NetSure™ 700
Dual Voltage Panel Kit

Installation Manual

Specification Number: 581126000SK010

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

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Admonishments Used in this Document

DANGER! Warns of a hazard the reader ***will*** be exposed to that will ***likely*** result in death or serious injury if not avoided. (ANSI, OSHA)

WARNING! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in death or serious injury if not avoided. This admonition is not used for situations that pose a risk only to equipment, software, data, or service. (ANSI)

CAUTION! Warns of a potential hazard the reader ***may*** be exposed to that ***could*** result in minor or moderate injury if not avoided. (ANSI, OSHA) This admonition is not used for situations that pose a risk only to equipment, data, or service, even if such use appears to be permitted in some of the applicable standards. (OSHA)

ALERT! Alerts the reader to an action that ***must be avoided*** in order to protect equipment, software, data, or service. (ISO)

ALERT! Alerts the reader to an action that ***must be performed*** in order to prevent equipment damage, software corruption, data loss, or service interruption. (ISO)

FIRE SAFETY! Informs the reader of fire safety information, reminders, precautions, or policies, or of the locations of fire-fighting and fire-safety equipment. (ISO)

SAFETY! Informs the reader of general safety information, reminders, precautions, or policies not related to a particular source of hazard or to fire safety. (ISO, ANSI, OSHA)

Important Safety Instructions

Safety Admonishments Definitions

Definitions of the safety admonishments used in this document are listed under “Admonishments Used in this Document” on page iv.

Safety and Regulatory Statements

Refer to Section 4154 (provided with your customer documentation) for Safety and Regulatory Statements.

Déclarations de Sécurité et de Réglementation

Reportez-vous à la Section 4154 (fourni avec les documents de votre client) pour les déclarations de sécurité et de réglementation.

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1 Customer Documentation Package

The following documents are provided with your original system.

Installation Manual: Section 6012

User Manual: Section 6013

1.1 Kit Description

The Vertiv™ NetSure™ Dual Voltage Panel Kit, part number 581126000SK010, provides a means to swap a standard 24-position +24V bullet breaker panel in Vertiv power system 581126000ZZ002 with a dual voltage panel that provides sixteen (16) -48V positions and four (4) +24V positions. When completed, the resulting plant will have the same configuration as Vertiv power system 581126000ZZ032.

This document details the installation practice for the 581126000SK010 Dual Voltage Panel Kit.

It is advisable that the procedure be conducted with the power plant shut down (all AC circuits to the rectifiers turned off and battery disconnected). If this is not possible, extra care must be taken due to working with live DC power.

1.2 Tools and Material Required

The materials included with the kit are listed here:

Table 1.1 581126000SK010 Dual Voltage Panel Kit

Qty.	Description	P/N
1	Assy, Dist, (4) +24V Pos, (16) -48V Pos, NS700	581126000JA
2	Busbar, Bullet Brkr Link, Copper	535015
2	Jumper, -48V	553138
6 in.	Sleeving	167537400
8	Screw, 1/4-20 x 5/8"L	227640300
8	Flat Washer, 1/4"	214110100
8	Lock washer, 1/4"	215111100

Prior to performing this procedure, contact the network operation center to inform them that alarms will occur during the procedure.

1.3 Installation Procedure

THESE INSTRUCTIONS SHOULD BE READ THROUGH COMPLETELY BEFORE INSTALLING THE KIT.

1.3.1 Prepare Dual Voltage Panel for Installation

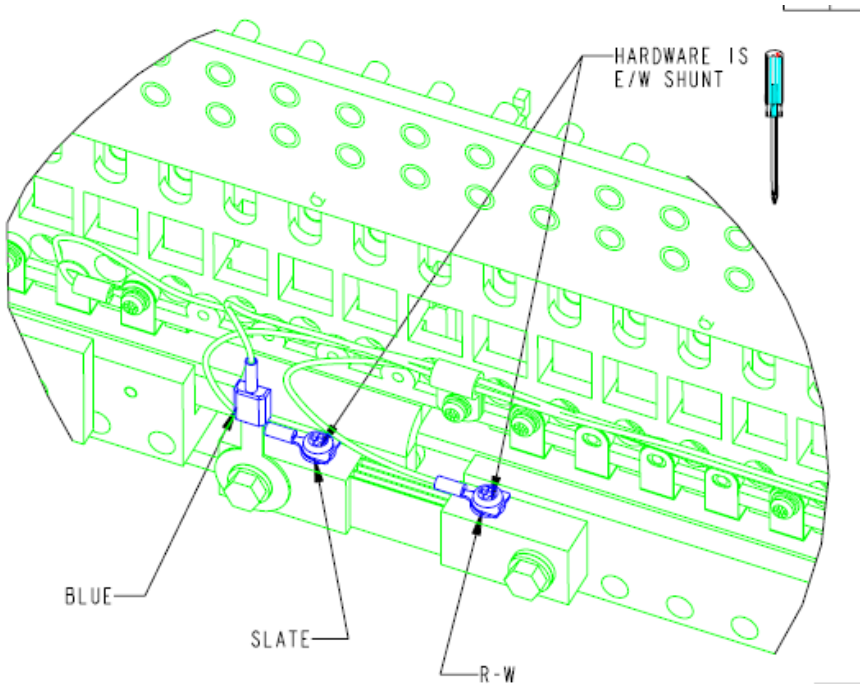
The 581126000JA Dual Voltage Bullet Panel is factory assembled with a shunt to monitor the current to the total -48V load fed from the panel. The existing system, 581126000ZZ002, has an existing dual voltage panel with a shunt. Only one shunt is monitored for total -48V load in the plant. The shunt sense leads in the new panel must be disconnected to prevent the shunt sense signals from being connected in parallel with the existing shunt sense signals. Failure to follow this step would result in erroneous current measurement and perhaps damage to the sense leads.

DANGER! Observe the Important Safety Instructions located at the beginning of this document.
It is very important that this step is performed properly so that the shunt leads are disconnected in the List JA panel to ensure correct output current monitoring of the converter output!

Procedure

[ ] 1. Position the 581126000JA Dual Voltage Bullet Panel (assembly number 509906) on a work surface positioned for access to the rear of the panel. Refer to **Figure 1.1**. Locate the shunt and loosen the screws attaching the shunt sense leads (slate and red-white) as shown in the figure. Pull the sense leads from the shunt and insulate separately with the sleeving provided. Pull the blue lead from the fast-on tab. Tie these leads to the back of the panel. Tighten the shunt sense screws.

Figure 1.1 581126000JA (Assembly 509906) Rear View



1.3.2 Prepare the 581126000ZZ002 Power System for Breaker Panel Replacement

The 581126000AA Bullet panel in the second row (from the bottom) of the existing 581126000ZZ002 power system will be removed and replaced by the new 581126000JA panel. Any +24V loads connected to the existing panel must be reconnected to +24V positions remaining after completion of the swap-out. The final system configuration will have four (4) 24V positions in the first (bottom) row, four (4) 24V positions in the second row and twenty-four (24) 24V positions in the third (top) row.

Procedure

[ ] 1. Ensure that all load cables tied to the middle distribution panel are tagged for identification. Switch off and remove all circuit breakers from the panel. Remove all cables and corresponding return cables from the panel, insulating these cables if the work is being done with the plant live. Reconnect loads with corresponding breakers to the top circuit breaker panel as desired. Be sure that the total actual load drawn through the panel does not exceed 500 amps.

[ ] 2. If cables are tied to -48V positions 15 and/or 16 of the bottom panel in the distribution cabinet, these must be disconnected and moved to unused positions in that panel, along with their associated circuit breakers. If there are no unused -48V positions in the bottom panel, the cables from -48V positions 15 and/or 16 must be disconnected for ultimate connection to the replacement dual voltage panel.

[ ] 3. Once all pertinent cables have been disconnected from the circuit breaker panels the system is ready to swap the middle panel with the previously prepared 581126000JA panel provided with the kit.

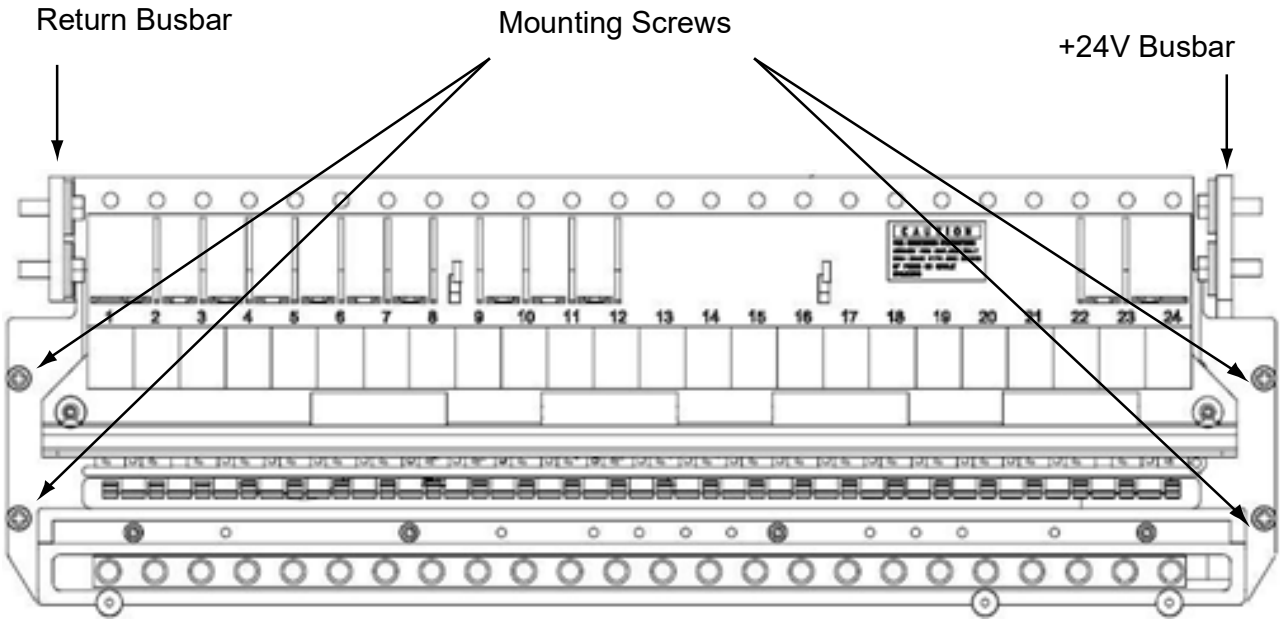
1.3.3 Remove the Breaker Panel to be Replaced

The 581126000AA Bullet panel in the second row (from the bottom) of the existing 581126000ZZ002 power system can now be removed and replaced by the new 581126000JA panel.

Procedure

[ ] 1. Refer to **Figure 1.2**. Retain all hardware. Loosen and remove the four bolts, Bellville washers and flat washers from the +24V Busbar to the middle distribution panel. Loosen and remove the four bolts, Bellville washers and flat washers from the Return Busbar to the middle distribution panel. Loosen and remove the four screws securing the plastic panel to the left and right mounting flanges.

Figure 1.2 581126000AA Front View



[ ] 2. Carefully pull the breaker panel forward from the mounting position. Disconnect the connector on the distribution panel harness from the main system harness. Pull the panel out of the system.

1.3.4 Installing the Dual Voltage Breaker Panel

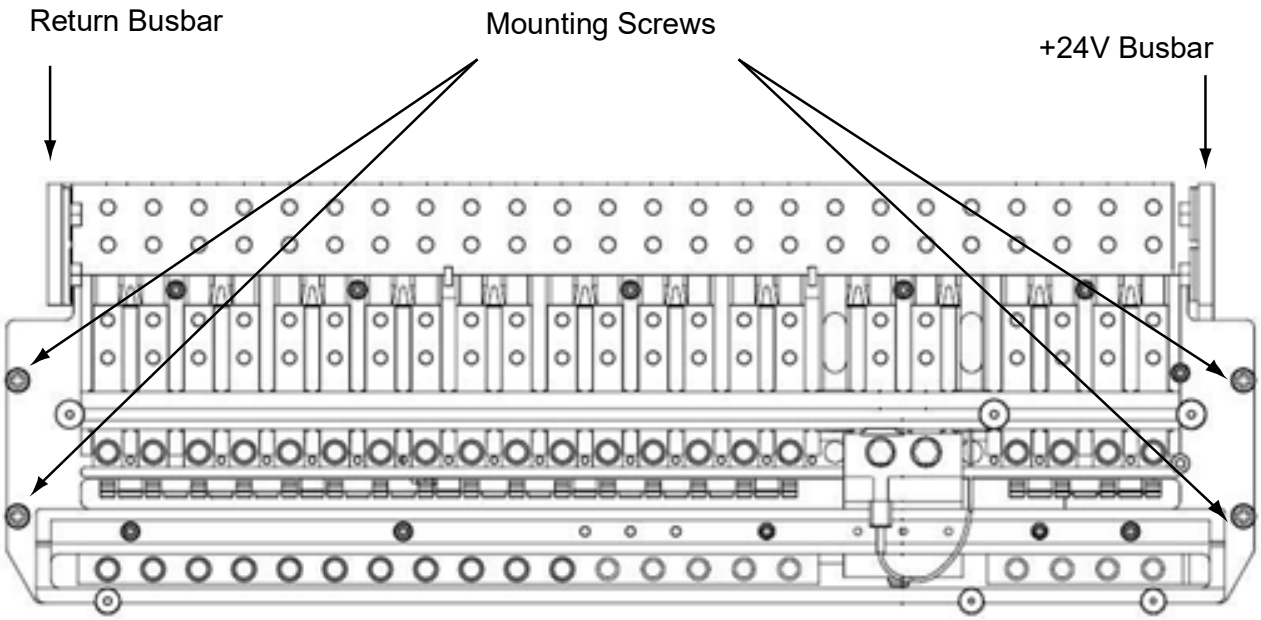
The 581126000JA Bullet panel can now be installed in the second row of the distribution cabinet.

Procedure

[ ] 1. Carefully push the previously prepared 581126000JA dual voltage breaker panel partly into the second row position of the distribution cabinet until the connector on the dual voltage panel harness can be mated to the connector in the main system harness. Mate the two connectors. Push the panel fully into place and mount with the four screws (two per side) retained from the previous step. Do not tighten fully. Refer to **Figure 1.3**.

[ ] 2. Secure the Return Busbar of the 581126000JA panel to the Return Busbar of the distribution cabinet using the four bolts, Bellville washers and flat washers removed in the previous step. Do not tighten. Secure the +24V Busbar of the 581126000JA panel to the +24V Busbar of the distribution cabinet using the four bolts, Bellville washers and flat washers removed in the previous step. Tighten all eight bolts to 60 in-lbs. Tighten the four mounting screws to 30 in-lbs.

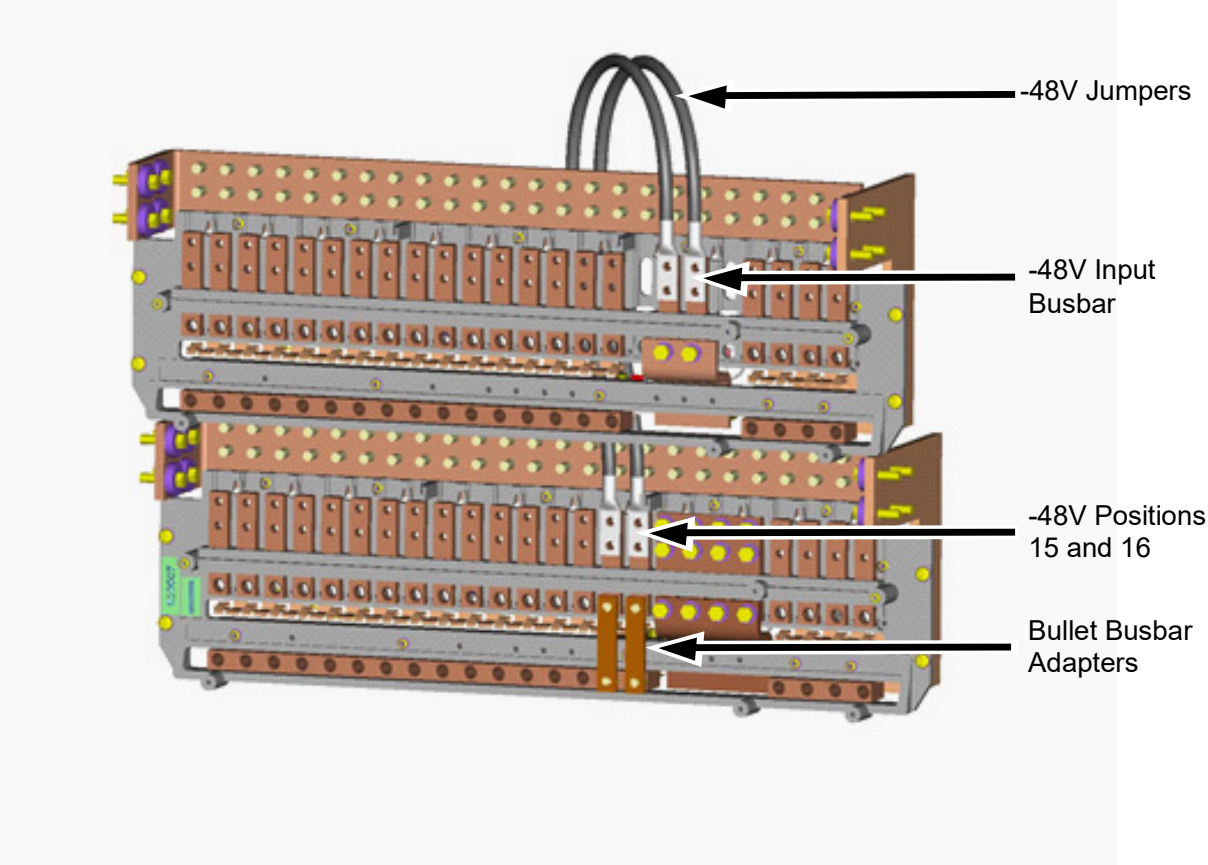
Figure 1.3 581126000JA Front View



[ ] 3. Refer to **Figure 1.4**. Insert the bullet breaker link busbars provided with the kit into positions 15 and 16 of the bottom breaker panel. Route and connect the two -48V Jumpers provided with the kit from -48V positions 15 and 16 of the bottom breaker panel to the -48V input busbar on the new dual voltage panel in the second row. Refer to **Figure 1.4**. Use the 1/4-20 x 5/8" bolts, lock washers and flat washers provided with the kit. Torque to 72 in-lbs on positions 15 and 16. Torque to 84 in-lbs on -48V input busbar.

[ ] 4. Relocate all +24V and -48V DC load connections and returns and their corresponding breakers to desired available breaker positions. Torque all lug connections to 72 in-lbs. The maximum allowable -48V load on the new dual voltage panel is 200 amps. Be sure that the total actual -48V load on the new panel will not exceed 200 amps. The maximum allowable -48V load on the existing (bottom) dual voltage panel is 500 amps. Be sure that the total actual combined -48V load on the existing panel and the new panel will not exceed 500 amps. The system is now ready for power up.

Figure 1.4 Dual Voltage Panel Connections



1.4 Checking System Operation

The system should be checked for correct performance of the installation procedure.

Procedure

Reconnect the battery and turn on all AC input breakers to the rectifiers. After a few moments, verify that the controller display reads "SYSTEM OK". If any alarms are present use the navigation menu to investigate. If necessary, make corrections to the system to clear all alarms.

Insert an Electrical/Mechanical trip alarm breaker into an unused -48V position of the new panel and switch it off. Verify that the MAJOR alarm LED on the front of the system flashes red and that the controller display reads "1 ALARM ACTIVE". Press the ENTER pushbutton on the controller keypad and verify that the display reads "SUBSYSTEM FA". Turn the breaker on and verify that the alarm clears.

Move the breaker to an unused +24V position of the new breaker panel and switch it off. Verify that the MAJOR alarm LED on the front of the system flashes red and that the controller display reads "1 ALARM ACTIVE". Press the ENTER pushbutton on the controller keypad and verify that the display reads "SYSTEM FA". Turn the breaker on and verify that the alarm clears. Remove the breaker.

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