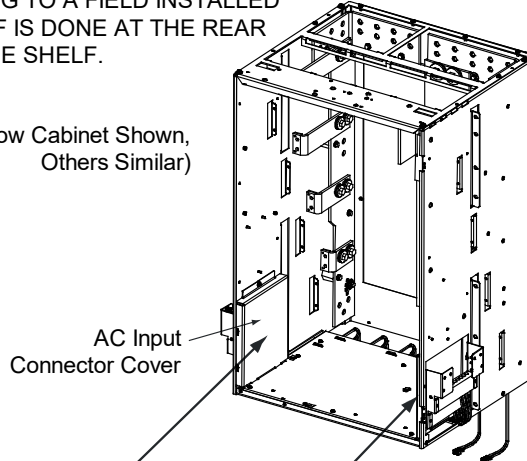
AC INPUT CONNECTIONS,  
1 FEED PER 2 RECTIFIERS, SINGLE PHASE  
(582127000 LIST 41),  
with One (1) Shelf Installed

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

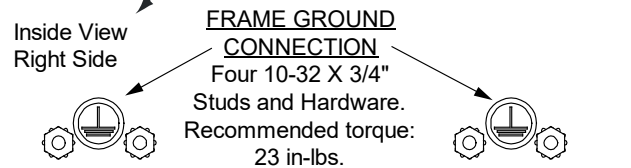
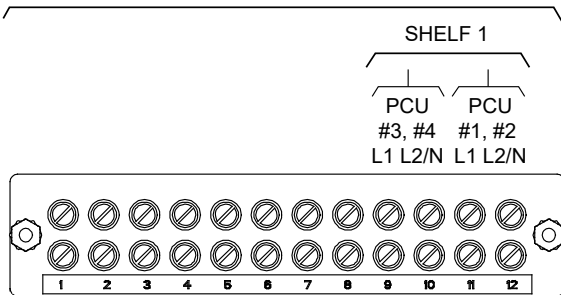
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rectifier Module (PCU) Mounting Slots						

Rectifier Module (PCU) Mounting Slots

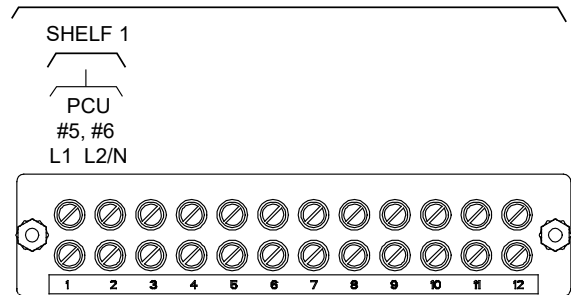
Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 2 RECTIFIERS (PCU)  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

Line to Neutral  
Connect Line to Terminal L1.  
Connect Neutral to Terminal L2/N.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 42 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 208 VAC, 240 VAC) (1 Feed per 3 Rectifiers, Three Phase)

#### Installed in an Enclosure

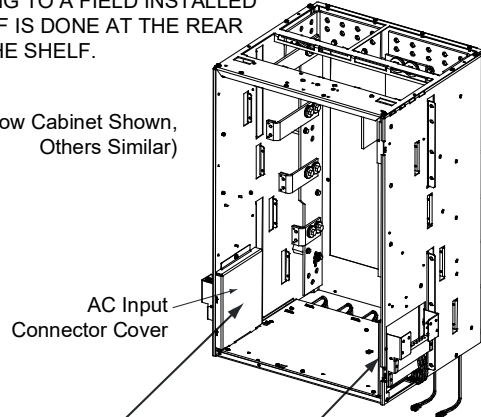
AC INPUT CONNECTIONS,  
1 FEED PER 3 RECTIFIERS, THREE PHASE  
(582127000 LIST 42)

NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1	
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #5
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6		Shelf #6

Rectifier Module (PCU) Mounting Slots

(4-Row Cabinet Shown,  
Others Similar)

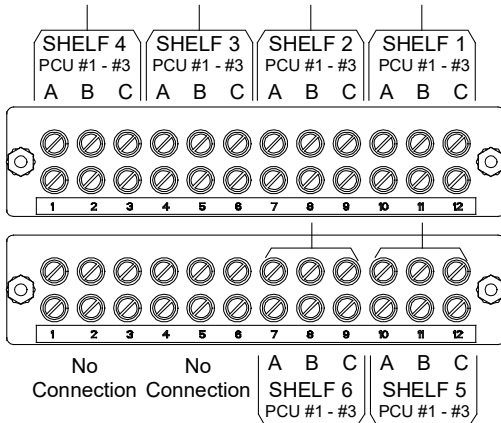
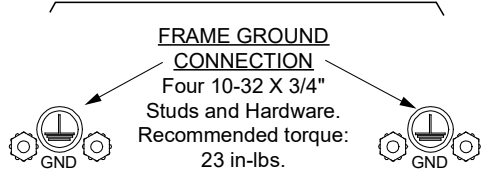


Wire Size Capacity:  
4 AWG to 14 AWG.  
Recommended Torque:  
10-14 AWG 20 in-lbs.  
8 AWG 25 in-lbs.  
4 AWG 35 in-lbs.

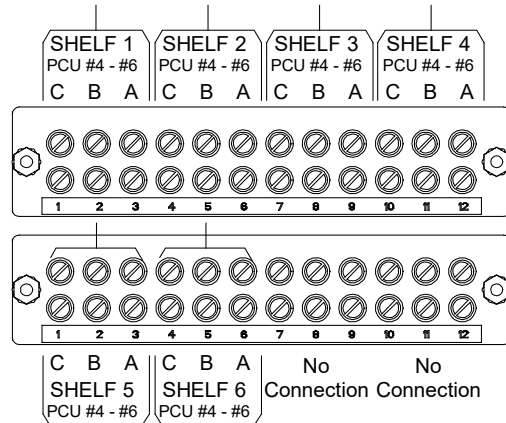
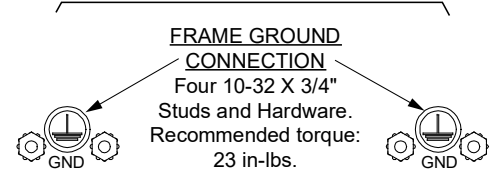
Inside View  
Left Side

Inside View  
Right Side

RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 3 RECTIFIERS (PCU)  
208 VAC / 240 VAC, 50 Hz / 60 Hz, THREE PHASE



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 3 RECTIFIERS (PCU)  
208 VAC / 240 VAC, 50 Hz / 60 Hz, THREE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.  
Note: The three-phase input is internally distributed within the system to provide a single-phase line to line connection to each rectifier position, evenly distributed across the three phases.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### AC Input Connections to AC Input Termination Assembly List 43 Illustration when used with 588705400 Module Mounting Assemblies with Rectifiers (Nominal 277/480 VAC) (1 Feed per 3 Rectifiers, Three Phase)

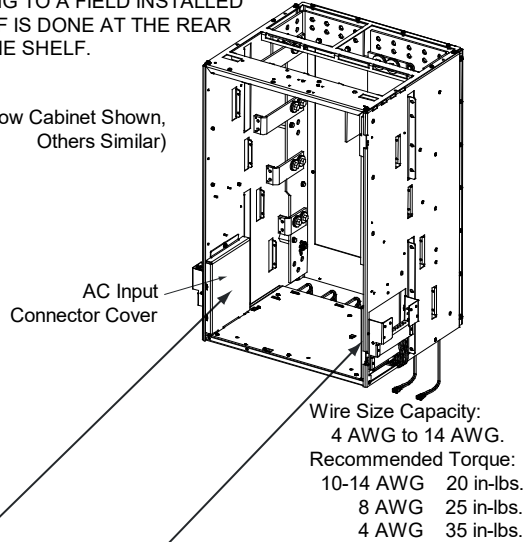
#### Installed in an Enclosure

AC INPUT CONNECTIONS,  
1 FEED PER 3 RECTIFIERS, THREE PHASE  
(582127000 LIST 43)

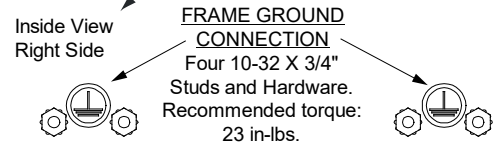
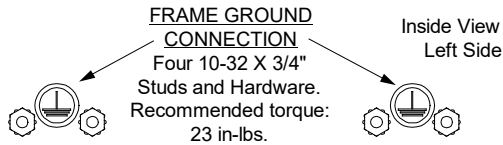
NOTE:  
WIRING TO A FIELD INSTALLED  
SHELF IS DONE AT THE REAR  
OF THE SHELF.

Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #1
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #2
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #3
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #4
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #5
Rect. (PCU) 1	Rect. (PCU) 2	Rect. (PCU) 3	Rect. (PCU) 4	Rect. (PCU) 5	Rect. (PCU) 6	Shelf #6

(4-Row Cabinet Shown,  
Others Similar)

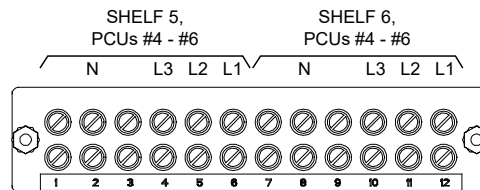
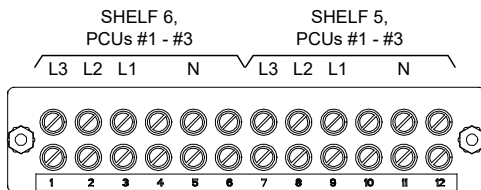
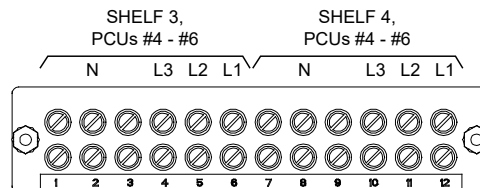
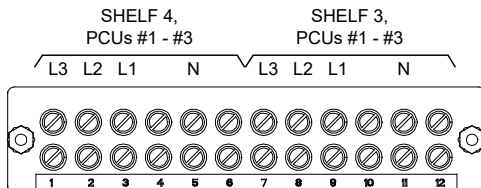
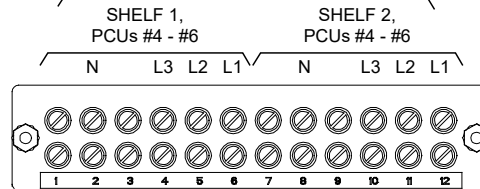
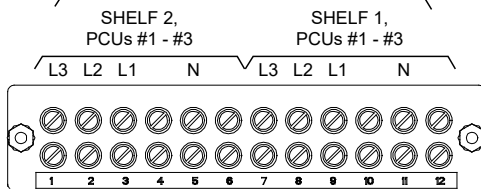


Rectifier Module (PCU) Mounting Slots



RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 3 RECTIFIERS (PCU)  
277 VAC / 480 VAC, 50 Hz / 60 Hz, THREE PHASE

RECTIFIER (PCU) AC INPUT FEEDS  
1 FEED PER 3 RECTIFIERS (PCU)  
277 VAC / 480 VAC, 50 Hz / 60 Hz, THREE PHASE



Note: Customer wiring to top terminals of terminal blocks.  
For fewer power shelves than shown, only the connections for the installed shelves are present.

Note: The three-phase input is internally distributed within the system to provide a single-phase line to neutral connection to each rectifier position, evenly distributed across the three phases.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### **AC Input Branch Circuit Protection and Wire Size Selection (List 100, 101, 102, 203, 500, 501, 502, 503) (Nominal 208 VAC, 240 VAC)**

Refer to the following table for recommended wire sizes and branch circuit protection.

<b>AC Input to List 100, 101, 102, 203, 500, 501, 502, 503 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, Single Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 2 Rectifiers" Single Phase Input Terminations</b>				
<b>Input Voltage</b>	<b>Input Current (7)</b>	<b>Overcurrent Protection (1)</b>	<b>40 °C Ambient Temperature</b>	
			<b>Wire (3) (4) (5)</b>	<b>Conduit Size (6)</b>
208 VAC	20 A	25 A (2)	10 AWG	3/4"
240 VAC	17.5 A	25 A (2)	10 AWG	3/4"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 30 A.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> THHN 90°C Wire.
- <sup>6</sup> System with Four (4) Spec. No. 588705300 Rectifier Module Assemblies: Conduit sized for six (6) current carrying conductors and one (1) ground conductor per conduit (based on NEC recommendations), for six (6) PCUs. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>7</sup> Input current based on R48-2000e3 rectifier module.

Table 38  
Recommended AC Input Branch Circuit Protection and Wire Size (List 100, 101, 102, 203, 500, 501, 502, 503)



# Vertiv™ NetSure™ 7100 DC Power System

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### AC Input Connections to AC Input Termination Assembly in List 100, 101, 102, 203, 500, 501, 502, 503 Illustration (Nominal 208 VAC, 240 VAC)

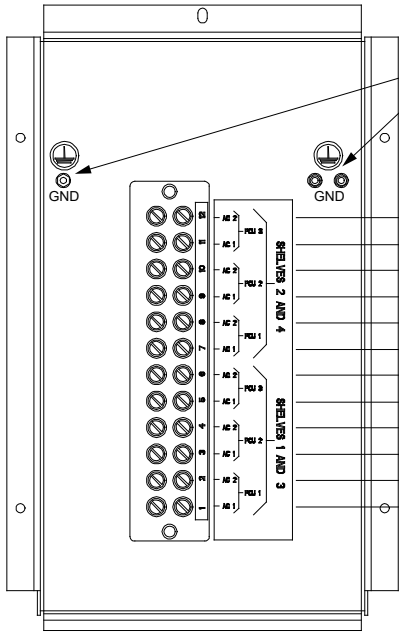
**RECTIFIER AC INPUT FEEDS**  
**1 FEED PER 2 RECTIFIERS**  
**208 VAC / 240 VAC, 50 Hz / 60 Hz, SINGLE PHASE**

Line to Line:  
 Connect Line 1 to Terminal "AC 1".  
 Connect Line 2 to Terminal "AC 2".

Wire Size Capacity: 6-14 AWG.  
 Recommended Torque: 18 in-lbs.

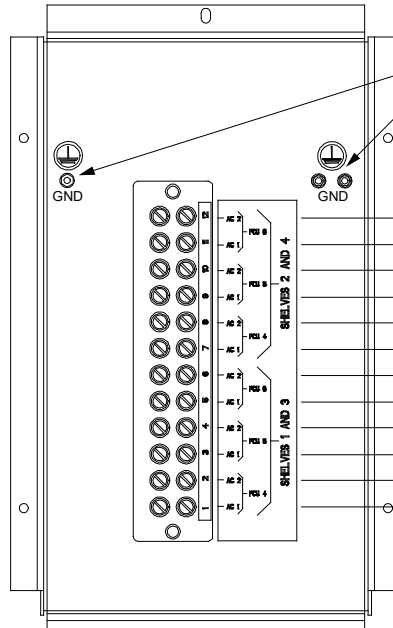
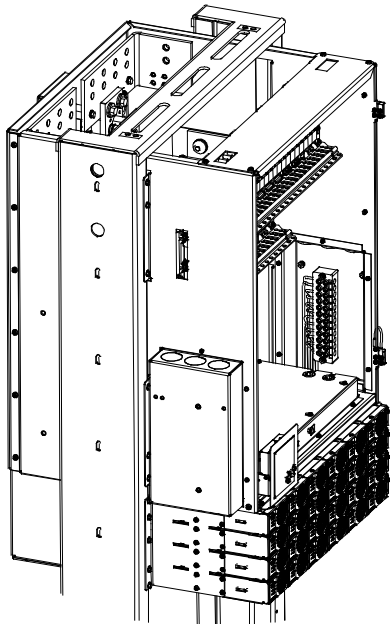
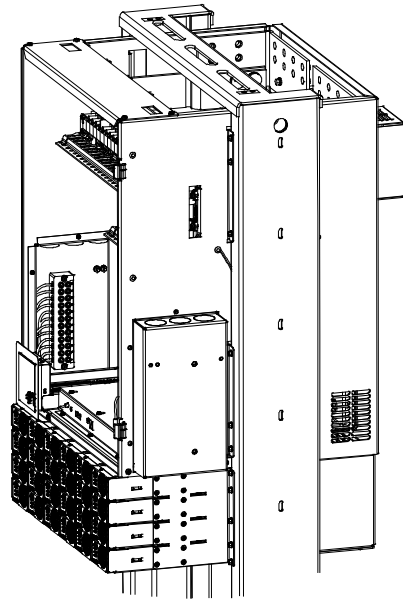
Rect. 1	Rect. 2	Rect. 3	Rect. 4	Rect. 5	Rect. 6	Shelf #1
Rect. 1	Rect. 2	Rect. 3	Rect. 4	Rect. 5	Rect. 6	Shelf #2
Rect. 1	Rect. 2	Rect. 3	Rect. 4	Rect. 5	Rect. 6	Shelf #3
Rect. 1	Rect. 2	Rect. 3	Rect. 4	Rect. 5	Rect. 6	Shelf #4

Rectifier Module Mounting Slots



**FRAME GROUND CONNECTION**  
 Three 10-32 X 3/4"  
 Studs and Hardware.  
 Recommended torque:  
 23 in-lbs.

- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 3
- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 2
- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 1
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 3
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 2
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 1



**FRAME GROUND CONNECTION**  
 Three 10-32 X 3/4"  
 Studs and Hardware.  
 Recommended torque:  
 23 in-lbs.

- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 6
- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 5
- AC 2 } Shelf 2 and 4
- AC 1 } Rectifier 4
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 6
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 5
- AC 2 } Shelf 1 and 3
- AC 1 } Rectifier 4



# Vertiv™ NetSure™ 7100 DC Power System

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### AC Input Branch Circuit Protection and Wire Size Selection (List 600, 601, 900, 901) (Nominal 208 VAC, 240 VAC, 277 VAC)

Refer to the following tables for recommended wire sizes and branch circuit protection.

**Note:** Two-position bridge jumpers are factory-installed. All jumpers are required for dual feed. Remove all jumpers for single feed.

AC Input to List 600, 601, 900, 901 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, 277 VAC, Single Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 1 Rectifier" Single Phase Input Terminations)				
Input Voltage	Input Current <sup>(5)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (6)</sup>	Conduit Size
208 VAC	17.9 A	25 A <sup>(2)</sup>	10 AWG	3/4"
240 VAC	15.5 A	20 A	10 AWG	3/4"
277 VAC	13.5 A	20 A	10 AWG	3/4"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 30 A @ 40 °C.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> Input current based on R48-3500e3 rectifier module.
- <sup>6</sup> THHN 90°C Wire.

Table 39  
Recommended AC Input Branch Circuit Protection and Wire Size (List 600, 601, 900, 901)  
"1 AC Feed per 1 Rectifier – Single Phase"

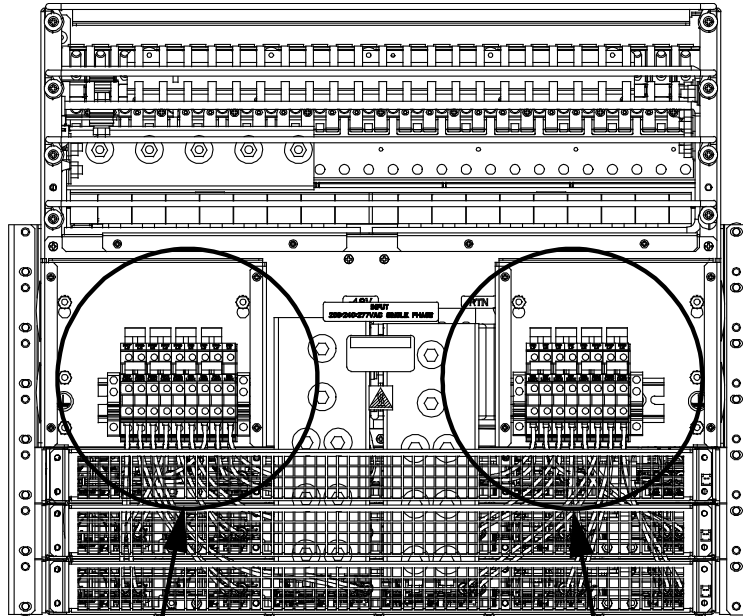
AC Input to List 600, 601, 900, 901 AC Input Termination Assembly (Nominal 208 VAC, 240 VAC, 277 VAC, Single Phase, 50 Hz / 60 Hz) Provides "1 AC Feed per 2 Rectifiers" Single Phase Input Terminations				
Input Voltage	Input Current <sup>(5)</sup>	Overcurrent Protection <sup>(1)</sup>	40 °C Ambient Temperature	
			Wire <sup>(3) (4) (6)</sup>	Conduit Size
208 VAC	35.8 A	45 A	8 AWG	3/4"
240 VAC	31.0 A	40 A <sup>(2)</sup>	8 AWG	3/4"
277 VAC	27.0 A	35 A <sup>(2)</sup>	8 AWG	3/4"

- <sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.
- <sup>2</sup> Maximum over current protection device is 45 A @ 40 °C.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>5</sup> Input current based on R48-3500e3 rectifier module.
- <sup>6</sup> THHN 90°C Wire.

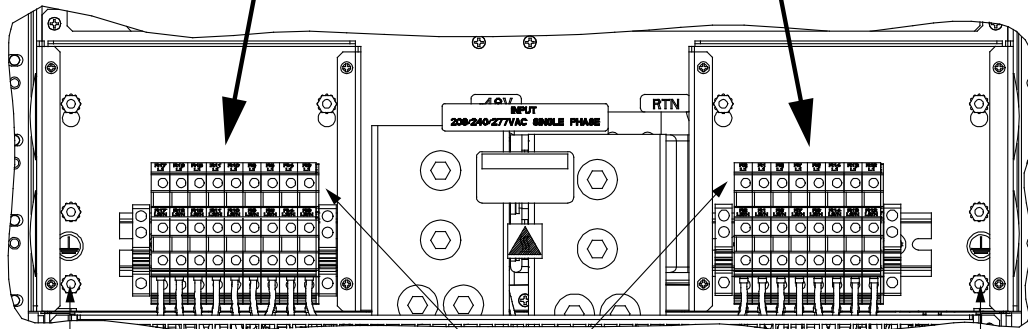
Table 40  
Recommended AC Input Branch Circuit Protection and Wire Size (List 600, 601, 900, 901)  
"1 AC Feed per 2 Rectifiers – Single Phase"

Vertiv™ NetSure™ 7100 DC Power System  
 System Application Guide

**AC Input Connections to AC Input Termination Assembly in List 600, 601, 900, 901 Illustration (Nominal 208 VAC, 240 VAC, 277 VAC) (cont'd on next page)**



Rear View  
 Rear Panel Removed



**FRAME GROUND CONNECTION**

Two 10-32 X 1/2"  
 Studs and Hardware.  
 Recommended torque:  
 23 in-lbs.

RECTIFIER AC INPUT FEEDS  
 208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE  
 (1 FEED PER 1 RECTIFIER)  
 or  
 (1 FEED PER 2 RECTIFIERS)

**FRAME GROUND CONNECTION**

Two 10-32 X 1/2"  
 Studs and Hardware.  
 Recommended torque:  
 23 in-lbs.

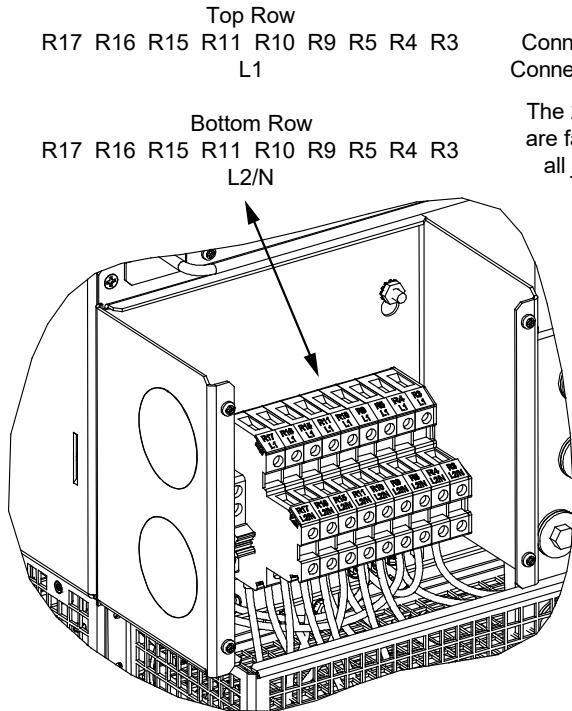
Wire Size Capacity: 20 AWG to 6 AWG.  
 Recommended Torque: 15 in-lbs.

See Next Page

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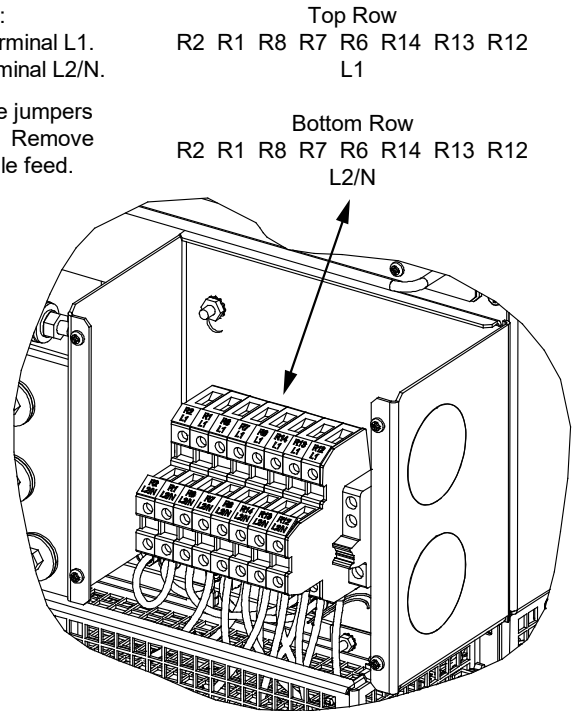
**AC Input Connections to AC Input Termination Assembly in List 600, 601, 900, 901 Illustration (Nominal 208 VAC, 240 VAC, 277 VAC) (cont'd from previous page)**

RECTIFIER AC INPUT FEEDS  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE  
(1 FEED PER 1 RECTIFIER)

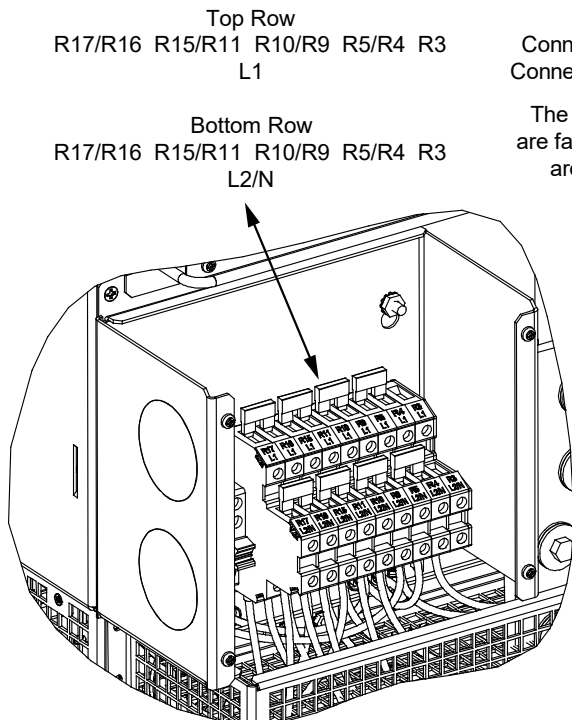


Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

The 2-position bridge jumpers  
are factory-installed. Remove  
all jumpers for single feed.

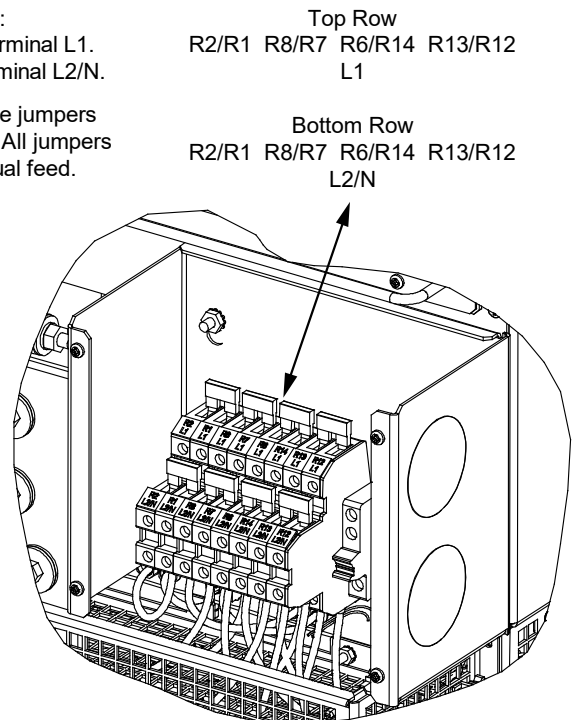


RECTIFIER AC INPUT FEEDS  
208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, SINGLE PHASE  
(1 FEED PER 2 RECTIFIERS)



Line to Line:  
Connect Line 1 to Terminal L1.  
Connect Line 2 to Terminal L2/N.

The 2-position bridge jumpers  
are factory-installed. All jumpers  
are required for dual feed.



**AC Input Connections to Field Installed Module Mounting Assemblies**

**Spec. No. 588705300 List 03 (120 VAC / 208 VAC / 240 VAC Input, Single Phase)**

The module mounting assembly is equipped with plug-in AC input connectors located on the rear of the assembly. Mating connectors and wire harnesses are available (see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 and “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110). Refer to Figure 4 for module mounting assembly rectifier AC input terminal location.

Refer to Table 41 for recommended AC input branch circuit protection when using the supplied rectifier AC input cable assemblies.

Refer to Table 42 for recommended AC input branch circuit protection when using the supplied rectifier AC input line cords.

<b>Recommended Rectifier AC Input Branch Circuit Protection</b> <b>(Nominal 120 VAC / 208 VAC / 240 VAC, Single Phase, 50 Hz / 60 Hz)</b> <b>Supplied Input Cable Assemblies</b> <b>(see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109)</b> <b>(One AC Input Branch Circuit per Two Rectifier Modules)</b>		
Input Voltage	Input Current <sup>(2)</sup>	Overcurrent Protection <sup>(1)</sup>
120 VAC	18 A	30 A
208 VAC	20 A	25 A
240 VAC	17.5 A	25 A

<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-2000e3 rectifier module.

Table 41  
Recommended Rectifier AC Input Branch Circuit Protection  
(Nominal 120 VAC / 208 VAC / 240 VAC, Single Phase, 50 Hz / 60 Hz)  
Supplied Input Cable Assemblies

<b>Recommended Rectifier AC Input Branch Circuit Protection</b> <b>(Nominal 120 VAC / 208 VAC / 240 VAC, Single Phase, 50 Hz / 60 Hz)</b> <b>Supplied AC Input Line Cords (see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110)</b> <b>(One AC Input Branch Circuit per Two Rectifier Modules)</b>		
Input Voltage	Input Current <sup>(2)</sup>	Overcurrent Protection <sup>(1)</sup>
120 VAC	18 A	Size per AC Line Cord Plug Rating
208 VAC	20 A	
240 VAC	17.5 A	

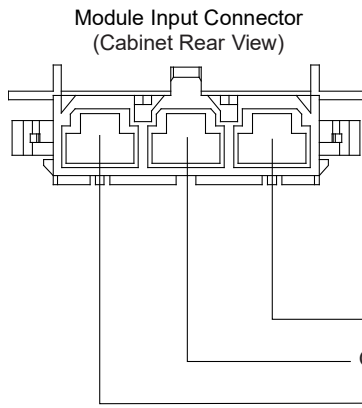
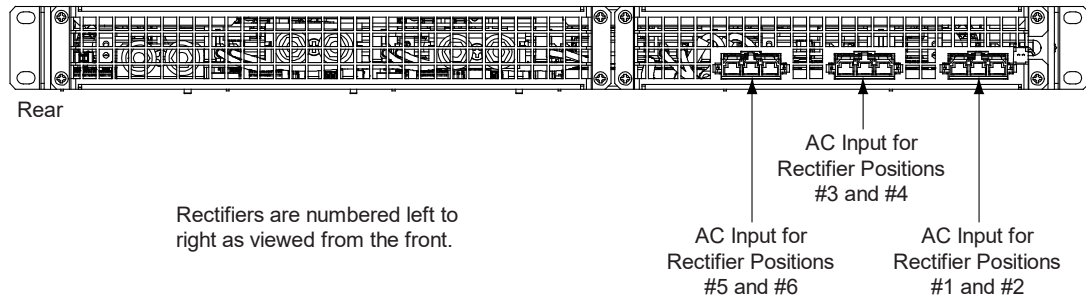
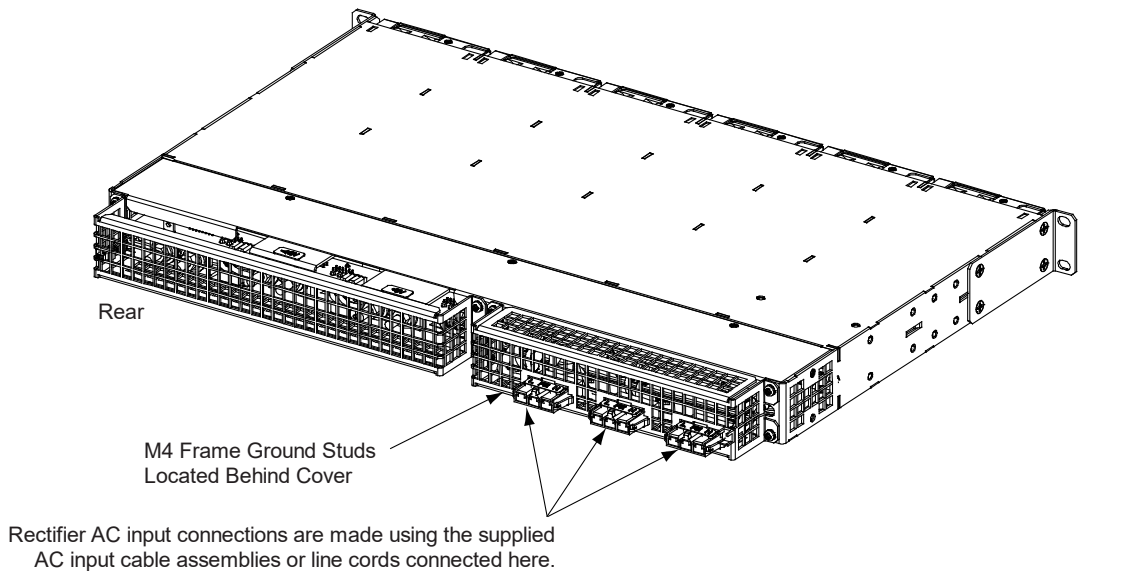
<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-2000e3 rectifier module.

Table 42  
Recommended Rectifier AC Input Branch Circuit Protection  
(Nominal 120 VAC / 208 VAC / 240 VAC, Single Phase, 50 Hz / 60 Hz)  
Supplied AC Input Line Cords

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Input Connections are Made using the Ordered Input Cable Assemblies / Line Cords

Input Cable Assembly	AC Input Line Cords
P/N 535232	P/N 540946
P/N 547898	P/N 545252
P/N 553202	P/N 545616

Blue\* — White\*

Green/Yellow\* — Green\*

Brown\* — Black\*

\* Color of Input Cable Assembly / Line Cord Lead

Rectifier AC Input  
(120 VAC / 208 VAC / 240VAC, 30 A)

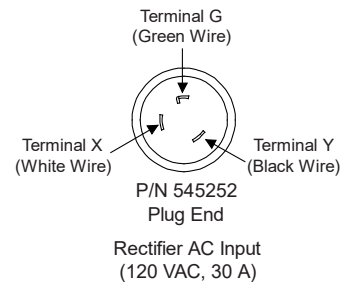
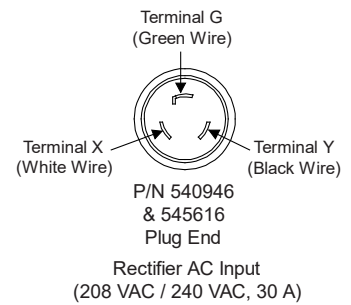


Figure 4  
Input Connections, 588705300 List 03

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## System Application Guide

### **Spec. No. 588705400 List 02 (208 VAC, 240 VAC, 277 VAC Single Phase, 50 Hz / 60 Hz)**

The module mounting assembly is equipped with plug-in AC input connectors located on the rear of the assembly. Mating connectors and wire harnesses are available (see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109 and “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110). Refer to Figure 5 for module mounting assembly rectifier AC input terminal location.

Refer to Table 43 for recommended AC input branch circuit protection when using the supplied rectifier AC input cable assemblies.

Refer to Table 44 for recommended AC input branch circuit protection when using the supplied rectifier AC input line cords.

<b>Recommended Rectifier AC Input Branch Circuit Protection</b> <b>(208 VAC, 240 VAC, 277 VAC Single Phase, 50 Hz / 60 Hz)</b> <b>Supplied Input Cable Assemblies</b> <b>(see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Cable Assemblies” on page 109)</b> <b>(Connection Points for Six Single Phase AC Input Feeds are Provided per Shelf, One AC Input Branch Circuit per One Rectifier Module)</b>		
Input Voltage	Input Current <sup>(2)</sup>	Overcurrent Protection <sup>(1)</sup>
208 VAC	17.9 A	25 A
240 VAC	15.5 A	25 A
277 VAC	13.5 A	20 A

<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-3500E3 rectifier module.

Table 43  
 Recommended Rectifier AC Input Branch Circuit Protection  
 (208 VAC, 240 VAC, 277 VAC, Single Phase, 50 Hz / 60 Hz)  
 Supplied Input Cable Assemblies

<b>Recommended Rectifier AC Input Branch Circuit Protection</b> <b>(208 VAC, 240 VAC, Single Phase, 50 Hz / 60 Hz)</b> <b>Supplied AC Input Line Cords</b> <b>(see “588705300 and 588705400 Module Mounting Assembly Rectifier AC Input Line Cords” on page 110)</b> <b>(Connection Points for Six Single Phase AC Input Feeds are Provided per Shelf, One AC Input Branch Circuit per One Rectifier Module)</b>		
Input Voltage	Input Current <sup>(2)</sup>	Overcurrent Protection <sup>(1)</sup>
208 VAC	17.9 A	Size per AC Line Cord Plug Rating
240 VAC	15.5 A	

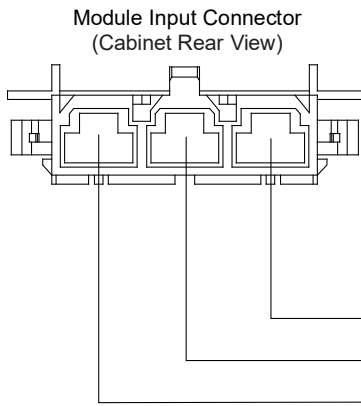
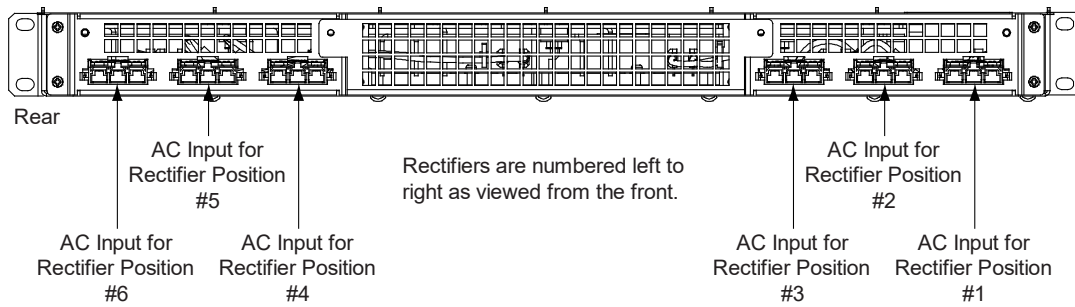
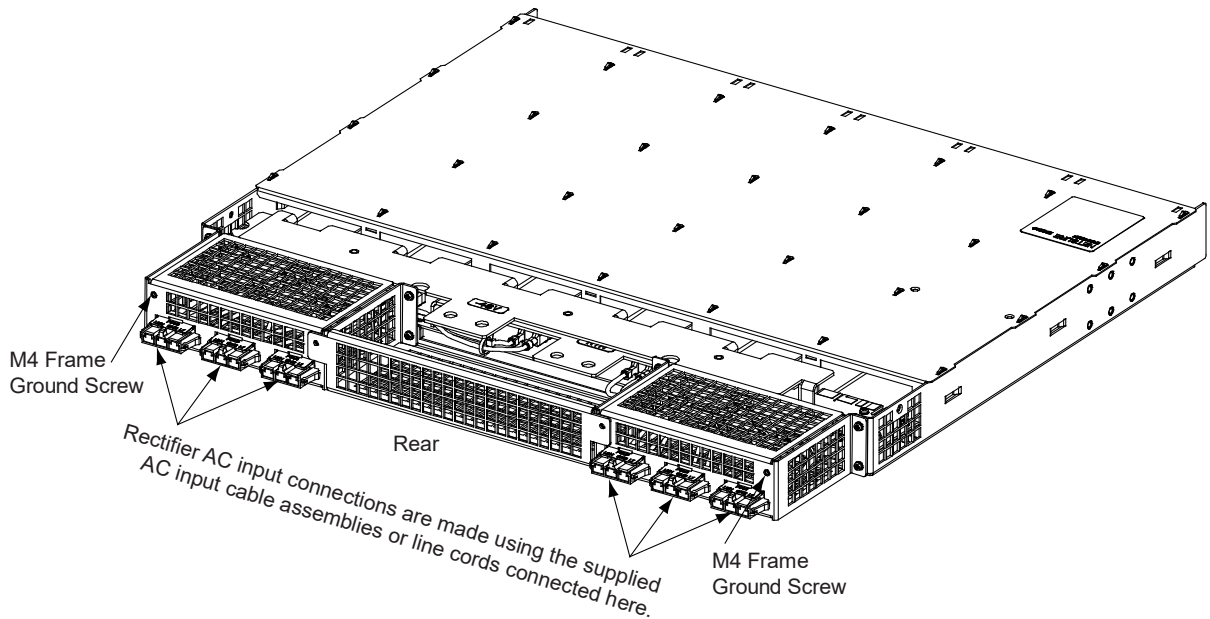
<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-3500E3 rectifier module.

Table 44  
 Recommended Rectifier AC Input Branch Circuit Protection  
 (208 VAC, 240 VAC, Single Phase, 50 Hz / 60 Hz)  
 Supplied AC Input Line Cords

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Input Connections are Made using the Ordered Input Cable Assemblies / Line Cords

Input Cable Assembly	AC Input Line Cords
P/N 535232	P/N 540946
P/N 547898	P/N 545616
P/N 553202	

L1	Blue*	White*
Ground	Green/Yellow*	Green*
L2	Brown*	Black*

\* Color of Input Cable Assembly / Line Cord Lead

Rectifier AC Input  
(208 VAC, 240 VAC, 277 VAC, 30 A)

Line to Line:

Connect Line 1 to Terminal 1.  
Connect Line 2 to Terminal 2.

Line to Neutral:

Connect Line to Terminal 1.  
Connect Neutral to Terminal 2.

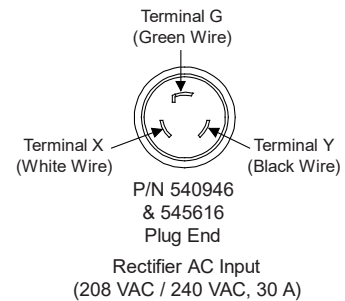


Figure 5  
Input Connections, 588705400 List 02



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### Spec. No. 588705400 List 03 (208 VAC, 240 VAC Input, Three Phase, 50 Hz / 60 Hz)

The module mounting assembly is equipped with plug-in AC input connectors located on the rear of the assembly. Mating connectors and AC input line cords are available (P/N 562046). Refer to Figure 6 for module mounting assembly rectifier AC input terminal location.

Refer to Table 45 for recommended AC input branch circuit protection when using the supplied rectifier AC input line cords.

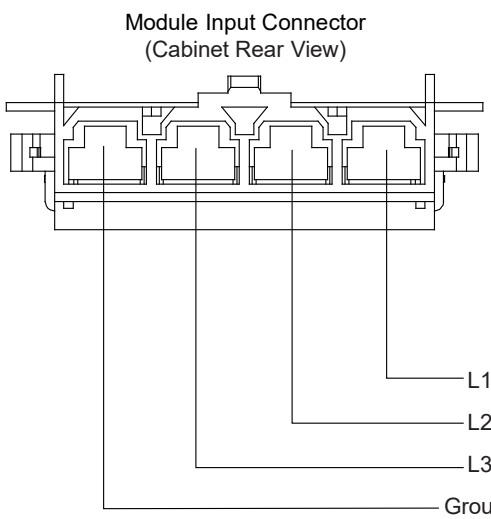
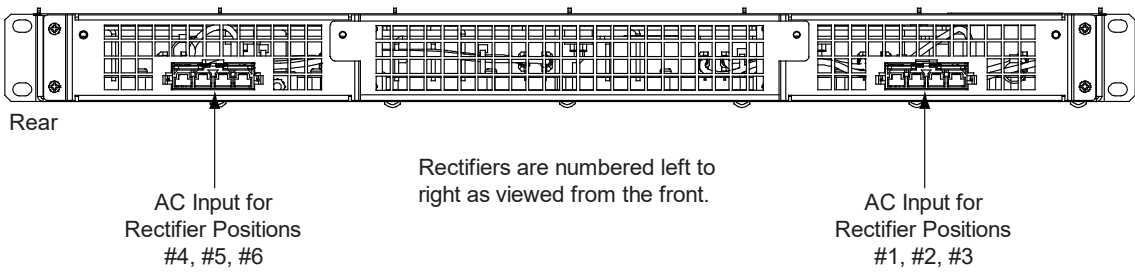
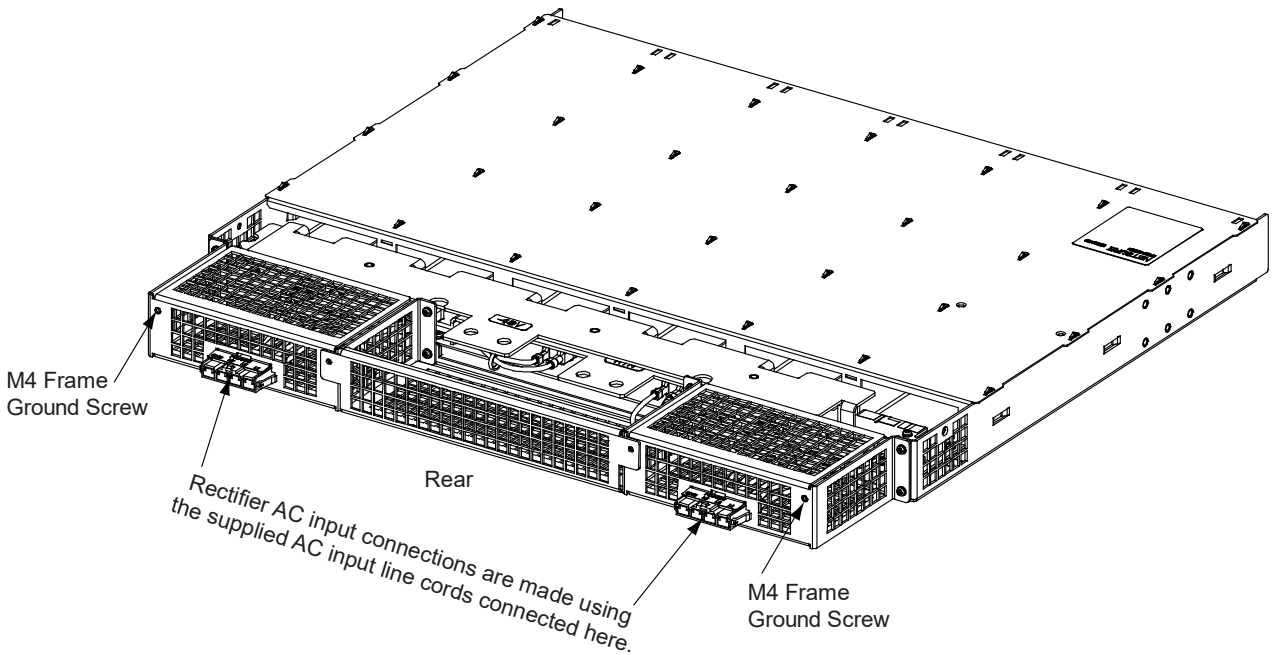
<b>Recommended Rectifier AC Input Branch Circuit Protection</b> <b>(208 VAC, 240 VAC, Three Phase, 50 Hz / 60 Hz)</b> <b>Supplied AC Input Line Cords (P/N 562046)</b> <b>(Connection Points for Two 3-Phase</b> <b>AC Input Feeds are Provided per Shelf)</b>		
<b>Input Voltage</b>	<b>Input Current <sup>(2)</sup></b>	<b>Overcurrent Protection <sup>(1)</sup></b>
208 VAC	31 A	Size per AC Line Cord Plug Rating
240 VAC	27 A	

<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-3500e3 rectifier module.

Table 45  
 Recommended Rectifier AC Input Branch Circuit Protection  
 (208 VAC, 240 VAC, Three Phase, 50 Hz / 60 Hz)  
 Supplied AC Input Line Cords

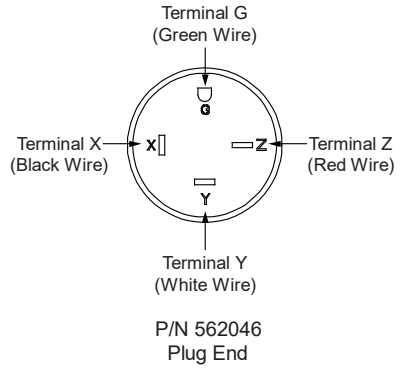
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Input Connections are Made using the Ordered Input Line Cords  
AC Input Line Cords P/N 562046

- L1 — White\*
- L2 — Black\*
- L3 — Red\*
- Ground — Green\*

\* Color of Input Line Cord Lead



Rectifier AC Input (208 VAC / 240 VAC, Three Phase, 50 A)

Figure 6  
Input Connections, 588705400 List 03

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## System Application Guide

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### **Spec. No. 588705400 List 04 (277/480 VAC Three Phase Input, 50 Hz / 60 Hz)**

The module mounting assembly is equipped with plug-in AC input connectors located on the rear of the assembly. Mating connectors and AC input line cords are available (P/N 562045). Refer to Figure 7 for module mounting assembly rectifier AC input terminal location.

Refer to Table 46 for recommended AC input branch circuit protection when using the supplied rectifier AC input line cords.

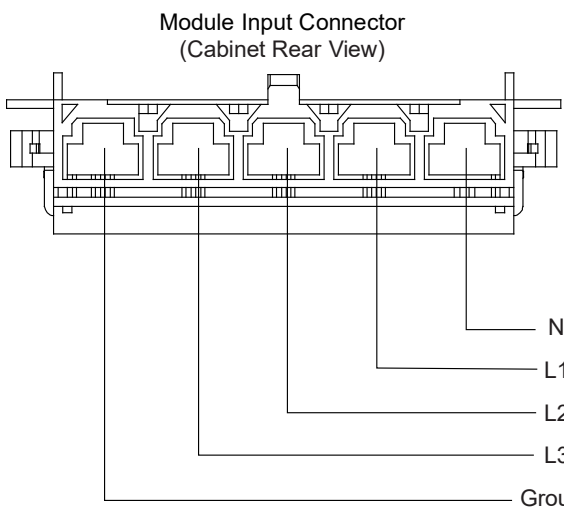
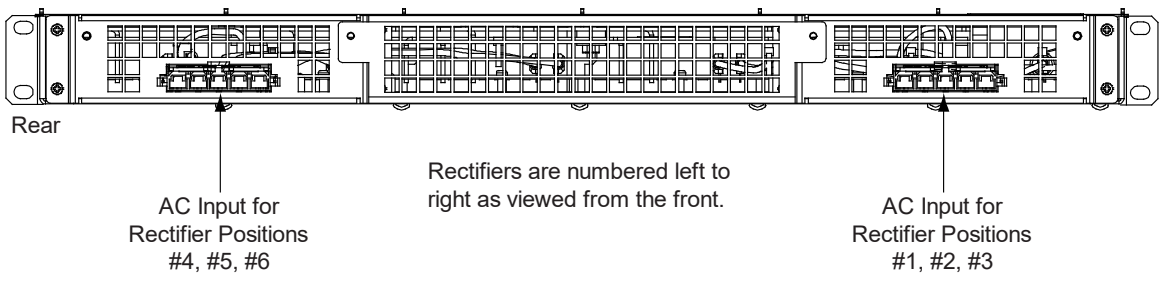
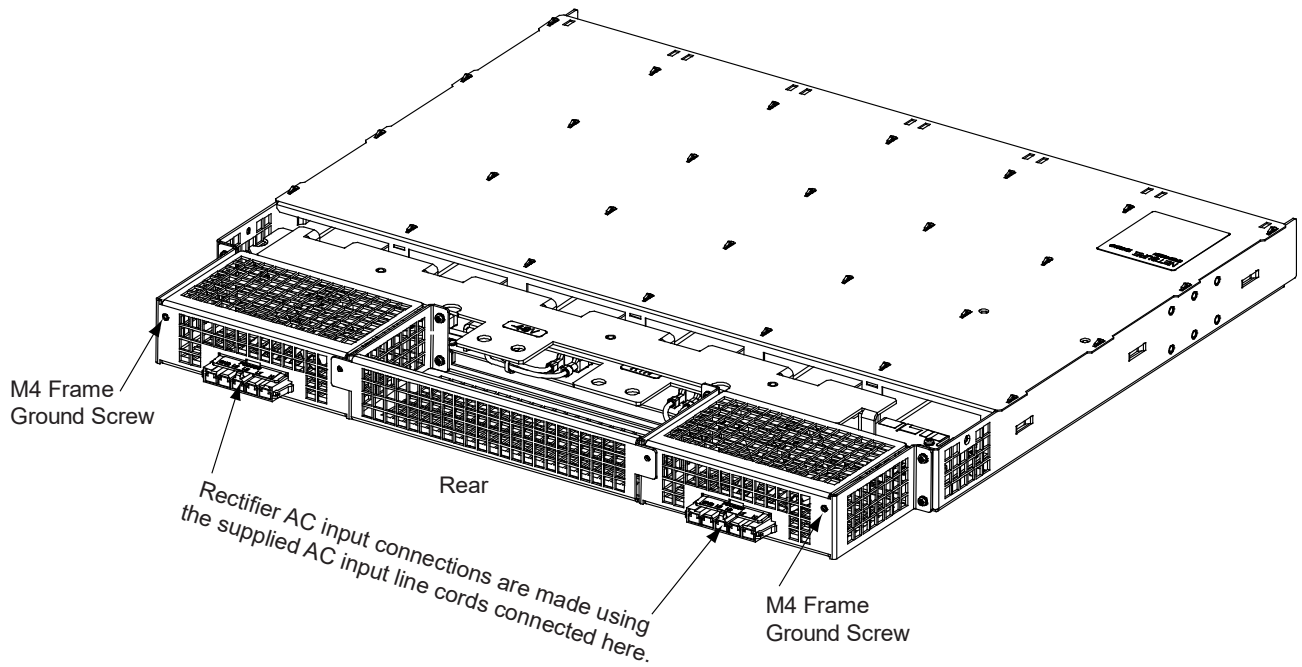
<b>Recommended Rectifier AC Input Branch Circuit Protection                      (277/480 VAC, Three Phase, 50 Hz / 60 Hz)                      Supplied AC Input Line Cords (P/N 562045)                      (Connection Points for Two 3-Phase                      AC Input Feeds are Provided per shelf)</b>		
<b>Input Voltage</b>	<b>Input Current <sup>(2)</sup></b>	<b>Overcurrent Protection <sup>(1)</sup></b>
277 VAC	13.5 A	Size per AC Line Cord Plug Rating

<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Input current based on R48-3500E3 rectifier module.

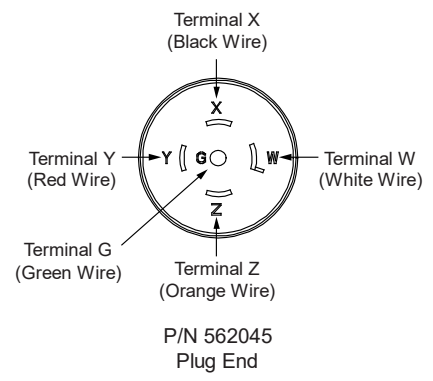
Table 46  
 Recommended Rectifier AC Input Branch Circuit Protection  
 (277/480 VAC, Three Phase, 50 Hz / 60 Hz)  
 Supplied AC Input Line Cords

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Input Connections are Made using the Ordered Input Line Cords

AC Input Line Cords P/N 562045



Rectifier AC Input (277 VAC / 480 VAC, Three Phase, 20 A)

\* Color of Input Line Cord Lead

Figure 7  
Input Connections, 588705400 List 04

## Optional Inverter System AC Input Connections (List 50, 51, 52, 53)

### Inverter System AC Input Connections

#### Inverter System AC Input Branch Circuit Protection and Wire Size Selection (Nominal 120 VAC, Single Phase, 50 Hz / 60 Hz)

Refer to the following table for recommended wire sizes and branch circuit protection. Refer to Figure 8 for an illustration.

Spec. No. 582127000 Lists 50, 51, 52, and 53 Inverter System Recommended AC Input Branch Circuit Protection and Wire Size Provides Input Terminations for “One AC Feed per Inverter System” (Nominal 120 VAC, Single Phase, 50 Hz / 60 Hz)							
List Number	Input Voltage	Input Current	Overcurrent Protection <sup>(1)</sup>		Conductor Wire Size <sup>(2) (3) (4)</sup>	EGC Wire Size	Conduit Size (in)
			OCPD Minimum	OCPD Maximum			
40 °C and 65 °C Ambient Temperature <sup>(5)</sup>							
List 50 List 51	120 VAC	54 A	70 A	90 A	4 AWG	8 AWG	3/4”
List 52 List 53	120 VAC	108 A	150 A	150 A	1/0 AWG	6 AWG	1-1/4”

<sup>1</sup> The AC input branch circuit protective device should be of the time-delay or high inrush type.

<sup>2</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association’s (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.

<sup>3</sup> Equipment grounding conductors must be provided with the AC input conductors supplied to the module mounting assembly. Frame ground terminals must be connected to earth ground, not power system neutral. Equipment grounding conductor size based on recommendations of the NEC Table 250-122 for copper wire. If aluminum or copper clad aluminum grounding conductor is used, refer to Table 250-122 for increased conductor size. For operation in countries where the NEC is not recognized, follow applicable codes.

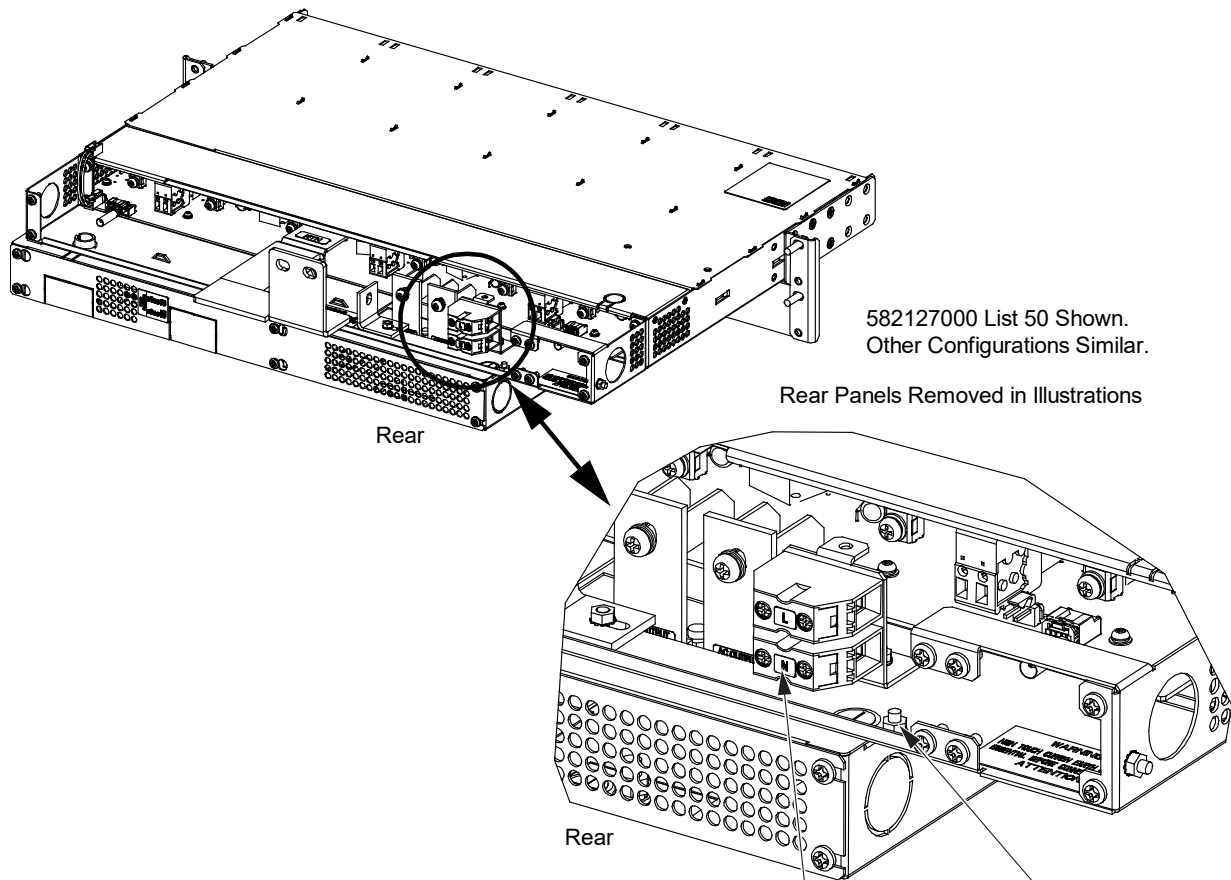
<sup>4</sup> THHN 90°C Wire.

<sup>5</sup> Table values are based on full-power operation of inverter modules at 40 °C ambient temperature. For systems designed to operate in a 65 °C ambient environment, wire the system using the OCPD and field-wiring sizes as recommended for 40 °C ambient temperature due to the linear power derating of the inverter module between 45 °C and 65 °C. Refer to Section 1.2.1 (AC Input Ratings) and Figure 1.1 (Power Derating Based on Temperature) of the Inverter Module User Manual (UMI1201000).

If NEC calculations for field-wiring at 65 °C indicate that a larger wire gauge should be used vs. the 40 °C wire gauge, then the calculated 65 °C gauge should be used. However, the power derating of the inverter modules should outpace any increase in gauge due to NEC wire derating.

Table 47  
Spec. No. 582127000 Lists 50, 51, 52, and 53  
Optional Inverter System Recommended AC Input Branch Circuit Protection and Wire Size

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

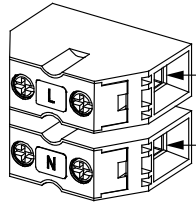


582127000 List 50 Shown.  
Other Configurations Similar.

Rear Panels Removed in Illustrations

582137100 List 50  
582137100 List 51

Wire Size Capacity: 20 AWG to 4 AWG.  
Recommended Torque: 26 in-lbs.



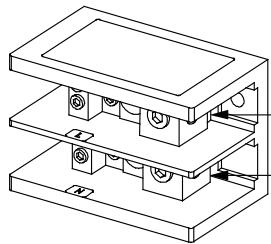
Line AC Input Feed Terminal Block  
120 VAC, 50 / 60 HZ,  
Single Phase  
Neutral

AC Input Feed Terminal Block  
120 VAC, 50 / 60 HZ,  
Single Phase

FRAME GROUND  
One M4 x 7mm Stud and Hardware.  
Recommended torque:  
20 in-lbs.

582137100 List 52  
582137100 List 53

Wire Size Capacity: 14 AWG to 2/0 AWG.  
Recommended Torque:  
35 lbf.in (3.95 N.m) 12 AWG  
35 lbf.in (3.95 N.m) 14 AWG  
40 lbf.in (4.52 N.m) 8 AWG  
120 lbf.in (13.56 N.m) 6 AWG to 2/0 AWG



Line AC Input Feed Terminal Block  
120 VAC, 50 / 60 HZ,  
Single Phase  
Neutral

Figure 8  
Optional Inverter System AC Input Connections (List 50, 51, 52, 53)

**Optional Inverter System AC Output Connections (List 50, 51, 52, 53)**

**Inverter System AC Output Connections (List 50, 52)**

**Inverter System AC Output Branch Circuit Protection and Wire Size Selection When Equipped with List 50, 52**

Refer to Table 48 and Table 49 for recommended wire sizes and branch circuit protection. Refer to Figure 9 for an illustration. Each 120 VAC output is protected by a 70 A circuit breaker located on the front of the unit.

Spec. No. List 50 Inverter System Recommended AC Output Branch Circuit Protection and Wire Size 1RU AC Termination Panel with One (1) 70 A Overcurrent Protection Device (Nominal 120 VAC, Single Phase, 50 Hz / 60 Hz)						
Output Voltage	Output Current	Overcurrent Protection	40 °C Ambient Temperature		65 °C Ambient Temperature	
			Wire <sup>(3)</sup> <sup>(4)</sup>	Conduit Size (in) <sup>(5)</sup>	Wire <sup>(3)</sup> <sup>(4)</sup>	Conduit Size (in) <sup>(5)</sup>
120 VAC	50 A Note 1	70 A	6 AWG	3/4	4 AWG	1 Note 2

- <sup>1</sup> Output current determined as 50 A max (50 A X 120 VAC = 6kVA rating) for the AC distribution panel.
- <sup>2</sup> The equipment grounding conductor can be 8 AWG minimum. If the installation uses two (2) 4 AWG cables and an 8 AWG ground cable, then 3/4-inch conduit is permissible. If the equipment grounding conductor is equivalent in size to the 4 AWG current carrying cables, then a 1-inch conduit is required and cannot be accommodated on the 1RU AC distribution panel.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> THHN 90°C Wire.
- <sup>5</sup> Two current and one ground wire per conduit (one AC output conduit).

Table 48  
Inverter System Recommended AC Output Branch Circuit Protection and Wire Size (List 50)

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Spec. No. List 52 Inverter System Recommended AC Output Branch Circuit Protection and Wire Size 2RU AC Termination Panel with Two (2) 70 A Overcurrent Protection Devices (Nominal 120 VAC, Single Phase, 50 Hz / 60 Hz)						
Output Voltage	Output Current	Overcurrent Protection	40 °C Ambient Temperature		65 °C Ambient Temperature	
			Wire <sup>(3) (4)</sup>	Conduit Size (in) <sup>(5)</sup>	Wire <sup>(3) (4)</sup>	Conduit Size (in) <sup>(5)</sup>
120 VAC	56 A Note 1	70 A	4 AWG	1 Note 2	4 AWG	1 Note 2

- <sup>1</sup> Output current determined as 80% of the 70 A breaker that is being used in the AC distribution panel.
- <sup>2</sup> The equipment grounding conductor can be 8 AWG minimum. If the installation uses two (2) 4 AWG cables and an 8 AWG ground cable, then 3/4-inch conduit is permissible. If the equipment grounding conductor is equivalent in size to the 4 AWG current carrying cables, then a 1-inch conduit is required.
- <sup>3</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>4</sup> THHN 90°C Wire.
- <sup>5</sup> Two current and one ground wire per conduit (two AC output conduits).

Table 49  
Inverter System Recommended AC Output Branch Circuit Protection and Wire Size (List 52)



**Inverter System AC Output Connections Illustration (List 50, 52)**

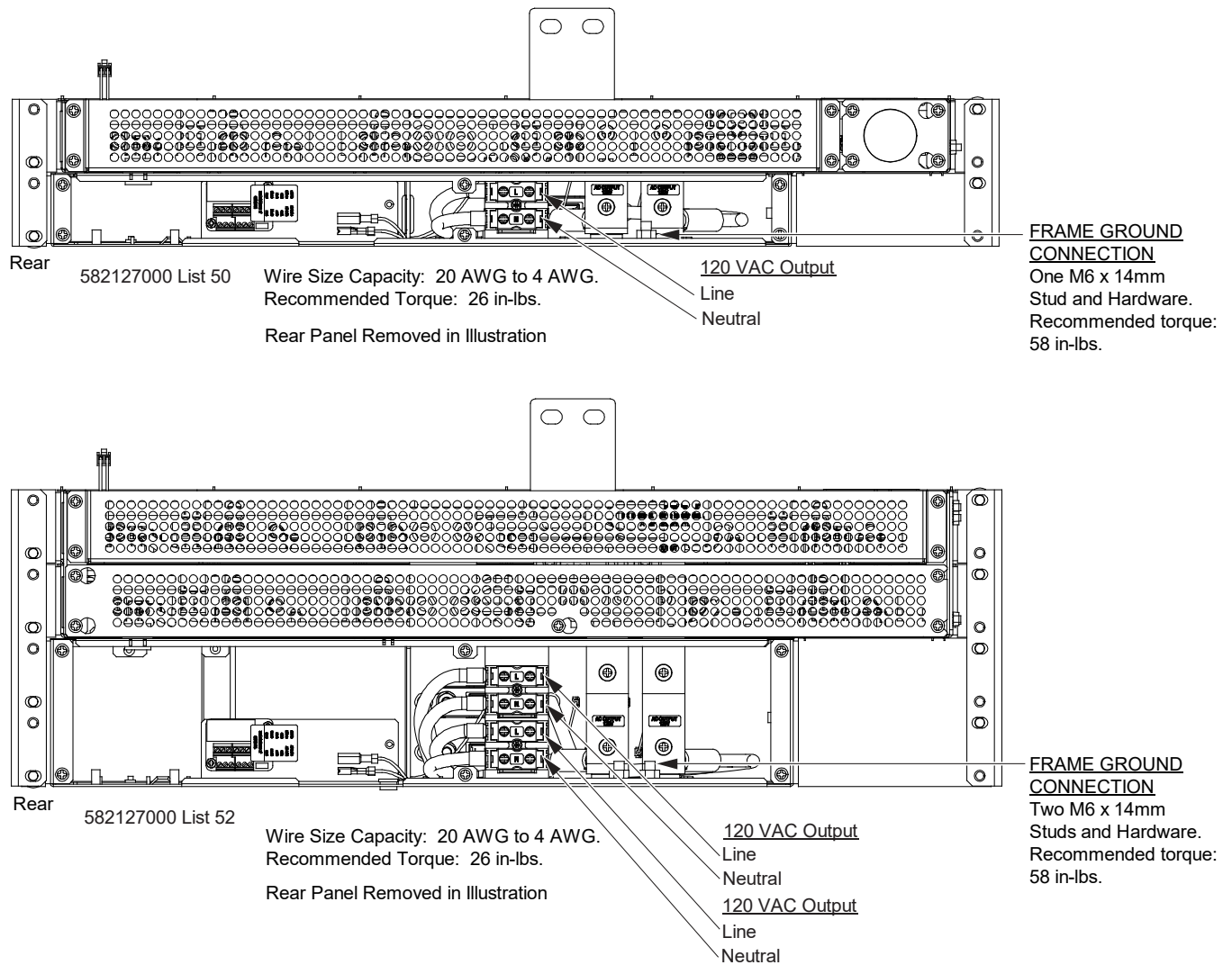


Figure 9  
Inverter System AC Output Connections (List 50, 52)

# Vertiv™ NetSure™ 7100 DC Power System

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### **Inverter System AC Output Connections (List 51, 53)**

The 1RU and 2RU AC distribution panels with 15A NEMA / IEC connectors are automatically field wired via the line cords that connect to the NEMA / IEC outlets. Refer to Figure 10 for an illustration of the NEMA panel.

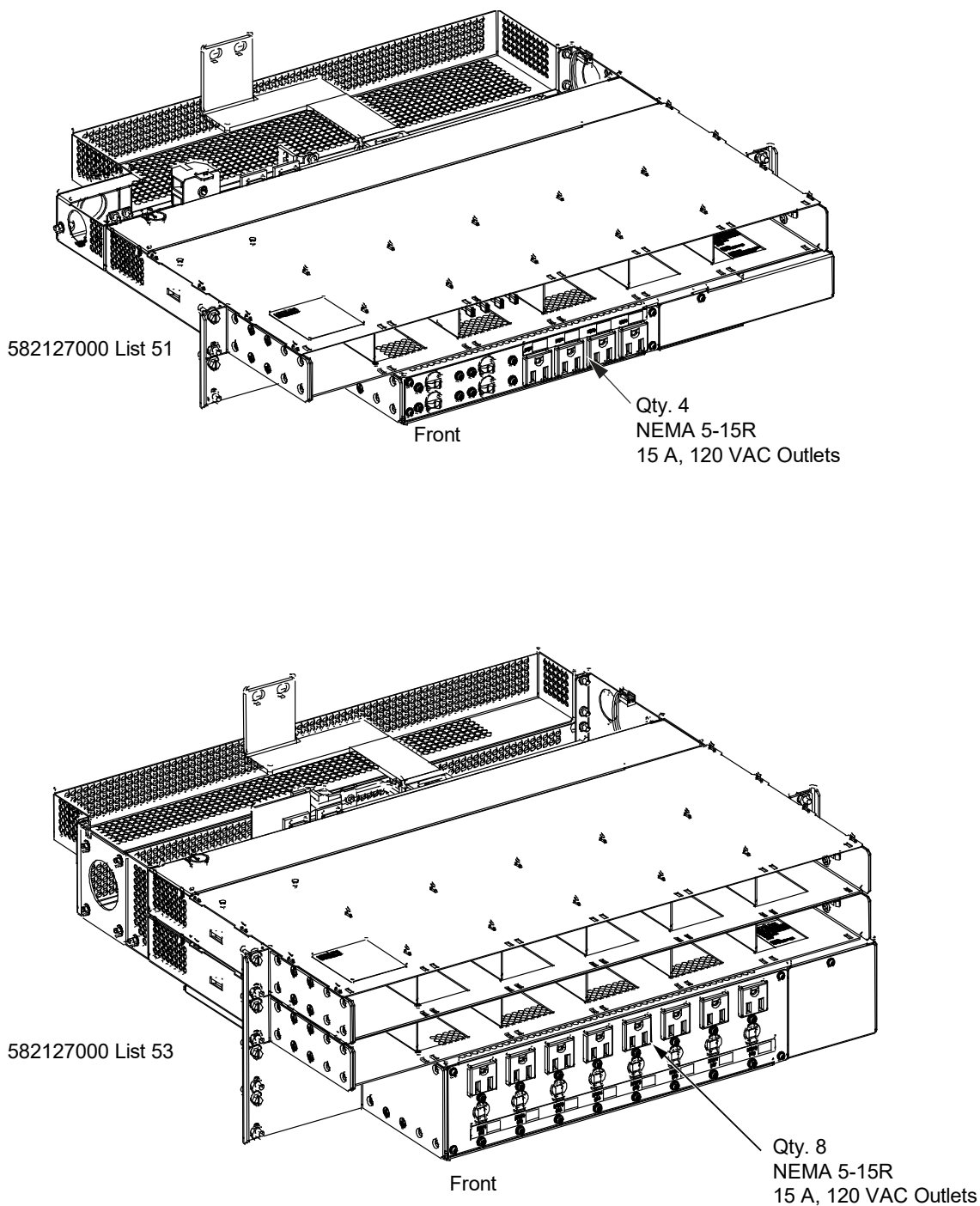


Figure 10  
Inverter System AC Output Connections (List 51, 53)

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### External Alarm, Reference, Monitoring (All Lists except List 100, 101, 102, 203, 600, 601, 900, 901, 500, 501, 502, 503)

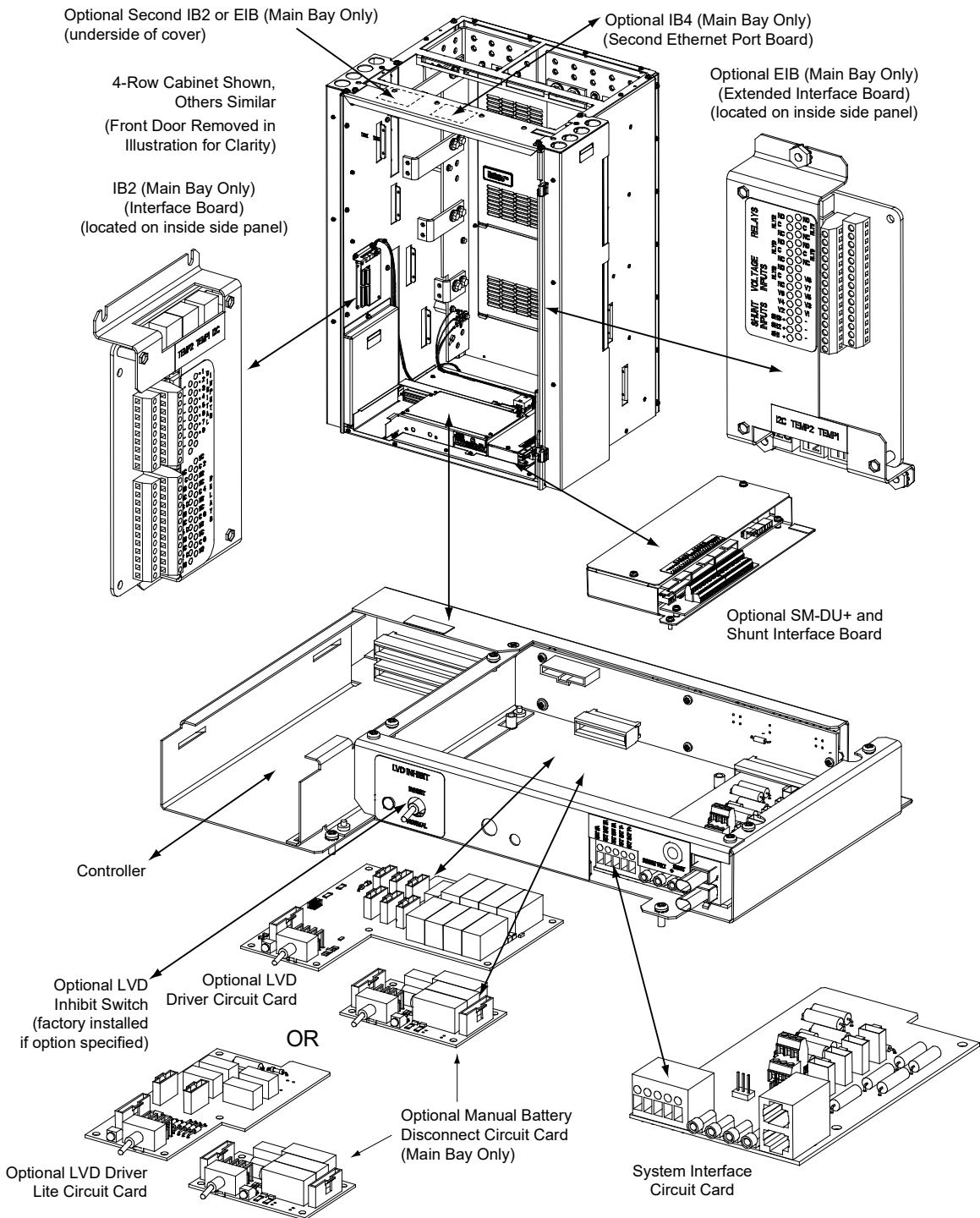
#### External Alarm, Reference, Monitoring, and Control Wire Sizes

Recommended wire size is 22 AWG for loop lengths up to 200 ft. and 18 AWG to 20 AWG for loop lengths over 200 ft.

#### External Alarm, Reference, Monitoring, and Control Illustrations

See Table 30 for replacement part numbers.

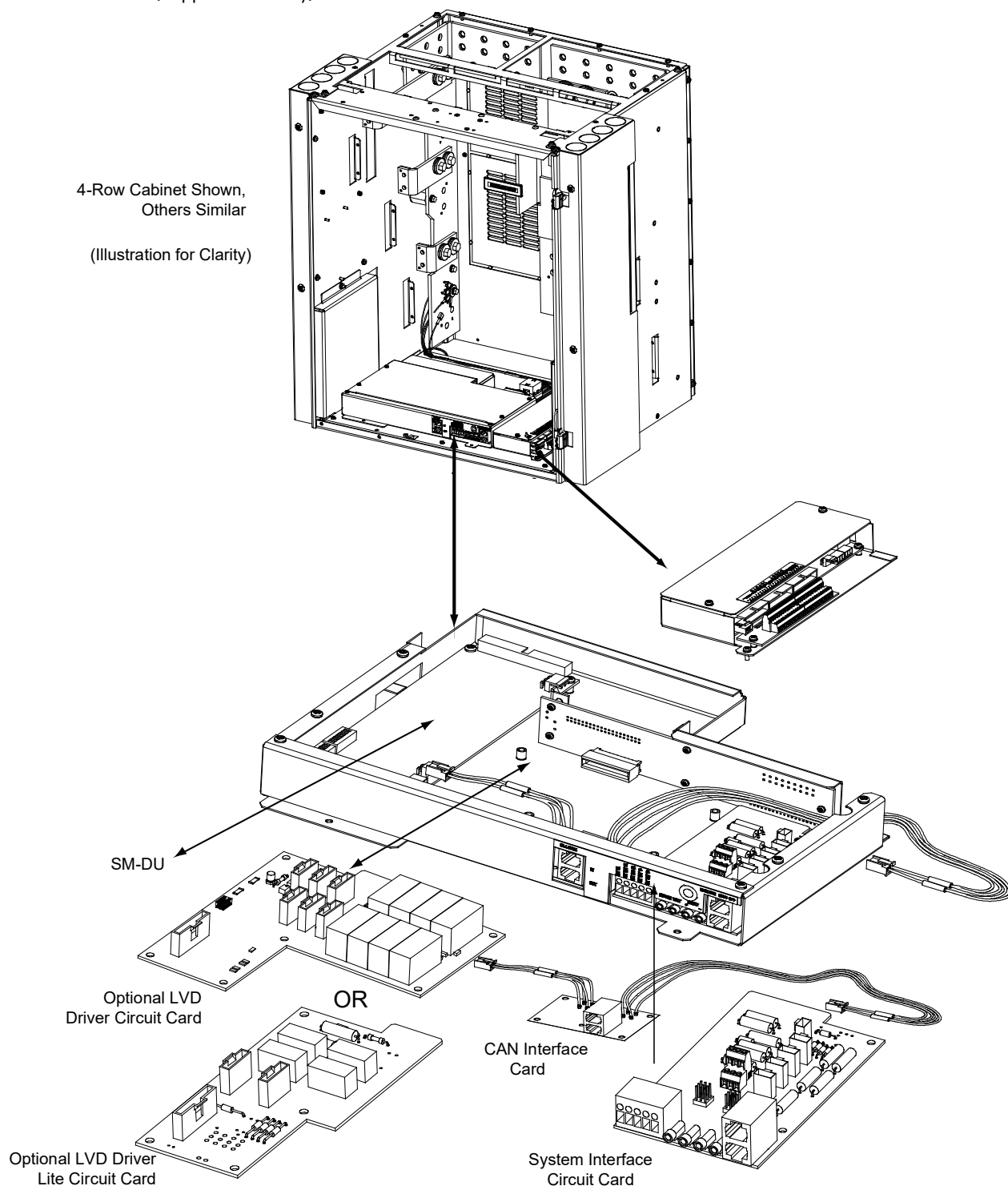
#### Circuit Card Location (Main Bay)



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### Circuit Card Location (Supplemental Bay)



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**(Main Bay Only)**

\* When an NCU configuration is furnished that enables NCU capability to receive status information sent from Fiamm SoNick [Sodium Nickel] batteries. Connect leads from the Fiamm SoNick batteries to the RS-485 terminals. Refer to the battery manufacturer documentation and the NCU controller manual UM1M830BNA for details.

**TB2 (Main Bay Only)**

**RS485 Connection\***

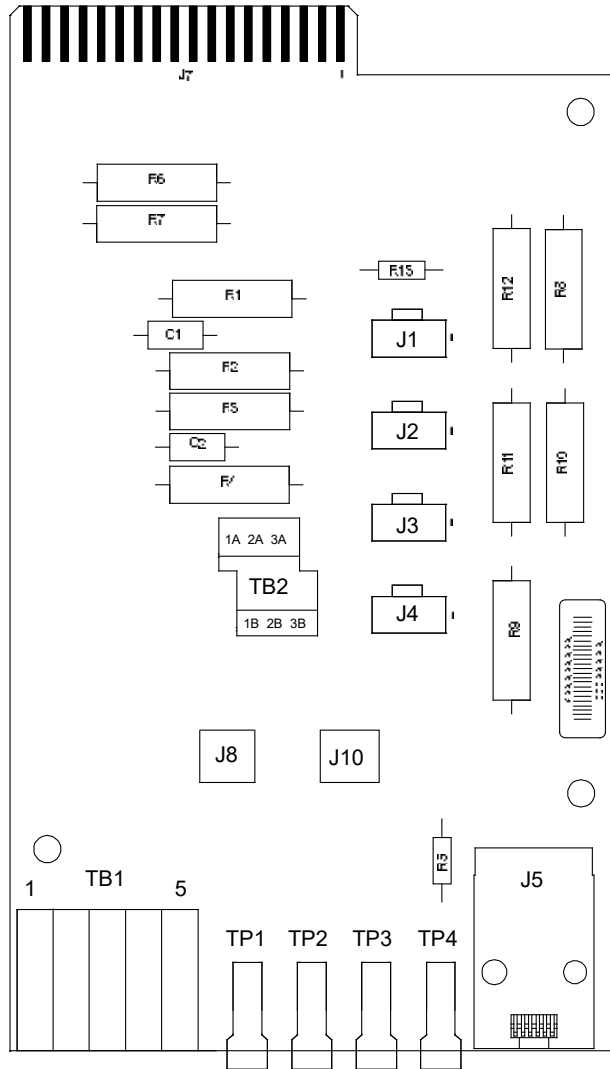
TB2 1A: RS485+  
TB2 2A: RS485-

**RS232 Connection**

TB2 1B: CGND  
TB2 2B: TXD232  
TB2 3B: RXD232

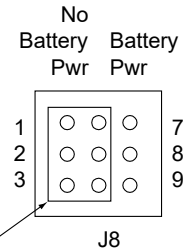
TB2 3A: Internally used by system.

**TB2**  
Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.0 in-lbs.



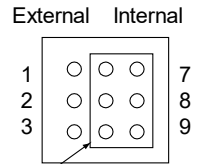
**J1, J2, J3, J4**  
Distribution Panels FA Inputs

**J8 (Main Bay Only)**  
Selects to power Controller from "Battery Power" or not.



Shorting Jumper

**J10 (Main Bay Only)**  
Battery Monitoring External / Internal (see TB1-4 and TB1-5 for external monitoring points)



Shorting Jumper

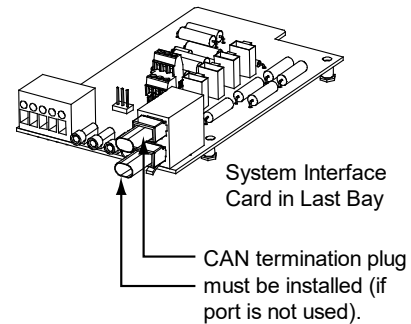
**J5**  
CAN2 (top)  
CAN1 (bottom)

TB1-1: Battery Tray FA  
TB1-2: External Battery FA  
TB1-3: External System FA  
TB1-4: External Battery Monitoring (-)  
TB1-5: External Battery Monitoring (+)

**TP1 (+) and TP2 (-)**  
Bay Voltage Monitoring

**TP3 (+) and TP4 (-)**  
Bay Load Shunt Monitoring

**TB1**  
TB1-2, TB1-3, TB1-4, TB1-5 Main Bay Only.  
Wire Size Capacity: 22-12 AWG.  
Recommended Torque: 3.0 in-lbs.  
FA Signals: System voltage applied to the terminal turns in an alarm.

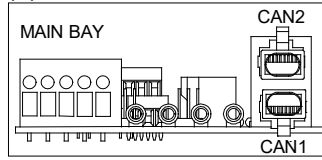


System Interface Card in Last Bay

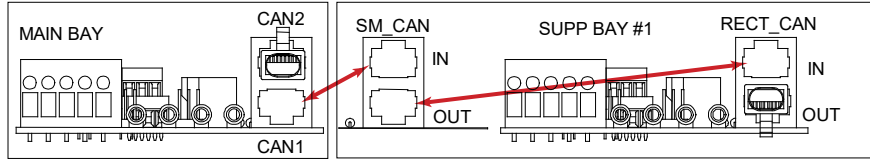
CAN termination plug must be installed (if port is not used).

**NOTE:**  
See next page for Bay to Bay Communication Cable Connections.

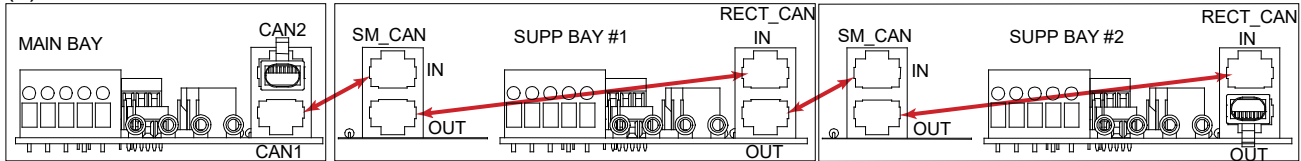
(1) BAY SYSTEM



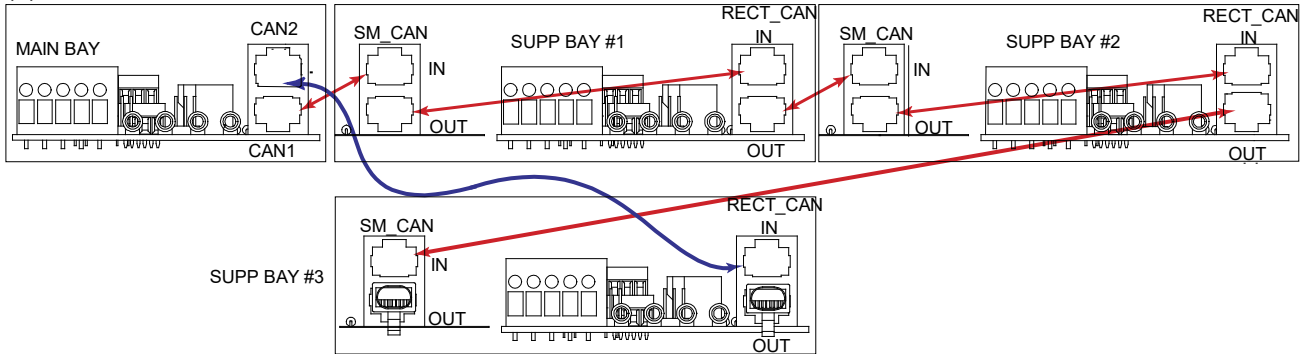
(2) BAY SYSTEM



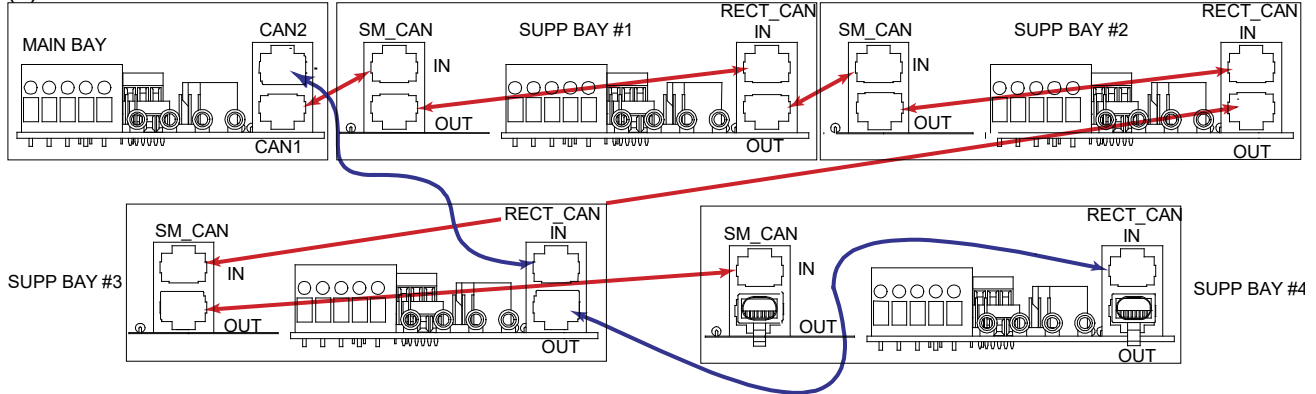
(3) BAY SYSTEM



(4) BAY SYSTEM



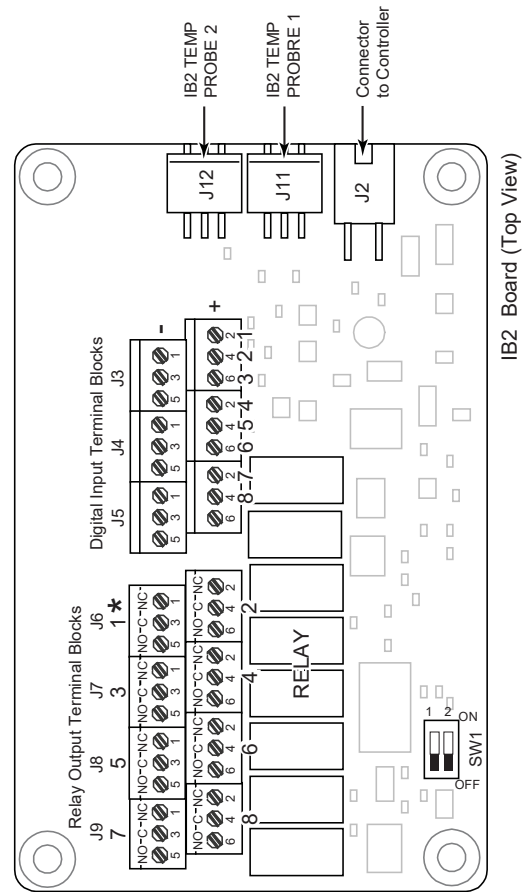
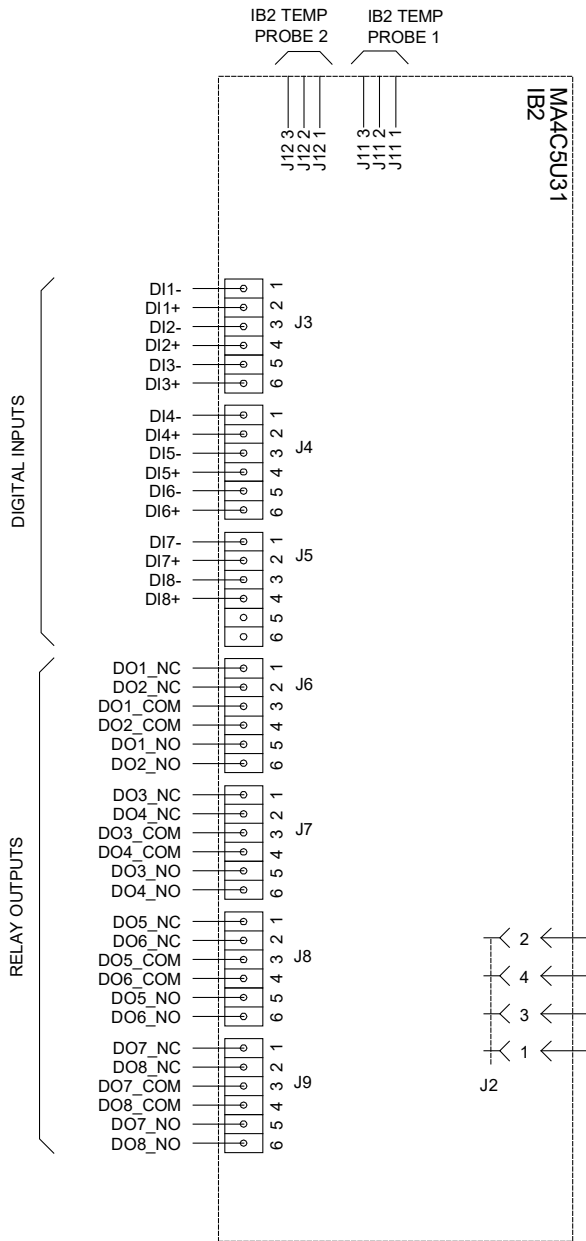
(5) BAY SYSTEM



NOTE: Use standard CAT5 communications cables.

1. Diagrams above are for typical configurations. CAN1 is used for all SM\_CAN connections and for RECT\_CAN connections up through and including the bay with the 72nd rectifier slot maximum (for 1R483500E3 or 1R484000E) or the 60th rectifier slot maximum (for 1R483500E). CAN2 of the Main Bay should be connected to RECT\_CAN IN in the supplementary bay that has the 73rd rectifier slot (for 1R483500E3 or 1R484000E) or the 61st rectifier slot (for 1R483500E).

Schematic Diagram of IB2 Board



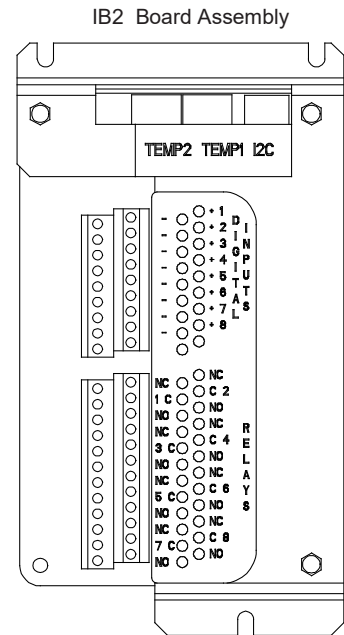
**J3-J9:**  
Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.2 in-lbs.

\* The relay assigned to "Critical Summary" alarm (Relay 1 on first IB2 by default) will operate in the "Fail Safe Mode". "Fail Safe Mode" means Relay 1 is de-energized during an alarm condition, opening the contacts between the C and NO terminals, and closing the contacts between the C and NC terminals.

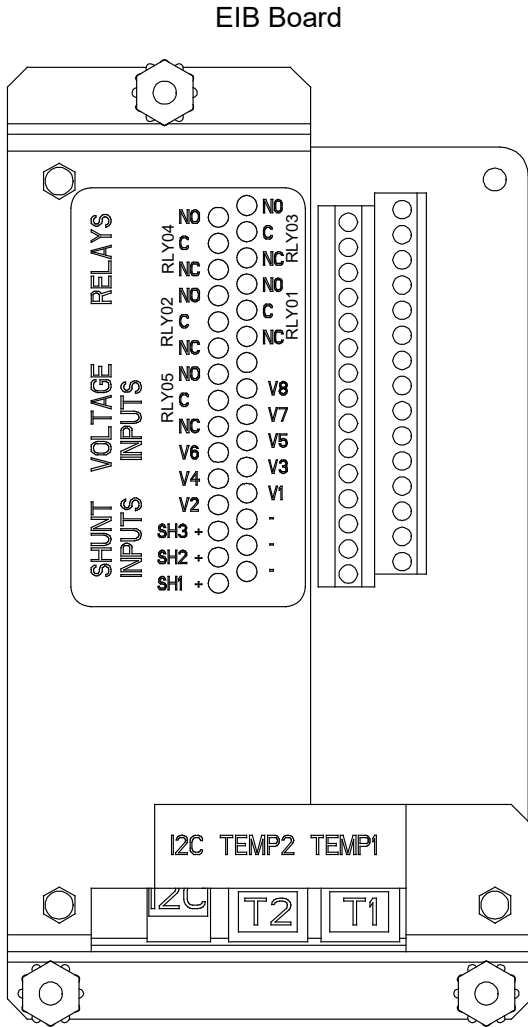
The remaining seven (7) relays energize during an alarm condition, closing the contacts between the C and NO terminals, and opening the contacts between the C and NC terminals.

Refer to the configuration drawing (C-drawing) supplied with your system for your system's specific relay labeling.

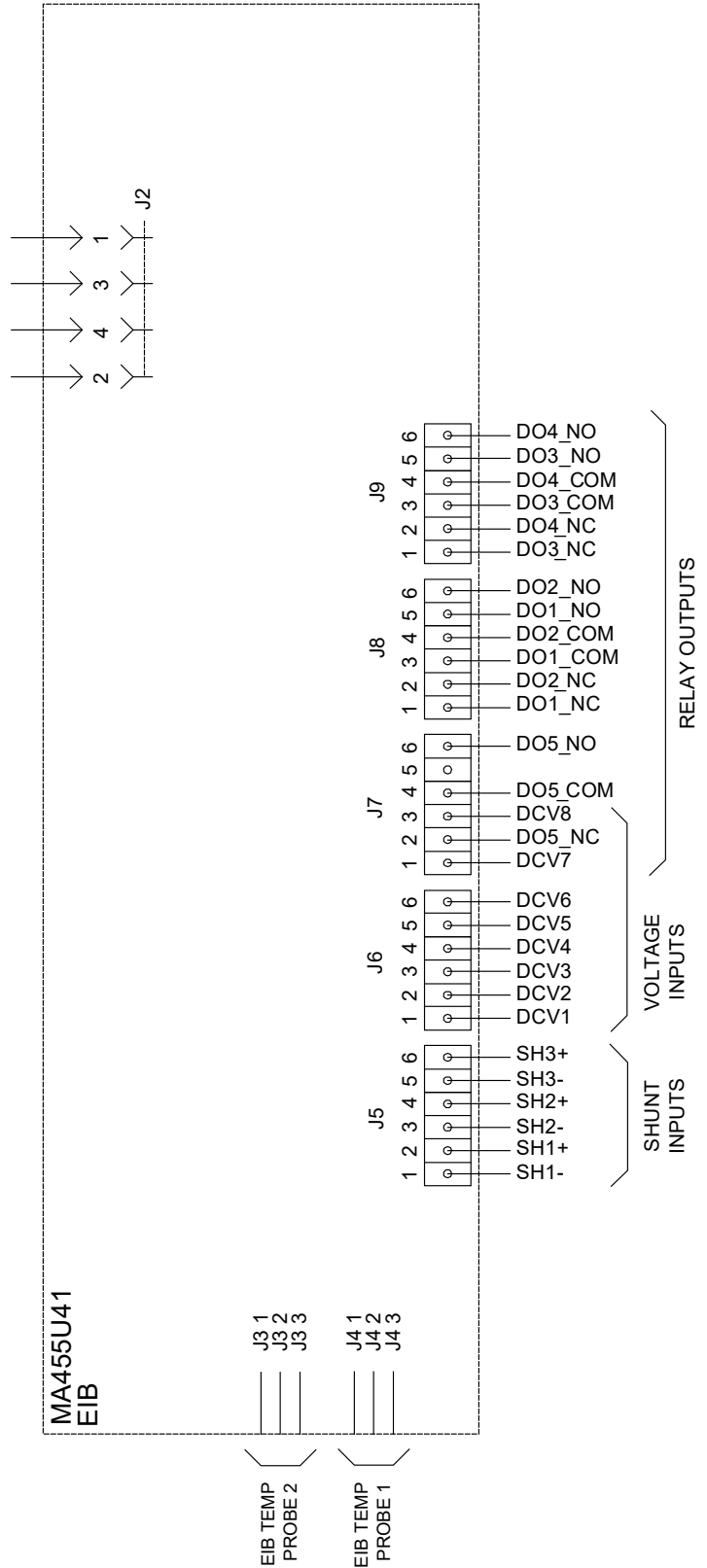
Not all I/O points are available for customer connection (some are used for factory system connections).



Schematic Diagram of EIB Board

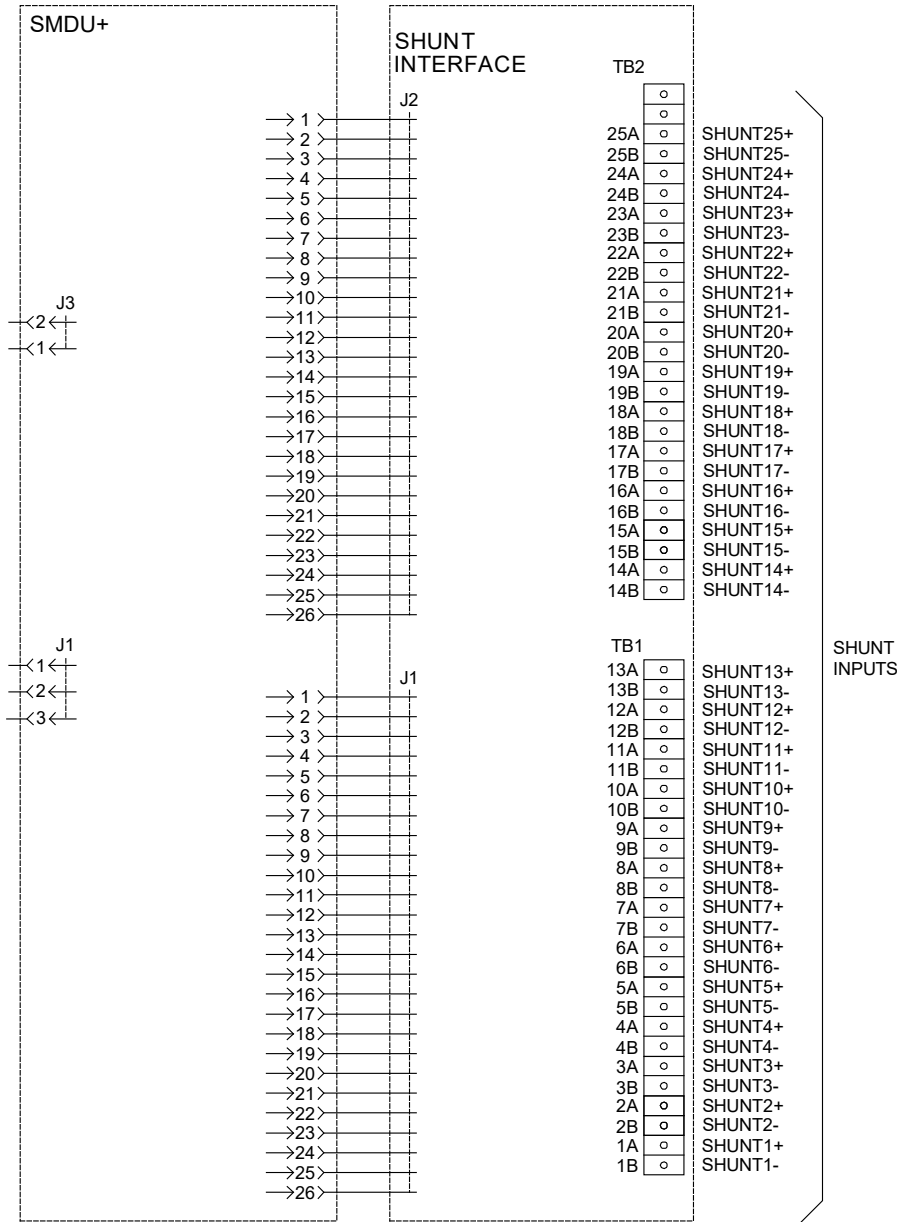


**J5-J9**  
Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.2 in-lbs.

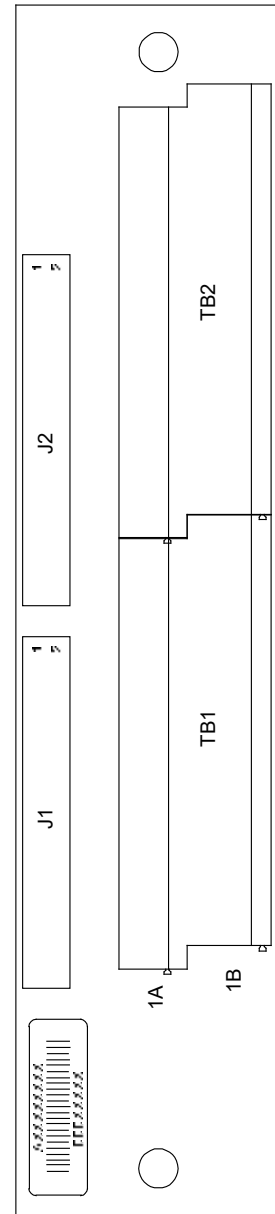




Schematic Diagram of SM-DU+ and Shunt Interface Board

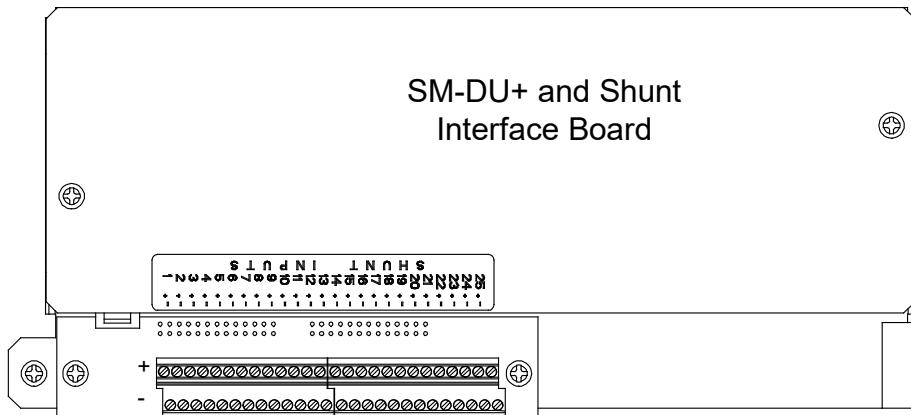


Shunt Interface Board

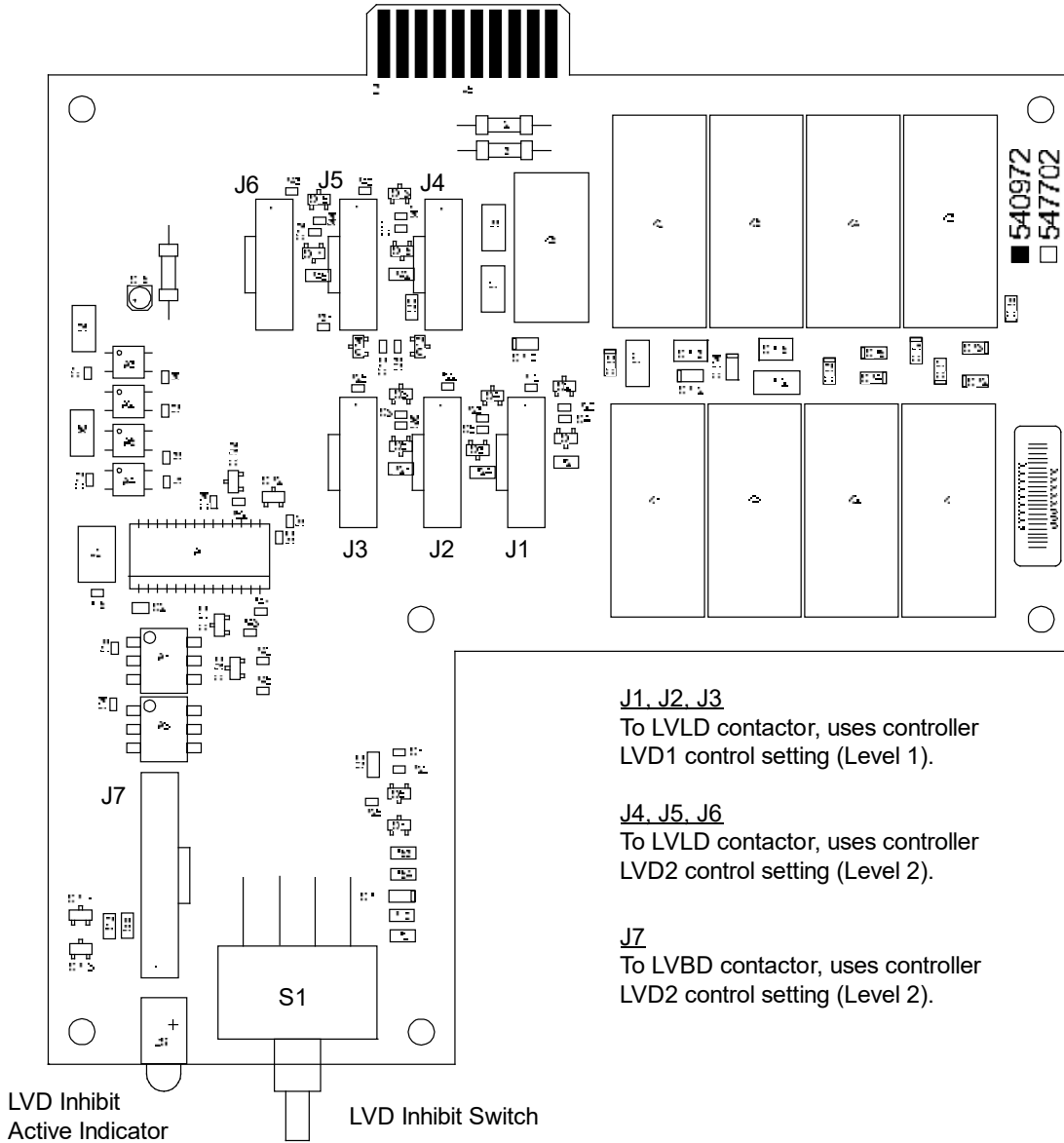


**TB1 - TB2**

Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.2 in-lbs.



### Optional LVD Driver Circuit Card

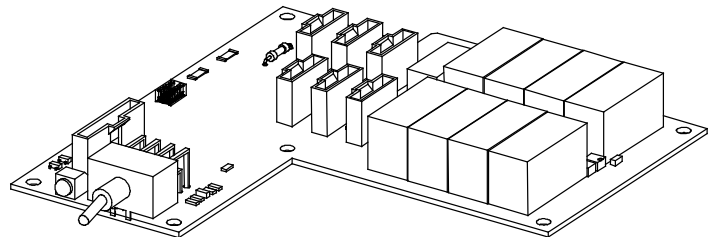


**Momentary UP / Middle / Down**

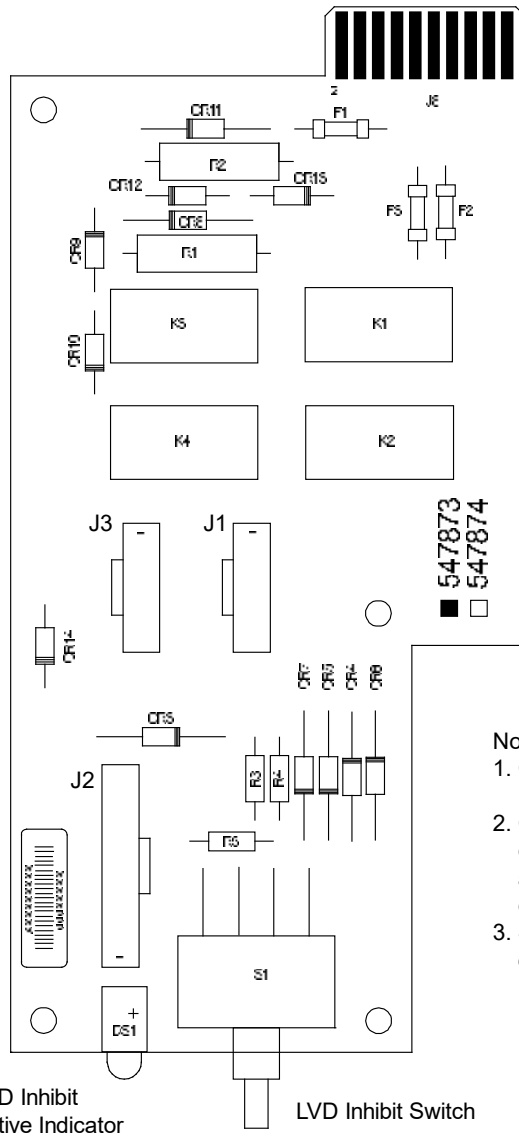
Momentary UP Position: Closes all LVD Contactors (inhibit mode).  
Middle Position: OFF (Controller DOES NOT control LVD's) (inhibit mode).  
DOWN Position: ON (Controller controls LVD's).

**Notes:**

1. Connects up to (4) LVLD and (1) LVBD contactors.
2. Switch and indicator located on circuit card installed in Main Bay only.



Optional LVD Driver  
Lite Circuit Card



**J1**  
To LVLD contactor, uses controller LVD1 control setting (Level 1).

**J3**  
To LVLD contactor, uses controller LVD2 control setting (Level 2).

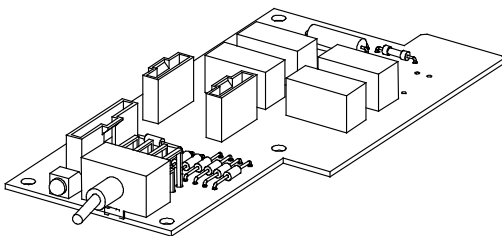
**J2**  
To LVBD contactor, uses controller LVD2 control setting (Level 2).  
Can only be used if it is contained in a List 21 (1-row) cabinet.

Notes:

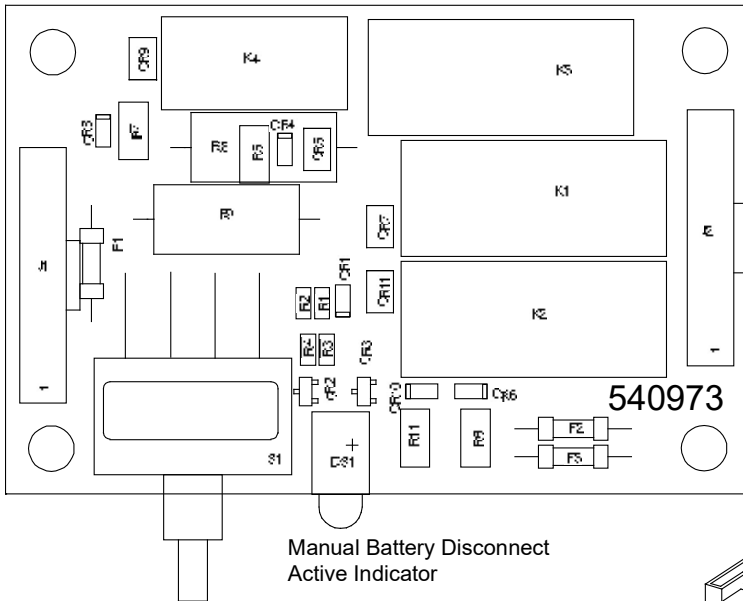
1. Connects up to (2) LVD contactors rated at 600 A or less.
2. Only one (1) contactor per level can be accommodated. J2 and J3 are on Level 2, only one (1) of these connectors can be used at a time.
3. Switch and indicator located on circuit card installed in Main Bay only.

Momentary UP / Middle / Down

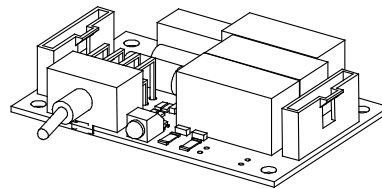
Momentary UP Position: Closes all LVD Contactors (inhibit mode).  
Middle Position: OFF (Controller DOES NOT control LVD's) (inhibit mode).  
DOWN Position: ON (Controller controls LVD's).



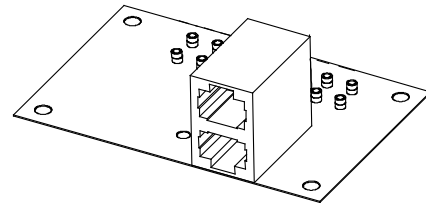
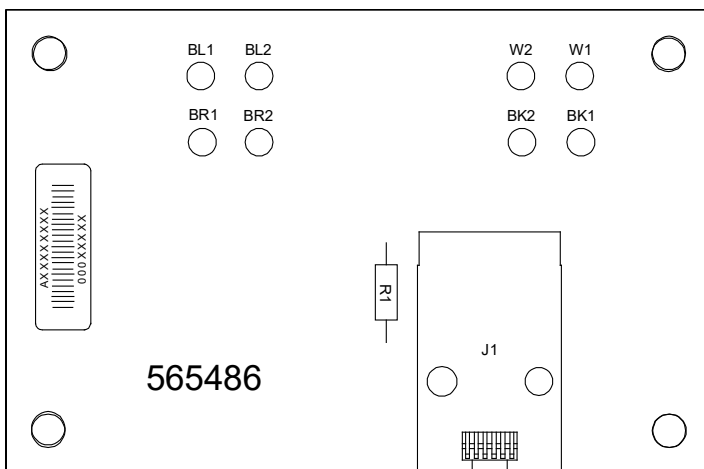
Optional Manual Battery  
Disconnect Circuit Card  
(Main Bay Only)



**Momentary UP / Middle / Momentary Down**  
 Momentary UP Position: Closes Battery Disconnect Contactor  
 Middle Position: Normal Operation  
 Momentary DOWN Position: Opens Battery Disconnect Contactor



CAN Interface Board  
( Supplementary Bay Only )



# Vertiv™ NetSure™ 7100 DC Power System

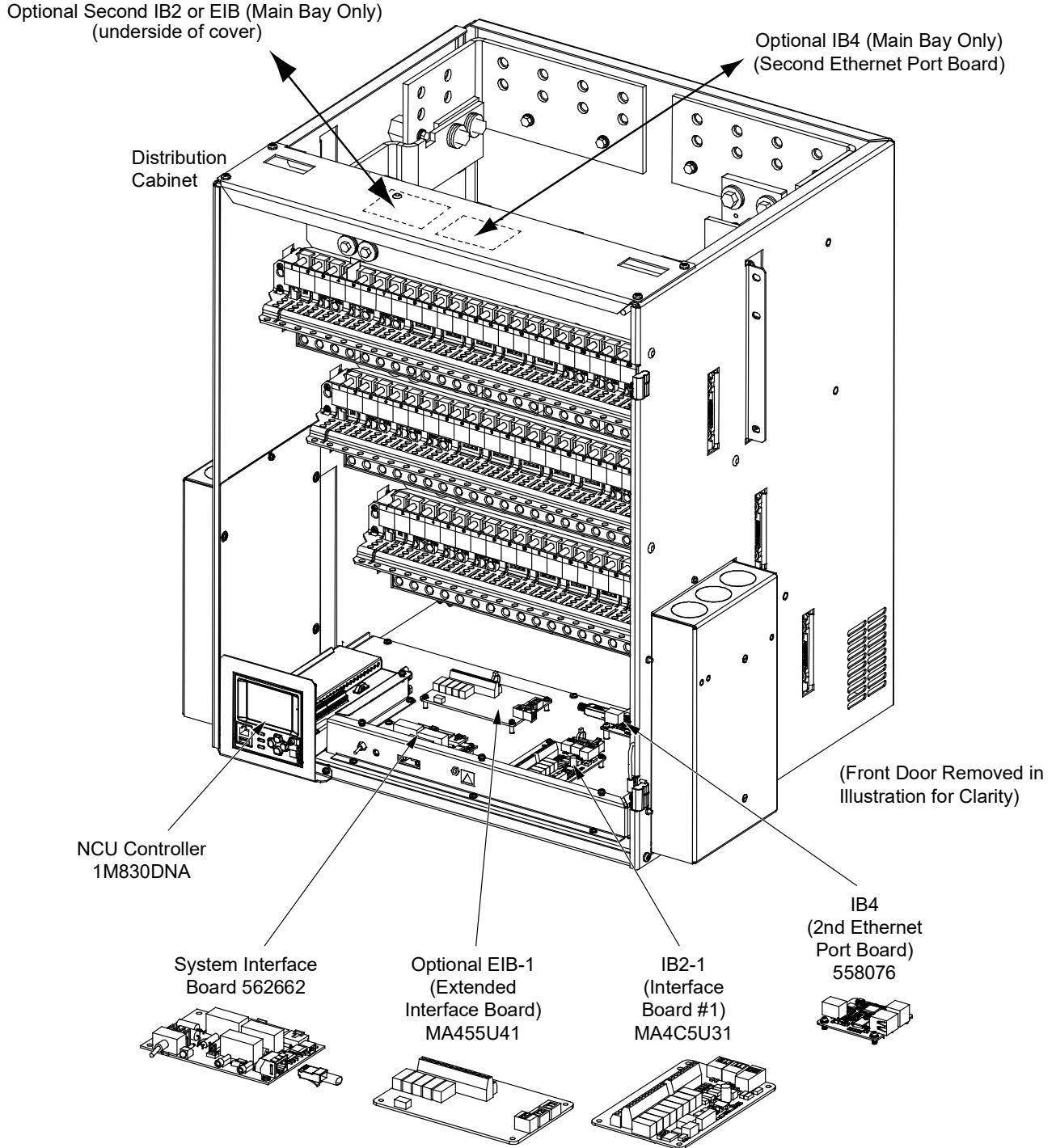
## System Application Guide

### External Alarm, Reference, Monitoring (List 100, 101, 102, 203, 500, 501, 502, 503)

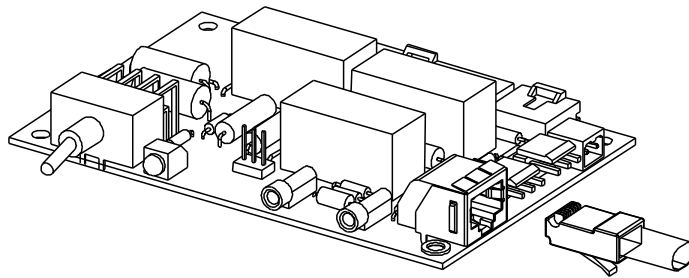
#### External Alarm, Reference, Monitoring, and Control Wire Sizes

Recommended wire size is 22 AWG for loop lengths up to 200 ft. and 18 AWG to 20 AWG for loop lengths over 200 ft.

#### External Alarm, Reference, Monitoring, and Control Illustrations

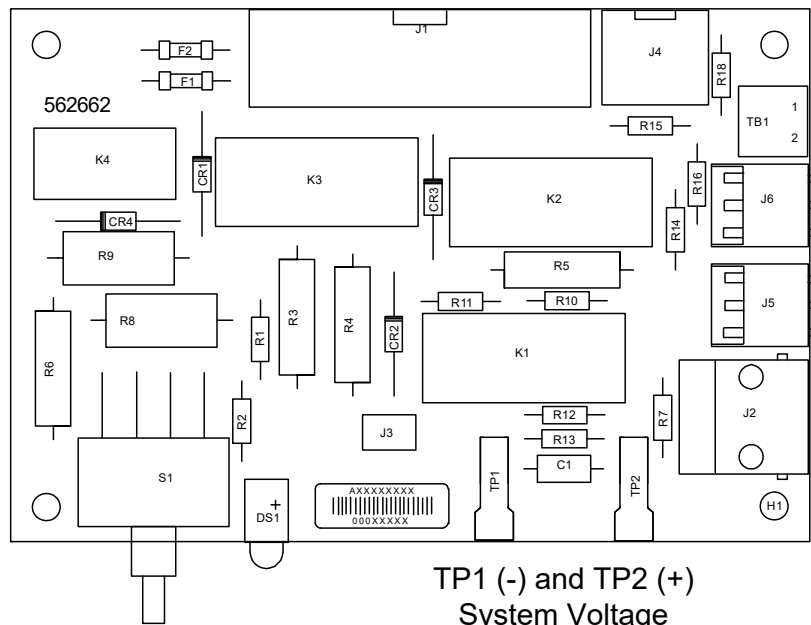


System Interface Board



CAN termination plug P/N 548398 must be installed if an external device is not connected to the system.

System Interface Board



TB1

Wire Size Capacity: 14AWG to 30AWG  
Recommended Torque: 0.28Nm or 2.48 in-lb

FA Signals: System voltage applied to the terminal turns in an alarm.

TB1-1: Bat Tray FA

TB1-2: Bat Rack FA

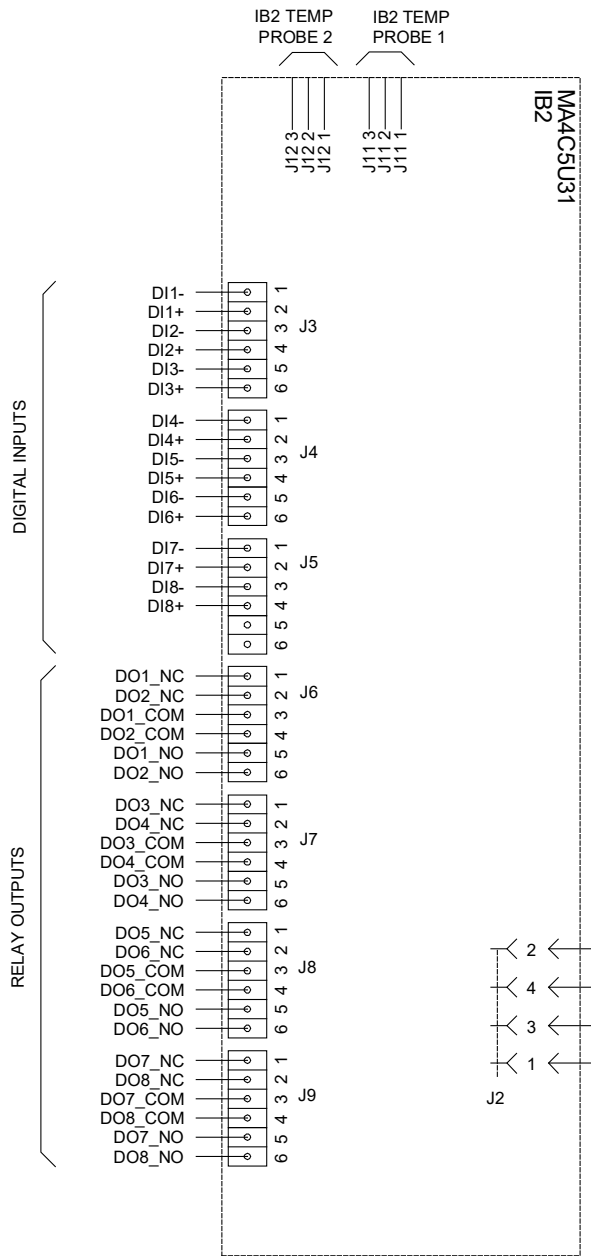
J6 (System Temp 2)

J5 (System Temp 1)

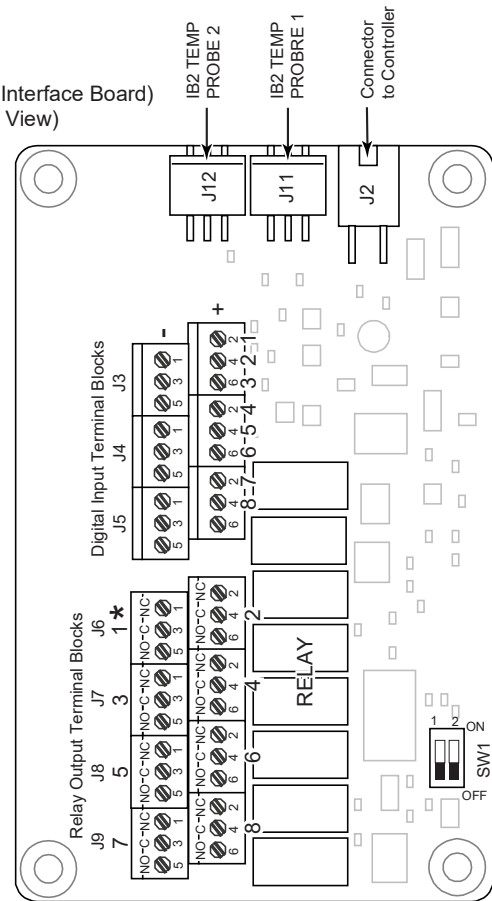
NCU CAN Port

TP1 (-) and TP2 (+)  
System Voltage

Schematic Diagram of IB2 Board

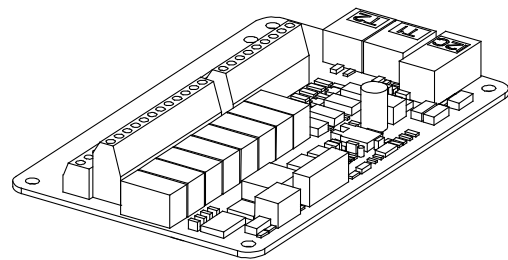


IB2 (Interface Board)  
(Top View)



**J3-J9:**  
Wire Size Capacity: 16-26 AWG.  
Recommended Torque: 2.2 in-lbs.

IB2 (Interface Board)



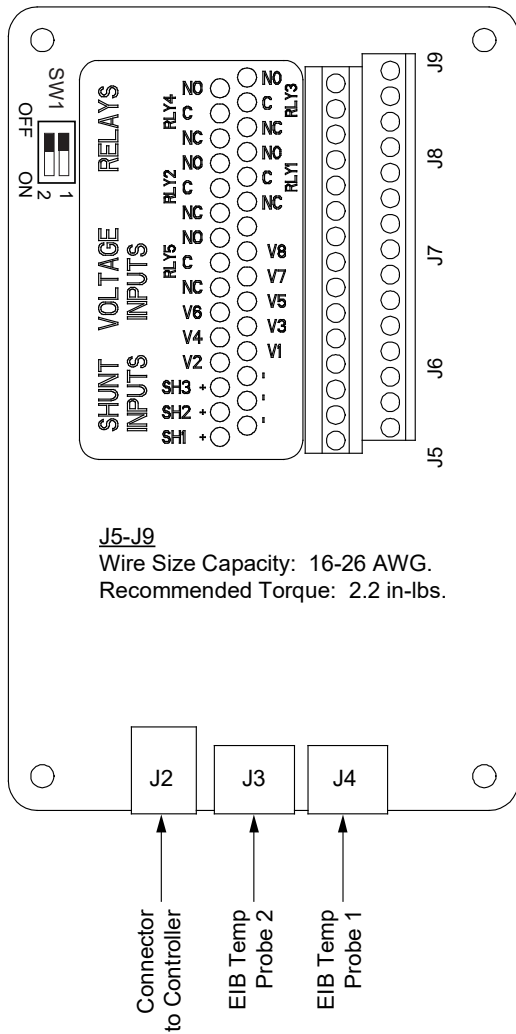
\* The relay assigned to "Critical Summary" alarm (relay 1 on first IB2 by default) will operate in the "Fail Safe Mode". "Fail Safe Mode" means Relay 1 is de-energized during an alarm condition, opening the contacts between the C and NO terminals, and closing the contacts between the C and NC terminals.

The remaining seven (7) relays energize during an alarm condition, closing the contacts between the C and NO terminals, and opening the contacts between the C and NC terminals.

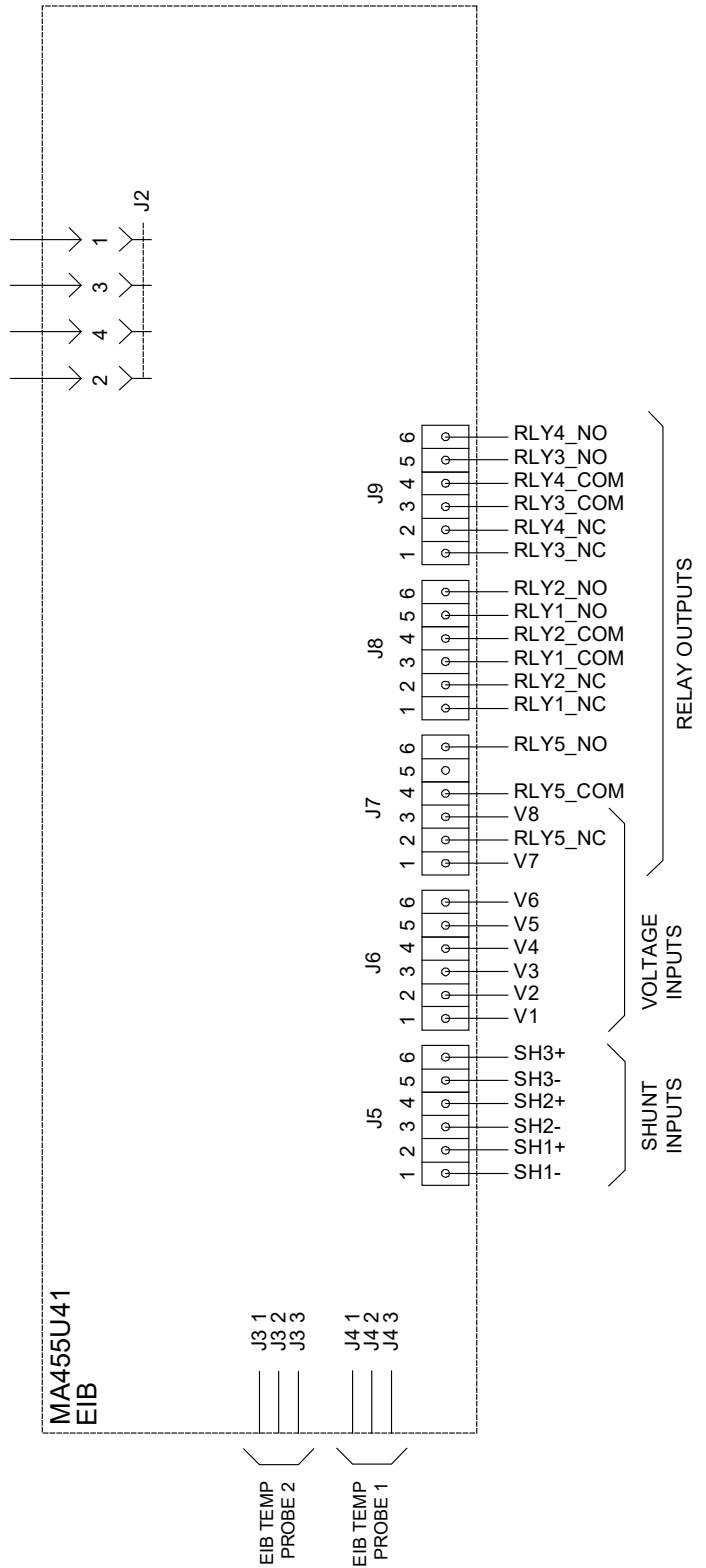
Refer to the configuration drawing (C-drawing) supplied with your system for your system's specific relay labeling.

Not all I/O points are available for customer connection (some are used for factory system connections).

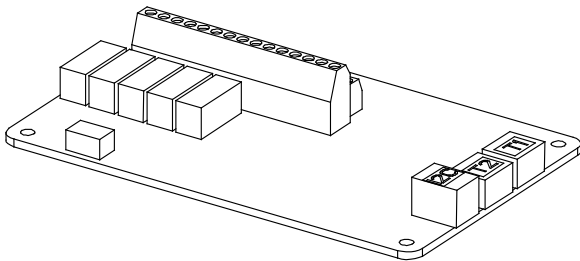
EIB (Extended Interface Board)  
(Top View)



Schematic Diagram of EIB Board



EIB (Extended Interface Board)



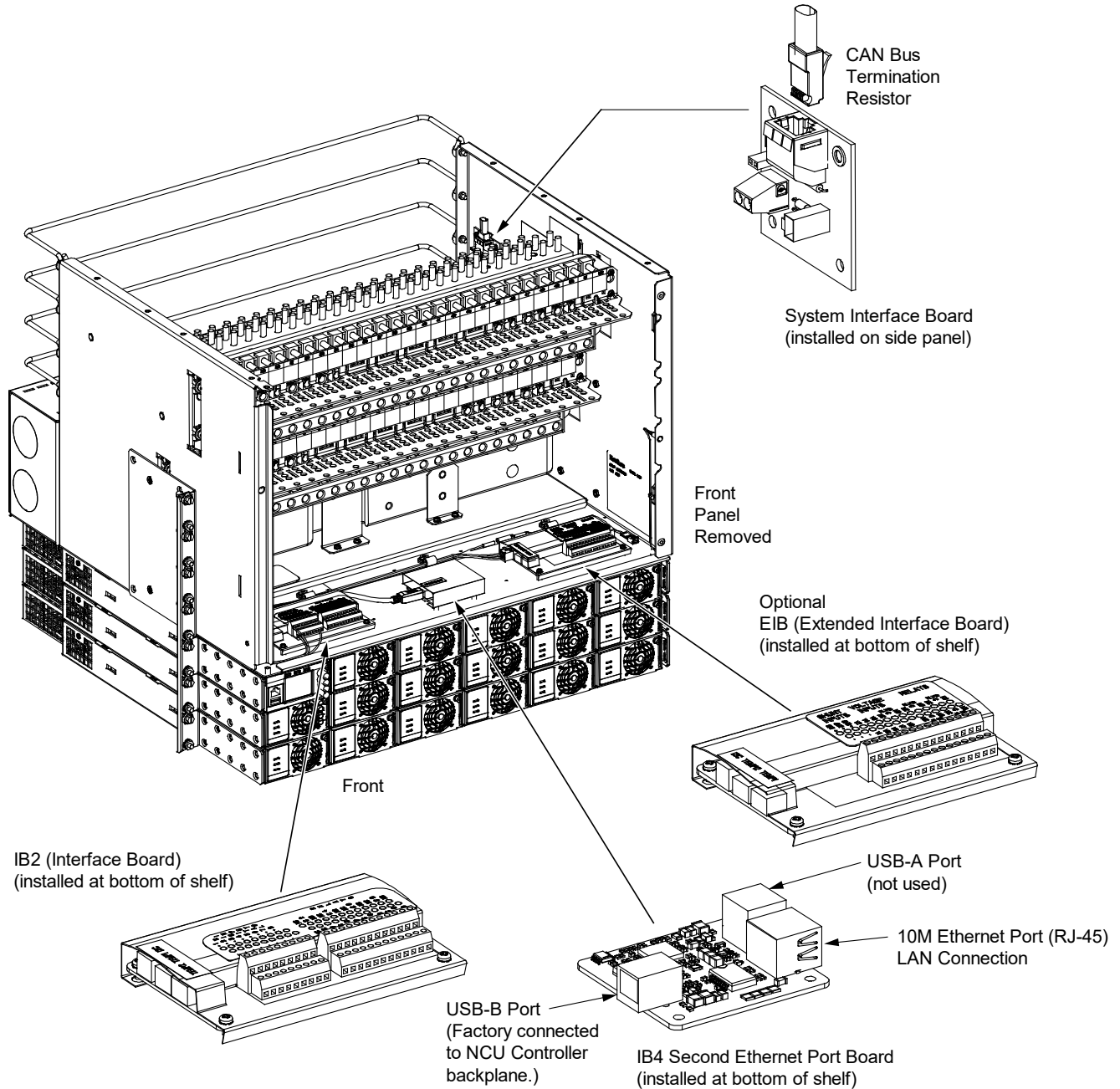


**External Alarm, Reference, Monitoring (List 600, 601, 900, 901)**

**External Alarm, Reference, Monitoring, and Control Wire Sizes**

Recommended wire size is 22 AWG for loop lengths up to 200 ft. and 18 AWG to 20 AWG for loop lengths over 200 ft.

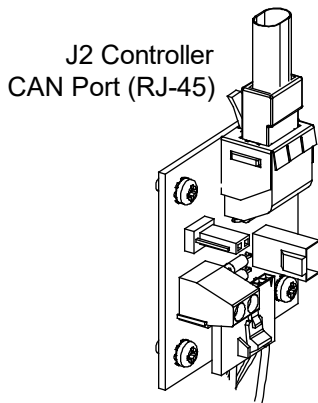
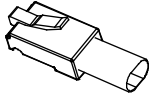
**External Alarm, Reference, Monitoring, and Control Illustrations**



# Vertiv™ NetSure™ 7100 DC Power System

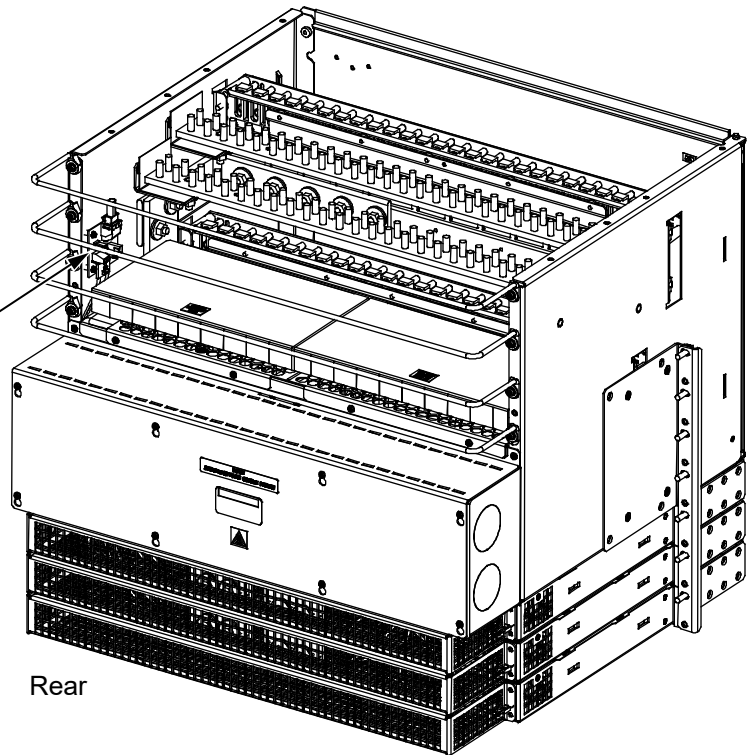
## System Application Guide

A CAN termination plug (P/N 548398) must be installed if an external device or system is not connected here.



J2 Controller CAN Port (RJ-45)

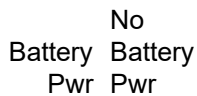
System Interface Board (installed on side panel)



Rear

### J4 on System Interface Board

Selects to power controller from “Battery Power” or not if a battery LVD contactor is furnished.



No  
Battery Pwr

Battery Pwr



Shorting Jumper

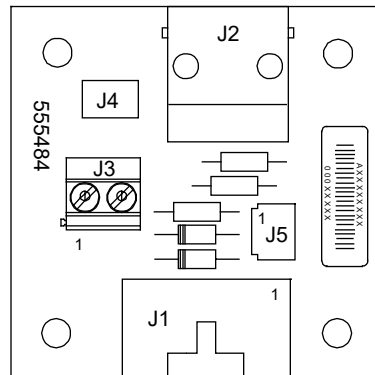
### J3 on System Interface Board

Wire Size Capacity: 16 AWG to 30 AWG.  
Wire Strip Length: 0.32 inch.  
Recommended Torque: 2.3 in-lbs.

### RS485 Connection

J3-1: RS485+  
J3-2: RS485-

System Interface Board P/N 555484



# Vertiv™ NetSure™ 7100 DC Power System

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The relay assigned to “Critical Summary” alarm (relay 1 by default) will operate in the “Fail Safe Mode”. “Fail Safe Mode” means Relay 1 is de-energized during an alarm condition, opening the contacts between the C and NO terminals, and closing the contacts between the C and NC terminals. The remaining seven (7) relays energize during an alarm condition, closing the contacts between the C and NO terminals, and opening the contacts between the C and NC terminals.

Not all I/O points may be available for customer connection (some may be used for factory system connections). The digital inputs and relay outputs may be preprogrammed for specific functions. Refer to the configuration drawing (C-drawing) supplied with your system for your system’s specific configuration.

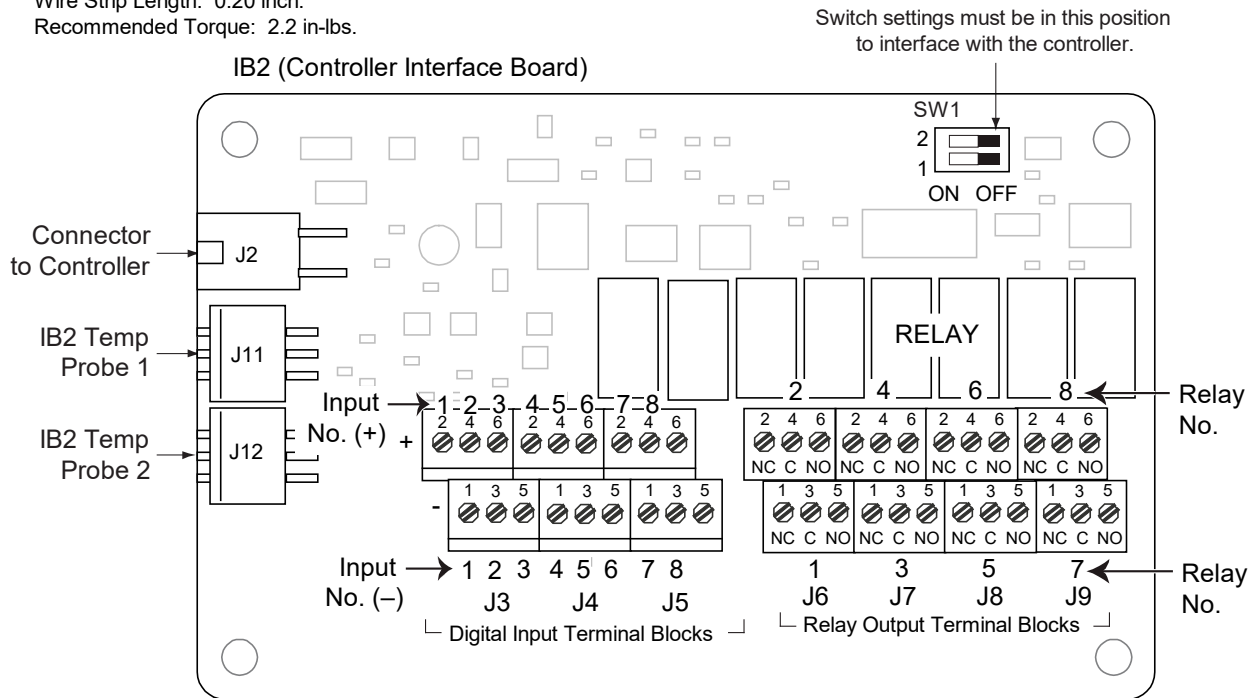
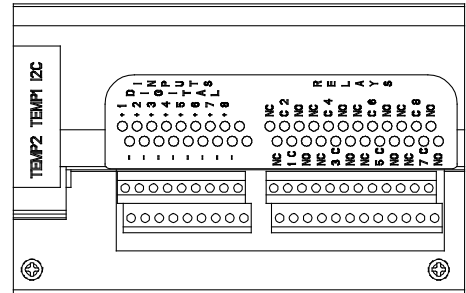
**J3-J9:**

Wire Size Capacity: 16 AWG to 26 AWG.

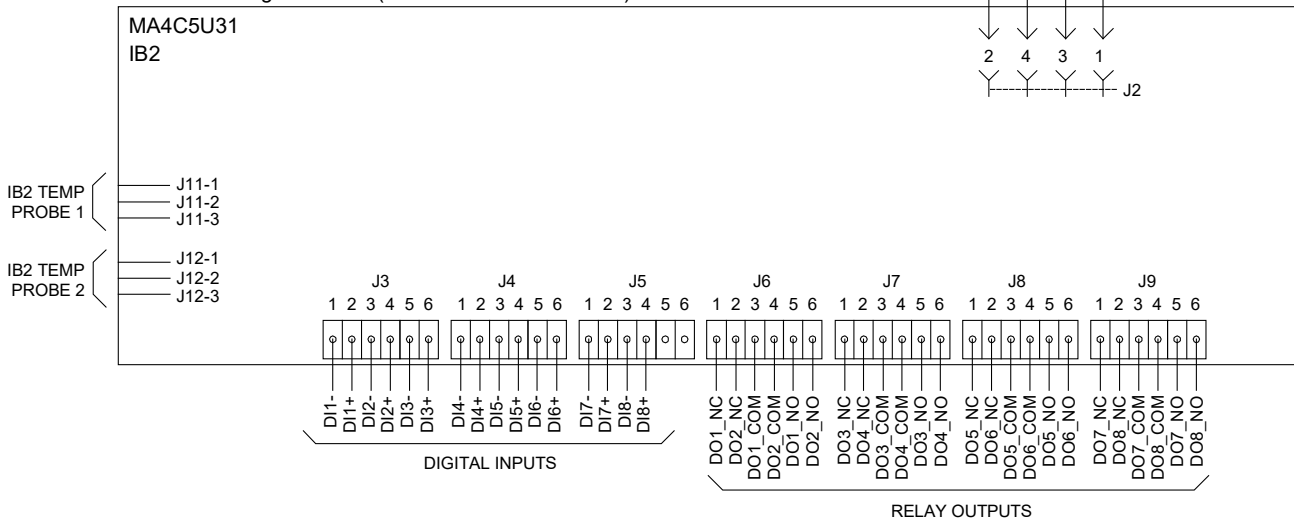
Wire Strip Length: 0.20 inch.

Recommended Torque: 2.2 in-lbs.

IB2 Assembly (with shield)



Schematic Diagram of IB2 (Controller Interface Board)



# Vertiv™ NetSure™ 7100 DC Power System

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The five (5) relays energize during an alarm condition, closing the contacts between the C and NO terminals, and opening the contacts between the C and NC terminals.

Not all I/O points may be available for customer connection (some may be used for factory system connections). The relay outputs may be preprogrammed for specific functions. Refer to the configuration drawing (C-drawing) supplied with your system for your system's specific configuration.

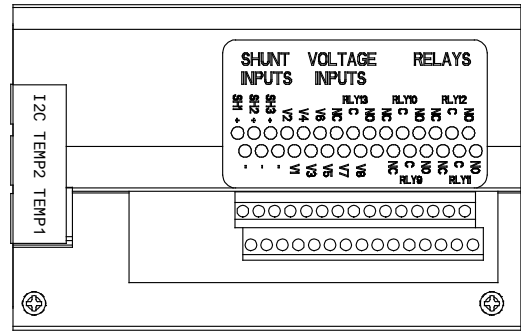
**J5-J9:**

Wire Size Capacity: 16 AWG to 26 AWG.

Wire Strip Length: 0.20 inch.

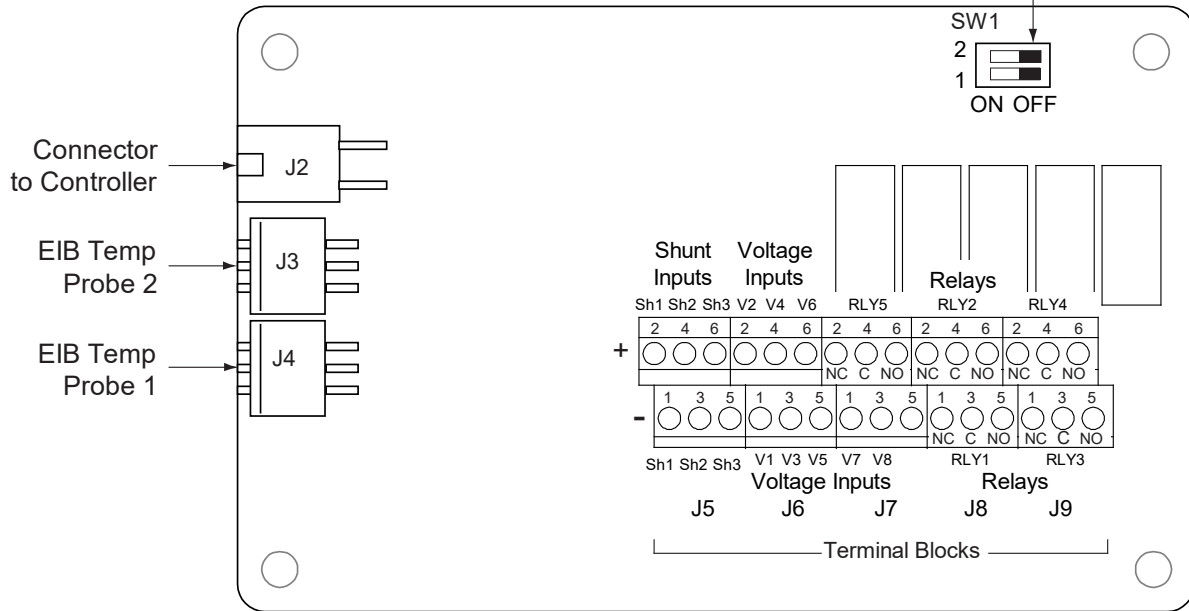
Recommended Torque: 2.2 in-lbs.

EIB Assembly (with shield)

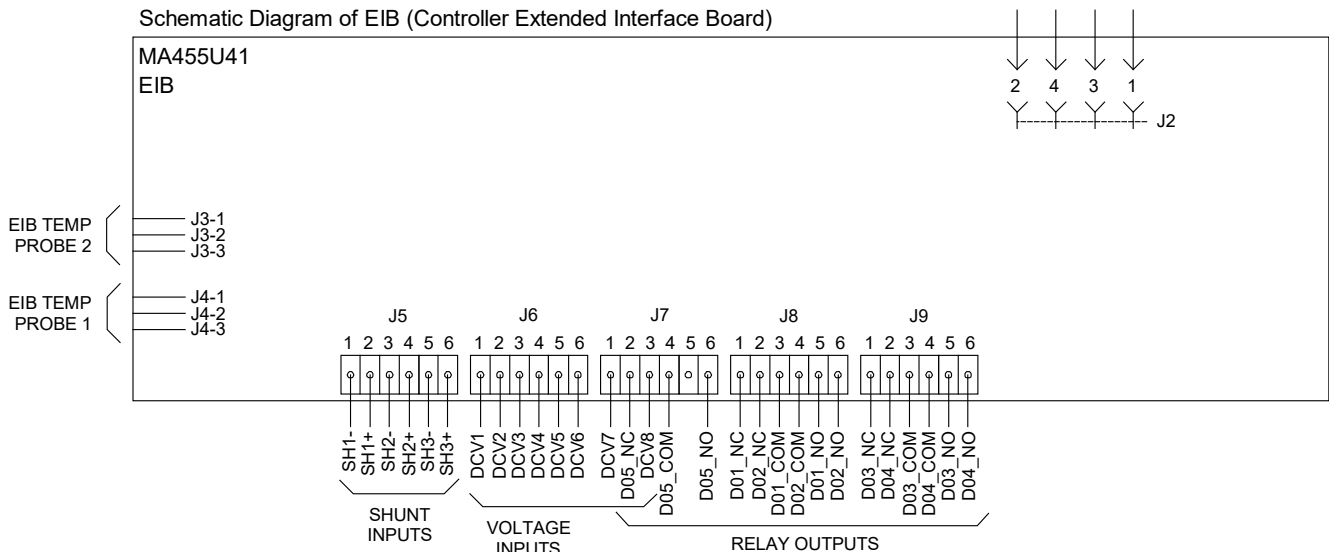


Switch settings must be in this position to interface with the controller.

EIB (Controller Extended Interface Board)



Schematic Diagram of EIB (Controller Extended Interface Board)



## Load Distribution

### Load Distribution Wire Sizes and Lugs Selection

The rating of the distribution device determines the load lead wire size requirement. The distribution panel ordered determines the lug hole size and spacing requirements. For wire size and lug selection; refer to the following.

- **When Distribution Panels using Bullet Nose Type Devices (TPS/TLS Fuses and/or Bullet Nose Type Circuit Breakers) are Provided:** Lug-terminated load leads are connected to the individual load busbars and load return busbar (if equipped) located on the distribution panel. If the distribution panel is not equipped with a load return busbar, load return connections are made to a separate return busbar.

The distribution panel's individual load busbars and load return busbar (if equipped) provide 1/4-20 studs for installation of customer-provided two-hole lugs that have 1/4-inch bolt clearance holes on 5/8-inch centers. Customer must provide (or order) lug mounting hardware. The distribution panel's individual load busbars and return busbar (if equipped) are designed to accommodate the lugs listed in Table 19 and Table 21. Use Table 50 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating. Maximum size of wire to be connected to a single fuseholder/circuit breaker position is 2 AWG. For wiring up to 350 kcmil, see Table 21 for special application crimp lug / strap combinations. Refer also to "Lug Adapters (all Lists except Lists 600, 601, 900, 901)" on page 118 or "Lug Adapters (Lists 600, 601, 900, 901)" on page 120. Use Table 20 and Table 51 when using the lug adapters with 3/8-inch bolt clearance holes on 1-inch centers.

The separate return busbar (if furnished) provides 3/8-16 captive nuts for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts and hardware. The separate return busbar (if furnished) are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating.

- **When Distribution Panels using GJ/218 Circuit Breakers or TPH Fuses are Provided:** Lug-terminated load leads are connected to the individual load busbars and load return busbar (if equipped) located on the distribution panel. If the distribution panel is not equipped with a load return busbar, load return connections are made to a separate return busbar.

The distribution panel's individual load busbars and load return busbar (if equipped) provide 3/8-16 captive nuts or studs for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts (if required) and hardware. The distribution panel's individual load busbars and return busbar (if equipped) are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating.

The separate return busbar (if furnished) provides 3/8-16 captive nuts for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts and hardware. The separate return busbar (if furnished) are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating.

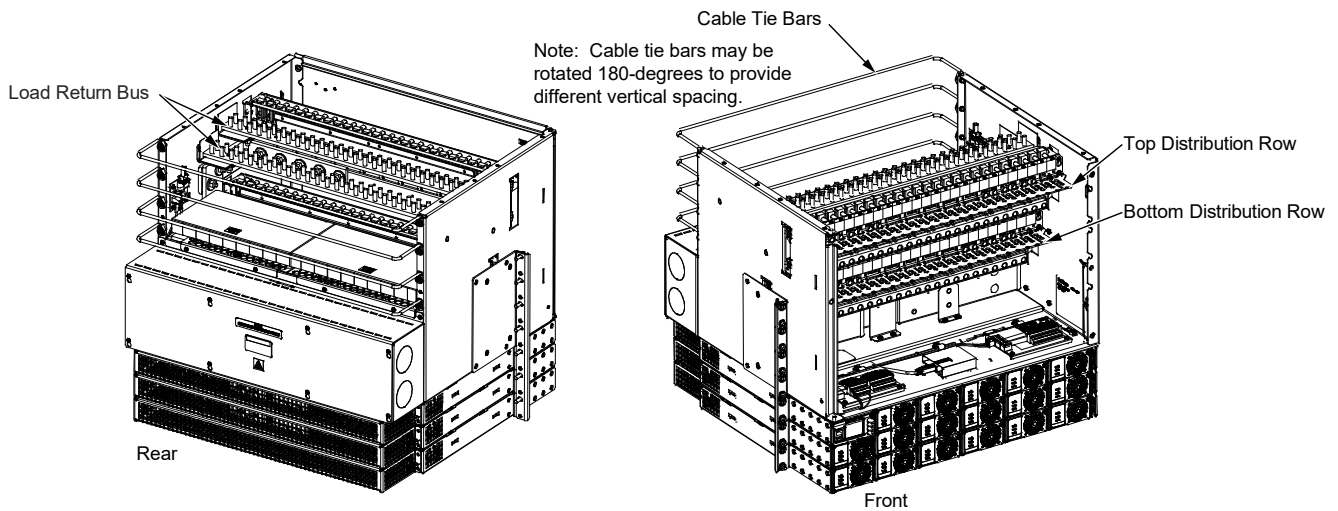
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

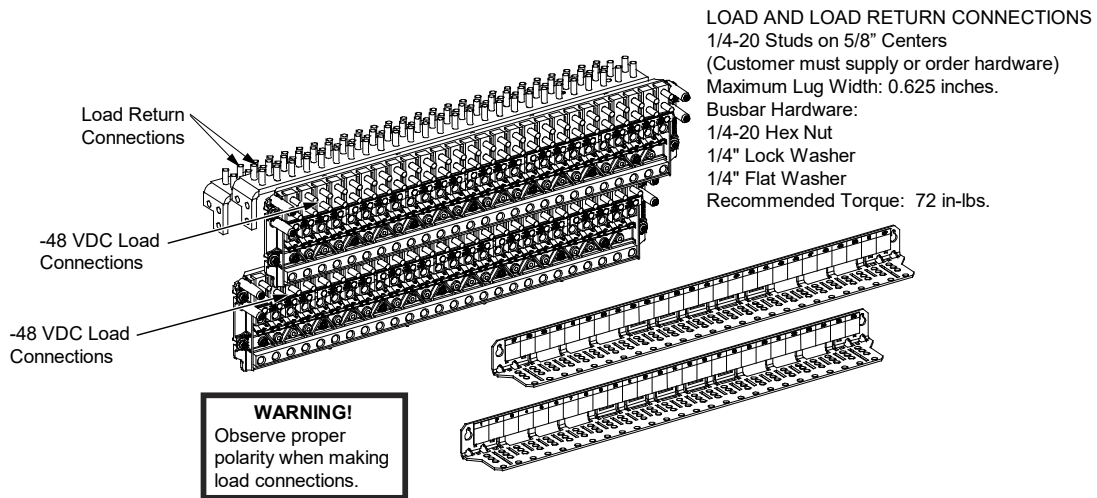
### Load Distribution (Distribution Panels) Illustrations

All Lists Except Lists 600, 601, 900, 901): Refer to the illustrations located under the distribution list number descriptions starting on page 63.

Lists 600, 601, 900, 901): Refer to Figure 11.



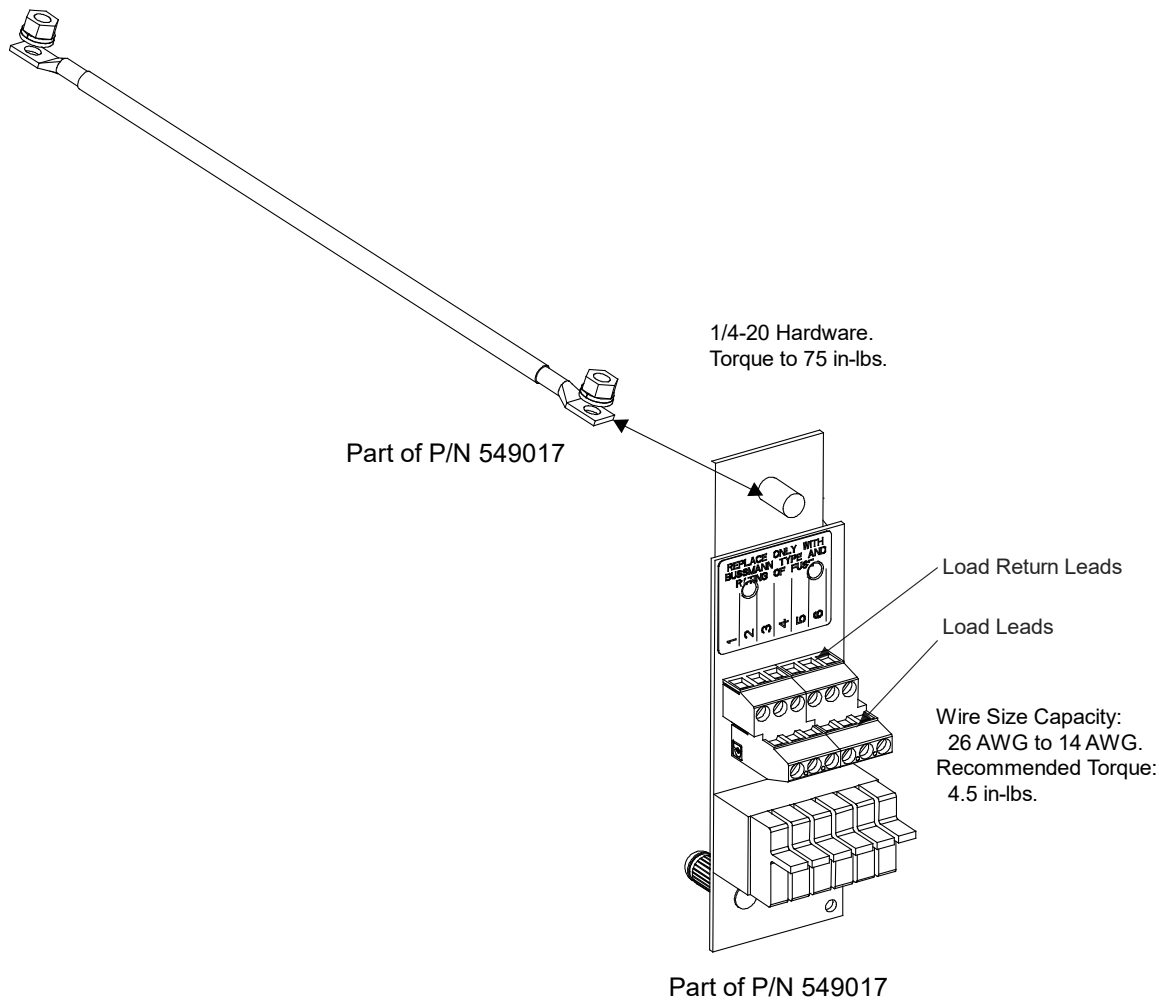
Note: Cable tie bars may be rotated 180-degrees to provide different vertical spacing.



Note: 100 A circuit breakers can be used without a space provided the continuous current in each 100 A device does not exceed 64 A. A 175 A or greater circuit breaker SHALL HAVE an empty mounting position between it and any other overcurrent protective device.

Figure 11  
 582127000 Lists 600, 601, 900, 901 Load Connections

**Load Distribution Wiring (Optional Bullet Nose 6-Position GMT Fuse Block) Illustration**



## Battery Input

### **Battery Input Wire Sizes and Lugs Selection**

- **When Distribution Panels Providing Battery Disconnect Fuse/Circuit Breaker Positions are Provided:** The rating of the disconnect device determines the input battery lead wire size requirement. The distribution panel ordered determines the lug hole size and spacing requirements. For wire size and lug selection; refer to the following.
  - a) **When Distribution Panels Using Bullet Nose Type Devices (TPS/TLS Fuses and/or Bullet Nose Type Circuit Breakers) are Provided:** Lug-terminated input battery leads are connected to the individual battery busbars and battery return busbar (if equipped) located on the distribution panel. If the distribution panel is not equipped with a battery return busbar, battery return connections are made to a separate return busbar.

The distribution panel's individual battery busbars and battery return busbar (if equipped) provide 1/4-20 studs for installation of customer-provided two-hole lugs that have 1/4-inch bolt clearance holes on 5/8-inch centers. Customer must provide (or order) lug mounting hardware. The distribution panel's individual battery busbars and return busbar (if equipped) are designed to accommodate the lugs listed in Table 19 and Table 21. Use Table 50 to select recommended battery wire sizes and lugs for various loop lengths per battery disconnect fuse/circuit breaker ampere rating. Maximum size of wire to be connected to a single fuseholder/circuit breaker position is 2 AWG. For wiring up to 350 kcmil, see Table 21 for special application crimp lug / strap combinations. Refer also to "Lug Adapters (all Lists except Lists 600, 601, 900, 901)" on page 118. Use Table 20 and Table 51 when using the lug adapters with 3/8-inch bolt clearance holes on 1-inch centers.

The separate return busbar (if furnished) provides 3/8-16 captive nuts for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts and hardware. The separate return busbar (if furnished) are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating.
  - b) **When Distribution Panels Using GJ/218 Circuit Breakers or TPH Fuses are Provided:** Lug-terminated battery leads are connected to the individual battery busbars and battery return busbar (if equipped) located on the distribution panel. If the distribution panel is not equipped with a battery return busbar, battery return connections are made to a separate return busbar.

The distribution panel's individual battery busbars and battery return busbar (if equipped) provide 3/8-16 captive nuts or studs for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts (if required) and hardware. The distribution panel's individual battery busbars and battery return busbar are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended battery wire sizes and lugs for various loop lengths per battery disconnect fuse/circuit breaker ampere rating.

The separate return busbar (if furnished) provides 3/8-16 captive nuts for installation of customer-provided two-hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide (or order) lug mounting bolts and hardware. The separate return busbar (if furnished) are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended load distribution wire sizes and lugs for various loop lengths per fuse/circuit breaker ampere rating.
- **When Distribution Panels with Battery Disconnect Fuse/Circuit Breaker Positions are NOT Provided:** Lug-terminated input battery leads are connected to the battery busbar and battery return busbar. These busbars provide 3/8-16 captive nuts for installation of customer-provided two hole lugs that have 3/8-inch bolt clearance holes on 1-inch centers. Customer must provide lug mounting bolts and hardware. Battery wire size and lug requirements are determined by site requirements. For wire size and lug selection; refer to the following.

The battery busbars are designed to accommodate the lugs listed in Table 20. Use Table 51 to select recommended battery wire sizes and lugs for various loop lengths per required battery branch circuit ampere rating.



# Vertiv™ NetSure™ 7100 DC Power System

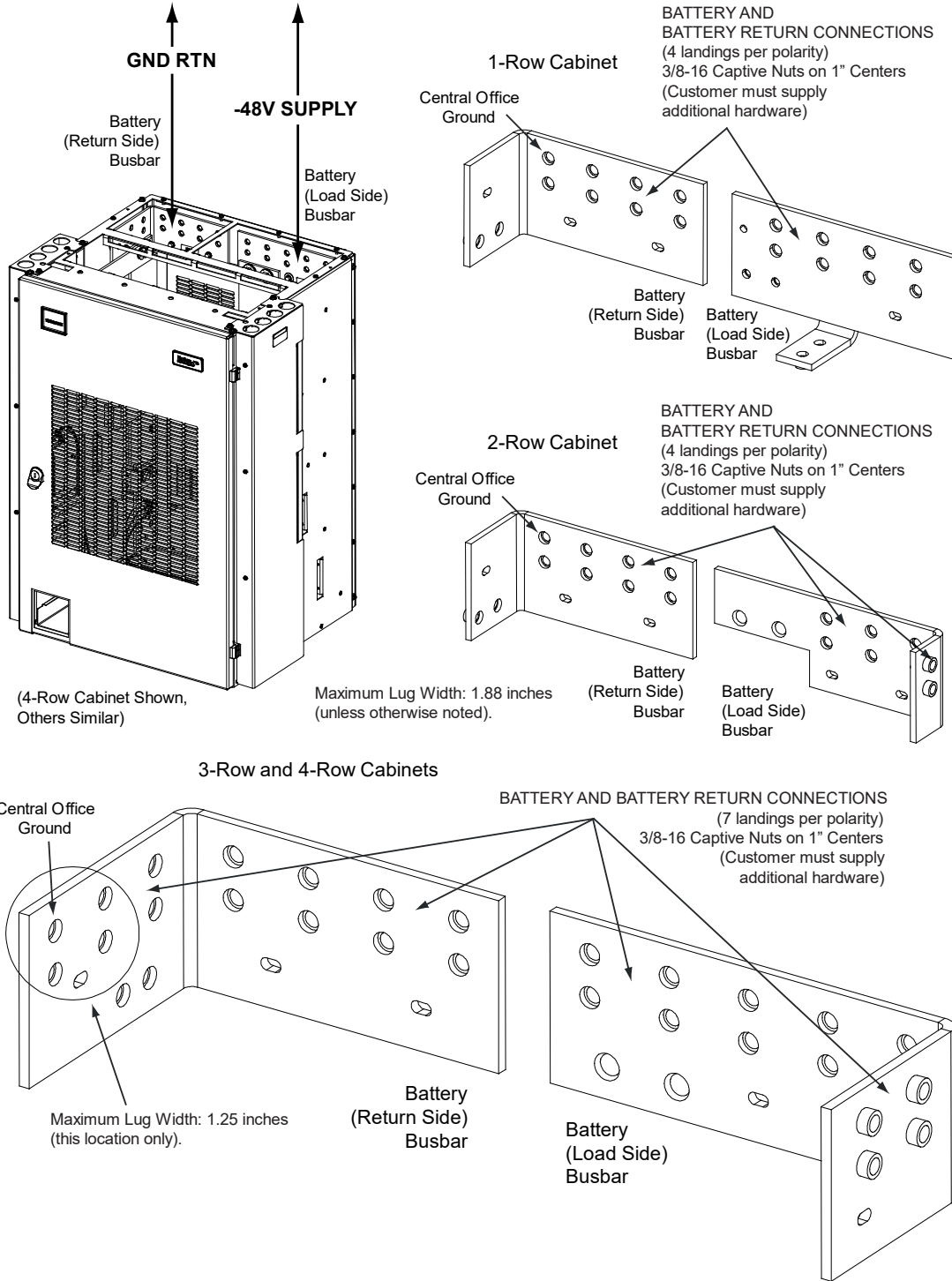
## System Application Guide

### Battery Input Illustrations

**a) Connections to Battery Disconnect Circuit Breakers**

Refer to the illustrations located under “Battery Disconnect Distribution Panels” starting on page 80.

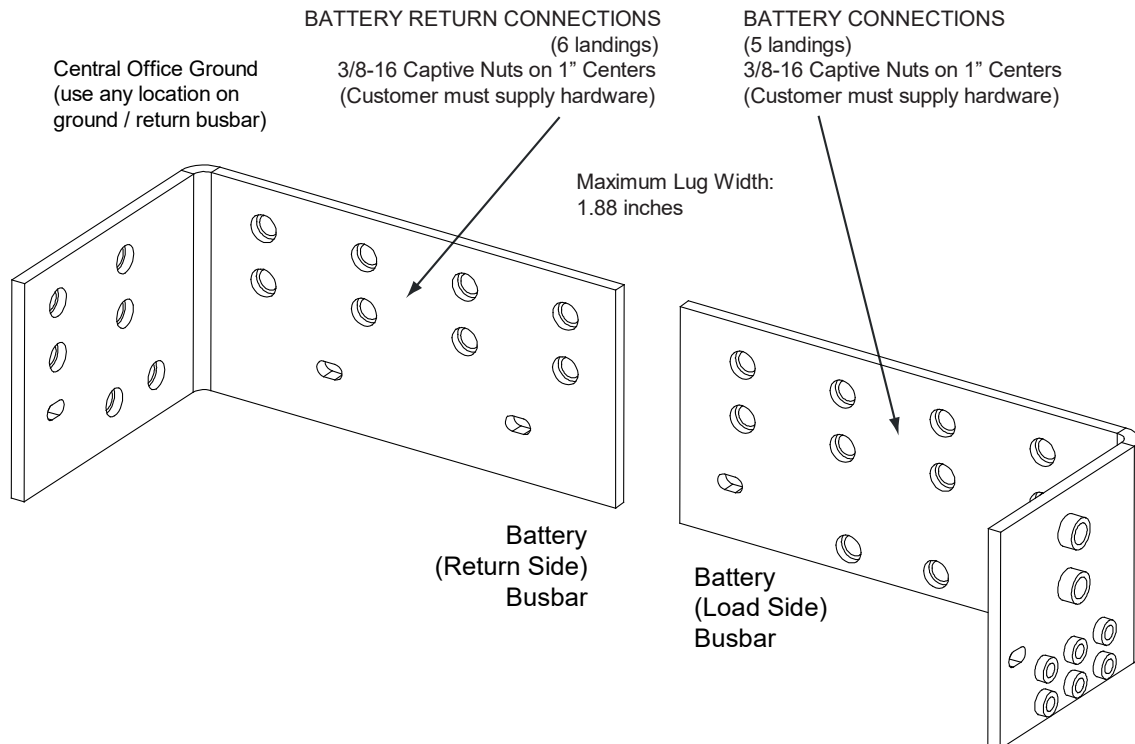
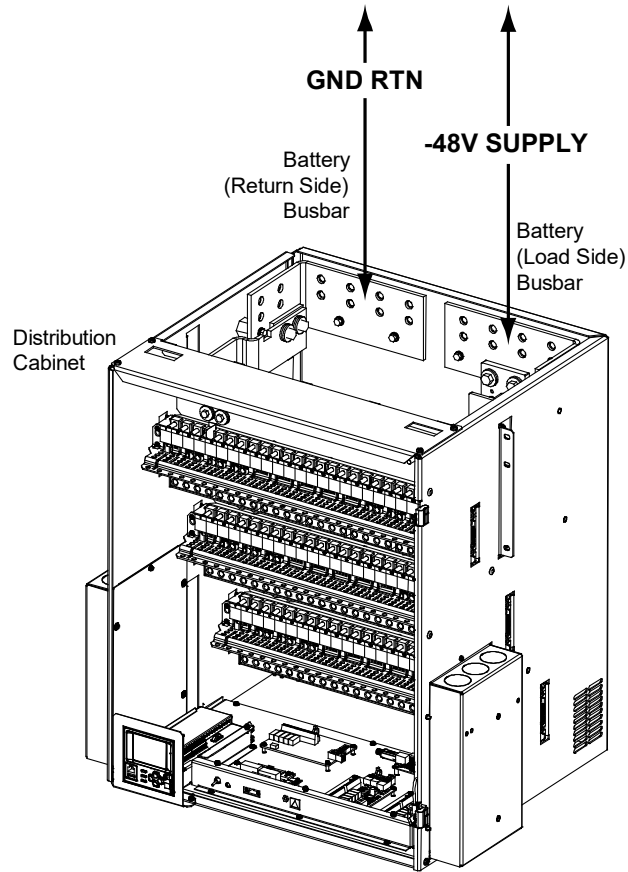
**b) Connections to Lists 21 through 24 Distribution Cabinets**



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

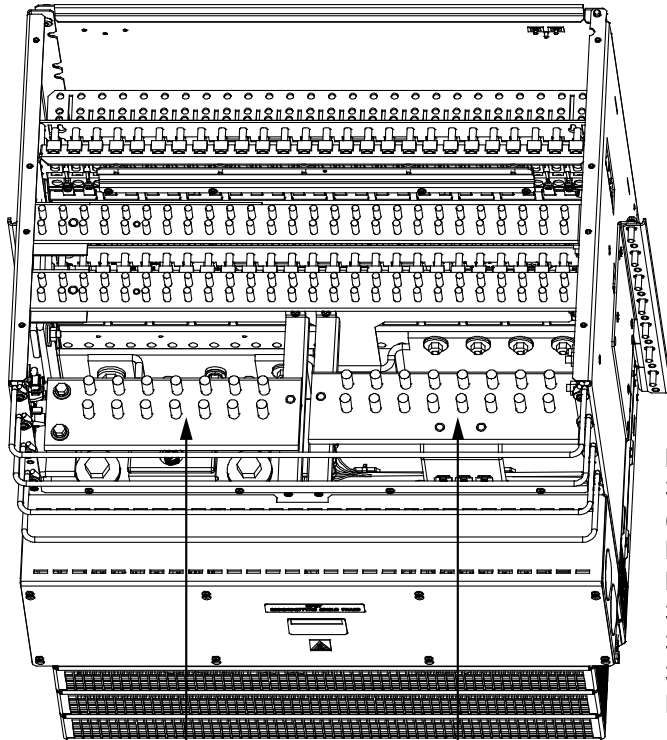
### c) Connections to List 100, 101, 102, 203, 500, 501, 502, 503 Distribution Cabinet



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### d) Connections to List 600, 601, 900, 901 Distribution Cabinet



Rear

Busbar Shield  
Removed for  
Clarity Only

-48 VDC  
Battery  
Bar

Battery  
Return  
Bar (+)

-48V SUPPLY

GND RTN

#### BATTERY AND BATTERY RETURN CONNECTIONS

3/8-16 Studs on 1" Centers

(Customer must supply or order hardware)

Maximum Lug Width: 1.88 inches.

Busbar Hardware:

3/8" Hex Nut

3/8" Lock Washer

3/8" Flat Washer

Recommended Torque to 300 in-lbs.

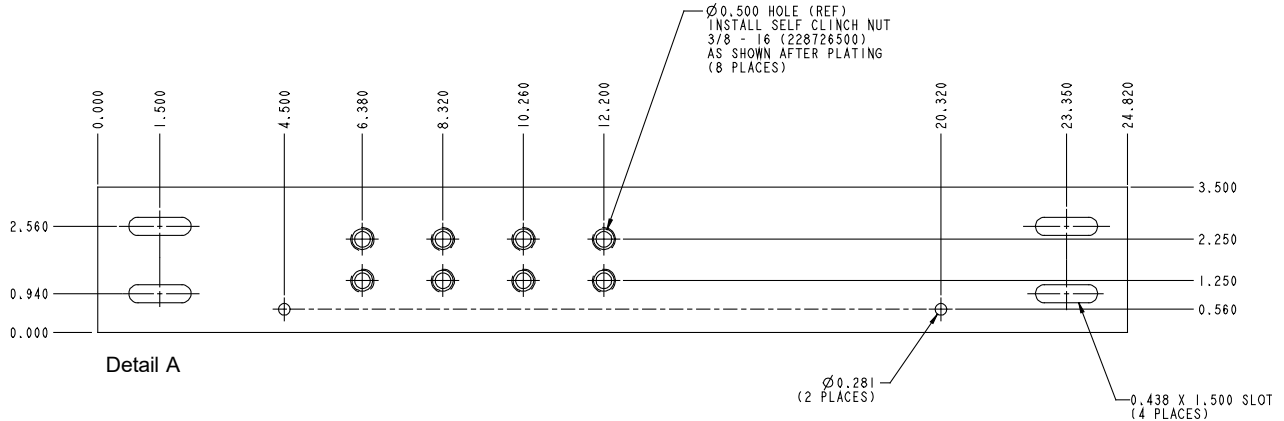
Note: Central Office Ground  
should be tied to any point  
on the battery return busbar.

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### e) Connections to Interbay Busbars (P/O List 2 and List 3) (for system mounted in a relay rack only)

**Note:** The current rating of the inter-bay bus bars is 2000 amps maximum. Rectifier placement load and battery connections should be such that this maximum current is not exceeded.



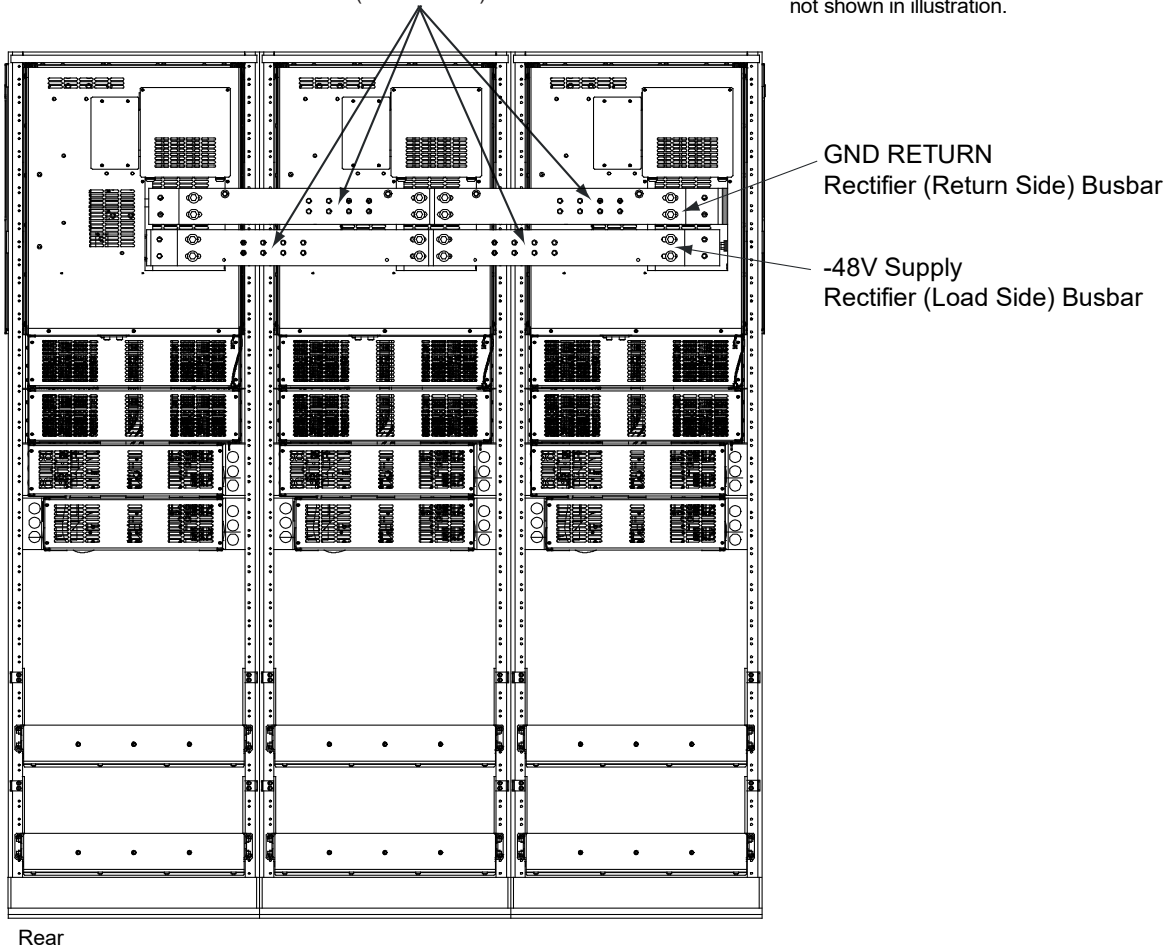
RECTIFIER AND RECTIFIER RETURN CONNECTIONS  
(CAN ONLY BE USED FOR BATTERY CONNECTIONS  
IF THE SYSTEM DOES NOT CONTAIN A BATTERY  
SHUNT OR BATTERY DISCONNECT CONTACTOR)

3/8-16 Captive Nuts on 1" Centers  
(Customer must supply additional hardware.)  
Maximum Lug Width: 1.88 inches.  
(See Detail A)

**Notes:**

1. All dimensions are in inches.

Rear busbar cover shields  
not shown in illustration.



# Vertiv™ NetSure™ 7100 DC Power System

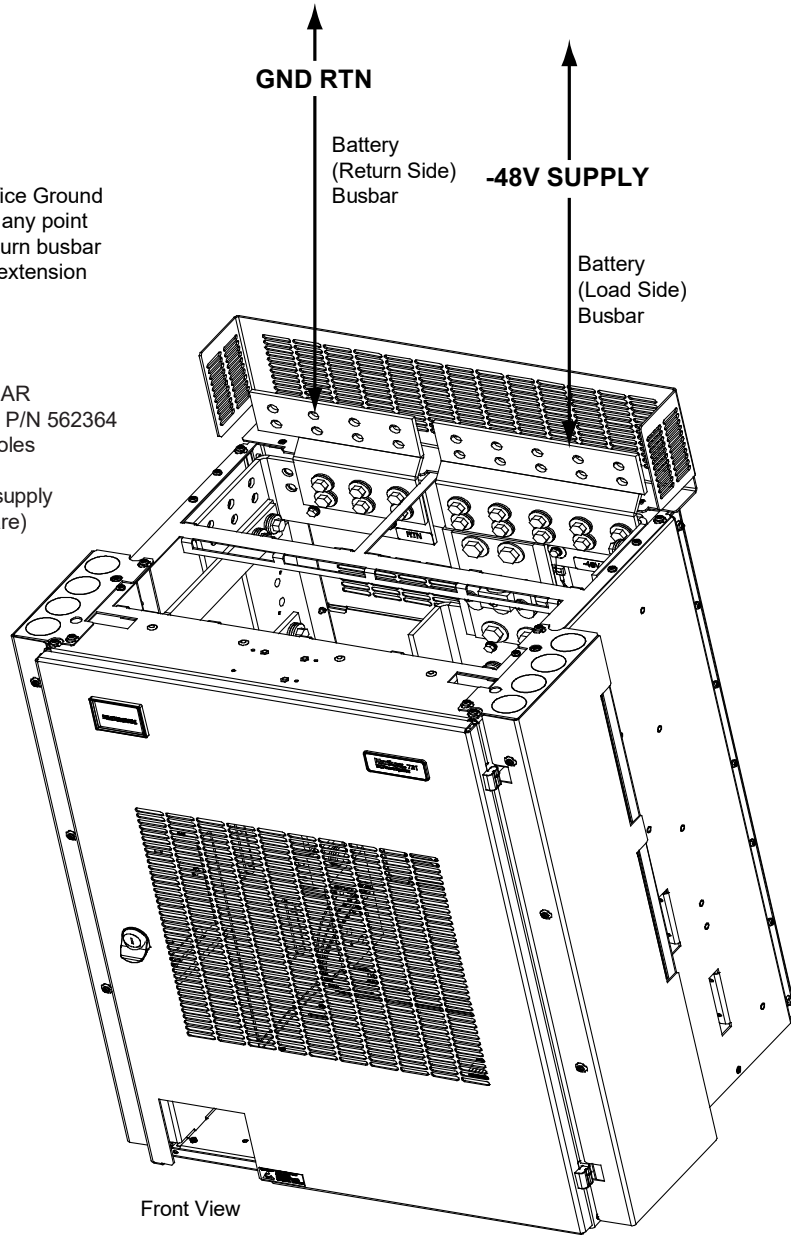
## System Application Guide

### f) Connections to Optional Battery Busbar Extension Kit P/N 562364 Installed in a List 23 and List 24 Distribution Cabinet

**Note:** See Battery Busbar Extension Kit (P/N 562364) under ACCESSORY DESCRIPTIONS for description.

Note: Central Office Ground should be tied to any point on the battery return busbar or battery return extension busbar.

BATTERY BUSBAR EXTENSION KIT P/N 562364  
3/8" Clearance Holes on 1" Centers  
(Customer must supply additional hardware)



Front View

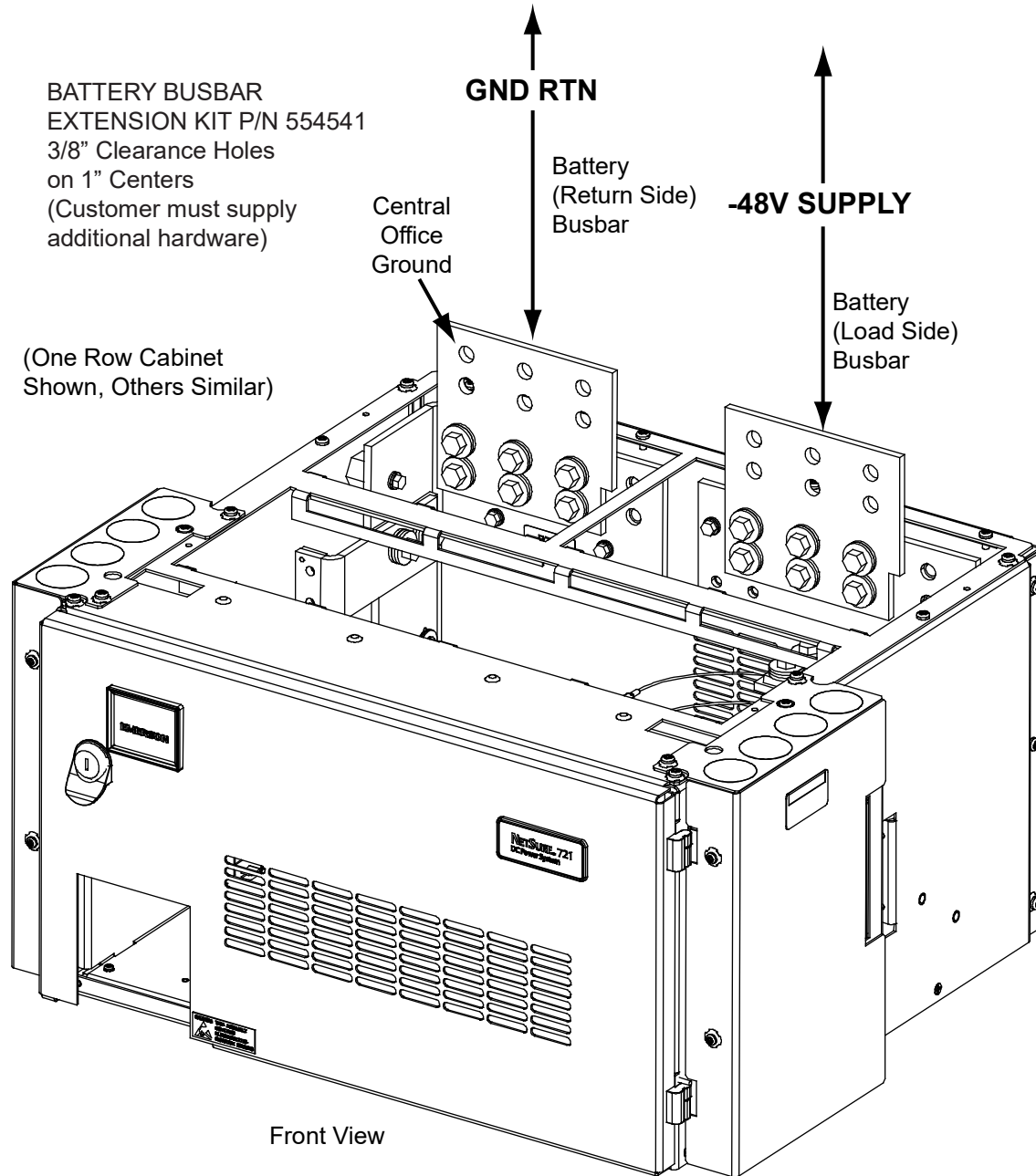
List 24 Distribution Cabinet  
(List 23 similar)

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### g) Connections to Optional Battery Busbar Extension Kit P/N 554541 Installed in a Lists 21 through 22 Distribution Cabinets

**Note:** See Battery Busbar Extension Kit (P/N 554541) under ACCESSORY DESCRIPTIONS for description.

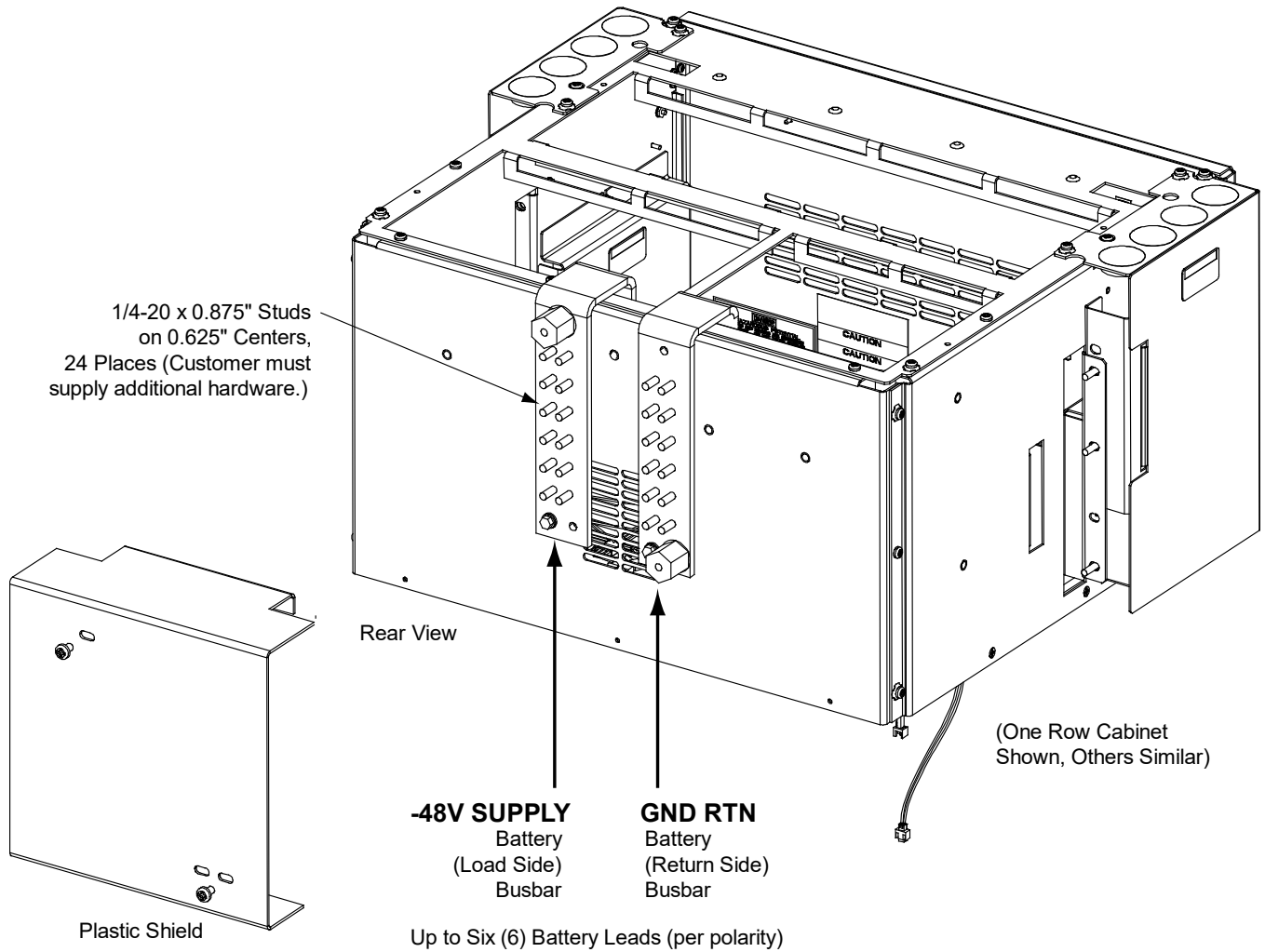


# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### h) Connections to Optional Battery Landing Busbar Kit P/N 553584 Installed in List 21 Distribution Cabinet (for systems mounted in a relay rack only)

**Note:** See Battery Busbar Extension Kit (P/N 553584) under ACCESSORY DESCRIPTIONS for description.

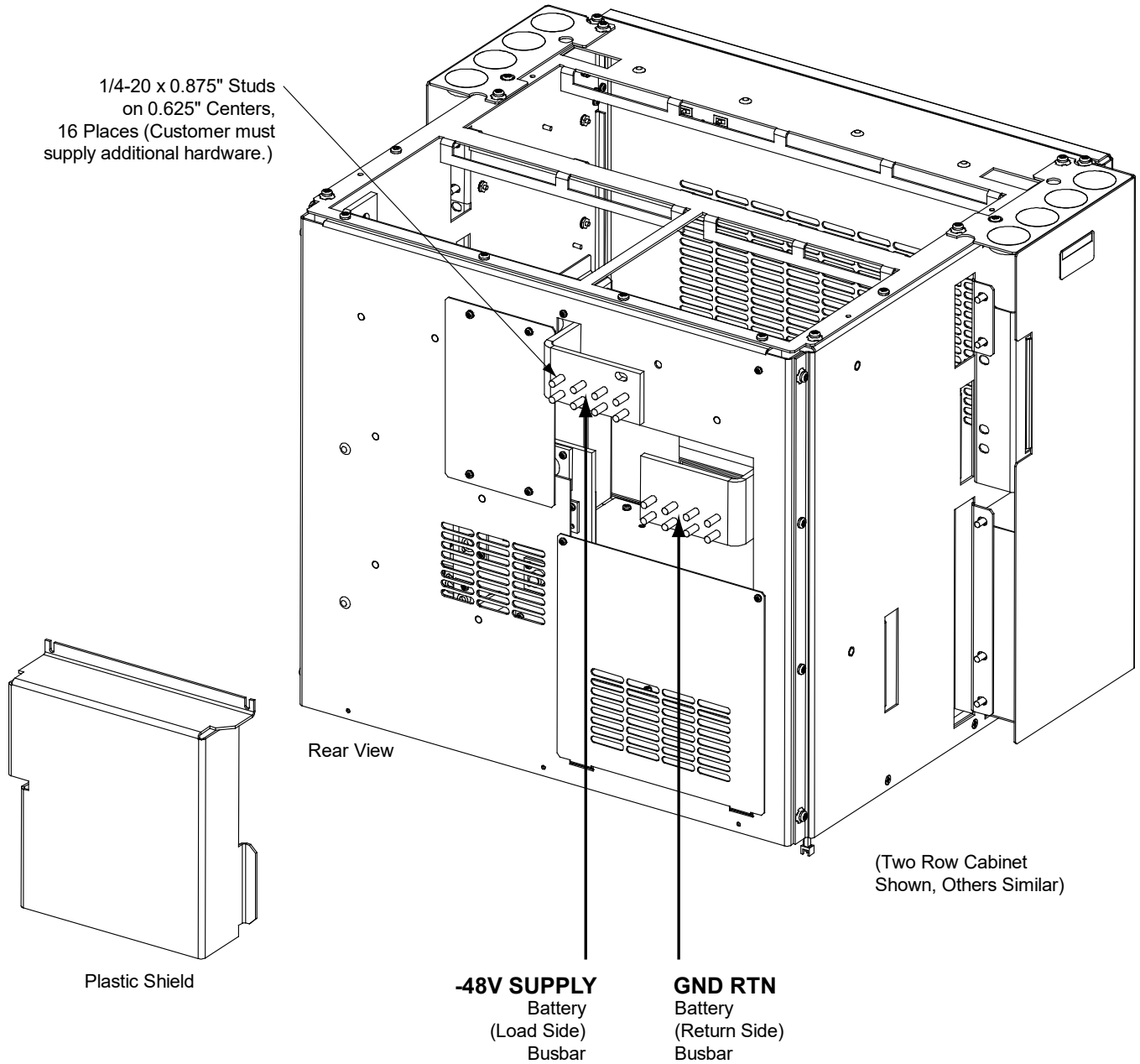


# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

**d) Connections to Optional Battery Landing Busbar Kit P/N 555478 Installed in Lists 22 through 24 Distribution Cabinets (for systems mounted in a relay rack only)**

**Note:** See Battery Busbar Extension Kit (P/N 555478) under ACCESSORY DESCRIPTIONS for description.



Up to Eight (8) Battery Leads (per polarity).  
[Four (4) battery landing positions, two (2) battery cable lugs back-to-back each position.]



**Wire Size and Lug Selection Tables for Load and Battery Connections  
to TPS/TLS Fuses and Bullet Nose Type Circuit Breakers**

Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size <sup>(1)</sup>							
	14 AWG	12 AWG	10 AWG	8 AWG	6 AWG	4 AWG	2 AWG	1/0 AWG
	Loop Length (feet) <sup>(2)</sup>							
1, 3, 5, 6, 10 A	37 <sup>(3,4)</sup>	58 <sup>(3,4)</sup>	93 <sup>(3,4)</sup>	--	--	--	--	--
15 A	24 <sup>(3,4)</sup>	39 <sup>(3,4)</sup>	62 <sup>(3,4)</sup>	--	--	--	--	--
20 A	--	29 <sup>(3,4)</sup>	46 <sup>(3,4)</sup>	74 <sup>(3,4)</sup>	--	--	--	--
25 A	--	--	37 <sup>(3,4)</sup>	59 <sup>(3,4)</sup>	94 <sup>(3,4)</sup>	--	--	--
30 A	--	--	31 <sup>(3,4)</sup>	49 <sup>(3,4)</sup>	78 <sup>(3,4)</sup>	--	--	--
35 A	--	--	--	42 <sup>(3,4)</sup>	67 <sup>(3,4)</sup>	107 <sup>(3,4)</sup>	--	--
40 A	--	--	--	37 <sup>(3,4)</sup>	59 <sup>(3,4)</sup>	94 <sup>(3,4)</sup>	--	--
45 A	--	--	--	33 <sup>(3,4)</sup>	52 <sup>(3,4)</sup>	83 <sup>(3,4)</sup>	--	--
50 A	--	--	--	29 <sup>(3,4)</sup>	47 <sup>(3,4)</sup>	75 <sup>(3,4)</sup>	--	--
60 A	--	--	--	--	39 <sup>(3,4)</sup>	62 <sup>(3,4)</sup>	99 <sup>(3,4)</sup>	--
70 A	--	--	--	--	33 <sup>(3)</sup>	53 <sup>(3,4)</sup>	85 <sup>(3,4)</sup>	135 <sup>(4)</sup>
75 A	--	--	--	--	31 <sup>(3)</sup>	50 <sup>(3,4)</sup>	79 <sup>(3,4)</sup>	126 <sup>(4)</sup>
80 A	--	--	--	--	--	47 <sup>(3,4)</sup>	74 <sup>(3,4)</sup>	118 <sup>(3,4)</sup>
Recommended Crimp Lug <sup>(5)</sup>								
Lug	245342300	245342300	245342300	245390200	245346700	245346800	245346900	245393500 <sup>(6)</sup>

- <sup>1</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>2</sup> Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- <sup>3</sup> Wire Size / Loop Length Combination Calculated using 30 °C Ambient Operating Temperature.
- <sup>4</sup> Wire Size / Loop Length Combination Calculated using 40 °C Ambient Operating Temperature.
- <sup>5</sup> Two-hole lug, 1/4" bolt clearance hole, 5/8" centers. Lugs should be crimped per lug manufacturer's specifications.
- <sup>6</sup> Special application crimp lug / strap combination.

Table 50 (cont'd on next page)  
Recommended Wire Sizes and Lugs for Load and Battery Connections  
to Various TPS/TLS Fuses and Bullet Nose Type Circuit Breakers

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size <sup>(1)</sup>							
	4 AWG	2 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	250 kcmil	350 kcmil
	Loop Length (feet) <sup>(2)</sup>							
90 A	41 <sup>(3)</sup>	66 <sup>(3,4)</sup>	105 <sup>(3,4)</sup>	133 <sup>(4)</sup>	--	--	--	--
100 A	--	59 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	119 <sup>(3,4)</sup>	--	--	--	--
125 A	--	47 <sup>(3)</sup>	76 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	120 <sup>(4)</sup>	--	--	--
150 A	--	--	63 <sup>(3,4)</sup>	79 <sup>(3,4)</sup>	100 <sup>(3,4)</sup>	--	--	--
200 A	--	--	--	--	75 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	112 <sup>(3,4)</sup>	--
250 A	--	--	--	--	--	76 <sup>(3,4,7)</sup>	90 <sup>(3,4,7)</sup>	126 <sup>(3,4,7)</sup>
300 A	--	--	--	--	--	--	--	105 <sup>(3,4,7)</sup>
Recommended Crimp Lug								
Lug <sup>(5)</sup>	245346800	245346900	245393500 <sup>(6)</sup>	245393600 <sup>(6)</sup>	245393700 <sup>(6)</sup>	245393800 <sup>(6)</sup>	514872 <sup>(6)</sup>	514873 <sup>(6)</sup>
Lug <sup>(8,9)</sup>	--	245348200	245347100	245347200	245347300	245347400	245347500	245347700

- <sup>1</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>2</sup> Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- <sup>3</sup> Wire Size / Loop Length Combination Calculated using 30 °C Ambient Operating Temperature.
- <sup>4</sup> Wire Size / Loop Length Combination Calculated using 40 °C Ambient Operating Temperature.
- <sup>5</sup> Two-hole lug, 1/4" bolt clearance hole, 5/8" centers. Lugs should be crimped per lug manufacturer's specifications.
- <sup>6</sup> Special application crimp lug / strap combination.
- <sup>7</sup> **MUST USE** P/N 514717 Lug Adapter Busbar for lugs having 1/4" bolt clearance hole, 5/8" centers.
- <sup>8</sup> Two-hole lug, 3/8" bolt clearance hole, 1" centers. Lugs should be crimped per lug manufacturer's specifications.
- <sup>9</sup> **MUST USE** P/N 522786 or 534449 Lug Adapter Busbar for 125 A to 200 A circuit breakers or P/N 514714 Lug Adapter Busbar Kit for 225 A to 300 A circuit breakers.

Table 50 (cont'd from previous page)  
Recommended Wire Sizes and Lugs for Load and Battery Connections  
to Various TPS/TLS Fuses and Bullet Nose Type Circuit Breakers

**Wire Size and Lug Selection Tables for Load and Battery Connections to TPH Fuses and GJ/218 Type Circuit Breakers or Battery Branch Circuits**

Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size <sup>(1)</sup>							
	6 AWG	4 AWG	2 AWG	1/0 AWG	2/0 AWG	3/0 AWG	4/0 AWG	250 kcmil
	Loop Length (feet) <sup>(2)</sup>							
70 A	33 <sup>(3)</sup>	53 <sup>(3,4)</sup>	85 <sup>(3,4)</sup>	135 <sup>(4)</sup>	--	--	--	--
80 A	--	47 <sup>(3,4)</sup>	74 <sup>(3,4)</sup>	118 <sup>(3,4)</sup>	--	--	--	--
100 A	--	--	59 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	119 <sup>(3,4)</sup>	--	--	--
125 A	--	--	47 <sup>(3)</sup>	76 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	120 <sup>(4)</sup>	--	--
150 A	--	--	--	63 <sup>(3,4)</sup>	79 <sup>(3,4)</sup>	100 <sup>(3,4)</sup>	--	--
175 A	--	--	--	--	68 <sup>(3,4)</sup>	86 <sup>(3,4)</sup>	108 <sup>(3,4)</sup>	--
200 A	--	--	--	--	--	75 <sup>(3,4)</sup>	95 <sup>(3,4)</sup>	112 <sup>(3,4)</sup>
Recommended Crimp Lug <sup>(5)</sup>								
Lug	245349900	245350000	245348200	245347100	245347200	245347300	245347400	245347500

- <sup>1</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>2</sup> Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- <sup>3</sup> Wire Size / Loop Length Combination Calculated using 30 °C Ambient Operating Temperature.
- <sup>4</sup> Wire Size / Loop Length Combination Calculated using 40 °C Ambient Operating Temperature.
- <sup>5</sup> Two-hole lug, 3/8" bolt clearance hole, 1" centers. Lugs should be crimped per lug manufacturer's specifications.

Table 51 (cont'd on next page)  
Recommended Wire Sizes and Lugs for Load and Battery Connections  
to Various **TPH Fuses** and **GJ/218-Circuit Breakers** or **Battery Branch Circuits**

Vertiv™ NetSure™ 7100 DC Power System  
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Fuse/ Circuit Breaker Amperage	Recm 90°C Wire Size <sup>(1)</sup>							
	2/0 AWG	3/0 AWG	4/0 AWG	250 kcmil	300 kcmil	350 kcmil	400 kcmil	500 kcmil
	Loop Length (feet) <sup>(2)</sup>							
225 A	--	67 <sup>(3)</sup>	84 <sup>(3,4)</sup>	100 <sup>(3,4)</sup>	120 <sup>(4)</sup>	--	--	--
250 A	--	--	76 <sup>(3)</sup>	90 <sup>(3,4)</sup>	108 <sup>(3,4)</sup>	126 <sup>(4)</sup>	--	--
300 A	159 <sup>(4)</sup> (2) Wires	--	--	--	90 <sup>(3)</sup>	105 <sup>(3,4)</sup>	120 <sup>(3,4)</sup>	--
400 A	--	75 <sup>(3,4)</sup> (2) Wires	95 <sup>(3,4)</sup> (2) Wires	112 <sup>(3,4)</sup> (2) Wires	--	--	--	--
500 A	--	--	76 <sup>(3)</sup> (2) Wires	90 <sup>(3,4)</sup> (2) Wires	108 <sup>(3,4)</sup> (2) Wires	126 <sup>(4)</sup> (2) Wires	--	--
600 A	--	--	--	--	90 <sup>(3)</sup> (2) Wires	105 <sup>(3,4)</sup> (2) Wires 157 <sup>(4)</sup> (3) Wires	120 <sup>(3,4)</sup> (2) Wires	--
800 A	--	--	--	84 <sup>(3)</sup> (3) Wires	101 <sup>(3,4)</sup> (3) Wires	118 <sup>(3,4)</sup> (3) Wires	135 <sup>(3,4)</sup> (3) Wires	--
Recommended Crimp Lug <sup>(5)</sup>								
Lug	245347200 (per cable)	245347300 (per cable)	245347400 (per cable)	245347500 (per cable)	245347600 (per cable) See also Note 6.	245347700 (per cable) See also Note 6.	245347800 (per cable) See also Note 6.	245347900 (per cable)

- <sup>1</sup> Wire sizes based on recommendations of the American National Standards Institute (ANSI) approved National Fire Protection Association's (NFPA) National Electrical Code (NEC). Table 310.15 (B) (16) for copper wire at 90 °C conductor temperature. For operation in countries where the NEC is not recognized, follow applicable codes.
- <sup>2</sup> Recommended wire sizes are sufficient to restrict voltage drop to 1.0 volt or less at listed branch current for the loop lengths shown. Loop length is the sum of the lengths of the positive and negative leads.
- <sup>3</sup> Wire Size / Loop Length Combination Calculated using 30 °C Ambient Operating Temperature.
- <sup>4</sup> Wire Size / Loop Length Combination Calculated using 40 °C Ambient Operating Temperature.
- <sup>5</sup> Two-hole lug, 3/8" bolt clearance hole, 1" centers. Lugs should be crimped per lug manufacturer's specifications.
- <sup>6</sup> For a 600 A GJ/218 circuit breaker installed in a List AM or List AP distribution panel, P/N 562888 3-pole lug adapter may be ordered. P/N 562888 includes one (1) busbar that mounts on the three lug landing positions of a 600 A circuit breaker installed in a List AM or List AP distribution panel and one (1) busbar that mounts on the three landings of the associated ground return bar. These busbars provide two (2) landings for standard two-hole lugs having 3/8" bolt clearance holes on 1" centers.

Table 51 (cont'd from previous page)  
Recommended Wire Sizes and Lugs for Load and Battery Connections  
to Various TPH Fuses and GJ/218-Circuit Breakers or Battery Branch Circuits

## SPECIFICATIONS

### 1. SYSTEM

#### 1.1 Output Ratings

1.1.1 See “General Specifications” starting on page 4.

#### 1.2 Input Ratings

1.2.1 See “General Specifications” starting on page 4.

#### 1.3 Environmental Ratings

1.3.1 Operating Ambient Temperature Range:

1.3.2 Environment:

(A) Relay Rack Mounted Option and Enclosure P/N 563524 or 564881 Mounted Option:  
-40 °C to +40 °C (-40 °F to +104 °F).

(B) Rack Mounted in an OSP Enclosure Option (582127000 List 600, 601, 900, 901):  
-40 °C to +65 °C (-40 °F to +149 °F).

1.3.3 Storage Ambient Temperature Range: -40 °C to +85 °C (-40 °F to +185 °F).

1.3.4 Humidity: This Power System is capable of operating in an ambient relative humidity range of 0% to 95%, non-condensing.

1.3.5 Altitude: Capable of operating in an altitude range of -200 feet to 10,000 feet. The maximum operating ambient temperature should be de-rated by 3 °C per 1000 feet above 5000 feet.

1.3.6 Mounting: Refer to “Overall Dimensions” on page 220 for mounting dimensions.

- This product is intended only for installation in a restricted access location on or above a non-combustible surface.
- This product must be located in a controlled environment with access to crafts persons only.
- This product is intended for installation in network telecommunication facilities (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- This product is intended to be connected to the common bonding network in a network telecommunication facility (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- The DC return connection to this system can remain isolated from system frame and chassis (DC-I).
- This system is suitable for installation as part of the Common Bonding Network (CBN).
- Rectifier, converter, and mounting assembly ventilating openings must not be blocked and temperature of air entering rectifiers and converters must not exceed the rated operating ambient temperature range.
- Clearance requirements are:
  - a) Recommended minimum aisle space clearance for the front of each bay is 2'6".
  - b) Recommended minimum aisle space clearance for the rear of each bay is 2'0" for any of the following conditions:
    - 1) Multiple bay arrangements that incorporate rear inter-bay busbars (List 2, List 3, List 7 and List 8 bays).
    - 2) Addition of a module mounting assembly in the field.
    - 3) Making AC input connections to a field installed module mounting assembly.
    - 4) Adding battery tray(s) in the field.
  - c) For all other conditions, required minimum spacing from the rear of the bay to a wall or other solid surface is that which is specified for proper converter and/or module mounting assembly ventilation.

588705000 Module Mounting Assembly: The distance from the rear of a module mounting assembly to a wall or other solid structure must not be less than two (2) inches. This will assure proper airflow through the rectifier modules.

588705300 and 588705400 Module Mounting Assembly: The distance from the rear of the module mounting assembly to a wall or other solid structure must not be less than four (4) inches. This will assure proper airflow through the rectifier and converter modules.

**Note:** Minimum spacing specified for ventilation may not permit replacement of certain components such as busbars or module mounting assemblies.

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### 1.4 Compliance Information

1.4.1 Safety Compliance: This power board is UL Listed ("c UL") as a DC Power Distribution Center for Communications Equipment. This unit meets the requirements of CSA 22.2, No. 225 and is tested and Certified by UL ("c UL") as a Custom Built Power Distribution Center for Communications Equipment.

1.4.2 NEBS Compliance: Compliance verified by a Nationally Recognized Testing Laboratory (NRTL) per GR-1089-CORE and GR-63-CORE. Contact Vertiv for NEBS compliance reports.

Rectifier Modules: In order to remain compliant during a fan failure condition, the backup battery connection must be utilized to provide sufficient power to the loads for up to eight (8) hours when the system is operated at greater than 50% output power. If no backup battery connection is used, the system must operate with a redundant module installed.

Converter Modules: In order to remain compliant during a fan failure condition, the system must operate with a redundant module installed.

### 1.5 IB2 and EIB (Controller Interface Board) Ratings

#### 1.5.1 Digital Input Ratings

(A) Maximum Voltage Rating: 60 VDC.

(B) Active High: > 19 VDC.

(C) Active Low: < 1 VDC.

#### 1.5.2 Relay Ratings

(A) Steady State: 0.5 A @ 60 VDC; 1.0 A @ 30 VDC.

(B) Peak: 3 A @ 30 VDC.

## 2. 588705300 MODULE MOUNTING ASSEMBLY

### 2.1 Input and Output Ratings

#### 2.1.1 588705300 List 01

Input Rating: 208 VAC, 240 VAC, 10 A / 8.7 A, 50 Hz / 60 Hz, single-phase.

Output Rating: -48 VDC, 250 A (12000 W) maximum @ 45 °C.  
+24 VDC, 187 A (4500 W) maximum @ 45 °C or -58 VDC, 85.7 A (4800 W) maximum @ 45 °C  
-48 VDC, 225 A (12000 W) maximum @ 65 °C.  
+24 VDC, 150 A (3600 W) maximum @ 65 °C or -58 VDC, 68.5 A (3480 W) maximum @ 65 °C  
-48 VDC, 168 A (9000 W) maximum @ 70 °C.  
+24 VDC, 125 A (3000 W) maximum @ 70 °C or -58 VDC, 57 A (3198 W) maximum @ 70 °C

Input Rating: 120 VAC, 9 A, 50 Hz / 60 Hz, single-phase.

Output Rating: -48 VDC, 125 A (6000 W) maximum @ 45 °C.  
+24 VDC, 187 A (4500 W) maximum @ 45 °C or -58 VDC, 85.7 A (4800 W) maximum @ 45 °C  
-48 VDC, 112 A (5400 W) maximum @ 65 °C.  
+24 VDC, 150 A (3600 W) maximum @ 65 °C or -58 VDC, 68.5 A (3480 W) maximum @ 65 °C  
-48 VDC, 84.4 A (4050 W) maximum @ 70 °C.  
+24 VDC, 125 A (3000 W) maximum @ 70 °C or -58 VDC, 57 A (3198 W) maximum @ 70 °C

#### 2.1.2 588705300 List 03

Input Rating: 208 VAC, 240 VAC, 20 A / 17.5 A, 50 Hz / 60 Hz, single-phase.

Output Rating: -48 VDC, 250 A (12000 W) maximum @ 45 °C.  
+24 VDC, 187 A (4500 W) maximum @ 45 °C or -58 VDC, 85.7 A (4800 W) maximum @ 45 °C  
-48 VDC, 225 A (12000 W) maximum @ 65 °C.  
+24 VDC, 150 A (3600 W) maximum @ 65 °C or -58 VDC, 68.5 A (3480 W) maximum @ 65 °C  
-48 VDC, 168 A (9000 W) maximum @ 70 °C.  
+24 VDC, 125 A (3000 W) maximum @ 70 °C or -58 VDC, 57 A (3198 W) maximum @ 70 °C

Input Rating: 120 VAC, 18 A, 50 Hz / 60 Hz, single-phase.

Output Rating: -48 VDC, 125 A (6000 W) maximum @ 45 °C.  
+24 VDC, 187 A (4500 W) maximum @ 45 °C or -58 VDC, 85.7 A (4800 W) maximum @ 45 °C  
-48 VDC, 112 A (5400 W) maximum @ 65 °C.  
+24 VDC, 150 A (3600 W) maximum @ 65 °C or -58 VDC, 68.5 A (3480 W) maximum @ 65 °C  
-48 VDC, 84.4 A (4050 W) maximum @ 70 °C.  
+24 VDC, 125 A (3000 W) maximum @ 70 °C or -58 VDC, 57 A (3198 W) maximum @ 70 °C

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## System Application Guide

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### 2.2 Environmental Ratings

#### 2.2.1 Operating Ambient Temperature Range (208 VAC, 240 VAC Input):

- (A) -40 °C to +45 °C (-40 °F to +113 °F).  
588705300 List 01, 03: 250 A / -48 VDC and 187 A / +24 VDC or 82.8 A / -58 VDC, maximum.
- (B) -40 °C to +65 °C (-40 °F to +149 °F).  
588705300 List 01, 03: 225 A / -48 VDC and 150 A / +24 VDC or 66.2 A / -58 VDC, maximum.
- (C) -40 °C to +70 °C (-40 °F to +158 °F).  
588705300 List 01, 03: 168 A / -48 VDC and 125 A / +24 VDC or 55.1 A / -58 VDC, maximum.

#### 2.2.2 Operating Ambient Temperature Range (120 VAC):

- (A) -40 °C to +45 °C (-40 °F to +113 °F).  
588705300 List 01, 03: 125 A / -48 VDC and 187 A / +24 VDC or 82.8 A / -58 VDC, maximum.
- (B) -40 °C to +65 °C (-40 °F to +149 °F).  
588705300 List 01, 03: 112 A / -48 VDC and 150 A / +24 VDC or 66.2 A / -58 VDC, maximum.
- (C) -40 °C to +70 °C (-40 °F to +158 °F).  
588705300 List 01, 03: 84.4 A / -48 VDC and 125 A / +24 VDC or 55.1 A / -58 VDC, maximum.

#### 2.2.3 Storage Ambient Temperature Range: -40 °C to +70 °C (-40 °F to +158 °F).

#### 2.2.4 Humidity: Capable of operating in an ambient relative humidity range of 0% to 95%, non-condensing.

#### 2.2.5 Altitude: Capable of operating in an altitude range of -200 feet to 10,000 feet. The maximum operating ambient temperature should be de-rated by 3 °C per 1000 feet above 6562 feet.

#### 2.2.6 Audible Noise:

- (A) For One Rectifier Module: Less than 50 dB(A) at <25 °C, measured at 60cm (2') distance.
- (B) For Twelve Rectifier Modules: Less than 55 dB with 12 rectifiers mounted in system at ≤25 °C, measured at 1 m (3') distance in front of system and at same horizontal line of the middle of system.

#### 2.2.7 Ventilation Requirements:

- (A) Ventilation: A module mounting assembly must be mounted so ventilating openings are not blocked and temperature of the air entering the assembly does not exceed the Operating Ambient Temperature Range stated above. Refer also to "Mounting" below.
- (B) Stacking Considerations: This system is designed for front to back ventilation to facilitate stacking of module mounting assemblies, one above the other, in a relay rack. There is no spacing requirement between stacked module mounting assemblies of a single system.

#### 2.2.8 Mounting: The module mounting assembly is designed for mounting in a 23 inch wide relay rack with 1 inch or 1-3/4 inch multiple drilling. Mounting angles are positioned for a fixed 9-inch front projection mounting. Refer to "Overall Dimensions" starting on page 220 for dimensional illustrations.

- This product is intended only for installation in a restricted access location on or above a non-combustible surface.
- This product must be located in a controlled environment with access to crafts persons only.
- This product is intended for installation in network telecommunication facilities (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- This product is intended to be connected to the common bonding network in a network telecommunication facility (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- The DC return connection to this system can remain isolated from system frame and chassis (DC-I).
- This system is suitable for installation as part of the Common Bonding Network (CBN).
- Rectifier, converter, and module mounting assembly ventilating openings must not be blocked and temperature of air entering rectifiers and converters must not exceed the rated operating ambient temperature range.
- Clearance Requirements: The distance from the rear of the module mounting assembly to a wall or other solid structure must not be less than four (4) inches. This will assure proper airflow through the rectifier and converter modules.

**Note:** Minimum rear spacing specified for ventilation may not permit installation and maintenance of the system. Refer to "System Specifications" on starting on page 215 for increased clearance requirements.

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### 2.3 Compliance Information

2.3.1 Safety Compliance: This unit meets the requirements of UL 60950-1, Standard for Information Technology Equipment, and is UL Recognized as a power supply for use in Telephone, Electronic Data Processing or Information Processing Equipment. This unit meets the requirements of CAN/CSA 22.2, No. 60950-00 and is tested and Certified by UL ("c UR") as a Component Type Power Supply.

2.3.2 GR-3108 Class 2 Compliant

### 3. 588705400 MODULE MOUNTING ASSEMBLY

#### 3.1 Output Ratings

3.1.1 -48 VDC, 437 A, 21000 W (maximum).

#### 3.2 Input Ratings

3.2.1 588705400 List 01, 02: 208 VAC, 240 VAC, 277 VAC, 50 Hz / 60 Hz, 1-Phase, 17.9 A / 15.5 A / 13.5 A.

3.2.2 588705400 List 03: 208 VAC, 240 VAC, 50 Hz / 60 Hz, 3-Phase, 31 A / 27 A.

3.2.3 588705400 List 04: 277/480 VAC, 50 Hz / 60 Hz, 3-Phase, 13.5 A.

#### 3.3 Environmental Ratings

3.3.1 Operating Ambient Temperature Range: -40 °C to +40 °C (-40 °F to +104 °F).

3.3.2 Storage Ambient Temperature Range: -40 °C to +85 °C (-40 °F to +185 °F).

3.3.3 Humidity: Capable of operating in an ambient relative humidity range of 0 % to 95 %, non-condensing.

3.3.4 Altitude: Capable of operating in an altitude range of -200 feet to 10,000 feet. The maximum operating ambient temperature should be de-rated by 3 °C per 1000 feet above 5000 feet.

#### 3.3.5 Ventilation Requirements:

- (A) Ventilation: A module mounting assembly must be mounted so ventilating openings are not blocked and temperature of the air entering the shelf does not exceed the Operating Ambient Temperature Range stated above. Refer also to "Mounting" below.
- (B) Stacking Considerations: This system is designed for front to back ventilation to facilitate stacking of module mounting shelves, one above the other, in a relay rack. There is no spacing requirement between stacked module mounting shelves of a single system.

3.3.6 Mounting: The module mounting assembly is designed for mounting in a 23 inch wide relay rack with 1-3/4 inch multiple drilling. Mounting angles are positioned for a fixed 9-inch front projection mounting. Refer to "Overall Dimensions" starting on page 220 for dimensional illustrations.

- This product is intended only for installation in a restricted access location on or above a non-combustible surface.
- This product must be located in a controlled environment with access to crafts persons only.
- This product is intended for installation in network telecommunication facilities (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- This product is intended to be connected to the common bonding network in a network telecommunication facility (CO, vault, hut, or other environmentally controlled electronic equipment enclosure).
- The DC return connection to this system can remain isolated from system frame and chassis (DC-I).
- This system is suitable for installation as part of the Common Bonding Network (CBN).
- Rectifier and module mounting assembly ventilating openings must not be blocked and temperature of air entering rectifiers must not exceed the rated operating ambient temperature range.
- Clearance Requirements: The distance from the rear of the module mounting assembly to a wall or other solid structure must not be less than four (4) inches. This will assure proper airflow through the rectifier modules.

**Note:** Minimum rear spacing specified for ventilation may not permit installation and maintenance of the system. Refer to "System Specifications" on starting on page 215 for increased clearance requirements.

### 3.4 Compliance Information

3.4.1 Safety Compliance: This unit meets the requirements of UL 60950-1, Standard for Information Technology Equipment, and is UL Recognized as a power supply for use in Telephone, Electronic Data Processing or Information Processing Equipment. This unit meets the requirements of CAN/CSA 22.2, No. 60950-00 and is tested and Certified by UL ("c UR") as a Component Type Power Supply.



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### 4. OPTIONAL INVERTER SYSTEM

#### 4.1 AC Input and DC Input Ratings

4.1.1 Operating Voltage Range: 42 VDC to 58.5 VDC, 96 VAC to 140 VAC.

4.1.2 Frequency Range: 47 Hz to 53 Hz or 57 Hz to 63 Hz.

4.1.3 Stopping Voltages: Refer to 4.1.1.

4.1.4 Restart Voltages: 41 VDC, 57 VDC, 101 VAC, 135 VAC.

4.1.5 Maximum Input Current at Maximum Output Load (per inverter module): Maximum 34.7 A @ -40 VDC, Maximum 13.9 A @ 96 VAC

#### 4.2 AC Output Ratings

4.2.1 Nominal Output Voltage: 120 VAC.

4.2.2 Output Voltage Tolerance: Fixed 120 VAC.

4.2.3 Output Frequency: 50 Hz or 60 Hz.

4.2.4 Total Harmonic Distortion (linear load): < 3% @ 100% linear load for inverter.

4.2.5 Nominal Output Power: 1000 W / 1000 VA per inverter.

4.2.6 Overload (5 second maximum): 105% to 125% @ 40V to 48V (15 s), 125% to 200% (1 s), >200% (120 ms) per inverter.

4.2.7 Power Factor: = The power factor is between -0.65 to 1 and +0.9 to 1.

### 5. RECTIFIER

Refer to the Rectifier Instructions (UM1R483500e, UM1R483500e3, or UM1R482000e3).

### 6. -48 VDC TO +24 VDC CONVERTER

Refer to the Converter Instructions (UM1C48241500).

### 7. -48 VDC TO -58 VDC CONVERTER

Refer to the Converter Instructions (UM1C48582000P3).

### 8. INVERTER

Refer to the Inverter Instructions (UM1I1201000).

### 9. CONTROLLER

Refer to the ACU+ Controller Instructions (UM1M820BNA) or NCU Controller Instructions (UM1M830BNA).

For controller factory settings, refer to the Controller Configuration Drawing (C-drawing).

**MECHANICAL SPECIFICATIONS**

**Overall Dimensions**

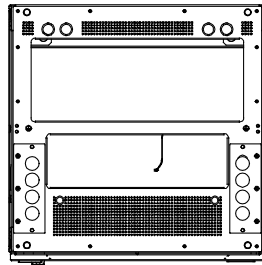
**Relay Racks**

Refer to Table 17 for relay rack dimensions.

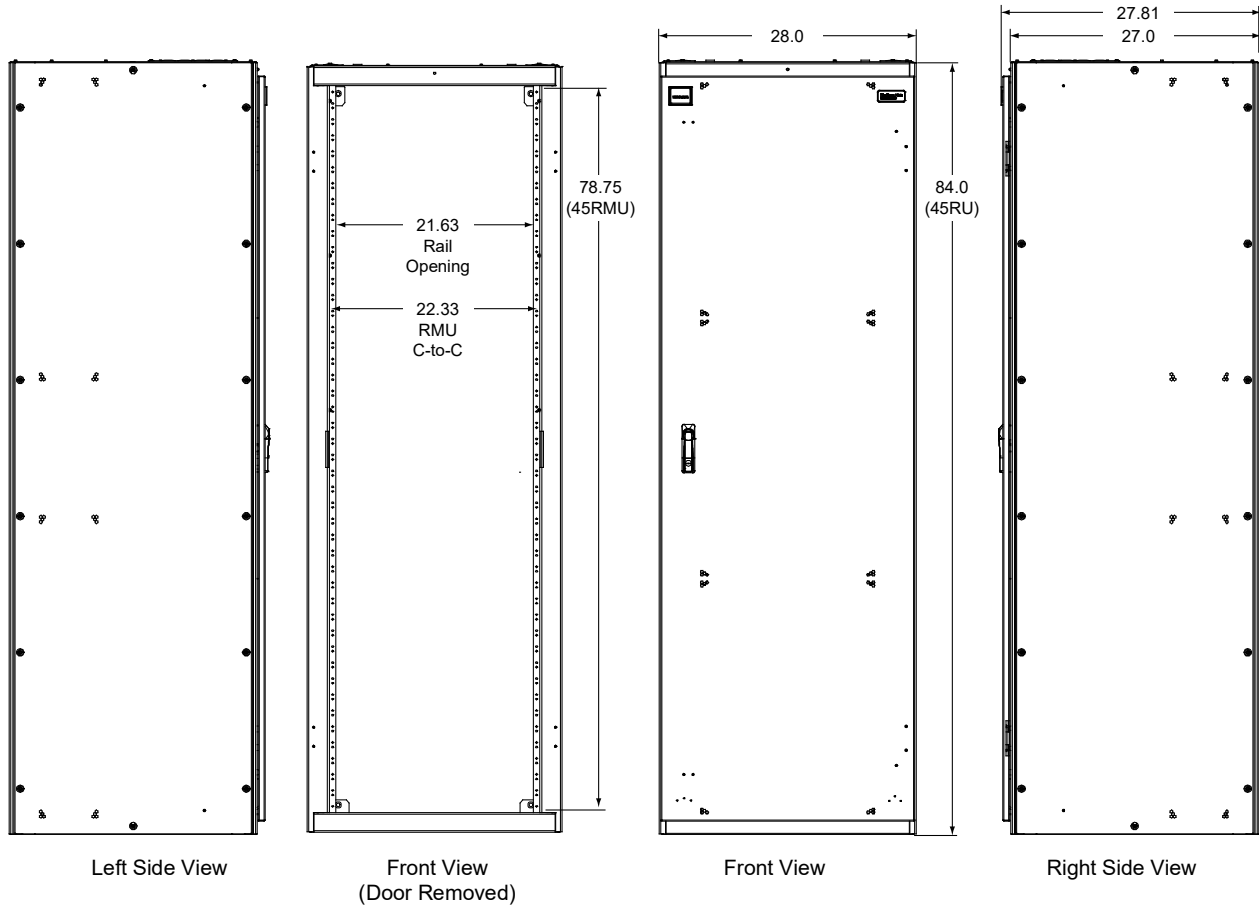
**Enclosure, P/N 563524 or P/N 564881**

Notes:

1. All dimensions are in inches.
2. Finish: Textured Dark Gray



Top View

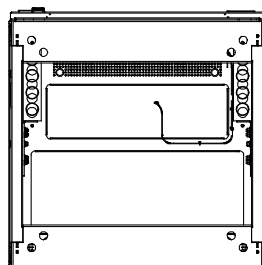


Left Side View

Front View  
(Door Removed)

Front View

Right Side View



Bottom View

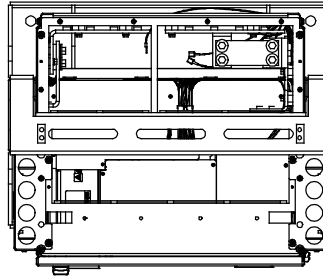
# Vertiv™ NetSure™ 7100 DC Power System

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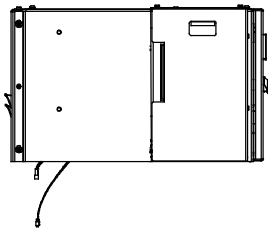
### List 21 (One-Row Distribution Cabinet)

Notes:

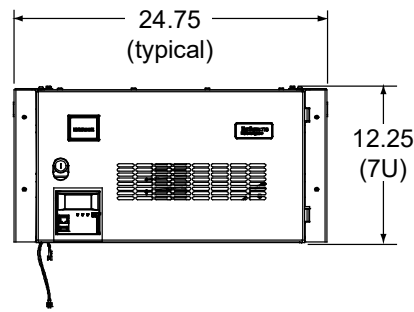
1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray or Textured White



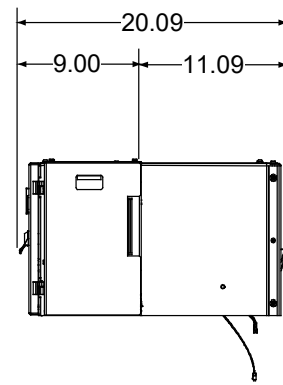
Top View



Left Side View



Front View

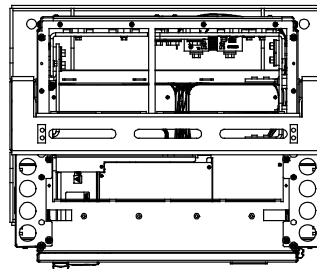


Right Side View

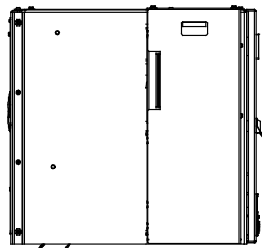
### List 22 (Two-Row Distribution Cabinet)

Notes:

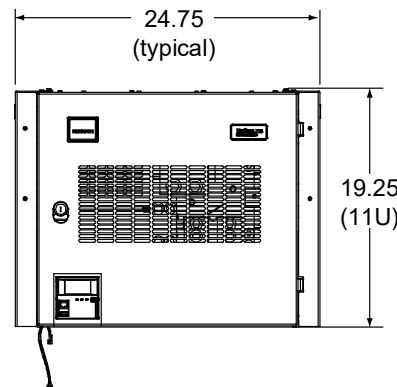
1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray or Textured White



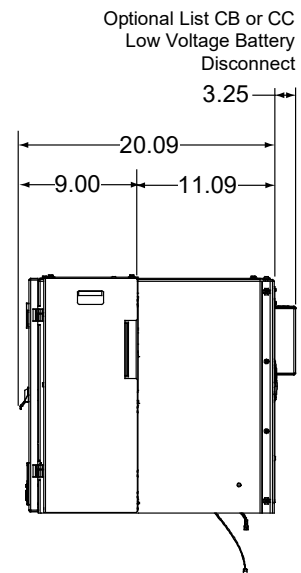
Top View



Left Side View



Front View



Right Side View

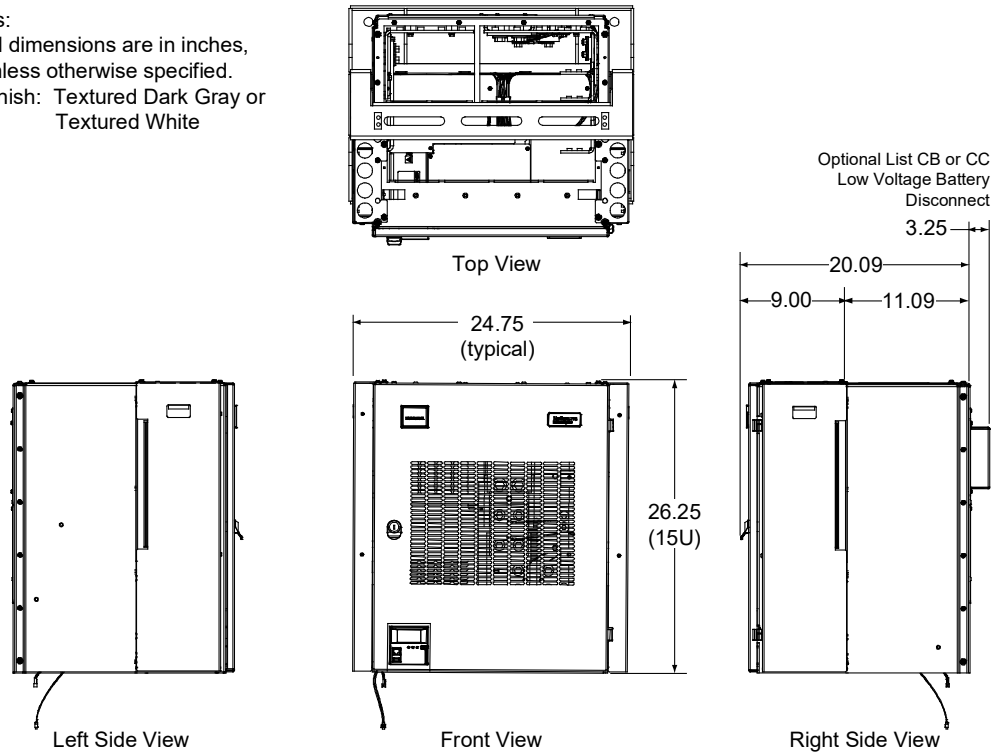
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List 23 (Three-Row Distribution Cabinet)

**Notes:**

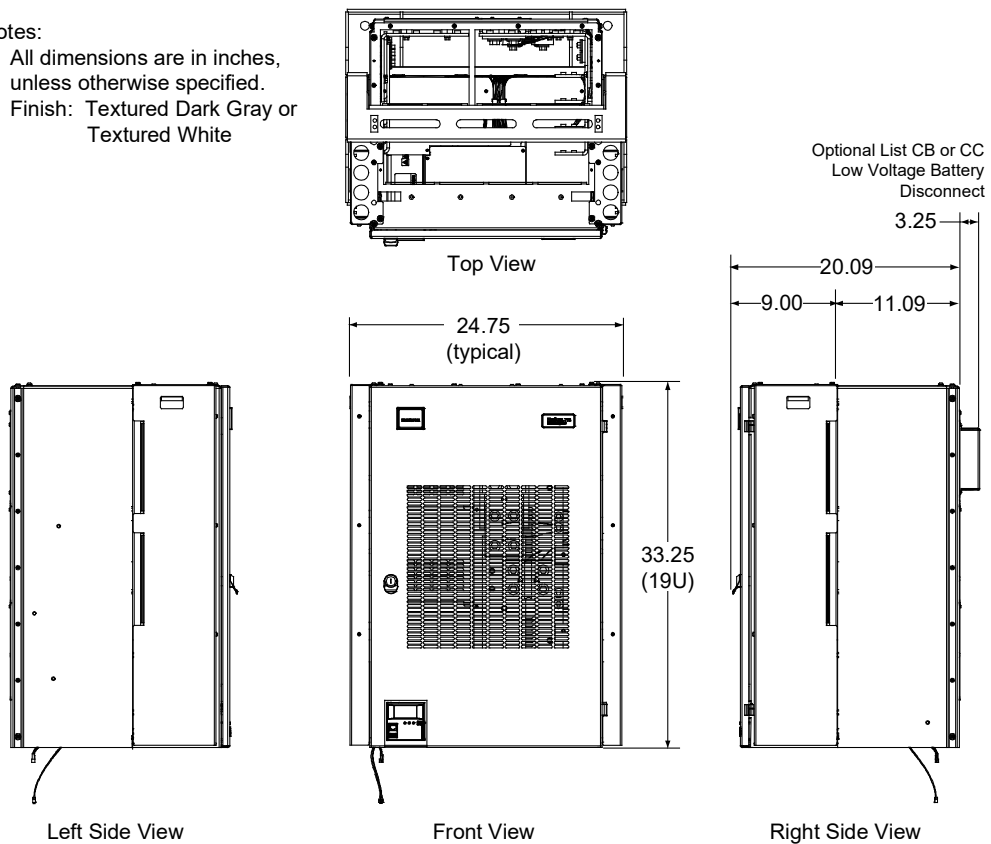
1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray or Textured White



### List 24 (Four-Row Distribution Cabinet)

**Notes:**

1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray or Textured White



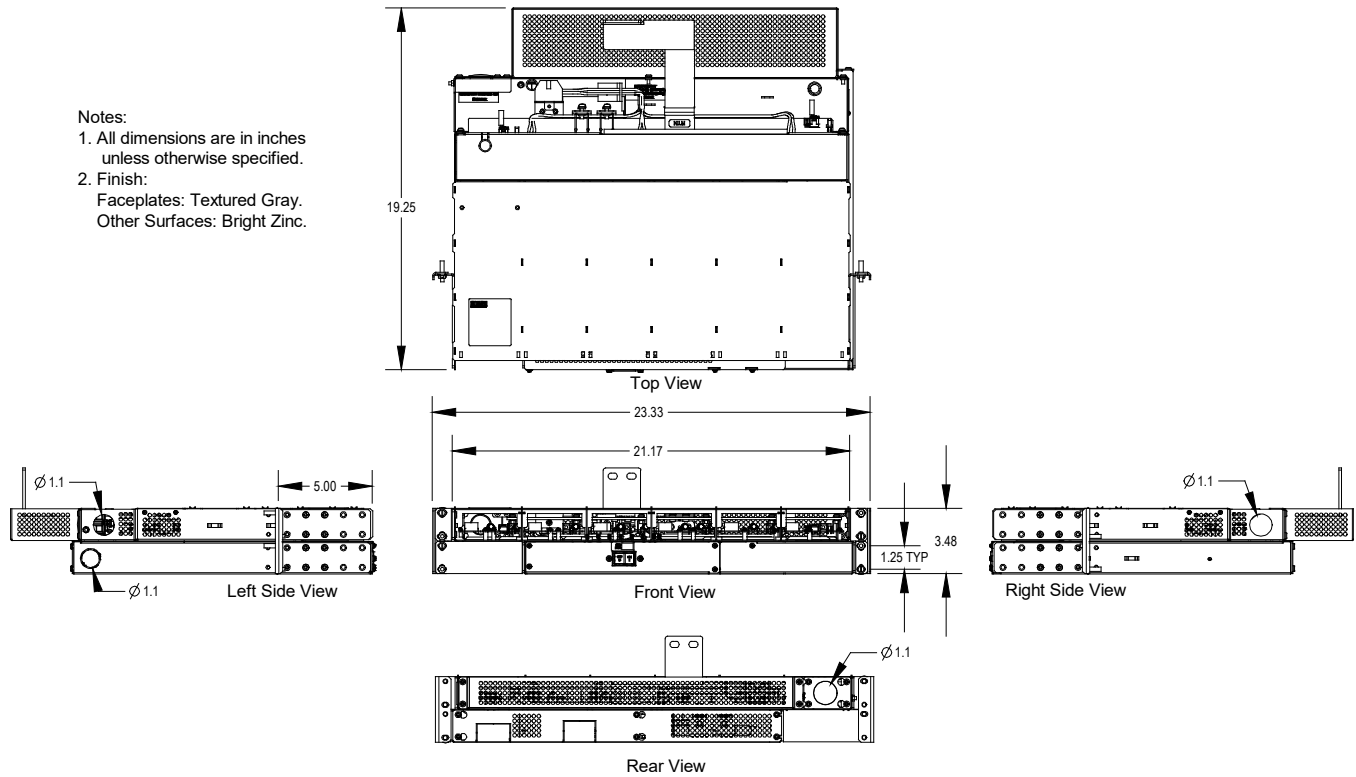
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 58212700050

**Notes:**

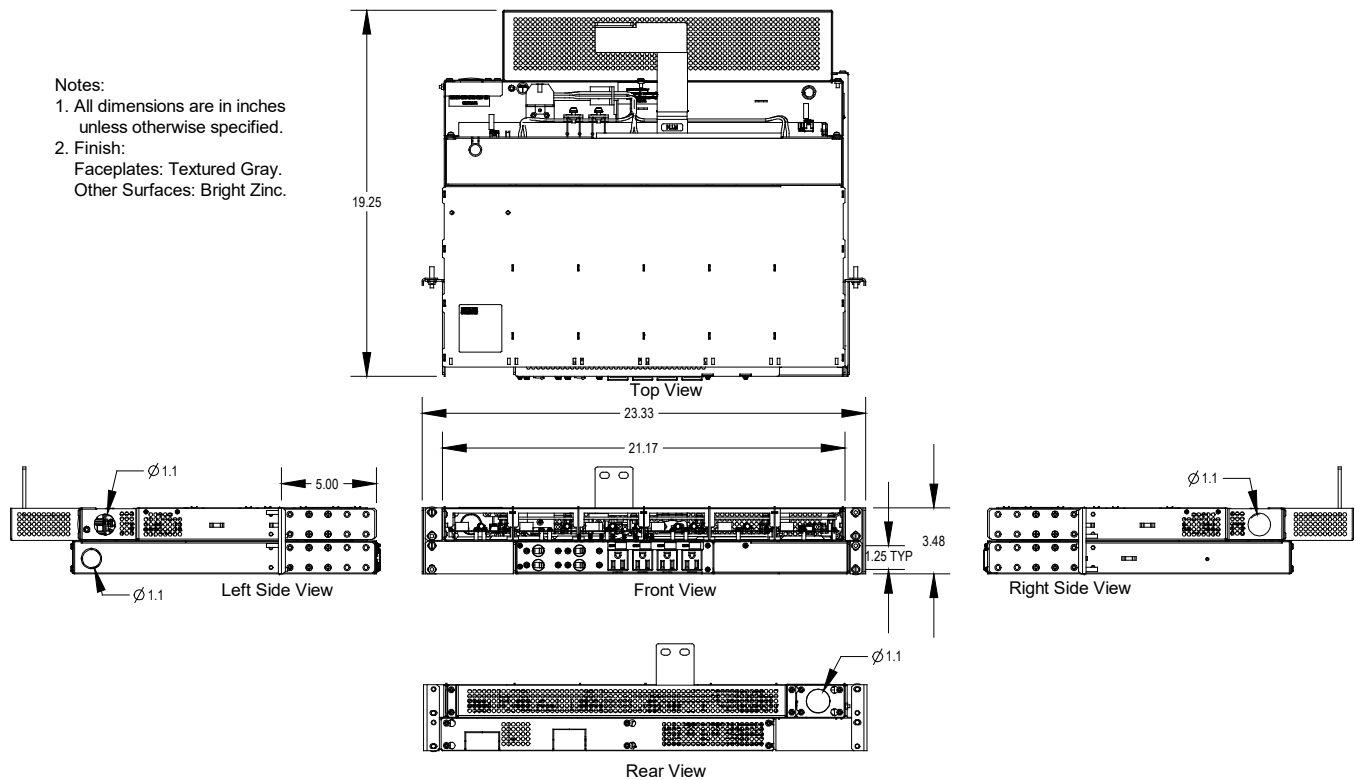
1. All dimensions are in inches unless otherwise specified.
2. Finish:  
Faceplates: Textured Gray.  
Other Surfaces: Bright Zinc.



### 58212700051

**Notes:**

1. All dimensions are in inches unless otherwise specified.
2. Finish:  
Faceplates: Textured Gray.  
Other Surfaces: Bright Zinc.



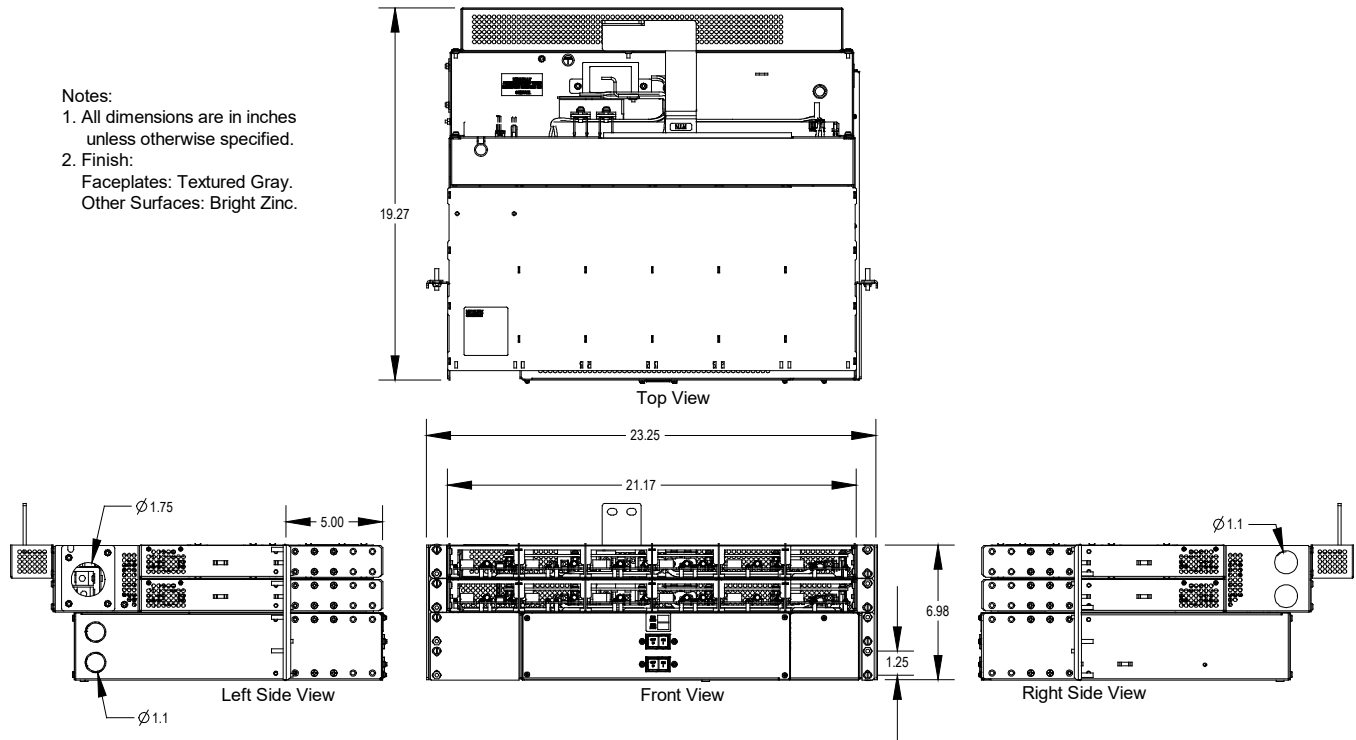
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

**58212700052**

**Notes:**

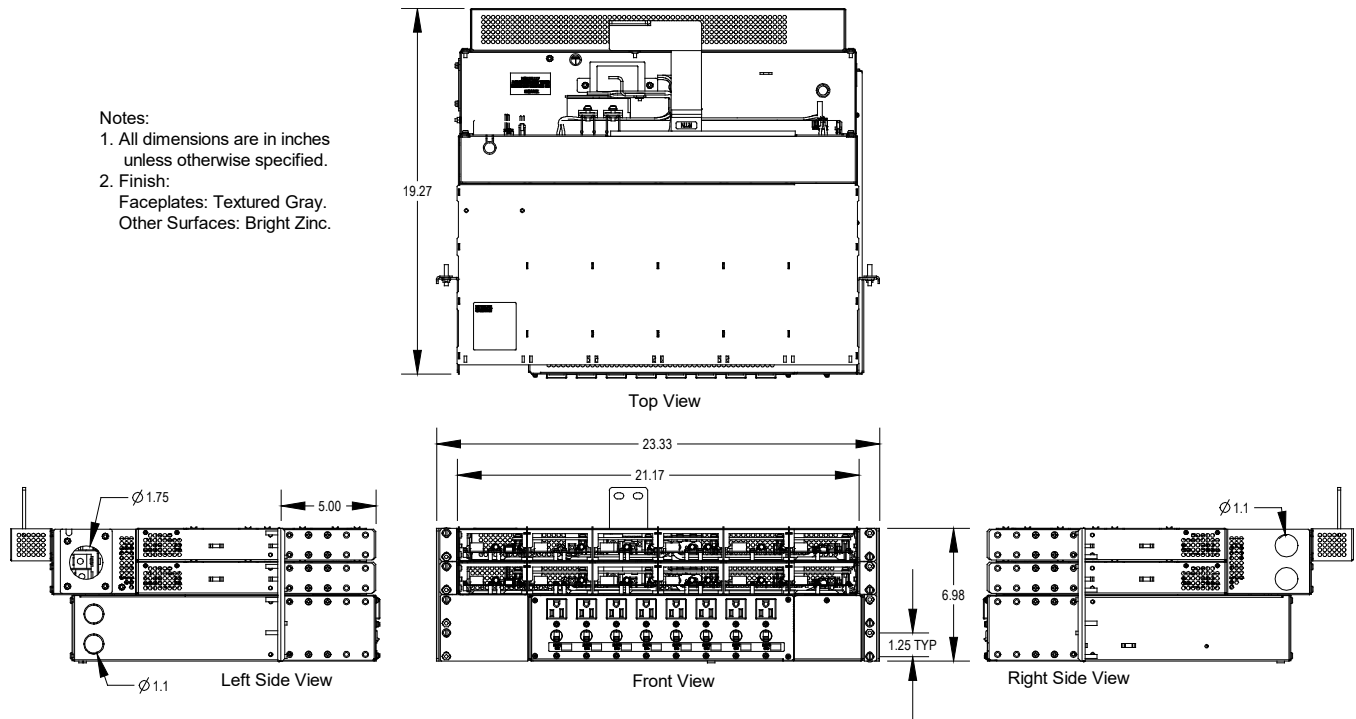
1. All dimensions are in inches unless otherwise specified.
2. Finish:  
Faceplates: Textured Gray.  
Other Surfaces: Bright Zinc.



**58212700053**

**Notes:**

1. All dimensions are in inches unless otherwise specified.
2. Finish:  
Faceplates: Textured Gray.  
Other Surfaces: Bright Zinc.



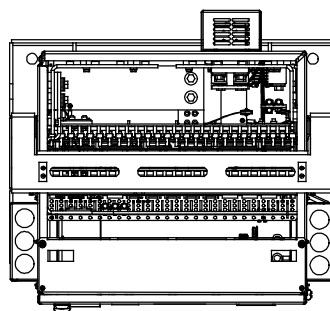
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

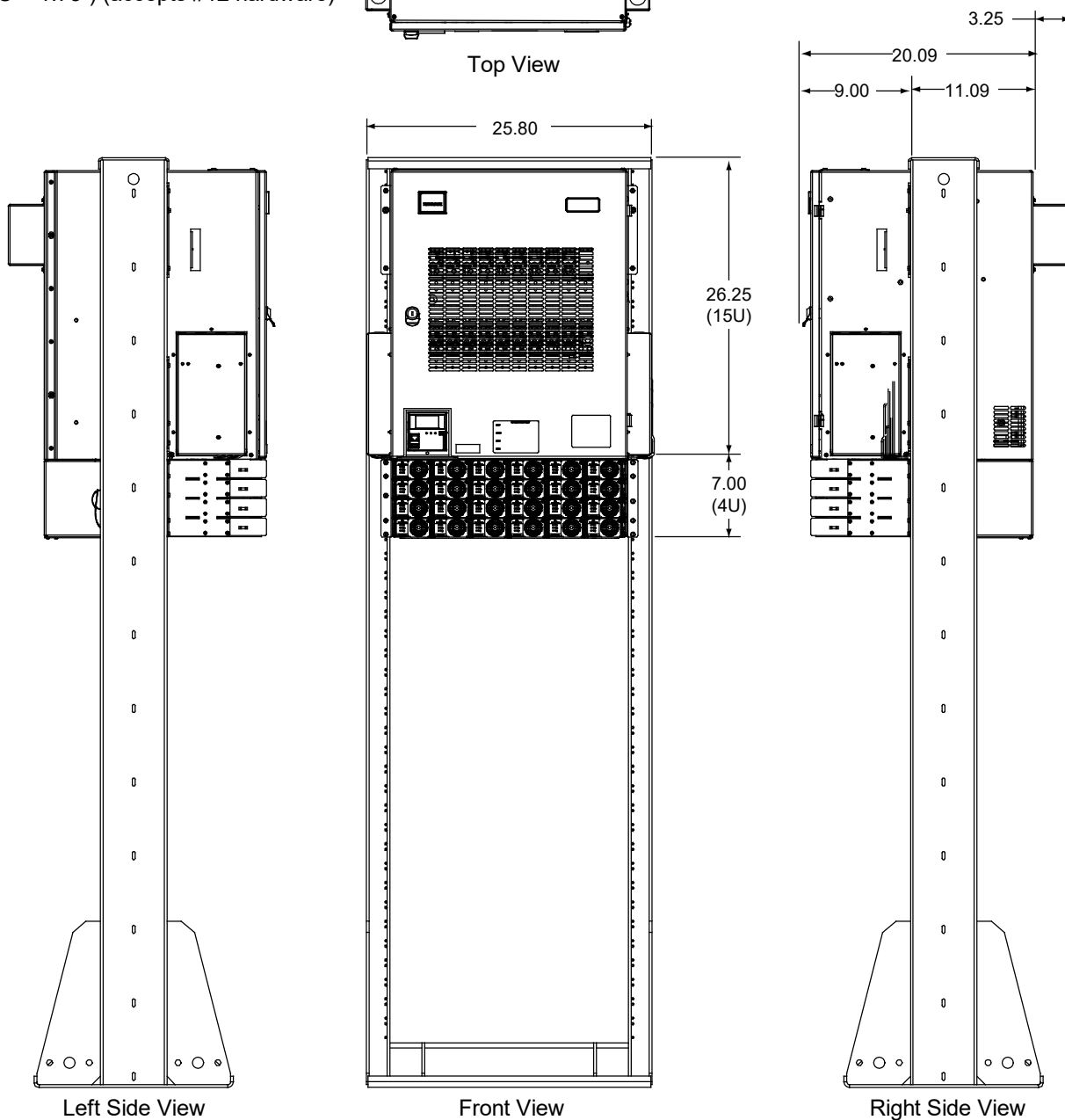
582127000100, 582127000500

**Notes:**

1. All dimensions are in inches.
2. Finish: Textured Gray
3. Relay Rack Dimensions:  
84"H x 25.8"W x 18"D
4. Relay Rack Available  
Rack Space: 26RU  
(1RU = 1.75") (accepts #12 hardware)



Top View



Left Side View

Front View

Right Side View

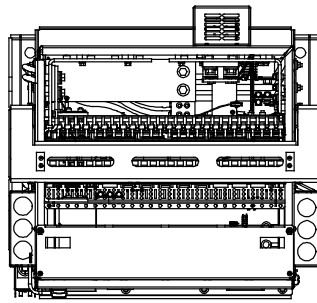
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

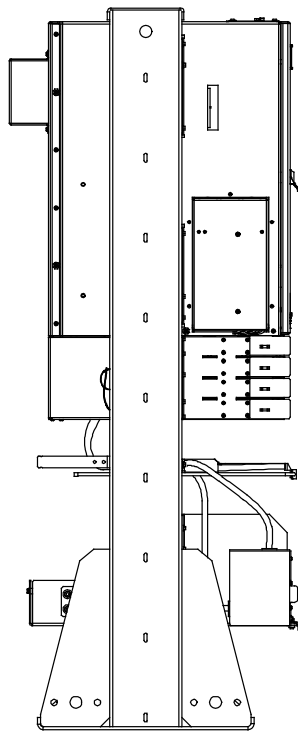
**582127000101, 582127000501**

**Notes:**

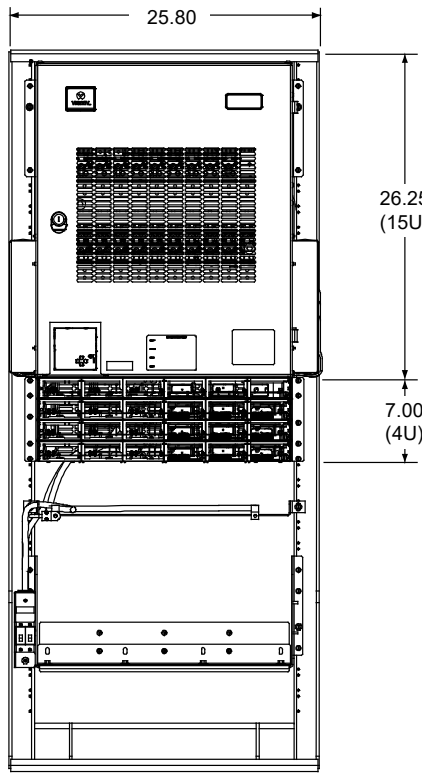
1. All dimensions are in inches.
2. Finish: Textured Gray
3. Relay Rack Dimensions:  
60"H x 25.8"W x 18"D
4. Relay Rack Available  
Rack Space: 4RU  
(1RU = 1.75") (accepts #12 hardware)



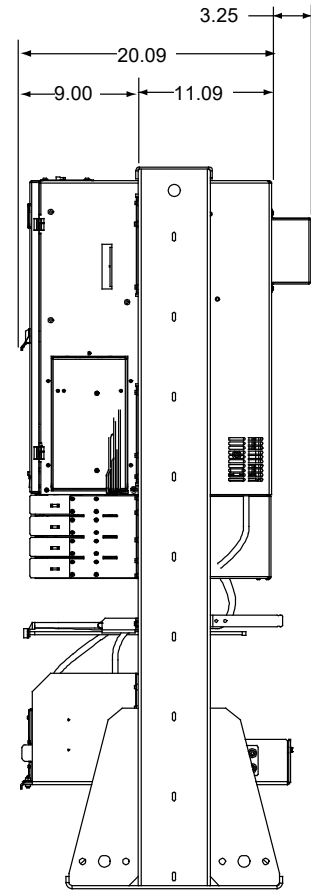
Top View



Left Side View



Front View



Right Side View



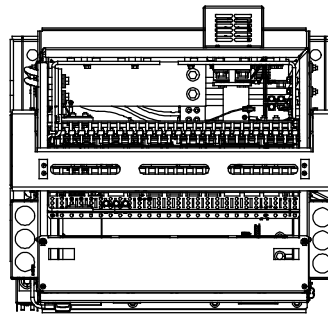
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

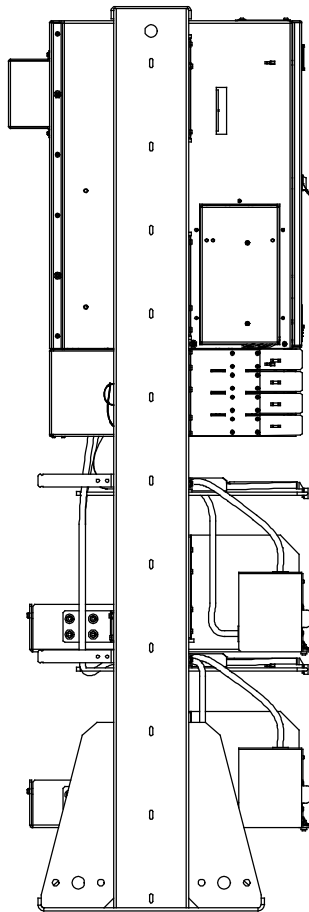
582127000102, 582127000502

**Notes:**

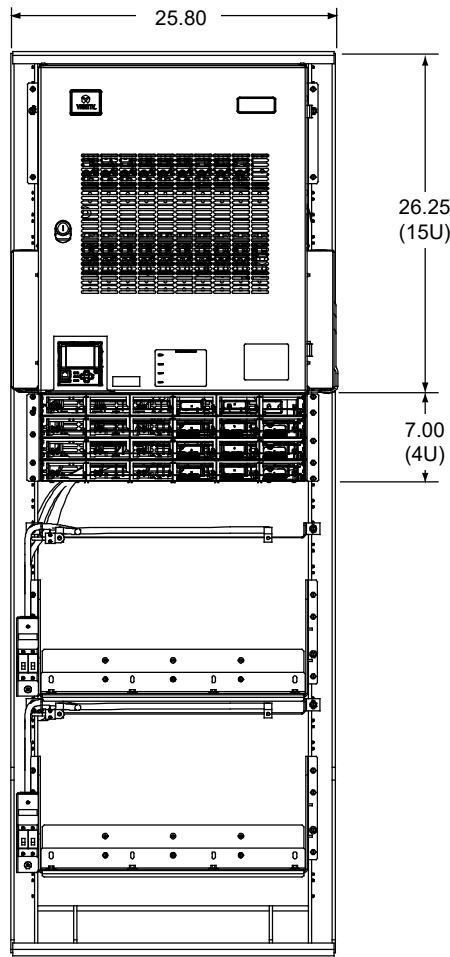
1. All dimensions are in inches.
2. Finish: Textured Gray
3. Relay Rack Dimensions:  
72"H x 25.8"W x 18"D
4. Relay Rack Available  
Rack Space: 3RU  
(1RU = 1.75") (accepts #12 hardware)



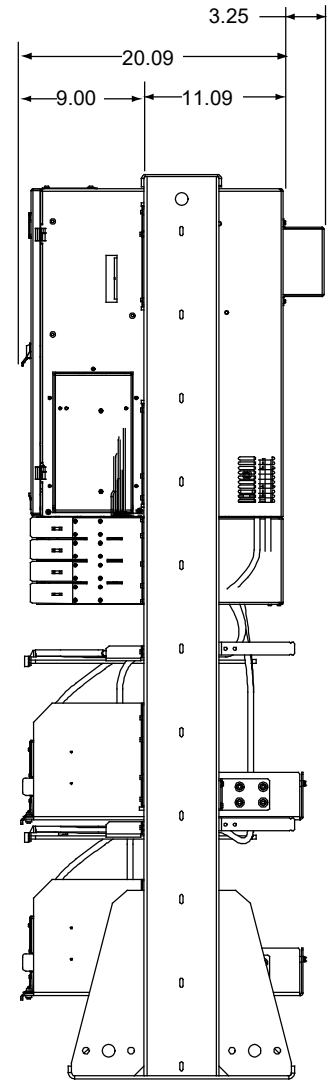
Top View



Left Side View



Front View



Right Side View

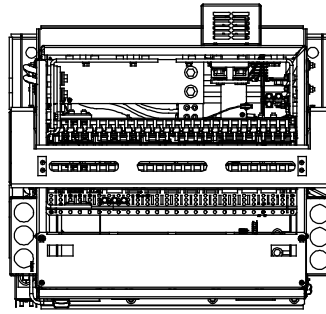
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

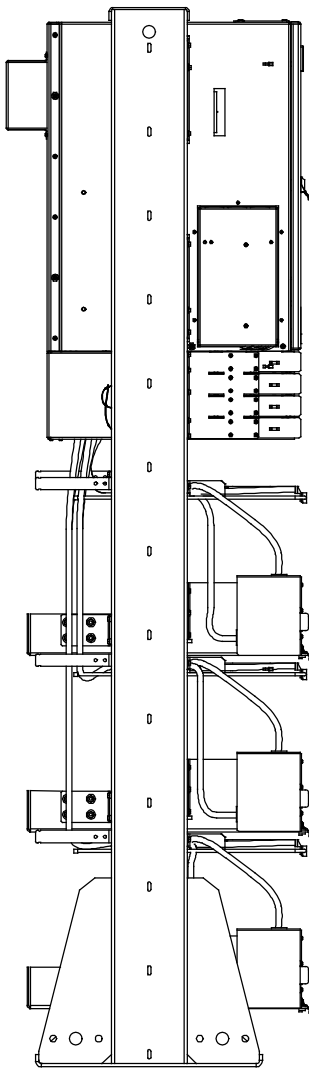
582127000203, 582127000503

**Notes:**

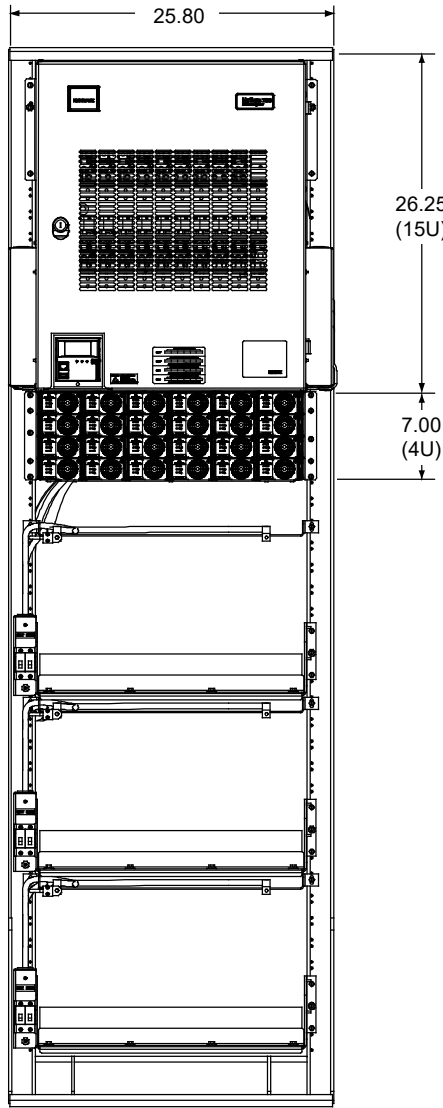
1. All dimensions are in inches.
2. Finish: Textured Gray
3. Relay Rack Dimensions:  
84"H x 25.8"W x 18"D
4. Relay Rack Available  
Rack Space: 2RU  
(1RU = 1.75") (accepts #12 hardware)



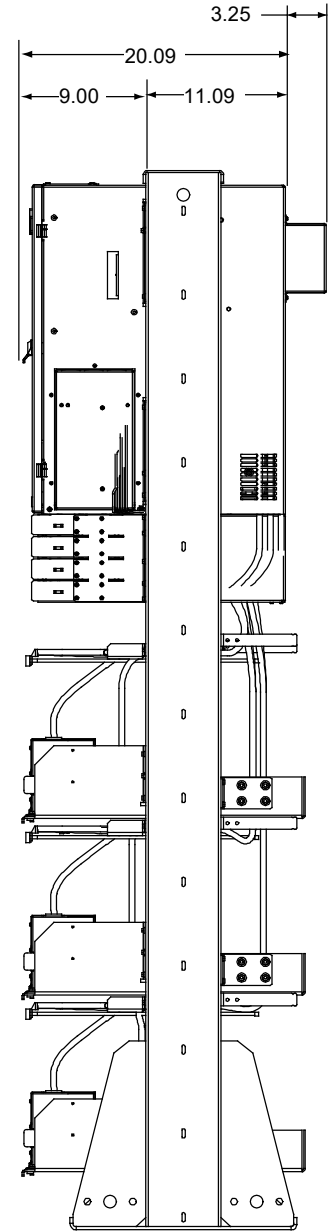
Top View



Left Side View



Front View

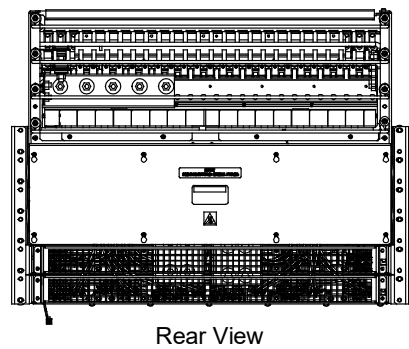
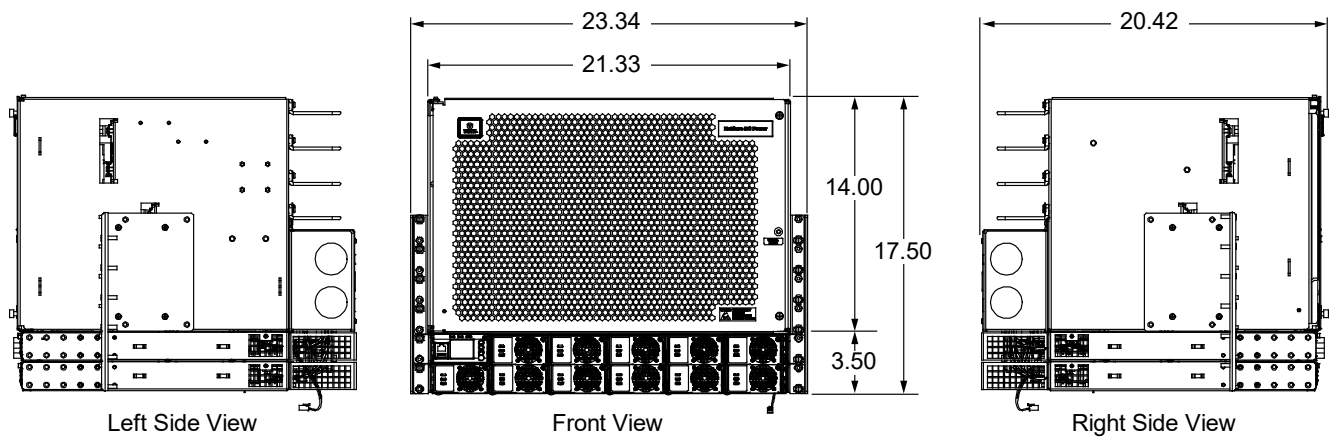
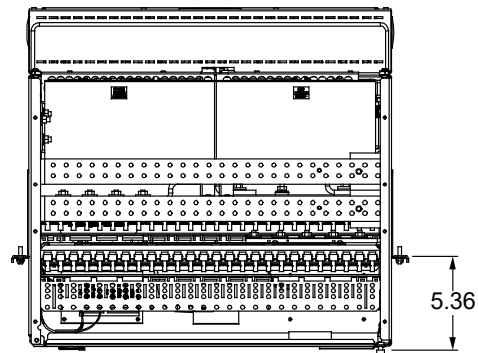


Right Side View

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

582127000600, 582127000601

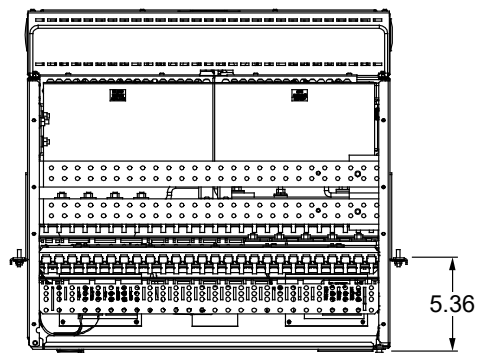


- Notes:
1. All dimensions are in inches.
  2. Finish: Textured Gray

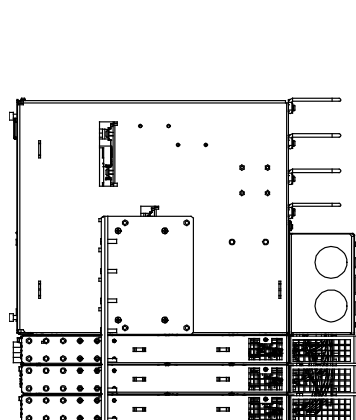
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

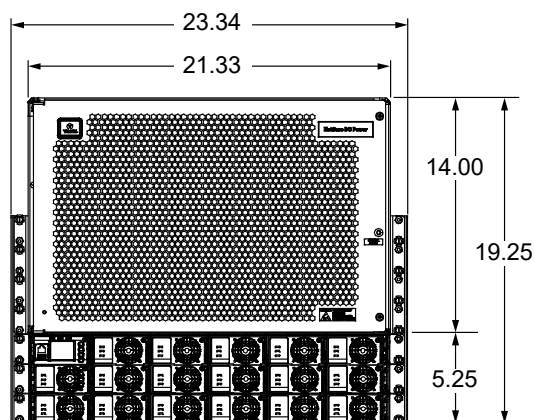
582127000900, 582127000901



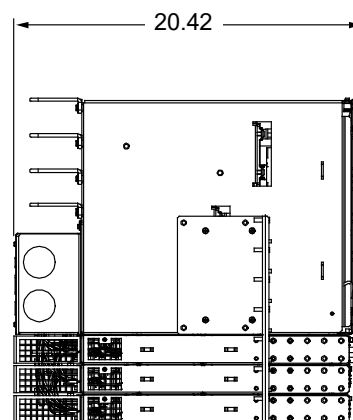
Top View



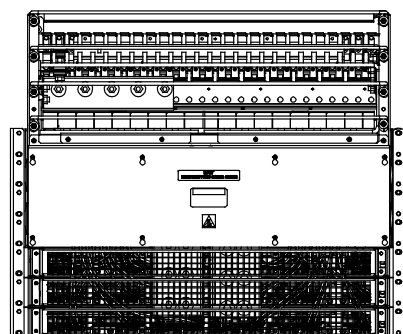
Left Side View



Front View



Right Side View



Rear View

- Notes:
1. All dimensions are in inches.
  2. Finish: Textured Gray

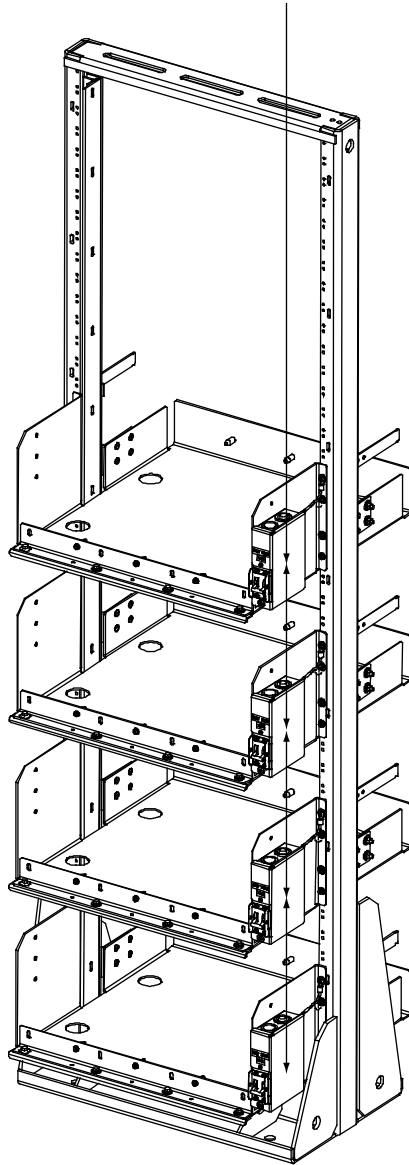
Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

List 93 (Battery Tray)

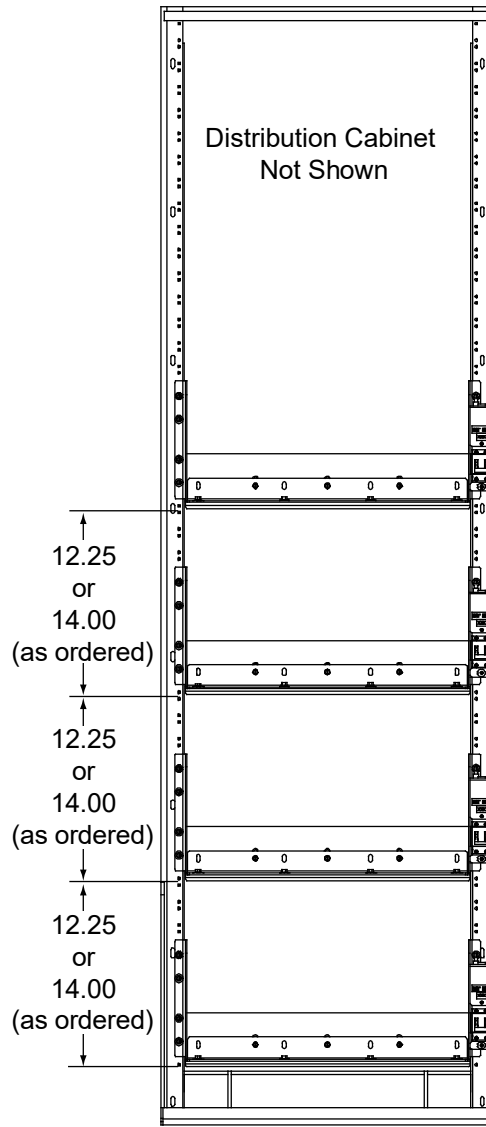
Notes:

1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray
3. Maximum trays available per rack is four (4).

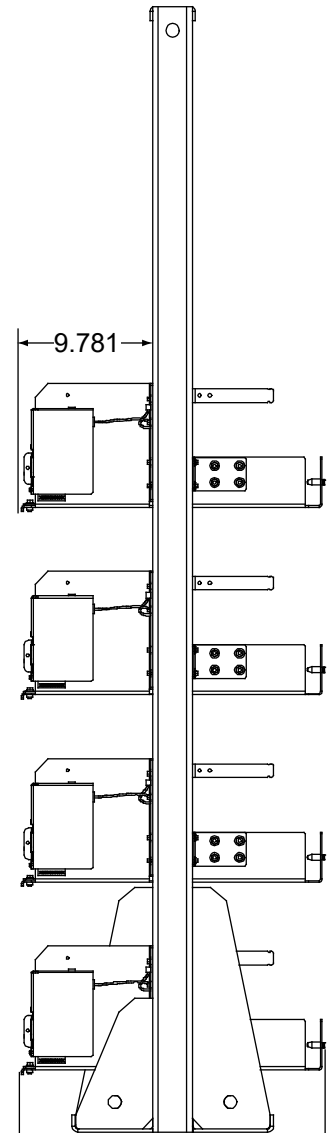
Optional Battery Disconnect Circuit Breaker  
(Mounted on Either Right or Left Side)



ISO View



Front View



Right Side View

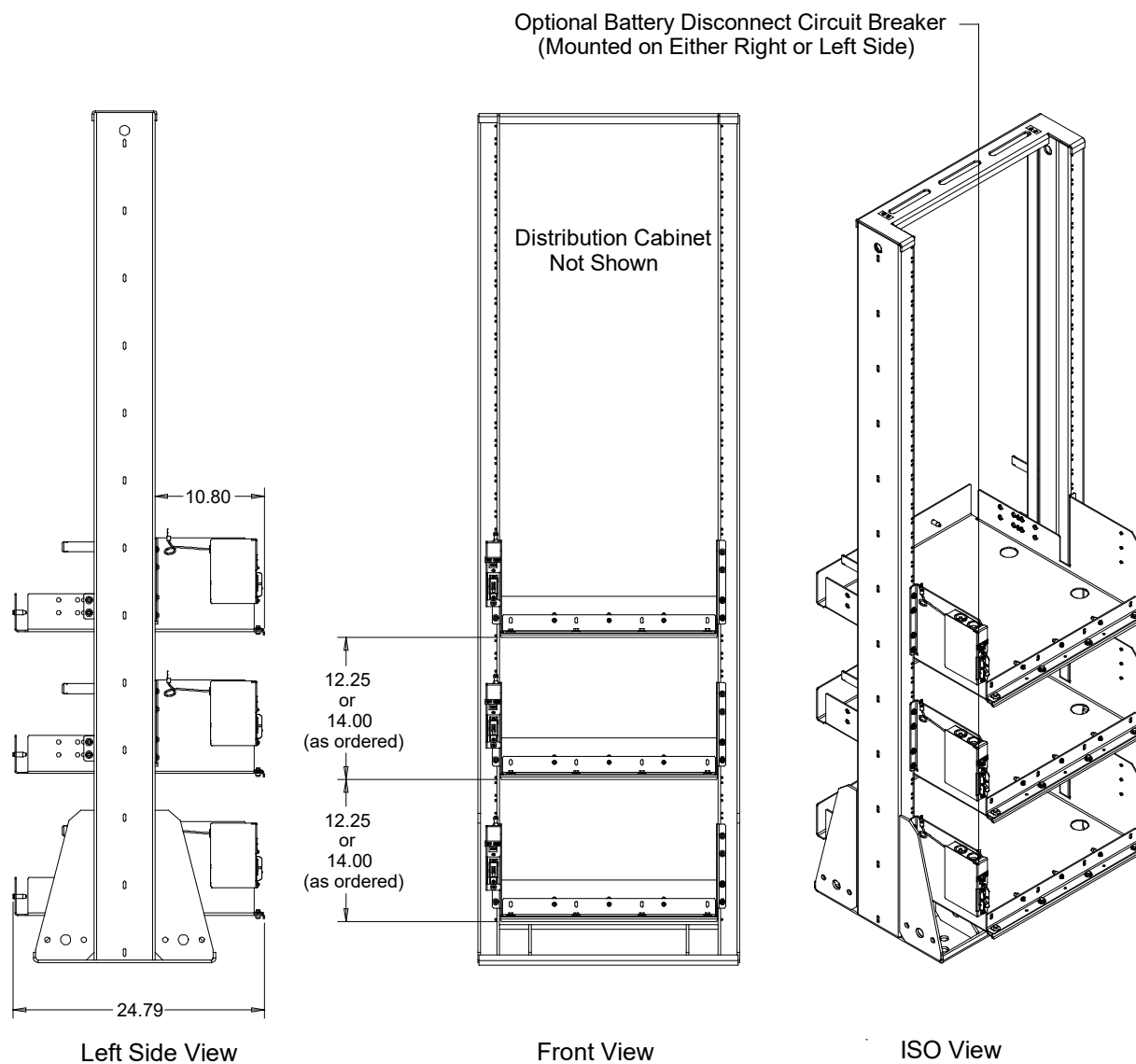
# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### List 95 (Battery Tray)

#### Notes:

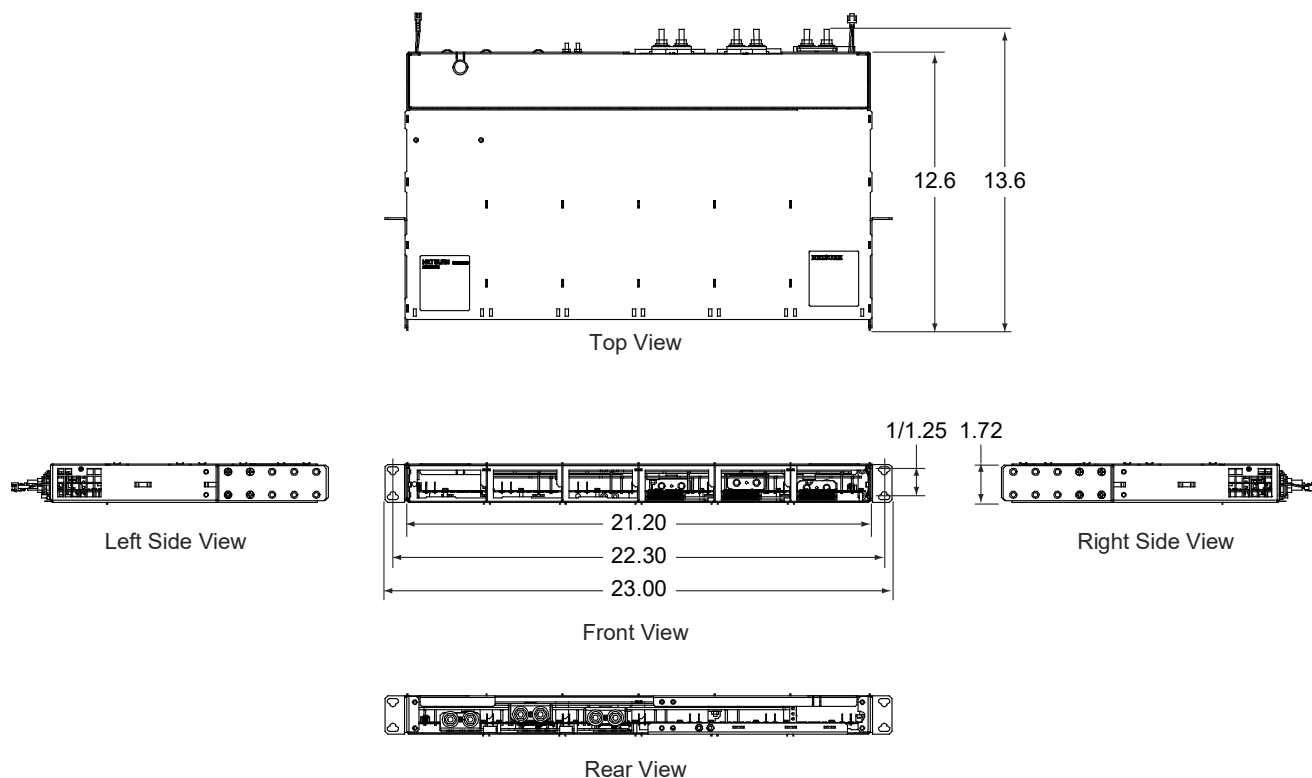
1. All dimensions are in inches, unless otherwise specified.
2. Finish: Textured Dark Gray or White.
3. Maximum trays available per rack is four (4).



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 588705300 Module Mounting Assembly (List 01)



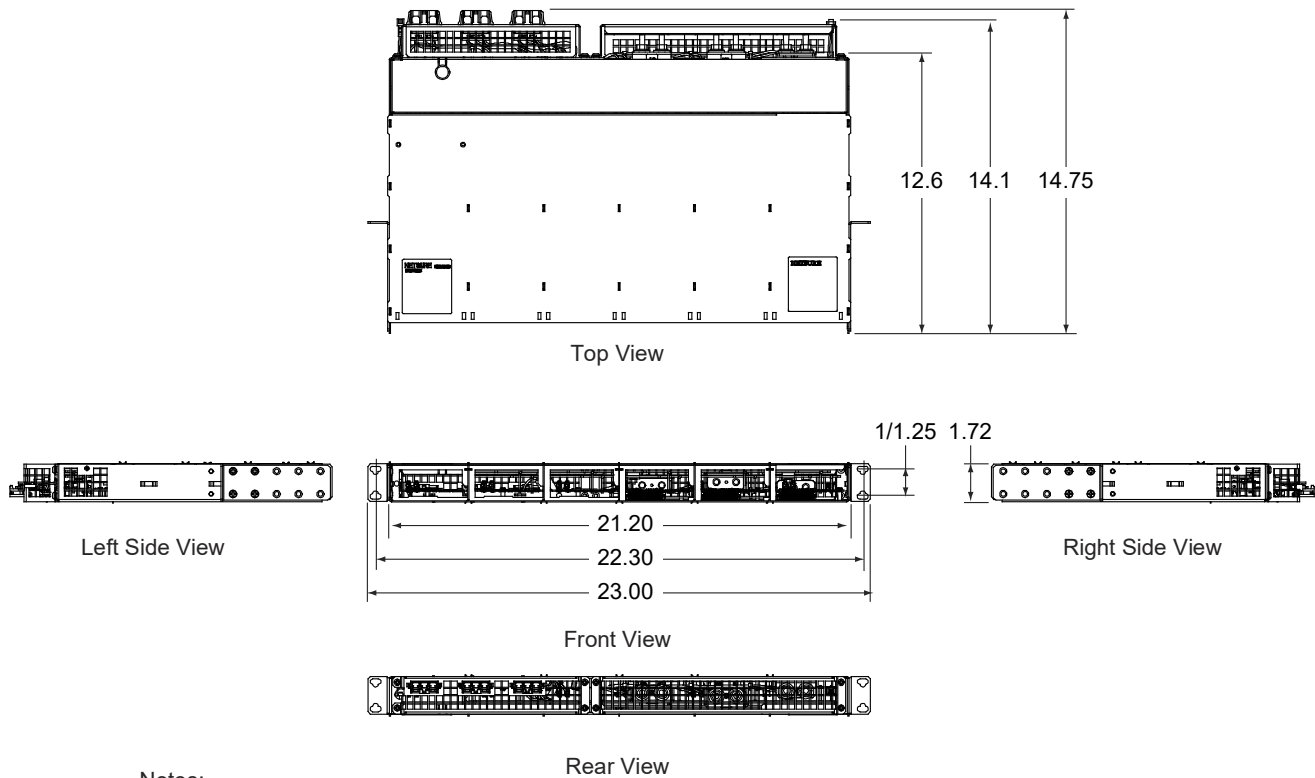
**Notes:**

1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.
  - Module Mounting Assembly  
Net: 11.0
  - Rectifier Module  
Net: 2.5
  - Converter Module  
Net: 2.3
3. Finish:
  - Module Mounting Assembly and Module Bodies:  
Bright Zinc Plating
  - Module Face Plates:  
Textured Gray
4. Front Projection: 9".

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 588705300 Module Mounting Assembly (List 03)



**Notes:**

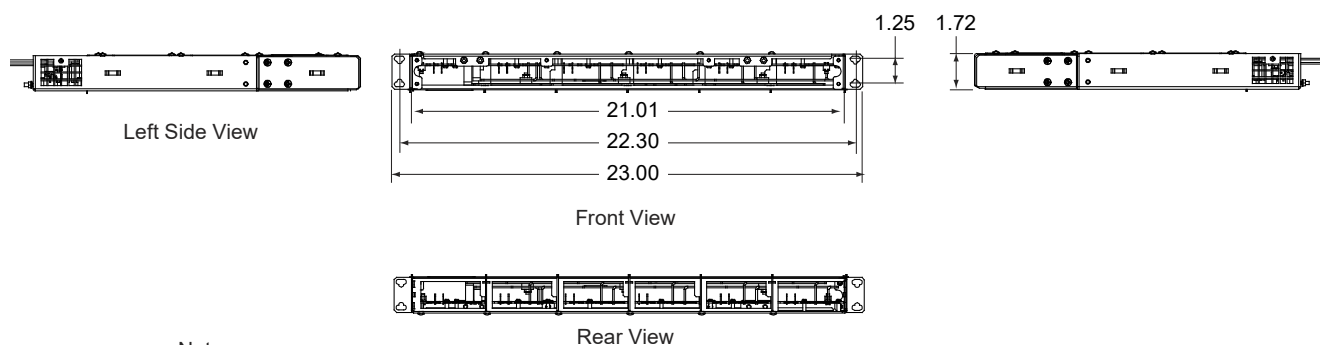
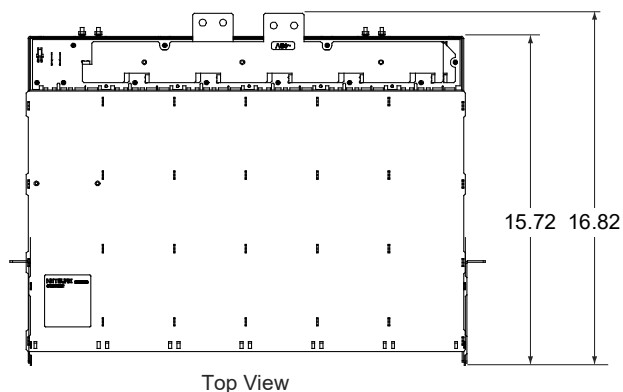
1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.
  - Module Mounting Assembly  
Net: 11.7
  - Rectifier Module  
Net: 2.5
  - Converter Module  
Net: 2.3
3. Finish:
  - Module Mounting Assembly and Module Bodies:  
Bright Zinc Plating
  - Module Face Plates:  
Textured Gray
4. Front Projection: 9"



# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 588705400 Module Mounting Assembly (List 01)



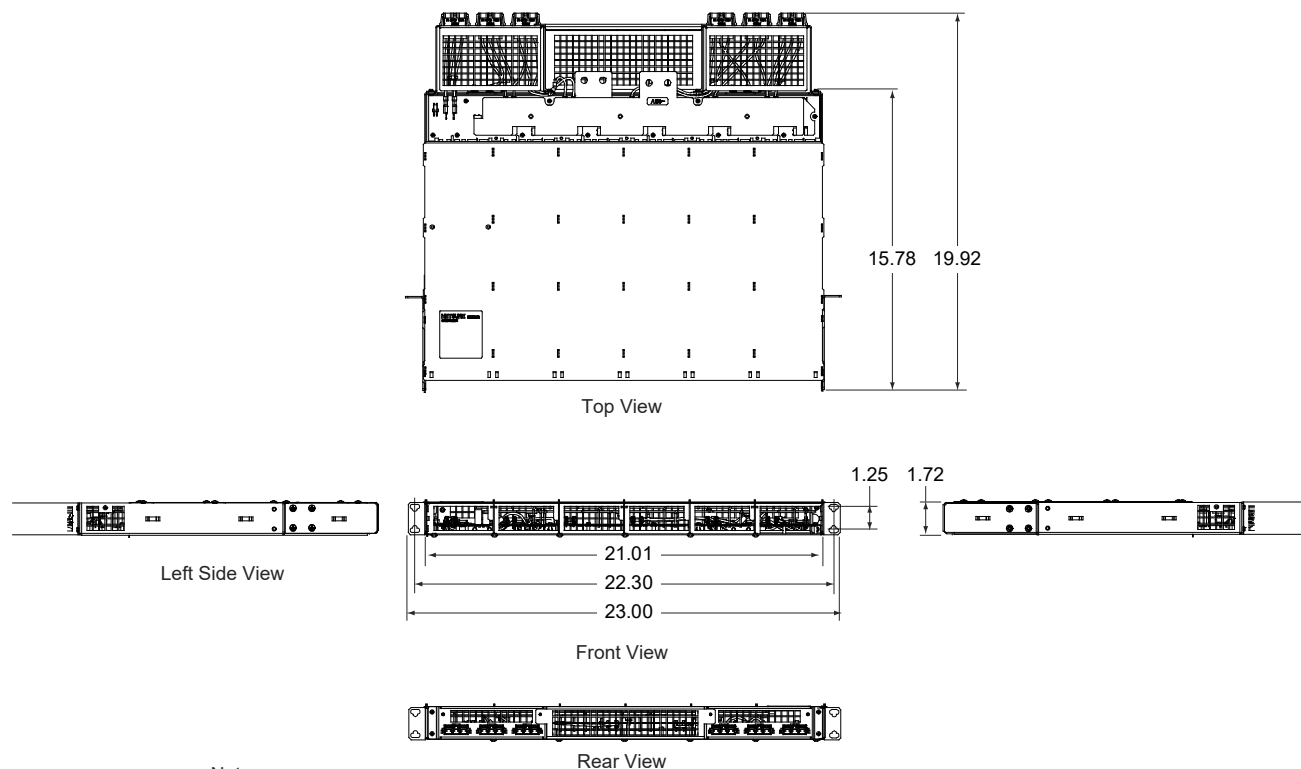
**Notes:**

1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.  
 Module Mounting Assembly  
 Net: 11.0  
 Rectifier Module  
 Net: 3.7
3. Finish:  
 Module Mounting Assembly and Module Bodies:  
 Bright Zinc Plating  
 Module Face Plates:  
 Textured Dark Gray
4. Front Projection: 9".

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### 588705400 Module Mounting Assembly (List 02, 03, 04)



Notes:

1. All dimensions are in inches, unless otherwise specified.
2. Weight in LBS.  
Module Mounting Assembly  
Net: 13.5  
Rectifier Module  
Net: 3.7
3. Finish:  
Module Mounting Assembly and Module Bodies:  
Bright Zinc Plating  
Module Face Plates:  
Textured Dark Gray
4. Front Projection: 9".

# Vertiv™ NetSure™ 7100 DC Power System

## System Application Guide

### Weights

List Number or Part Number	Net Weight (lbs), each	Description
<b>Common Equipment</b>		
58212700001	2	Common Equipment, Main Bay
58212700002	30	Common Equipment, 1st Supplemental Bay, Adjacent
58212700003	24	Common Equipment, 2nd through 5th Supplemental Bays, Adjacent
58212700005	1.5	Common Equipment, 1st through 5th Supplemental Bays, Remote
58212700007	59	Common Equipment, 1st Supplemental Bay, Enclosure Mounted
58212700008	47	Common Equipment, 2nd through 5th Supplemental Bays, Enclosure Mounted
<b>Optional Inverter Systems</b>		
58212700050	22	Inverter System
58212700051	23	Inverter System
58212700052	33	Inverter System
58212700053	34	Inverter System
11201000	2.5	Inverter Module
<b>Configured Systems</b>		
582127000100	485	Power and Distribution Bay (Fully Configured)
582127000101	463	Power and Distribution Bay (Fully Configured with One Battery Tray)
582127000102	519	Power and Distribution Bay (Fully Configured with Two Battery Trays)
582127000203	588	Power and Distribution Bay (Fully Configured with Three Battery Trays)
582127000600 582127000601	135	Power and Distribution Bay (Fully Configured)
582127000900 582127000901	148	Power and Distribution Bay (Fully Configured)
582127000500	485	Power and Distribution Bay (Fully Configured)
582127000501	463	Power and Distribution Bay (Fully Configured with One Battery Tray)
582127000502	519	Power and Distribution Bay (Fully Configured with Two Battery Trays)
582127000503	588	Power and Distribution Bay (Fully Configured with Three Battery Trays)
<b>Distribution Cabinets</b>		
58212700021	55	Distribution Cabinet, 1 Row
58212700022	76	Distribution Cabinet, 2 Rows
58212700023	98	Distribution Cabinet, 3 Rows
58212700024	126	Distribution Cabinet, 4 Rows
<b>Module Mounting Assembly 588705300</b>		
58870530001	11	Module Mounting Assembly
58870530003	11.7	Module Mounting Assembly
1R482000e3	2.5	Rectifier Module
1C48241500	2.3	Converter Module
1C48582000P3	2.3	Converter Module
<b>Module Mounting Assembly 588705400</b>		
58870540001	11	Module Mounting Assembly
58870540002	13.5	Module Mounting Assembly
58870540003	13.5	Module Mounting Assembly

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

List Number or Part Number	Net Weight (lbs), each	Description
58870540004	13.5	Module Mounting Assembly
1R483500e3	3.7	Rectifier Module
<b>Controller</b>		
1M830DNA	1.0	NCU
1M820DNA	1.0	ACU+
<b>Rectifier</b>		
1R483500e	7	Rectifier Module
1R484000e	5.4	Rectifier Module
<b>Battery Accessories</b>		
58212700090	1.5	Battery Shunt, 800 A
58212700091	3.5	Battery Shunt, 2000 A
58212700092	3.2	Battery Shunt, 2500 A
58212700093	32	Integrated, Pre-cabled Battery Tray
58212700095	35.7	Optional Battery Tray, Pre-Cabled, For System Mounted in a Relay Rack Only, 22.5" Deep
559813 559814	1	Battery Disconnect Breaker Kit, 1-pole
559815 559816	1.5	Battery Disconnect Breaker Kit, 2-pole
<b>Distribution Panels, Primary Voltage</b>		
582127000AC	6	Distribution Panel
582127000AD	5	Distribution Panel
582127000AF	16	Distribution Panel
582127000AH	22	Distribution Panel
582127000AL	12.6	Distribution Panel
582127000AM	17	Distribution Panel
582127000AN	9.6	Distribution Panel
582127000AP	8	Distribution Panel
<b>Distribution Panels, Dual Voltage</b>		
582127000DE	14	Distribution Panel
582127000DF	14	Distribution Panel
582127000DG	14	Distribution Panel
582127000DH	14	Distribution Panel
582127000DJ	14	Distribution Panel
582127000DK	14	Distribution Panel
582127000FE	14	Distribution Panel
582127000FF	14	Distribution Panel
582127000FG	14	Distribution Panel
582127000FH	14	Distribution Panel
582127000FJ	14	Distribution Panel
582127000FK	14	Distribution Panel

Vertiv™ NetSure™ 7100 DC Power System  
System Application Guide

List Number or Part Number	Net Weight (lbs), each	Description
<b>Distribution Panels, Battery Disconnect</b>		
582127000BC	10	Distribution Panel
582127000BD	8	Distribution Panel
582127000BF	20	Distribution Panel
582127000BH	25	Distribution Panel
<b>Battery Disconnect Contactors</b>		
582127000CA	7	600 Amp Battery Disconnect Contactor
582127000CB	6	1200 Amp Battery Disconnect Contactor
582127000CC	6	2000 Amp Battery Disconnect Contactor
<b>Bulk Output Panel</b>		
582127000EA	11	Bulk Output Panel
<b>Ground Bar</b>		
582127000GA	11	Ground Bar
<b>Low Voltage Disconnect</b>		
582127000LL	2.5	Low Voltage Load Disconnect Option
<b>Manual Battery Disconnect</b>		
582127000MB	1	Manual Battery Disconnect Option
<b>Distribution Elements</b>		
549017	1.5	Kit, 6-Position GMT Fuse Module, 35 A
256623500	0.6	Circuit Breaker, 250 A, GJ/218, One-pole, Without Shunt
256626200	1.2	Circuit Breaker, 400 A, GJ/218, Two-pole, Without Shunt
256628200	2	Circuit Breaker, 600 A, GJ/218, Three-pole, Without Shunt
550249	3	Circuit Breaker, 800 A, GJ/218, Four-pole, With Shunt
<b>Relay Racks</b>		
562360	46	Relay Rack
559817	51	Relay Rack
559818	103	Relay Rack
559820	113	Relay Rack
562353	243	Relay Rack
10009902	243	Relay Rack
562355	246	Relay Rack
559821	81	Relay Rack
559822	123	Relay Rack
564169	187	Relay Rack
564127	208	Relay Rack
<b>Enclosures</b>		
563524	221	Enclosure, Seismic, 84"H x 28"W x 28"D, No Side Panels, Dark Gray Color
563666	22	Enclosure Side Panel, Dark Gray Color, Qty. 1
564881	221	Enclosure, Seismic, 84"H x 28"W x 28"D, No Side Panels, White Color
564889	22	Enclosure Side Panel, Qty. 1, White Color

## RELATED DOCUMENTATION

System Quick Start Guide:	QS582127000
System Installation Instructions:	IM582127000
System User Instructions:	UM582127000
ACU+ Controller Instructions:	UM1M820BNA or UM1M820DNA400
NCU Controller Instructions:	UM1M830BNA
Rectifier Instructions:	UM1R483500e3
Rectifier Instructions:	UM1R483500e
Rectifier Instructions:	UM1R482000e3
Converter Instructions:	UM1C48241500
Converter Instructions:	UM1C48582000P3
Inverter Instructions:	UM1I1201000
NCU Controller 2nd Ethernet Port Add-On Kit Instructions:	IM559252
NCU Controller 2nd Ethernet Port Retrofit Kit Instructions:	IM559251
System Installation Instructions (List 100, 101, 102, 203, 500, 501, 502, 503):	IM582127000100
System User Instructions (List 100, 101, 102, 203, 500, 501, 502, 503):	UM582127000100
System Installation Instructions (List 600, 601, 900, 901):	IM582127000900
System User Instructions (List 600, 601, 900, 901):	UM582127000900
Main Schematic Diagrams:	SD582127000 (System) SD588705300 (Module Mounting Assembly) SD588705400 (Module Mounting Assembly)
Main Wiring Diagrams:	T582127000 (System)

## BATTERY MANUFACTURER INFORMATION

Some equipment described in this System Application Guide is designed to accommodate batteries from various manufacturers. The following are referenced in this document.

**C&D:** C&D Technologies, Inc., Powercom Div., 1400 Union Meeting Road, Blue Bell, PA 19422-0858

**Deka:** East Penn Mfg. Co., Inc., Lyon Station, PA 19536-0147

**Douglas:** Douglas Battery Mfg. Co., 500 Battery Dr., Winston-Salem, NC 27117-2159

**Fiamm:** FIAMM T.I., 23880 Industrial Park Drive, Farmington Hills, Detroit, MI 48335

**Marathon™:** GNB Industrial Power, a Division of Exide Technologies, Princeton, NJ 08543.

**Northstar:** NorthStar Battery Co. LLC, 4000 Continental Way, Springfield, MO 65803

**PowerSafe EnerSys™:** EnerSys Inc., Reading, PA, 196212-4145

Vertiv.com | Vertiv Headquarters, 505 N Cleveland Ave, Westerville, OH 43082, USA

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